

**Carolyn Holmberg Preserve
at Rock Creek Farm**

Management Plan Addendum

September 5, 2002

Boulder County Parks and Open Space



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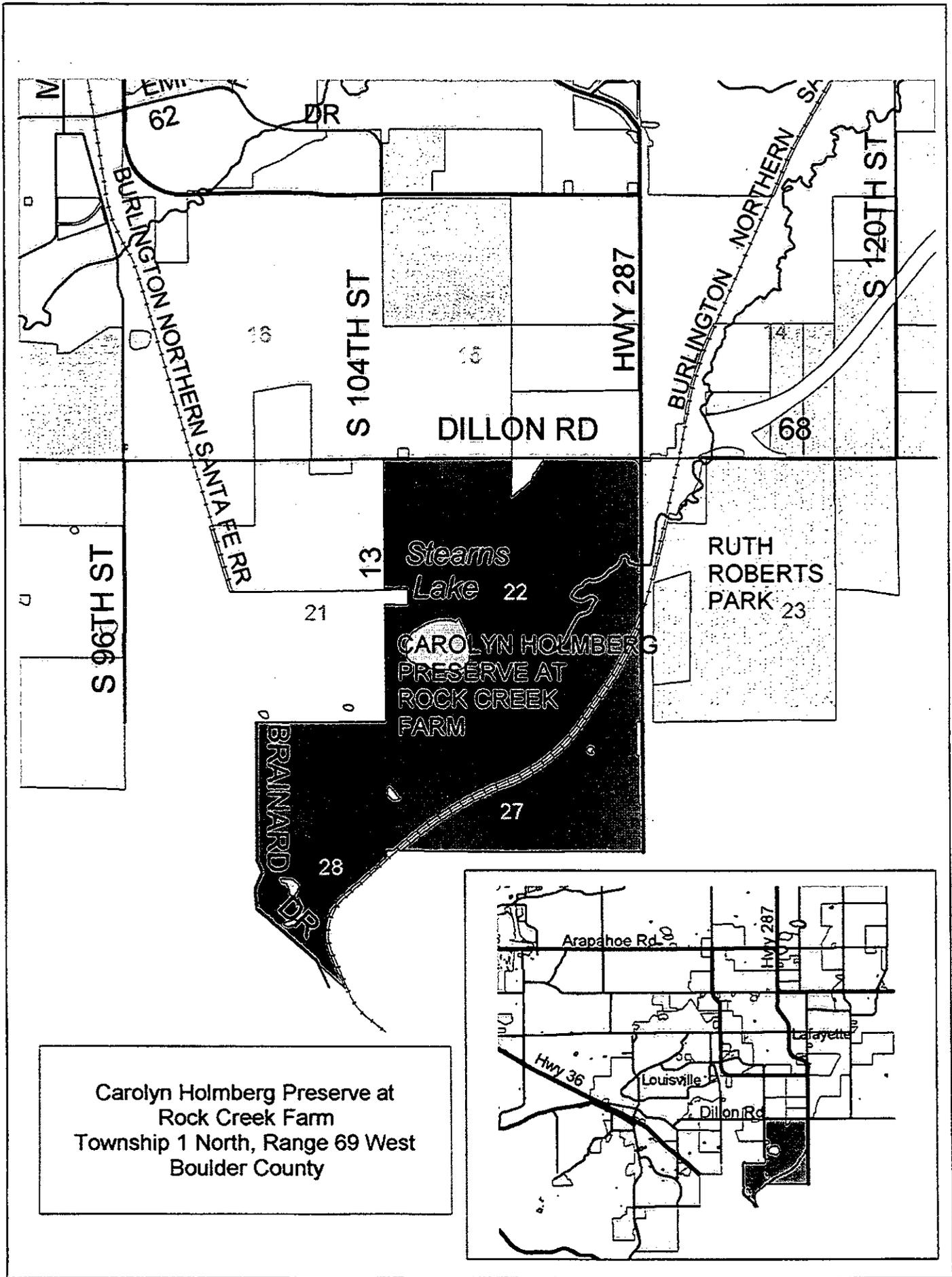
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Executive Summary

Major changes have occurred on the Carolyn Holmberg Preserve at Rock Creek Farm (CHP/RCF) since the first management plan and addendum were written in the 1980s. Development is occurring on the north, west and south boundaries of the property, and the Northwest Parkway will cross the northwest corner of CHP/RCF and two adjacent open space properties. In addition, the current uses on CHP/RCF are as varied as on any Boulder County Open Space property. They represent the complex nature of the Boulder County Parks and Open Space (BCPOS) department and are an example of integrated management aimed at meeting the many Open Space goals established by the Boulder County Comprehensive Plan. This Management Plan Amendment's goal is to balance the multiple uses of this property and provide BCPOS staff with direction and a common vision of what CHP/RCF will look like in the future. Proposed are recommendations that enhance wildlife habitat, including preserving riparian and wetland areas; improve the agricultural operation on the farm; protect historic structures and sites; and create a recreation experience that is both educational and enjoyable for our visitors.



Carolyn Holmberg Preserve at
 Rock Creek Farm
 Township 1 North, Range 69 West
 Boulder County

1 Introduction

1.1 Background

Boulder County Parks and Open Space purchased Rock Creek Farm (RCF) in 1980. It is located along Highway 287 and Dillon Road and encompasses approximately 1,151 acres. Rock Creek Farm is a multi-faceted property with agricultural production, wetlands and riparian habitats, shortgrass prairie, wildlife resources, and public recreation.

The first management plan for RCF was written and adopted in 1981. It gives detailed descriptions of the physical, biological, and cultural environment, complete with natural and agricultural resource inventories and maps. It outlines many of the key management considerations aimed at protecting the natural and agricultural resources, recreation, education, and visitor use.

The management plan was amended in 1987. That amendment focused on improving the coordination of the agricultural, visitor, and wildlife uses of the property.

Some major changes have occurred since the management plan addendum in 1987. RCF was dedicated to the late Parks and Open Space Director in 1998, and renamed in her honor as The Carolyn Holmberg Preserve at Rock Creek Farm (CHP/RCF). Another significant change is in the land use on the surrounding properties. Development is occurring on the north, west and south boundaries of the property. There is also a highway proposed, the Northwest Parkway, which will cross a corner of CHP/RCF, and the newly acquired Trillium and Boulder County Land Venture properties. These developments are creating an island of open space in a sea of development.

1.2 Current Uses

The current uses on CHP/RCF are as varied as on any Boulder County Open Space property. They represent the complex nature of the Parks and Open Space (POS) department and are an example of integrated management to meet the many Open Space goals established by the Boulder County Comprehensive Plan. Following is a list of the current activities on CHP/RCF:

- Agriculture lease for crop and livestock production;
- Birds of Prey Rehabilitation Foundation lease;
- Public fishing and picnic facilities at Stearns Lake;
- Trail of 3.3 miles with trailheads at Stearns Lake and a connection to Broomfield's Josh's Pond at the south end of 104th Street;
- Two Habitat Conservation Areas for prairie dogs: a 40 acre preserve in the northeast and 158 acres in the southeast;
- Two stream drainage corridors and wetland/riparian areas including seven ponds;
- Archaeological preserve of 2 acres;
- Entire property listed on the Local Register as an Historical Landmark (1998);

- Two homestead building sites totaling approximately 30 acres;
- Five operating oil and gas wells; and
- A 3.5 acre tree nursery.

This Management Plan Amendment aims to balance the multiple uses of this property and provide Boulder County Parks and Open Space (BCPOS) staff with direction and a common vision of what CHP/RCF will look like in the future.

1.3 Goals

The Parks and Open Space goals for CHP/RCF, taken from the revised Boulder County Comprehensive Plan, are outlined below.

1.3.1 Environmental Management Goals

- B.1 Unique or distinctive natural features and ecosystems, 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. Natural resources should be managed in a manner, which is consistent with sound conservation practices and ecological principles.
- 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 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.6 Unique or critical environmental resources identified pursuant to Goals B.1, B.3, B.4, and B.5 shall be conserved and preserved in a manner which assures their protections from adverse impacts, with the private sector, non-county agencies and other governmental jurisdictions being encouraged to participate.
- B.7 Productive agricultural land is a limited resource of both environmental and economic value and should be conserved and preserved.
- B.9 Riparian ecosystems, which are important plant communities, wildlife habitat and movement corridors, shall be protected.

1.3.2 Parks and Open Space Goals

- C.1 Provision should be made for open space to protect and enhance the quality of life and enjoyment of the environment.
- C.2 Parks, open space, and recreation facilities should be encouraged throughout the county and should be integrated whenever suitable with public facilities. The county will assume only those financial responsibilities for public development as provided under Open Space Policy OS 4.02.
- 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, and cultural value. (Highway 287 is a scenic corridor.)
- C.4 A county-wide trail system shall be promoted to serve transportation and recreation purposes.
- C.5 The private sector, non-county agencies, and other governmental jurisdictions should be encouraged to participate in open space preservation and trails development in Boulder County.

1.3.3 Cultural Resource Goals

- K.1 Every effort shall be made to identify and protect historic sites which meet national, state, or local criteria for historic designation from destruction or harmful alteration.
- K.2 Whenever possible, the county shall further the goals of cultural resource preservation using education and incentives in lieu of stringent regulatory controls.

1.3.4 Agricultural Resource Goals

- B.7 Productive agricultural land is a limited resource of both environmental and economic value and should be conserved and preserved.
- E.1 Preservation and utilization of water for agricultural purposes within the county shall be encouraged.
- M.1 Agricultural enterprises and activities are an important sector of the Boulder County economy and the county shall foster and promote a diverse and sustainable agricultural economy as an integral part of its activities to conserve and preserve agricultural lands in the county.

In summary, CHP/RCF is a multi-faceted property with the following goals:

- 1) Preserve critical wildlife habitats;
- 2) Preserve unique stands of shortgrass prairie;
- 3) Preserve wetlands and riparian areas;
- 3) Preserve historic/archaeological resources;
- 4) Maintain agricultural production; and
- 5) Provide compatible recreational use.

This plan's objective is to outline management practices that balance these goals. It is a complicated endeavor that will take the time and attention of all stakeholders involved in CHP/RCF. With the Boulder County Comprehensive Plan as our foundation, POS staff will strive to meet these goals on CHP/RCF through the development and implementation of this management plan addendum.

2 Wildlife Management

2.1 Introduction

The Carolyn Holmberg Preserve at Rock Creek Farm has historically been managed to preserve agriculture in Boulder County while also managing for wildlife habitat preservation and for compatible recreational opportunities.

Since the last major revision of the management plan in 1987, two major changes in BCPOS have occurred that affect the resource management on this property. A new and separate Agricultural Resources Division was created that is responsible for maintaining agricultural operations on the property through tenant farming and ranching. Second, a new Prairie Dog Management Plan was approved by the BOCC in 1999 that has been implemented on all BCPOS properties with prairie dog habitat, including CHP/RCF. Both changes require a greater coordination of efforts between the Agricultural Resources and Natural Resources divisions to manage this property in a manner that results in proper stewardship.

Goals in agriculture and in natural resource management can and often do conflict with one another. Some historic agricultural practices, such as prairie dog control, intensive and sustained grazing, and crop production, have resulted in degradation of wildlife habitat and the subsequent decline or loss of certain wildlife species. Many positive changes have been made in agricultural practices on CHP/RCF since its acquisition that have resulted in or will result in the improvement of wildlife habitat and the recovery of some species while maintaining agricultural productivity. The challenge to BCPOS staff in the future will be to continue this trend without sacrificing agricultural productivity or unacceptably impacting wildlife and their habitat.

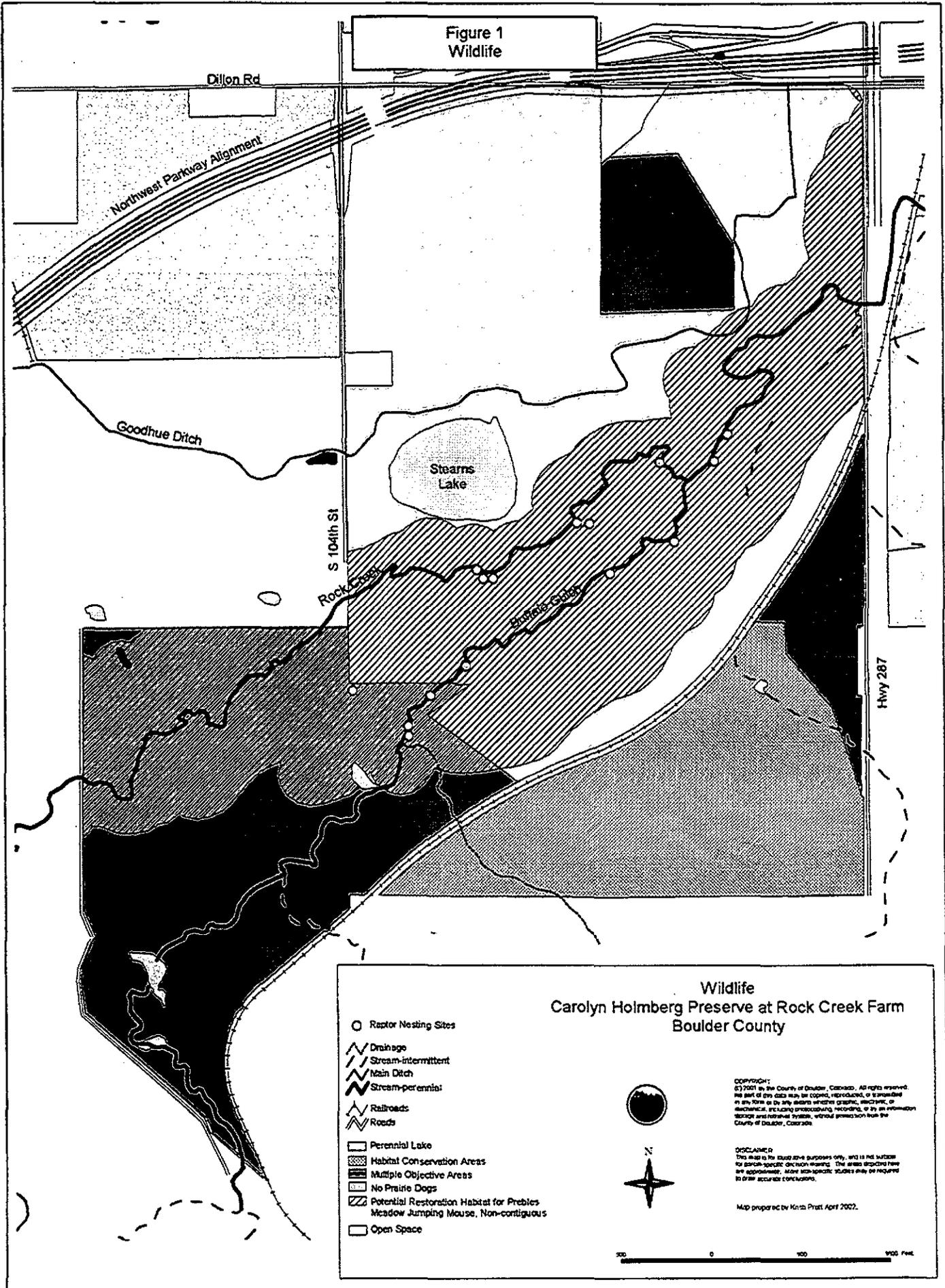
As part of the mission of BCPOS, the CHP/RCF will continue to be managed for the preservation and enhancement of native wildlife values in association with agricultural, cultural, and recreational objectives for the property. There is extensive wildlife habitat contained within its boundaries (Figure 1). Most of this is in the form of riparian and wetland habitat along Rock Creek and Buffalo Gulch and prairie grassland habitat on the remaining acreage that is not in active cultivation.

2.2 Resources

2.2.1 Riparian Habitat

The riparian habitat present on the property supports a great diversity of wildlife species (Appendices 1-3). On Rock Creek Farm this habitat exists along Rock Creek and Buffalo Gulch. The dominant woody vegetation is plains cottonwood (*Populus sargentii*) and coyote willow (*Salix exigua*). Numerous native shrubs in the understory provide important cover, food and nesting sites for most of the vertebrate species that occur on the farm.

Figure 1
Wildlife



Bird species diversity is especially high in plains riparian habitat. Up to 50% of the bird species found in the continental U.S. can be found in the Great Plains ecosystem at some time in their life cycle. Most of these species are found in the riparian zones running throughout it. This is the situation on CHP/RCF. The attached appendix lists all of the species that have been found by Audubon members and others since 1977 (Appendix 1). Ninety species have been recorded over this time. At least seven are considered rare in Boulder County. Swainson's Hawks have historically nested in the cottonwood trees along or adjacent to Rock Creek. Wintering birds of prey, including Bald and Golden Eagles, Ferruginous Hawks and Rough-legged Hawks, use the riparian habitat extensively from around November through March (Figure 1).

Many of the herpetile species found on CHP/RCF occur within the riparian zones. Garter snakes and tree frogs in particular will utilize these habitats when properly functioning. Skinks and other lizards are likely to be found in the leafy ground litter around riparian zones (Appendix 3).

Most of the mammalian fauna found on the property are also dependent on or use the riparian habitat (Appendix 2). White-tailed deer preferentially occupy riparian zones in eastern Boulder County. They are found on CHP/RCF but not in great abundance. Signs of deer presence have been found along the creek as recently as 2000 during small mammal surveys. Small mammal surveys in the past have found deer mice and western harvest mice to be the most prevalent rodents trapped throughout the property in all habitat types, including riparian.

Recent surveys along the Rock Creek and Buffalo Gulch riparian corridors targeted the presence or absence of the Prebles meadow jumping mouse, a federally threatened species that inhabits riparian corridors along the Front Range. None were found at CHP/RCF after 2 years of surveying in 1998 and 1999. These surveys did yield prairie voles, meadow voles, hispid pocket mice, Mexican wood rats and house mice, in addition to the more abundant deer mice and western harvest mice.

A known population of Preble's meadow jumping mice exists along Rock Creek within the Rocky Flats federal site, in Jefferson County. However, the reaches of Rock Creek and Buffalo Gulch through CHP/RCF are not currently under protective status by U.S. Fish and Wildlife Service guidelines for the Preble's meadow jumping mouse due to degraded habitat conditions. As conditions improve from active restoration management, this status could change back to a protective category.

The riparian areas are used by many locally occurring bat species, including the little brown bat, big brown bat and other myotis species. These species are attracted to the riparian zones by the abundant insect population and also use the areas for roosting and drinking.

2.2.2 Aquatic and Wetland Habitat

The two dominant aquatic and wetland areas on CHP/RCF are at Stearns Lake and the extreme southern end of the property known as the Parrot's Beak. Both are artificial wetlands. The wetlands at Stearns Lake resulted secondarily from the construction of the reservoir. Parrot's Beak wetland was intentionally constructed along Buffalo Gulch for waterfowl habitat.

These habitats support many of the herpetiles found on the property (Appendix 3). Western plains garter snake and the common water snake are fairly common in the habitat provided around these sites. Both wetlands support resident and migratory waterfowl and wading birds, as well as migratory shorebirds and passerines. American Avocets have successfully nested at Parrot's Beak and are often seen on Stearns Lake. American Bitterns have nested in the Stearns Lake wetland area intermittently throughout the years. Virginia Rails have nested at Stearns Lake in the past as well. The cattail and bulrush have supported large nesting populations of Red-winged Blackbirds and occasionally Yellow-headed Blackbirds. Due to the short life-span to date of the Parrot's Beak wetland, there is minimal historic account of bird species use and breeding at this site.

Waterfowl and other aquatic avifauna make extensive use of Stearns Lake. Besides Canada Geese and the duck species listed in Appendix 1, the lake is used by wading birds and shorebirds. Double-crested Cormorants, American White Pelicans and Osprey have made seasonal use of the lake, although none have been known to nest there. The lake is an important resource for wintering waterfowl and migrating shorebirds.

Muskrats have been observed on Stearns Lake and have established themselves on the Parrot's Beak wetland site. There appears to be some level of damage to the planted wetland vegetation in 2001 that may merit removing the muskrats until the vegetation becomes better established. Raccoons and striped skunk are most common among the dense vegetation around the lake and the other aquatic habitat on the property.

Locally occurring bat species such as the big brown bat, little brown bat, and long-legged myotis are dependent on available surface water in the summer months. Surveys have been conducted at Stearns Lake and the Parrot's Beak wetland by volunteers to assess the level of use by bats emerging from roost sites during the summer months. This program has been conducted since 1997. No management efforts have been made to modify or enhance habitat for bat species on CHP/RCF to date. The existence of old farm buildings and large trees probably provides adequate roosting opportunities for those species that would occur in this habitat.

The Colorado Division of Wildlife has historically managed the fishery at Stearns Lake. Following the draining and repair of the lake and its dam in 1984, DOW restocked the lake and has monitored it since. Currently the fishery supports largemouth bass, bluegill, channel catfish, and tiger muskie. Public access is limited to the south shore, the dam, and part of the northeast corner. No boating is allowed and fishing is only allowed from the shore using lures and flies.

The wetlands around the north and west edges of Stearns Lake are designated Critical Wildlife Habitat and posted as off-limits to public access. This designation has been in effect since the original management plan for this property was written in 1981.

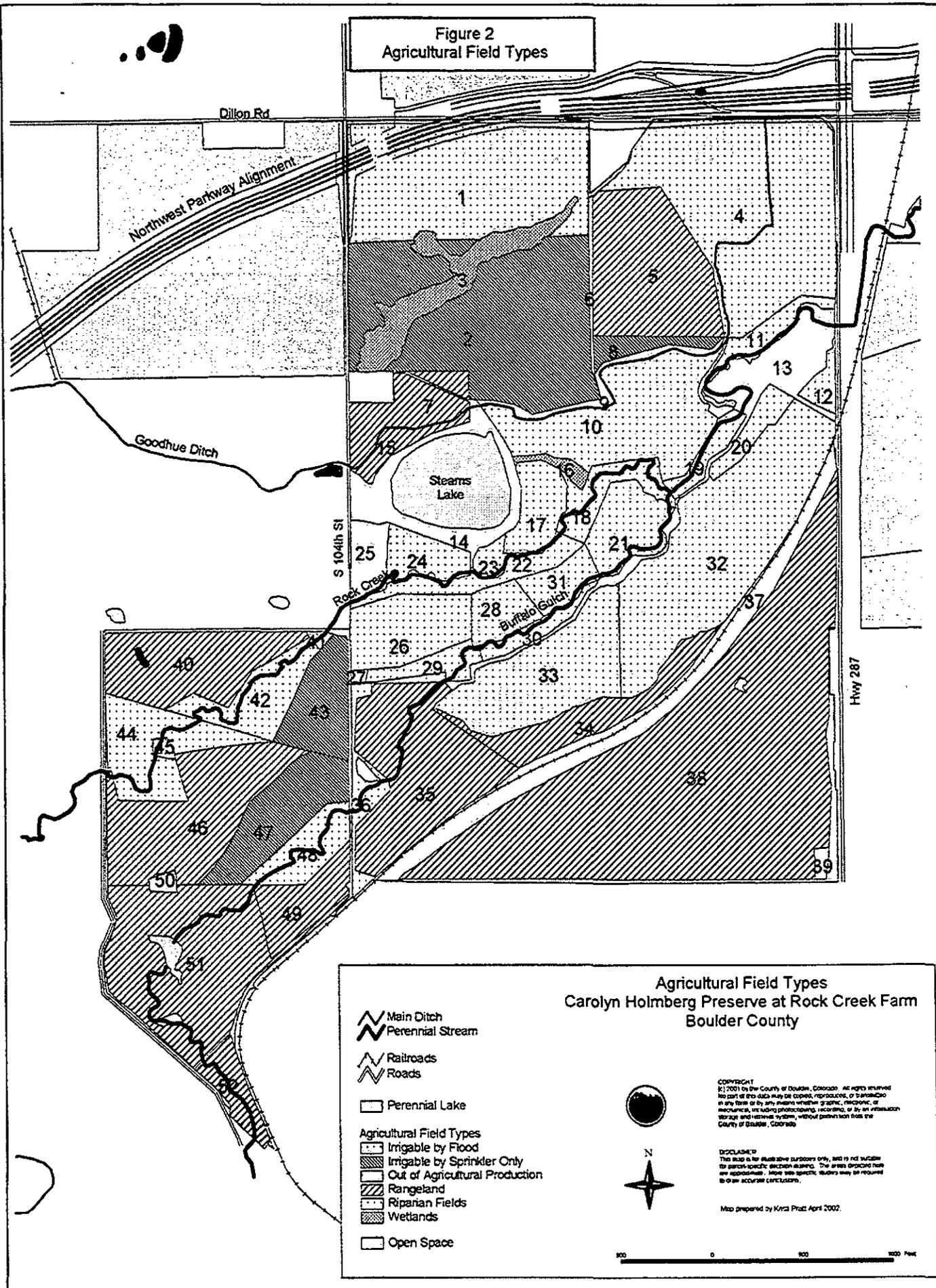
2.2.3 Shortgrass Prairie

The shortgrass prairie habitat is the dominant natural habitat type found on the property. The largest intact parcel of native shortgrass habitat is Agricultural Field (field 38) (Figure 2), southeast of the Burlington Northern railroad tracks and north of the Lac Amora subdivision. This parcel has never been cultivated and retains the highest native floristic species diversity on the property. Other parcels that are mostly native grasslands include fields 49 and 51 east of Buffalo Gulch. Field 5 had previously been cultivated and is now considered rangeland, but floristic composition includes many non-native grasses and forbs. The same situation exists on fields 35, 40, 46 and 51 (west of Buffalo Gulch) in the southwest area of the property. Most of these fields have been planted into non-native grasses, primarily crested wheat grass. There currently is little information on local differences in wildlife species diversity and abundance between native and non-native grassland communities.

The terrestrial herpetiles found here include prairie rattlesnake, hognose snake, and racer (Appendix 3). Numerous grassland bird species utilize this habitat including Western Meadowlark, Grasshopper Sparrow, Song Sparrow, and Horned Lark (Appendix 1). Lark Buntings, the Colorado state bird, have been seen on the property in 2000 and 2001, although we have no confirmation of nesting. This species has become very uncommon in eastern Boulder County in recent years due to habitat loss. All of these passerine species are ground nesters and need special management consideration regarding agricultural operations to nest successfully. The delay of hay mowing until after these species fledge in June would be optimal. If this is not feasible, then implementing an annual rotation of hay mowing between pastures would give these species some degree of potential for successful nesting. Lark Buntings, in particular, prefer alfalfa and other hay crops for nesting.

Of particular interest is the occurrence of Burrowing Owls. This species migrates from Mexico in April or May and generally exhibits high site fidelity. These co-habitants of prairie dog colonies historically nested on the property but were absent from Boulder County between 1989 and 1998. After this long hiatus, Burrowing Owls have re-established themselves on the property. One nesting pair was observed in 1998 and two were confirmed in 1999. These nests occurred in an active prairie dog colony on field 38. In 2000, nests occurred on fields 38 and 40. Both pairs appeared to have fledged young. Two pairs established nests on the historic preserve area (field 5) in 2001 but did not appear to have successfully bred. No breeding pairs were observed on fields 38 or 40 in 2001. Additionally, six individual owls were released from the Birds of Prey Foundation rehabilitation center on field 5 in 2001, following the establishment of the two nesting pairs. Most did not remain at the site after one week. Monitoring efforts are ongoing to determine the nesting success of these pairs in the future and to determine if other pairs become established on the property. Management for this species on CHP/RCF will be strongly correlated with management plans for black-tailed prairie dogs.

Figure 2
Agricultural Field Types



Black-tailed prairie dogs are the most apparent and readily observable small mammal species on CHP/RCF. This species is considered to be a keystone species in the shortgrass prairie ecosystem. It has significant value to the wintering and breeding raptors on the property, including the burrowing owls that symbiotically inhabit the colonies. Colonies had historically occupied up to approximately 550 acres on the property (CDOW 1984 data). This included the existing 40-acre Habitat Conservation Area preserve on field 5 and approximately 60 acres of the surrounding area, which is currently in irrigated crop and hay production. Pastures in the southwest part of the property had prairie dogs on approximately 200 of the 240 acres of rangeland habitat north of the current new wetland (fields 40-48). The native grassland on the 168 acres of field 38 had been 100% covered with prairie dogs by 1984 prior to a major plague epizootic. This area had been considered for a prairie dog preserve in 1995, but a major plague epizootic occurred that year and no decision was made.

Earlier drafts of the CHP/RCF management plan called for periodic lethal control of prairie dogs throughout the property. Subsequent to the 1987 revision, the Board of County Commissioners set aside 40 acres of non-irrigated dryland cropland that was no longer in production in the northern end of the property (field 5) as a prairie dog/burrowing owl preserve. Lethal control was still implemented on other parts of the property that contained prairie dogs except field 38 south of the railroad tracks and below Lac Amora subdivision. The 40-acre preserve site was re-populated with prairie dogs received from Lafayette in 1998 following a sudden die-off of the resident colony in late 1997.

In 1999, the Board of County Commissioners approved a new management plan that officially designated approximately 4,600 acres of County open space as Habitat Conservation Areas (HCA) and 2100 acres as Multiple Objective Areas (MOA). This included 168 acres of field 38 as a Habitat Conservation Area. The 40 acres of field 5 plus approximately 240 acres of the southwest acreage in fields 35 and 40-52 are Multiple Objective Areas. The remaining acreage is designated as No Prairie Dog (NPD) area (Figure 1). The objective of HCA sites is to maintain prairie dog populations with little or no control. These colonies have high wildlife value for raptors, mammalian predators and burrowing owls. The HCA sites are eligible to receive relocated prairie dogs from NPD sites under the terms and conditions of the Grassland Management Plan, Prairie Dog Element.

Black-tailed prairie dog colonies occupied approximately 322 acres on CHP/RCF at the end of 2001. Of this acreage, 88 acres occurred within the designated HCA parcel (field 38), 197 acres in MOA parcels (fields 5, 35, 40-52) and 38 acres in NPD areas. Prairie dog colonies that expand beyond designated HCA boundaries are regularly trapped off of the area immediately outside of the designated HCA and relocated back onto that HCA if possible. Otherwise, those prairie dogs are relocated to another HCA that does not have the restrictions to expansion found on CHP/RCF. Efforts to contain prairie dogs within HCA boundaries and to prevent their expansion into non-compatible areas have been made using visual barriers installed along perimeter fences. This effort has been and continues to be a high-maintenance activity.

The property hosts numerous other grassland mammal species (Appendix 2). A significant

population of coyotes and at least one breeding pair of red fox frequent the grasslands. Raccoons and striped skunk can be found in the shortgrass habitat but are less abundant than in riparian and wetland habitat. Voles, deer mice, western harvest mice and hispid pocket mice are fairly abundant on the shortgrass habitat and are probably more numerous than other mammal species, including prairie dogs. White tailed deer and mule deer have been observed on the grasslands of CHP/RCF, although not with great frequency.

2.2.4 Birds of Prey Foundation

The Birds of Prey Foundation (BOPF), a non-profit wildlife rehabilitation group, operates on the CHP/RCF property under a lease agreement with the Department. Operations are restricted to those areas agreed to by the County in the lease, including the active aviary area on the east side of the property and the clinic on 104th Street, known as Hawk's Rest. These operations include the intake, rehabilitation and release of injured birds of prey and captive propagation of species as allowed under Federal and State permits issued to the Foundation. Compliance with conditions of these and all other applicable permits is necessary in order to maintain this lease agreement with the County. The release of rehabilitated and/or captive propagated birds at CHP/RCF is allowed under certain conditions, including that BOPF notify the Wildlife Specialist at least 3 days prior to the planned release and obtain approval for each release. Annual reports of all animals taken in and their final status are submitted by BOPF to the Wildlife Specialist.

2.3 Wildlife Management Recommendations

2.3.1 Objectives

- 1) Protect and enhance riparian vegetation and function to support native riparian faunal populations.
- 2) Prevent unnecessary and unwarranted human activity in riparian wildlife habitat. Keep trails out of riparian habitat to protect wildlife habitat value.
- 3) Protect water quality, hydrological function and wildlife of aquatic and wetland habitat.
- 4) Maintain a productive sport fishery on Stearns Lake.
- 5) Protect and restore grassland habitat and the native wildlife associated with it while maintaining agricultural operations.
- 6) Monitor prairie dog activity and impact on habitat.
- 7) Maintain prairie dog populations on HCA sites with minimal control efforts.
- 8) Monitor and analyze breeding bird populations and habitat use over time.
- 9) Determine negative impacts to wildlife populations from agricultural and recreational use and work towards mitigating those impacts.
- 10) Monitor activity of Birds of Prey Foundation to assure compliance with County wildlife policy at CHP/RCF.

2.3.2 Management Activities

- 1) Leave large dead cottonwood trees standing for cavity nesting birds and raptors. Mitigate any loss from agriculture or other operations with new plantings for future habitat.
- 2) Survey for Preble's meadow jumping mouse on riparian corridors following habitat restoration projects (every 3-5 years).
- 3) Regularly monitor water quality in lakes, ponds, and streams to determine effects on aquatic wildlife.
- 4) Minimize fluctuations in Stearns Lake water levels during fish spawning season (May-July).
- 5) Conduct a regular sampling and monitoring program for fishery status on Stearns Lake in cooperation with CDOW. Program should be conducted every 3 to 5 years.
- 6) Restrict all human activity from areas near raptor nests where possible during the nesting season. This includes arboreal and ground nesting species. POS Staff will notify agricultural tenants of sensitive nest locations, and require them to schedule activities to eliminate or minimize intrusion into those pastures with nests until after fledging occurs. POS will restrict recreational activities to designated trails. This may entail temporary alternative trail, farm, and staff access routes.
- 7) Delay any habitat disturbances until after nesting/breeding season of ground-nesting passerine birds. Delay grass/alfalfa haying until after June 15, when ground-nesting birds have fledged, unless Wildlife Staff approves it earlier.
- 8) Create and maintain permanent undisturbed cover in areas not directly impacted by agricultural operations. Utilize native plant species whenever possible.
- 9) Survey for breeding birds every 3-5 years along established transects.
- 10) Monitor all raptor releases by Birds of Prey Foundation on CHP/RCF. Review annual report to assure compliance with BCPOS policy.
- 11) Monitor and map raptor use sites, including winter roosts, and nest trees, and Burrowing Owls.
- 12) Coordinate agricultural activities to avoid disturbance of known active Burrowing Owl nest locations. Specify what agricultural activities can and cannot take place in the annual Agricultural Management Plan.
- 13) Maintain and replace prairie dog barrier along prairie dog preserve area, as needed.
- 14) Monitor and manage prairie dog populations as described in prairie dog management element of Comprehensive Grassland Habitat Management Plan.
- 15) Remove prairie dog colonies from NPD sites in accordance with guidelines established in the Grassland Management Plan. Relocated prairie dogs will be released on HCA sites on property, when feasible.
- 16) Actively manage prairie dogs on MOA sites only when a verifiable conflict with agricultural operations exists.
- 17) Survey and map prairie dog colony boundaries annually.
- 18) Develop and maintain an environmental monitoring schedule and record-keeping system on wildlife species occurrences and abundance.
- 19) Monitor coyote population and impact on livestock. Work with CDOW to mitigate.
- 20) Monitor bat populations and implement any feasible habitat improvement projects that will maintain or increase populations.



3 Vegetation Management

3.1 Introduction

As one of the few open space properties in the southeast portion of Boulder County, CHP/RCF has several important native vegetation features (Figure 3). Some of the last remaining acres of shortgrass prairie in Boulder County are found on the southern portion of Rock Creek Farm. A large alkaline wetland complex extends across the Trillium property and continues east through the large field north of Stearns Lake. Several other smaller wetlands of natural and human made origin provide valuable wildlife habitat on the property. Two riparian areas traverse diagonally across Rock Creek Farm: Rock Creek and Buffalo Gulch Creek, which is a tributary to Rock Creek. Both riparian areas provide important nesting and migratory habitat for raptors, waterfowl, and songbirds.

3.2 Resources

3.2.1 Native Shortgrass Prairie

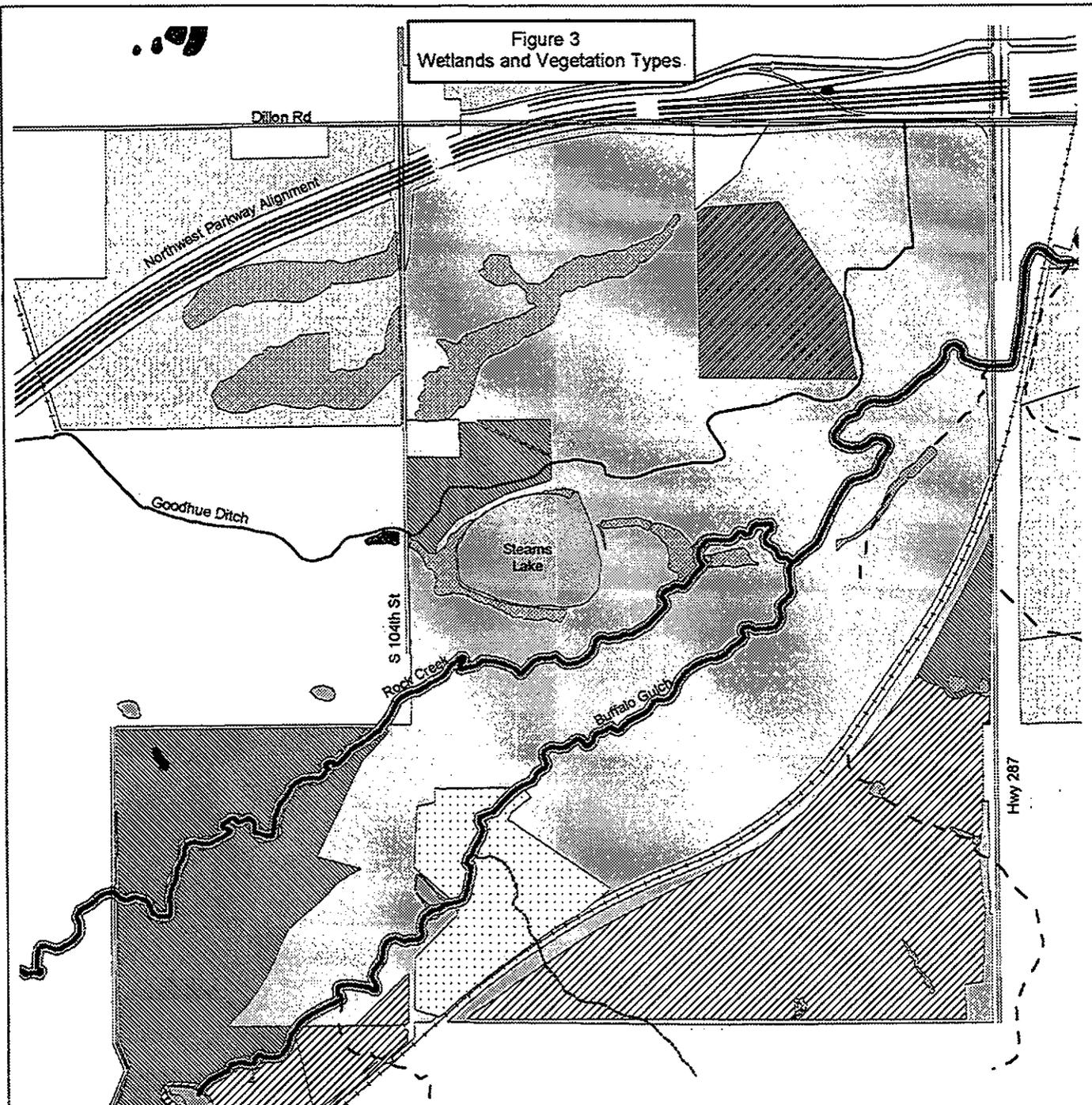
Native shortgrass prairie is found in two areas of Rock Creek Farm: 1) on the west side of 104th Street south of the drainage called Buffalo Gulch; and 2) on the east side of 104th Street south of the Burlington-Northern railroad (Figure 3). The dominant plant community is a western wheatgrass-blue grama-buffalograss (*Pascopyrum smithii*-*Bouteloua gracilis*-*Buchloë dactyloides*) shortgrass community, a combination of cool-season and warm-season grasses. These grasses, because of their ability to spread vegetatively through rhizomes and stolons, are able to withstand heavy grazing. Their dominance in these rangelands indicates heavy grazing to overgrazing in the past. The dominance of other plants, such as broom snakeweed (*Gutierrezia sarothrae*) and prickly pear (*Opuntia polyacantha*), also indicates a history of heavy use on these rangelands.

Other plants that are common on this shortgrass prairie community include:

- Grasses Sandberg bluegrass (*Poa secunda*)
Green needlegrass (*Nassella viridula*)
- Forbs Scarlet globemallow (*Sphaeralcea coccinea*)
American vetch (*Vicia americana*)
- Shrubs Fourwing saltbush (*Atriplex canescens*)

Two non-native annual weeds that are prevalent across this shortgrass prairie are cheatgrass (*Bromus tectorum*) and alyssum (*Alyssum parvifolium*). Permanent monitoring plots have been established at Rock Creek Farm as part of the Agricultural Division's Rangeland Monitoring Program. More specific information on plant cover and species composition can be found in the report by Miller and Mohr (1999).

**Figure 3
Wetlands and Vegetation Types**



**Wetlands and Vegetation Type
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County**

<ul style="list-style-type: none"> Drainage Stream-Intermittent Main Ditch Stream-perennial Railroads Roads 	<ul style="list-style-type: none"> BCPOS Wetland Inventory Riparian Areas Perennial Lake
<ul style="list-style-type: none"> Introduced Rangeland Mixed Native Grass and Introduced Rangeland Native Shortgrass Prairie Prairie Dog Preserve 	<ul style="list-style-type: none"> Rock Creek Farm Open Space

500 0 500 1000 Feet

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Map prepared by Kisti Pratt April 2002.

3.2.2 Streams and Riparian Areas

Rock Creek Farm was named after the major stream that runs through it. Rock Creek is part of the St. Vrain watershed, as catalogued through the USGS, and is considered to be a part of the South Platte watershed by the Colorado Division of Wildlife. Buffalo Gulch Creek drains into Rock Creek towards the eastern end of the property. Both streams were ephemeral in the past, but now experience perennial or near year round flows. Irrigation water combined with drainage from increased urban development upstream from the towns of Broomfield and Superior contribute to the continuous flows.

Under the Stream Classification system developed by Rosgen (1996), Rock Creek is an E/F6 channel. The letters represent the shape and form; E is for meandering streams, and F is for entrenched streams. The number represents rock and soil types; 6 is for silt/clay. Streams in silt and clay soils typically are entrenched since these soils are highly erodible. Other factors can contribute to entrenched streams and streambank erosion, including changes in flows and poor management of livestock grazing.

Rock Creek has been negatively impacted in the past by poor grazing management in the riparian area, diversion dams, irrigation practices, coal mining, and channel straightening. Although stream channels typically move across their floodplain, it appears that sections of Rock Creek through Rock Creek Farm have been intentionally moved or straightened by human intervention. Several areas of channel alteration are evident through interpretation of aerial photographs and observing where the channel has abandoned large willow or cottonwood trees. Downstream from Brainard Drive, the first alteration appears to be a straightened section approximately 50 feet long in the vicinity of the historic Sunnyside Mine. The stream was probably straightened to accommodate a railway crossing into the main coal mining operation.

Rock Creek in the vicinity of 104th Street appears to have been greatly changed in the recent past. The stream was probably straightened through the private property west of 104th Street and north of Rock Creek Farm. Several large cottonwoods in this area indicate that the stream probably was near these trees in the past. Traveling east of 104th street, the most obvious changes are two small meanders that were cut off from the stream channel and straightened. These areas are visible on 1937, 1941, and 1964 aerial photos, and are also mapped on the 1965 USGS topographic map, the Lafayette quadrangle. The smaller meander appears to have been cut off between 1964 and 1971, as seen on these aerial photos. Many floods occurred in 1969, so it is possible that this smaller meander was abandoned naturally. However, large trees that appear on this meander in the historic aerial photos have since been removed. The larger of the two meanders seems to have been cut off sometime after 1978, since the meander is still visible in that year's aerial photo.

Another area where Rock Creek has been visibly altered is east of Stearns Lake. A section southeast of Stearns Lake was straightened. Woody vegetation is still visible along the old meander, which was about 970 feet long. Another section of Rock Creek directly east of Stearns Lake appears to have been altered prior to 1937, the date of the oldest aerial photo available. This

section is located near wetlands and a line of old peachleaf willow trees (*Salix amygdaloides*), where the original stream channel probably flowed. The water table in this area appears to be higher than other areas adjacent to Rock Creek. Seepage from Stearns Lake seems to contribute to the high water table and helps to support wetlands along the riparian area. Frequent flooding in this area also supports the wetlands. Uncontrolled cattle grazing in this area in the period after BCPOS first purchased the property obliterated the channel (Randy Coombs, pers. comm. 2000). BCPOS hired an excavator to place the stream channel back in its historic alignment, and BCPOS staff began to fence the riparian area to control grazing. BCPOS completed most of the critical Rock Creek riparian area fencing in 1998 and 2001. Periodic flooding since the 1980s has silted in the channel, and the channel has needed to be dredged occasionally.

The current channel appears to be in an arc to the north of the historic channel along the peachleaf willow trees. The Goodhue Ditch was historically the Rock Creek channel. An old ditch map from 1913 seems to show the Goodhue Ditch in the same general location away from the large peachleaf willow trees. The stream channel may have been moved and trenched in the past to keep water flowing in the Goodhue Ditch.

Irrigation diversion dams have also contributed to channel incision in Rock Creek. Two diversion dams are present on Rock Creek Farm. The large diversion dam west of the farm buildings has caused downcutting and bank erosion downstream of the diversion.

Woody vegetation along Rock Creek is mostly composed of mature trees and shrubs. The riparian area along Rock Creek has a discontinuous overstory of plains cottonwoods (*Populus deltoides*) and peachleaf willows (*Salix amygdaloides*). Trees of special note are some very old and large peachleaf willow the size of mature plains cottonwoods east of Stearns Lake on Rock Creek. Small groves of hawthorn shrubs (*Crataegus erythropoda*) are found throughout the riparian area, along with other shrubs, including (in order of importance) leadplant (*Amorpha fruticosa* var. *angustifolia*), coyote willow (*Salix exigua*), wild plum (*Prunus americana*), snowberry (*Symphoricarpos occidentalis*), and chokecherry (*Prunus virginiana*). Channel incision, steep streambanks, livestock impacts, and lack of catastrophic flooding needed for cottonwood and willow regeneration have probably limited new growth of trees and shrubs. Woody vegetation is notably less west of 104th Street compared to the riparian area east of 104th Street. Russian olive (*Elaeagnus angustifolia*), an exotic tree that is invasive in riparian areas, does not seem to be a major problem along Rock Creek compared to other local riparian areas. Crack willow (*Salix fragilis*), another invasive exotic riparian tree, is present on the eastern end of Rock Creek.

The native riparian understory vegetation along Rock Creek has been largely replaced with non-native species such as redtop (*Agrostis gigantea*), meadow fescue (*Festuca pratense*), crested wheatgrass (*Agropyron cristatum*), smooth brome (*Bromopsis inermis*), quackgrass (*Elytrigia repens*), and reed canarygrass (*Phalaroides arundinacea*). Some native sedges and bulrushes grow in the stream channel. Sedge meadows and cattail wetlands are found adjacent to the riparian area on a section of Rock Creek east of Stearns Lake where the channel is not deeply incised. Channel dredging for irrigation purposes in this flood-prone area poses a threat to the riparian wetlands.

The Northwest Parkway will be contributing funds to BCPOS to restore priority areas of Rock Creek. The Northwest Parkway offered funds to Boulder County to compensate for removing cottonwood trees on Rock Creek Farm along Dillon Road. These old cottonwood trees needed to be removed in order to build the Northwest Parkway. BCPOS and the Northwest Parkway contractor, ERO Resources, will plan and design stream restoration in 2002. Project construction is expected to take place between the fall of 2002 and 2003.

Buffalo Gulch Creek west of 104th Street has few trees like Rock Creek in this area, but the channel is not incised. Although the riparian area is narrow, the native vegetation is well established and prevents bank erosion. The dominant riparian species include three square bulrush (*Schoenoplectus pungens*), clustered field sedge (*Carex praegracilis*), cattail (*Typha* spp.), spikerush (*Eleocharis palustris*), and rice cutgrass (*Leersia oryzoides*).

The farm road that parallels the creek up to its confluence with Rock Creek has heavily impacted Buffalo Gulch Creek east of 104th Street. Increased runoff from the road and disturbance from livestock grazing has contributed to bank erosion and channel incision. Results from the 1999 Agricultural Division monitoring of BCPOS riparian areas (Miller and Mohr 1999) using the Proper Functioning Condition method (USDA BLM 1998) revealed that both Rock Creek and Buffalo Gulch Creek east of 104th Street were rated as non-functional. A non-functional rating indicates that the processes of erosion and deposition are not in balance, in this case, due to increased flows, highly erodible soils, and poor land management practices. Rock Creek's main indicator of a non-functioning stream is the actively incising streambanks. The monitoring report rated Buffalo Gulch Creek west of 104th Street as Proper Functioning Condition, which is indicated by stable streambanks.

3.2.3 Wetlands

In 1993 and 1997 respectively, Wright Water Engineers and Boulder County Parks and Open Space inventoried wetlands at Rock Creek (Gage 1999) (Figure 3). Wetlands were found along riparian areas, adjacent to Stearns Lake, next to springs in the southeast portion of the property, and in drainages through fields in the northwest section of the property, including the Trillium property.

Significant wetlands were found on Rock Creek Farm (RCF-1) and Trillium (TRIL-1) (Appendix 5). The significant wetlands on Trillium and the northwest section of Rock Creek Farm are part of the same hydrologic system. Water origins for these wetlands are probably a combination of irrigation water from drain tiles and natural groundwater sources. BCPOS staff identified these wetlands as significant because of their large size and high functional ratings. The method used for determining wetland functional ratings is described in Appendix 6.

These significant wetlands (RCF-1, TRIL-1) south of Dillon Road and along 104th Street have not been recognized in the past for their importance, and have been heavily disturbed by agricultural activities such as plowing, planting, and grazing. However, agricultural crops do not grow in these alkaline wetlands, and the wetland plants have persisted. Many of these alkaline wetlands have historically been destroyed or filled in throughout Boulder County. These wetlands have large plant

communities of alkali grass-sand spurry (*Puccinellia airoides-Spergularia media*), an uncommon community type on BCPOS properties.

The Northwest Parkway will be constructed on the Trillium property. The original alignment was moved to avoid the wetlands, however, the fill slopes will run very close to the wetlands. The effect of the close proximity of the Northwest Parkway to the wetlands on the Trillium property should be monitored before and after construction.

BCPOS staff recognized another significant wetland (RCF-3) located along Rock Creek east of Stearns Lake and northeast of the tree nursery (Appendix 5). This wetland has high functional ratings (Appendix 6), and is located in an area of Rock Creek that floods often. Irrigation water and leakage from Goodhue Ditch east of Stearns Lake also contribute to the hydrology of this wetland. Plowing and changes in the Rock Creek channel, such as dredging and channelization, have also impacted this wetland.

In the spring of 1997, BCPOS created two wetlands along the west end of Buffalo Gulch Creek. The purpose of creating these wetlands was to provide waterfowl breeding habitat. The surrounding 80 acres was fenced off to control cattle grazing. Staff planted wetland transplants and seed from 1997 to 1999 to facilitate the wetland creation process. The project targeted a creation of 5.1 acres of wetlands, but only 1.2 acres were created because of problems in the wetland creation design.

3.2.4 Native Seeding Projects

A number of native seeding projects have taken place on Rock Creek Farm since the last management plan. A summary of these projects is included below.

3.2.4.1 Wetland Creation

Upland areas disturbed during the wetland creation project in the spring of 1997 were seeded to native grasses.

3.2.4.2 Public Service Company Pipeline

In the summer of 1997, the Public Service Company of Colorado installed a pipeline through Rock Creek Farm. The pipeline and the disturbance corridor traveled along the south side of the Burlington Railroad from Highway 287 to 104th Street. At 104th Street, the pipeline crossed over to the north side of the Burlington Railroad and disturbed the area north of the farm road to Buffalo Gulch Creek. The pipeline crossed the creek south of the farm road at this point and traveled west across Brainard Drive.

The seeding contractor did not seed the disturbance until the end of May 1998 because of delays from weather and timing problems. Because of the late timing of the initial seeding, the reclamation was not successful. The contractor reseeded the pipeline corridor again in the beginning of March 2000. The second seeding was more successful, with the exception of the pipeline west of 104th

Street. (Figure 4).

3.2.4.3 Trailside Seeding

In 2001 and 2002, a multi-use trail was created through Rock Creek Farm. The trailsides, construction areas, and fields removed from agricultural production as a result of the trail construction were seeded with a native grass, forb, and shrub mix (Figure 4). A total of 2.7 miles of trailside and 10.0 acres of land taken out of agricultural production were seeded in November of 2002.

3.2.4.4 Rock Creek Buffer Strip

As part of the goal to improve riparian areas and water quality, the agricultural field east of 104th Street and south of Rock Creek was set back to create a wider buffer strip between the stream and the field. A total of 2.5 acres was seeded to native plants in the fall of 2001, at the same time the trailsides were seeded. (Figure 4).

3.2.5 Tree Nursery

The tree nursery is currently not being managed for tree production. The new trail was routed through the west end of the nursery. In the process of trail construction, the trail crew broke through pipes that were used for the irrigation system. The irrigation system will need to be repaired or redesigned in the future in order to be functional again.

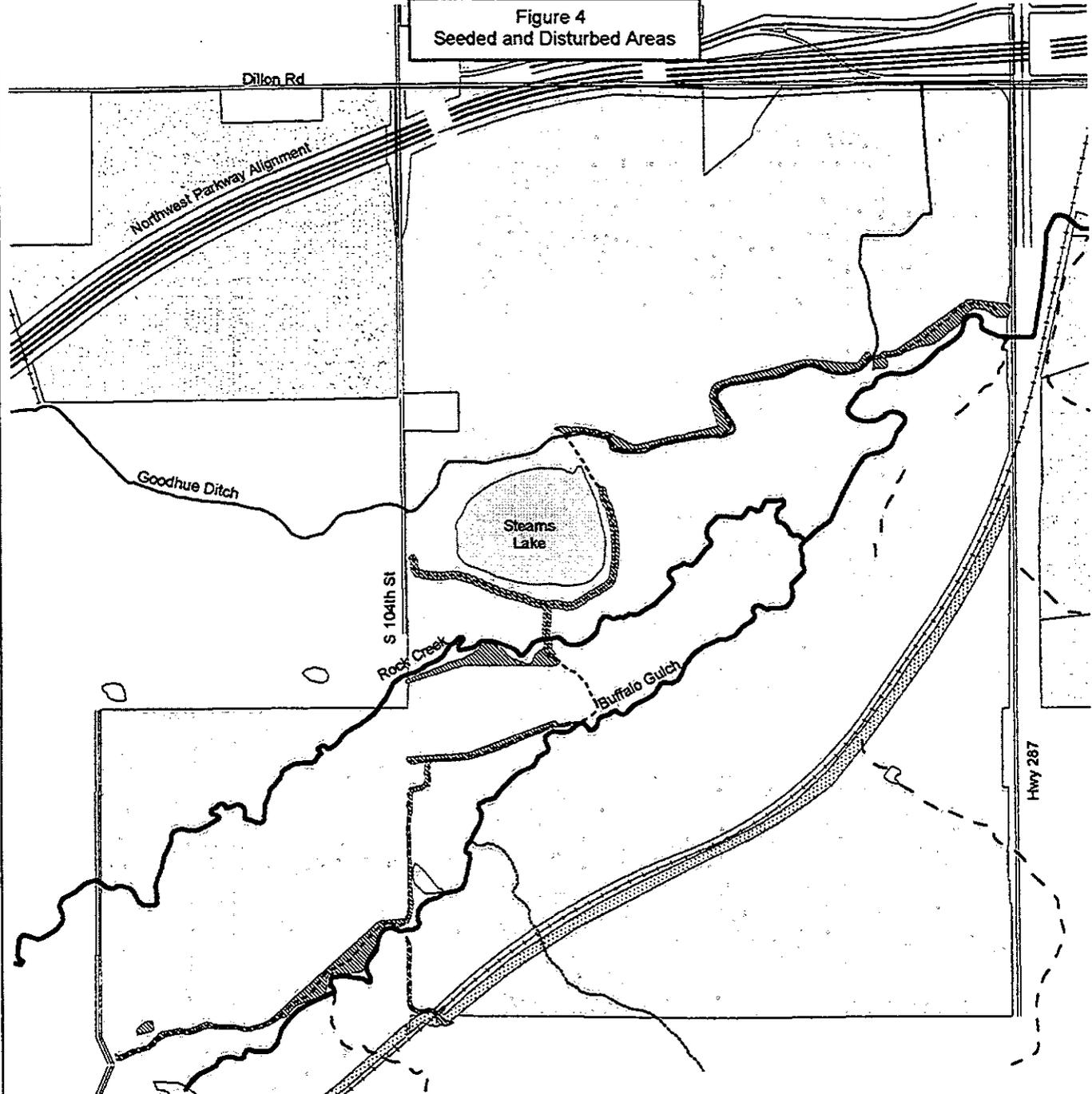
3.3 Vegetation Management Recommendations

3.3.1 Native Shortgrass Prairie

3.3.1.1 Objectives

1. Sustain a diverse native shortgrass prairie ecosystem.
2. Control noxious weeds and weeds that threaten this prairie ecosystem, including diffuse knapweed and cheatgrass.

Figure 4
Seeded and Disturbed Areas



Seeded and Disturbed Areas
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County

	Trail
	Drainage
	Stream-intermittent
	Main Ditch
	Stream-perennial
	Roads
	Railroads
	Seeded Areas
	Pipeline Disturbance Area
	Perennial Lake
	Rock Creek Farm
	Open Space





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Map prepared by Kimo Pratt April 2002.

3.3.1.2 Management Activities

1. Vary grazing regime so that grazing does not occur at the same time and duration every year. Varying the grazing prescription will prevent selection for one type of plant community.
2. Rotate grazing pastures within the prairie from year to year so that some years thatch can be allowed to build up fuel for prescribed burning in a pasture.
3. Incorporate prescribed burning for selected pastures, not to exceed a 3 to 5 year schedule, to reduce undesirable plants or plants that have increased in response to past overgrazing, such as prickly pear cactus, and to increase the vigor of native plants.
4. Use prescribed burning on the schedule above to control cheatgrass.

3.3.2 Streams and Riparian Areas: Rock Creek and Buffalo Gulch Creek

3.3.2.1 Objectives

1. Identify threats to the riparian ecosystems.
2. Reduce bank erosion from livestock and road impacts.
3. Protect important wildlife habitat.
4. Improve water quality.
5. Control weeds, including Canada thistle and perennial pepperweed.
6. Monitor riparian condition and make management decisions based on documented observations.
7. Create and implement a riparian restoration plan.

3.3.2.2 Management Activities

1. Continue riparian and stream channel monitoring program begun in 1999. Repeat every 3 to 5 years, or more frequently depending on management needs.
2. Continue fencing riparian areas to improve grazing management.
3. Continue establishment of filter strips between riparian areas and agricultural fields.
4. Move farm road away from Rock Creek/Bufalo Gulch Creek.
5. Replace culvert under the road at 104th St. and Rock Creek with a larger box culvert.
6. Replace culvert under the road at Brainard Drive and Rock Creek.
7. Remove culvert in Rock Creek from two-track road that travels north/south on the east end of the tree nursery. Close this road to travel over Rock Creek.
8. Keep trails an acceptable distance away from the riparian area. The distance should be based on wildlife, erosion considerations, and water quality.
9. Control weeds using a combination of herbicides, grazing, mowing, and prescribed burning where appropriate. Replant weed infested areas with appropriate plants after weed control if desired vegetation is not present.

10. Create a restoration plan that may include the following considerations (note: restoration is planned to take place as compensation for removal of cottonwood trees along Dillion Road from the Northwest Parkway construction):
 - a. Hire a consultant to assess the stream channels, their hydrology, and identify areas to be restored.
 - b. Implement stream restoration based on these recommendations. Install monitoring wells as needed.
 - c. Replace non-functional culverts, as mentioned above, with culverts that improve, not impede, water flow during high flows.
11. Explore upgrading irrigation diversions to lessen impacts to the stream channels.
12. Find alternatives to irrigation management that do not include dredging of the Rock Creek channel. Use lateral ditches where possible. Areas that flood frequently may be more suited to perennial crops such as hay grass or alfalfa, or conversion back to native vegetation.
13. Protect and restore wetlands along Rock Creek (RCF-3). Install fencing. Reseed plowed areas.
14. Remove trash and debris from meander west of the Birds of Prey operation east of Highway 287.

3.3.3 Wetlands

3.3.3.1 Objectives

1. Protect and preserve wetlands throughout Rock Creek Farm.
2. Protect wetlands from Northwest Parkway construction on the Trillium property.
3. Restore wetlands that have been plowed and planted to agricultural crops.
4. Monitor wetlands on a regular basis, and direct management activities based on this information.

3.3.3.2 Management Activities

1. Fence wetlands to control livestock. First priority is wetlands along Rock Creek. Second are the alkaline wetlands (RCF-1) on the northwest portion of Rock Creek Farm and on Trillium (TRIL-1).
2. For alkaline wetlands, seed wetland borders after fencing to prevent weed infestation. Monitor these wetlands after fencing for weed invasions.
3. Monitor the effect of the Northwest Parkway construction on the Trillium wetlands.
4. Install wells in preparation for stream and wetland restoration.
5. Research wetland origins on the Trillium property and their restoration. Historic wetlands on this property may have been planted to hay crops in the past. Study hydrology and determine the potential area for wetland restoration.
6. Fence springs on the southeastern hillside of Rock Creek Farm. Manage weeds around springs.
7. Continue maintenance of created wetlands in the Parrot's Beak. Change water levels during the summer. Monitor and manage for weed infestations, including Canada thistle.

4 Agricultural Management

4.1 Introduction

The BCPOS Agricultural Resources Division's mandate is two-fold: 1) to preserve agriculture in Boulder County, and 2) to provide the best stewardship of the land with available resources. Our vision for agricultural management on CHP/RCF is an economically viable and sustainable operation that conserves soil and water, provides a farm family a place to live and a livelihood, preserves natural resource values, supports recreation, and enables Birds of Prey Foundation to exist in harmony.

Currently, our best means to provide stewardship is through partnership with private operators. Agriculture tenants are selected through an open, competitive bidding process. In addition to the monetary value of a bid for an agricultural lease, the selection criteria are designed to evaluate all aspects of an operator's ability to provide stewardship. The values of these operators, therefore, must be considered when making management decisions. These values include 1) continuing a desirable way of life, and 2) gaining satisfaction from agricultural production. Most operators also value the conservation of soil, water and wildlife in general.

Agricultural management is challenging under the best circumstances. At the time of this revision of the CHP/RCF plan (2002), the agricultural industry is experiencing a severe economic downturn. These difficulties are especially pronounced in an increasingly urbanizing Boulder County, where the infrastructure that supports agriculture is diminishing and the costs of operation are high. Currently, one of our challenges is providing the operator with the potential for a reasonable profit so they can stay on to take care of the property.

4.2 Agricultural Resources

4.2.1 Description of Agricultural Land

Of the 1,151 acres that make up CHP/RCF, 985 are currently under agricultural lease. The areas excluded from the lease are the Stearns Lake recreational and wildlife area, the areas leased to Birds of Prey Rehabilitation, trail corridors, and the area formerly leased to the Broomfield Rotary Club for a tree nursery.

A breakdown of the land under agricultural management is categorized below and identified on the map in Figure 2 (page 10).

Irrigated Cropland	<u>361</u> acres
Dryland Cropland	<u>118</u> acres
Rangeland	<u>411</u> acres
Riparian	<u>72</u> acres
Wetlands	<u>18</u> acres

4.2.2 Cropland

The 361 acres of irrigated cropland on CHP/RCF can be irrigated by flood irrigation. That is, irrigation occurs via a system of ditches and water flows by gravity without assistance by pumping. This figure has increased from about 258 acres irrigated in 1995. At an unknown point in time, land that had once been irrigated reverted to dryland as the condition of the irrigation system declined. The recent increase in irrigated land is attributable to improvements to the irrigation systems and efforts to insure all of the County's water gets to the farm.

Approximately 260 acres at CHP/RCF are Prime Farmlands of National Importance as shown in the Boulder County Comprehensive Plan Significant Agricultural Lands map. This designation is based on the potential productivity, irrigability and sustainability of the soil. There are 118 acres currently under dryland crop production. Most of this land is irrigable by hose reel sprinkler when water is available.

4.2.2.1 Cash Crops

The primary crops raised at CHP/RCF have been pumpkins, decorative gourds, Indian corn, corn, wheat, triticale, and alfalfa and grass for hay and pasture. Other crops are sorghum-Sudangrass, oats, and milo. The dryland fields are usually planted to sorghum-Sudangrass, winter wheat, or triticale.

Crops may be raised as a cash crop or as feed for livestock on the farm. The primary cash crops currently are pumpkins, Indian corn, gourds, small grains, and corn. Pumpkins have been the most important crop for the last three years providing most of the revenue for the farm. A portion of the crop is contracted, but the majority is sold on the farm as jack-o-lantern pumpkins. Gourds, Indian corn, corn shocks, and baled straw are also sold at the farm.

Grass production was low enough that haying was sometimes not economical; the cost to put the hay up exceeds the value of the hay. Contributing factors are compacted soils, over mature stands of grass, and high grazing pressure in the spring. Soil compaction, low plant densities, and in some areas "sod bound" stands limit their production potential. Some fields have numerous high and low spots making flood irrigation very difficult. The high spots cannot be irrigated and the low spots accumulate too much water causing weed problems (foxtail). The amount of labor required for irrigation can be very high.

4.2.2.2 Non-cash Crops

Non-cash crops raised for livestock consumption on the farm are silage corn and forages such as grass, alfalfa, triticale, and sorghum-Sudangrass. Forage crops may be harvested mechanically and fed to the cattle or they may be harvested directly by livestock through grazing. Crop aftermath is important as a forage resource. The amount of forage in pumpkins, pumpkin vines and corn that remains after harvest is considerable. Un-marketed pumpkins and vines would otherwise be plowed

under. Wheat and triticale can be grazed during early growth without reducing grain yields. These crops are important as a forage resource in early spring. Perennial grass and alfalfa on irrigated land is cut for hay and/or pastured by livestock.

4.2.3 Rangeland

4.2.3.1 Native and Introduced

Figure 3, the Wetland and Vegetation Types map shows three categories of rangeland: native, introduced, and mixed native and introduced species, based on the dominance of the vegetation. Two hundred and eighteen acres of rangeland are comprised primarily of native vegetation, 148 acres of rangeland are dominated by introduced species and 45 acres are mixed native and introduced species. The vegetation within each category is described in the vegetation section of this plan. The NRCS rangesite descriptions of native and non-native vegetation are described in detail in previous plans.

Much of the rangeland on CHP/RCF has been reseeded or inter-seeded with introduced grasses, primarily crested wheatgrass, Russian wildrye, and intermediate wheatgrass. This was a common practice from the 1940s into the 1970s aimed at increasing forage production for livestock.

Grazing is managed by controlling its timing and duration, the degree of vegetation utilization, and the regrowth time allowed after grazing. This is a management intensive approach because it requires moving animals frequently, more pastures (therefore more fences and watering facilities), and close monitoring.

Objectives for grazing management on rangeland include:

- Providing nutritional and sufficient forage for livestock;
- Maintaining or improving native plant species diversity;
- Improving plant vigor;
- Reducing bare ground by improving cover vegetation and litter;
- Improving hydrologic condition of rangeland;
- Protecting soil from erosion; and
- Accommodating habitat needs for wildlife.

4.2.3.2 Wetlands and Riparian Grazing

An important aspect of grazing management on CHP/RCF is controlling grazing in riparian areas and wetlands. The intrinsic value of these areas for wildlife, plant communities, hydrologic function, and water quality requires different management from the upland sites. This usually requires fencing. BCPOS fenced the reach of Rock Creek west of 104th avenue to Brainard Drive in 1998 and most of the north side of the eastern reach of the creek to Highway 287. Approximately 50% of the south side of the creek along the same reach is presently fenced and BCPOS plans to fence the remainder of the creek. Placement of this fence depends on a current project to move an existing road away from its present location adjacent to a portion of Rock Creek (Appendix 4).

BCPOS is currently planning to control livestock access to a number of wetland areas adjacent to Rock Creek as well as the wetlands in the Glacier View portion of the property (field 2). These projects will improve the riparian and wetland areas. We are also planning to evaluate the riparian areas and wetlands associated with Buffalo Gulch.

4.2.3.3 Monitoring

In order to evaluate the effectiveness of rangeland management, permanent monitoring points were established in 1997. BCPOS monitors these points annually and performs vegetative surveys and observations on ecosystem function every three years. BCPOS then analyzes the information to assist in management decisions.

4.2.4 Soils

The soils of CHP/RCF are described in detail in the earlier management. In general the soils are dominated by clayey textures.

4.2.4.1 Fertility

Soil sampling guides soil fertility management on cropland. The tenant combines his own background and experience with the recommendations of a certified crop consultant to make fertility management decisions. For the most part commercial fertilizers are used, however the tenant also has used poultry manure. Economics are a major consideration in fertilization management decisions.

4.2.4.2 Erosion

Erosion reduction has been addressed in several ways. In 1996, all irrigation was by flood irrigation with no gated irrigation pipe in use. Today, 85% of the irrigated land is irrigated either by hose reel sprinkler or with gated pipe therefore reducing soil erosion. Also, as old stands of irrigated grass are plowed, soil tilth is improving and the soils have mellowed. As this process continues, the tenant implements reduced tillage practices to further reduce erosion. Finally, buffer strips of perennial vegetation are being established on the edges of certain irrigated fields to serve as sediment filters and riparian buffers (Figure 4). This has taken land out of production but the soil conservation benefits are significant.

4.2.5 Irrigation Water

A very detailed description of irrigation water rights and the conveyance system is provided in the first management plan and addendum. Since that time, significant improvements have been made to the irrigation infrastructure. First, BCPOS has improved the conveyance system by installing concrete lined lateral ditches and control structures, and lining the Goodhue Ditch where it traverses the farm. Second, the tenant now uses gated irrigation pipe and hose reel sprinklers that improve

water efficiency and reduce labor. The tenant has also leveled land to improve flood irrigation and plans to do more. Third, communication and coordination between the tenant, County staff, the ditch companies, and other ditch shareholders has improved the use of water rights associated with the property. The tenant has also maximized the storage capabilities of Hodgson-Harris reservoir and Stearns Lake. Perhaps the most important factor is the current tenant's willingness to work hard at irrigating. The irrigation conveyance system is shown in Figure 5.

4.2.6 Agricultural Facilities

4.2.6.1 Buildings, Livestock Handling Facilities

The existing farm buildings were built in the 1930s and have little utility in modern operations and equipment. The old blacksmith shop currently serves as the only farm shop. The building is entirely inadequate for that purpose. It will not accommodate modern equipment and primarily serves as limited tool storage and a small workspace. All mechanical work, such as welding, must be done outside.

The rest of the barns and sheds provide some additional storage for small equipment, tools, and seed but they are not large enough to accommodate tractors, trucks, or other machinery. There are no facilities for grain storage and today's hay stacking and retrieving equipment will not fit into the low and narrow doorways of the barns.

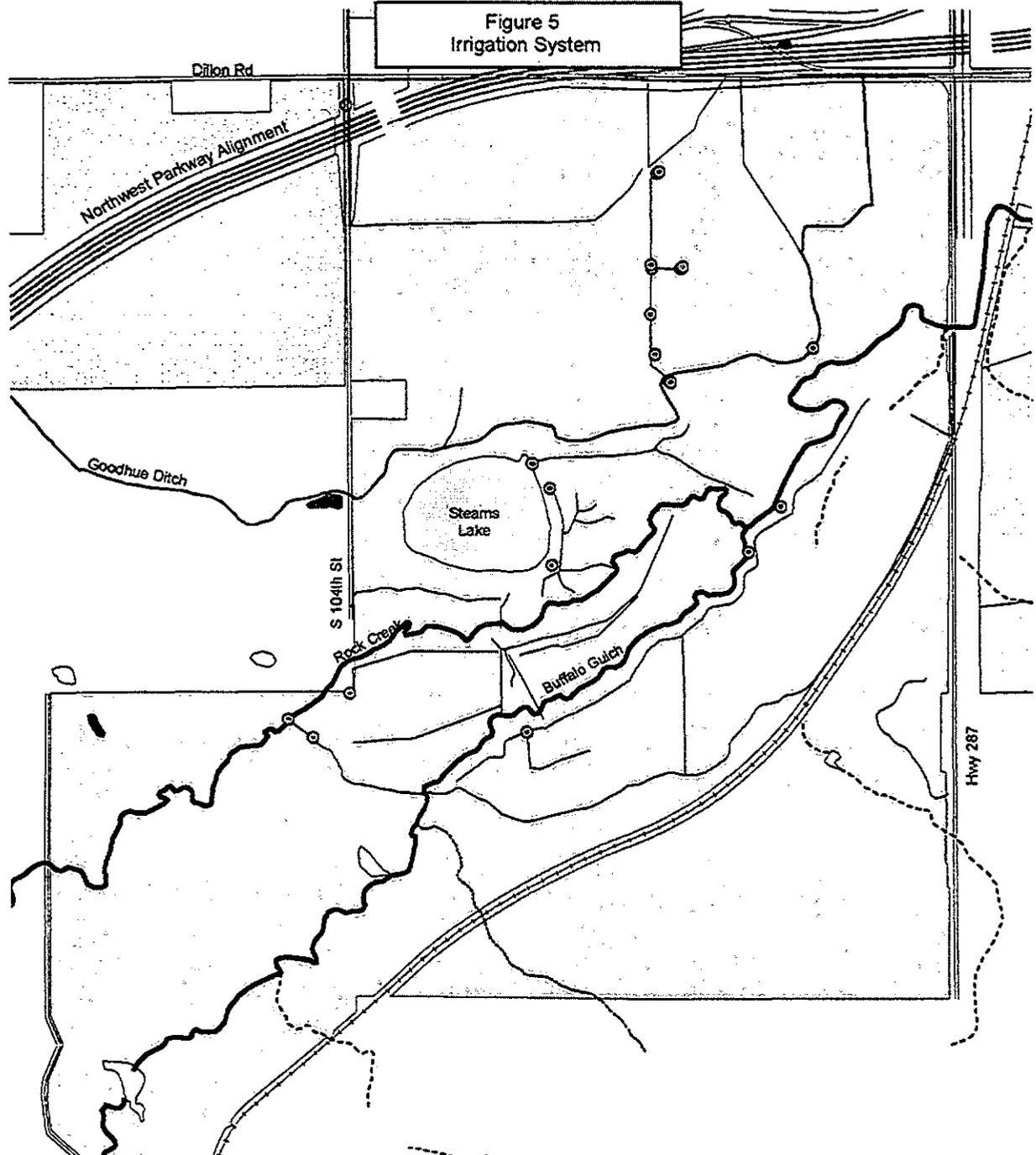
The livestock working and loading facilities have had recent modifications that improve the tenant's ability to efficiently and safely handle cattle. The capacity of the pens and corrals is still limited and a good loading chute, that semi-tractor trailers can access easily, is needed. The water system serving the corrals needs repair.

The historic significance of the site actually limits the alternatives for modifications to the existing buildings or the construction of new ones. Providing adequate facilities is critical to maintain any agricultural operation at CHP/RCF. This issue is a high priority.

4.2.6.2 Exterior Fences

In general, the fences in 1996 were old and in poor condition. Some new fencing had been poorly constructed and now must be rebuilt. BCPOS and the tenant have been replacing or rebuilding fences every year, concentrating on the exterior boundary and along the railroad tracks. Figure 6 presents a detailed map of the fences.

Figure 5
Irrigation System



Irrigation System
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County

- Irrigation Diversions
- ∩ Irrigation Laterals
- ∩ Main Ditch
- ∩ Drainage
- ∩ Stream-intermittent
- ∩ Stream-perennial
- ∩ Roads
- ∩ Railroads
- ∩ Proposed Northwest Parkway Alignment
- Perennial Lake
- Rock Creek Farm

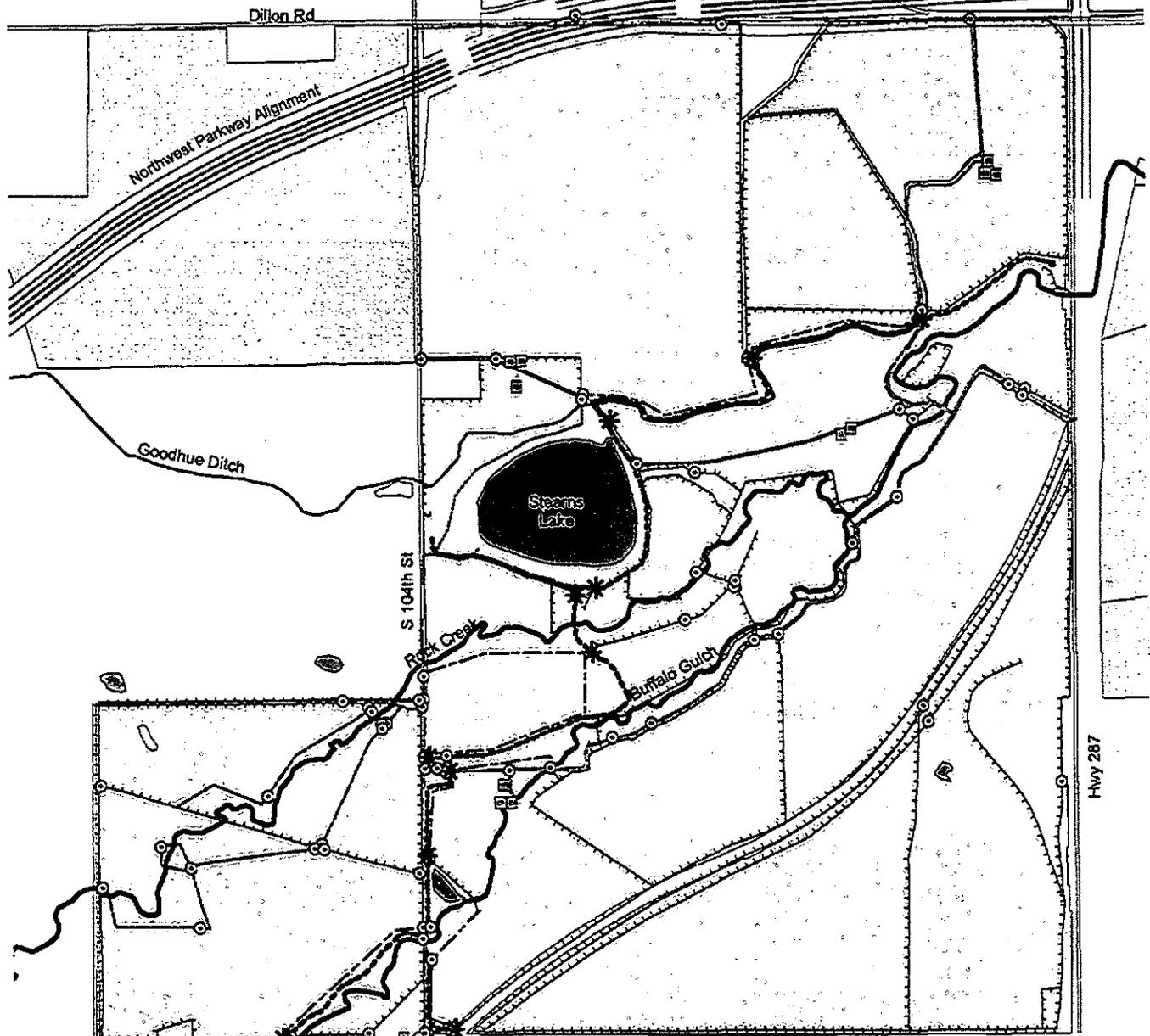
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Map prepared by Kiva Pratt April 2002.

**Figure 6
Fence & Trail System**



Fence and Trail System
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County

	Natural Gas Wells
	Livestock Trail Crossings
	Gates
	Trail
	Railroads
	Farm Roads
	Roads
	Main Ditches
	Streams
Fence Types	
	Barbed Wire
	High Tensile Electric
	Smooth Wire
	Woven Wire
	Perennial Lake
	Rock Creek Farm
	Open Space

N

0 100 200 Feet

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Map prepared by Krist Pratt April 2002.

Good fencing to contain livestock is essential because of the safety and liability issues associated with livestock getting onto highways. Two accidents caused by livestock from CHP/RCF getting on the highway have occurred in the last two years and have impacted the tenant financially due to insurance claims.

4.2.6.3 Interior Fences

Interior fences control livestock for pasture and rangeland management, control grazing of riparian areas, and keep livestock off trail corridors. Most of the riparian area is fenced, two miles of which were installed in the last five years. Only a short distance of the riparian area remains to be fenced. The trail, completed in early 2002, has been fenced to exclude livestock and provide crossings for livestock between pastures. The new fences along the trail and some of the interior fences are constructed of smooth, high tensile wire with a wildlife friendly design, the top wire at 42" and the lowest wire at 16".

4.2.6.4 Wells

Three working wells exist on the farm. One well serves the domestic uses of Birds of Prey and the houses at the farm headquarters, as well as the hydrant system for the outbuildings and livestock water. There is also a well east of the old nursery. Remnants of an old pipeline indicate that water from the well apparently could be pumped to Stearns Lake for storage and possibly provided livestock water and irrigation water to fields 33, 34 and 38. This well provided water for the Rotary Nursery until recently when the irrigation lines were damaged by construction of the new trail. The well currently provides water for livestock and irrigation of fields adjacent to Buffalo Gulch. A third well, located in the prairie dog preserve (field 5), was recently rejuvenated and also provides water to livestock in fields 1, 2, 4 and 10.

4.2.7 Operational Resources

The agricultural tenant and the tenant's overall agricultural operation are considered resources along with the natural resources of the land. Understanding the tenant's operation is essential to optimizing land resource management. In addition to standard lease requirements, staff will also consider the prospective tenant's ability to diversify crops and maintain management flexibility. The ability to maintain this flexibility in management in terms of class/age of livestock, as well as timing and numbers, will be important to maintaining economic viability of future agricultural operations.

Diversification of crops on Rock Creek Farm is an important consideration for two reasons:

1) Economics - diversification of farm products has always been an important strategy in agriculture. In a given year and over the long term, diversification of the kinds of crops and the way in which they are marketed allows a producer to reduce economic risk. For example, the ability to utilize the products of the crop enterprise for the livestock enterprise provides an economic advantage. Agriculture has been experiencing an extended period of very low prices for traditional crops. Alternative, non-traditional crops have become a very important survival strategy for

agricultural producers today. Jack-o-lantern pumpkins have been a very successful alternative at CHP/RCF.

2) Agronomic productivity - crop rotation is necessary to maintain productivity, reduce the need for pesticides and manage soil fertility. Crop diversity is needed for rotation.

Increased public access through the farm and changes in the trail alignment adjacent to cropland has greatly influenced the use of pesticides. Herbicides, fungicides, and insecticides are used primarily for crop production. Though it is unlikely we can eliminate their use, we must give very careful consideration to how their use can be minimized. In addition to looking at alternative crops and practices, economic thresholds have been pushed, crop alternatives are scrutinized more closely, and the timing and methods of application are being planned with recreational use in mind.

We can depend on change in the agricultural economy, surrounding land use, further deterioration of the agricultural infrastructure, water issues, labor issues, and increased recreational use at CHP/RCF. As we consider the future of the agricultural operation it is clear that the most important thing we can do if we are to accomplish our goals and achieve our vision, will be to maintain the flexibility for the operation to change in response to the many influences that impact the farm. Maintaining diverse enterprises (crops, livestock), products, and marketing strategies will play a key role in our success.

Communication among BCPOS staff, tenants, custom applicators, Birds of Prey, and the public will be a key factor in providing a safe environment while continuing a viable farming operation.

4.3 Agricultural Management Recommendations

4.3.1 Cropland & Soils

4.3.1.1 Objectives

1. Continue to provide crop production on irrigated land.
2. Exercise water rights associated with the property.
3. Implement tillage practices that minimize soil erosion on cropland.
4. Efficiently convey and apply irrigation water.
5. Maintain good water quality and strive for the best water quality possible in waters affected by agricultural activities.
6. Employ agricultural practices to enhance the quality and extent of terrestrial and aquatic ecosystems and their function including wildlife habitat, wetlands, riparian areas, and rangeland.
7. Contain and eradicate existing weed infestations and prevent future weed infestations

4.3.1.2 Management Activities

1. Level irrigated meadows and fields to accommodate flood irrigation. Rotate old stands of irrigated grass into other crops to improve soil tilth (fields 32 and 33). Rotating out of the over-mature stands presents an opportunity to address compaction, to level the land for better

coverage by irrigation water, to more efficiently use water, and to reduced labor to irrigate. This should increase production.

2. **Grazing Management.** Grazing on the irrigated meadows will occur in early spring and again in the fall after plant dormancy. Following spring grazing, the grass and alfalfa meadows are harrowed to break up manure, and then fertilized. Irrigation usually begins in May depending on spring precipitation. These fields will most likely be harvested as hay.

It is possible that these fields could be pastured during the growing season as an alternative to haying. If so, animals will not be turned in on wet soil, and grazing periods, degree of utilization, and recovery periods will be closely managed.

3. Continued aggressive weed management in fields, irrigation ditches, and non-cropped areas.
4. Complete concrete lining of irrigation ditch in field 32.
5. Continue to examine alternative crops and methods of improving farm efficiency.
6. Optimize use of agriculturally productive land. BCPOS will attempt to fully utilize all of the acreage of agriculturally productive land to its potential and we will attempt to optimize the production on that land rather than maximize production acres. Many operating costs are independent of the acreage that can be farmed. For example, at CHP/RCF some of the major costs, such as equipment and insurance, remain the same regardless of whether the tenant farms 300 acres or 400 acres. The production from an extra 100 acres however contributes significantly to paying for those fixed expenses.

4.3.2 Rangeland

4.3.2.1 Objectives

1. Manage property to provide for livestock production.
2. Practice grazing strategies that provide protection of rangeland soils.
3. Practice agricultural management that enhances the quality and extent of terrestrial and aquatic ecosystems and their functions including wildlife habitat, wetlands, riparian areas, and rangeland.
4. Contain and eradicate existing weed infestations. Prevent future weed infestations.
5. Provide high quality forage for livestock.
6. Maintain or improve native plant species diversity.
7. Improve rangeland plant vigor.
8. Improve vegetation and litter cover to reduce bare ground.
9. Improve rangeland hydrologic condition.
10. Accommodate wildlife habitat needs.

4.3.2.2 Management Activities

1. Formulate and implement written grazing management plans aimed at management goals.
2. Monitor grazing and range resources throughout the grazing season.
3. Continue long-term rangeland monitoring.
4. Develop additional livestock watering alternatives.
5. Examine Buffalo Gulch area for improved riparian and wetland management.

6. Fence and improve springs in Habitat Conservation Area, field 38.
7. Designate areas for converting introduced species rangeland back to native species rangeland. This will be dependent on the proper combination of weather and a natural reduction in prairie dog numbers. Irrigation water may be used for this conversion if feasible.

4.3.3 Irrigation/ Water Quality

4.3.3.1 Objectives

1. Exercise water rights associated with the property.
2. Efficiently convey and apply irrigation water.
3. Maintain good water quality and strive for the best water quality possible in waters affected by agricultural activities.

4.3.3.2 Management Activities

1. Establish permanent grass filter strips adjacent to cropland to reduce sedimentation and improve water quality.
2. Examine benefit of extending concrete lined ditch in field 4.
3. Analyze feasibility and cost/benefits of installing a center pivot sprinkler.
4. Install measurement structures to quantify irrigation water use.
5. Implement water quality monitoring program.

4.3.4 Agricultural Facilities

4.3.4.1 Objectives

1. Provide facilities that will adequately support the agricultural operation.
2. Provide/improve facilities to contain and move livestock.

4.3.4.2 Management Activities

1. Investigate alternative facilities for the agricultural operation, including a shop, equipment storage, crop storage, and improved livestock handling facilities. All improvements will conform to National Register of Historic Places standards.
2. Replace or repair fences to contain livestock on the property and to manage livestock within the property. Continue to implement appropriate wildlife friendly fence designs.
3. Relocate farm road adjacent to Buffalo Gulch.

4.3.5 Operations

4.3.5.1 Objectives

1. Provide for future viability of agricultural operations at CHP/RCF.
2. Provide for human and environmental safety.

4.3.5.2 Management Activities

1. Maintain flexibility in agricultural operations.
2. Improved pesticide management.

5 Cultural History Resources

5.1 Introduction

CHP/RCF has a rich and diverse cultural history ranging from prehistoric campsites to historic agricultural activities. In 1989, BCPOS supported a cultural resource inventory as part of the planning for the Rock Creek-Coal Creek regional trail corridor ("A Cultural Resource Inventory of the Proposed RC/CC Trail Corridors," C. Gleichman, 1989). In 1993, BCPOS and the Colorado Historical Society supported an archeological excavation of the prehistoric campsite identified in the cultural resource inventory. The following information contains excerpts from those two studies.

5.2 Cultural Resource Inventory

5.2.1 Summary of Inventory

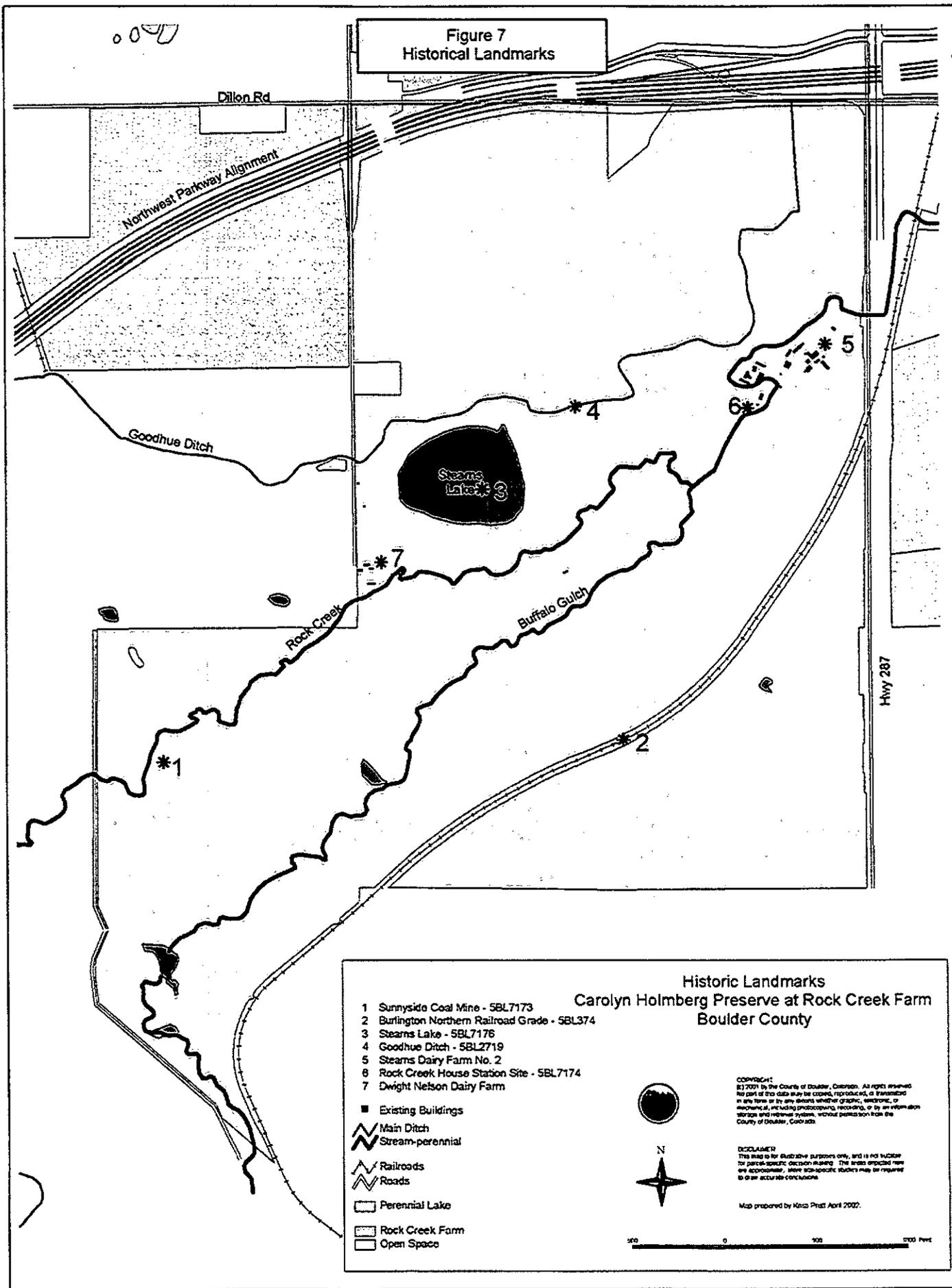
The cultural resource inventory encompassed 13.3 miles of riparian corridor for the proposed Rock Creek/Coal Creek trail corridors. The inventory located and recorded seven historic sites and one prehistoric site (Figure 7). In addition, five previously recorded historic sites and one previously recorded prehistoric site were identified within the project area.

Both prehistoric sites in the project area are dated to the Ceramic Stage (650 Before Present, BP), with the possibility of an earlier Paleo-Indian component (6200 BP). The eleven historic sites date from the 1860s into the 1930s, with many features still in use today.

All of these cultural resources were evaluated for eligibility in the National Register of Historic Places. Of the 14 sites, 4 were considered eligible for listing and are described below.

1. Stearns Dairy (site 5BL787) is a previously recorded historic site consisting of a complex of structures built in the 1930s. The site has been recommended as eligible for inclusion on the National Register due to its association with agricultural activity (dairy farming) in Boulder County. The entire property was listed as a Local Landmark in 1998.
2. Prehistoric Lithic Scatter (site 5BL239) is a possible campsite. The bulk of the cultural material here has been recovered from the ridge slope south of the project right-of-way. Although no surface evidence of cultural remains were found within the project right-of way during the present inventory, this portion of the site has been collected by the landowners and subsurface remains may be present.
3. Prehistoric Campsite (site 5BL2712) is eroding from the northeast bank of Rock Creek just west of US Highway 287. The site is important in that it is known to contain temporally diagnostic artifacts, materials indicative of a variety of prehistoric activities, and buried deposits. The site is eligible for inclusion on the National Register because future excavation of the site is likely to yield information important to our understanding of the Middle Ceramic Period (A.D. 1000-1550) in Boulder County.

Figure 7
Historical Landmarks



- Historic Landmarks**
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County
- 1 Sunnyside Coal Mine - 5BL7173
 - 2 Burlington Northern Railroad Grade - 5BL374
 - 3 Stearns Lake - 5BL7176
 - 4 Goodhue Ditch - 5BL2719
 - 5 Stearns Dairy Farm No. 2
 - 6 Rock Creek House Station Site - 5BL7174
 - 7 Dwight Nelson Dairy Farm

- Existing Buildings
- Main Ditch
- Stream-perennial
- Railroads
- Roads
- Perennial Lake
- Rock Creek Farm
- Open Space



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Map prepared by King Phad April 2002.

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4. Burlington Northern Railroad Grade (5BL374) is determined eligible for its association with early railroading in eastern Boulder County and for its association with the agricultural and coal mining industries in the Louisville, Lafayette, Longmont, and Erie areas.

Ten of the 14 cultural sites in the project area are considered not eligible for inclusion on the National Register. No further work was recommended on most of the other 10 sites. Management of all sites is summarized in Table 1 of the inventory, page 27.

Of the four sites identified as potential State or National Historic Sites, the prehistoric campsite has been listed on the State Register of Historic Preservation. The Stearns Dairy is eligible for listing to the National Register and the process is moving forward. The entire farm complex was locally landmarked by Boulder County in 1998. Future plans for the homesite include rehabilitating the main house for a county meeting facility.

The inventory recommended several steps be taken to ensure the integrity of the cultural resources at CHP/RCF. These are discussed below.

5.3 Cultural Resources Updates and Recommendations from Study

5.3.1 Railroads

The Burlington Northern/Colorado and Southern Railroads, including the four abandoned railroad spurs located within the right-of-way, may contribute to a coal mining historic district if one is ever formed in the area. The presence of these spurs along or near the proposed recreational trails provides an excellent opportunity for education regarding the history of Boulder County. The inventory recommended exploring the possibility of routing trails directly over spurs instead of cutting through them. Interpretive signs, trail maps, and brochures may provide recreational users information on the historic use of these railroads. The ditches and Sunnyside Mine Dump could also be information points along the trails (only remnants are left because of reclamation efforts).

5.3.2 Stearns Dairy

Stearns Dairy and its associated structures were recommended to be untouched by the trail construction because of their importance to the history of Boulder County.

5.3.3 Prehistoric Sites

The archeological study recommended mitigation of any potential impact on the two prehistoric sites by either subsurface testing prior to construction of the trail or archaeological monitoring during any surface disturbance during trail construction. The monitoring focused on identifying any possible buried cultural remains. Monitoring did not reveal the presence of any sub-surface cultural remains within the area impacted.

The Campsite is a significant Middle Ceramic Period site, which is in extremely fragile condition. Current erosion of the creek bank on the southern end of the site is causing material to be exposed and displaced at a rapid rate. The inventory recommended taking measures to mitigate the loss of important archaeological information through erosion. The inventory also recommended that regardless of the location of the proposed trail, full-scale mitigation (excavation) of the site be conducted to review data.

Additional, undetected prehistoric sites may still be contained within the property. Buried sites may have gone unrecorded due to factors such as soil deposition and heavy vegetation cover obscuring surface indications. (End of excerpt.)

5.3.4 Update

BCPOS took the recommendations of the study and conducted an excavation of the prehistoric campsite in 1993, before the trail construction began. BCPOS considered these sites in trail planning and installed fencing to restrict access by the public and livestock to these areas. Future plans for the homesite include renovating the house. The County has agreed to undertake these historic renovations in 2002/2003 and the house will be used as a meeting facility for the county.

5.4 Cultural History Resources

5.4.1 Objectives

- 1) Preserve and protect the cultural resources on CHP/RCF.

5.4.2 Management Activities

- 1) Complete the rehabilitation of the main house and convert it to a meeting center. The rehabilitation will include historically appropriate landscaping around the main house.
- 2) Coordinate site planning for agricultural uses, visitors, and historic house use, parking, BPF aviaries and shops.
- 3) Repair and maintain stone piers along driveway entrance.
- 4) Plant more trees along both sides of entrance drive.
- 5) Conduct a study to determine if stream bank stabilization is feasible along the portion of Rock Creek below site 5BL2712 to keep the creek from eroding the bank containing the prehistoric site materials. If not, investigate option of excavation.
- 6) Complete listing of Stearns Dairy complex to National Register of Historic Places.
- 7) Continue maintenance of building complex and corrals.
- 8) Consider feasibility of relocating BPF flight cages at homestead complex and relocate to Dwight Nelson homestead site on 104th St.

6 Recreation and Interpretation

6.1 Introduction

The Carolyn Holmberg Preserve at Rock Creek Farm (CHP/RCF) provides a wide variety of recreational and interpretive opportunities (Figure 8). The property is used for agriculture, recreation, and protection of native plant and animal habitat. It is one of the few properties managed by Boulder County Parks and Open Space (BCPOS) that provides public access to land used for agricultural purposes.

Population growth and urban sprawl along the Front Range have significantly reduced the amount of land available for agricultural production and native plant and animal habitat, as well as increasing recreational demands. Increased recreational demands add to the challenge of managing these important open space lands for multiple purposes. Important management issues to consider include:

- Providing a quality recreational experience while minimizing impacts from recreational use: visitors sometimes trample native vegetation and agricultural crops, disturb livestock and wildlife, and may create conflicts with agricultural practices.
- Controlling livestock: increased recreational access makes containing cattle more difficult and requires additional fencing. Fences must be carefully placed to prevent interactions between visitors and cattle, minimize impacts to developed trails, and keep cattle out of sensitive natural areas adjacent highways and neighborhoods. Fencing materials must contain livestock and be compatible with wildlife.
- Increasing public understanding and appreciation of modern agricultural practices: management practices must recognize the public's sensitivity to techniques, such as genetically modified organisms (GMOs) and use of pesticides and herbicides.

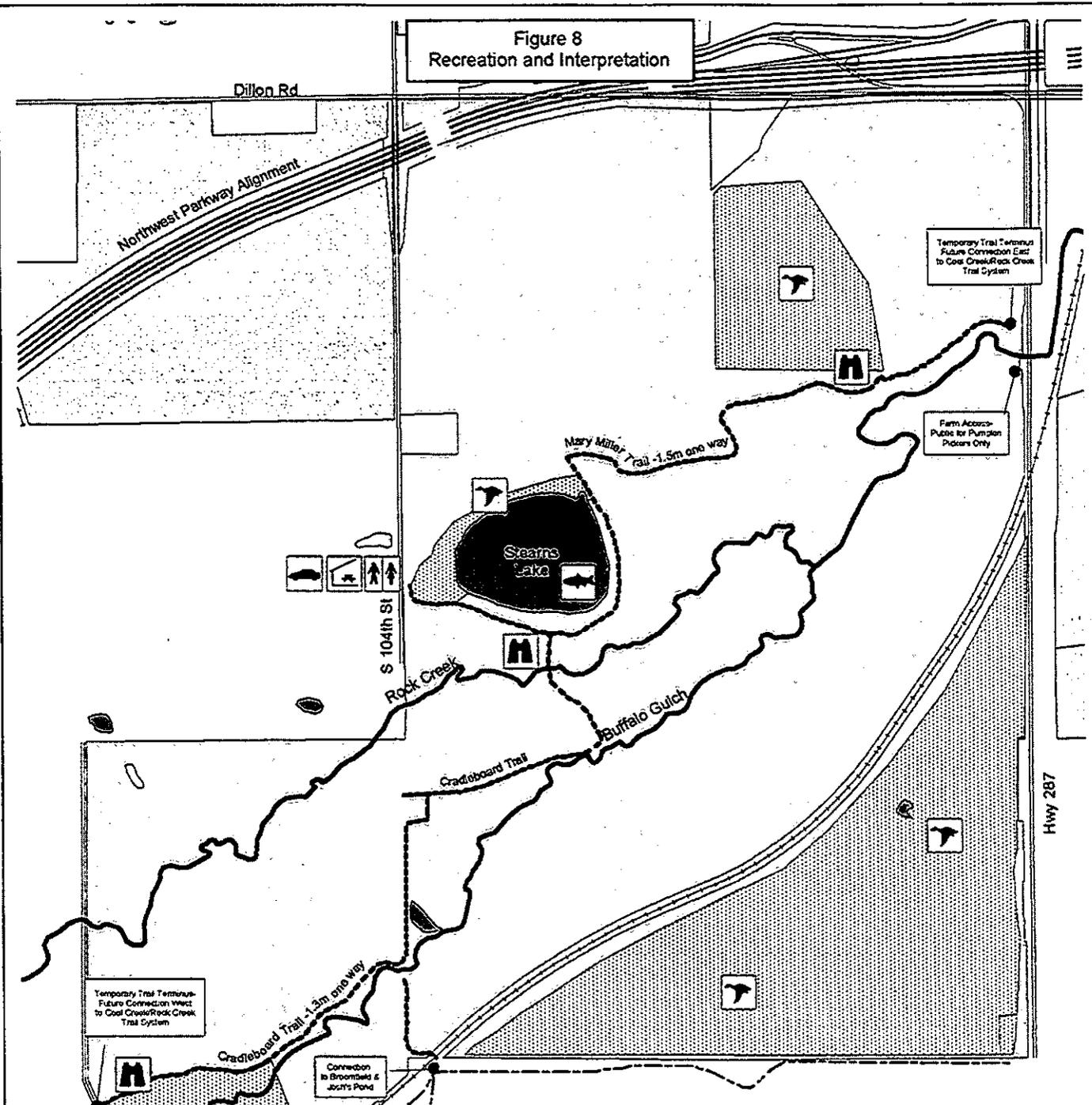
6.2 Resources

6.2.1 Recreation

6.2.1.1 Visitor Activities

Diverse recreational opportunities exist at CHP/RCF and many of them take place around, or near, agricultural activities. Current recreational uses include hiking, jogging, dog walking, bicycling, horseback riding, nature study, picnicking, photography, artwork, viewing farm activities and fishing at Stearns Lake. Visitor use is restricted to portions of Stearns Lake and designated trails to minimize impacts to agricultural activities and critical wildlife habitats found throughout the property.

Figure 8
Recreation and Interpretation



Recreation and Interpretation
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County

	Wildlife Habitat - No Public Access
	Wildlife Viewing
	Picnic Shelter
	Parking
	Restrooms
	Fishing - Wading & Boating Prohibited
	Main Ditches
	Streams
	Broomfield Trail System- No Equestrian Access
	Multi Use BCPOS Trail
	Railroads
	Roads
	Perennial Lake
	Wildlife Habitat - No Public Access
	Rock Creek Farm
	Open Space

Map prepared by Kirst Pratt April 2002

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Stearns Lake is a 23-acre reservoir located just east of the main trailhead on South 104th Street. The lake's location, setting and diversity of fish make it a destination for fishing. The lake has been stocked with bass, bluegill, black bullhead, crappie, and Tiger Muskie. Tiger Muskie can reach impressive sizes and the minimum take home size is 36 inches. The dam and southern shoreline provide opportunities for bank fishing. Boating, belly boating, and wading are prohibited in order to protect the wildlife that frequent the lake. The western shore is closed to fishing to minimize impacts to the cattail marsh. The marsh provides important habitat for many species of wildlife, including waterfowl and small fish.

6.2.1.2 Visitor Studies and Information

In 2000, the estimated annual visitation to CHP/RCF was 35,000 visits. The spring season had the highest visitation (10,419) and winter season the lowest (5,386). Visitors often came in fairly small groups, with the average of 1.97 per social group. Visitation is anticipated to increase significantly as regional trails are connected to the property.

Interviews conducted in 2000 found that 70 percent of visitors were Boulder County residents (however, in November 2001, Broomfield became its own county, thus this percentage is likely to change significantly in the future). Forty-five percent of visitors fished, while 18 percent hiked, 10 percent picnicked, seven percent relaxed, six percent rode horses, four percent rode bicycles, three percent engaged in nature studies, one percent jogged, and six percent participated in other activities.

In addition to their primary activity, 12 percent of visitors came to the property hoping to view wildlife. Bird watching is the most common nature observation, especially observation of raptors near prairie dog towns and waterfowl on Stearns Lake and wetlands south of the Cradle Board Trail. Visitors enjoy watching prairie dogs and associated species such as snakes and rabbits. Coyotes, foxes, and other small mammals are sometimes seen along the trails that wind through the property. An interpretive sign about prairie dogs and their relationship with other species and the ecosystem can be found next to the prairie dog town along the Cradle Board Trail.

Although not a primary goal, visitors also enjoy watching farm activities. Cattle grazing in the fields and the annual cycle of farming operations are especially enjoyable to visitors who grew up on a farm or children who have had little interaction with livestock outside of schoolbooks. The current lessee opens the farm to pumpkin picking in the fall. Thousands of visitors come from all directions, including outside of Boulder County, to gather pumpkins for their Halloween festivities.

Recent studies indicate approximately 75 percent of visitors visiting the property felt information was readily available and adequate for their visit. Visitors requested additional information on fishing including bait restrictions, bag limits, and stocking schedule.

Overall, visitors gave CHP/RCF an average of a 7.3 rating on a scale of 1 to 10. When asked what features they would like to see in the future, suggestions included more picnic tables at the shelter

area, a longer trail system, more fish stocking in Stearns Lake, nicer grass in picnic area, and better trail drainage.

6.2.1.3 Trails

The development of the Rock Creek/Coal Creek (RC/CC) trail system through CHP/RCF has led to dramatic changes in recreational opportunities and agricultural management. The old trail system was limited primarily to farm roads and the periphery of the property. These trails/roads were originally created to maintain the farm and were not intended for recreational use. Many sections went through wet or sensitive portions of the property and were reclaimed. New trails now immerse visitors within the heart of the property, providing new opportunities and challenges. The new trails have created the need for additional fencing and gates and loss of productive grazing and cropland. At the same time, the new trails provide high quality visitor opportunities, avoid sensitive natural areas (e.g., wetlands, prairie dog colonies, raptor areas, and agricultural operations), and create opportunities for visitors to learn about modern agricultural practices.

With the help of an \$80,000 grant from Great Outdoors Colorado (funded by lottery proceeds), BCPOS constructed 2.8 miles of multiple-use trail during 2000 and 2001 as part of the RC/CC trail system. The trails were constructed to a ten-foot width to accommodate multiple uses. Trails were constructed with crusher fines or crushed rock to provide a smooth, well-drained surface. All trails on the property are accessible to wheel chairs and people with disabilities.

The modifications resulted in three trails: Mary Miller Trail, Cradle Board Trail and Josh's Pond Trail. The 1.5-mile Mary Miller Trail terminates at Highway 287 where the trail will someday continue east to Lafayette as part of the RC/CC Trail. The 1.3-mile Cradle Board Trail terminates on the southwest portion of the property at Brainard Drive. The trail terminus at Brainard Drive will ultimately connect to the trail system at Flatirons Crossing Mall as part of the RC/CC Trail Master Plan (Appendix 7). The Josh's Pond trail parallels 104th Street and serves as a trail connection for Broomfield residents to the south. The Mary Miller Trail currently ends near Highway 287. Eventually this trail will tie into the RC/CC Trail going north to Lafayette and south to Broomfield. All three trails meander past farming operations, which include both crop production and livestock grazing.

Parks and Open Space is also in the process of developing a trail originating at the intersection of Brainard Drive and Carbon Road. This trail will parallel Brainard Road heading south along the property boundary and provide a connection with the newly created Cradle Board Trail. This will provide increased access for the public wishing to enter the property from the west.

6.2.1.4 Access and Parking

The main trailhead for recreational use is the Stearns Lake parking lot located at the southern terminus of South 104th Street. The trailhead provides parking for approximately 15 cars and two horse trailers, a restroom, trashcans, a covered picnic shelter, and an informational kiosk. During 2001 the parking lot on Dillon Road was closed following the removal of a section of trail from that lot south to Stearns Lake. The old trail traveled through a prairie dog colony where burrowing owls are known to frequent.

Visitors may also access the property from Josh's Pond in Broomfield and at the west end of Cradle Board Trail along Brainard Road. There are no plans at this time to provide formalized parking along Brainard Road and parking should be discouraged. An informational mini-kiosk will be added at this entrance in 2002. Eventually a new trail and access point will connect to the east side of the property near Highway 287. A new trailhead will be constructed on the east side of Highway 287 and north of Dillon Road sometime in the next few years. No other access points or formal parking areas are anticipated or planned at this point.

6.2.2 Interpretive Opportunities

The CHP/RCF open space lands provide adjacent neighbors and visitors a unique opportunity to experience the multiple purposes of BCPOS, including agriculture, passive recreation, and cultural and natural resource preservation. Opportunities to communicate these objectives include: interpretive signs, brochures, cultural and natural history programs, and special events.

Specific interpretive topics can be categorized into four major themes:

- 1) Natural History: plains life zone; flora and fauna of short-grass prairie and riparian ecosystems; waterfowl habitat; and fisheries at Stearns Lake.
- 2) Cultural History: historical agricultural practices; western water laws; archeological history; coal mining history; and historic transformations of the region's native prairie.
- 3) Agriculture: soil conservation; range management; current agricultural practices; water quality; and challenges facing local farmers.
- 4) Open Space Program: open space management and activities; the legacy of former BCPOS director Carolyn Holmberg; and intrinsic values of open space.

Of the interpretive topics identified, some opportunities are unique to this property because visitors can travel to the interior of agricultural areas on designated trails. The interface between agriculture and recreation is rare in Boulder County; most residents can only watch agricultural practices from the perimeter of a property while driving by or walking along sidewalks. The trails at CHP/RCF allow visitors the opportunity to fully experience and appreciate farming activities.

In the 1981 Rock Creek Farm Management Plan, an outdoor agricultural museum was being considered to highlight the county's agricultural history. Since that time, BCPOS opened the

Agricultural Heritage Center at the Lohr/McIntosh Farm (AHC). The AHC focuses on the county's agricultural history from 1900 to 1935, highlighting influences of earlier years and comparing them to contemporary agricultural practices. It is located on Highway 66 just west of Longmont and county residents now have easy access to the AHC from their home, school and/or business. With the addition of the AHC, there was no longer a need for a second agricultural museum and plans for CHP/RCF have been abandoned.

Although another agricultural museum wasn't necessary, the department felt it was important to preserve the Rock Creek farmhouse because of its historical significance. BCPOS approached the Board of County Commissioners in 1999 to preserve the structure and find an alternative use. In 2001, the Board and the Boulder County Administrative Services Department determined the farmhouse could be converted into a meeting place for County departments and other governmental agencies. The renovation will take place in 2002-03. One room will be set aside for displays highlighting the history of the Rock Creek Valley with historical photographs, artifacts and interpretive panels.

Current and proposed interpretive opportunities are primarily visitor-oriented. Information is disseminated via the kiosk at the Stearns Lake Trailhead. The kiosk contains a map of the property, two information panels describing the property, and a variety of BCPOS brochures.

BCPOS's natural history interpretive programs led by volunteers and paid staff, host an average of 10 programs per year at CHP/RCF. This represents approximately seven percent of the department's natural history interpretive programs. These programs typically focus on raptors, wetlands, and the ecology of the area. The Birds of Prey Rehabilitation Center also sponsors private educational programs at their facilities and have volunteers on site on a daily basis.

6.3 Recreation and Interpretation

6.3.1 Recreation

6.3.1.1 Objectives

1. Provide a variety of safe, high quality recreational opportunities.
2. Construct and maintain trails, access points, and recreational facilities to accommodate diverse recreational uses.
3. Minimize recreation impacts to natural, cultural, and agricultural resources.
4. Ensure various management activities are communicated and coordinated to minimize impacts to visitors and trails.

6.3.1.2 Management Activities

1. Continue to provide opportunities for visitors to experience the diverse values of this property. Visitors should have access to multiple use trails, fishing areas, and be able to view wildlife and

agricultural operations. Although no new trails are planned on CHP/RCF, a regional trail system will eventually tie into the property.

2. Continue to provide emergency services (medical, fire, and law enforcement) to ensure public safety.
3. Routinely monitor trails and recreational facilities to identify safety hazards/maintenance needs and correct them in a timely manner.
4. Work with Boulder County Transportation and surrounding communities to complete regional trail connections that will link CHP/RCF with the CC/RC trail system. New trail connections to Lafayette and Broomfield will be evaluated and constructed as appropriate. It is anticipated that these trails will be primarily developed along the Highway 287 corridor in the immediate vicinity of CHP/RCF to minimize further impacts to agricultural areas and sensitive cultural resource sites. New trails should be designed to accommodate multiple uses and be accessible to wheelchairs and people with disabilities whenever possible.
5. Work with RTD, adjacent landowners, and other communities to develop a combination Park and Ride/ trailhead to provide parking and access near Brainard Drive.
6. Construct a new trailhead north and east of CHP/RCF to provide parking as future trails in the CC/RC Trails Plan are completed.
7. Maintain trails, recreational facilities, and fences to separate visitor uses from agricultural operations and sensitive wildlife areas. Operations staff will inspect and repair fences located along trail corridors once a year. Additional inspections and repairs will be the responsibility of the agricultural tenant. Farm roads should be kept separate from the trail system to prevent trail damage and minimize conflicts.
8. Replace the vault in the existing composting restroom to minimize fire risks, additional vandalism, and increase vault capacity.
9. Evaluate the need for additional recreational amenities (benches, picnic tables, trash cans, dog pick up stations, etc.) using visitor surveys and install as needed.
10. Install new culverts at Rock Creek and Buffalo Gulch to prevent further damage to existing trails, crop production, and farm roads.
11. Continue to require visitors to remain on designated trails to prevent unnecessary impacts to natural and cultural resources and agricultural operations. Additional signs and periodic patrols may be required to ensure visitor compliance.
12. Monitor the property for development of undesignated trails, capacity at trailhead, roadside parking, and vandalism. Appropriate actions will be taken to correct problems in a timely and responsible manner.
13. Conduct annual and periodic meetings as needed to communicate and coordinate various management activities with recreational staff in the Operations and Resource Management divisions. These meetings will ensure management activities are coordinated and conducted in an efficient manner. Management activities directly relevant to the recreation staff include, but are not limited to: wildlife closures, timing and location of cattle crossing trails, use of herbicides and pesticides, use of irrigation water (especially near trail corridors), operation of farm equipment on trails or where roads cross trails, construction and maintenance of new fences, and annual pumpkin gathering events.

6.3.2 Interpretation

6.3.2.1 Objectives

1. Provide information that orients visitors to the property, resources, current management practices, recreational opportunities, facilities, and services.
2. Furnish information on trail etiquette, potential environmental hazards and park regulations so visitors will have a safe and enjoyable experience.
3. Influence visitor use patterns, activities, and behavior to minimize impacts on resources and conflicts between users.
4. Describe the significance of BCPOS properties and resources.
5. Provide opportunities for communication between staff and public about resource management decisions, actions and impacts.
6. Create an understanding and appreciation for earlier Boulder County residents, lifestyles, and trades.

6.3.2.2 Management Activities

1. Provide interpretive opportunities to accommodate requested programs at the property.
2. Offer "Discover Boulder County" interpretive programs on-site.
3. Maintain and update the kiosk with interpretive information, map, rules/regulations, and brochures for public use.
4. Educate visitors on trail etiquette to minimize conflicts between various recreational uses and agricultural operations.
5. Install a new mini-kiosk at the trail entry along Brainard Drive.
6. Design and install an interpretive sign about prairie dog preserve.
7. Provide directional trail signs to keep visitors on designated trails and away from agricultural leased lands.
8. Conduct park visitor interviews at CHP/RCF as part of the department's five-year visitor studies.
9. Collect vehicle and social group data to be used for annual visitation study.
10. Create a CHP/RCF property brochure in 2002.
11. Design and install a sign along the farmhouse driveway identifying county's ownership of property and agricultural preservation goals. These signs will be targeted towards visitors entering the property to collect pumpkins, visit Birds of Prey flight cages, or attend meetings at the farmhouse.
12. Design and install a series of interpretive signs highlighting the Department's open space program and agricultural activities taking place at property.
13. Develop volunteer Pumpkin Ambassador Program for October's "U-Pick-Em" visitation increase. Ambassadors, similar to Park Hosts, will communicate with public in pumpkin fields during weekends and weekday evenings.

Appendix 1

BIRD SPECIES RECORDED AT CAROLYN HOLMBERG PRESERVE AT ROCK CREEK FARM

<u>Common Name</u>	<u>Scientific Name</u>
GREBES	PODICIPEDIFORMES
Horned Grebe	<u>Podiceps auritus</u>
Eared Grebe	<u>Podiceps nigricollis</u>
Western Grebe	<u>Aechmophorus occidentalis</u>
Pied-billed Grebe	<u>Podilymbus podiceps</u>
HERONS, EGRETS & BITTERNs	CICONIIFORMES
Great Blue Heron	<u>Ardea herodias</u>
Black-crowned Night Heron	<u>Nycticorax nycticorax</u>
White-faced Ibis	<u>Plegadis chihi</u>
WATERFOWL	ANSERIFORMES
Canada Goose	<u>Branta Canadensis</u>
Mallard	<u>Anas platyrhynchos</u>
Gadwall	<u>Anas strepera,</u>
Pintail	<u>Anas acuta</u>
Green-winged Teal	<u>Anas crecca</u>
Blue-winged Teal	<u>Anas discors</u>
Cinnamon Teal	<u>Anas cyanoptera</u>
American Widgeon	<u>Anas Americana</u>
Northern Shoveler	<u>Anas clypeata</u>
*Wood Duck	<u>Aix sponsa</u>
Redhead	<u>Aythya Americana</u>
Ring-necked Duck	<u>Aythya collaris</u>
Canvasback	<u>Aythya valisineria.</u>
Lesser Scaup	<u>Aythya affinis</u>
Common Goldeneye	<u>Bucephala clangula</u>
Bufflehead	<u>Bucephala albeola</u>
Ruddy Duck	<u>Oxyura jamaicensis</u>
Common Merganser	<u>Mergus merganser</u>
Red-breasted Merganser	<u>Mergus serrator</u>

Appendix 1 - BIRD SPECIES (Continued)

Common Name	Scientific Name
Ring-billed Gull	<u>Larus delawarensis</u>
Franklin' a Gull	<u>Larus pipixcan</u>
Black Tern	<u>Chidonias niger</u>
PIGEONS, DOVES	COLUMBIFORMES
Rock Dove	<u>Columba livia</u>
Mourning Dove	<u>Zenaida macroura</u>
OWLS	STRIGIFORMES
Barn Owl	<u>Tyto alba</u>
*Common Screech Owl	<u>Otus asio</u>
Great Horned Owl	<u>Bubo virginianus</u>
*Long-eared Owl	<u>Asio otus</u>
*Burrowing Owl	<u>Athene cunicularia</u>
NIGHTHAWKS	CAPRIMULGIFORMES
Common Nighthawk	<u>Chordeiles minor</u>
KINGFISHERS	CORACIIFORMES
Belted Kingfisher	<u>Megaceryle alcyon</u>
WOODPECKERS	PICIFORMES
Common Flicker (Red-shafted)	<u>Colaptes auratus cafer</u>
+*Red-Headed Woodpecker	<u>Melanerpes erythrocephalus</u>
Downy Woodpecker	<u>Picoides pubescens</u>
PERCHING BIRDS	PASSERIFORMES
Eastern Kingbird	<u>Tyrannus tyrannus</u>
Western Kingbird	<u>Tyrannus verticalis</u>
Say's Phoebe	<u>Sayornis saya</u>
Horned Lark	<u>Eremophila alpestris</u>
Violet-green Swallow	<u>Tachycineta thalassina</u>
Bank Swallow	<u>Riparia riparia</u>

Appendix 1 - BIRD SPECIES (Continued)

<u>Common Name</u>	<u>Scientific Name</u>
Barn Swallow	<u>Hirundo rustica</u>
Cliff Swallow	<u>Petrochelidon pyrrhonota</u>
Black-billed Magpie	<u>Pica pica</u>
American Crow	<u>Corvus brachyrhynchos</u>
American Robin	<u>Turdus migratorius</u>
Mountain Bluebird	<u>Sialia currucoides</u>
European Starling	<u>Sturnus vulgaris</u>
House Sparrow	<u>Passer domesticus</u>
Western Meadowlark	<u>Sturnella neglecta</u>
Yellow-headed Blackbird	<u>Xanthocephalus xanthocephalus</u>
Red-winged Blackbird	<u>Agelaius phoeniceus</u>
Northern Oriole (Bullocks)	<u>Icterus galbula bullockii</u>
Brewer's Blackbird	<u>Euphagus cyanocephalus</u>
Common Grackle	<u>Quiscalus guiscula</u>
House Finch	<u>Carpodacus mexicanus</u>
Lark Bunting	<u>Calamospiza melan</u>
Vesper Sparrow	<u>Poecetes gramineus</u>
Northern Junco(Slate-colored)	<u>Junco hyemalis hyemalis</u>
Northern Junco(Oregon)	<u>Junco hyemalis oregonus</u>
American Tree Sparrow	<u>Spizella arborea</u>
Song Sparrow	<u>Melospiza melodia</u>

Avifaunal nomenclature follows John K. Torres, The Audubon Encyclopedia of North American Birds (1980) which is based on the 33rd supplement (1976) to the 5th edition (1957) of the A.O.U. checklist of North American Birds

* Rare Bird Species of Boulder County

+ 1979 Blue List of Birds decreasing across the Country

Appendix 2

MAMMALS ANTICIPATED TO BE AT CAROLYN HOLMBERG PRESERVE AT ROCK CREEK FARM

Common Name	Scientific Name
BATS	CHIROPTERA
Silver-haired Bat	<u>Lasiurus noctivaganus</u>
Big Brown Bat	<u>Eptesicus fuscus</u>
Little Brown Bat	<u>Myotis lucifugus</u>
RABBITS & HARES	LAGOMORPHA
*Desert Cottontail	<u>Sylvilagus audubonii</u>
*White-tailed Jack Rabbit	<u>Lepus townsendii</u>
RODENTS	RODENTIA
Thirteen-lined Ground Squirrel	<u>Spermophilus tridecemlineatus</u>
*Black-tailed Prairie Dog	<u>Cynomys ludovicianus</u>
*Plains Pocket Gopher	<u>Geomys bursarius</u>
Plains Pocket Mouse	<u>Perognathus flavescens</u>
Silky Pocket Mouse	<u>Perognathus flavus</u>
Hispid Pocket Mouse	<u>Perognathus hispidus</u>
Plains Harvest Mouse	<u>Reithrodontomys montanus</u>
*Western Harvest Mouse	<u>Reithrodontomys megalotis</u>
*Deer Mouse	<u>Peromyscus maniculatus</u>
Meadow Vole	<u>Microtus pennsylvanicus</u>
Prairie vole	<u>Microtus ochrogaster</u>
*Muskrat	<u>Ondatra zibethicus</u>
CARNIVORES	CARNIVORA
*Coyote	<u>Canis latrans</u>
*Red Fox	<u>Vulpes vulpes</u>
*Raccoon	<u>Procyon lotor</u>
Long-tailed Weasel	<u>Mustela frenata</u>
Western Spotted Skunk	<u>Spilogale gracilis</u>
*Striped Skunk	<u>Mephitis mephitis</u>

*Species or sign observed on the farm. Distribution records by the Division of Wildlife indicate others could inhabit the area.

Mammal nomenclature follows J. Knox Jones, Jr., et al (1973), Checklist of North American Mammals North of Mexico.

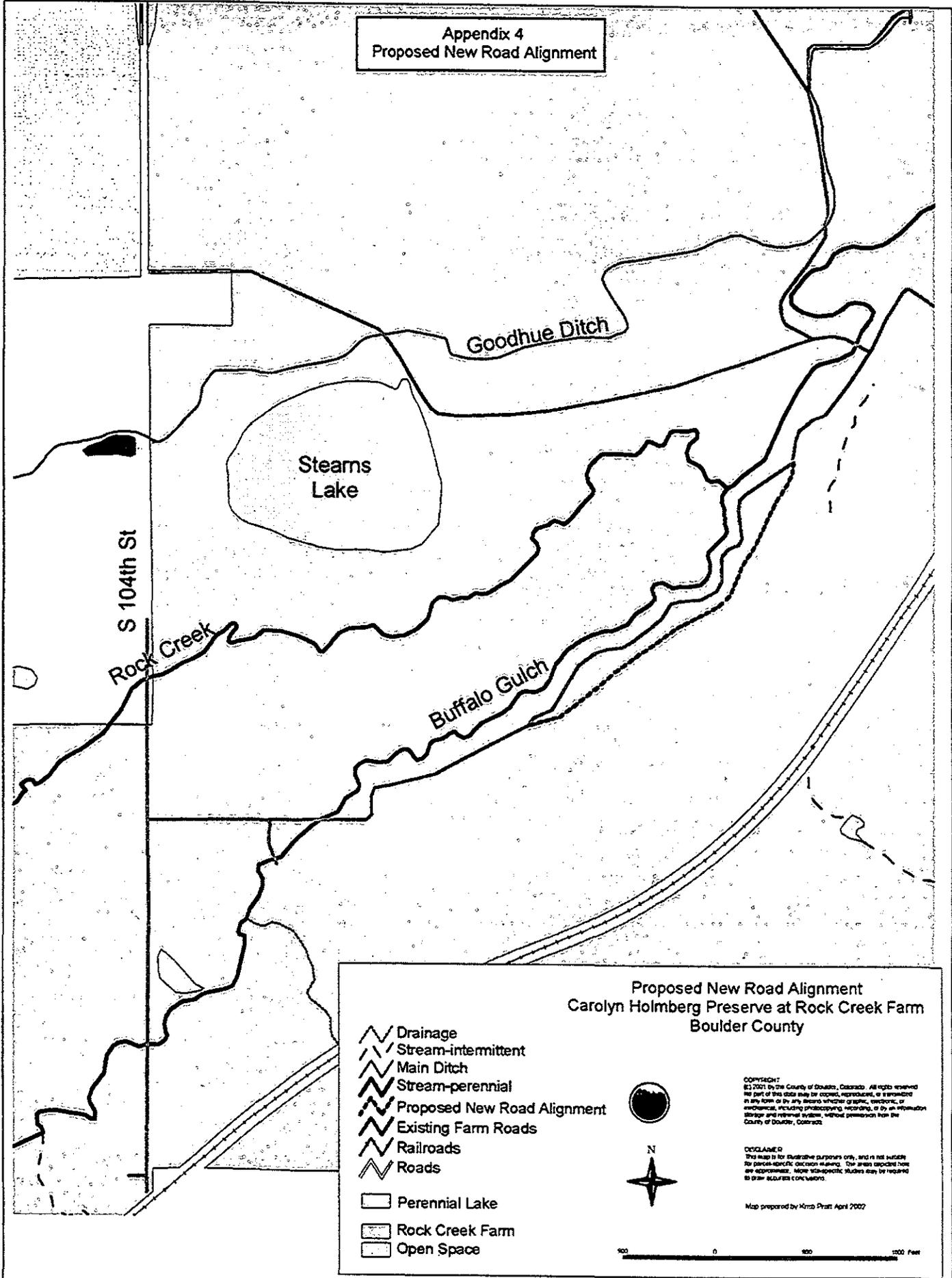


Appendix 3 - AMPHIBIANS & REPTILES (Continued):

<u>Common Name</u>	<u>Scientific Name</u>
WHIPTAILS	TEIIDAE
Prairie Lined Racerunner	<u>Cnemidophorus sexlineatus viridus</u>
SKINKS	SCINCIDAE
Great Plains Skink	<u>Eumeces obsoletus</u>
SNAKES	COLUBRIDAE
Eastern Yellow-bellied Racer	<u>Coluber constrictor flaviventris</u>
Plains Hognose Snake	<u>Heterodon nasicus nasicus</u>
Central Plains Milk Snake	<u>Lampropeltis triangulum gentilis</u>
Northern Water Snake	<u>Nerodia sipedon sipedon</u>
Western Plains Garter Snake	<u>Thamnophis radix haydeni</u>
Red-sided Garter Snake	<u>Thamnophis sirtalis parietalis</u>
Lined Snake	<u>Tropidoclonion lineatum</u>
PIT VIPERS	VIPERIDAE
Prairie Rattlesnake	<u>Crotalus viridis viridis</u>

This list is based on distribution records by the Colorado Division of Wildlife indicating possible inhabitation of the area. Nomenclature follows John L. Behler and F. Wayne King, The Audubon Society Field Guide to North American Reptiles and Amphibians (1979) which is based on the 1978 Checklist published by the Society for the Study of Amphibians and Reptiles.

Appendix 4
Proposed New Road Alignment



- Drainage
- Stream-intermittent
- Main Ditch
- Stream-perennial
- Proposed New Road Alignment
- Existing Farm Roads
- Railroads
- Roads
- Perennial Lake
- Rock Creek Farm
- Open Space

Proposed New Road Alignment
Carolyn Holmberg Preserve at Rock Creek Farm
Boulder County



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DISCLAIMER:
This map is for illustrative purposes only, and is not suitable for parcel-specific decision making. The areas depicted here are approximate. More site-specific studies may be required to draw accurate conclusions.

Map prepared by Kim Pratt April 2007





Appendix 5

WETLAND SUMMARY

Wetland ID #	Location	Acres	Plant Community Types Scientific Names	Plant Community Types Common Names	% Cover
RCF-1*	Glacier View; NW Ag Field E of 104th St.	16.0	<i>Puccinellia airoides</i> - <i>Spergularia media</i> <i>Typha angustifolia</i> <i>Schoenoplectus pungens</i>	Nuttall alkali grass- sand spurry narrowleaf cattail three square bulrush	75% 8% 2%
RCF-2	Created wetlands - Parrot's Beak	1.2 (2 ac open water)	<i>Schoenoplectus pungens</i> <i>Juncus arcticus</i> <i>Schoenoplectus lacustris</i> subsp. <i>acutus</i>	three square bulrush Baltic rush hardstem bulrush	40% 25% 5%
RCF-3*	Rock Creek east of Stearn's Lake	4.1	<i>Carex emoryi</i> - <i>Phalaroides</i> <i>arundinacea</i> <i>Typha latifolia</i> - <i>Typha angustifolia</i> <i>Carex praegracilis</i> - <i>Juncus tenuis</i> <i>Salix exigua</i>	Emory's sedge-reed canarygrass broadleaf cattail- narrowleaf cattail clustered field sedge-rush coyote willow	35% 35% 10% 15%
RCF-4	W of Hwy 287, Springs in SE rangeland	0.7	<i>Critesion jubatum</i> <i>Typha angustifolia</i> <i>Scirpus pallidus</i> <i>Schoenoplectus lacustris</i> subsp. <i>acutus</i>	foxtail narrowleaf cattail small fruited bulrush hardstem bulrush	70% 15% 10% 5%
RCF-5	Stockponds W of Hwy 287	0.7	<i>Typha angustifolia</i> <i>Potamogeton foliosus</i>	narrowleaf cattail pondweed	50% 30%
TRIL-1*	Trillium W of 104th St.	29.4	<i>Puccinellia airoides</i> - <i>Spergularia media</i> <i>Eleocharis palustris</i>	Nuttall alkali grass- sand spurry spikerush	60% 40%

* Indicates a significant wetland.



Appendix 6

FUNCTIONAL RATINGS FOR WETLANDS

Wetland functions were evaluated using a procedure similar to one originally developed by Adamus and Stockwell (1983) and later modified by Cooper (1988) and Wright Water Engineers (1993). Each function was assigned two different ratings. The first rating measures the degree to which the wetland appears to be performing that function. A rating was assigned on a scale from 1 to 5; a rating of 1 indicating that the wetland does not perform the function, and a rating of 5 indicating that the function is being performed to a very high degree. The second scale was intended to assess the confidence of the first rating. An A rating indicated low confidence, B medium confidence, and C high confidence. A list of the functions evaluated along with a brief description is provided in Table A3.

Table 1. Functional wetland assessment ratings for physical parameters.

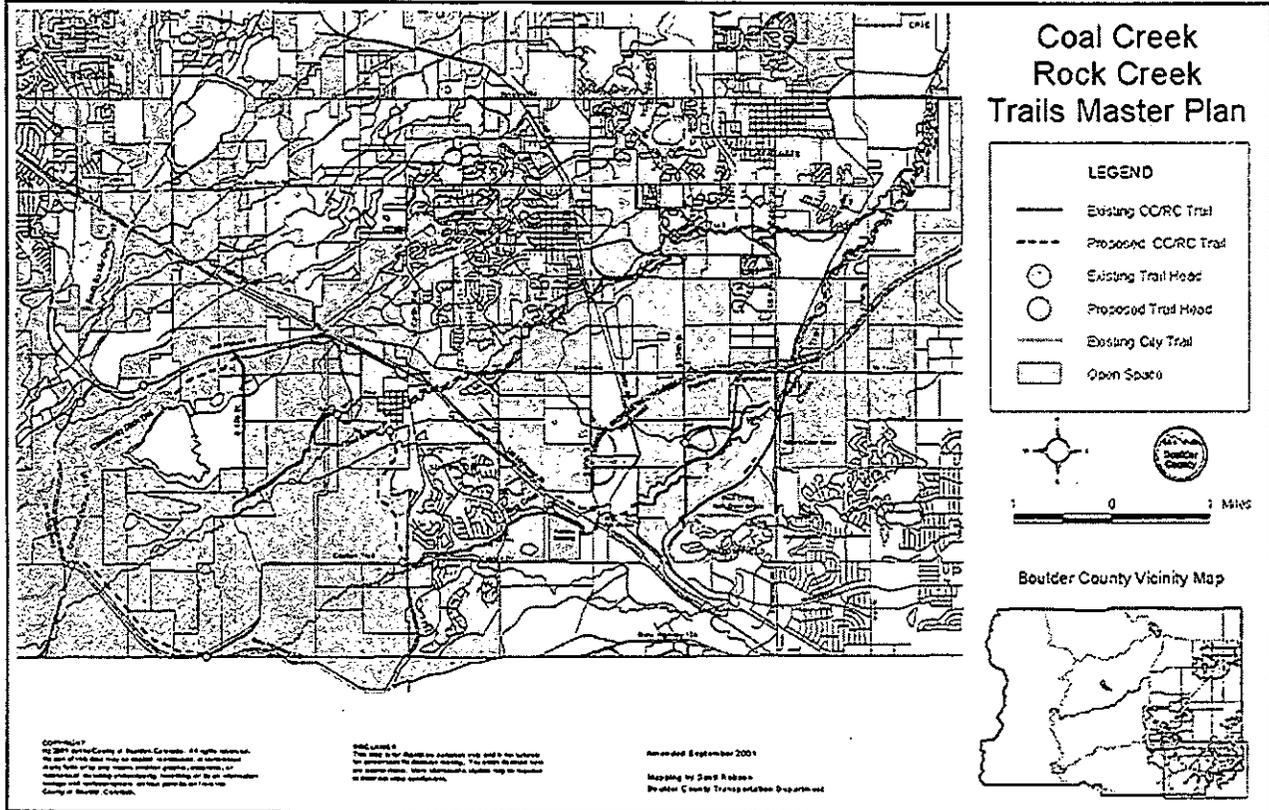
Wetland ID #	Ground Water Recharge	Ground Water Discharge	Flood Retention	Sediment Trapping	Shoreline Anchoring	Nutrient Retention: Shortterm	Nutrient Retention: Longterm
RCF-1	4b	2b	3c	3c	1c	4c	4c
RCF-2	4b	2b	3c	3c	2c	3b	2b
RCF-3*	3b	2c	3c	4c	1c	3b	3b
RCF-4	2b	4b	2c	3c	1c	3c	3c
RCF-5	3b	2b	3c	3a	2c	3b	3b
TRIL-1*	5c	2c	4c	4c	2b	4c	4c

* Indicates a significant wetland.



Appendix 7

Coal Creek Rock Creek Trails Master Plan





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