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Resource Management Plan for the Red-tail Ridge Open Space

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1. INTRODUCTION

1.1 Purpose and Objectives of the Plan

The 320-acre Red-tail Ridge Open Space (Figure 1) was acquired in 2000, with the intent to protect the native vegetation and wildlife populations, preserve scenic views, and provide outdoor recreational opportunities. This property was purchased in part with funds from Great Outdoors Colorado (GOCO), and therefore, is subject to a deed restriction held by both the State Board of the Great Outdoors Colorado Trust Fund and the Larimer Land Trust. This deed restriction has specific requirements and allows certain rights to the Board and the Land Trust, which are explained in section 2.4a of this plan.

The initial focus (phase I) of the Resource Management Plan for the Red-tail Ridge Open Space is on the natural resource management of the land rather than the outdoor recreational management until an agreement is negotiated between Boulder and Larimer counties to connect the Rabbit Mountain Open Space to Red-tail Ridge Open Space with a non-motorized regional trail. Once an agreement has been negotiated and an easement secured to connect the two open spaces via a regional trail, then this Resource Management Plan will be updated to include outdoor recreation management (phase II).

The purpose of this document is to: 1) examine the management objectives for the Red-tail Ridge Open Space given the current ecological, social, economic and political environment; 2) provide the formal program and policy guidelines that will direct the management and use of the Red-tail Ridge Open Space well into the future; and 3) develop specific implementation strategies for carrying out various components of the management effort. The overall objectives of the plan are to:

- Protect, manage and enhance natural, geologic, cultural, and visual resources including maintaining and promoting healthy ecosystems and their processes;

- Provide educational opportunities regarding the values of the surrounding natural, geologic, cultural and visual resources and the importance of responsible use and stewardship of the land;

- Define stewardship implementation programs and responsibilities for the above goals as well as provide specific implementation steps where appropriate.

1.2 History

The property is part of one of the oldest working cattle properties in the Berthoud area. The original homesteader, Dave Lykins, was a descendant of Pocohontas. Having grown up in Indiana, in 1859 Dave Lykins drove a herd of cattle across the plains to a location near Cherry Creek in Denver City. Finding Denver too crowded, he moved his stock north to what is now called Lykins Canon, southwest

of present Longmont. In time, his ranch proved too small and moving to the Little Thompson region west of Berthoud enabled Dave Lykins to go into a much larger scale cattle business. At one point his ranch covered 2500 acres. In 1880, Dave Lykins and Ann Gilman Keen were married and they had one daughter. Ann Lykins eventually became known as the "land and cattle queen of the Columbine State" because of their accrued wealth (Boyles 1968).

Some history is missing after the Lykins ownership, but the Edmonds Family and the Harvey Family both owned the land at different points and used it for cattle grazing as well. In conjunction with irrigated hay meadows on the adjoining property in Boulder County, the land has been managed by the Parrish family for cattle grazing since 1960. Leo and Tressie Parrish, dryland farmers from Texas, moved to Boulder, Colorado in 1947 and owned and managed a motel called the "Rocky Mountain". After they sold the motel in 1960, they bought 2100 acres in the Little Thompson Valley to manage for livestock grazing. While both Leo and Tressie both worked on the ranch, she refused to live there, and so with the help of their sons, they built a flagstone house on Hwy 66. In 1969, Leo Parrish had a heart attack and died while pulling a calf at the ranch. The next year, two of their four children (Jesse and Vaughn) bought the ranch from Tressie. Jesse managed the ranch, while Vaughn ran a square dancing center on the property. Jesse Parrish married Donna Thomas in 1958 and they built a log home on the ranch and had two daughters. In May 1999, Jesse and Vaughn divided the ranch between them, Jesse keeping the portion in Larimer County, and Vaughn keeping the portion in Boulder County (Parrish, Pers. Comm. 2000).

In May 2000, the Larimer County Open Lands Program in partnership with several organizations and agencies purchased 320 acres of the original Parrish ranch from Jesse Parrish to protect wildlife habitat, an important plant community, and the ridgeline scenic backdrop, as well as to provide non-motorized outdoor recreational opportunities in southern Larimer County.

1.3 Scope and Organization of the Plan

The resource management plan for the Red-tail Ridge Open Space contains three major sections: 1) a review of existing conditions, including natural, visual, cultural, and socioeconomic resources; 2) a discussion of opportunities, constraints, and planning issues related to management of the area; and 3) a management plan addressing existing conditions, opportunities, constraints, and planning issues.

1.4 Organization and Agency Involvement

Organization and agency involvement was utilized to ensure representation of various involved organizations, agencies and resource specialists. The draft resource management plan was reviewed by Open Lands Staff and various specialists to ensure resource expertise input. In addition, adjacent landowners were contacted and had the opportunity to discuss issues and review the draft plan.

Name	Affiliation	Expertise
K-Lynn Cameron	Larimer County Parks and Open Lands	Open Lands Manager/ Outdoor Recreation and Planning
Frank Ethridge	Colorado State University	Professor/Geology
Meegan Flenniken	Larimer County Parks and Open Lands	Open Lands Natural Resource Specialist
Charlie Gindler	Larimer County Parks and Open Lands	Regional Trails
Maxine Guill	Larimer County Parks and Open Lands	Weed Specialist
Sharlene Haeger	Colorado Division of Wildlife	District Wildlife Manager
Brian Hayes	City of Loveland Natural Areas Program	Program Manager
Kenneth Jessen	Lifelong member Colorado Railroad Museum and the Colo. Historical Society	History
Charlie Johnson	Larimer County Parks and Open Lands	Land Agent
Milan Karspeck	Town of Berthoud	Mayor
Rich Koopman	Boulder County Open Space	Resource Planning Manager
Jim Reidhead	Larimer County Planning	Rural Land Use Program
Travis Rollins	Larimer County Parks and Open Lands	Open Lands Ranger and Maintenance Worker
Renee Rondeau	Colorado Natural Heritage Program	Ecology/Plant Communities
Tony Simons	Larimer County	Wildfire Safety Coordinator
Alisa Wade	Larimer Land Trust	Director
Jerry Westbrook	N. Colorado Water Conservancy District	Head, Land and Water Contract Services Branch
Ken Woods	Larimer County Parks and Open Lands	South Manager Parks and Open Lands Areas
Joel Wykoff	Larimer County Parks and Open Lands	Trails and Weeds

2. EXISTING CONDITIONS

2.1 Overview

The Red-tail Ridge Open Space comprises 320 acres of rocky hillslopes and a prominent ridgeline north of the Larimer/Boulder county line. This property boasts important natural foothills habitat, and provides an important scenic backdrop and recreational opportunities for residents and visitors in southern Larimer County. This property was ranked from high to a very high priority open space in the Little Thompson River Corridor Study (Western Ecological Resource 1998) and contains three of the five priority significance factors: 1) Severe elk winter range; 2) Colorado Natural Heritage Program Site; and, 3) Significant landscape. The fourth and fifth significance factors, riparian corridor and historic golden eagle nest site respectively, are not included on the property but are both adjacent to the southwest.

2.2 Natural Resources

a. Climate

Red-tail Ridge Open Space is located along the eastern slope of the Rocky Mountains and has a highly variable climate. In general, the climate can be characterized as semi-arid with a strong seasonal variation in temperature, abundant sunshine and relatively low precipitation. The data presented below are averages since 1931 recorded at the Waterdale Climate Station, (approximately 6 miles northwest of the property, off the Masonville Road) which is at an elevation of 5200 ft., approximately the same elevation as Red-tail Ridge Open Space (Colorado Climate Center 1999).

The average maximum daily temperature (Fahrenheit) is approximately 80 degrees during May through September and approximately 86 degrees in July and August. Winters are generally cold but are characterized by substantial temperature swings. January is the coldest month with an average daily maximum of 42.8 degrees and an average daily minimum of 13.5 degrees. However, high temperatures in the 50's are not uncommon even in the winter months.

Average annual precipitation is 15.8 inches, with the greatest amount occurring in May. Summer afternoon thunderstorms have the potential to cause erosion problems at Red-tail Ridge. Average annual snowfall is approximately 45 inches, but as a result of wind redistribution and topographic patterns, the snow depth can vary throughout the site.

b. Topography/Geology/Soils

The Red-tail Ridge Open Space has steeply sloped topography, ranging from approximately 5400 ft. in elevation to nearly 6000-foot tall rocky hogbacks. The hogbacks generally mark the transition from the plains to the foothills of the Rocky Mountains. The hogback unit is geologically characterized by the

Morrison Formation, which forms the highest ridge on the property, and consists of claystone, siltstone and sandstone. West of the hogback ridge, the property slopes down toward a relatively flat valley called Meadow Hollow. Within this valley the are Colluvium and Alluvium (Qc – Quaternary) of poorly sorted silt, clay , sand, gravel and boulders deposited by sheet wash, debris flows and concentrated surface flows in intermittent streams. East of the ridgeline the property slopes down towards the St. Vrain Canal. Located in this east central portion of the property is a Quaternary Landslide Deposit (Qls) which includes slumps and earthflows composed of clay, silt, sand, and rock falls and the Qc (Quarternary colluvium and alluvial deposits) (Braddock et. al 1988).

The geologic formations from west to east across Red-tail Ridge Open Space include (from oldest to youngest) the Lykins Formation (Triassic and Upper Permian), the Jelm Formation (Triassic) and Sundance Formation (Jurassic) mapped together, the Morrison Formation (Jurassic), and the Lytle and Plainview Sandstone Formations (lumped as South Platte Formation of the Dakota Group) (Ethridge 2001). The property lies at the southeast end of the Blue Mountain Fault, which likely contributed to the formation of the valley the Little Thompson River runs through (Chapel 2000).

Red-tail Ridge Open Space contains a mosaic of soils. The dominant soils listed in the *Soil Survey of Larimer County Area, Colorado* by the USDA-SCS, include the following (Moreland 1980):

Haplustolls-Rock outcrop complex, steep (Map symbol 45): The northwestern and eastern portions of the property are characterized by this soil type. The complex consists of strongly sloping to steep soils and Rock outcrop. Runoff is medium to rapid and the hazard of erosion is moderate to severe.

Baller-Rock outcrop complex (15-45% slopes) (Map symbol 12): The eastern side of the ridgeline hogback is composed of this soil type. This complex consists of strongly sloping to steep soils on ridges and "hogbacks". Runoff is rapid and the hazard of erosion is severe.

Rock outcrop (Map symbol 93): The western portion of the ridgeline hogback is composed of this soil type. The complex is bare or nearly bare rock, including areas of shallow and very shallow soils mainly around the edges. Runoff is rapid and the hazard of water erosion is severe both within the complex and in adjacent areas that receive runoff.

c. Hydrology

As a result of the steep topography of the area, surface runoff and drainage are adequate. There are no wetlands or reservoirs on the property. The Little Thompson River runs to the southwest of the property, providing an important water source and riparian habitat, and is the only major river in northern Colorado that is not paralleled by a paved road. The St. Vrain Supply Canal runs adjacent to the east of Red-tail Ridge Open Space.

d. Vegetation

Vegetation communities present within Red-tail Ridge Open Space include needle-and-thread/blue grama (*Stipa comata/Bouteloua gracilis*) grassland, and mountain mahogany/skunkbush (*Cercocarpus montanus/Rhus trilobata*) shrubland. Vegetation communities are shown on Figure 2.

Mountain Mahogany/Skunkbush Shrubland. Mountain mahogany (*Cercocarpus montanus*) and skunkbush (*Rhus trilobata*) occur over large portions of Red-tail Ridge Open Space with moderate to steep slopes and shallow soils. While this shrubland community is dominated by mountain mahogany and skunkbush, it also contains other shrub species such as wax currant (*Ribes cereum*), winterfat (*Ceratoides lanata)*, snakeweed (*Gutierrezia sarothrae*), and rabbitbush (*Crysothamnus nauseosus*), as well as patches of ponderosa pine (*Pinus ponderosa)* and juniper (*Juniperus scopulorum*) woodlands. The herbaceous shrub understory consists of various grass and forb species including silver sage (*Artemisia frigida*), blue grama (*Bouteloua gracilis*), yucca (*Yucca glauca*), Indian ricegrass (*Oryzopsis hymenoides*), big bluestem (*Andropogon gerardii*), and prickly-pear cactus (*Opuntia polyacantha*).

Needle-and Thread/Blue Grama Grassland. The needle-and-thread (*Stipa comata*) and blue grama (*Bouteloua gracilis*) grassland contains many grass and forb species including three-awn (*Aristida purpurea*), silver sage, wild buckwheat (*Eriogonum effusum*), scurfpea (*Psoralea tenuiflora*), sunflower (*Helianthus* sp.), globemallow (*Sphaeralcea coccinea*), western wheatgrass (*Agropyron smithii*), Indian ricegrass, green needlegrass (*Stipa viridula*), prairie junegrass (*Koeleria macracantha*), yucca, prickly-pear cactus, Drummond's milk vetch (*Astragalus drummondii*), and hairy golden aster (*Aster sp*.).

Endangered and Threatened Species. Bell's twinpod (*Physaria bellii*) can be found on a portion of the property (Figure 2). This globally imperiled species (G2) is found on the red sandstone slopes predominantly on the west side of the ridgeline as described for the Meadow Hollow site in the Colorado Natural Heritage Program report, *Significant Plant, Animal, and Wetland Resources of Larimer County and Their Conservation* (Kettler et al. 1996). The occurrence of Bell's twinpod at Red-tail Ridge Open Space encompasses approximately 175 acres, of which, about 100 acres is on Red-tail Ridge Open Space. This specific location is of great importance because the substrate is red sandstone, and there are only three other known locations of Bell's twinpod on this substrate. However, the number of individuals found here are lower than many of the other known sites.

Exotic Plants and Noxious Weeds. Some exotic plants have become established as a result of historic land use including grazing and natural introductions from surrounding areas. Known exotics in Red-tail Ridge Open Space include smooth brome (*Bromus inermis*), Japanese brome (*Bromus japonicus*) cheatgrass (*Bromus tectorum*), mule ear mullein (*Verbascum thapsus*), gumweed (*Grindelia squarrosa*) , diffuse knapweed (*Centaurea diffusa*), white horehound (*Marrubium vulgare*), and dalmation toadflax (*Linaria genistifolia*). While all of these exotics are actively monitored and controlled by the Open Lands Program, diffuse knapweed and dalmation toadflax are regulated by Larimer County. Most of these exotic species are found near the access road in the southwest portion of the property and adjacent hillslope. A small number of dalmation toadflax have established on the southeast slope of the property.

e. Wildlife

Wildlife species that utilize the property include elk, mule deer, foxes, coyotes, raptors, black bear, songbirds, reptiles, amphibians, rabbits, and other rodent species. See Appendix A, Table 1 for a list of potential mammal species on the property. The majority of Red-tail Ridge Open Space (northern 2/3 of the property) includes a mule deer winter concentration area. The southern 1/3 of the Property provides elk severe winter range. The elk severe winter range is defined as that part of the range where 90% of the individuals are located when the annual snowpack is at its maximum and/or temperatures are at a minimum in the two worst winter out of ten (Western Ecological Resource. Little Thompson Corridor Study 1998). Additionally, the Red-tail Ridge Open Space is adjacent and to the northeast of an historic golden eagle nest site that lies on portions of Rabbit Mountain Open Space and private lands. If the site is active, it is likely that Red-tail Ridge Open Space provides hunting and perching grounds for these raptors.

2.3 Visual Resources

Red-tail Ridge Open Space includes one mile of the hogback ridgeline, which is a prominent landform and visual landmark of this area. This hogback ridgeline is visible from the east and serves as the foreground for views of Longs Peak from the Town of Berthoud, Highway 287, and Interstate 25. Additionally, the property provides a buffer and scenic corridor to the north from the already protected Rabbit Mountain Open Space in Boulder County. In the Little Thompson River Corridor Study conducted in 1998, this hogback is rated as having high visual sensitivity, indicating that changes within the landscape would be intrusive or highly visible to the general public.

2.4 Socioeconomic Resources

a. The Red-tail Ridge Open Space Land Status

The Red-tail Ridge Open Space consists of approximately 320 acres within the foothills west of the Town of Berthoud. In 2000, the Parrish property was purchased by the Larimer County Open Lands Program, in partnership with several agencies and individuals. Larimer County Open Lands Program contributed $286,500, a $260,000 grant (submitted by Larimer Land Trust) was awarded from Great Outdoors Colorado, the Town of Berthoud contributed $51,000, the Larimer Land Trust contributed $4000, and towards the purchase of the western 240 acres, $360,000 was donated by Curt and Jennifer Heckrodt (adjacent landowners).

Since this property was purchased in part with funds from Great Outdoors Colorado (GOCO), it is therefore subject to a deed restriction held by both the State Board of the Great Outdoors Colorado Trust Fund and the Larimer Land Trust, referred to as the "GOCO Board" and the "Land Trust" respectively. This deed restriction has specific requirements and allows certain rights to the GOCO Board and the Land Trust which are explained in section 2.4.a of this plan including:

- The Red-tail Ridge Management Plan must be submitted for review to the GOCO Board and the Land Trust. The Land Trust may review the plan and make recommendations to the GOCO Board, which has the authority to approve or disapprove the plan.
- Larimer County must do an internal review of the plan every 5 years and update the management plan every 10 years.
- The GOCO Board and the Land Trust have the right to inspect the property and can require correction of any violations.
- Larimer County will annually provide to the GOCO Board and the Land Trust a written update on the condition of the property to verify that it is being managed and maintained appropriately.

Trails
Currently, there are no established or designated trails

Roadways and Parking
The main access road into Red-tail Ridge Open Space passes through the property to the east of the Red-tail Ridge Open Space. An approximately 1.2-acre parcel of land for a trailhead and parking area has been donated by the owner of the property to the east off of CR 4 (CR 27E). Two overgrown roads are still slightly visible on the east side of the property. One old road begins at a bridge crossing over the canal and heads northwest 2000 feet up the hillslope from the canal. The second old road runs northwest across the property from the canal to the ridgeline where it dead ends (Figure 2).

Fences
Currently there is an existing fence on both the north and east boundaries of the property.

Canal
The Northern Colorado Water Conservancy District (NCWCD) owns and operates the St. Vrain Supply Canal that runs along the eastern boundary of the property. Larimer County Open Lands Program is currently negotiating a crossing easement with the NCWCD, enabling a future regional trail connector to cross the canal near the siphon at the north end of the property. This crossing would be used for future trail access, and emergency and maintenance vehicle access only. Figure 3 denotes the location of the St. Vrain Supply Canal and approximate crossing site.

Water and Mineral Rights
There are no water rights associated with this property. Half the mineral rights are owned by Larimer County while the remaining half were severed by the former landowner and sold to the First Bank of Wichita. Mineral rights have been assessed through a geological remoteness study, which determined that the likelihood of development of any mineral rights is extremely small and the only mineable resource is moss rock (Chapel 2000).

Agriculture

The site has been grazed in the past, however, there are currently no grazing or agricultural leases held. Several stacked stone walls once used as fences on the property remind the visitor of past grazing practices.

b. Adjacent Land Use

Surrounding lands are privately held, consisting mainly of low-density rural and residential neighborhoods. Adjacent land uses are labeled on Figure 3.

Parrish Property Conservation Easement

A 70-acre conservation easement is held by the Larimer Land Trust but remains in private ownership (Jesse and Donna Parrish) on the eastern side of the St. Vrain Supply Canal. The conservation easement extends from the northern to the southern end of Section 34 and west to the Red-tail Ridge Open Space boundary (on the east side of the canal). The conservation easement reserves two, 5-acre homesites that the Parrishes may retain or sell in the future. A trail easement has been granted to Larimer County across the northern tip of the conservation easement for hiking, biking, horseback riding and non-motorized vehicle use. Motorized vehicles can be used periodically for maintenance and emergency access. The 70-acre parcel will be managed by private landowners primarily for residential use along with wildlife habitat and the potential for agricultural use.

Adjacent Properties

Properties to the north include rural land that has been divided into 35-acre parcels, including several ridgeline homes. To the east is a privately owned 80-acre property and another 640-acre privately owned property, which was formerly mined and has been reclaimed into native grassland. Approximately 15-acres of land of this 640-acre property has been donated to Larimer County for a trailhead/parking area and two trail easements. Additionally, there are properties to the east (80 acres) and northeast (320 acres) that have been submitted for potential development through the Larimer County Rural Land Use Center. To the south, across the Larimer/Boulder county line, is private land held by Vaughn Parrish used for irrigated pasture and grazing and the 1,479-acre Rabbit Mountain Open Space owned and managed by Boulder County Open Space. Protection of the Vaughn Parrish Property (360 acres) with a conservation easement by Boulder County is under negotiation. On the west side of the Red-tail Ridge Open Space lies private lands held in large acreages, including 240 acres owned by Curt and Jennifer Heckrodt.

c. Access, Circulation and Traffic.

Road systems in the region provide good access to the Red-tail Ridge Open Space. Interstate 25, the major north/south artery through Colorado's Front Range, links with US Highway 56 through the Town of Berthoud. Access to Red-tail Ridge Open Space is on a dirt access road off of CR4/27 (see Figure 1). Ingress and egress along this dirt access road was donated at the same time that the future trailhead/parking area and trail easements were donated by the landowner to the east. The donation for a future trailhead/parking area and trail access easements include a 1.2 acre parking area off of the

access road, approximately 300 ft. from the CR 27/CR 4. This trailhead/parking area would enable parking for approximately 15 cars and 5 horse trailers.

Access to the western portion of the property is via an access road that crosses the Vaughn Parrish Ranch to the south of Red-tail Ridge Open Space. This access road crosses through Red-tail Ridge Open Space and adjacent private lands as it heads north on the western side of the Open Space property. While Larimer County does not own this road, access rights were included in the purchase of the property.

d. Public Facilities, Utilities and Services

Currently, in its undeveloped state, there are no public facilities or utilities available. However, fire protection and public safety services are available.

Fire protection. Fire protection is ultimately the responsibility of the Larimer County Sheriff's Department. Red-tail Ridge Open Space, however, is also served by the Loveland Rural Fire Protection District.

Public safety. The Larimer County Sheriff's Department is responsible for law enforcement. Larimer County Parks and Open Lands staff are responsible for the education and enforcement of Red-tail Ridge Open Space regulations. Parks and Open Lands Rangers assist the Sheriff's Department and other law enforcement agencies in responding to and preventing criminal activity on the open space. On a limited basis, Parks and Open Lands staff may also be available to provide visitor assistance and emergency and medical needs. The Thompson Valley Ambulance Service responds to more serious medical emergencies, while rescues and searches are conducted by the Larimer County Search and Rescue team of the Sheriff's Department.

e. Operations Budget and Funding

The Red-tail Ridge Open Space operations and capital improvement projects will be funded through Help Preserve Open Space sales tax dollars. Based on a management costs study conducted in 2000 by the Larimer County Open Lands Program, annual management costs for this area are anticipated to be $6400 prior to development of a trailhead and trail. Pending an agreement to connect a future trail on the Red-tail Ridge Open Space to Boulder County or Carter Lake then there will be a trail and trailhead developed and annual maintenance costs would be projected to be $32,000. It is possible that in the future, with development of a trail and trailhead, there may be a user fee assessed for use of the Red-tail Ridge Open Space to help offset maintenance and management costs.

3. OPPORTUNITIES, CONSTRAINTS AND PLANNING ISSUES

3.1 Overview

During development of phase I of the Red-tail Ridge Open Space management plan, input will be received from Parks and Open Lands staff and a technical advisory group concerning opportunities, constraints and planning issues in regards to the current existing conditions and management of Red-tail Ridge Open Space. These issues may be divided into two key components: 1) natural resources and 2) environmental education.

3.2 Natural Resource Opportunities, Constraints and Planning Issues

- *Protect, manage, and enhance natural, cultural, and visual resources including maintaining and promoting healthy ecosystems and their processes*.

Natural resource opportunities include:

- Protecting additional lands via conservation easement along the Little Thompson River adjacent to Red-tail Ridge Open Space to help buffer the important riparian habitat in this area.
- Maintaining the natural communities (grassland and shrubland health) of the property, which will enable the continued use of the area by wildlife such as elk, mule deer, raptors, migratory songbirds, reptiles, amphibians, etc.
- Protecting and maintaining the imperiled Bell's twinpod population located on the property.

Constraints and planning issues associated with the natural resources of the property include the following:

- Rattlesnake habitat may be disturbed and conversely rattlesnake/visitor interactions may be a safety concern.
- Additional fencing in the area may prove detrimental to wildlife such as young deer or raptors utilizing the area.
- Un-guided access may cause adverse affects to the Bell's twinpod population if it is trampled or people congregate there.
- Exotic species should be monitored and controlled to prevent adverse affects to the imperiled Bell's twinpod plant community and native plant communities on the property.
- Hunting may be an important tool to help control disease and numbers of elk and deer on the property.
- Hunting or shooting on the site may disturb sensitive wildlife and be a safety issue for adjacent landowners and the public.

- Adjoining neighbors may create unauthorized social trails without adequate access points and thereby impact the natural environment.

3.3 Environmental Education Opportunities, Constraints and Planning Issues

- *Provide and enhance educational opportunities regarding the natural and cultural history and visual resources and the importance of responsible land use and stewardship.*

Environmental education opportunities include:

- Providing information about the ecology, history, and Open Lands stewardship of this area through guided visits.
- Providing the opportunity for visitors to experience a foothills environment and see this unique site with a guide.
- Providing information regarding raptor and wildlife habitat sensitivities and needs in order to minimize negative user/wildlife interactions.
- Expanding the County's volunteer naturalist program to include this area.

Constraints and planning issues regarding environmental education are:

- Use of the area by large groups that are not accompanied by a ranger or open lands staff (e.g., commercial horseback riding trips, commercial tours, etc.) may cause resource damage to the area.

4. MANAGEMENT PLAN

4.1 Overview

To meet the purpose and objectives of the Red-tail Ridge Open Space Management Plan and to address the opportunities, constraints and planning issues, the plan is divided into two main components: 1) natural resource management; and 2) education opportunities. These two components, while addressed separately, are interrelated and will likely impact and influence each other. Implementation steps are presented for each area. In addition, a summary of implementation steps and recommended timing is presented.

Larimer County is working with Boulder County to determine when a regional trail connection from Rabbit Mountain Open Space in Boulder County to the Red-tail Ridge Open Space could be completed. Pending an agreement between both Counties and successful negotiations to create this regional trail connection, this management plan which is phase I of the project will be expanded to include recreational management (phase II) on the Red-tail Ridge Open Space.

Overall Vision. Larimer County's vision for the Red-tail Ridge Open Space is for protection of scenic, natural, wildlife habitat and significant vegetation community resources in southern Larimer County. This land will be protected from development for future residents of Larimer County to enjoy its many visual and natural resources as well as recreational values. Pending successful negotiation of a regional trail connection to Boulder County's Rabbit Mountain Open Space, Red-tail Ridge Open Space will be managed for ecosystem health including both native vegetation communities and wildlife. Specifically the management focus will include regular management of noxious weed species and patrols by a Parks and Open Lands ranger. Public visits to the site will be possible on a scheduled basis with a ranger in groups to explore the natural and cultural resources on the property.

Visitors and the local community passing along Hwy 287 and other county roads will enjoy the undeveloped vista that this ridgeline provides to the west and as the first segment of the mountain backdrop as one enters Larimer County. The local community, including the town of Berthoud in particular, can continue to enjoy this protected ridgeline vista and its natural surroundings.

The future outdoor recreational vision is for the creation of a regional trail that would link the south end of the property to Boulder County's Rabbit Mountain Open Space and the north end of the property with a future regional trail to Carter Lake. This proposed trail would be a natural surface design that follows the contour of the hillslope, towards the base of the hill. This trail would be laid out with an emphasis on respecting and protecting sensitive wildlife and geologic features while enabling visitors to enjoy the magnificent natural beauty of this property. Recreation opportunities on the trail may include hiking, running, wildlife viewing, mountain biking, horseback riding and scenic enjoyment of long vistas. It is anticipated that Larimer County will work very closely with Boulder County to determine appropriate uses as the trail connects to the south as well as on an appropriate timeline for trail initiation

and completion. Pending this connection, the focus of management will be on sustaining ecosystem health including the health of the plant and wildlife communities. (Phase II of the Red-tail Ridge project will address issues related to public access on the property).

Future management once the trail is completed, will emphasize low-impact recreation while protecting natural resource values such as native vegetation communities. Stewardship will include patrol of the open space on a regular basis to educate visitors and ensure the property is clean and in good condition, continued management of weeds to protect the native vegetation community, developing the trailhead as well as any additional resource or visitor management needs that arise. Educational activities will allow visitors to learn about the native flora and abundant fauna as well as adjacent land use activities in the immediate area. Additionally, visitors can learn how they can protect this valuable natural resource and actively participate in such programs as volunteer rangers, nature hike leaders, weed patrol and trail maintenance and construction

4.2 Natural Resources Management

Natural resources management addresses the health and dynamics of the plant and animal communities and the preservation of natural features and scenic vistas of the Red-tail Ridge Open Space. For purposes of this plan, natural resources management is grouped into three categories: a) vegetation health and management; b) wildlife management; and c) hydrology and erosion management.

a. Vegetation health and management.

The management of vegetation health is important for ensuring sustainability of the landscape. Since plant communities are dynamic and changes in vegetation composition occur over time, vegetation at the Red-tail Ridge Open Space will be managed to allow for natural plant community changes to take place. Therefore, this plan outlines basic guidelines and alternatives for managing the natural communities at the Red-tail Ridge Open Space.

This section on vegetation health and management identifies practical management alternatives and strategies for maintaining the native plant communities and system functions and reducing the impact of non-native species at the Red-tail Ridge Open Space. Sustainability of native plant communities is highly dependent on natural processes that have established these communities. Therefore, potential management tools include the use of grazing or prescribed burning in these communities to maintain community health. Proper management depends on grazing and burning plans remaining flexible and changes made based on current conditions rather than pre-determined programs. Pre-determined programs do not account for changes in conditions such as drought, fire, etc. This plan will also address issues related to rare species on the site, sensitive wildlife, non-native plant species, and other features. The management of non-native plant species is closely intertwined with maintaining native plant health and will be addressed in depth in the Integrated Pest Management Plan for the Larimer County Open Lands Program (Larimer County 1999). Additionally, visitor education for protecting and managing vegetation communities will be an important component to long-term sustainability of ecosystem health.

1. Stewardship History

Red-tail Ridge Open Space was used for cattle and horse grazing over the past 100 years. Currently, populations of grazing elk and mule deer frequent the property. While the specific fire history is unknown at this site, in general, fires were frequent components in the natural disturbance regimen of most grasslands.

2. Goal

To preserve and maintain native plant communities, protect rare species, and restore native vegetation in suitable areas.

3. Objectives and Implementation Steps

3.1 *Objective*: Evaluate baseline conditions and future potential impacts and effectiveness of land management techniques.

Implementation Steps:

- Divide the land into management areas based on vegetation, wildlife, and recreation resources.
- Inventory and monitor native vegetation.
- Add Red-tail Ridge Open Space to the Integrated Pest Management Plan.
- Inventory and monitor noxious and non-native invasive weed populations.

3.2 *Objective:* Preserve and maintain native plant health using or simulating natural processes when necessary and where possible.

Both grazing and prescribed fire are management alternatives that may be carried out singularly or in combination. Timing, weather conditions, the political climate, and logistics will determine the feasibility of implementing these alternatives. Limitations do exist to both grazing and prescribed burning.

POTENTIAL MANAGEMENT TECHNIQUES

Grazing Management

Purpose: To promote vegetative health and vigor (i.e. control of non-native species, increase vegetation yields, improve wildlife habitat, increase forage availability) and reduce fire danger.

Large ungulates and other herbivores were once present at the Red-tail Ridge Open Space. Currently, elk and mule deer are present on the property. Plant communities have evolved with and adapted to grazing, and proper grazing management of domestic livestock may be used to mimic native herbivores. This property lies in the NRCS determined shallow and rocky foothill range sites. The presence of mountain mahogany, big bluestem, little bluestem, Griffith wheatgrass, western wheatgrass, blue grama, needle-and-thread, and side-oats grama as dominant species in these two range sites at

the Red-tail Ridge Open Space is considered an indication of good vegetation condition (Moreland 1980). Limitations to grazing might include: water availability, rare species, public sentiment, leasee availability, and fencing.

Rotationally graze management areas at a moderate stocking rate during the spring (warm season) or fall (cool season). Grazing during the cool season would be effective in reducing non-native, cool-season species (bromes) but may impact native cool-season grasses and therefore shouldn't be done exclusively (Table 3). Grazing can also reduce fuel build-up in the grassland and shrublands and thereby reduce fire risks.

For the purposes of grazing management, the following ratios will be used (Heady and Child 1994).
1 cow and calf pair = 1 AU (animal unit)
1 replacement heifer = .6 AU
1 horse or bull = 1.25 AU

Implementation Steps:

- Develop a specific grazing plan as needed in cooperation with NRCS.
- Arrange for a lease contract to graze animals on the property.
- Work with leasee on issues such as fencing, salting, water, visitor management, and wildlife (i.e. rattlesnakes).

Prescribed Fire
Purpose: To promote vegetative health and vigor and to reduce the danger of catastrophic fire from natural ignition due to fuel build-up.

In general, fires were frequent components in the natural disturbance regimen of most grasslands. Fire can be used to stimulate browse, create openings in dense, inaccessible plant communities, as well as increase nutrient content of forage for wildlife and livestock.

Small-scale patches (40-60 acres) should be burned if needed on a rotational schedule between management areas and based on intensity of management need. Patches should be burned at a ground level, moderate to high intensity fire every 5-10 years (Wright and Bailey 1980). A specific burn plan will be developed if needed in conjunction with Larimer County Emergency Services Department and will take into account plant and wildlife adaptations to fire. Limitations to prescribed burning might include water availability, community education, budget, rare species, public sentiment, political climate, air quality, and weather.

Implementation Steps:

- Develop a burn plan as needed in cooperation with the Larimer County Emergency Services Department.

3.3 Objective: Protect rare species and communities of special concern.

While herbicides are necessary for some noxious weed control, biological controls, hand pulling, and mowing should be used in areas near water and rare species communities.

Implementation Steps:

- Educate visitors on the sensitivity of Bell's twinpod and it's importance by incorporating information into interpretive materials.
- Educate Parks and Open Lands staff as to the sensitivity of Bell's twinpod and it's importance.
- Regularly monitor Bell's twinpod populations on the north and northwest portion of the property through volunteer and staff efforts.
- Revegetate old roads and disturbed areas on the property using native grass seed mix.

3.4 Objective: Encourage agency and public awareness of native plant ecology using educational materials and programs and by including staff and volunteers in grassland and shrubland management activities.

Implementation Steps:

- When conducting large revegetation/restoration projects, incorporate efforts as part of interpretive talks, printed materials, etc. information on foothills ecosystems and the importance of restoration.

Monitoring

Purpose: Stewardship monitoring will be implemented to insure that management objectives are being met.

The vegetation health at the Red-tail Ridge Open Space should be reassessed to determine changes in plant species and community health. Monitoring will be performed by Parks and Open Lands Staff and volunteers. Photo monitoring points will be established summer of 2001. Photos will be taken each year in spring (preferably June). Photos will also be taken following implementation of a management practice (i.e. grazing, prescribed burn, etc.). Other simple but effective monitoring protocols (i.e. line or step-point vegetative transects) may also be utilized.

Photo monitoring points will also be established for trails and fences. These features should be photographed every 5 years to help assess their condition.

b. Wildlife management.

There are important wildlife species, including perching and hunting grounds for raptors, mule deer winter concentration areas (northern 2/3 of the property), and elk severe winter range (southern 1/3 of the property) currently present at the Red-tail Ridge Open Space. It is important that the presence and behavior of elk and deer during the winter months be closely monitored to determine if negative impacts are occurring and if it will be necessary to limit group visits to specific times of the year. In addition, to help control disease of and prevent user conflicts with elk, deer or other wildlife on the property, Larimer County reserves the capability to allow game management through hunting on a limited basis in conjunction with the Division of Wildlife.

Implementation steps:

- Engage staff or volunteer groups such as wildlife biology or management students, Audubon Society, etc. to inventory and regularly monitor the locations and behavior of wildlife species.
- Work with the Division of Wildlife to enhance wildlife habitat as needed.

c. Hydrology and erosion management.

Soil erosion is a major threat to land health and productivity and subsequently may impact wildlife values and water quality. A combination of the soils and geology of the Red-tail Ridge Open Space make the site susceptible to high runoff during precipitation events with potential soil erosion and gully formation. The site will be managed for grassland and shrubland health (maintenance of adequate vegetative cover), a factor of utmost importance for erosion prevention.

To minimize the potential for erosion, guided visits to the Red-tail Ridge Open Space will avoid creating social trails which can collect water and lead to eroded areas. Educate guided visitors on avoiding use of a single path that might collect water. Access by guided trips should be from the south end along the switchback roadway.

4.3 Environmental Education Opportunities

Numerous educational opportunities exist at the Red-tail Ridge Open Space including: 1) volunteer and ranger guided tours; and 2) interactive school classroom exploration and research projects. Potential environmental education subjects include watchable wildlife, foothills natural communities, and the geology of the Red-tail Ridge Open Space and adjoining areas, among others.

Implementation steps:

- Create a series of environmental education walk/talks suitable for both rangers and volunteer naturalists to conduct on guided trips of the open space.
- Identify opportunities for school and university classroom interactions at the Red-tail Ridge Open Space.
- Integrate Red-tail Ridge Open Space into the volunteer naturalist program.

- Continue to collect information that can be used in updating and expanding the interpretive potential for the Red-tail Ridge Open Space.

4.4 Land Acquisitions and Trail Easements

Land protection to the west and along the Little Thompson River Corridor is important to buffer the Red-tail Ridge Open Space from encroaching development and protect this important riparian corridor. In anticipation of future regional trail access, the Open Lands Program has negotiated for a donation from Southdown, Inc., the landowner to the east, for a permanent trailhead and trail easements for future public access. The trailhead would be approximately 1.2 acres in size and accommodate 15 cars and 5 horse trailers. The west trail easement, to Red-tail Ridge Open Space, would be 4100 ft. long and 100 ft. wide and allow for non-motorized public use including but not limited to bicycles, hikers, walkers, and horseback riders. In addition, to connect a regional trail to Carter Lake from this area, an eastern trail easement 50 ft. wide and 3909 ft. long along CR 4 was also donated. Any lands added to the Red-tail Ridge Open Space Area will fall under the guidelines of The Resource Management Plan for the Red-tail Ridge Open Space. The southern property boundary of Red-tail Ridge Open Space will be fenced to limit unauthorized grazing access from adjacent private lands.

Implementation steps:

- Fence southern property boundary.
- Continue to work with adjacent landowners and land protection agencies to protect important lands along the Little Thompson River corridor.
- Continue to work with Boulder County Open Space to potentially connect the future regional trail at Red-tail Ridge to Rabbit Mountain Open Space.

4.5 Monitoring

To fulfill the requirements of the deed restriction on Red-tail Ridge Open Space, the property will be monitored annually by a representative from Larimer County Parks and Open Lands Department and the Larimer Land Trust.

Implementation Steps:

- Monitor property annually with the Larimer Land Trust.

4.6 Summary of Implementation Stewardship Steps and Phasing

A tabular summary of implementation steps and proposed timelines are provided below. These steps will be prioritized and implemented in a timely manner.

Summary of Implementation of The Red-tail Ridge Open Space Management Plan.

Red-tail Ridge Open Space Management Implementation Steps	Cost Estimate	2001	2002	2003 and beyond	Responsible program*
Vegetation Health and Management					
Divide land into management areas	Minimal	Winter			Open Lands Program
Inventory vegetation present	$200.00	Spring			Open Lands Program
Monitor vegetation communities	$100.00/yr			On-going	Open Lands Program
Add Red-tail Ridge to the IPM Plan	$100.00	Spring			Open Lands Program
Control exotic weed populations	Unknown			On-going	Open Lands Program
Educate visitors and staff on Bell's twinpod plant	Volunteer			On-going	Open Lands Program/Volunteer Program
Revegetate old roads and disturbed areas	Unknown	Spring/Fall	Spring/Fall	On-going	Open Lands Program/S. District
Incorporate revegetation efforts into educational Opportunities	Minimal			On-going	Open Lands Program/S. District
AS NEEDED					
Develop a grazing plan with NRCS	Unknown			If Needed	Open Lands Program/NRCS
Develop a burn plan with LC Emerg. Svcs.	Unknown			If Needed	Open Lands Program/Emergency Services
Wildlife management					
Monitor wildlife species	Volunteers			On-going	Open Lands Program/S. District
Work with DOW as needed for habitat improvements				On-going	Open Lands Program/S. District
Education/recreation opportunities					
Create environmental education walks/talks	Volunteer	Spring			Open Lands Program/Volunteer Program
Identify educational opportunities for school groups	Volunteer	Fall			Open Lands Program/Volunteer Program
Integrate Red-tail Ridge into the volunteer naturalists Program	Volunteer		Spring		Open Lands Program/Volunteer Program
Continue to collect interpretive information	Volunteer			On-going	Open Lands Program/Volunteer Program
Land acquisitions					
Fence southern property boundary		Spring			S. District
Explore land protection possibilities along the Little Thompson River Corridor	Minimal			On-going	Open Lands Program
Continue to work with Boulder County Open Space to create a future trail connection to the south	Minimal			On-going	Open Lands Program
Monitoring					
Monitor the Property for deed restriction with LLT	$100/yr			On-going	Open Lands Program

*Note that while various programs may be responsible for a particular task, the implementation of the task may involve cross-program cooperation as well as the use of volunteers. All volunteer activity will be developed and organized by the Volunteer Coordinator located in the Park Rangers and Volunteer Services Program.

5. APPENDIX: Species Lists

Table 1. Potential Wildlife Species at Red-tail Ridge Open Space

Common name	Scientific name
Mule deer	(Odocoileus hemionus)
Mountain lion	(Felis concolor)
Coyote	(Canis latrans)
Elk	(Cervus canadensis)
White-tailed deer	(Odocoileus virginianus)
Least chipmunk	(Eutamias minimus)
Uinta chipmunk	(Eutamias umbrinus)
Rock squirrel	(Citellus variegatus)
Golden-mantled squirrel	(Citellus lateralis)
Hispid pocket mouse	(Perognathus hispidus)
Deer mouse	(Peromyscus maniculatus)
Rock mouse	(Peromyscus difficilis)
Mexican woodrat	(Neotoma mexicana)
Prairie vole	(Microtus ochrogaster)
Porcupine	(Erethizon dorsatum)
Red fox	(Vulpes fulva)
Raccoon	(Procyon lotor)
Mountain cottontail rabbit	(Sylvilagus nuttalli)
Striped skunk	(Mephitis mephitis)
Great-blue Heron	(Ardea herodias)
Mallard	(Anas platyrhynchos)
Red-tailed Hawk	(Buteo jamaicensis)
House wren	(Troglodytes aedon)
Rufous-sided towhee	(Pipilo erythrophthalmus)

Table 2. Commonly sighted bird species list for the Larimer County Foothills

LOONS - Gaviidae
___Common Loon
GREBES - Podicipedidae
___Eared Grebe
___Western Grebe
___Pied-billed Grebe
PELICANS - Pelecanidae
___White Pelican
CORMORANTS - Phalacrocoridae
___Double-crested Cormorant
HERONS & BITTERNS - Ardeidae
___ Great Blue Heron
WATERFOWL - Anatidae
___ Canada Goose
___ Snow Goose
___ Mallard
___ Gadwall
___ Northern
___ Northern Shoveler
___ Blue-winged Teal
___ Green-winged Teal
___ Cinnamon Teal
___ American Wigeon
___ Redhead
___ Ring-necked Duck
___ Canvasback
___ Lesser Scaup
___ Common Goldeneye
___ Bufflehead
___ Ruddy Duck
___ Common Goldeneye
VULTURES - Cathartidae
___ Turkey Vulture
HAWKS & EAGLES - Acciptridae
___ Northern Goshawk
___ Sharp-shinned Hawk
___ Cooper's Hawk
___ Red-tailed Hawk
___ Rough-legged Hawk
___ Swainson's Hawk
___ Golden Eagle
___ Bald Eagle
___ Northern Harrier
___ Osprey
FALCONS - Falconidae
___ Prairie Falcon
___ Peregrine Falcon
___ Merlin
___ American Kestrel
GROUSE & TURKEY - Phasianidae
___ Blue Grouse
___ Ring-necked Pheasant
___ Wild Turkey
CRANES - Gruidae
___ Sandhill Crane
RAILS - Rallidae
___ Sora
PLOVERS - Charadriidae
___ Semipalmated Plover
___ Killdeer
SANDPIPERS - Scolopacidae
___ Willet
___ Greater Yellowlegs
___ Lesser Yellowlegs
___ Spotted Sandpiper
___ Wilson's Phalarope
___ Long-billed Dowitcher
___ Wilson's Snipe
GULLS & TERNS - Laridae
___ Herring Gull
___ California Gull
___ Ring-billed Gull
___ Franklin's Gull
___ Forster's Tern
___ Black Tern
PIGEONS & DOVES - Columbidae
___ Band-tailed Pigeon
___ Rock Dove
___ Mourning Dove
CUCKOOS - Cuculidae
___ Yellow-billed Cuckoo
___ Black-billed Cuckoo
OWLS - Strigidae
___ Eastern Screech-owl
___ Great Horned Owl
___ Northern Pygmy-owl
___ Long-eared Owl
___ Northern Saw-whet Owl
NIGHTHAWKS & POOR-WILLS - Caprimulgidae
___ Common Nighthawk
___ Poor-will
SWIFTS - Apodidae
___ White-throated Swift
HUMMINGBIRDS - Trochilidae
___ Broad-tailed Hummingbird
___ Rufous Hummingbird
KINGFISHERS - Alcedinidae
___ Belted Kingfisher

WOODPECKERS - Picidae	THRUSHES - Muscicapidae
___ Common Flicker	___ Golden-crowned Kinglet
___ Red-headed Woodpecker	___ Ruby-crowned Kinglet
___ Lewis' Woodpecker	___ American Robin
___ Red-naped Sapsucker	___ Wood Thrush
___ Hairy Woodpecker	___ Hermit Thrush
___ Downy Woodpecker	___ Swainson's Thrush
___ Three-toed Woodpecker	___ Eastern Bluebird
TYRANT FLYCATCHERS - Tyrannidae	___ Western Bluebird
___ Eastern Kingbird	___ Mountain Bluebird
___ Western Kingbird	___ Townsend's Solitaire
___ Say's Phoebe	MOCKINGBIRDS & THRASHERS - Mimidae
___ Dusky Flycatcher	___ Gray Catbird
___ Western Flycatcher	___ Brown Thrasher
___ Western Pewee	WAXWINGS - Bombycillidae
___ Olive-sided Flycatcher	___ Bohemian Waxwing
LARKS - Alaudidae	___ Cedar Waxwing
___ Horned Lark	SHRIKES - Laniidae
SWALLOWS - Hirundinidae	___ Northern Shrike
___ Violet-green Swallow	___ Loggerhead Shrike
___ Tree Swallow	STARLINGS - Sturnidae
___ Northern Rough-winged Swallow	___ European Starling
___ Barn Swallow	VIREOS - Vireonidae
___ Cliff Swallow	___ Solitary Vireo
JAYS, MAGPIES & CROWS - Corvidae	___ Warbling Vireo
___ Blue Jay	WARBLERS, SPARROWS, & BLACKBIRDS - Emberizidae
___ Steller's Jay	___ Orange-crowned Warbler
___ Scrub Jay	___ Virginia's Warbler
___ Black-billed Magpie	___ Yellow Warbler
___ Northern Raven	___ Yellow-rumped Warbler
___ American Crow	___ MacGillivray's Warbler
___ Pinyon Jay	___ Northern Yellowthroat
CHICKADEES - Paridae	___ Yellow-breasted Chat
___ Black-capped Chickadee	___ Wilson's Warbler
___ Mountain Chickadee	___American Redstart
___ Bushtit	___ Western Tanager
NUTHATCHES - Sittidae	___ Rose-breasted Grosbeak
___ Red-breasted Nuthatch	___ Black-headed Grosbeak
___ White-breasted Nuthatch	___ Blue Grosbeak
___ Pygmy Nuthatch	___ Lazuli Bunting
CREEPERS - Certhidae	___ Indigo Bunting
___ Brown Creeper	___ Painted Bunting
DIPPERS - Cinclidae	___ Green-tailed Towhee
___ Dipper	___ Rufous-sided Towhee
WRENS - Troglodytidae	
___ House Wren	
___ Canyon Wren	
___ Rock Wren	

___ American Tree Sparrow
___ Chipping Sparrow
___ Clay-colored Sparrow
___ Brewer's Sparrow
___ Vesper Sparrow
___ Lark Sparrow
___ Lark Bunting
___ Lincoln's Sparrow
___ Song Sparrow
___ White-crowned Sparrow
___ Dark-eyed Junco
___ Snow Bunting
___ Red-winged Blackbird
___ Western Meadowlark
___ Brewer's Blackbird
___ Brown-headed Cowbird
___ Northern Oriole

FINCHES - Fringillidae

___ House Finch
___ Rosy Finch
___ Pine Siskin
___ American Goldfinch
___ Lesser Goldfinch
___ Red Crossbill
___ Evening Grosbeak

WEAVER FINCHES - Passeridae

___ House Sparrow

Table 3. Plant List for the Red-tail Ridge Open Space

Common Name	Latin Name
Grasses	
Needle-and-Thread	*Stipa comata*
Green Needlegrass	*Stipa viridula*
Blue Grama	*Bouteloua gracilis*
Side-oats Grama	*Bouteloua curtipendula*
Three-awn	*Aritida purpurea*
Prairie Junegrass	*Koeleria macrantha*
Western Wheatgrass	*Agropyron smithii*
Kentucky Bluegrass	*Poa pratensis*
Sandberg Bluegrass	*Poa sp.*
Big Bluestem	*Andropogon gerardii*
Indian Ricegrass	*Oryzopsis hymenoides*
Wild Buckwheat	*Eriogonum umbellatum*
Shrubs	
Winterfat	*Ceratoides lanata*
Mountain Mahogany	*Cercocapus montanus*
Skunkbush	*Rhus trilobata*
Wax Currant	*Ribes cereum*
Snakeweed	*Gutierrezia sarothrae*
Boulder Raspberry	*Rubus deliciosus*
Rabbitbush	*Crysothamnus nauseosus*
Trees	
Plains Cottonwood	*Populus deltoides*
Coyote Willow	*Salix exigua*
Chokecherrry	*Prunus viginiana*
Wild Plum	*Prunus americana*
Juniper	*Juniperus scopulorum*
Ponderosa Pine	*Pinus ponderosa*
Succulents	
Prickly-pear Cactus	*Opuntia compressa*
Forbs	
Violet	*Viola purpurea*
Salsify	*Tragopogon dubius*
Fringed Sage	*Artemisia frigida*
Yucca	*Yucca glauca*
Sunflower spp.	*Heliocnathus spp.*

Globemallow	*Sphaeralcea coccinea*
Scurfpea	*Psoralea tenuiflora*
Bell's Twinpod	*Physaria bellii*
Drummond's Milk Vetch	*Astragalus drummondii*
Parsley sp.	*Apiaceae sp.*
Larkspur	*Delphinium geyeri*
Sand Lily	*Leucocrinum montanum*
Wild Blue Flax	*Adenolinum lewisii*
Spiderwort	*Tradescantia occidentalis*
Common Wild Geranium	*Geranium caespitosum*
Cinquefoil sp.	*Potentilla sp.*
Daisy sp.	*Erigeron sp.*
Bluebells	*Mertensia lanceolata*
Pussytoes	*Antennaria rosea*
Sage sp.	*Artemesia sp.*
Penstemon sp.	*Penstemon sp.*
Wild Onion	*Alliaceae sp.*
Western Wallflower	*Erysimum asperum*
Skull Cap	*Scutellaria sp.*
Hairy Goldern Aster	*Aster sp.*
Blue Mustard	*Brassica elongata*
Death Camas	*Toxicoscordion venenosum*
Bahia	*Bahia dissecta*
Field Horsetail	*Equisetum arvense*
Nailwort	*Paronychia jamesii*
Non-natives	
Mullein	*Verbascum thapsus*
Dandelion	*Taraxacon officinale*
Dalmation Toadflax	*Linaria genistifolia*
Gumweed	*Grindelia squarrosa*
White Horehound	*Marrubium vulgare*
Diffuse Knapweed	*Centaurea diffusa*
Cheatgrass	*Bromus tectorum*
Smooth Brome	*Bromus inermis*
Japanese Brome	*Bromus japonicus*

*Note: There are two categories of grasses; cool season species and warm season species. Cool season species experience their most active and rapid growth in the cooler months of the growing season (April, May, June, and September). Warms season species experience their most active and rapid growth in the hotter months of July and August.

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