

**RAPID RESOURCE ASSESSMENT
AND MANAGEMENT PLAN
MILLER OPEN SPACE
BOULDER COUNTY, COLORADO**

Prepared for—

City of Boulder
Open Space and Mountain Parks
66 S. Cherryvale Road
Boulder, Colorado 80303

Prepared by—

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ERO Project #4089

August 11, 2008

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SUMMARY

MILLER PROPERTY		
APPROXIMATE SIZE	ACQUISITION DATE	CURRENT ZONING
42 acres	June 22, 2006	Forestry
MANAGEMENT DESIGNATION	PUBLIC ACCESS	
Habitat Conservation Area	Access only with HCA off-trail permit	

GENERAL DESCRIPTION OF SITE RESOURCES

The property encompasses a high point in the area that is accessible from Bison Drive. The majority of the property has a southwestern aspect and is visible from Walker Ranch Open Space. A ponderosa pine savannah dominates over half of the property. Several rock outcrops characterize a ridge that runs the length of the west side of the property.

OPEN SPACE VALUES BASED ON RESOURCE ASSESSMENT

The property is important for open space because it maintains—

- Integrity of the viewshed accessible from Walker Ranch Open Space
- A forested buffer adjacent to Woods Gulch
- Diverse forested habitat for a number of wildlife species
- Winter range for mule deer; severe winter range for elk
- A winter concentration area for wild turkey

MANAGEMENT ISSUES BASED ON RESOURCE ASSESSMENT

Some management issues that could adversely affect the open space values on the property include—

- Noxious weed infestations along an old road that runs north from Pika Road
- Downed barbed wire fencing along the east side of the property
- Potential unauthorized access from Pika Road on the south side of the property

INTRODUCTION

PURPOSE

The City of Boulder Open Space and Mountain Parks Department (OSMP) retained ERO Resources Corporation (ERO) to conduct a rapid resource assessment and develop a property management plan for the 42-acre Miller Property (“property”) near the City of Boulder in Boulder County, Colorado (Figure 1). The conditions on the property have generally been documented through photo points (Appendix A). The purpose of this rapid resource assessment and management plan for the property is to—

- Summarize the physical/ecological characteristics and conditions
- Document and record existing conditions and open space values
- Identify and prioritize management needs and opportunities
- Prescribe management actions
- Classify the property into a management area

The OSMP Visitor Master Plan directs that plans be completed for properties before they are opened and that visitor access be considered. Specific guidance for new properties is as follows:

New Property Planning and Facilities. Complete planning and infrastructure improvements in a timely manner, prior to opening newly acquired properties to public access. However, as appropriate, preserve existing public access during the planning and improvement process. Open Space and Mountain Parks will complete a site management plan recommending appropriate locations, types of uses and visitor infrastructure, and how to provide adequate visitor infrastructure and services.

Property plans direct immediate planning and improvement needs, while Trails Study Areas (TSA) planning will be used to periodically update visitor access needs based on conditions at the time.

METHODS

OSMP supplied records, documents, and GIS data applicable to the property. On June 20, 2008, a team of natural resource planners and ecologists from ERO walked the extent of the property documenting ecological and physical characteristics and identifying management needs and opportunities.

ERO consulted several organizations, agencies, and databases including the Colorado Natural Heritage Program (CNHP), Colorado Office of Archeology and Historic Preservation (OAHP), the Colorado Natural Diversity Information Source (NDIS), and Boulder County pertaining to resources on the property. Published information, such as U.S. Geological Survey (USGS) and Natural Resources Conservation Service (NRCS) maps, also was used to prepare the inventory.

REPORT ORGANIZATION

This report presents a summary of the information gathered for the rapid resource assessment and describes the results of ERO's evaluation of the resources and open space values on the property. The report is organized into five narrative sections and three appendices. Following the *Summary* and *Introduction*, the *General Description* section provides information on the setting. The *Site Resources* section summarizes the ecological and cultural resources; existing trails and access; land use and management; and improvements and legal considerations on the property. The *Property Management Plan* describes short- and long-term management needs, management actions, and Management Area designation.

Appendix A contains photographs of the property with narrative descriptions and a corresponding photo point map. Appendix B presents plant species identified during the site visit, and Appendix C includes report references.

GENERAL DESCRIPTION

The property is located within the Southern Rocky Mountain physiographic province. The property encompasses about 42 of forested landscape that is a high point in the area accessible from Bison Drive. The property can be clearly seen from Walker Ranch Open Space.

LOCATION AND ACCESS

The property is located in south Boulder County about 4 miles southwest of downtown Boulder (Figure 1). Specifically, the property is located in Sections 24 and 15 in Township 1 South, Range 71 West of the 6th P.M. (Figure 2).

Primary access is from Pika Road on the south side of the property. From downtown Boulder, travel west on Baseline Road to Flagstaff Road. Follow Flagstaff Road for about 5 miles to Bison Drive. Turn left (south) on Bison Drive and travel about 4 miles to the Pika Road. Continue north on Pika Road to the property.

There is an old road that continues north from Pika Road. This road bisects the property and continues north to the Khalsa property. The road provides easy hiking access to the Miller property and could serve as an emergency access route to both the Miller and Khalsa properties.

ACQUISITION

The City of Boulder acquired the Miller Property on June 22, 2006. The total price for 42 acres was \$396,000.

LAND USE

The property was previously logged and likely grazed to some extent. OSMP manages the property as undeveloped open space land. There is currently no active management.

LANDSCAPE CONTEXT

The property is located in rural Boulder County, and is bordered on two sides by City of Boulder Open Space. Woods Gulch is located just off the property to the west. Kossler Lake is located about ½ mile to the northwest. Lots along Pika Road are currently under increasing development.

NEIGHBORING PROPERTIES

NEIGHBORING RESIDENTIAL PROPERTIES

Residential properties and basic land uses identified near the property during the site visit and with a property record search available through the Boulder County Assessor’s Office (Boulder County 2008a) are summarized below.

OWNER	LOCATION AND LAND USE
Ranniger, Leslie J. & Michael Tombolato 1578 Bison Dr. PO Box 15; Boulder, CO 80306 Parcel No. 157900100024	East of property Undeveloped land
Ranniger, Leslie J. & Michael Tombolato 1578 Bison Dr. PO Box 15; Boulder, CO 80306 Parcel No. 157900100011	East of property Forest land – farm/rural residence
Jelic, Ralph G. & Jelic, Kimberly Kiner 1602 Pika Rd. Boulder, CO 80302 Parcel No. 157915001001	South of property Single family rural residence
Nicolaisen, Thomas Roger & Helena 1406 Pika Rd. Boulder, CO 80302 Parcel No. 157915001002	South of property Single family rural residence
Jalovec, Gloria M.L. & Monica M. 1803 Pika 2967 Ames St.; Wheat Ridge, CO 80214 Parcel No. 157915002016	South of property Vacant residential lots
Honeycutt, Lynda Susan 774 Cougar Dr. Boulder, CO 80302 Parcel No. 157915000051	West of property Single family rural residence

NEIGHBORING GOVERNMENT PROPERTIES

Government-owned properties and basic land uses identified near the property during the site visit and with a property record search available through the Boulder County Assessor’s Office (Boulder County 2008a) are summarized below.

OWNER	LOCATION AND LAND USE
City of Boulder 3771 Bison Dr. PO Box 791; Boulder, CO 80306 Parcel No. 157915000041 <i>City of Boulder Open Space</i>	North of property Undeveloped land
City of Boulder 3779 Bison Dr. 1777 Broadway; Boulder, CO 80302-6220 Parcel No. 157915000043 <i>City of Boulder Open Space</i>	Northwest of property Undeveloped land

SITE RESOURCES

This section documents in more detail the basic physical and ecological characteristics and conditions that directly support the open space values of the property. Key features are shown on Figure 3.

TOPOGRAPHY

Topography on the property generally slopes to the south. The property encompasses a shallow ravine and the surrounding ridges. Elevations range from about 7,400 feet along the ridge tops to about 7,200 feet in the ravine basin. Woods Gulch flows along the western edge of the property (off the property). The USGS topographical map of the property is shown in Figure 2.

GEOLOGY

The property occurs along the eastern margin of the Front Range of north-central Colorado, which contains igneous rocks of Precambrian age. The area is composed primarily of granitic rocks. Granitic rocks contain areas of granites, quartz monzonites, and unnamed granitic rocks (Tweto 1979).

SOILS

The Natural Resources Conservation Service (NRCS) has mapped two soil types on the property. Each mapping unit is described below and Figure 4 shows the NRCS soil mapping. All soil information was gathered from the NRCS soil survey (NRCS 1975).

Mapping Unit FcF. Fern Cliff-Allens Park-Rock outcrop complex (15 to 60 percent slopes). This soil includes small areas of Fern Cliff stony loam sand, Juget soils, Peyton soils, and narrow bands of alluvial soils along drainageways. Runoff is medium to rapid and the erosion hazard is

high. Native vegetation is mainly pine and fir woodland with an understory of fescue, mountain muhly, and pine dropseed.

Mapping Unit JrF. Juget-Rock outcrop (9 to 55 percent slopes). This soil includes small areas of Peyton soils near drainageways and a few small areas of Allens Park soils. Runoff is high and the erosion hazard is high. Native vegetation consists of spruce and fir at higher elevations and ponderosa pine, Gambel oak, mountain mahogany, and grasses at lower elevations.

HYDROLOGY

SURFACE HYDROLOGY

No mapped streams or drainages are located on the property. The property is not located within a designated floodplain area.

According to topographic information from the USGS 7.5 minute quadrangle map, surface water on the property flows south and southwest towards Woods Gulch. Woods Gulch flows south to South Boulder Creek (USGS 1965, revised 1994).

SUBSURFACE HYDROLOGY

Based on a review of the USGS Eldorado Springs quadrangle, shallow ground water would flow in a southerly direction towards the South Boulder Creek drainage (USGS 1965, revised 1994). There are no permitted water wells on the property (CDWR 2008), and no seeps or springs were identified on the property.

WETLANDS

No wetlands or potential wetlands were observed on the property.

VEGETATION

GENERAL VEGETATION DESCRIPTION

The property is dominated by a ponderosa pine tallgrass savannah herbaceous alliance, Douglas-fir forest alliance, Douglas-fir woodland alliance, ponderosa pine woodland alliance, and a ponderosa pine tallgrass savannah herbaceous alliance. Vegetation communities are described below and shown in Figure 5. A list of plant species identified during the field visit appears in Appendix B.

PONDEROSA PINE WOODED MIXED HERBACEOUS ALLIANCE (PMTH)

An area on the north side of the property is characterized by a ponderosa pine wooded mixed herbaceous alliance. The dominant overstory species in this community type is ponderosa pine (*Pinus ponderosa* ssp. *scopulorum*). Dominant understory species include introduced grasses such as smooth brome (*Bromopsis inermis*), cereal rye (*Secale cereale*), cheatgrass (*Anisantha tectorum*), and orchard grass (*Dactylis glomerata*); native perennial forbs such as little sunflower (*Helianthus pumilus*), Rocky Mountain penstemon (*Penstemon strictus*), and pale bastard toadflax (*Comandra umbellata* ssp. *pallida*); native grasses such mountain brome (*Ceratochloa carinata*), needle and thread (*Hesperostipa comata*), green needlegrass (*Nassella viridula*) and mountain muhly (*Muhlenbergia montana*); and native shrubs/subshrubs such as black chokecherry (*Padus virginiana* ssp. *scopulorum*) and fringed sage (*Artemisia frigida*).

DOUGLAS FIR FOREST ALLIANCE (DFF)

On the west side of the property adjacent to Woods Gulch, the Douglas-fir forest alliance is present. This community type is dominated by Douglas fir. Common understory species include native forbs such as Britton's skullcap (*Scutellaria brittonii*), prairie bluebells (*Mertensia lanceolata*), and maiden blue eyed Mary (*Collinsia parviflora*). Native grass or grass like plants included Geyer's sedge (*Carex geyeri*) and muttongrass (*Poa fendleriana*). Native shrubs such as kinnikinnick (*Arctostaphylos uva-ursi*) are common.

PONDEROSA PINE TALLGRASS SAVANNAH HERBACEOUS ALLIANCE (PTSH)

The east side and northwest corner of the property are dominated by a ponderosa pine tallgrass savannah herbaceous alliance. This community type is dominated by ponderosa pine but tallgrass species are also present. Dominant species include native grasses/grass-like such as blue wildrye (*Elymus glaucus*), western wheatgrass (*Pascopyrum smithii*), slender wheatgrass (*Elymus trachycaulus*), and Geyer's sedge. Native forbs such as Britton's skullcap, sanddune wallflower, and hairy false golden aster are common. Introduced forbs such as yellow sweetclover (*Melilotus officinalis*) and common dandelion (*Taraxacum officinale*) are present.

PONDEROSA PINE – DOUGLAS FIR FOREST ALLIANCE (PDFF)

A small area on the north side is characterized by a ponderosa pine – Douglas fir forest alliance. The dominant overstory species in this community type are ponderosa pine, Rocky Mountain juniper, and Douglas fir. Dominant understory species include introduced grasses such as smooth brome, cheatgrass, and orchard grass; native perennial forbs such as little sunflower, Rocky Mountain penstemon, and pale bastard toadflax; native grasses such mountain brome, needle and thread, green needlegrass and mountain muhly; and native shrubs/subshrubs such as black chokecherry and fringed sage.

PONDEROSA PINE FOREST ALLIANCE (PPF)

The central third of the property is dominated by a ponderosa pine forest alliance. This community type is dominated by ponderosa pine. Common understory species include native forbs such as sanddune wallflower (*Erysimum capitatum*), mintleaf bergamot (*Monarda fistulosa* var. *menthifolia*), and hairy false goldenaster (*Heterotheca villosa*).

RARE PLANTS AND PLANT COMMUNITIES

No rare plants or plant communities have been identified by CNHP on the property (CNHP 2006) and none were observed during the site visits.

STATE NOXIOUS WEEDS

Based on the site visit, no species from List A of the Colorado noxious weed species list were found on the property.

Three List B noxious weed species occur on the property: Canada thistle (*Cirsium arvense*), houndstongue (*Cynoglossum officinale*), and musk thistle (*Carduus nutans*). Canada thistle occurs in moister swales within the northern portions of the property. Musk thistle is scattered in several locations throughout the property, especially in areas dominated by cheatgrass.

Three List C noxious weed species were found on the property – field bindweed (*Convolvulus arvensis*), cheatgrass (*Anisantha tectorum*), and common mullein (*Verbascum thapsus*). Field

bindweed is found scattered throughout the property. Cheatgrass and common mullein are found in open savannah areas that were previously grazed. Smooth brome is not a state noxious weed but is considered an OSMP priority weed.

Table 1. Noxious weeds present on the property.

Common Name	Scientific Name	OSMP Priority	Boulder County Weed List	State of Colorado Noxious Weed List
Canada thistle	<i>Breca arvensis</i>	Moderate	x	B
cheatgrass	<i>Anisantha tectorum</i>	Moderate	not listed	C
common mullein	<i>Verbascum thapsus</i>	None	not listed	C
field bindweed	<i>Convolvulus arvensis</i>	None	not listed	C
houndstongue	<i>Cynoglossum officinale</i>	Low	x	B
musk thistle	<i>Carduus nutans</i>	Low	x	B
smooth brome	<i>Bromopsis inermis</i>	Moderate	not listed	not listed

The Colorado Noxious Weed Act §§ 35-5.5-101 through 119, C.R.S. (2003) states that “List A species are species for which the Commissioner of Agriculture has designated for eradication. List B noxious weed species are species for which the Commissioner of Agriculture, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, develops and implements state noxious weed management plans designed to stop the continued spread of these species.

List C weed species are species for which the Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, will develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans will not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species.”

FOREST CONDITION

The three most common conifer species on the property are ponderosa pine, Douglas-fir, and lodgepole pine. Each of these species has different characteristics for management consideration summarized in Table 2. Some dead individual trees were noted; however, overall forest condition did not indicate mountain pine beetle activity.

The dense ponderosa pine/Douglas-fir forest that dominates west side of the property is likely the result of long-term fire suppression. The high, contiguous canopy along with significant fuel loading (e.g., ladder fuels and down material) make the area a moderate to severe wildfire hazard.

Table 2. Common characteristics of conifer species on the property.

Characteristic	Ponderosa Pine	Lodgepole Pine	Douglas-fir
Drought tolerance	High	Moderate	Moderate
Reaction to competition	Intolerant of shade	Very intolerant of shade and competition from other plant species	Ability to tolerate shade in the seedling stage, intermediate in overall shade tolerance
Susceptibility to windthrow	Low	Moderate — thinning can contribute to snow breakage, particularly if previously dense stands are opened suddenly	Low to moderate
Resistance to fire	High for mature trees in open woodlands due to thick bark	Low with entire stands replaced and 100 percent mortality at times	Crown fires, when they occur, destroy stands of all ages; the thick bark of older Douglas-firs, however, makes them fairly resistant to ground fires
Fire interval (presettlement)	1 to 47 years apart with most at 5- to 20-year intervals	100 or more years	Intermediate between ponderosa pine and lodgepole pine based on stand structure and composition
Typical fire intensity (presettlement)	Low intensity ground fires	High intensity crown fires	Variable, low intensity ground fires in association with ponderosa pine, higher intensities elsewhere
Primary insect pathogens	Mountain pine beetle (<i>Dendroctonus ponderosa</i>)	Mountain pine beetle (<i>Dendroctonus ponderosa</i>)	Douglas-fir beetle (<i>Dendroctonus pseudotsugae</i>) and western spruce budworm (<i>Choristoneura occidentalis</i>)
Dwarf mistletoe	<i>Arceuthobium vaginatum</i> subsp. <i>crpyopodum</i> in the Southwest	<i>Arceuthobium americanum</i> is the most widespread and serious parasite affecting lodgepole pine	<i>Arceuthobium douglassii</i> occurs throughout most of the range of Douglas-fir

Based on: Burns, Russell M., and Barbara H. Honkala (tech. cords.). 1990. *Silvics of North America: 1. Conifers.* Agriculture Handbook 654. U.S. Department.

WILDLIFE

GENERAL DESCRIPTION

The property provides habitat for a variety of wildlife species that are typical of the forested system in the Boulder Mountain Park system. Notable mammal species that are likely to occur include black bear, mountain lion, elk, mule deer, fox, bobcat, and coyote. During the site visit, mule deer were observed. Widely-distributed sign (i.e., scat and game trails) from elk and mule deer was observed throughout the property. The property contains habitat elements for black

bear, including dense forest cover, berry-producing shrubs, riparian habitat, and rock bands and outcrops that provide potential denning sites. Bear scat was observed on the south side of the property. Woods Gulch is likely a concentration point and movement corridor for bears in the area. It is likely that most of the property is widely traversed by bears. Other common mammals include mountain cottontail rabbit, western spotted skunk, raccoon, Abert's squirrel, and least chipmunk.

The dense forests and open meadow on the property provides habitat for a variety of migratory songbirds such as mountain bluebird, Stellar's jay, and evening grosbeak. Common raptors potentially include sharp-shinned hawk and flammulated owl. The property also supports potential habitat for the northern goshawk, which characteristically nests in coniferous forests including those dominated by ponderosa pine or lodgepole pine or in mixed forests dominated by various coniferous species. Bird species observed during the site visit included mourning dove, Stellar's jay, mountain chickadee, broad-tailed hummingbird, and gray-headed junco.

THREATENED, ENDANGERED, OR CANDIDATE WILDLIFE SPECIES

According to the Colorado Division of Wildlife Natural Diversity Information Source (NDIS) and CNHP databases for the area, there are no threatened or endangered species on the property (NDIS 2008).

COLORADO DIVISION OF WILDLIFE DESIGNATIONS

According to the NDIS database, the property is considered to be elk winter and elk severe winter range; mule deer winter range; a black bear-human conflict area; and turkey winter range and a turkey winter concentration area.

BOULDER COUNTY COMPREHENSIVE PLAN DESIGNATIONS

The property does not contain any county-designated Critical Wildlife Habitats or other designations related to wildlife.

CULTURAL RESOURCES

OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION FILE SEARCH

The Colorado Historical Society Office of Archaeology and Historic Preservation conducted a search of the Colorado Inventory of Cultural Resources database for the property (OAHF 2008). This database contains information on documented federal or state studies or findings regarding any cultural resources. According to the search, no sites or surveys occur on the property (OAHF 2008). Other potential unidentified cultural resources may exist within the property boundaries.

OTHER RESOURCES AND DESIGNATIONS

No structures exist on the property. The property is not located within any areas designated for cultural resources in the Boulder County Comprehensive Plan (Boulder County 2008b).

RECREATION

Public access is not permitted on the property.

PROPERTY INFRASTRUCTURE

STRUCTURES

No structures exist on the property.

INFRASTRUCTURE AND UTILITIES

A down barbed wire fence generally follows the section line on the east side of the property. There is some makeshift fencing at the property boundary at the end of Pika Road.

ROADWAYS AND TRAILS

An old road enters the property from the end of Pika Road on the south side. This road bisects the property from south to north and continues upward on south-facing slope to the Khalsa property.

LEGAL CONSIDERATIONS

WATER RIGHTS

Purchase of the property did not include any water rights.

MINERAL RIGHTS

Purchase of the property did not include any mineral rights owned by seller.

EASEMENTS AND RIGHTS-OF-WAY INFORMATION

See OSMP property file.

LOCAL PLANNING DESIGNATIONS

The entire property is currently zoned Forestry (Boulder County 2008c). Boulder County Comprehensive Plan designations on the property include—

- Boulder Mountain Park/South Boulder Environmental Conservation Area

The property is also considered to have moderate geologic constraints due to the potential for flash flooding, or debris fans.

PROPERTY MANAGEMENT PLAN

MANAGEMENT AREA DESIGNATION

Recommended management area designation: Habitat Conservation Area

The location and features of the property are generally consistent with the characteristics, goals, and strategies outlined for Habitat Conservation Areas in the OSMP Visitor Master Plan, including naturally functioning ecosystems, lower levels of visitor use opportunities, and compatibility with adjacent land uses (OSMP 2005). This management area designation is consistent with the historic and current uses of the property and its primary open space values, and with the management designation of other nearby OSMP properties.

PUBLIC ACCESS

Recommended status: Access only with HCA off-trail permit

There is no evidence of unauthorized use of the property; however, Pika Road provides easy access to an old road on the south side of the property. This access point should be monitored as the area is increasingly built out.

The goal of this access status is to allow off-trail use by permit only, consistent with existing regulations for Habitat Conservation Areas. Off-trail permits can be obtained for OSMP-sponsored activities or other limited and approved public use. Use of designated trails is allowed without a permit. Should permitted or non-permitted public access result in a Class 2 undesignated trail (trail obvious; vegetation cover lost and/or organic litter pulverized in primary use area – see Manning et al. 2006) or other resource damage, the property may be closed at the sole discretion of the OSMP department. External gates will be locked to prevent unauthorized vehicle access. Public access and facilities on this property will be evaluated further in a future Trail Study Area or other planning processes.

MANAGEMENT ISSUES

The following management issues were identified on the property based on observations during the site visit, existing documentation, and input from OSMP staff.

Fencing. A barbed-wire fence along the east side is in disrepair and serves no purpose.

Unauthorized Access. The old road through the property provides potential unauthorized access. The fencing and signage at the end of Pika Road is insufficient and unclear.

Noxious Weeds. The old road through the property is a primary vector and seed source for noxious weed spread.

Forest Condition. Some areas are overgrown and have a continuous forest canopy due to fire suppression.

MANAGEMENT STRATEGIES

Management objectives and recommended management actions for various resources on the property are outlined below. In general, management objectives are a concise statement of what OSMP wants to achieve in protecting open space values, addressing management issues related to a particular resource type. Management actions are the specific tasks or tools that can be used to fulfill the objective and address the issue.

FENCING AND SIGNING

Objective 1: Identify property as OSMP land through clear and defined signing of the property boundary.

Action: Remove fencing along the east side of the property to facilitate wildlife movement.

Action: Install OSMP signs along property boundary.

ACCESS

Objective 1: Establish clear access for administrative and emergency purposes.

Action: Install a gate and fencing with appropriate signing on the south side of the property at the end of Pika Road.

VEGETATION

Objective 1: Prevent the spread of noxious weeds from current conditions documented in the resource assessment.

Action: Coordinate with landowners and Boulder County to address weed management along Pika Road.

Action: Consider herbicide spraying along Pika Road and Bison Drive.

FOREST CONDITION

Objective 1: Where access is feasible, improve forest condition by managing ecosystems and age structure.

Action: Conduct a complete assessment of overall forest conditions through a forest inventory and survey.

Action: Implement prescriptions based on the results of the inventory and survey.

Objective 2: Where access is feasible, maintain an open forest through some initial thinning, prescribed burning, and disease inspection.

Action: Focus on removing the heavy regeneration and breaking up the continuous canopy fuels on the west side of the property.

Action: Remove ladder fuels.

Action: Monitor forest stand structure and composition with permanent photo points and overstory inventories.

CONSERVATION AND COORDINATION

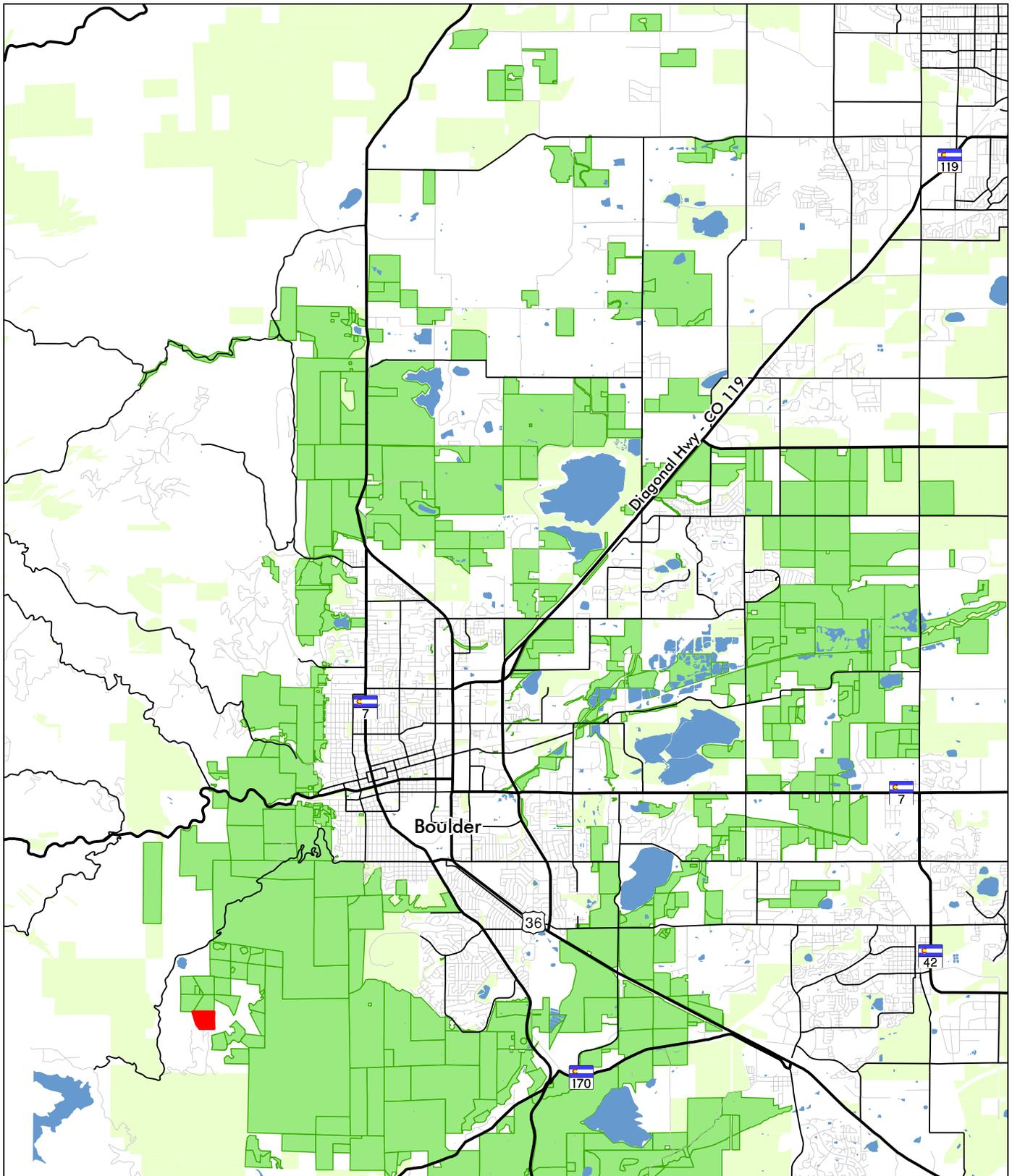
Objective 1: Work with adjacent landowners to provide consistent, sustainable management to the area accessed by Bison Drive and Pika Road.

Action: Establish and maintain lines of communication with adjacent landowners.

Action: Monitor resource conditions (e.g., noxious weeds, bear-human conflicts) on adjacent properties and identify potential issues or opportunities.

Action: Allow OSMP to become a resource for landowners seeking knowledge or advice on various land management topics.

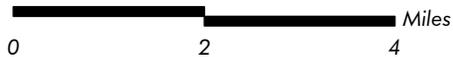
FIGURES



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Miller Property RRA and Management Plan

- Miller Property
- City of Boulder Open Space
- Other Open Space

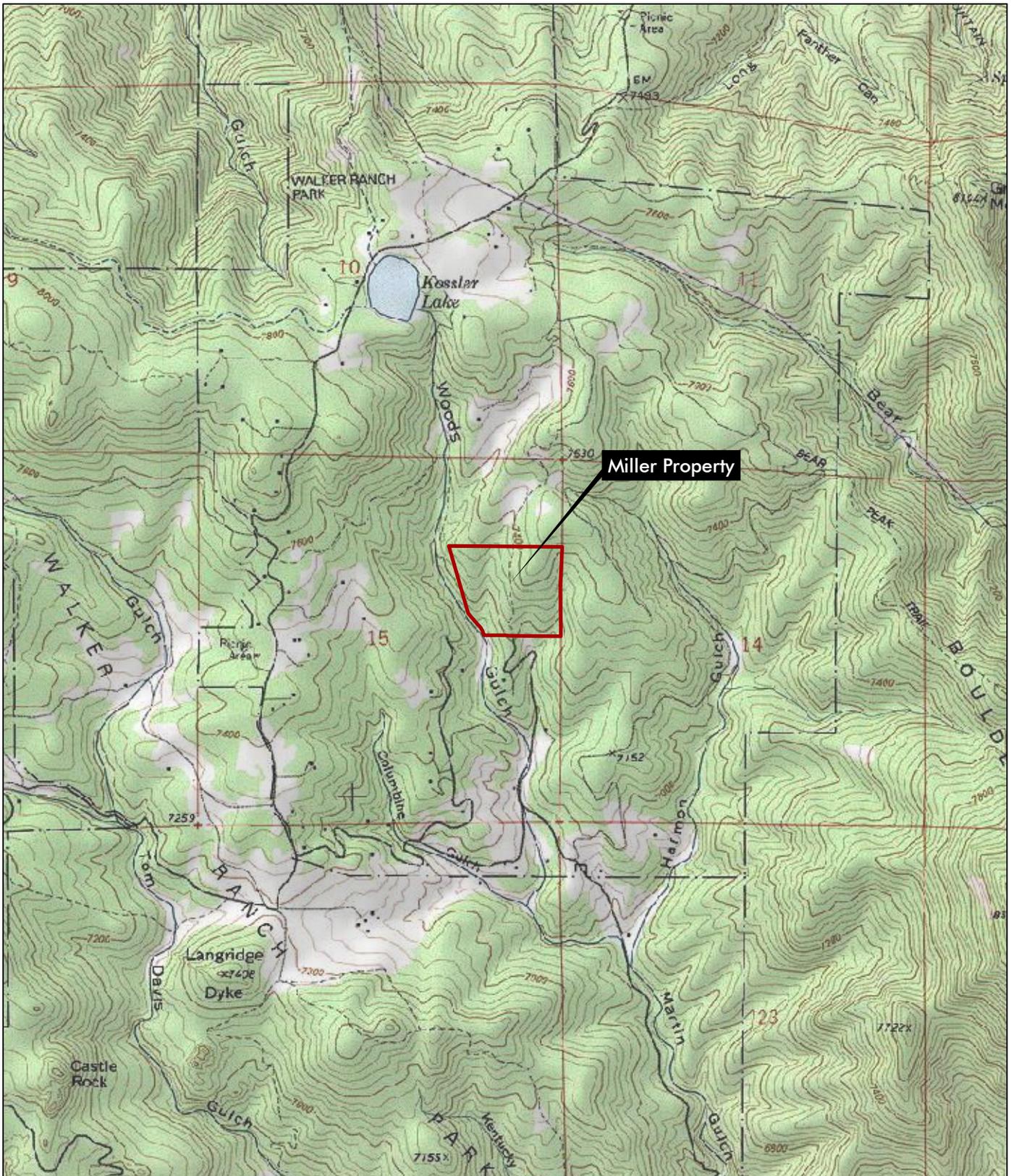


1 inch = 2 miles



**Figure 1
 Vicinity Map**

Prepared for: City of Boulder Open Space
 and Mountain Parks
 File: 4089 Figure1.mxd
 March 2008



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Miller Property RRA and Management Plan

Sections 14 & 15, T1S, R71W

UTM NAD83 Coordinate Zone 13N; 472183mE, 4424101mN

USGS Eldorado Springs CO, Quadrangle

Boulder County, Colorado

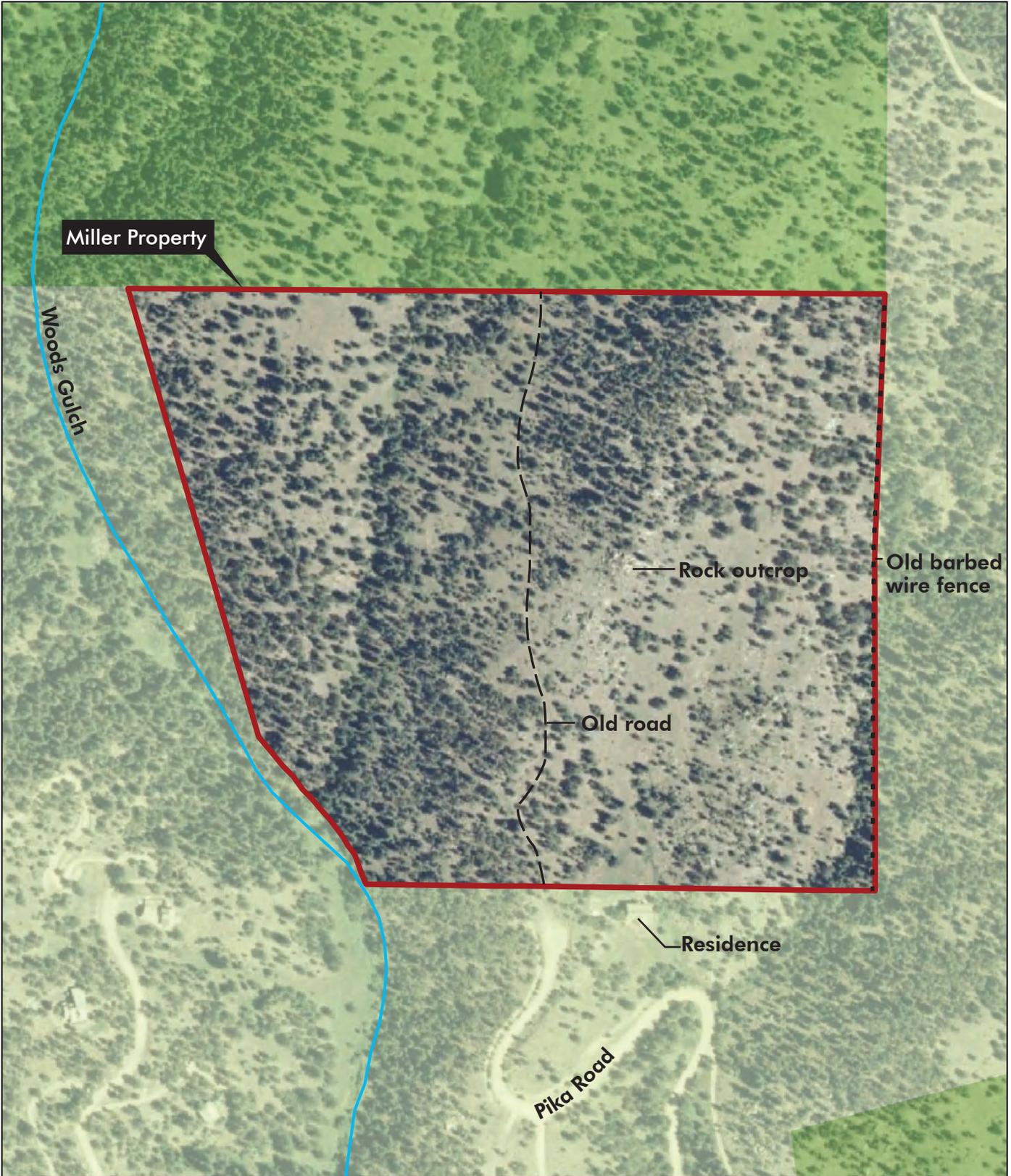


1 inch = 2,000 feet



**Figure 2
 Location**

Prepared for: City of Boulder Open Space
 and Mountain Parks
 File: 4089 Figure 2.mxd
 February 2008



Miller Property

Woods Gulch

Rock outcrop

Old barbed wire fence

Old road

Residence

Pika Road



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Miller Property RRA and Management Plan

- City of Boulder Open Space
- Other Open Space

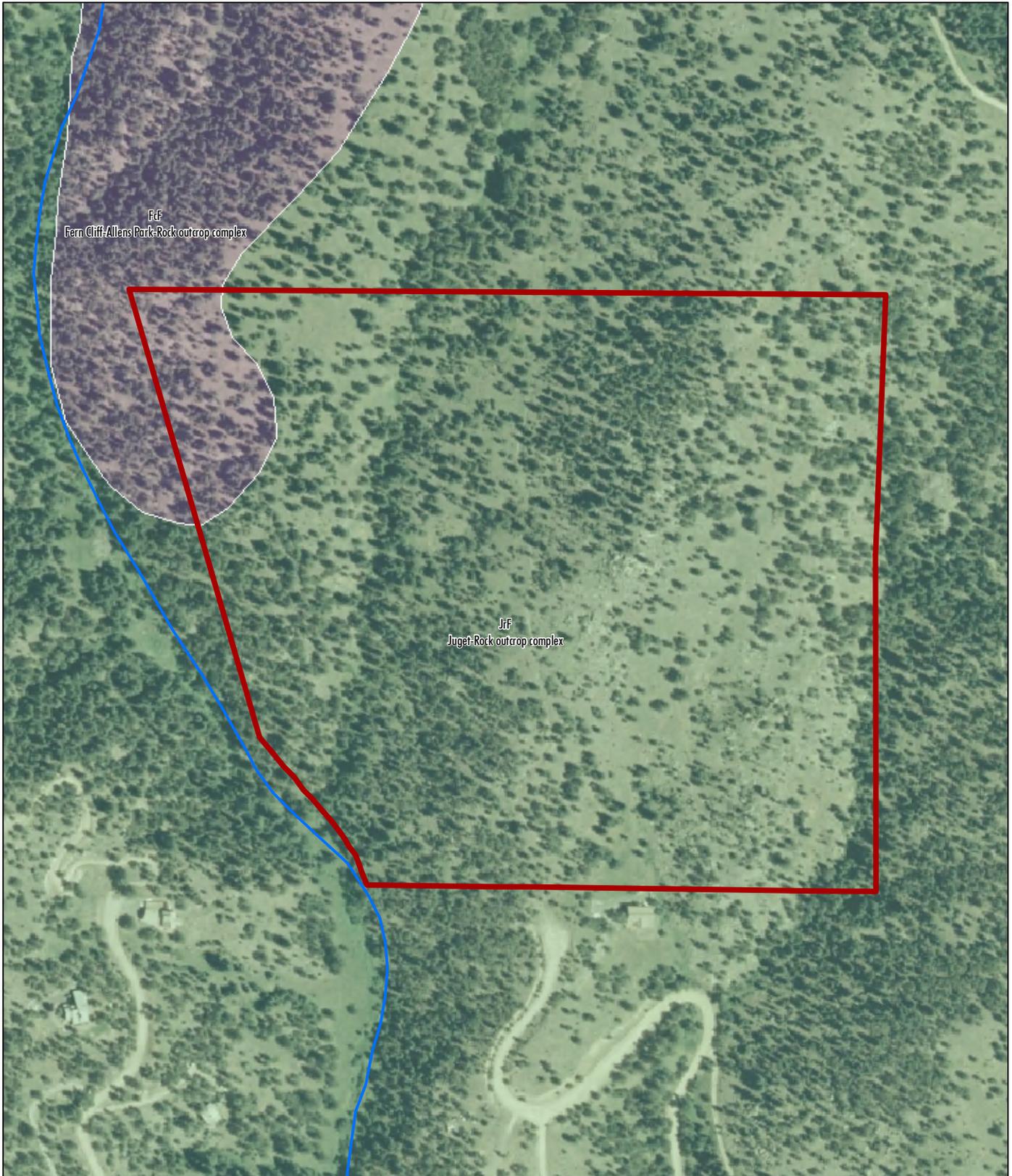


1 inch = 300 Feet



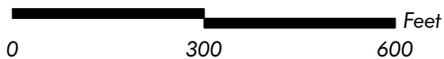
Figure 3
 Property Features

Prepared for: City of Boulder Open Space
 and Mountain Parks
 File: 4089 Figure 3 Miller.pdf
 July 2008



ERO Resources Corp.
 1842 Clarkson Street
 Denver, CO 80218
 (303) 830-1188
 Fax: (303) 830-1199

Miller Property RRA and Management Plan

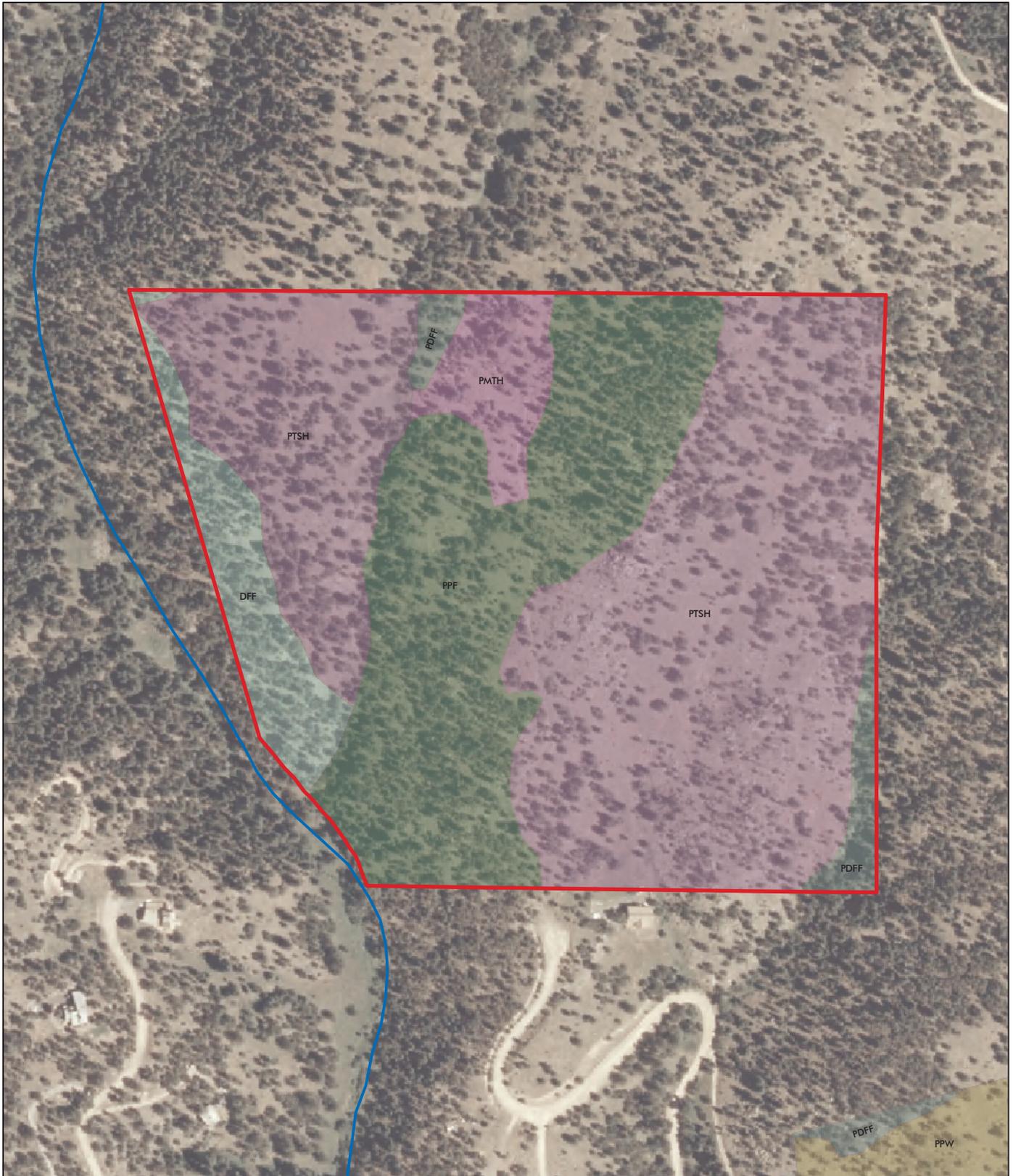


1 inch = 300 Feet



**Figure 4
 Soils**

Prepared for: City of Boulder Open Space
 and Mountain Parks
 File: 4089 Figure 4.mxd
 February 2008



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Miller Property RRA and Management Plan
 (See following page for for vegetation community names)



1 inch = 300 Feet



**Figure 5
 Vegetation Communities**

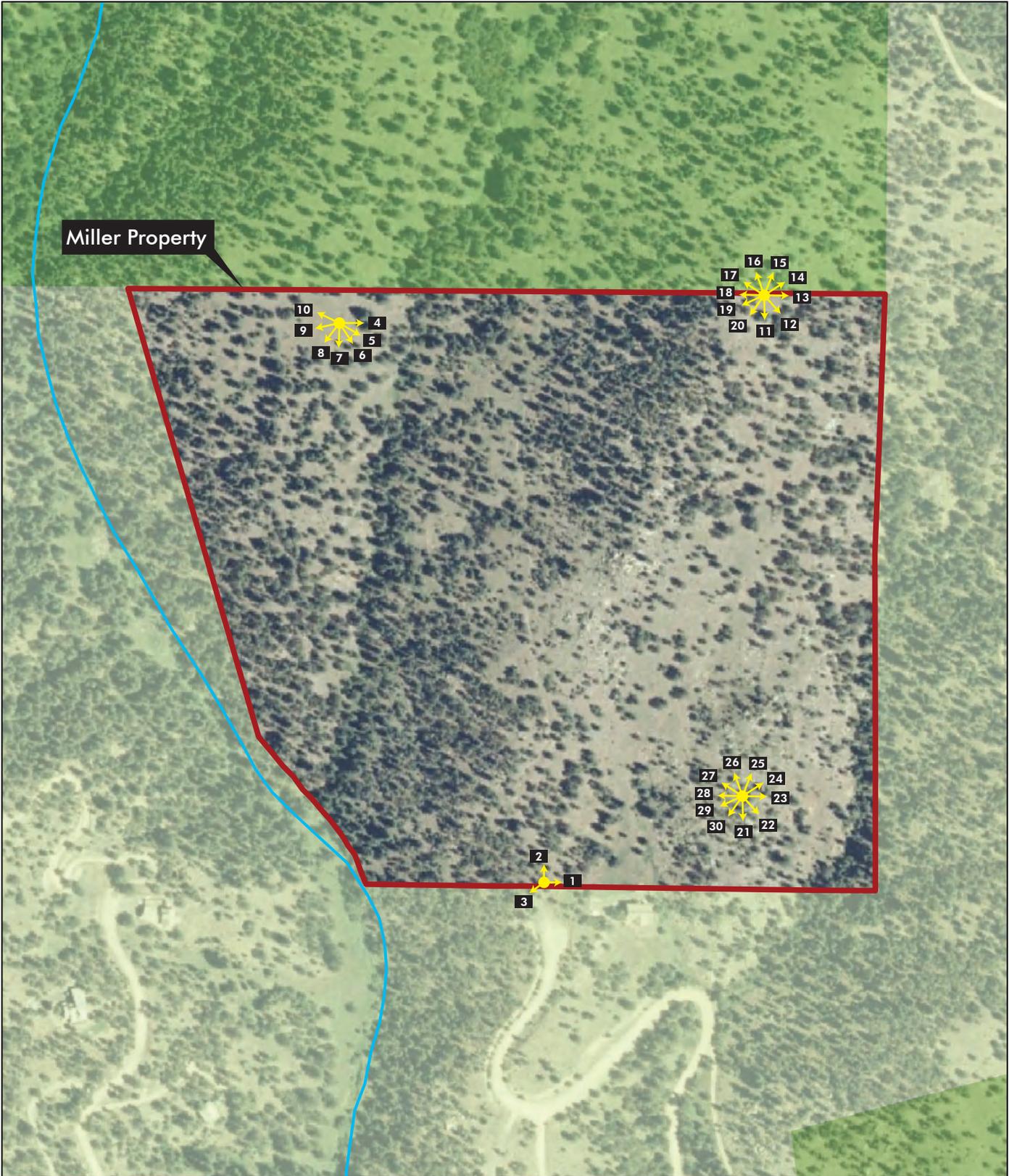
Prepared for: City of Boulder Open Space
 and Mountain Parks
 File: 4089 Figure 5.mxd
 June 2008

Vegetation Communities

Acronym, CmnName

	ADUD, Annual-dominant Upland Disturbance
	APS, American Plum Shrubland Alliance
	BBYH, Big Bluestem - (Yellow Indiangrass) Herbaceous Alliance
	BRSR, Baltic Rush Seasonally Flooded Herbaceous Alliance
	CFSH, Clustered Field Sedge Seasonally Flooded Herbaceous Alliance
	CHSH, Cattail Herbaceous Semipermanently Flooded Alliance
	CTH, Canada Thistle Weedy Forb Great Plains Herbaceous Vegetation [Provisional]
	CWH, Crested Wheatgrass Semi-Natural Herbaceous Alliance
	CWTS, (Coyote Willow, Sandbar Willow) Temporarily Flooded Shrubland Alliance
	CWW, Crack Willow (introduced) Temporarily Flooded Woodland Alliance
	DCAP, Disturbed Cultivated Agricultural Pasture
	DEV, Developed
	DFF, Douglas Fir Forest Alliance
	DFW, Douglas-fir Woodland Alliance
	ECTW, Eastern Cottonwood Temporarily Flooded Woodland Alliance
	ESSH, Emory Sedge Seasonally Flooded Herbaceous Alliance
	ETCW, Eastern Cottonwood Temporarily Flooded Woodland Alliance
	FBH, Foxtail Barley Temporarily Flooded Herbaceous Alliance
	FH, (Tall Fescue, Meadow Fescue) Herbaceous Alliance
	FSBH, Fourwing Saltbush Herbaceous Alliance
	GAH, Cultivated Alfalfa / Smooth Bromegrass Hay
	GH, Cultivated Grass Hay
	IC, Irrigated Cropland
	ISAP, Introduced Species Agricultural Pasture
	KBH, Kentucky Bluegrass Semi-Natural Herbaceous Alliance
	NNH, New Mexico Needlegrass Herbaceous Alliance
	NSH, Nebraska Sedge Seasonally Flooded Herbaceous Alliance
	NTH, Needle-and-Thread - Blue Grama Herbaceous Alliance
	OT, Ornamental Trees
	PDFF, Ponderosa Pine - Douglas-fir Forest Alliance
	PDFW, Ponderosa Pine - Douglas-fir Woodland Alliance
	PFDC, Perennial Forb Disturbance Community
	PMTH, Ponderosa Pine Wooded Mixed Herbaceous Alliance (Savannah)
	PPF, Ponderosa Pine Forest Alliance
	PPW, Ponderosa Pine Woodland Alliance
	PTSH, Ponderosa Pine Tallgrass Savannah Herbaceous Alliance
	PTW, Ponderosa Pine Temporarily Flooded Woodland Alliance
	QADF, Quaking Aspen - Douglas-fir Forest Alliance
	ROW, Russian Olive Semi-Natural Woodland Alliance
	SBH, Smooth Bromegrass Semi-Natural Herbaceous Alliance
	SDS, Snakeweed Dwarf-shrubland Alliance
	SKBH, Sun Sedge-Agassiz Kentucky Bluegrass Herbaceous
	SYS, Soapweed Yucca Evergreen Shrubland
	SYSH, Soapweed Yucca Shrub Savannah Herbaceous Alliance
	THA, Threesquare Herbaceous Alliance
	TSIS, Ill-scented Sumac Intermittently Flooded Shrubland Alliance
	TSSH, Three-leaved Sumac Shrub Savannah Herbaceous Alliance
	TSUS, Three-leaved Sumac Upland Shrubland Alliance
	WATER, Water
	WBSS, Water Birch Seasonally Flooded Shrubland Alliance
	WTFH, Western Wheatgrass Temporarily Flooded Herbaceous Alliance
	WWH, Western Wheatgrass Herbaceous Alliance

APPENDIX A
PHOTO POINT MAP AND DOCUMENTATION



Miller Property

<p>ERO ERO Resources Corp. 1842 Clarkson Street Denver, CO 80218 (303) 830-1188 Fax: (303) 830-1199</p>	<p>Miller Property RRA and Management Plan</p> <p>☛ ■ Photo Point</p> <p>0 300 600 Feet</p> <p>1 inch = 300 Feet</p> <p>N</p>	<p>Appendix A Photo Points</p> <p>Prepared for: City of Boulder Open Space and Mountain Parks File: 4089 Miller photo points.pdf July 2008</p>
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APPENDIX B
PLANT SPECIES

APPENDIX B PLANT SPECIES

Plant Species Observed during the July 11, 2008 Site Visit

Species Name	Synonym	Common Name	Ponderosa Pine Wooded Mixed Herbaceous Alliance (PMTH)	Ponderosa Pine Forest Alliance (PPF)	Ponderosa Pine - Douglas Fir Forest Alliance (PDFF)	Douglas Fir Forest Alliance (DFF)	Ponderosa Pine Tallgrass Savannah Herbaceous Alliance (PTSH)
Native Annual/Biennial Forbs							
Collinsia parviflora		maiden blue eyed Mary			■	■	■
Cynoglossum officinale		houndstongue	■	■	■		■
Melilotus officinalis		yellow sweetclover		■			■
Sisymbrium altissimum		tall tumbledustard	■	■			■
Tragopogon dubius ssp. major		yellow salsify	■	■	■		■
Verbascum thapsus		common mullein	■		■		■
Introduced Annual Grasses							
Anisantha tectorum	Bromus tectorum	cheatgrass	■	■	■		■
Secale cereale		cereal rye	■				■
Native Perennial Forbs							
Achillea lanulosa	Achillea millefolium	western yarrow			■		■
Amerosedum lanceolatum	Sedum lanceolatum	spearleaf stonecrop				■	
Artemisia ludoviciana		white sagebrush	■		■		■
Cerastium strictum	Cerastium arvense	field chickweed	■				■
Comandra umbellata ssp. pallida		pale bastard toadflax	■	■			■
Erysimum capitatum		sanddune wallflower			■		

Species Name	Synonym	Common Name	Ponderosa Pine Wooded Mixed Herbaceous Alliance (PMTH)	Ponderosa Pine Forest Alliance (PPF)	Ponderosa Pine - Douglas Fir Forest Alliance (PDFF)	Douglas Fir Forest Alliance (DFF)	Ponderosa Pine Tallgrass Savannah Herbaceous Alliance (PTSH)
Geranium richardsonii		Richardson's geranium	■	■			■
Helianthus pumilus		little sunflower	■				■
Heterotheca villosa		hairy false goldenaster		■	■		
Iris missouriensis		Rocky Mountain iris	■				■
Lithospermum incisum		narrowleaf stoneseed			■		
Lupinus sp.		lupine				■	
Mentha arvensis		wild mint					
Mertensia lanceolata		prairie bluebells				■	■
Monarda fistulosa var. menthifolia		mintleaf bergamot					
Penstemon strictus		Rocky Mountain penstemon	■				■
Rubus idaeus ssp. melanolasius		grayleaf red raspberry					
Scutellaria brittonii		Britton's skullcap				■	
Introduced Perennial Forbs							
Breca arvensis	Cirsium arvense	Canada thistle			■		
Convolvulus arvensis		field bindweed	■		■		■
Rumex acetosella	Acetosella vulgaris	common sheep sorrel	■				■
Taraxacum officinale		common dandelion					
Native Perennial Cool Season Grass and Grasslike							
Carex geyeri		Geyer's sedge			■	■	
Carex nebrascensis		Nebraska sedge					

Species Name	Synonym	Common Name	Ponderosa Pine Wooded Mixed Herbaceous Alliance (PMTH)	Ponderosa Pine Forest Alliance (PPF)	Ponderosa Pine - Douglas Fir Forest Alliance (PDFF)	Douglas Fir Forest Alliance (DFF)	Ponderosa Pine Tallgrass Savannah Herbaceous Alliance (PTSH)
Carex praeegracilis		clustered field sedge					
Carex scoparia		broom sedge					
Carex simulata		analogue sedge					
Carex utriculata		Northwest Territory sedge					
Ceratochloa carinata	Ceratochloa marginata	mountain brome, California brome	■				■
Elymus glaucus		blue wildrye		■	■		
Elymus trachycaulus	Agropyron trachycaulum	slender wheatgrass		■	■	■	
Hesperostipa comata	Stipa comata	needle and thread	■				■
Juncus arcticus ssp. ater	Juncus balticus	Baltic rush					
Nassella viridula	Stipa viridula	green needlegrass	■				■
Pascopyrum smithii	Agropyron smithii	western wheatgrass		■	■		
Poa fendleriana		muttongrass				■	
Introduced Perennial Cool Season Grasses							
Bromopsis inermis	Bromus inermis	smooth brome	■	■			■
Dactylis glomerata		orchardgrass	■	■			■
Phleum pratense		timothy	■				■
Native Perennial Warm Season Grass							
Muhlenbergia montana		mountain muhly	■				■
Native Shrubs							
Acer glabrum		Rocky Mountain maple					

Species Name	Synonym	Common Name	Ponderosa Pine Wooded Mixed Herbaceous Alliance (PMTH)	Ponderosa Pine Forest Alliance (PPF)	Ponderosa Pine - Douglas Fir Forest Alliance (PDFF)	Douglas Fir Forest Alliance (DFF)	Ponderosa Pine Tallgrass Savannah Herbaceous Alliance (PTSH)
Amorpha fruticosa var. angustifolia		desert false indigo	■				■
Arctostaphylos uva-ursi		kinnikinnick			■	■	
Artemisia frigida		fringed sage	■	■	■		■
Padus virginiana ssp. melanocarpa	Prunus virginiana ssp. melanocarpa	black chokecherry	■		■		■
Native Trees							
Pinus contorta ssp. latifolia		lodgepole pine			■		
Pinus ponderosa ssp. scopulorum		ponderosa pine	■	■	■		■
Pseudotsuga menziesii		Douglas-fir			■		
Sabina scopulorum	Juniperus scopulorum	Rocky Mountain juniper		■		■	■

APPENDIX C
REFERENCES

APPENDIX C

REFERENCES

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PHOTO POINTS
MILLER



Photo 1 - View east along property boundary on south side.



Photo 2 - View north of old road that bisects the property from south to north.

PHOTO POINTS
MILLER



Photo 3 - Closure sign at end of Pika Road on south side of property.



Photo 4 - View east from northwest quarter of property.

**PHOTO POINTS
MILLER**



Photo 5 - View southeast from northwest quarter of property.



Photo 6 - View south southeast from northwest quarter of property.

**PHOTO POINTS
MILLER**



Photo 7 - View south from northwest quarter of property.



Photo 8 - View southwest from northwest quarter of property.

**PHOTO POINTS
MILLER**



Photo 9 - View west from northwest quarter of property.



Photo 10 - View northwest from northwest quarter of property.

PHOTO POINTS
MILLER



Photo 11 - View south from high point in northeast quarter of property.



Photo 12 - View southeast from high point in northeast quarter of property.

PHOTO POINTS
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Photo 13 - View east from high point in northeast quarter of property.



Photo 14 - View northeast from high point in northeast quarter of property.

PHOTO POINTS
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Photo 15 - View north from high point in northeast quarter of property.



Photo 16 - View northwest from high point in northeast quarter of property.

PHOTO POINTS
MILLER



Photo 17 - View west from high point in northeast quarter of property.



Photo 18 - View west from high point in northeast quarter of property.

PHOTO POINTS
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Photo 19 - View southwest from high point in northeast quarter of property.



Photo 20 - View south southwest from high point in northeast quarter of property.

PHOTO POINTS
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Photo 21 - View south from southeast quarter of property.



Photo 22 - View southeast from southeast quarter of property.

PHOTO POINTS
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Photo 23 - View east from southeast quarter of property.



Photo 24 - View northeast from southeast quarter of property.

PHOTO POINTS
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Photo 25 - View north from southeast quarter of property.



Photo 26 - View north northwest from southeast quarter of property.

PHOTO POINTS
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Photo 27 - View northwest from southeast quarter of property.



Photo 28 - View west northwest from southeast quarter of property.

PHOTO POINTS
MILLER



Photo 29 - View west from southeast quarter of property.



Photo 30 - View southwest from southeast quarter of property.