

**CARIBOU RANCH OPEN SPACE
MANAGEMENT PLAN**

Boulder County Parks and Open Space Department

Approved by the Board of County Commissioners

October 15, 2002

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EXECUTIVE SUMMARY

Caribou Ranch Open Space is 2,180 acres of land located 1.5 miles north of the Town of Nederland. The protection of this property provides for the conservation of significant wildlife habitat, plant communities, historical resources, watershed values, and scenic quality. Caribou Ranch Open Space is a montane parkland, a node of exceptional biodiversity and one of only a handful of these sites in western Boulder County that retains most of its ecological functions. The area can also provide outdoor recreational opportunities primarily through hiking, horseback riding, cross-country skiing, snowshoeing, fishing, wildlife viewing, and environmental education. Finding a balance between resource protection, land management, and human enjoyment of the property will be the key to the well being of the area.

The management plan presents the general direction for managing the property. Through goals, objectives, management tasks, and maps, the broad picture is presented. Not all the finer details have been worked out; more in-depth studies on such things as forest management prescriptions, restoration and interpretation of historical sites and buildings, trailhead location, and some trail alignments are needed. The management plan is dynamic and flexible, and can change as our knowledge of the property increases or as management situations change.

One of the highlights of the experience for the visiting public will be viewing the historic sites found on the property from the mining and homesteading eras. The Switzerland Trail Railroad, Blue Bird Mine Complex, DeLonde Homestead, and the town site of Batesville will be managed to allow for public visitation. The Switzerland Trail Railroad will be the heart of the trail system, taking visitors to the historical sites.

Opportunities to view wildflowers, and wildlife and their telltale signs will also enrich the public's experience. Abundant bird life, butterflies, mammal tracks, and bugling elk may all be encountered. The fall elk rut that occurs on the property will be an interpretive opportunity.

We also have a goal of finding an appropriate trail alignment that provides a connection to trail opportunities north of Caribou Ranch Open Space. Planning and coordination with adjacent property owners is needed.

Protecting significant natural and cultural resources will occur through several management activities. Two conservation areas, which will be closed to the public, are designated. They act to protect important wildlife, plant and cultural resources, provide effective habitat for human sensitive species, and protect watershed quality by minimizing human contact with surface waters. There will be a spring closure (April 1 – June 30) of the property to minimize impacts to calving elk. Domestic dogs will not be permitted on the property to further protect wildlife and watershed values. As agreed to in the purchase agreement for the property, mountain biking will not be allowed.

The management plan also provides objectives and tasks for many other resource issues. Key locations in the forest will be managed to protect forest health and reduce wildfire hazard. Wildfires will be aggressively fought, and post-fire reclamation will be conducted to minimize impacts to surface waters. Noxious weeds will be controlled. The riparian area in DeLonde Meadow will be enhanced, while its hay meadows will continue to be cut, as they have been for over 100 years. The occurrences and populations of bats, birds, amphibians, and some mammals will be monitored.

SUMMARY OF RESOURCE EVALUATION

(For a more detailed assessment of the resources, including references and scientific names, see: “Draft Caribou Ranch Resource Evaluation” May 2002, Boulder County Parks and Open Space)

1.0 INTRODUCTION

Caribou Ranch has a long history of being a special place in western Boulder County. Its geographic setting has made it a high quality node of biodiversity. The great variety of vegetation types – from montane woodland to subalpine forest, from dry meadow to beaver pond wetland – provide habitat for a significantly large number of species. Native people of the Front Range seasonally resided on the property and found abundant game, water and plant resources, as well as sites that had spiritual meaning. Early homesteaders and ranchers were drawn to the presence of timber, water and grass. Miners found silver and gold, and developed mills for processing. Railroad moguls found a path to link Boulder with the mining districts of the county. The movie industry found the right scenery to shoot a movie set in the “old west” with the making of the 1966 version of “stagecoach.” Rock and roll stars of the 1970s found a place that provided solitude and inspired creativity. All this, and much more, is a part of this rich location.

We wish to thank Jim Guercio and family for taking the land saving actions, which protect Caribou Ranch Open Space for the enjoyment of current and future citizens of the county. We thank the citizens of Boulder County and the City of Boulder for providing the financial means to protect this property. We also wish to thank Great Outdoors Colorado for providing a grant that helped fund the Resource Evaluation.

1.1 General Description of the Property

Caribou Ranch Open Space is located in western Boulder County, Colorado, 1 mile north of the Town of Nederland, 4 miles south of the Town of Ward and 13 miles west of the City of Boulder (Figure 1). Additionally, the property is 1.5 miles west of the Peak-to-Peak Scenic Byway, primarily south of the Rainbow Lakes Road (County Road 116), north of Sherwood Gulch Road (County Road 126) and 1 mile east of the old Caribou Townsite and Caribou Park.

The property was acquired from James Guercio beginning in December of 1996 and completed through a second and revised acquisition in April of 2001. The lands acquired outright for open space purposes total 2180 acres. An additional 1489 acres are protected through a conservation easement and are owned by Mr. Guercio. Also acquired were water rights and all minerals owned by Mr. Gurecio under the open space.

At the time the County was negotiating for the land, the City of Boulder Utilities Department had been negotiating with Mr. Guercio for an easement where the Silver Lake Pipeline crosses the property and to further protect the City’s watershed. Cooperative negotiations between the three parties resulted in the outright purchase of 2180 acres by the City of Boulder at a price of \$4,000 per acre. The County has options to buy out the fee interest (excluding the pipeline right-of-way) from the City through the year 2006.

1.2 Physical Characteristics and Landscape Setting

The property lies within the montane and subalpine lifezones of the east flank of the Front Range of the Southern Rocky Mountains. Elevation ranges from approximately 8,310’,

Figure 1 - Location

where DeLonde and North Boulder creeks leave the property, to 10,130' at the southwest corner.

Changes in elevation have been influenced by the rise of the Rocky Mountains, glaciers and streams. The property is most level on its east and southeast side, an area that abuts land that was the terminus to Pleistocene glaciers. At this point, the glaciers created a flat and broad park. The majority of this park is retained by Mr. Guercio as the Caribou Ranch Homestead. Grade gradually increases moving east to west. The increase is first gradual being influenced by glacial till. The southern part of the western portion of the property then sees a dramatic increase in elevation as granite is encountered. This area is heavily influenced by stream cutting action from DeLonde Creek. The landscape is very linear and V-shaped. The western part of the northern portion of the property encounters less severe grade increases, though still a general increase, as the parent material is glacial in origin. Here the landscape is influenced by North Boulder Creek: the landscape changes pattern as the stream curves through the glacial till and the topography is mixed with flat areas and steep grades. Some of the flat areas are where glacial kettle ponds are found. Mixed within are other features including flat areas of deposited sediment, such as where DeLonde Creek exits its steep valley.

Soils in the area are heavily influenced by geology and slope. On metamorphic and igneous rocks, soils are comprised of weathered residuum and are either stony or rubbly. Soils on glacial material are comprised of glacial till and are bouldery. Floodplain deposits are comprised of alluvium or glacial till. Soils are better developed on flat or slightly sloped surfaces such as floodplains and plateaus. Soils influence vegetation: areas with fine-grained soils, such as alluvium, favor grasslands and wetlands, while coarser soils favor forests.

The surface and subsurface waters of the property are within the Boulder Creek Basin. North Boulder Creek, a tributary of Boulder Creek, flows through Caribou Ranch Open Space; in terms of flow it is the most significant conveyor of surface water on the property. The creek originates approximately 5 miles west along the Continental Divide in the City of Boulder's Silver Lake Watershed. Several tributaries of North Boulder Creek flow through the property: Caribou Creek, DeLonde Creek and Little Como Creek. Almost the entire drainage basin of DeLonde Creek is contained in the open space.

The City of Boulder's Silver Lake Watershed is located northwest of Caribou Ranch Open Space. The watershed provides approximately 40% of the City of Boulder's annual municipal water supply and up to 90% of the City's winter water supply. Water is conveyed from the watershed via the Silver Lake Pipeline at a diversion structure located on North Boulder Creek approximately 1/3 mile north of Caribou Ranch Open Space. The pipeline then crosses Caribou Ranch Open Space and Caribou Ranch Homestead and terminates at Lakewood Reservoir, where the water is then transported via the Lakewood Pipeline to the Betasso Treatment Plant.

As with many locations in Boulder County the property is surrounded by a mosaic of public and private ownerships and a mixture of land uses including national forests, natural plant communities and wildlife habitat, ranching and grazing, rural residences, mining, recreation, watershed, and scientific research. Private land ownership predominates to the east and south. Roosevelt National Forest and City of Boulder Silver Lake Watershed are the dominant ownerships to the north and west. There is a greater amount of existing residential development and the potential for additional development to the east and south.

There are several ways to view the locational and landscape context of Caribou Ranch Open Space. First, the property lies within the upper portion of the montane lifezone and lower limits of the subalpine lifezone, broad landscape bands influenced by elevation and climate that

tend to run north and south. A unifying feature is the presence of North Boulder Creek, which flows west to east cutting across the lifezones; many of the major historic and current movements and flows followed this path, including water, glaciers, moraines, wildlife, and ancient peoples. The property is part of a montane parkland, one of only three in Boulder County that retains most of its original ecological character: these are broad, flat montane valleys containing major creeks whose alluvial soils favor grasslands and wetlands and whose glacial till (they were all terminal sites for Pleistocene glaciers) contains sizeable aquifers. Finally, the pattern of human influence follows a gradient that runs from southeast to northwest: the greatest degree of human presence is found in the Town of Nederland while the degree of human influence lessens moving northwest into the Indian Peaks Wilderness and the Silver Lake Watershed.

2.0 VEGETATION RESOURCES

2.1 General Description

The pattern of vegetation found on the property is influenced by elevation, slope, aspect, disturbance history, and soil type. The property is dominated by coniferous forest, particularly lodgepole pine. Ponderosa pine and ponderosa pine-Douglas-fir forests are present at lower elevations and drier sites, while Engelmann spruce-subalpine fir forests are present at more mesic sites at higher elevations and along riparian areas. Found in the alluvial floodplains along DeLonde and Como creeks are meadows, wetlands and riparian communities. DeLonde Creek contains two active beaver colonies whose dams, ponds and raised water table have resulted in the development of a willow carr. Located on steep south and southeast aspects are mixed-conifer woodlands dominated by ponderosa pine and Douglas-fir, mixed with sagebrush shrublands. Also present are small, scattered patches of aspen, several areas dominated by limber pine, and three kettle pond wetlands.

Processes of disturbance, particularly fire, have influenced the vegetation. Historic fire regimes varied with elevation, with the higher subalpine forests probably burning every 200+ years, while lower elevation montane forests and woodlands have a mean fire-return interval of 150 years. The non-Native American settlement period (1859 – 1910) saw an increase in fire in Boulder County; during this time much of Caribou Ranch Open Space burned from more human-caused fires and much of the current forest originates from that era. The montane woodlands and forests on the property saw major fires in 1654, 1706, and 1859. The ponderosa pine woodlands on Caribou Ranch Open space have been present in a rather stable form for several centuries: the oldest living tree was over 425 years old, and many other trees were over 200 years old. Hence, fires were generally not frequent disturbances in the area. The three widespread fire dates recorded at Caribou Ranch occurred during years when fire was recorded at many sites in the Front Range. Regional burning during these years emphasizes out the role of climate as a forcing of large-scale forest disturbances in this area, rather than the buildup of fuels. It is likely that fire behavior in the subalpine forests surrounding the more open woodlands was severe and resulted in extensive stand opening during these fire years, but that surface fires burned in the more open ponderosa pine communities. Future extensive fires in the Front Range forests will be driven primarily by regional climate variability.

Non-native plants are present on the property. The primary noxious weeds are ox-eye daisy, musk thistle, Canada thistle, yellow toadflax and mullein. Significant portions of the

meadow communities are dominated by timothy, Kentucky blue-grass, smooth brome, and orchard-grass, all of which were introduced in the early to mid 20th century as pasture grasses for cattle and horses.

2.2 Significant Resources

The quality and rarity of plants and plant communities were assessed against information from the Colorado Natural Heritage Program (CNHP) and the Boulder County Parks and Open Space Department's Environmental Resources Element of the Boulder County Comprehensive Plan. Key factors included CNHP ranking as well as status and distribution of the plant community in Boulder County.

One rare plant was located on the property. A population of wood lily was found. It is considered a rare plant in the state. This striking and brightly colored lily is found in riparian areas, wet meadows, and moist forests in Colorado. Because it is appealing to collectors and the quality of its associated riparian habitat continues to be threatened, it remains a plant species of special concern.

One plant community of significance was located on the property (Figure 2):

Geyer willow-mountain willow/Canadian reedgrass Montane Willow Carr: This is a globally rare plant community located along DeLonde Creek. It is a deciduous shrubland that occurs in stands interspersed with wet meadows, open stream channels, and beaver ponds. The willow canopy is nearly a homogeneous mix of the two willow species. An active colony of beaver is present and is important to maintaining the plant community. The site is considered in only fair condition because of the heavy presence of hay grasses in all but the wettest parts of the willow carr, and an upstream water diversion to the adjacent meadow.

Several other sites warrant special attention as they contain elements of local interest, or elements of state interest but are of small size and/or fair to poor quality (Figure 2). These are:

Kettle Ponds: Three small ponds are present in the northwest part of the property. It is probable that they are kettle ponds formed by glacial activity. They support typical montane wetland and mesic species such as beaked sedge, aquatic sedge and Canadian reedgrass. They are considered of local interest, as kettle ponds are not common on the Colorado Front Range.

Wetland and Riparian Complex: This narrow drainage supports numerous small wetland and riparian plant communities. Common species include beaked sedge, aquatic sedge, Canadian reedgrass, and thin-leafed alder. Some small areas have floating mats of wetland vegetation. As the stream gradient decreases, subalpine fir and Engelmann spruce occur along the stream with abundant mesic forbs.

Parry Oat-grass Meadow: Small patches of Parry oat-grass are found in this area. Parry oat-grass is of concern because its coverage has been greatly reduced due to land use practices of the late 19th and 20th centuries. Much of the vegetation of this area is currently comprised of nonnative grasses and portions are irrigated. This site may have

Figure 2 – Significant Plant Communities

historically been dominated by Parry oat-grass or a mix of mountain muhly and Parry oat-grass.

Big Sagebrush Shrubland: Big sagebrush shrublands, while dominant on Colorado's western slope, are uncommon in Boulder county. It occurs at several locations on the property, these generally being southeast facing slopes. This location is considered the best of the sites.

Old-Growth Woodlands and Forests: These sites contain qualities of old-growth forests, including large-diameter trees, snags and deadfall. The largest and oldest trees are ponderosa pine and Douglas-fir. The oldest living tree found was over 425 years old, while others were over 200 years old. The stand canopies are open enough to allow for fires to run through the stands on the ground, hence many standing trees have had considerable longevity.

Ponderosa pine/Mountain Muhly Montane Forest: This slope contains small patches of this Colorado rare plant community. There is also some big sagebrush on the steep east facing slopes.

Ponderosa pine/Elk sedge Montane Woodland: This site is a complex mosaic of plant communities. Small patches of ponderosa pine/elk sedge montane forest, a Colorado rare plant community, are present. Small patches of big sagebrush are also found.

3.0 WILDLIFE RESOURCES

3.1 General Description

Caribou Ranch Open Space is part of a montane parkland, exceptionally rich sites for wildlife. The mixture of wetlands, meadows, streams, forests and woodlands provides good habitat diversity.

Approximately 50 species of mammal could call Caribou Ranch home. This represents about 50% of all mammal species found in the county. The most common mammal is probably the deer mouse, though it is seldom seen. Other common ground dwelling rodents include several chipmunk species (least and Uinta) and golden-mantled ground squirrel. Chickarees (sometimes called pine squirrels) are the most common squirrels. Nuttall's cottontails and snowshoe hares are common. Mountain lion, black bear, bobcat, coyote, red fox and short-tailed weasel are regularly seen. The most common ungulates are elk and mule deer. A moose has been observed in recent years.

Eighty-eight potential breeding bird species were seen on the property. This is considered high species richness for a parcel this size in Colorado and represents 75% of the breeding species found in western Boulder County. The avian community is dominated by neo-tropical migrants that are insectivores or omnivores, feed in the foliage of trees or shrubs, gather their food by gleaning or foraging, and nest in a tree. Some of the more common species are generalists that can utilize the resources of several habitats. These species include broad-tailed hummingbird, dark-eyed junco, and American robin. Common forest dwellers include pine

siskin, yellow-rumped warbler, mountain chickadee, ruby-crowned kinglet, Steller=s jay, hermit thrush, and red crossbill. Species specific to aspen forests include warbling vireo, tree swallow, and red-naped sapsucker. The most common shrubland bird is green-tailed towhee. Riparian areas have a unique avian community dominated by neo-tropical migrants which include dusky flycatcher, Swainson=s thrush, yellow warbler, MacGillivray=s warbler, Wilson=s warbler, fox sparrow, song sparrow, and Lincoln=s sparrow. Bodies of water and beaver ponds are habitat for mallard, green-wing teal, and ring-necked duck. The most common grassland bird is vesper sparrow. Montane willow carrs and mixed-conifer woodlands proved to be the richest habitats for breeding birds. Meadow/forest edge and ponderosa pine forests have slightly lower richness and abundance values, while lodgepole pine, spruce-fir, and mixed conifer forests are lowest.

Other forms of animals are present. Striped chorus frogs and western terrestrial garter snakes were found on the property, and five other amphibians and reptiles are potentially found on the property. Rainbow and brook trout dominate the waters of North Boulder and Caribou Creeks. Invertebrates comprise the vast majority of animal species on Caribou Ranch Open Space, including all insects, butterflies, moths, mollusks, and crayfish.

Changes in animal communities since non-Native American settlement in Boulder County are many. Lost from the landscape on and around Caribou Ranch are bighorn sheep, gray wolf, grizzly bear, and river otter. Wolverine and lynx have not been confirmed in the county for a long time. Avian populations have seen community shifts toward those species that can take advantage of greater human influence. Mid-sized mammals such as the introduced house cat, domestic dog and fox squirrel, and some native animals such as raccoon, are increasing in number.

3.2 Significant Resources

Several significant wildlife resources warrant special attention. The significant resource areas are based both on specific sites important to individual species as well as high quality habitat types. Additionally, areas with a low level of human presence need recognition for their ability to provide effective habitat for large mammals such as elk and black bear, as well as nesting raptors. Following are descriptions of significant wildlife resource areas.

Mammals of Special Interest: Rocky Mountain Elk

Caribou Ranch is a high-intensity use area for elk (Meaney and Beane 1999). The herd of about 175 animals uses the ranch as transitional range in spring and fall (Figure 3). They generally arrive in April, coming from lower elevation winter range located east of the Peak-to-Peak Highway. They graze extensively in the meadows, riparian areas, and montane woodlands and shrublands found on the valley floor and open south-facing hillsides of the property. They will use denser forests for hiding and thermal cover. Females will then calve on-site and remain until some time in June or early July. In summer, the elk move to the high country to the north and west of the ranch, generally following the North Boulder Creek drainage. The majority of the herd is resident on the City of Boulder Watershed during the warm months, as well as in the Indian Peaks Wilderness west of Caribou Ranch. Some elk have been observed on the ranch throughout the summer. In fall the animals descend to the ranch, seemingly *en masse*, and likely stay as long as weather and snow permit. The herd conducts the rut on the ranch. With normal winter weather, the herd will cross the Peak-to-Peak Highway in late November or December, as

Figure 3 – Elk Concentration Areas and Movement Corridors

they descend to lower elevation. During mild winters, elk may remain on the ranch. Their winter range is dispersed over a broad area defined by Pennsylvania Gulch to the north, Sugarloaf and Comforter mountains to the east, and Ridge Road to the south. In April, the herd returns to Caribou Ranch.

Calving is an important biological function for elk. It is suspected that the majority of the cows in the herd calve on Caribou Ranch. The calving season along the Front Range of Colorado extends from late May until late June. Recent on-site observations revealed that calving areas are widely dispersed over the entire ranch and up into the City of Boulder Watershed.

The fall rut is also a significant biological time for elk. Large concentrations of elk gather on Caribou Ranch in the fall. Bulls at this time of year assemble harems of cows that remain on the property throughout most of the rut.

Caribou Ranch has functioned as a refuge for elk. Because of this, two management situations arise. First, it is probable that once opened to the public there will be a higher human presence on the property. While elk can be adaptable animals, they can also be wary of humans. Behavior is often shaped by several factors including whether or not they are hunted on portions of their range. This herd is hunted with the location depending on the timing of each season in relation to snow depth. Illegal hunting also occurs. Observations suggest that these elk are wary of people walking through a natural landscape; they will expend energy fleeing from people hiking. Consideration needs to be taken to minimize interaction, particularly during significant biological times such as calving and rutting.

Additionally, there has been a tendency for elk to utilize the property as a refuge during hunting season, possibly minimizing one form of population control. There is information that the herd has been increasing in size, but it is not evident that the herd size is exceeding the carrying capacity of the property. Monitoring of both herd population and impacts to vegetation are recommended. Active herd population management may be necessary if significant resource damage occurs.

Mammals of Special Interest: Townsend's Big-eared Bat

A Townsend's big-eared bat occurrence was documented at the Blue Bird Mine. Townsend's big-eared bats are of statewide concern and are considered rare and imperiled by the Colorado Natural Heritage Program. They were previously considered candidates for federal listing. Statewide, they are considered imperiled throughout their range and found locally in restricted range. They are cave dwelling bats and are very sensitive to disturbance. Human disturbance, even unintentional, will force bats to leave caves or mines where such disturbance occurs. Access should be restricted into caves and mines where they roost. The bats will often range long distances to utilize forage and water sources.

Avian Habitat of Special Interest: Mixed-Conifer Woodlands

Mixed-conifer woodlands are rich avian habitats and have a high abundance of breeding birds. Additionally, four species of special interest are present: olive-sided flycatcher, pygmy nuthatch, MacGillivray's warbler and western tanager. There are a number of species found primarily in this habitat on the property, including olive-sided flycatcher, western-wood pewee, mountain Blue Bird, Virginia's warbler and western tanager.

Mixed-conifer woodlands occupy steep, south to southeast facing aspects on the property (Figure 4). Ponderosa pine and Douglas-fir are the dominant tree types. These sites have an open canopy, mixed with grasslands and stands of shrubs. Large-diameter trees, snags, and deadfall (over 20" diameter at breast height) are present, further increasing the structural diversity. Small patches of aspen are present in these sunny, open exposures. The open structure is favorable to understory shrubs, including big sagebrush, Rocky Mountain maple, and chokecherry. Small patches of denser mixed-conifer forest are present, particularly in ravines with east to northeast aspects.

The overall high structural diversity results in a habitat rich for breeding birds. The open canopy allows for the presence of aerial salliers, such as olive-sided flycatcher and western wood-pewee. Large-diameter trees result in the presence of many cavity-nesters and late-successional specialists, including pygmy nuthatch and northern saw-whet owl. Patches of understory shrubs create nesting sites for dusky flycatcher and MacGillivray=s warbler.

Mixed-conifer woodlands should be retained on the property. Structurally, the most important features appear to be an open canopy along with large-diameter trees, snags, and deadfall. These features should be retained.

Avian Habitat of Special Interest: Montane Willow Carrs

Along DeLonde Creek is found a montane willow carr. They are rich avian habitats and have a high abundance of breeding birds. Their density of breeding birds is considered the highest of any habitat in Boulder County. Additionally, four species of special interest are present: ring-necked duck, veery, MacGillivray's warbler, and fox sparrow. This habitat has the highest number of breeding species (21) which are restricted in breeding to a few types of habitat on the property, including mallard, green-winged teal, ring-necked duck, sora, killdeer, spotted sandpiper, belted kingfisher, northern rough-winged swallow, American dipper, veery, Swainson=s thrush, yellow warbler, Wilson=s warbler, fox sparrow, song sparrow, black-headed grosbeak, and red-winged blackbird.

Montane willow carrs are found where creeks flow through broad, flat floodplains. These sites are the most likely locations for long-term beaver habitation. Beavers dam the creek and raise the water table allowing for wetland vegetation to expand in coverage. The vegetation is dominated by tall, deciduous shrubs interspersed with wet meadows, open stream channels, and beaver ponds. Beaver activity is important in maintaining this plant community. The DeLonde willow carr is located along DeLonde Creek (Figure 4). Here, there is an active beaver colony.

The mixture of tall shrubs, wet meadows, stream channels, and beaver ponds provide good habitat diversity. Avian use is dominated by neo-tropical migrants, especially several types of warbler and sparrow, as well as dusky flycatcher, veery, Swainson=s thrush, and black-headed grosbeak, who nest and feed in the shrubs or on the ground below. The beaver ponds and adjacent patches of sedge-reedgrass meadows provide nesting habitat for waterfowl and sora. Swallows, who generally nest in adjacent forests, find rich food caches in the insects that breed on the ponds. Dippers and kingfishers nest in the streambank.

The importance of montane willow carrs make them significant habitat worthy of protection and special management. Retaining an adequate flow of water and an active colony of beaver are significant to these sites. Grazing and haying practices need careful management in order to minimize impacts to the vegetative structure and hydric soils. Expansion of the DeLonde willow carr may be possible and should be considered.

Figure 4 – Special Avian Habitats

DeLonde Willow Carr is the 5th largest montane willow carr in Boulder County, being fifteen acres in size. Its size and vegetative structural diversity, due to the presence of an active beaver colony, make it a designated Critical Wildlife Habitat in the Boulder County Comprehensive Plan.

Nearly 20% of montane and subalpine willow carrs in Boulder County have been lost to adverse land use practices, including conversion to pasture, filling for parking lots, roads and homes, peat mining, and inundation by reservoirs.

Avian Habitat of Special Interest: Important Habitat for Northern Goshawk

Northern goshawks are listed as a sensitive species by the Forest Service, watchlisted by the Colorado Natural Heritage Program, and considered restricted breeders by the Boulder County Nature Association. They were under consideration for Federal listing through the Endangered Species Act several years ago, but the available data were not conclusive enough to warrant such designation.

One goshawk nest was found on National Forest land within ¼ mile of the property in 1999, and reaffirmed in field work in 2000. Field work during 2002 did not find goshawks, but found nesting Cooper's hawks within 200 yards of where the goshawks had nested. The nest is within 100 yards of the Switzerland Trail Railroad grade. This site will be monitored in future years.

Northern goshawks have also been regularly observed in DeLonde Gulch. These observations include a post-fledging family group during the time period when they should be within the post-fledging family area (PFA). The post-fledging family area, which surrounds the nest area, is generally 400 acres in size. It is an area of concentrated use by the goshawk family where young are taught to hunt. The nest site and the PFA are used from March through the end of September. During this time there should be minimal human presence around the nest and within the PFA. A 2 mile buffer around the nest is generally recommended. A nest has not been located for these goshawks. But their regular presence in DeLonde Gulch provides the high probability of a nest in or near the gulch, and the area should be viewed as important habitat (Figure 4).

Fish of Special Interest: Greenback Cutthroat Trout

The greenback cutthroat trout was one of four native trout present in Colorado when European settlers arrived, and the only trout species present on Caribou Ranch. While over-harvest and habitat destruction took their toll on the greenback, the introduction of non-native trout species, such as rainbow, brook and brown, perhaps dealt the biggest blow. Greenbacks were thought to be extinct until two small populations were discovered; one of these was in Como Creek. Since then, there has been an active effort to recover greenbacks into locations where they historically thrived. Both the U.S. Fish and Wildlife Service and the Colorado Division of Wildlife list them as a threatened species. They were upgraded from endangered to threatened in 1978, and may soon reach a non-threatened status.

The Colorado Division of Wildlife introduced a population of Greenbacks into DeLonde Creek in the fall of 2001. This is viewed as an experimental population. It is not known if there is an effective block to the small numbers of brook trout found below the beaver ponds. Additionally, low winter water flows may present problems.

Habitat of Special Interest: Maintaining Effective Habitat

The potential use of Caribou Ranch Open Space for public access and recreation will generally present a level of human presence that is higher than recent historic use (past 30 years). It is difficult to predict how each animal and herd will react to recreational use. However, there are studies indicating some of the same wildlife species found on Caribou Ranch may avoid or underutilize areas near trails, roads, and/or human settlement. Recent studies assessing the impacts of non-motorized trail use upon wildlife have documented types of displacement, lower nesting success of avian habitat specialists, and greater rates of predation upon open-cup nesting birds. Trails appear to be another factor in the trend throughout much of Boulder County of increasing habitat generalists and decreasing habitat specialists.

The need for sizeable blocks of land with little human presence (sometimes referred to as “effective habitat”) is becoming more important. As stated in the publication *Planning Trails with Wildlife in Mind*, “When possible, leave untouched large, undisturbed areas of wildlife habitat. They are an important – and rapidly vanishing – resource.”

In the recently completed Forest Plan and Draft Environmental Impact Statement for the Arapaho and Roosevelt National Forests, the amount of habitat effectiveness was evaluated. The assessment estimated effective habitat based on distances from travelways (moderate to high use trails and roads). Their method of estimation is based on known disturbance distances for large mammals. For the montane lifezone in western Boulder County, effective habitat remains for only 47% of the public and private lands.

4.0 CULTURAL RESOURCES

4.1 General Description

This area has been utilized for thousands of years, although the prehistoric period is currently not as evident on the land as historic times. Prehistoric habitation and use of northeastern Colorado covers approximately 12,000 years, from the late Pleistocene epoch through historic contact. Evidence of occupations is nearly continuous throughout this 12,000-year span. The Paleo-Indian Stage (12,000 – 7,500 years before present) is characterized by a nomadic lifestyle and a hunting and gathering economy based upon the exploitation of large game animals that are mostly now extinct. The Archaic Stage (7,500 – 2,000 years before present) was characterized by a continental warming trend, an increased dependence on smaller mammals and wild plants, and the increased use of foothills and montane environments. The Ceramic State (2,000 – 400 years before present) is characterized by the introduction of ceramic technology, the replacement of the spear with the bow, and the advent of horticulture, though evidence of plant domestication in northeastern Colorado is scant. The Protohistoric/Contact Stage (400 – 150 years before present) was the beginning of direct and frequent contacts between Native Americans and people of European descent, and is characterized by accelerated mobility and conflict that followed the acquisition of horses and firearms.

How Caribou Ranch Open Space fit into the use pattern of prehistoric people is not clear. But the richness in game and plants seen today was no doubt even greater then. The presence of water, grasslands and forests provided a great abundance and diversity of resources. As

speculated by Dr. Ruben Mendoza and Dr. Charles Cambridge, who conducted a cultural resource inventory on the property:

A In the early times, as Indian people journeyed by foot, the tribal culture becomes more concerned with obtaining resources for survival from the immediate area. As the natural richness of the area increases then tribal people would tend to remain in an area as long as possible. During this time, the totality of what we view as cultural institutions are stabilized in the Caribou area. Importantly, the tribal religion becomes tied to the land and the surrounding physical realities. Certain rock outcroppings are used for religious purposes of greeting the morning sun. Natural springs take on religious meanings since water comes from the earth. And, the riches of natural herbs of the area, enhances the religious healers in their quest to maintain the health of their people. These are the people that occupied the Caribou for the longest amount of time and without further research, these will be the people who will be the least understood.”

Accelerated permanent settlement of Boulder County by non-Native Americans began in 1859 with the discovery of gold. The first major mining activity in the vicinity of Caribou Ranch occurred with the discovery of silver at Caribou located 1 mile west.

The open meadows and waterways of the park along North Boulder Creek (now Caribou Ranch) attracted homesteaders. Many French and Irish settled the area, including Joseph and Magloire DeLande, Thomas Langlais, Antonine Bosineau, Edward Barrigau, Autour Busemanx, and Andrew and Henry Como (Figure 5). The DeLandes are especially notable; DeLonde Creek is named after them, and “The Frenchman=s Ranch@ was historically a common locational indicator. Como Creek is named after the Como family, who homesteaded the northeast part of Caribou Ranch Homestead.

Mining and milling also occurred on the property. The Blue Bird Mine was established in 1871. The Sanata La Saria Mining Company of Colorado, A. L. Parsons, President, and D. Mortimore, Secretary developed it. It was primarily a silver mine. By 1881, a mill was developed at Blue Bird. Additionally, the North Boulder Mill was built in 1875 at ABatesville.@ The mill was built on the north bank of North Boulder Creek by L.M. Bates, with Martin A. Smith acquiring the mill lands at the same time.

The Denver, Boulder & Western Railroad Company built a narrow-gage railroad that served the Blue Bird Mine. It was better known as the “Switzerland Trail” railroad, and ran between 1904 and 1918. The railroad had significant financial problems, as the amounts of ore shipped from western Boulder County mines did not live up to hopes, and the tourist trade was too brisk to offset the costs of maintaining a mountain railroad through snowy winters. After a 1918 flood destroyed much of the trestlework, the railroad was closed and salvaged, and the right-of-way reverted to former owners of the land.

As early as 1906 the western lands of the North Boulder Creek Park, including the modern ranch complex site, were owned and occupied by Hector Urquhart. Under Urquhart the Como Ditches, dating from 1866 to 1875, were officially surveyed. Urquhart had a house and two outbuildings on the northeast side of Como Creek near the site of the modern ranch complex on Caribou Ranch Homestead (on lands retained by Jim Guercio).

In 1915 Thomas F. Tucker owned portions of the property. The Tucker Ranch formed the base from which arose the modern Caribou Ranch. The name ACaribou,@ as all uses of the word ACaribou@ in the region, comes from the naming of the Caribou Mine after the Cariboo (sic)

Figure 5 – Early Land Patents

Range of British Columbia. In Tucker's time the ranch was named the Boulder County Ranch. The ranch was also known both as the Tucker Ranch and the Bar Rump Ranch, apparently Tucker's brand. References to past tract owners were also associated with area properties; e.g., AFrenchman's Ranch@ for the DeLonde place.

In 1936, Lynn W. Van Vleet purchased the Tucker Ranch, starting the ALazy VV@ Ranch, a.k.a. AVan Vleet Arabian Horse Ranch.@ Van Vleet's income derived from ownership of the successful Trinidad Bean & Elevator Co. Van Vleet expanded the ranch through purchase of property from J. C. Clark and from the Vanadium Corporation, the successor of Primos Mining.

With Forest Service rangeland, the Van Vleet Ranch covered 13,000 acres. The ranch was focused around its Arabian horse stock, but also ranged 200 to 500 cattle. The Lazy VV employed about 30 people. The historic ranch complex served to support these people and the Arabian breeding operations. On Sundays during the summer, there was an Arabian horse show on the property that was open to the public. The Van Vleet Arabian Horse Ranch is featured in two films: Warner Brother's AArabians of the Rockies@ (1946), and 20th Century Fox's ASons of Courage@ (1947).

From the mid-1950s through 1970 Caribou Ranch went through several different owners. Several had plans for development. One corporation, which bought the property for \$1 million in 1962, planned an 18-hole golf course, a ski area, and an Olympic swimming pool. Others planned resorts and condominium development.

James Guercio purchased the 2,600-acre property in 1971 from Kin-Ark Oil Co. of Tulsa and Transamerica Development Co. of Los Angeles. With Guercio the ranch again became known as Caribou Ranch. Guercio, a music producer, converted the barn into a recording studio, attracting many popular musicians of the day to the ranch.

AA who's-who of rock music's elite passed through the gates of Caribou Ranch. In the free-spending mid->70s, before the recording industry faced the economic crunch, the rage among top stars was to hole up at Adestination studios@ in appealing locations. So such well-moneyed folks as Chicago, Rod Sterart, Waylon Jennings, Billy Joel, Carole King, Supertramp, War, Frank Zappa, Yes and Stephen Stills packed up their bags and headed for Caribou, the legendary recording complex five minutes outside of Nederland. The first record made there was Joe Walsh's ARocky Mountain Way.@ Elton John recorded several classic albums, including the gratefully titled ACaribou.@ While in the area for the 1984 AVictory@ tour, Michael Jackson spent a few days hiding at Caribou, working on songs in the studio and horseback riding (the staff reported that he got along exceptionally well with the animals). Caribou finally shut down after a March 1985 fire destroyed the control room and caused about \$3 million worth of damage.@ (Denver Post 1999)

4.2 Significant Resources

The property is rich in cultural resources. The majority of these is of an historic nature and associated with early settlement, ranching, mining, and transportation. Besides the major sites described below, there were 137 isolated finds on the property which included: 30

prehistoric stone tools and fire pits or lithic scatter; 40 historical fire pits and trash debris; 35 fences, farming and ranch activities; 14 historical construction and lumber activities; 13 mines, mining test pits and mining activities; and 5 stone markers. Following are descriptions of some of the more significant historic cultural resources.

The Denver, Boulder & Western Railroad (AThe Switzerland Trail@): The railroad grade is listed on the National Register of Historic Places as a Historic District. It serviced the Blue Bird Mine and associated mills, and was constructed in 1904. Additional sites were located during this survey that are contributing elements.

Blue Bird Mine Complex: This is a multi-component site that was a small company community that centered around the silver mine shafts. It consists of a bunkhouse, remains of a log building, a newer stone building, chicken coops, smoke house, the foundation of a mill, mine shafts, tracks for ore carts, and features related to The Switzerland Trail Railroad. The site appears eligible for National Register designation.

Batesville and North Boulder Mill: This is a multi-component site that includes prehistoric as well as historic significance. The historic component is Batesville, the site of the North Boulder Mill and its support community that operated primarily in the 1870s.

DeLonde Homestead: This site consists of the modified homestead that reflects several periods in the ranches development, crib-logged barn, foundations of former structures, and a variety of other contributing features. The Como Ditch #5 may also contribute. This site appears eligible for National Register designation.

Silver Lake Pipeline: The original pipeline, constructed in 1919, was an 18" clay tile conduit extending from Lakewood Reservoir westward across Caribou Ranch toward the City=s Watershed. This pipeline was replaced around 1947 with used 18" steel piping. In 1998, another pipeline replacement occurred.

Como Ditches #1, #2, #3, & #4: Como Ditches #1 and #2 were built in 1866. Como Ditch #3 was built in 1870, while Como Ditch #4 was built in 1875. In 1906 the combined ditches irrigated 448 acres of the Urquhart Ranch.

5.0 WATERSHED RESOURCES

5.1 General Description

The surface waters of Caribou Ranch Open Space are within the Boulder Creek Basin. North Boulder Creek, a tributary of Boulder Creek, flows through the property. In terms of flow it is the most significant conveyor of water on the property. The creek originates approximately 5 miles west along the Continental Divide in the City of Boulder's Silver Lake Watershed. The watershed is approximately 12 square miles in area.

Several tributaries of North Boulder Creek flow through the property. Caribou Creek's

waters originate on the flanks of Caribou and Bald mountains and flow through Caribou Park. Caribou Creek flows through the open space for approximately ½ mile before its confluence with North Boulder Creek. DeLonde Creek's waters originate on the east side of a ridge that separates Caribou Park from the open space property. DeLonde Creek runs due east for 2 ½ miles through the property and flows into North Boulder Creek just east of the open space boundary. Almost the entire drainage of DeLonde Creek is contained in the open space. A small drainage, locally called Little Como Creek, originates in a series of seeps and wetlands in the north central part of the property, and flows east into Como Creek. The entire drainage basin of North Boulder Creek west of Lakewood Reservoir, including DeLonde, Caribou and Como creeks, covers an area of 31 square miles.

The City of Boulder's Silver Lake Watershed is located northwest of Caribou Ranch Open Space. The Silver Lake Watershed provides approximately 40% of the City of Boulder's annual municipal water supply and up to 90% of the City's winter water supply. Most of this water flows through the Silver Lake Pipeline, which runs through Caribou Ranch Open Space. The pipeline is 27 inches in diameter and can carry 20 million gallons of water per day, which equates to 30 cubic feet per second (cfs). The City has retained ownership of the land traversed by the pipeline for 60' on either side of its centerline.

The City also has direct flow water rights allowing diversions from North Boulder Creek after the water runs over or through Caribou Ranch Open Space. Hence, water that flows off of the property into North Boulder, Caribou and DeLonde creeks can become part of the City of Boulder's drinking water. Direct flows from North Boulder Creek into Lakewood Reservoir vary in quantity depending on the hydrology of the year and the pattern of water rights called. Direct flow can occur throughout the year. Generally, from late September through early March the City can be diverting between 2 and 7 cfs, while in April and May this can increase to 30 cfs.

A reason for the City's involvement in the purchase and protection of the property is to help protect the quality of waters at their source to the greatest extent possible. Examples of threats can include erosion and sedimentation, human and animal waste, human and animal contact, mine tailing runoff, leaking septic systems, leaking underground storage tanks, or storm drainage. By helping to acquire this property and minimize development, several of the potential pollutants have been eliminated or greatly reduced. For those contaminants that can come from potential uses of the property, including erosion and sedimentation, human and animal waste, and human and animal contact, pollutants from these sources can add microbiological pathogens (bacteria, viruses, protozoans, and parasitic worms), total and dissolved suspended solids, and nutrients to the water supply and can cause a variety of health risks if not removed from the water before drinking. By reducing or preventing these contaminants from entering the water supply in the first place, treatment processes have a better chance of being effective and producing higher quality drinking water.

Pathogens are organisms that cause disease in other organisms. Bacteria, such as *E. coli*, are present in all surface waters because they can originate from fecal material of virtually any vertebrate. Bacteria can generally be treated with chlorine, but can interfere with the use of water for recreation. Viruses and protozoans are more problematic for treatment. They can originate from humans or from other vertebrates. It has been shown that they can pass through conventional treatment processes. *Giardia* and *Cryptosporidium* are the most widely recognized protozoans. It has been shown that many surface waters in the United States contain measurable amounts of these organisms, and outbreaks in the human population are well known. The two countermeasures include special treatment practices designed specifically to remove these

organisms, and protection of source water from contamination.

CARIBOU RANCH OPEN SPACE MANAGEMENT PLAN

This section of the plan describes the goals, policies, objectives, and activities that will be used to manage Caribou Ranch Open Space. The level of detail varies: the intent is to provide a broad overview of how the property will be managed. Finer details will evolve with further planning for some aspects of property management.

6.0 MANAGEMENT DIRECTION

6.1 Boulder County Comprehensive Plan

The *Boulder County Comprehensive Plan* provides direction for a comprehensive land management ethic. Through goals, policies, and mapped information, the plan gives guidance for future land use. The goals of particular relevance to Caribou Ranch Open Space deal with Environmental Management (goals that start with the letter B), Open Space (C), and Cultural Resources (K). They are:

- B.1 Unique or distinctive natural features and systems and cultural features and sites should be conserved and preserved in recognition of the irreplaceable character of such resources and their importance to the quality of life in Boulder County. Other resources should be managed in a manner which is consistent with sound conservation practices, while enhancing compatibility between natural and man-made characteristics.
- B.2 Air, water and noise pollution: inappropriate development in natural hazard areas; and overall environmental degradation should be reduced as much as possible or eliminated in order to prevent potential harm to life, health and property.
- B.3 Critical wildlife habitats should be conserved and preserved in order to avoid the depletion of wildlife and to perpetuate and encourage a diversity of species in the County.
- B.4 Significant natural communities (including significant riparian communities) and rare plant sites should be conserved and preserved to retain living examples of natural ecosystems, furnish a baseline of ecological processes and function, and enhance and maintain the biodiversity of the region.
- B.5 Wetlands, which are important to maintaining the overall balance of ecological systems, should be conserved.
- B.8 Environmental Conservation Areas (ECAs) should be conserved and preserved in order to perpetuate those species, biological communities, and ecological processes that function over large geographic areas and require a high degree of naturalness.
- B.9 Riparian ecosystems, which are important plant communities, wildlife habitat and movement corridors, shall be protected.
- C.1 Provision should be made for open space to meet human needs throughout the County in order to protect and enhance the quality of life and enjoyment of the environment.

- C.3 Open space shall be used as a means of preserving the rural character of the unincorporated county and as a means of protecting from development those areas which have significant environmental, scenic or cultural value.
- K.1 Every effort shall be made to identify and protect prehistoric and historic sites which meet national, state, or local criteria for historic designation from destruction or harmful alteration.

Open Space, within the context of the *Boulder County Comprehensive Plan*, is defined as:

“Those lands referred to in the *Boulder County Comprehensive Plan*, as being intentionally left free from future development, and in which it has been determined that it is, or may in the future be, within the public interest to acquire an interest in order to assure their protection.”

Passive Recreation, referred to in the Open Space Element policies, is defined as:

“Outdoor activities that create opportunities for independence, closeness to nature, and a high degree of interaction with the natural environment and which require no organization, rules of play, facilities, or the installation of equipment, other than those which may be necessary to protect the natural environment.”

In addition to being acquired Open Space, Caribou Ranch Open Space is influenced by several other Comprehensive Plan designations: the property is within the Indian Peaks Environmental Conservation Area; DeLonde Willow Carr is a Significant Wetland and Critical Wildlife Habitat; and North Boulder Creek is considered of Archaeological Significance and thought to be a travel route. The policies of most relevance to Caribou Ranch Open Space are from the plan elements of Open Space, Environmental Resources, and Cultural Resources.

Relevant Open Space policies are:

Resource Management

- OS 2.01 The county shall identify and work to assure the preservation of Environmental Conservation Areas, critical wildlife habitats and corridors, Natural Areas, Natural Landmarks, significant areas identified in the Boulder Valley Natural Ecosystems Map, historic and archaeological sites, and significant agricultural land.
- OS 2.02 Significant natural communities, rare plant sites, wetlands, and other important stands of vegetation, such as willow carrs, should be conserved and preserved.
- OS 2.03 The county shall provide management plans and the means for the implementation of said plans for all open space areas that have been acquired by or dedicated to the county.

- OS 2.03.01 The foremost management objectives of individual open space lands shall follow directly from the purposes for which the land was acquired.
- OS 2.03.02 Management of county open space lands shall consider the regional context of ecosystems and adjacent land uses.
- OS 2.03.03 Management of individual open space lands, including those under agricultural leases, shall follow good stewardship practices and other techniques that protect and preserve natural and cultural resources.
- OS 2.04 The county, through its Parks and Open Space Department, shall provide appropriate educational services for the public which increase public awareness of the county's irreplaceable and renewable resources and the management techniques appropriate for their protection, preservation, and conservation.
 - OS 2.04.01 The Parks and Open Space Department shall cooperate with schools and non-profit organizations in the county to provide environmental education activities which increase awareness, understanding, appreciation, and support for stewardship of the natural and cultural resources on open space.
 - OS 2.04.02 The Parks and Open Space Department shall seek to meet the needs of diverse populations in the county by providing information and programming to accommodate special groups such as disabled persons, young people, senior citizens, and Spanish-speaking citizens.
 - OS 2.04.03 The Parks and Open Space Department shall develop and disseminate information through publications, exhibits, and other media on the uniqueness, importance, and appropriate stewardship and management of open space areas in the county.
 - OS 2.04.04 The Parks and Open Space Department shall utilize trained volunteers, cooperating groups, and private individuals to assist in the delivery of environmental education and interpretive services.
- OS 2.05 The county, through its Weed Management Program, shall discourage the introduction of exotic or undesirable plants and shall work to eradicate existing infestations through the use of Integrated Weed Management throughout the county on private and public lands.

Scenic Area and Open Corridor Protection

- OS 3.04 Areas that are considered as valuable scenic vistas and Natural Landmarks shall be preserved as much as possible in their natural state.

Recreational Use

- OS 4.02 Except as the county may establish a regional park, such as the Boulder County Fairgrounds, or others similar facilities, the county will provide only a minimum level of maintenance or development on park land (consistent with policy OS 2.03).
- OS 4.03 Recreational use of county open space land may be permitted where such use is consistent with the management plan for the property and does not adversely impact natural and cultural resources or other management objectives of the property.
- OS 4.03.01 Recreational use shall be passive, including but not limited to hiking, photography or nature studies, and, if specifically designated, bicycling, horseback riding, or fishing. Only limited development and maintenance of facilities will be provided.
- OS 4.03.02 Accessibility for special populations such as disabled persons, young people, senior citizens, and Spanish-speaking people shall be addressed on a system-wide basis.
- OS 4.04 Requests for special uses or events on county open space shall be evaluated for their impacts to natural and cultural resources as well as other management objectives and maintenance considerations.

Trails

- OS 6.01 Trails and trailheads shall be planned, designed, and constructed to avoid or minimize the degradation of natural and cultural resources, especially riparian areas and associated wildlife habitats.
- OS 6.02 Adverse effects on private lands shall be minimized insofar as possible by trail and trailhead placement, posting of rules and signs against trespassing, installation of containing fences where critical, and any other appropriate measures.
- OS 6.04 Trails shall provide for pedestrian, equestrian, bicycle, and/or other non-motorized uses, where each is warranted. Incompatible uses shall be appropriately separated.
- OS 6.08 Trails constructed by the county Parks and Open Space Department shall be soft-surface except where necessary to prevent erosion and/or other resource damage.

Public Decision Making

- OS 8.03 In developing management plans for open space areas, Parks and Open Space staff shall solicit public participation of interested individuals, community organizations, adjacent landowners and the parks and Open Space Advisory Committee, including public comment, and recommended for adoption after public hearing by the Board of County Commissioners.
- OS 8.04 Significant changes to overall management direction or techniques shall

be presented to the Parks and Open Space Advisory Committee and/or the Board of County Commissioners, with opportunity for public comment before a decision is made.

Relevant Environmental Resource policies are:

- ER 2.07 The County shall identify and work to assure the preservation of critical wildlife habitats, natural areas, historic and archaeological sites and significant agricultural land.
- ER 4.09 The County will work towards protecting critical elk range and migration routes through reducing development potential and by working with landowners and management agencies to minimize human disturbance and provide seasonal habitat needs.
- ER 6.01 The County will work with appropriate management agencies and property owners to protect or restore riparian areas.
- ER 6.02 The County shall work toward minimizing human impacts to riparian ecosystems from development, roads and trails.
- ER 6.03 The County will work with appropriate entities to ensure suitable minimum and maximum stream flows that maintain channel morphology, support hydrologically connected wetlands and perpetuate species, both plant and animal, dependent on riparian ecosystems.
- ER 6.05 Management of riparian areas shall encourage use or mimicry of natural processes, maintenance or reintroduction of native species, restoration of degraded plant communities, elimination of undesirable exotic species, minimizing human impacts, and development of long-term ecological monitoring programs.

Relevant Cultural Resource policies are:

- K1.02 Significant archaeological and historic sites and structures acquired by the County both in unincorporated and incorporated areas, shall be documented, protected, preserved, and where appropriate restored.
 - K1.02.1 After acquisition, an inventory of cultural resources on the property shall be undertaken and the historic significance of each resource shall be determined.
 - K1.02.2 Resources that meet the criteria for local landmark, or State or National Register status should be nominated for such status by the County.

6.2 Terms of the Acquisition

The primary purposes for acquiring Caribou Ranch Open Space were protection of the significant environmental and cultural resources. Appropriate public use was also a consideration. Public use is contemplated in the purchase agreement and was discussed at the acquisition public hearings.

Significant management considerations of the purchase agreements include:

- § Public Use: Permitted uses of the open space are public trails perpetually limited to hiking, cross country skiing, snowshoeing, horseback riding and other pedestrian and equestrian activities. Trailhead parking cannot be located within 2 mile of the City of Boulder Watershed entrance road along Rainbow Lakes Road (CR 116). Mr. Guercio retains the right to name the public trails. Camping and campfires are prohibited.
- § Roads: Vehicular access is limited to that necessary for City of Boulder activities associated with the Silver Lake Pipeline, open space management (including irrigation ditch operation and maintenance, field inventories and scientific study) and ranching. The County is prohibited from paving any of the existing roads or constructing new roads.
- § Water: The water rights acquired consist of Como Ditch No.5; Caribou Springs No. 9 and 10; Caribou Ponds No. 4 and 6; and Natural Ponds No. 1, 2, and 5. In general, the water should first be applied to the open space for agricultural and environmental enhancement, and other related management purposes as determined by the County. Any excess water shall be abandoned to the stream and the City of Boulder may purchase and use it for its purposes. A priority use for the excess water is in-stream flow. Trail use (including equestrian use), vegetative management (including use of fire and herbicides) and agricultural management (including grazing) should not degrade the watershed nor water quality.
- § Agricultural Use: The Guercios, so long as any of them owns the Caribou Ranch homestead, may lease back the property and water rights for agricultural purposes for up to 20 years (December 1996 to December 2016).
- § Existing Buildings: County has the right to repair and reconstruct any existing structures and buildings for the purposes of use as caretaker, scientific research, and historic or administrative facilities. If the County chooses not to use the DeLonde Ranch House, Mr. Guercio can lease it.
- § Additional Guercio Rights: The present and future owners and residents of the remaining Caribou Ranch property have direct access to the public trails by means of a private trail(s).
- § Other Management Considerations: The County shall manage each parcel purchased from Mr. Guercio. The County will also manage that portion of the City of Boulder Watershed located south of the Rainbow Lakes Road (CR 116). The County is prohibited from building any structures or allowing any development, except that associated with trails and trailheads. The County shall not remove, destroy or cut any tree or plant, use any biocide or change the natural environment or habitat except as required for weed control, fire suppression or management, and trail development or maintenance. There is no dumping or storage of trash or chemicals; no changing of topography except for trail construction. The County shall not allow any fire to be set or any hunting or trapping or poisoning of wildlife without the written consent of the City of Boulder. The County agrees to make reasonable effort to suppress any wildfire that may occur.

6.3 Caribou Ranch Open Space Vision Statement

A vision statement captures the Afeel@ of the open space or what the open space would look like if the management plan were fully implemented.

“Caribou Ranch Open Space will be a predominantly natural landscape consisting of a mosaic of forest types punctuated by streams, wetlands, riparian areas, shrublands, and meadows; inhabited by plant and animal species that are characteristic of the northern Front Range; functioning as a high-quality watershed; retaining elements of its cultural history; and with trails where citizens can hike, ride horses, cross-country ski or snowshoe in order to enjoy and learn about the natural and cultural resources.”

6.4 Caribou Ranch Open Space Management Goals and Objectives

Goals are broad, general statements describing what the property should be in the future. They are more specific than a vision statement. Objectives are even more specific than goals. They are generally measurable, achievable, and relevant. Following are the goals and objectives of the Caribou Ranch Open Space Management Plan.

Goal 1: Permanently Protect the Land and Water

Objectives:

- § Complete the land protection process for Caribou Ranch Open Space.
- § Adopt and implement the Caribou Ranch Open Space Management Plan.
- § Provide land management staffing needs of Nederland area open space properties, including Caribou Ranch Open Space.
- § Work cooperatively with surrounding property owners to protect the natural and cultural resources of the property and its environs.
- § Monitor the well being of the natural and cultural resources, as well as the visitor experience, and amend the plan when appropriate.

Goal 2: Maintain the Structure and Function of the Diverse Ecosystems, and the Watershed Functions of the Property.

Objectives:

- § Maintain a mosaic of existing native plant communities.
- § Maintain viable populations of existing native vertebrate and invertebrate populations.
- § Restore and reintroduce appropriate native plant and animal species.
- § Eradicate, suppress or contain, as appropriate, undesirable plant and animal species.

- § Minimize the chance for human and domestic animal degradation of surface waters.

Goal 3: Preserve the Cultural, Historical and Archaeological Integrity of the Area.

Objectives:

- § Determine the cultural and historical sites most appropriate for public visitation and develop strategies for preservation of these sites.
- § Identify areas of the property that will be off limits to visitors to protect significant archaeological, historic, and cultural features from vandalism.
- § Determine the proper level of preservation, research and inventory for each cultural site.

Goal 4: Provide Opportunities for Passive Outdoor Recreation for the Public.

Objectives:

- § Develop access to the property that minimizes impacts to surrounding property owners, and provides information, parking and rest rooms for the visiting public.
- § Develop trails that provide access to places appropriate for public use, and direct people away from sensitive resources.
- § Develop a trail that highlights the rich cultural history, wildlife, and scenery of the property, is 4-5 miles in length, and geared towards family enjoyment.
- § Develop a trail that provides a connection to trails to the north of Caribou Ranch Open Space.
- § Where feasible, provide opportunities for seniors and handicapped citizens.

Goal 5: Provide Opportunities for Cultural and Environmental Interpretation for the Public.

Objectives:

- § Highlight the cultural history of the Switzerland Trail Railroad, Blue Bird Mine Complex, Batesville, and DeLonde Homestead by managing these sites for some level of public visitation.
- § Provide kiosks, brochures, and interpretive signs for self-interpretation of significant features.
- § Offer guided field trips to interpret significant features for visitors.

Implementing the goals and objectives are more fully described in the following sections on Vegetation Resource Management, Wildlife Resource Management, Cultural Resource Management, and Visitor Service Management.

7.0 VEGETATION RESOURCE MANAGEMENT

The *Boulder County Comprehensive Plan* Goals and Policies emphasize:

- The conservation, preservation, and protection of significant plant communities, wetlands, riparian areas, rare plant sites, and other stands of important vegetation, such as willow carrs and old-growth forests;
- The management of riparian areas using or mimicking natural processes, ensuring suitable minimum and maximum stream flows, maintaining or reintroducing native species, eliminating undesirable exotic plants, and minimizing human impacts;
- Discouraging the introduction of exotic or undesirable plants and work to eradicate existing infestations.

The Caribou Ranch Open Space Management Objectives further emphasize:

- Maintaining a mosaic of existing native plant communities;
- Restoring and reintroducing appropriate native plant species;
- Eradicating, suppressing or containing, as appropriate, undesirable plant species.

7.1 Protecting Significant Resources

Several significant plant communities and one rare plant site were identified through field inventories (Figure 2). The most significant plant community is the DeLonde Willow Carr. Other sites of importance are the kettle ponds, wetland and riparian complex, big sagebrush shrubland, old-growth woodlands and forests, and ponderosa pine/elk sedge montane woodland.

Management for most of these sites will follow normal management practices for forests, grasslands, and weeds, which are further described in the following sections. Additionally, the following practices should be followed in managing significant vegetation resources:

- Activities in or near significant resources should only be carried out with knowledge of the most current information and best management practices, and need to be performed in a manner that protects the resource.
- Where possible, avoid fragmentation of significant sites by roads and trails.
- Increase public awareness of the benefits of protecting areas determined to be significant to natural diversity. Increasing the public's knowledge of the remaining significant areas will build support for the initiatives necessary to protect them. Such activities could be done through interpretive signs, direct public involvement in management, information pamphlets, and public service announcements.

It is probable that DeLonde Willow Carr was larger in size during pre-settlement times. It was typical for early homesteaders to reduce the size of wetlands by removing beaver in order to expand pastures and hay meadows. Almost 20% of all montane and subalpine willow carrs in Boulder County have been changed to other land uses. Willow carrs are significant plant

communities as well as important wildlife habitat.

Management activities to enhance DeLonde Willow Carr are:

- DeLonde Willow Carr will be expanded in size to its west. Initial steps toward restoration will be to eliminate some of the haying that occurs nearest the riparian corridor; this will allow woody vegetation to expand. Further restoration efforts will be based on additional studies of hydrology, the response of vegetation to the elimination of haying, and the response of animals (particularly beaver) to the new vegetation. The feasibility of relocating the current road to DeLonde Homestead, which crosses DeLonde Creek between the willow carr and the restoration area, will be investigated.

7.2 Forest Management

Forests are the predominant type of vegetation on Caribou Ranch Open Space. Lodgepole pine forests are most common, along with mixed conifer forests and woodlands, Engelmann spruce-subalpine fir forests, and ponderosa pine forests and woodlands. Aspen dominates several small patches and is also found mixed with other coniferous forest types.

It is probable that a majority of the forest on Caribou Ranch Open Space was cut or burned during the settlement era of the 1850s through 1910. Much of the forest we see today originated during that time period. Early photographs reveal that aspen covered more of the property in the post-fire forest of the first half of the 20th century. Ponderosa pine and mixed-conifer woodlands found on south and southeast facing aspects were open enough to survive the fires; today these sites contain many of the oldest trees on the property. Fire history studies reveal a mean-return fire interval on the order of 150 years or greater. The regional climate appears to be the most important factor in the large-scale forest fires that influence this area rather than the buildup of fuels.

Today's forests are within the historical range of variability. It is probable that at some point in the future there will likely be a major fire, probably occurring when there has been a regional drought, which will start a successional process. Eventually, aspen forests will again dominate much of the property for 50 or more years until overtaken by conifers. Trying to manage large portions of the forest to preclude wildfire has significant ecological costs for those species, both plant and animal, which favor a closed canopy forest. Thinning lodgepole pine and spruce-fir forests tends to simplify the forest structure and removes important ecological components.

Closed canopy is the successional forest stage that much of the property has coevolved to be in for most of the time. A fire, an ecological pulse that creates a mosaic of burned and unburned patches, then breaks this stage. Aspen and lodgepole will then regenerate in the burned patches, which are also full of snags that benefit a host of animals. The landscape contains other patches that are less prone to stand replacing fires, including mixed-conifer woodlands, meadows, wetlands, and riparian areas.

The forest management to occur on the property will focus on particular sites with an aim toward protection of structures, both on and near the property, key cultural and ecological features, and watershed values.

Management activities for the forests are:

- Protection of Cultural Resources: Forest stands around the Blue Bird Mine Complex and

DeLonde Homestead should be kept open through thinning.

- Maintaining Forest Health: This task has several components. Insects and disease, which are natural elements of our forest, will be managed on a case-by-case basis. The montane forest in the southeast portion of the property should be managed to retain a healthy forest. This area currently contains small meadows of native grasses, which could be expanded through forest thinning. This will also provide a fuel break between open space and adjacent land located to the south and east. More detailed stand prescriptions will be developed for this area.
- Protection of Key Ecological Features: The mixed-conifer woodland of DeLonde Gulch is a significant wildlife habitat and plant community. Occasional ground fire through this ecosystem has helped maintain the openness of the site. Currently, the site is not in need of any management. Stand density should be periodically monitored. In the future, in the absence of natural fire, possible thinning and/or prescribed fire may be considered.
- Protection of Watershed Values: While we do not wish to actively manage large portions of the property, consideration will be given to exploring the creation of some fuel breaks in the northern part of the property. These may utilize existing features such as Rainbow Lakes Road and Silver Lake Pipeline, or try and tie together existing woodlands and aspen forests, which already act as natural fuel breaks. The potential for a fuel break in this vicinity needs additional study, as well as coordination with the City of Boulder Watershed and the U.S. Forest Service.
- Stopping Wildfires and Performing Reclamation: The mode of operation is to aggressively control all wildfires and extinguish them at the earliest time possible. Additionally, post-fire reclamation will aggressively work to control erosion and sedimentation in order to minimize the impacts to surface water. The County will coordinate with the City of Boulder Watershed, as well as the U.S. Forest Service and the Nederland Fire Protection District, to work towards a well-planned strategy for wildfire fighting and post-fire reclamation.

The primary tools for active forest and woodland management include thinning, pruning, and prescribed burns. Following are descriptions of these tools:

- Thinning and Pruning of Forests and Woodlands: This management tool is utilized in order to decrease stand density. It allows fire to be a more effective and less dangerous agent by reducing tree density, maintaining less hazardous fuel types, and eliminating ladder fuels. Thinning generally focuses on removing understory trees, as well as many seedlings and saplings.
- Use of Prescribed Burns: Prescribed burns are appropriate in those ecosystems where ground fires helped retain an open canopy. They help reduce fuel loads that may help reduce the risk or severity of wildland fire. Areas to be burned may receive an initial thinning and pruning of trees in order to allow the fire to be more effective.

Prescribed burns are carefully planned. Boulder County Parks and Open Space will coordinate with local fire districts, the County Sheriff's Office, and other appropriate land management agencies and fire districts. Carefully developed burn plans are written for each prescribed fire. The burn plan provides for a window of opportunity during which predetermined environmental conditions must exist in order for the burn to be conducted.

During this window, officials test conditions such as wind direction, temperature, and moisture to determine if conditions are appropriate for the burn. A prescribed burn will not be conducted unless conditions are appropriate for a safe and effective burn. The monitoring of plant communities before and after each burn is important in order to measure the effects of each fire and provide data to better plan future events.

7.3 Grassland Management

Grassland plant communities are found at several sites on the property and are significant components in woodlands and in some stands of aspen. DeLonde Meadow is the largest grassland and is dominated by introduced pasture grasses. Small meadows of native grasses are found interspersed with stands of ponderosa pine in the southeast corner of the property. Native grasses form significant understories in the woodlands of DeLonde Creek.

DeLonde Meadow encompasses approximately 40 acres, of which about 30 acres are grassland. Since settlement the property, it has been used for haying, livestock grazing, and probably some crop production. Much of the meadow is irrigated from Como Ditch #5, whose point of diversion is from DeLonde Creek just west of the meadow. Probable changes to plant communities resulting from human activities in the meadow include a decrease in native riparian shrublands and grasslands, a decrease in native upland grasslands, and an increase in introduced pasture grasses, particularly smooth brome, timothy, orchard-grass and Kentucky blue-grass.

Recently, the primary use of DeLonde Meadow has been haying. Irrigation is still conducted. The property is inadequately fenced for well-controlled livestock grazing. The site has historically been used as a stock driveway to move livestock to the U.S. Forest Service grazing allotment (Caribou Allotment) to the west of Caribou Ranch Open Space. As part of the purchase contract with Jim Guercio, the Guercios lease back the property and water rights for agricultural purposes (grazing and ranching) until December 2016.

Consideration was given to trying to convert DeLonde Meadow back to native grasses. It was felt that conversion would probably only be achieved with considerable time and cost. The introduced pasture grasses have functional values as forage and soil binders. They are also part of the cultural fabric of the DeLonde Homestead, particularly as hay meadows.

Management activities for DeLonde Meadow are:

- **Irrigation and Haying:** Continue irrigation and fall haying in portions of the meadow previously hayed, less areas where the DeLonde Willow Carr will be expanded (see Section 7.1 – Protection of Significant Resources).
- **Livestock Grazing:** Use DeLonde Meadow and DeLonde Creek as a stock driveway for the purpose of moving cattle from Caribou Ranch to Caribou Allotment. Animal numbers, grazing periods, and the degree of utilization of forage through DeLonde Meadow will be controlled. During up and down movements, the time spent in DeLonde Meadow will generally be restricted to short time intervals (1 day), however, this may vary depending on objectives. Cattle will need to be herded during the move, as fencing is impractical. Other livestock grazing (other than incidental to moving cattle to and from Caribou Allotment) is to be planned and controlled grazing where objectives are achieved by using temporary fencing or full-time herding.

Other grasslands on the property will be managed only if part of a prescribed fire in

conjunction with forest management (see Section 7.2 – Forest Management), or for weed management (see Section 7.4 – Weed Management).

7.4 Weed Management

The movement of people and livestock west brought noxious weeds into Boulder County. Sometimes the transplanting was with purpose; often it was inadvertent as the seed was mixed with luggage or livestock. There is an historical account of ox-eye daisy first coming to Boulder County at Caribou Ranch in the early 1900s. A traveler from Chicago arrived at the Blue Bird Station of the Switzerland Trail railroad with ox-eye daisy seeds in his coat pocket. Ox-eye daisy is now considered a noxious weed and is prevalent at several sites on Caribou Ranch Open Space.

Other noxious weeds present on the property include musk thistle, Canada thistle and yellow toadflax. Mullein is present in disturbed sites. Cheat-grass, which can cause early fire danger because the plant matures and cures earlier than most native grasses, is present in meadows and woodlands.

Boulder County utilizes an integrated pest management approach to weed management that includes manual removal, prescribed fire, mechanical, biological, and herbicidal methods. Weed control activities were initiated on Caribou Ranch Open Space in 2001. Manual and herbicidal control were initiated against ox-eye daisy and musk thistle. Weed control efforts will continue as needed. Emphasis will be placed on controlling ox-eye daisy, musk thistle, Canada thistle, and yellow toadflax.

Herbicides are used only under strict guidelines. Those herbicides that are persistent in soil and move easily in water are used as spot applications away from sensitive vegetation and streams. Herbicides with low toxicity, low movement in water, and active on few plant families can have a wider application. In the mountains of Boulder County, herbicides can only be used on County Open Space properties that are open to the public if the Board of County Commissioners grants permission.

8.0 WILDLIFE RESOURCE MANAGEMENT

The *Boulder County Comprehensive Plan* Goals and Policies emphasize:

- Preserving and minimizing impacts to critical wildlife habitat, wetland, and riparian areas;
- Protecting critical elk range and migration routes by minimizing human disturbance and providing seasonal habitat needs;
- The conservation and preservation of Environmental Conservation Areas (Caribou Ranch Open Space is within the Indian Peaks ECA) in order to perpetuate species, communities and processes that function over large geographic areas and require a high degree of naturalness.

The Caribou Ranch Open Space Management Objectives further emphasize:

- Maintaining viable animal populations;

- Restoring or reintroducing native animals;
- Eradicating, suppressing or containing, as appropriate, undesirable animals;
- Directing people away from sensitive areas.

8.1 Protecting Significant Resources

Caribou Ranch Open Space is part of a montane parkland. This site is an important node of biodiversity and one of only three remaining intact montane parklands in western Boulder County. The overall diversity and density of species is significantly high in comparison to the surrounding land.

Several significant wildlife resources on Caribou Ranch Open Space were identified through field inventories (Figures 3 and 4). DeLonde Willow Carr and several Mixed-Conifer Woodlands are significant habitat as indicated by high breeding bird diversity and density. Townsend's Big-eared Bats are known to utilize mine adits on the property. Northern goshawks are known to utilize two areas on or near the property for post-fledging family activities. Due to the lack of fish in DeLonde Creek, an opportunity may exist to successfully introduce native greenback cutthroat trout.

A herd of approximately 175 elk uses the property, primarily as transitional range in spring and fall. Calving and rutting activities occur on the ranch. While the main herd moves to higher elevation during the summer, individuals are present throughout the season. Elk may also be present during mild winters. Caribou Ranch Open Space has functioned as a refuge for elk. Because of this, two management situations arise. First, it is probable that once opened to the public there will be a higher human presence on the property. While elk can be adaptable animals, they can also be wary of humans. Behavior is often shaped by several factors including whether or not they are hunted on portions of their range. This herd is hunted with the location depending on the timing of each season in relation to snow depth. Illegal hunting also occurs. Observations suggest that these elk are wary of people walking through a natural landscape; they will expend energy fleeing from people hiking. Studies have shown that elk are vulnerable to human disturbance during the calving season. How much they will habituate to people on the property is an unknown. Consideration needs to be taken to minimize interaction, particularly during significant biological times such as calving and rutting. Secondly, there has been a tendency for elk to utilize the property as a refuge during hunting season, possibly minimizing one form of population control. There is information that the herd has been increasing in size, and there is some evidence of elk impacts on aspen. Monitoring of both herd population and impacts to vegetation are recommended. Active herd population management may be necessary if significant resource damage occurs.

The use of Caribou Ranch Open Space for public access and recreation will generally present a level of human presence that is higher than recent historic use. How different animals react to recreationists is a complex issue, but many studies have shown adverse effects from nonconsumptive outdoor recreation, including nonmotorized trail use, due to displacement, lower nesting success, and greater predation. In this respect, trails are an extension of the overall impacts occurring in Boulder County due to development and an increased human presence on the landscape. There is a general community shift in animals and plants from those less tolerant of people to those more tolerant. The need for sizeable blocks of land with little human presence ("effective habitat") is becoming more important.

Wildlife management activities on Caribou Ranch Open Space are:

- Implement a spring closure (April 1 – June 30) of the property for protection of elk calving.
- Implement a year round wildlife closure in the DeLonde Gulch Conservation Area (see Figure 6 in Section 10.1 – Management Areas) to protect: effective habitat for a wide variety of resident and migratory species; a northern goshawk post-fledging family area; an elk fall concentration area, portion of a spring concentration area and movement corridors; the habitat values of the largest mixed-conifer woodland on the property.
- Implement a closure in the DeLonde Willow Carr Conservation Area (see Figure 6 in Section 10.1 – Management Areas) to protect: effective habitat for a wide variety of resident and migratory species; a portion of an elk spring concentration area; and the habitat values of DeLonde Willow Carr, the 5th largest montane willow carr in Boulder County.
- Other temporary trail closures may be implemented in the fall (September 1 – November 15) in order to protect fall elk rutting from human interference.
- Because of the exceptional wildlife values of the property and the almost year round presence of elk, domestic dogs should be prohibited from the property.
- Mine openings and adits should be enclosed in such a way that allows bats to enter and exit, and prohibits people from entering.
- The DeLonde Willow Carr Critical Wildlife Habitat should be expanded (see section 7.1 – Protection of Significant Vegetation Resources – for more information).
- Trail locations should minimize habitat fragmentation, should be directed away from critical resources, and visitor policies should encourage the public to stay on trails so their activities and movements on the property are predictable to wildlife.
- Control of elk populations, through hunting or other forms of population control, should be retained as a management option if elk numbers approach carrying capacity, or for management of disease.

9.0 CULTURAL RESOURCE MANAGEMENT

The *Boulder County Comprehensive Plan* Goals and Policies emphasize:

- The conservation and preservation of unique or distinct cultural features and sites.
- The identification and protection of prehistoric and historic sites which meet national, state or local criteria for historic designation from destruction or harmful alteration.
- The County should nominate resources found on open space that meet the criteria for local landmark, or State or National register status.

The Caribou Ranch Management Objectives further emphasize:

- Determine the cultural and historical sites most appropriate for public visitation and develop strategies for preservation of these sites.
- Identify areas of the property that will be off limits to visitors to protect significant archaeological, historic, and cultural features from vandalism.
- Determine the proper level of preservation, research, and inventory for each cultural site.

9.1 Protecting Significant Resources

The property is rich in cultural resources. The majority of these that are most visible on the property is of an historic nature and associated with early settlement, ranching, mining, and transportation. The Denver, Boulder & Western Railroad (“The Switzerland Trail”) runs through the property and is listed on the National Register of Historic Places. The Blue Bird Mine Complex is a multi-component site with a small company community associated with mining and the railroad. Batesville was the site of North Boulder Mill. The DeLonde Homestead reflects several periods of ranch development. Besides these sites, there were 137 isolated finds on the property that were both prehistoric and historic in nature.

A number of prehistoric sites and isolated finds were documented on the property. Native American use should be an interpretive theme. However, due to the sensitivity of these archaeological resources, specific sites will not be used for interpretation and visitor use will be directed away from them. Parks and Open Space regulations prohibit the removal of any artifacts by visitors. All visitors should respect the sensitivity of these sites.

Several of the significant historic cultural resources lend themselves to preservation, interpretation and visitor enjoyment. These will be a major part of the experience of visiting Caribou Ranch Open Space. There is, of course, a risk to allowing public access to historic structures. Vandalism could occur. Having only foot and horse access of around 2 miles to the sites lessens the risk, but does not get rid of it. But we think that it is worth taking that risk so the citizens of Boulder County can fully appreciate this property.

While surface archaeological surveys have been conducted, there is still much research to be done. Some structural stabilization and weatherproofing has been undertaken. Historical structural assessments are planned. More detailed planning will be done in order to determine how and what to preserve, rehabilitate, research, inventory, let decay, and interpret.

Cultural resource management activities on Caribou Ranch Open Space are:

- The Switzerland Trail, Blue Bird Mine Complex, DeLonde Homestead, and Batesville will be managed for public visitation (see section 10.0 – Visitor Services).
- The Switzerland Trail Railroad is listed as a National Historic District. It will be interpreted, along with related features such as the townsite of Anson, the stop at Blue Bird, and the trestles at Blue Bird and the North Boulder Creek crossing.
- The Blue Bird Mine Historic District should receive Local Landmark status. The bunkhouse and stone building will be top priorities for preservation, and possible rehabilitation. Most other features will be preserved. Mine openings and adits will be secured from public entry for safety.
- Batesville primarily consists of the foundation of the North Boulder Mill. This site will be preserved and interpreted.
- The DeLonde Homestead should receive Local Landmark status. The house and barn will be preserved, and possibly rehabilitated. The house, barn, hay meadows, irrigation ditch, and other related features will be interpreted.
- Historic debris and dumb sites will be protected.
- Utilize fencing, demarcated walkways, and interpretive signage to help control public use.
- Implement a year round closure in the DeLonde Willow Carr Conservation Area (see Figure 6 in Section 10.1 – Management Areas) due to the sensitive archaeological

resources.

10.0 VISITOR SERVICES

The Boulder County Comprehensive Plan Goals and Policies emphasize:

- That provision should be made for open space to meet human needs throughout the County in order to protect and enhance the quality of life and enjoyment of the environment.
- The foremost management objectives of individual open space lands shall follow directly from the purposes for which the land was acquired.
- Recreational use of open space is permitted where such use does not adversely impact natural and cultural resources; use is limited to passive recreation and only limited development and maintenance of facilities will be provided.
- Trails and trailheads are planned, designed, and constructed to avoid or minimize degradation of natural and cultural resources, and adverse impacts on private lands should be minimized.
- Accessibility for special populations is addressed on a system-wide basis.
- The County, through the Parks and Open Space Department, shall provide appropriate educational services for the public to increase public awareness of significant resources and appropriate land management. There should be: cooperation with schools and non-profit organizations; accommodation of the needs of diverse populations where feasible; dissemination of information through publications, exhibits, and other media; and the utilization of trained volunteers, cooperating groups, and private individuals to assist in the delivery of environmental and interpretive services.

Passive Recreation is defined as:

“Outdoor activities that create opportunities for independence, closeness to nature, and a high degree of interaction with the natural environment and which require no organization, rules of play, facilities, or the installation of equipment, other than those which may be necessary to protect the natural environment.”

The Open Space Tax Resolution (Resolution No. 93-174) approved by the voters of Boulder County, and whose funds were used to acquire Caribou Ranch Open Space, provides further direction regarding appropriate recreational use of the property. The resolution cites six functions that open space may serve, including urban shaping buffers, preservation of critical natural and historic resources, trail linkages and public access, areas of environmental preservation, conservation of natural resources, and:

“preservation of land for outdoor recreation areas limited to passive recreational use, including but not limited to hiking, photography or nature studies, and, if specifically designated, bicycling, horseback riding, or fishing.”

The Caribou Ranch Management Objectives further emphasize:

- Adopt and implement the Caribou Ranch Open Space Management Plan.
- Provide land management staffing needs of Nederland area open space properties, including Caribou Ranch Open space.
- Work cooperatively with surrounding property owners to protect the natural and cultural resources of the property and its environs.
- Minimize the chance for human and domestic animal degradation of surface waters.
- Develop access to the property that minimizes impacts to surrounding property owners, and provides information, parking and rest rooms for the visiting public.
- Develop trails that provide access to places appropriate for public use, and direct people away from sensitive resources.
- Develop a trail that highlights the rich cultural history, wildlife, and scenery of the property, is 4-5 miles in length, and geared towards family enjoyment.
- Develop a trail that provides a connection to trails to the north of Caribou Ranch Open Space.
- Where feasible, provide opportunities for seniors and handicapped citizens.
- Highlight the cultural history of the Switzerland Trail Railroad, Blue Bird Mine Complex, Batesville, and DeLonde Homestead by managing these sites for some level of public visitation.
- Provide kiosks, brochures, and interpretive signs for self-interpretation of significant features.
- Offer guided field trips to interpret significant features for visitors.

Caribou Ranch Open Space possesses the size, terrain, scenery, views and resources which can make it a place that people will enjoy visiting. The primary activities on the property will include hiking, horseback riding, cross-country skiing and snowshoeing when appropriate, and learning about the many cultural and environmental resources on the property. Opportunities may also exist for citizens with special needs. As agreed to at the time of purchase, mountain biking will not be permitted on the property.

Any use of the property must be compatible with the protection of the resources. Some direct and indirect impacts from recreation include displacement of wildlife, spread of exotic plants, spread of water-borne disease, soil compaction, erosion and the loss of vegetation, and vandalism. Every effort needs to be made to lessen human impact on the resources, direct visitors to less sensitive areas, and to design for human use that minimizes resource damage. But in all likelihood, there will be some level of impact.

What should not be forgotten, while looking at balancing resource protection with public use, were the potential impacts from the development that was precluded by purchase of the property as open space. Approximately 62 homes could have been built on this acreage; potentially more if the land had been annexed to a municipality. The impacts to wildlife, plant, and water resources would have been greater from the development. Studies in Boulder County reveal significant avian and mammalian community changes where residential development exists or is nearby; generalists increase and specialists decrease to a degree much greater than impacts documented so far from nonmotorized trail use. Bears and lions that hang around homes eventually are removed. Elk probably would have still used the property, but it is likely that calving would have occurred someplace else. The level of exotic plant introduction and stream sedimentation is potentially greater in residential developments with their homes, roads and driveways.

The following sections more fully describe how visitor use will be managed on the property.

10.1 Management Areas

We have identified Management Areas, which describe the land use emphasis, to balance resource protection with visitor use. Significant factors influencing the management areas are:

- Caribou Ranch Open Space is part of a montane parkland, a node of exceptional biodiversity.
- Elk use of the property is nearly year round, with high and sensitive use periods during spring (calving) and fall (rutting).
- There is a need to retain one or more large blocks of land within the property with high effective habitat.
- There is a need to minimize human and domestic animal contact with surface waters to help retain high quality watershed values.
- There are unique and exceptional historical resources on the property.
- There is a desire from the public to enjoy the special resources of the property and to have a route through the property connecting with trails to the north.

There are several special management actions that will apply to the entire property. We believe these are necessary for proper resource protection. These are:

- There will be a spring closure of the property (April 1 – June 30). The primary reason is for elk calving. This is probably the most critical time for elk, and calving occurs throughout the property. Many other animal species will benefit from this closure.
- Domestic dogs will not be allowed on the property. We believe the wildlife resources are truly special in this montane parkland. This land has greater wildlife value than the surrounding landscape to the north, west, and south. While we are proposing a spring closure to protect elk, they are also present in good number in the fall and can be present at all other times. This action will also help protect water quality, as domestic dogs can be carriers of water-borne disease.
- As a condition of the purchase agreement, mountain bikes will not be allowed on the property.

Management Areas distinguish between areas more suitable for resource protection and areas more suitable for visitor use. Proposed Management Areas for Caribou Ranch Open Space (Figure 6) include a Cultural Heritage Area, a Trail Alignment Study Area, and two Conservation Areas. Following are descriptions of the Management Areas.

Cultural Heritage Area: This area will be the primary focus of the visitor experience and will receive the highest use on the property. Within this area are the Blue Bird Mine Complex, DeLonde Homestead, and a portion of the Switzerland Trail Railroad grade. Considerable work will be needed to preserve and protect these historic sites (see section 9.0 – Cultural Resource Management).

The entrance and parking area will be off of County Road 126 (Sherwood Gulch Road) or off

Figure 6 – Management Areas

of County Road 109J (a spur road off of CR 126) (see section 10.2 – Recreation Facilities and Figure 7). Additional study is required for locating the parking area and entrance. From here, a trail will connect to the Switzerland Trail Railroad grade, and will proceed to the Blue Bird Mine Complex. The distance from the Trailhead Study Area to the Blue Bird Mine Complex ranges in distance from 1.5 to 2.5 miles (depending on the location of the trailhead). Off of the Switzerland Trail will be a loop trail connecting to the DeLonde Homestead. The depicted location on Figure 7 for the loop trail is conceptual and the final alignment could be in a different location. The loop trail will be approximately 1 mile in length. Hiking, horseback riding, cross-country skiing and snowshoeing are the allowed modes of travel. As a matter of the purchase agreement, there will also be a spur trail connecting to the loop from the Caribou Ranch Homestead to provide access for its residents into the public trail system.

Fishing will be permitted in the segment of North Boulder Creek within this management area. Additional study and coordination with the Colorado Division of Wildlife is needed to determine appropriate fisheries management and regulations.

Management activities for this area include:

- Preserve and protect the cultural resources in order to allow public visitation.
- Offer one guided special access field trip to the Blue Bird Mine Complex annually for seniors and handicapped citizens.
- Develop a cultural history program focused on the Blue Bird Mine Complex.
- Develop a natural resource program and guided walks that are focused on the fall elk rut.
- Design and produce interpretive materials for the Switzerland Trail Railroad, Blue Bird Mine Complex, and DeLonde Homestead.
- Investigate the feasibility of relocating the current road to DeLonde Homestead, which would benefit the DeLonde Creek riparian corridor. This will influence the location of the loop trail.

Trail Alignment Study Area: This area will be for more rugged trail travel in a natural environment. Our goal is to find a suitable trail alignment that provides a connection to the north, to USFS lands and the Sourdough Trail. The Switzerland Trail may be a possibility, as is an alternative alignment that would more closely follow Rainbow Lakes Road. Additional study, and coordination with the Forest Service, is needed in order to find a suitable trail alignment. The Boulder District of the Roosevelt National Forest is conducting a planning process for managing recreational use in the area north of Caribou Ranch Open Space. The Forest Service anticipates completing their planning process during the winter of 2002-2003. The Forest Service has concerns regarding trail alignments in this area (impacts to greenback cutthroat trout, raptor nests, and habitat fragmentation). It is not clear if they will recommend a trail in this area. If not, we will consider a route to Rainbow Lakes Road to facilitate a portion of the northern connection. The Trail Alignment Study, when complete, will be brought to the Parks and Open Space Advisory Committee and the Board of County Commissioners for review.

The trail alignment must take into account, and try to minimize impacts on, the significant resources found in the study area, including wetlands, Little Como Creek and its watershed, kettle ponds, elk spring and fall concentration areas and movement corridors, mixed conifer woodlands, raptor nests, and archaeological sites.

This area will also contain a short spur trail to the old town site of Batesville, where the foundation of the North Boulder Mill is still present. The historic site will be preserved and made

suitable for public visitation. Interpretive materials will be designed and produced for the site.

Conservation Areas: Conservation Areas are large blocks of land, which due to their size can protect several smaller significant resources, such as a wetland or an old-growth forest, as well as help meet the needs of animals needing a large, secluded and unfragmented place. Their large size means they can help provide watershed protection. Significant archaeological resources may also be present. Recreational use should be directed away from these areas and they should be considered for permanent closure.

DeLonde Gulch Conservation Area: This is the largest of the conservation areas and encompasses much of the western half of the property. Significant vegetation resources include: Ponderosa Pine/Elk Sedge Woodland (a Colorado rare plant community), Big Sagebrush Shrubland (uncommon in Boulder County), and Old-Growth Forest (trees as old as 425 years of age). Significant wildlife resources include: Elk Spring and Fall Concentration Areas and Movement Corridor, Mixed-Conifer Woodlands (exceptional breeding bird diversity and density; four avian species of special interest: olive-sided flycatcher, pygmy nuthatch, MacGillivray's warbler, and western tanager), Northern Goshawk Post-Fledging Family Area, and habitat for two additional avian species of special interest: three-toed woodpecker and golden-crowned kinglet. The area also provides exceptional effective habitat for not only elk, but other animals as well. Black bears are regularly seen in this area. Pine marten inhabit the area and are active year round. The area is potential habitat for lynx, providing food (snowshoe hare) and effective habitat (solitude). The area contributes to a high quality watershed: it contains all of the upper portion of DeLonde Creek and its watershed, a significant portion of North Boulder Creek, and the lower portion of Caribou Creek.

DeLonde Willow Carr Conservation Area: DeLonde Willow Carr is a Geyer Willow-Mountain Willow/Canadian Reedgrass Montane Willow Carr, which is a globally rare plant community. It is a deciduous shrubland that occurs in stands interspersed with wet meadows, open stream channels, and beaver ponds. From a wildlife perspective, willow carrs provide rich avian habitat and have the highest breeding bird density of any habitat in Boulder County. DeLonde Willow Carr is the 5th largest montane willow carr in Boulder County. Four avian species of special interest are present at DeLonde: ring-necked duck, veery, MacGillivray's warbler, and fox sparrow. Willow carrs also have exceptional density of small mammals and insects. Willow carr wetlands provide important watershed functions of flood control and water filtering. The conservation area also contains significant sensitive archaeological resources, which is the primary reason why a year round closure is recommended for this area.

10.2 Recreation Facilities

A number of facilities will need development in order to facilitate visitor use of Caribou Ranch Open Space. The primary facilities will be a parking/trailhead area and trails. The general locations for these are depicted on Figure 7.

Access: Access to Caribou Ranch Open Space will be by way of County Road 126 (Sherwood

Figure 7 – Trailhead and Trail Plan

Gulch Road), which heads west from the Peak-to-Peak Highway approximately one mile north of the Town of Nederland, and could also utilize County Road 109J (a spur road off of CR 126). CR 126 is a dirt road, which after .5 miles has some steep and winding sections. It is probable that some improvements to the road will be necessary. The only other possible access location is off of the Rainbow Lakes Road. This road has some of the same problems as CR 126 (dirt, winding, some steep sections), and it would be twice as long (two miles vs. one). Access from CR 126 takes the visitor into one of the most scenic parts of the property, DeLonde Meadow, and is the best way to access the cultural resources that will be a highlight of the visiting public's experience. And, the largest local population center, Nederland, is located to the southeast. Vehicular parking for access off of the Rainbow Lakes Road (County Road 116) will not be permitted, and the current "no parking" rule in effect for this road as it goes through Caribou Ranch Open Space will continue.

Trailhead: Trailheads are important open space facilities because they are the point at which the visitor receives information about what can be seen, as well as the rules and regulations. The trailhead for Caribou Ranch Open Space will be located off of either CR 126 or CR 109J. This is being called a Trailhead Study Area on Figure 7. We wish to conduct a more detailed site analysis and look at such factors as: ecological and cultural resource impacts, road safety, impacts on nearby private property, management and site constraints, and visitor experience. Additionally, a shared trailhead at Mud Lake for all or part of the facilities for Caribou Ranch Open Space is also a consideration. The Trailhead Study, when complete, will be brought to the Parks and Open Space Advisory Committee and the Board of County Commissioners for review. Trailhead facilities will likely include: parking for 25 vehicles (expandable to 50 vehicles) along with several horse trailers; information kiosk; and restrooms. The trailhead area may also contain picnic facilities. The parking lot and restroom will provide handicapped access to portions of the facilities.

Trails: The trail system will consist of two sections. The first is located in the Cultural Heritage Area (see section 10.1 – Management Areas and Figure 6). It will begin at the trailhead, where a trail (shown as a conceptual alignment on Figure 7) will connect to the Switzerland Trail Railroad grade. The Switzerland Trail Railroad grade will take visitors back to the Blue Bird Mine Complex. The distance from the Trailhead Study Area to the Blue Bird Mine Complex ranges in distance from 1.5 to 2.5 miles, depending on the location of the trailhead. Off of the Switzerland Trail will be a loop trail connecting to the DeLonde Homestead. The depicted location in Figure 7 for the loop trail is conceptual and the final alignment could be in a different location. The loop trail will be approximately 1 mile in length. Hiking, horseback riding, cross-country skiing and snowshoeing are the allowed modes of travel. As a matter of the purchase agreement, there will also be a spur connecting to the loop from the Caribou Ranch Homestead to provide access for its residents into the public trail system.

The second portion of trail will be within the Trail Alignment Study Area. This area will be for more rugged trail travel in a natural environment. Additional study is needed of this area in order to locate the trail alignment. Additional consultation is needed with the Forest Service, as well. Our goal is to locate a trail connection to the north. Off of the northern connection will be a short spur trail to the old town site of Batesville.

10.3 Interpretation

Caribou Ranch Open Space provides many interpretive opportunities, which will greatly enhance the public's experience. Interpretation is also an important tool for helping the public to understand management activities. Elements of both cultural and natural history are present on the property.

Interpretive management activities will be:

- Design and publish a general brochure for the property.
- Develop programs, literature and signage to interpret the cultural and natural resources of the property. General themes should include:
 - Ecology of Montane and Subalpine Lifezones
 - Geology
 - Mining and Milling (Blue Bird and Batesville)
 - Mountain Settlements Associated with Mining and Milling (Blue Bird and Batesville)
 - Homesteading and Ranching (DeLonde Homestead)
 - Switzerland Trail Railroad
 - Native Americans
 - Fauna
 - Flora
 - DeLonde Riparian Restoration
- Utilize volunteer naturalists and park hosts to assist in interpretation of cultural and natural resources.
- Develop a cultural history program focused on the Blue Bird Mine Complex.
- Develop a natural history program focused on the fall elk rut.
- Offer one guided special access field trip to the Blue Bird Mine Complex for seniors and handicapped citizens.

Interpretive sites will include those described under Cultural Resource Management (section 9.0).

10.4 Fencing

Fencing is a management tool that can help delineate boundaries, focus access onto open space land from public trailheads, reduce casual access points from private land, control trespass on private land, and control grazing animals. Fencing may also have adverse impacts on animal movement. Currently, there is little functional fencing around Caribou Ranch Open Space. What functional fencing exists is primarily on the east side of the property near the boundary with Caribou Ranch Homestead.

Priority locations for fencing include:

- Along County Road 126 (Sherwood Gulch Road).
- Along the east property line with Caribou Ranch Homestead: this should be a joint venture with Jim Guercio.
- Along portions of the Rainbow Lakes Road and Forest Road 505.

10.5 General Regulations

The following regulations, which apply to all County Open Space, will be applicable to Caribou Ranch Open Space:

- Properties that are open for public use are open from sunrise to sunset. Overnight camping is prohibited.
- Collecting, removing, destroying, or defacing any natural or manmade objects within parks and open space is not permitted.
- Discharging or carrying firearms, crossbows, fireworks, or projectile weapons of any kind is not permitted (except law enforcement officials and as allowed by the Board of County Commissioners to carry out a wildlife management program).
- Ground fires are not permitted. Fires may only be built in established grills and fireplaces in picnic areas. Fires may be prohibited entirely by order of the Board of County Commissioners, the Boulder County Sheriff, or the Director of Parks and Open Space by posting of special notices or notification through the press.
- Feeding, disturbing, trapping, hunting, or killing wildlife is not permitted (except as allowed by the Board of County Commissioners to carry out a wildlife management program).
- Motorized vehicles are not permitted (County, emergency, and agricultural lessees on official business are excepted; exceptions may also be granted to persons with disabilities, by written permission from the Parks and Open Space Department, for the use of single-rider, motorized vehicles adapted for recreational use by people with disabilities).
- It is unlawful to place rock bolts, install gates, establish or construct trails or other facility for public or private use without the written permission from the Parks and Open Space Department.
- The Parks and Open Space Department may temporarily close areas to public use for repairs or due to wildlife, vegetation, and/or public safety concerns. It shall be unlawful for the public to enter such areas.
- It is unlawful to consume, possess, or serve alcoholic beverages, as defined by state statute.
- Activities that unduly interfere with the health, safety, and welfare of the users or the neighbors in the area, or that create a nuisance or hazard to the use and safety of persons using or neighboring such areas are prohibited. Disorderly conduct (including amplified sound) shall be prohibited.

10.6 Parks and Open Space Department

Boulder County's Parks and Open Space program was initiated in the mid-1960s by citizens interested in preserving land from rapid development. The Parks and Open Space Department was formally created in 1975. That year, the county made its first major open space acquisition by acquiring Ernie Betasso's 773 acre ranch, six miles west of Boulder. Today, the open space program oversees over 65,000 acres of land and 85 miles of trail. Open space is used to: shape and buffer urban areas; preserve critical ecosystems, cultural resources and scenic

vistas; provide access to lakes, streams, and other public lands; conserve forests, agricultural land, and water resources, and protect areas of environmental concern.

Surveys of the users of County Open Space during 2000 provide a picture of whom, how, and how many of us use these properties. In the year 2000, it is estimated that, at a minimum, just over 1 million people used County Open Space. Some of the most popular properties included Bald Mountain, Betasso Preserve, Walker Ranch, Fairgrounds Lake, Hall Ranch, Heil Valley Ranch, Walden Ponds, Lagerman Reservoir, Legion Park, Pella Crossing, Rabbit Mountain and Rock Creek Farm.

The main activities conducted on all open space lands were hiking (40%), mountain biking (21%), picnicking (18%), viewing wildlife (15%), fishing (10%), relax/do nothing (8%), and horseback riding (2%). On some properties such as Betasso Preserve, Hall Ranch, and Walker Ranch, mountain biking comprises about 50% of all use. Horseback riding is most popular at Hall Ranch (7% of all use) and Rabbit Mountain (4% of all use). Most hikers (71%) like to go a distance of between 1-5 miles; mountain bikers (85%) favor distances over 5 miles, as do all equestrians; anglers (67%) favor a distance of a mile or less. Additionally, 81% of open space users claim to stay on designated trails; those who wander off generally go less than 2 mile. Finally, 23% of open space users have lived in the county less than 1 year; 19% have resided 1-4 years; 25 % have resided 5-10 years; and 33 % have resided in the county for more than 10 years.

The field staff of Boulder County Parks and Open Space conducts and/or coordinates construction, maintenance, patrol, and resource management activities on open space lands. Currently, this staff is comprised of approximately 80 full-time and over 45 seasonal employees. The field staff is split into the following divisions:

Resource Management: Conduct resource inventories (wildlife, plants, forests, cultural) and resource management projects; provide patrol and law enforcement; plan interpretive facilities and programs; coordinate volunteer activities.

Operations: Maintain facilities, buildings, roads, and fencing; mow where necessary; conduct trash collection; construct and maintain trails; construct trailhead facilities, picnic areas, group shelters, interpretive facilities and aids; produce and repair signs.

Agricultural Resources: Manage agricultural and grazing leases, and activities.

Weed District: Plan and conduct weed management activities.

10.7 Patrol

Several staff activities will provide patrol of the property. Primary law enforcement responsibilities will be provided by commissioned Sheriff=s Deputies assigned full-time to patrol open space properties. Open Space Rangers have a limited commission to enforce parks and open space regulations only. They also help educate the public about rules and regulations, land management issues, and current resource management projects.

Field Interpreters will also patrol the property to interact with park visitors, interpreting natural and cultural resources, discussing land management issues, explaining current resource management projects, and explaining rules and regulations. While not having law enforcement

responsibilities, Field Interpreters provide a presence and can call in enforcement personnel, if needed.

Property Managers live on Hall Ranch and Heil Valley Ranch open space properties. They provide a wide range of services, including general maintenance, and provide a continual presence on the property. A Property Manager position will be established on or near Caribou Ranch Open Space to provide coverage of the property.

10.8 Emergency Services

Emergency response is provided by a host of agencies, organizations, and fire protection districts. These activities are initially coordinated through a call to the Boulder County Sheriff's Dispatch Division. From here, depending on the nature of the emergency, appropriate response agencies are called.

Fire protection districts generally provide initial response and coordination for fighting fires. For Caribou Ranch Open Space, this is the Nederland Fire Protection District. This is supplemented with help from Boulder County Sheriff's Emergency Team, Boulder County Wildland Firefighters, Boulder County Fire Management Team, Colorado State Forest Service, and possibly Federal crews and other fire fighting crews that may have been brought into the area during fire seasons. The mode of operation is to aggressively control all fires and extinguish them at the earliest time possible.

10.9 Volunteer Opportunities

For interested citizens and organizations, many volunteer opportunities exist through Boulder County Parks and Open Space to help maintain the land and provide services to visitors. Most of these programs are organized through the Boulder County Parks and Open Space Interpretive Services, unless otherwise noted. Volunteer opportunities include:

Adopt a Park/Trail: This program gives families, schools, community groups, and businesses an opportunity to be part of the County's park maintenance system. Generally, there is an adopted site, such as a body of water or trail. Work can include trash pick-up, trail construction/maintenance, weed control, wildlife habitat enhancement, and other park improvements. Parks and Open Space staff provides training.

Park Hosts: Park Hosts work at specific open space properties orienting visitors to the recreational opportunities, resources, and places to enjoy. Park rules may also be discussed with visitors. Parks and Open Space staff provides training.

Volunteer Naturalists: Volunteer Naturalists are trained to provide environmental education programs to the public, school groups, and organizations. Each year one class of 20-25 people, chosen from applicants, completes the training program.

Cultural History Volunteers: Cultural History Volunteers conduct research on the history of open space properties, lead interpretive programs, and are involved with living history special events.

Volunteer Work Projects: Volunteer work projects allow individuals to participate in a variety of activities helping the department undertake and complete resource and interpretive projects. Projects have included waterfowl census, raptor monitoring, trail building maintenance, plant restoration, forest stand improvement, interpretive writing, wildlife projects, bat monitoring, and fire management. Recruitment for volunteers for these projects is advertised through a Parks and Open Space quarterly listing (Wildwork) and coordinated by a lead staff person for the project.

Adopt a Weed-Patch: This program allows groups and individuals the chance to help the county control noxious weeds by hand pulling and cutting. To volunteer, contact the Boulder County Weed District.

The Boulder County Youth Corps is an opportunity for younger people to get involved in community activities, some of which will be conducted on open space. Youths from the ages of 14-17 can apply. The program is designed to provide youths lifetime skills by involvement in specific programs. The Administrative Services Division of Boulder County coordinates the program.

11.0 RESOURCE MONITORING

The Caribou Ranch Open Space Management Objectives emphasize:

- Monitor the well being of the natural and cultural resources, as well as the visitor experience, and amend the plan when appropriate.

Resource monitoring is done to determine if management objectives are being achieved. Monitoring provides a feedback mechanism for decision-making that keeps the plan dynamic and responsive. Monitoring provides information on what changes are occurring on the property. Some resources may be adversely affected resulting in a change in management. Other resources may improve as a result of management activities.

The monitoring of specific resources is performed on a periodic basis. Some inventories are ongoing and occur through routine staff activities. Others are scheduled annually (raptor nest monitoring), or every 5 years (detailed weed mapping). Still other monitoring projects are triggered by particular events, such as the vegetative monitoring needed before and after a controlled burn. Every 5 years, a major evaluation of management direction will be undertaken.

Following are the monitoring activities to be undertaken on this property.

- Vegetation Resources Monitoring
 - Monitor changes in the structure and composition of the vegetation by shooting photo points every 3 years, conducting quantitative transects every 5 years, and analyzing aerial photographs every 10 years. Analyze the information to assist in planning of vegetation treatments, including forest health activities, grazing, and restoration projects, as well as assessing wildlife habitat.
 - Update weed mapping every 5 years. Use the information to plan priorities for weed management.

- Monitor riparian restoration along DeLonde Creek every 3 years. The information will be used to evaluate and plan restoration activities.
- Monitor for forest insects and disease annually and plan appropriate forest health projects.
- Routinely monitor grazing and range resources, whenever grazing is occurring, to insure that objectives are achieved and adverse impacts are minimal.

- Wildlife Resource Monitoring
 - Monitor the population of the elk herd. Coordinate with the Colorado Division of Wildlife on herd population estimates. Conduct vegetation browse plots every 3-5 years to look for resource damage. The information will be used to decide, in coordination with the Colorado Division of wildlife, if additional population control measures are needed.
 - Monitor northern goshawk and other raptor nest sites annually. Use the information to evaluate achievement of wildlife management objectives.
 - Conduct a regular sampling and monitoring program of fish in North Boulder Creek and DeLonde Creek, in cooperation with Colorado Division of Wildlife. The program should be conducted every 3-5 years. The information will be used to evaluate achievement of wildlife management objectives, and influence fishing regulations on North Boulder Creek.
 - Regularly monitor the water quality in ponds and streams to determine effects on aquatic wildlife. As part of this program, search for amphibians, particularly boreal toads, during appropriate times. Information will be used to evaluate achievement of wildlife management objectives.
 - Monitor the populations of breeding birds by conducting surveys every 3-5 years. Information will be used to evaluate whether wildlife management objectives are being achieved.
 - Monitor the populations of bats, with special emphasis on Townsend's Big-eared bat, every 3-5 years. Information will be used to evaluate whether wildlife management objectives are being achieved.
 - Continue monitoring the presence and distribution of mid-sized predators with scent-stations at least every 3 years. Information will be used to evaluate whether wildlife management objectives are being achieved.

- Cultural Resource Monitoring
 - Routinely monitor the cultural resources open to public visitation through regular department activities, including patrol. Appropriate action will be taken to correct problems in a timely manner.
 - Monitor other cultural resources annually. Appropriate action will be taken to correct problems in a timely manner.

- Visitor Services Monitoring
 - Routinely monitor trails, fencing, buildings, and recreational facilities to identify safety hazards and maintenance needs, and correct them in a timely manner.

- Monitor the property for development of undesignated trails, trailhead capacity, roadside parking, and vandalism. Appropriate action will be taken to correct problems in a timely and responsible manner.
- Monitor water quality, in coordination with the City of Boulder Water Quality Division, to identify impacts from use of the property. The information will be used to evaluate whether watershed objectives are being achieved.
- Monitor for erosion and sedimentation problems where trails cross streams, and along North Boulder Creek within the Cultural Heritage Area annually. Appropriate action will be taken to correct problem areas.
- Collect visitor data consistent with current methods, including vehicle counters, spot studies, and staff observations. Use the information to help update the management direction for the property.
- Monitor who is using the property and how the property is used, as well as the experience of the public, through questionnaires every 5 years. Use the information to help update the management direction for the property.

APPENDIX 1
CARIBOU RANCH OPEN SPACE MANAGEMENT TEAM

Dave Hallock, Resource Planner and Project Manager
Ron Stewart, Director, Parks and Open Space Department
Therese Glowacki, Resource Management Manager
Dan Wolford, Park Operations Manager
Brent Wheeler, Park Operations Manager
Rich Koopmann, Resource Planning Manager
Tina Nielsen, Open Space Assistant
Claire DeLeo, Plant Ecologist
Randy Coombs, Forestry
Rob Alexander, Agricultural Resource Specialist
Cindy Owsley, Weed Coordinator
Mark Brennan, Wildlife Specialist
Dave Hoerath, Wildlife Specialist
Pascale Fried, Interpretive Specialist Supervisor
Megan Davis, Field Interpretation
Lynette Anderson, Parks Interpreter
Cole Early, Cultural History Interpreter
Larry Colbenson, Natural History Specialist
Libby Henits, Law Enforcement
Chris White, Law Enforcement
Jeff Hiebert, Law Enforcement
Jim Creek, Sheriff's Department
Bob Buxton, Maintenance Supervisor
Don Burd, Cultural Resource Maintenance
Barry Shook, Trails Supervisor
Al Hardy, Trails Supervisor
Brian Hannegan, Landscape Architect
Matt Phillips, Landscape Architect
Kevin Lyles, Landscape Architect
Jeff Moline, GIS Mapping
Brad Seaman, GIS Mapping
Janet Bellis, Web Site Management

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Douglas J. Stevenson, Colorado State Forest Service (Forestry)
Peter M. Brown, Rocky Mountain Tree-Ring Research, Inc. (Fire History)
Alan T. Carpenter, Land Stewardship Consulting (Conservation Planning)
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Martha Moran, Boulder District, USFS (Recreation)