

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

Prepared for—

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

Prepared by—

ERO Resources Corporation
1842 Clarkson Street
Denver, Colorado 80218
(303) 830-1188

ERO Project #4089

August 11, 2008

CONTENTS

Summary	1
General Description of Site Resources	1
Open Space Values Based on Resource Assessment.....	1
Management Issues Based on Resource Assessment	1
Introduction	2
Purpose.....	2
Methods	2
Report Organization.....	2
General Description.....	3
Location and Access	3
Acquisition.....	3
Land Use	3
Landscape Context.....	3
Neighboring Properties	4
Site Resources	5
Topography	5
Geology.....	5
Hydrology	5
Vegetation.....	6
Forest Condition	8
Wildlife	9
Cultural Resources	9
Recreation	10
Property Infrastructure	10
Legal Considerations	10
Property Management Plan	11
Management Area Designation.....	12
Public Access.....	12
Management Issues.....	12
Management Strategies.....	13

TABLE

Table 1. Noxious weeds present on the property.....	7
Table 2. Common characteristics of forested types on the property.	8

FIGURES

- Figure 1. Vicinity
- Figure 2. Property Location
- Figure 3. Property Features
- Figure 4. Soils
- Figure 5. Vegetation Communities

APPENDICES

- Appendix A: Photo Point Map and Photo Documentation
- Appendix B: Plant Species
- Appendix C: References

SUMMARY

JACK PROPERTY		
APPROXIMATE SIZE	ACQUISITION DATE	CURRENT ZONING
21 acres	June 22, 2007	Forestry
MANAGEMENT DESIGNATION	PUBLIC ACCESS	
Habitat Conservation Area	Access only with HCA off-trail permit	

GENERAL DESCRIPTION OF SITE RESOURCES

The property lies on the west side of the slope that rises up to Bear Peak, the most prominent peak along the foothills of Boulder. The Bear Peak West Ridge Trail passes through the northern tip of the property and heads along the west ridge of Bear Peak, delivering views of the Indian Peaks and Walker Ranch to the west and the eastern plains down Bear Canyon. Topography on the property generally slopes to the south and southwest. A ponderosa pine/Douglas fir woodland dominates the property with Douglas fir dominating north facing slopes and shaded areas. The property encompasses a drainage that feeds into Harmon Gulch.

OPEN SPACE VALUES BASED ON RESOURCE ASSESSMENT

The property is important for open space because it maintains—

- The visual integrity of the west side of Bear Peak
- Contiguous forested habitat within the Boulder Mountain Park system
- Winter range for mule deer and 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—

- Fire hazard due to current and future fuel loading
- Unauthorized public access

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 21-acre Jack 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 area is characterized by steep, forested slopes interspersed with a grassy meadow. A ponderosa pine/Douglas fir woodland dominates the property that lies on the western slope below Bear Peak.

LOCATION AND ACCESS

The property is located in southern Boulder County about 4 miles southwest of downtown Boulder (Figure 1). Specifically, the property is located in Sections 11 and 14 in Township 1 South, Range 71 West of the 6th P.M. (Figure 2).

Primary access is from Bison Drive along the western edge 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 1.5 miles to the property. To a large extent, Bison Drive defines the west side of the property. Where Bison Drive makes a hairpin turn near the northern tip of the property, there is access to an old road on the property (Figure 3). This road is gated along Bison Drive and on the east side of the property; however, emergency access to the property and Bear Peak West Ridge Trail are possible.

ACQUISITION

The City of Boulder acquired the 21 acres of the Jack Property previously encumbered by an OSMP conservation easement on June 22, 2007. The total price was \$100,085.

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 three sides by City of Boulder Open Space. Harmon Gulch is about ½ mile to the southwest of the property. Bear Peak Mountain is located about 1 mile to the southeast.

NEIGHBORING PROPERTIES

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
Hays, Dana 2700 Bison Dr. PO Box 6078; Boulder, CO 80306-6078 Parcel No. 157900100034	Northwest of property Single family rural residence
Lea, Donald D. & Barbara R. 2101 Bison Dr. Boulder, CO 80302 Parcel No. 157900100020	West of property Single family rural residence
Jack, James T. & Iris M. 2717 Bison Dr. Boulder, CO 80302 Parcel No. 157900100040	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 2601 Bison Dr. Real Estate & Open Space PO Box 791; Boulder, CO 80306-0791 Parcel No. 157900100033 <i>City of Boulder Open Space</i>	North of property Undeveloped land Hays Property
City of Boulder Eldorado Springs Real Estate & Open Space PO Box 791; Boulder, CO 80306-0791 Parcel No. 157900000001 <i>City of Boulder Open Space</i>	East of property Undeveloped land – Landmark Designation of the Flagstaff Mountain Cultural Landscape District
City of Boulder 2104 Bison Dr. 1777 Broadway; Boulder, CO 80302 Parcel No. 157900100032 <i>City of Boulder Open Space</i>	South of Property Undeveloped land Fallon Property

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 and southwest. The property encompasses a portion of Harmon Gulch and slopes leading to the surrounding mountain ridges. Elevations on the property reach about 7,460 feet near Bear Peak West Ridge Trail located at the northern end of the property. Green Mountain and Bear Peak, located east of the property, reach elevations of about 8,140 feet and 8,460 feet respectively. 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 generally 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 any designated floodplain area. According to topographic information from the USGS 7.5 minute quadrangle map, surface water on the property would flow towards Harmon Gulch (USGS 1965, revised 1949). According to the Colorado Division of Water Resources, a reservoir identified as Harmon Gulch Lake is located near the southeast corner of the property (CDWR 2008).

SUBSURFACE HYDROLOGY

Based on a review of the USGS Eldorado Springs Quadrangle, shallow ground water would flow in a southwesterly direction towards the South Boulder Creek Drainage (USGS 1965, revised 1994). There is one permitted water well on the property (CDWR 2008), which is described below under *Water Rights*. 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 majority of the property is dominated by the ponderosa pine – Douglas-fir woodland alliance. The north facing slopes and shaded areas are dominated by the Douglas-fir forest alliance, Douglas fir woodland alliance, and quaking aspen – Douglas fir forest alliance.

PONDEROSA PINE – DOUGLAS FIR WOODLAND ALLIANCE (PDFW)

The western half of the property is dominated by the ponderosa pine – Douglas fir woodland alliance. The dominant overstory species in this community type are ponderosa pine (*Pinus ponderosa* ssp. *scopulorum*), Rocky Mountain juniper (*Sabina scopulorum*), and Douglas fir (*Pseudotsuga menziesii*). Dominant understory species include introduced grasses such as smooth brome (*Bromopsis inermis*), 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 as 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)

In the southeastern portion of the property along north facing slopes, 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.

DOUGLAS FIR WOODLAND ALLIANCE (DFW)

In the southern portion of the property and the northern portions where the Douglas fir forest meets the ponderosa pine community a Douglas fir woodland alliance is present. This community type is dominated by Douglas fir but ponderosa pine and lodgepole pine (*Pinus contorta* ssp. *latifolia*) are also common. Common understory species include hairy false goldenaster, Geyer's sedge, and kinnikinnick.

QUAKING ASPEN – DOUGLAS FIR WOODLAND ALLIANCE (QADF)

In the northern section of the property on the shaded northern slopes, a quaking aspen – Douglas fir woodland is present. This community type is dominated by Douglas fir and quaking aspen

(*Populus tremuloides*). Common understory species include kinnikinnick, muttongrass, and smooth brome.

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 visit. The property falls within the Boulder Foothills Potential Conservation Area (PCA).

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 diffuse knapweed (*Acosta diffusa*). Canada thistle occurs in the northeastern corner along the main road; houndstongue was found in low areas west of the Douglas-fir forest communities; and diffuse knapweed was found along the shoulders of the main road. 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 on the shoulders of the main road. Cheatgrass and common mullein are found primarily along the road and in the western half of the property. Smooth brome is not a state-listed noxious weed, but it is considered an OSMP priority weed and is dominant on the southern facing slopes of the property.

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>Cirsium arvense</i>	Moderate	x	B
cheatgrass	<i>Anisantha tectorum</i>	Moderate	not listed	C
common mullein	<i>Verbascum thapsus</i>	None	not listed	C
diffuse knapweed	<i>Acosta diffusa</i>	High	x	B
field bindweed	<i>Convolvulus arvensis</i>	None	not listed	C
houndstongue	<i>Cynoglossum officinale</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. During the site visit, scattered infestations of mistletoe (*Arceuthobium vaginatum* subsp. *crpyopodum*) was noted on individual trees. Stridulations (i.e., noises made by insects rubbing body parts together) were evident and may indicate recent infestation by mountain pine beetle. Some dead individual trees were noted; however, overall forest condition did not indicate mountain pine beetle activity.

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, sign (i.e., scat and game trails) from elk and mule deer was observed. 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. Harmon Gulch, in particular, is likely a concentration points 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 American robin, white-breasted nuthatch, 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 (OAHP 2008). This database contains information on documented federal or state studies or findings regarding any cultural resources. According to the search, no sites of surveys occur on the property (OAHP 2008). However, other potentially unidentified cultural resources may exist within the property boundaries.

OTHER RESOURCES AND DESIGNATIONS

The property is not located within any areas designated for cultural resources in the Boulder County Comprehensive Plan; however, landmark designated areas associated with the Flagstaff Mountain Cultural District occur along the eastern edge of the property (Boulder County 2008b).

RECREATION

Public access is not permitted on the property. Prior to public ownership, the property was privately owned and was not open to public access. The Bear Peak West Ridge Trail passes through the northern tip of the property and heads along the west ridge of Bear Peak. Bear Peak is a dominating peak when viewed from Boulder, and is a popular mountain for joggers and hikers, easily accessible from the National Center for Atmospheric Research (NCAR), at the end of Table Mesa Drive.

PROPERTY INFRASTRUCTURE

STRUCTURES

No structures exist on the property.

INFRASTRUCTURE AND UTILITIES

Barbed-wire fencing on the east side of the property is in disrepair and should be removed. A small section of fence along Bison Road in the northernmost corner appears to be new with the intent of blocking access to the property by circumventing the gate. No utilities were observed on the property.

ROADWAYS AND TRAILS

A two-track access road enters the property on the north end from Bison Drive. The road provides access to the upper portion of the Bear Peak West Ridge Trail. Evidence of an old road bed extends south through the meadow area on the property. This road does not appear to be recently used and is overgrown in several areas.

LEGAL CONSIDERATIONS

WATER RIGHTS

Purchase of the property did not include any water rights. According to the Colorado Division of Water Resources (CDWR 2008), there is one permitted domestic water well on the property (permit #132237). This well was not located during the site visit.

MINERAL RIGHTS

The purchase of the 21 acres included all 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 adequate access to the area via the Bear Peak West Ridge Trail, which passes through the northern tip of the property before the ascent to Bear Peak.

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 eastern boundary is down and in disrepair.

Noxious Weeds. Bison Drive is the primary vector for the spread of noxious weeds in the area.

Forest Condition. Some areas of forests are overgrown due to fire suppression and historic management with some trees stressed making them susceptible to beetle attacks.

Wildfire Hazard. Current and future (i.e., due to mountain pine beetle kill) fuel loading make the area susceptible to wildfire.

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.

PROPERTY SIGNING

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

Action: Install OSMP signs along property boundary.

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 Bison Drive.

Action: Consider herbicide spraying along 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 east side of the property.

Action: Remove ladder fuels.

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

WILDLIFE

Objective 1: Protect and enhance important wildlife habitat on the property.

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

Action: Prohibit dogs on the property.

Action: Maintain dogs on leash and on designated trail for Bear Peak West Ridge Trail.

CONSERVATION AND COORDINATION

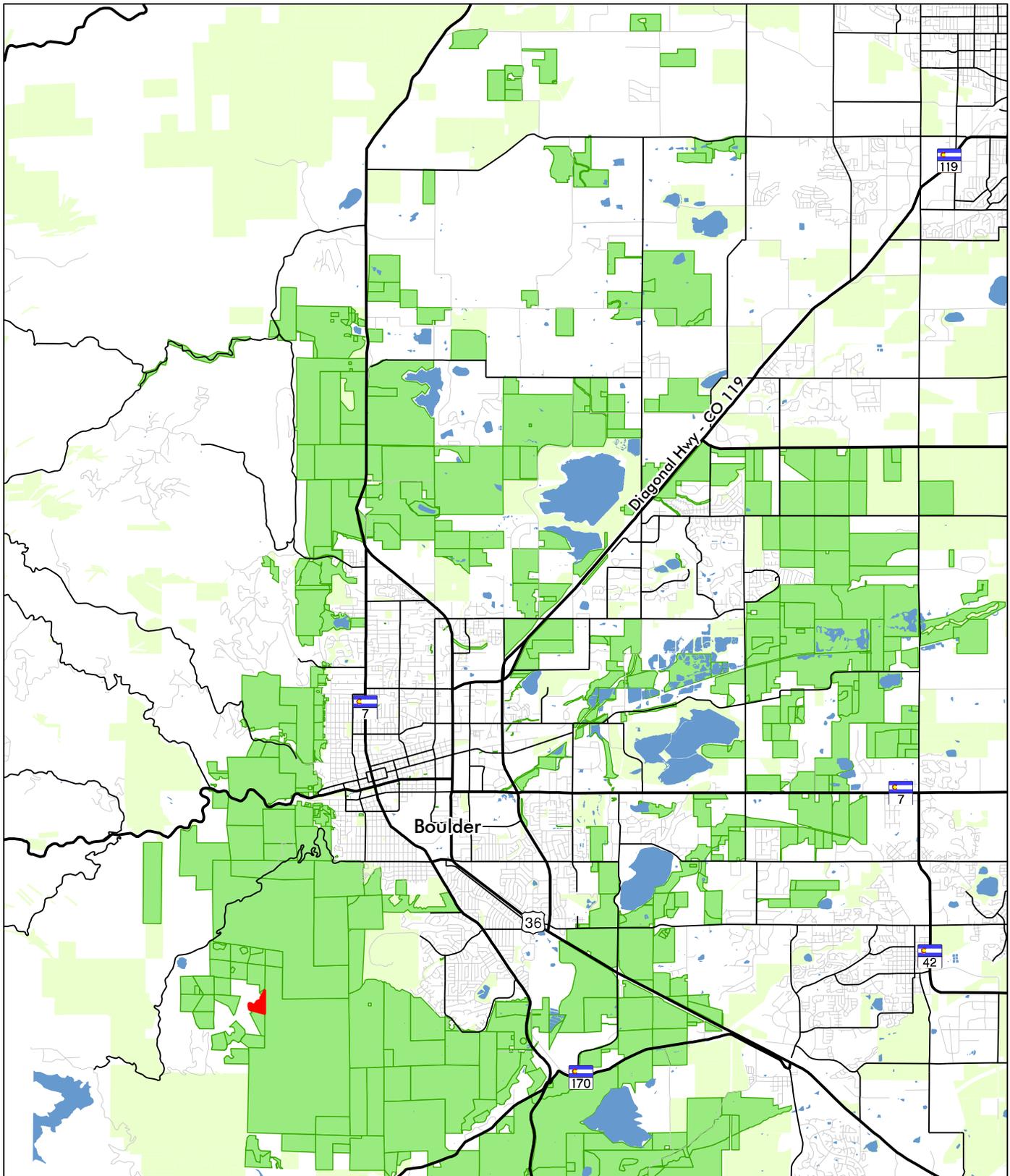
Objective 1: Work with adjacent landowners to provide consistent, sustainable management to the area accessed by Bison Drive.

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



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

Jack Property RRA and Management Plan

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

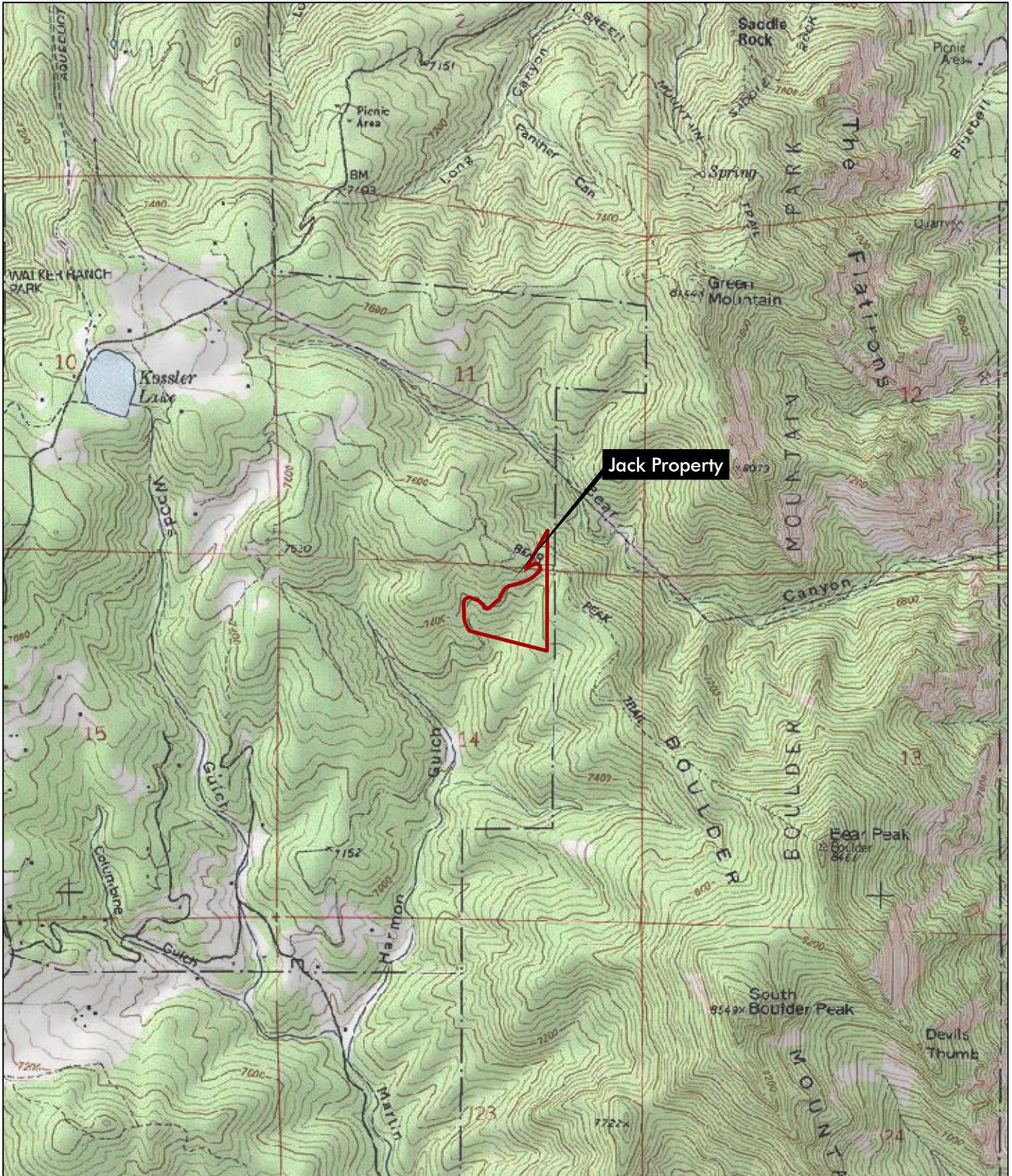


1 inch = 2 miles



**Figure 1
 Vicinity Map**

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



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

Jack Property RRA and Management Plan

Sections 11 & 14, T1S, R71W

UTM NAD83 Coordinate Zone 13N; 473449mE, 4424428mN

USGS Eldorado Springs CO, Quadrangle

Boulder County, Colorado

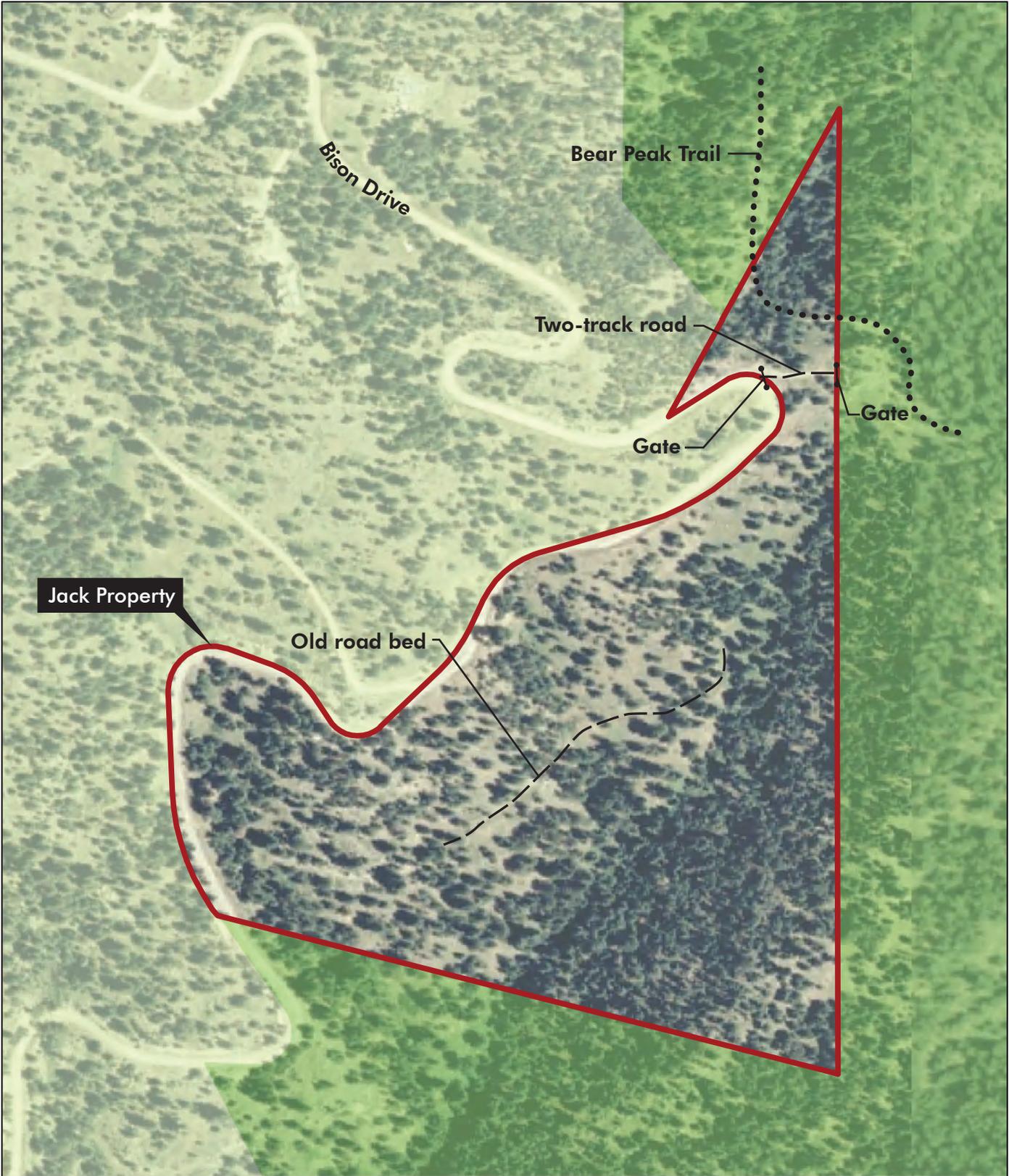


1 inch = 2,000 feet

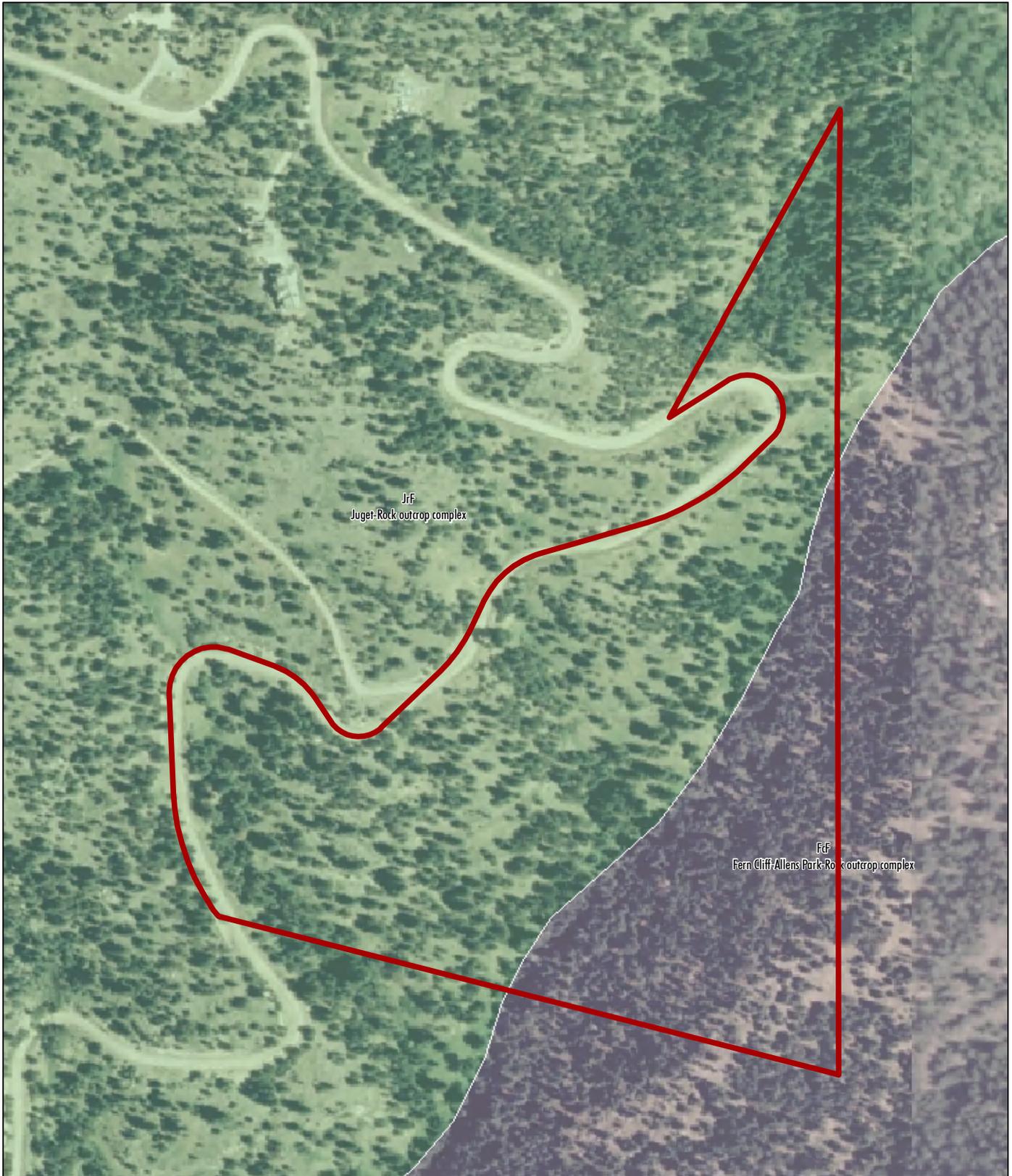


**Figure 2
 Location**

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

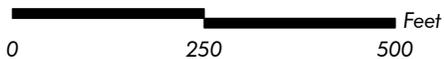


<p>ERO ERO Resources Corp. 1842 Clarkson Street Denver, CO 80218 (303) 830-1188 Fax: (303) 830-1199</p>	<p>Jack Property RRA and Management Plan</p> <ul style="list-style-type: none"> ■ City of Boulder Open Space ■ Other Open Space <p>0 250 500 Feet</p> <p>1 inch = 250 Feet</p> <p style="text-align: right;">N </p>	<p>Figure 3 Property Features</p> <p>Prepared for: City of Boulder Open Space and Mountain Parks File: 4089 Figure 3 Jack.pdf July 2008</p>
---	---	---



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

Jack Property RRA and Management Plan



1 inch = 250 Feet



**Figure 4
 Soils**

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



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

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



1 inch = 250 Feet



Figure 5
Vegetation Communities

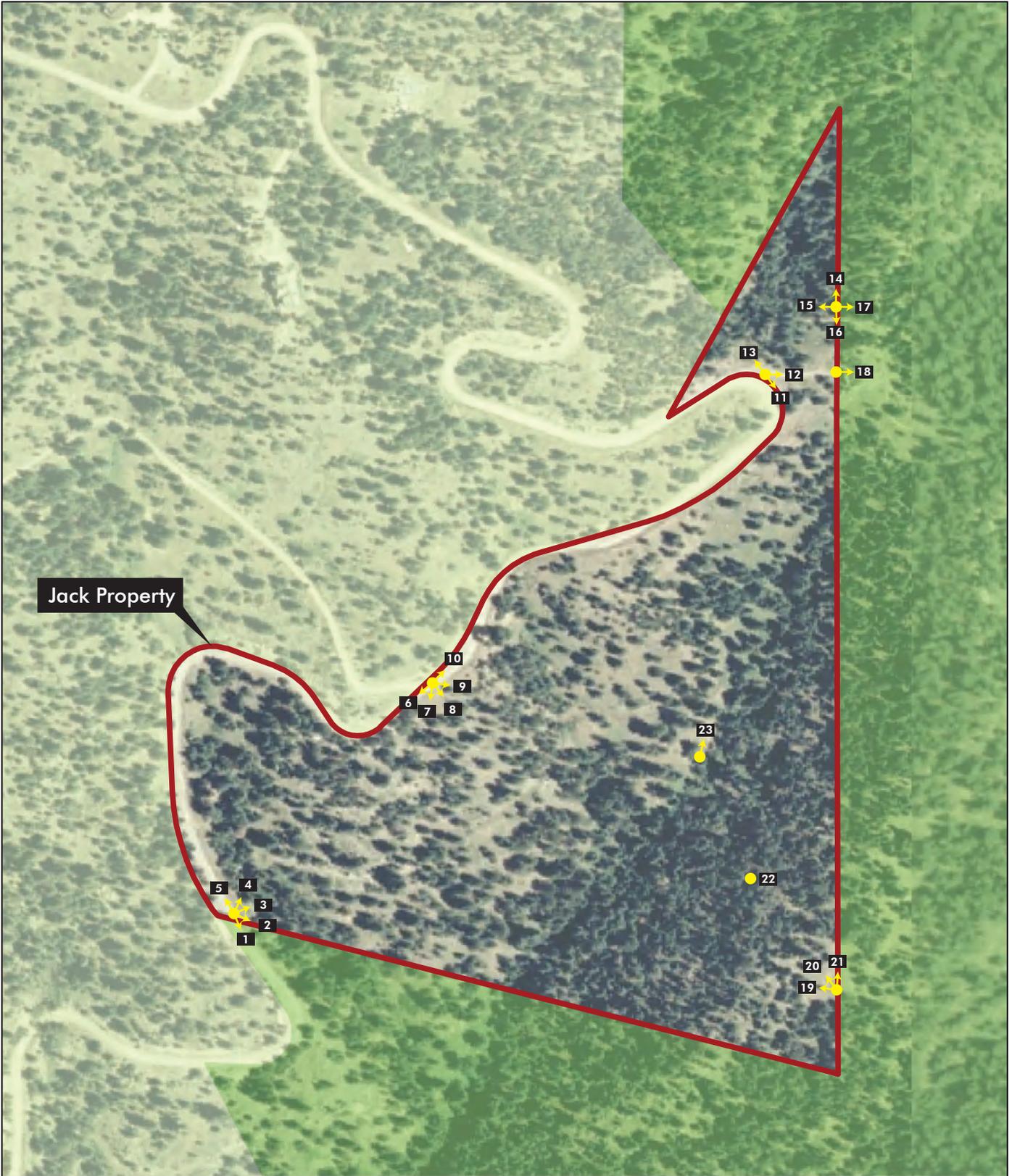
Prepared for: City of Boulder Open Space
 and Mountain Parks
 File: 4089 Figure 5.mxd
 June 2008

Vegetation Communities

Acronym, CmnName

	ADUD, Annual-dominant Upland Disturbance
	APS, American Plum Shrubland Alliance
	BBYH, Big Bluestem - (Yellow Indiangrass) Herbaceous Alliance
	BRSF, 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



Jack Property

<p>ERO ERO Resources Corp. 1842 Clarkson Street Denver, CO 80218 (303) 830-1188 Fax: (303) 830-1199</p>	<p>Jack Property RRA and Management Plan</p> <p>●➔■ Photo Point</p> <p>0 250 500 Feet</p> <p>1 inch = 250 Feet</p> <p>N</p>	<p>Appendix A Photo Points</p> <p>Prepared for: City of Boulder Open Space and Mountain Parks File: 4089 Jack photo points.pdf July 2008</p>
---	--	--

APPENDIX B
PLANT SPECIES

APPENDIX B PLANT SPECIES

Plant Species Observed during the June 20, 2008 Site Visit

Species Name	Synonym	Common Name	Ponderosa Pine - Douglas Fir Woodland Alliance (PDFW)	Quaking Aspen - Douglas Fir Forest Alliance (QADF)	Douglas Fir Forest Alliance (DFE)	Douglas Fir Woodland Alliance (DFW)
Native Annual/Biennial Forbs						
Collinsia parviflora		maiden blue eyed Mary			■	■
Introduced Annual/Biennial Forb						
Acosta diffusa	Centaurea diffusa	diffuse knapweed	■			
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	■			

Species Name	Synonym	Common Name	Ponderosa Pine - Douglas Fir Woodland Alliance (PDFW)	Quaking Aspen - Douglas Fir Forest Alliance (QADF)	Douglas Fir Forest Alliance (DFF)	Douglas Fir Woodland Alliance (DFW)
Eriogonum sp.		wild buckwheat	■			
Erysimum capitatum		sanddune wallflower		■		■
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			■	■
Solidago sp.		goldenrod		■		
Introduced Perennial Forbs						
Convolvulus arvensis		field bindweed	■			
Rumex acetosella	Acetosella vulgaris	common sheep sorrel	■			
Taraxacum officinale		common dandelion				■
Native Perennial Cool Season Grasses and Grass like						
Carex geyeri		Geyer's sedge		■	■	■
Ceratochloa carinata	Ceratochloa marginata	mountain brome, California brome	■			■

Species Name	Synonym	Common Name	Ponderosa Pine - Douglas Fir Woodland Alliance (PDFW)	Quaking Aspen - Douglas Fir Forest Alliance (QADF)	Douglas Fir Forest Alliance (DFF)	Douglas Fir Woodland Alliance (DFW)
Elymus glaucus		blue wildrye		■		■
Elymus trachycaulus	Agropyron trachycaulum	slender wheatgrass			■	■
Hesperostipa comata	Stipa comata	needle and thread	■			
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 Grasses						
Muhlenbergia montana		mountain muhly	■			
Native Shrubs						
Amelanchier alnifolia		Saskatoon serviceberry		■		
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	■			
Populus tremuloides		quaking aspen		■		
Pseudotsuga menziesii		Douglas-fir				■

Species Name	Synonym	Common Name	Ponderosa Pine - Douglas Fir Woodland Alliance (PDFW)	Quaking Aspen - Douglas Fir Forest Alliance (QADF)	Douglas Fir Forest Alliance (DFE)	Douglas Fir Woodland Alliance (DFW)
Sabina scopulorum	Juniperus scopulorum	Rocky Mountain juniper				■

APPENDIX C
REFERENCES

APPENDIX C

REFERENCES

- Boulder County. 1996. County Open Space Plan.
<<http://www.co.boulder.co.us/lu/bccp/bccpmap/osplan.pdf>>. January 25.
- Boulder County. 2008a. Boulder County Assessor's Office.
<http://www.co.boulder.co.us/assessor/asrproprecords/assess_input.asp>.
January 24.
- Boulder County. 2008b. Boulder County Comprehensive Plan, Archaeologically Sensitive Areas. <http://www.co.boulder.co.us/lu/bccp/cult_res.htm>. January 25.
- Boulder County. 2008c. Boulder County Zoning District Map.
<<http://www.co.boulder.co.us/lu/pdf/zoningmap.pdf>>. January 25.
- Burns, Russell M., and Barbara H. Honkala (tech. cords.). 1990. Silvics of North America: 1. Conifers. Agriculture Handbook 654. U.S. Department.
- CDWR (Colorado Division of Water Resources). 2008. Online Mapping.
<<http://165.127.23.116/website/ltool>>. January 24.
- CNHP. (Colorado Natural Heritage program). 2006. Potential Conservation Area GIS database.
- Manning, R., C. Jacobi, and J.L. Marion. 2006. Recreation Monitoring at Acadia National Park. The George Wright Forum. Volume 23, Number 2 (2006).
- NDIS (Natural Diversity Information Source). 2008. GIS mapping of significant habitat elements for various wildlife species. Prepared by the Colorado Division of Wildlife.
- NRCS (National Resource Conservation Service). 1975. Soil Survey of Boulder County Area, Colorado. Denver, CO.
- OAHP (Colorado Historical Society, Office of Archeology and Historic Preservation). 2008. Records Search. January 28. Denver, CO.
- OSMP (City of Boulder Open Space and Mountain Parks). 2005. Visitor Master Plan.
- Tweto, Ogden. 1979. Geologic Map of Colorado. U.S. Geological Survey.
Denver, CO.
- USGS (U.S. Geological Survey). 1965, revised 1994. Eldorado Springs Quadrangle.
Denver, CO.

PHOTO POINTS
JACK



Photo 1 - View southeast along Bison Drive in southwest corner of property.



Photo 2 - View east across property from southwest corner of property.

PHOTO POINTS
JACK



Photo 3 - View northeast from southwest corner of property.



Photo 4 - View north from southwest corner of property.

PHOTO POINTS
JACK



Photo 5 - View northwest along Bison Drive from southwest corner of property.



Photo 6 - View southwest along Bison Drive and north side of property.

PHOTO POINTS
JACK



Photo 7 - View south from Bison Drive on north side of property.



Photo 8 - View southeast from Bison Drive on north side of property.

PHOTO POINTS
JACK



Photo 9 - View east from Bison Drive on north side of property.



Photo 10 - View northeast along Bison Drive and north side of property.

PHOTO POINTS
JACK



Photo 11 - View southeast along Bison Drive from two-track on north side.



Photo 12 - View east of two-track through north side of property.

PHOTO POINTS
JACK



Photo 13 - View northwest from two-track through north side of property.



Photo 14 - View north along east side of property from Bear Peak Trail.

PHOTO POINTS
JACK



Photo 15 - View northwest along Bear Peak Trail.



Photo 16 - View south along east side of property from Bear Peak Trail.

PHOTO POINTS
JACK



Photo 17 - View southeast along Bear Peak Trail.



Photo 18 - View east of Bear Peak Trail from two-track on north side of property.

PHOTO POINTS
JACK



Photo 19 - View west from clearing in southeast corner of property.



Photo 20 - View northwest from clearing in southeast corner of property.

PHOTO POINTS
JACK



Photo 21 - View north from clearing in southeast corner of property.



Photo 22 - Typical fuel loading in Douglas fir forest community on property.

PHOTO POINTS
JACK



Photo 23 - View northeast along transition between vegetation communities on property.