

ST. VRAIN CREEK CORRIDOR OPEN SPACE MANAGEMENT PLAN

covering the following properties:

**BIRNBAUM
BRALY
BULLOCK (SOUTH)
CUSTODE
FAIRGROUNDS
GAGE
GOLDEN FARM
GOLDEN GRAVEL
GOLDEN/FREDSTROM
HALL RANCH MEADOWS
KEYES (NORTH)**

**MONTGOMERY
PELLA CROSSING
PESCHEL
QUICKSILVER FARM
RAMEY
ROGER'S GROVE
TOTEVE
WALLACE
WESTERN MOBILE 40
WESTERN MOBILE COMPLEX**



Boulder County Parks & Open Space

Adopted by the Board of County Commissioners October 14, 2004

**Boulder County Parks and Open Space
Mission Statement**

To conserve natural, cultural and agricultural resources and provide public uses that reflect sound resource management and community values.

Vision Statement

Mountain vistas, golden plains, scenic trails, diverse habitats, rich heritage...a landscape that ensures an exceptional quality of life for all.

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SUMMARY

The St. Vrain Creek corridor is cherished for its wealth of outstanding resources- important natural and ecological resources, robust agricultural resources, rural landscapes, and historic features. Boulder County Parks & Open Space (BCPOS) has sought to preserve these qualities and owns and manages 21 properties within the corridor accounting for nearly 1,700 acres. These properties stretch from the plains of eastern Boulder County near Longmont to the foothills just west of Lyons. One major feature defines the area and binds them all together- the St. Vrain Creek.

Through a defined vision, goals, and implementation schedule, BCPOS seeks to improve the quality of resources within the corridor and provide compatible passive recreation opportunities. Certain areas are best suited for preservation as critical wildlife habitat, others as agricultural land, and still others as recreation sites.

Conservation and enhancement of wildlife habitat is essential for threatened, endangered, and sensitive species that occur in the corridor. BCPOS will utilize a variety of management tools to enhance conditions for the benefit of wildlife, including weed control, riparian restoration, plantings and enhancements, and ongoing research and monitoring.

Agricultural lands will continue to be operated by lessees for the production of valuable commodities- primarily beef cattle and grass hay. BCPOS will work judiciously to improve agricultural operations and infrastructure while striving to incorporate wildlife and recreation objectives where practical.

Opportunities for recreation and interpretation within the corridor are many. From the development of new recreation sites and fishing areas to the preservation of historic structures and implementation of proposed trails, several properties will be utilized for passive recreation and environmental education. These properties will allow visitors to appreciate and experience the conservation values of the corridor.

This plan is the product of successful collaborations and partnerships with the City of Longmont, Town of Lyons, Great Outdoors Colorado (GOCO), and the citizens of Boulder County. Our sincere appreciation is extended to them for their support. Successful implementation of the plan will provide for responsible stewardship that makes sure the rich legacy of the St. Vrain Creek corridor endures through time. Through adaptive resource management and appropriate recreational use, the corridor will be preserved as a vital system for the benefit of all- plants, animals, and humans.

INTRODUCTION

PURPOSE OF THE PLAN

The purpose of the St. Vrain Creek Corridor Open Space Management Plan (“Plan”) is to provide specific management direction for natural, cultural, agricultural, and passive recreational resources within the corridor. Specifically, the Plan aims to develop management recommendations that will enhance BCPOS properties and improve the overall quality of corridor resources. This Plan is based on the best available information and provides a foundation for long-term adaptive management of the respective properties and their resources.

LOCATION AND BACKGROUND

The St. Vrain Creek (“Creek”) corridor winds and meanders for some 12 miles in the project area between Longmont and Lyons in northeastern Boulder County (“County”). Stretching from just across the eastern Boulder County line to Hall Ranch southwest of Lyons, Boulder County Parks & Open Space (“BCPOS”) owns 21 properties in the corridor accounting for roughly 1,700 acres (*Figure 1*).

These properties, the first of which was acquired in 1992, contain segments of the St. Vrain Creek and host significant natural, cultural, and agricultural resources. Collectively, these properties provide an opportunity for a variety of land uses to coexist and for the rural character and conservation values of the corridor to be preserved.

The properties addressed in this Plan were selected because of the presence of, or adjacency to, the St. Vrain Creek. The majority of the properties occur east of Lyons; however, two properties (Custode and Hall Ranch Meadows) lie west of Lyons on the South Saint Vrain Creek. Properties located on the North St. Vrain Creek were contemplated to become additions to the previously adopted Northern Foothills Open Space Management Plan.

AREA DESCRIPTION

The St. Vrain Creek originates high in the Rocky Mountains near the Continental Divide where the North, Middle, and South branches tumble through Rocky Mountain National Park and the Indian Peaks Wilderness Area on their way towards the foothills of Lyons. From there, the Creek follows a more gentle river valley through Boulder County and eventually flows into the South Platte River. Through Boulder County, river valley elevations range from about 5,700 feet in the foothills to around 4,900 feet near the east county line. The St. Vrain Creek corridor courses through the transitional zone between the mountain and plains environments and offers views of both Front Range mountains and prairie landscapes.

Ecologically, the landscape ranges from foothills coniferous habitat to a low-lying deciduous tree, shrub, and mixed grass habitat. The subject properties are dominated by Ponderosa pine at higher elevations while the lower elevations are characterized by plains cottonwood, willows, and mostly introduced grasses. The composition and condition of the present plant communities is determined primarily by historic land use practices.

Prior to European settlement the area was predominantly riparian woodland forest, dominated by cottonwoods and willows with scattered cattail marshes and willow thickets. From the time settlement first occurred in the St. Vrain basin, in the mid-1800’s, the river valley was a changed landscape. As is typical in Front Range river valleys, settlement brought about the conversion of these lands to agricultural uses, primarily due to the availability of irrigation water. Riverbank

dikes were frequently constructed for flood protection in agricultural or mined lands. The construction of irrigation diversions in the Creek enabled native grasslands to be converted to pasture and croplands. Established wetlands were often drained for cultivation and grazing while new wetland communities developed in irrigated lands. As urbanization in the vicinity followed, the quantity and quality of water in the streams and their flow regimes continued to be altered. Gravel mines also became common features as the demand for gravel, used in construction and infrastructure maintenance, increased.

Open lands, some still cultivated and grazed, are a welcome contrast to the visible alteration of the rich agricultural legacy and unique beauty of the region. Central to these lands is the St. Vrain Creek, a precious water resource in the semi-arid West and the hub of human settlement in the St. Vrain Valley.

While some of these changes have certainly diminished ecosystem functions, others have likely increased them. It is widely recognized that alterations in stream flow regimes due to the introduction of agriculture have developed more abundant native riparian woodlands than occurred in the pre-settlement landscape (Anderson & Company 1998). These ecosystems provide valuable habitat, which is greatly dependant on the contiguity of vegetative cover to accommodate wildlife movement. With a wealth of both water and mineral resources, this open space landscape is an intricately woven fabric of human history and natural resources.

The St. Vrain Creek corridor contains significant natural resources and portions of the corridor are designated as Critical Wildlife Habitat and Significant Riparian Corridor by the Boulder County Comprehensive Plan. The entire corridor is identified as a Stream Habitat Connector. The corridor is also listed as a Potential Conservation Area by the Colorado Natural Heritage Program (CNHP). The corridor hosts significant wetlands, raptors, mammals, songbirds and threatened and endangered species. The corridor contains nationally and statewide significant agricultural lands. These agricultural lands, often mined for gravel, contain wet meadows, ponds and historic sites.

CONSERVATION VALUES AND MANAGEMENT NEEDS

Conservation values are those elements within the corridor and on the properties that represent the importance of resource preservation and sound management. Conservation values in the St. Vrain Creek corridor include the following:

- Scenic lands and open space
- Wildlife and wildlife habitat
- Significant plant communities, native riparian vegetation, and wetlands
- Water (in-stream and diverted)
- Recreation opportunities
- Education and interpretation opportunities
- Agricultural lands
- Cultural resources

In order to adequately preserve and enhance these conservation values, the following management needs were documented:

- Wildlife management, particularly for sensitive and/or threatened and endangered species
- Riparian restoration
- Weed control
- Agricultural/livestock management
- Cultural resource protection and rehabilitation

- Analysis of visitor use and public access
- Analysis/development of recreation opportunities, including trails, fishing, and boating
- Wetland management and enhancement
- Water resource management, including dedication of in-stream flows
- Additional land protection
- Inventory and monitoring of corridor land uses

Evaluating management needs required for support of the conservation values is essential. Threats can not be abated and opportunities capitalized upon unless these needs are met. Meeting these needs is a formidable challenge and requires planning and diligence. Several issues that need to be considered for successful implementation are funding, landowner and lessee relations, mining and reclamation issues, requirements of threatened and endangered species management, law enforcement, and the balancing of recreation, agriculture, and wildlife habitat.

COMMUNITY VALUES AND PRIORITIES

Situated mostly in unincorporated Boulder County, the corridor is anchored at either end by the communities of Longmont and Lyons. The area's natural beauty and growing economy continue to attract new residents each year. The population of Boulder County grew from 225,339 to 291,288 between 1990 and 2000, a 29 % change (DOLA 2002). Similarly, both Longmont and Lyons grew by about 38% and 29%, respectively. The 2001 populations of Longmont and Lyons were 74,651 and 1,617, respectively (DOLA 2002). The estimated population for Boulder County in 2025 is 415,323, almost double what it was in 1990. This population growth poses a threat to the natural environment in the form of habitat loss, fragmentation, and increased recreational pressures.

BCPOS has been actively acquiring and protecting lands in the St. Vrain corridor for years. Much of this success can be attributed to a \$3.275 million Legacy Grant received from Great Outdoors Colorado (GOCO) in 1999. As a result, the County now owns and manages close to 1,700 acres within the corridor and seeks to balance natural resource protection with recreational access. The future will undoubtedly bring both opportunities and challenges for land stewardship and visitor management. Two independent opinion surveys conducted for Boulder County in 2002 provide some insight into community preferences about open space. According to the National Research Center, 92% of respondents felt protecting wildlife habitat was very or fairly important; 85% supported protecting farms and ranches; and 76% support nature study. 68% agree mildly or strongly with the existing County policy requiring dogs to be on leash when on open space property. 81% support to some degree the use of herbicides on open space property for controlling noxious weeds. Support for property closures was strong: 94% of respondents supported closures to protect wildlife; 91% to preserve sensitive areas; and 77% for closures of leased agricultural lands (Public Information Corporation 2002).

The survey conducted by the Public Information Corporation (2002) showed that 93% of respondents said that protecting habitat for wildlife was fairly or very important. The next most important activities were hiking (91% stated it was fairly or very important) and preserving agricultural lands (89% felt it was at least fairly important). Horseback riding was shown to be least important with only 51% indicating this activity was at least fairly important. This data suggests that people may not see these activities as necessarily mutually exclusive.

The Plan supports these community preferences by protecting and enhancing significant resources within the corridor and providing compatible opportunities for recreation and environmental education.

VISION STATEMENT

The St. Vrain Creek, stretching from the foothills near Lyons to the plains of Longmont, represents a unique resource corridor. The corridor contains significant natural, cultural, and agricultural resources that provide outstanding opportunities for regional conservation efforts. Through adaptive resource management, restoration, and appropriate recreational use, the corridor will be preserved as a vital system for plant, animal, and human benefit.

GOALS

Establishing goals for the St. Vrain Creek corridor helps to provide a philosophical foundation on which to base the Plan. These broad goals are centered around six main resource topics and will provide the basis for management actions related to resource issues and objectives. The goals for the St. Vrain Creek corridor are as follows:

- **Vegetation-** Protect and enhance native vegetation and restore degraded plant communities.
- **Wildlife-** Protect and enhance wildlife habitat and movement corridors.
- **Water-** Ensure that the quantity of water rights and quality of water resources are sufficient to support the conservation values of the corridor.
- **Cultural-** Protect significant cultural resources and provide compatible interpretive opportunities.
- **Agricultural-** Preserve agricultural resources and practices where appropriate to ensure the legacy and rural character of the corridor.
- **Visitor Use-** Provide passive recreation, education, and interpretive opportunities that are compatible with the conservation values of the corridor.

While not a resource goal, developing and utilizing partnerships to achieve the many objectives outlined in this Plan is certainly an important goal and concept. Drawing upon interested citizens, community groups, and industry professionals will be necessary to achieve the vision of this Plan.

PLANNING PROCESS AND GUIDANCE

The first step in the planning process, conducted in December 2002, was characterized by the development of a planning approach and framework. Once this planning outline was established, staff gathered in January 2003 to discuss the corridor's conservation values, management issues and needs, and specific property attributes. This information laid the groundwork for preliminary development of the Plan's vision, goals, and objectives. The next phase consisted mostly of information gathering, including the collection of existing baseline inventory information and the identification of information needs. A compilation of this information represents the status of existing conditions for many of the properties within the corridor.

The public meeting process started with an October 2003 open house where public feedback and input on the Plan's vision, goals and issues were obtained. Preliminary management directions and action items were then developed for the properties that supported the overall goals and objectives. In February 2004, a meeting was held with the County Parks and Open Space Advisory Committee (POSAC) where issues were discussed and additional direction was received. A field trip was then conducted with POSAC to familiarize them with the properties. The draft Plan was completed in August and presented at an open house. Based on public input, the Plan was revised and presented to the Longmont Parks and Recreation Advisory Board and

POSAC in September. In October, the Plan was presented to the Longmont City Council for review. On October 14, 2004, the Plan was adopted by the Board of County Commissioners.

BCPOS received guidance for plan development primarily through the Boulder County Comprehensive Plan. This document contains goals and policies relative to the visual environment, open space and natural resource management, trails, cultural resource protection and interpretation, and agricultural preservation. These goals and policies are documented in *Appendix A* and translate into specific management actions.

The St. Vrain Trail Master Plan was completed as a separate project and was adopted on January 6, 2004. This document provides critical guidance for recreational development in the corridor.

HOW TO USE THE PLAN

The St. Vrain Creek Corridor Open Space Management Plan is a working document, which should change and evolve with the properties. As BCPOS implements recommended actions, and as objectives and goals change, the Plan should reflect those changes. At a minimum, the Plan should be reviewed and evaluated every five years. Great Outdoors Colorado (GOCO) requires that the Plan be updated every five years and submitted to them and the City of Longmont for review and approval. It is entirely possible that new lands could be acquired or major changes take place that trigger the need for more frequent reviews and updates.

The Plan should be used to:

1. Understand the overall goals for the St. Vrain Creek corridor and ensure that all actions support those goals.
2. Understand the specific resources on BCPOS properties within the St. Vrain Creek corridor (refer to the *Existing Conditions* section for a summary of resource information).
3. Establish management direction and develop priorities (refer to the *Plan Implementation* section for recommended management actions).
4. Create a foundation for determining the need for additional research or plans that address individual resource elements.
5. Monitor the status of resources within the corridor and evaluate management success.
6. Identify potential project funding sources and future opportunities.

EXISTING CONDITIONS

PROPERTY INVENTORY AND DESCRIPTIONS

Along the St. Vrain Creek corridor, from the east county line to just west of the foothills near Lyons, BCPOS owns 21 properties accounting for roughly 1,700 acres (*Figure 1*). These properties are identified and described below from east to west. Throughout the Plan, property names are underlined for ease of reference.

Peschel: Jointly owned with the City of Longmont and located just east of the county line (in Weld County) along the south side of St. Vrain Creek. The property contains ½ mile of Creek frontage. This property consists of 132 acres and contains a mixture of upland grasses, a 5.5-acre lake, several small wetlands, and a riparian woodland. The site is currently being mined for gravel according to the terms of the approved mining plan. This property will be managed by the City of Longmont; however, it is the intention of the parties to share costs associated with wetlands management.

Keyes (North): Located just west of the Weld County line mostly along the south side of the St. Vrain Creek. The property contains nearly one mile of the Creek. This property consists of 126 acres of riparian floodplain, and pasture grass. The eastern ½ of the property is heavily disturbed and hosts a large prairie dog colony. Spoils from the nearby sugarbeet factory were dumped on site and compound noxious weed issues. The property is leased for agriculture in conjunction with the Quicksilver Farm property. The site also contains a granary and livestock shed. This property is subject to a GOCO Declaration of Covenants, Conditions, and Restrictions and the City of Longmont serves as the third-party monitor.

Quicksilver Farm: Located due south of the Keyes (North) property on the north side of Quicksilver Road. The property contains agricultural lands of national importance and consists of 31 acres of irrigated grass. The property is leased for agriculture in conjunction with the adjacent Keyes (North) property.

Golden Farm (E and W): Located just west of the Keyes (North) property on both sides of the St. Vrain Creek. The property contains 104 acres in total: 97 acres on the west side of 119th St. that the City of Longmont owns in fee; and 7 acres on the east side of 119th St. that the County owns in fee. Reciprocal conservation easements on the parcels were exchanged between the two parties. The entire property contains nearly a mile of the Creek. The parcel west of 119th is under an agricultural lease managed by the City of Longmont. The parcel east of 119th contains disturbed prairie dog habitat and a historically significant WWII-era barracks building previously used for migrant farm worker housing. The acreage west of 119th St. will be mined for gravel, reclaimed as ponds and wetlands, and managed by the City of Longmont. BCPOS will manage the parcel east of 119th St. where the barracks are located. Each entity is responsible for the management and maintenance of any improvements or developments on their fee-owned parcels. However, it is the intention of the parties to share costs associated with post-mining wetlands management on the western parcel.

Golden Gravel: Located northeast of the Fairgrounds property on both sides of the St. Vrain Creek. The property consists of 24 acres and contains 0.25 miles of the Creek. The property also contains a segment of Longmont's St. Vrain Greenway, a multi-use public trail.

Fairgrounds (N of Boston Rd.): Located east of Hover St. and north of Boston Road along the St. Vrain Creek. This property is north of the main Fairgrounds area and contains 49 acres with a large lake and public use facilities. The property is open to the public for fishing and trail use, and contains a trailhead for the St. Vrain Greenway.

Roger's Grove: Jointly owned with the City of Longmont and located north of the Fairgrounds property on both sides of Hover Road. The property consists of 10 acres and contains 0.25 miles of the Creek. The property also contains a segment of Longmont's St. Vrain Greenway, a multi-use public trail.

Golden/Fredstrom: Located east of 75th St. and south of the Pella Crossing property on both sides of the St. Vrain Creek. The property contains 0.75 miles of the Creek. This property consists of a total of 231 acres: 39 acres (Gift Parcels 2 and 3) of which BCPOS currently owns; another 45 acres (Gift Parcels 1 and 4) will be donated to BCPOS after mining and reclamation are complete (or by July 1, 2025); and a 147-acre parcel that BCPOS holds an option to purchase after mining is complete. Access to Gift Parcels 2 and 3 is from N. 75th St., at the intersection with the Creek on the north side. The north side of the Creek contains an oxbow slough, or meander scar, which contains a mature cottonwood forest. The significant riparian corridor through the property contains excellent habitat for native fish. The gift agreement requires that any public access south of the Creek be limited to guided programs conducted by BCPOS. The County must also make no substantial changes to the 147-acre parcel for a period of ten years immediately following reclamation without prior consent of the Golden Family.

Pella Crossing: This property consists of two parcels, both south of Hygiene Road and on either side of 75th Street. East of 75th St., a 90-acre parcel contains three fishing ponds, a network of trails, and a trailhead. This parcel was gifted to BCPOS by Frontier Materials, Inc. West of 75th St., a 161-acre parcel (formerly known as the Marlatt property) contains five ponds and a ¾ mile section of the Creek. The northern half of this property (containing three ponds) will soon be open to the public for fishing and trail use. The southern half of the property, which is closed to public use as a conservation area, is defined by the St. Vrain Creek and contains significant wetlands and wildlife habitat, and a County Natural Landmark (Hygiene Plains Cottonwood).

Birnbaum: Located south and west of Crane Hollow Road to the east of the Gage property. This property consists of 3 acres and contains agricultural lands of statewide importance. The property is leased for pasture in conjunction with the adjacent Gage property.

Gage: Located west of Crane Hollow Road and the Pella Crossing property on both sides of the St. Vrain Creek. The property contains over 0.35 miles of the Creek and 0.75 miles of the South Branch of the St. Vrain ("South Branch"). This property consists of 256 acres and contains significant wetlands and wildlife habitat. The site contains agricultural lands of statewide importance and is leased for production of irrigated hay and pasture. The property requires restoration. 73 acres of the property is designated as a County Gravel Resource Area and may be mined in the future, subject to County permitting. Several agricultural buildings and a rental house are also located on the property.

Ramey: Located east of N. 61st St. and the Braly property, and south of the St. Vrain Creek. The property contains a small section of the Creek. This property consists of 21 acres and is considered to be the oldest and best preserved homestead in Boulder County with six buildings built between 1862 and 1870. The site contains a forested riparian corridor, agricultural lands of statewide importance, and is leased for production of irrigated hay and pasture. According to the purchase agreement, this property shall be named “Ramey Homestead Open Space”. The property is also subject to a GOCO Declaration of Covenants, Conditions, and Restrictions and the City of Longmont serves as the third-party monitor.

Braly: Located west of N. 61st St. and the Ramey property on both sides of the St. Vrain Creek. The property contains 0.25 miles of the Creek. This property consists of 75 acres and contains several ponds, a forested riparian corridor, and irrigated grass. The property was mined and recently reclaimed. That portion of the property north of the Creek is leased for pasture. A complex of potentially historically significant structures and a rental house are also located on the property. This property is subject to a GOCO Declaration of Covenants, Conditions, and Restrictions and the City of Longmont serves as the third-party monitor.

Western Mobile Complex: Located west of the Braly property between Hygiene Rd. and the St. Vrain Creek. This property complex consists of 532 acres: 2/3 of this acreage is fee-owned by BCPOS and leased back to Lafarge for the duration of mining and reclamation; the other 1/3 is under an Option Agreement that allows BCPOS to purchase the property once mining is complete. The area contains numerous ponds and a forested riparian corridor. The complex contains nearly one mile of the Creek, more than a mile of the South Branch of the St. Vrain, and several historic sites. The complex also contains agricultural lands of statewide importance, much of which is currently being leased for irrigated pasture. The majority of this agricultural acreage will be mined for gravel. The complex includes the 38-acre Lake IV reservoir parcel due west of the Braly property. The Lake IV parcel is subject to a GOCO Declaration of Covenants, Conditions, and Restrictions and the City of Longmont serves as the third-party monitor.

The County currently owns Parcels 1a and 1b, 2, 3, and 4 (totaling 353.1 acres) in the complex. The County has agreed to lease these areas back to Lafarge for the duration of mining and reclamation activities and until all obligations under the MLRB permit are satisfied. BCPOS is currently in the process of finalizing these lease agreements. The lease provides that BCPOS can inspect the leased property during reasonable business hours upon 24 hours advance notice, in addition to access in the event of an emergency. BCPOS has an option to purchase Parcels 5, 6, and 7 (totaling 179.1 acres) after mining is complete.

Toteve: Located northeast of the Western Mobile Complex between Highway 66 and the BNSF rail line. This property consists of 86 acres, contains agricultural lands of statewide importance, and is leased for production of irrigated hay and pasture. According to the purchase agreement, public access to the lakes and ponds on the property is not allowed while it is being leased to the Seller.

Montgomery: Located northwest of the Western Mobile Complex and south of Highway 66 on both sides of the St. Vrain Creek. This 13-acre property contains 0.25 miles of the Creek with a forested riparian corridor.

Wallace: Located south of Hwy. 66 and east of the **Bullock (South)** property on both sides of the Creek. This 7-acre property contains 0.25 miles of the Creek with a forested riparian corridor. Noxious weeds are prevalent.

Bullock (South) (S of Hwy. 66): Located south of Hwy. 66 and west of the **Wallace** property on both sides of the Creek. This 11.5-acre property contains a forested riparian corridor. Noxious weeds are prevalent.

Western Mobile 40: Located south of the **Bullock (South)** property and the Creek. This property consists of 40 acres, contains agricultural lands of statewide importance, and is leased for production of dryland hay and pasture. The entire property will be mined for gravel in the future. Noxious weeds are prevalent.

Hall Ranch Meadows (S of Hwy. 7): Located southwest of Lyons between Highway 7 and Old St. Vrain Road on both sides of the St. Vrain Creek. The site contains over 1 mile of the Creek. This site, consisting of 31 acres, is part of the 3250-acre **Hall Ranch** property and contains a forested riparian corridor and irrigated grass. The eastern portion of the property contains a wetland complex. The meadows parcel is leased for the production of hay and for pasture. A significant amount of fill material lines the Creek (particularly the right bank) and floodplain and was used for channel manipulation and flood control.

Custode: Located south of the **Hall Ranch** property and Highway 7 on both sides of the St. Vrain Creek. The property contains 0.25 miles of the Creek and public fishing is permitted. This property consists of 19 acres and includes a former U.S. Forest Service picnic site within the lowlands adjacent to the highway. South of the Creek, the property contains steep rock cliffs.

Property interests in the **Western Mobile 40** and **Western Mobile Complex** properties were acquired when the company, Western Mobile, Inc., was in existence. The company name has since been changed to Lafarge. For ease of reference, these two properties have retained their original names within this Plan.

Many of the properties have existing easements or encumbrances that may affect future management activities. Rights-of-way for utilities, pipelines, ditches and laterals, and roads and railroads are common. Mineral rights are severed on some of the properties and ownership may be subject to the right of a proprietor to access and extract a vein or lode. Others may have an existing oil and gas lease (as in the case of **Peschel**, **Keyes**, and **Wallace**) or the condition that such a right may be executed. The County, as surface owners, should work with the mineral right owner(s) and its lessees to minimize adverse impacts to open space lands should any mining or drilling occur. In some instances, the County may want to consider purchasing the mineral right if the opportunity arises.

RESOURCE INFORMATION

Natural Resources

The St. Vrain Creek corridor contains important natural resources, including significant agricultural lands, extensive riparian habitat, and a variety of important wildlife species. BCPOS staff and consultants have documented resources on various properties within the corridor through wetland and vegetation inventories, avian surveys, rapid resource assessments, and

baseline inventories. Mining plans for approved gravel extraction permits also provide valuable resource information. *Appendix E* catalogues these sources. The following is a compilation of the significant natural resources found within the corridor, including soils, vegetation, wildlife, and water resources.

Soils

Soils in the St. Vrain Creek corridor are of the Niwot-Loveland-Calkins association, which is characterized by nearly level, deep soils on low terraces and bottom lands (USDA 1975). Please refer to *Figure 2* for more detail.

Niwot soils are generally located within and immediately adjacent to the St. Vrain Creek channel and low terraces. These soils have a surface of sandy clay loam to light clay loam or loam, which is generally underlain by pale-brown gravelly sand at a depth of 10 to 20 inches. Included in this area are barren gravel bars. Runoff is slow on these soils, and the erosion hazard is slight except for back cutting near channels. These soils are frequently flooded and have a seasonal high water table.

Loveland soils generally occur on the outer terraces and lowlands outside of the immediate Creek corridor. These soils have a surface ranging from sandy clay loam to clay loam, which is generally underlain by grayish-brown light clay loam, and light brownish-gray gravelly sand at a depth of 20 to 40 inches. These soils have moderate permeability and available water capacity is moderate to high, depending on the depth to very gravelly sand. The seasonal high water table is at a depth of 2-4 feet.

Calkins soils occur in low terraces and bottom lands, and are deep and somewhat poorly drained. The soil surface is a grayish-brown sandy loam that extends to about 40 inches and is underlain by a light brownish-gray coarse sandy loam. Permeability is moderate to rapid and available water capacity is moderate to high. The seasonal high water table is at a depth of 3 feet or less.

These three soil types, coupled with the ability to irrigate them, account for the prevalence of both statewide and nationally significant agricultural lands in the area. Most of these soils are best suited as permanent grass for hay and pasture and require good irrigation management. A few areas could support irrigated crops, but would have limited yields unless drained and managed closely.

The soil survey for the area reports moderate to severe limitations for paths and trails in the Niwot soils, largely because they tend to be poorly drained. Likewise, Loveland soils pose moderate limitations because of the clay loam or sandy clay loam surface layer. Loveland and Niwot soils are also reported to have moderate shrink-swell potential (USDA 1975). However, both hard and soft surface trails have been successfully developed in the area.

Vegetation

Three major vegetation types occur within the St. Vrain corridor: riparian forest, upland grasslands, and various types of wetlands. Vegetation communities are mapped in *Figures 3a* and *3b* with additional detail.

Riparian Forest – A riparian forest community follows the St. Vrain Creek channel throughout most of the corridor. It is also prominent along many of the tributary streams

and ditches west of 75th Street. This community is dominated by various willow species along the stream channel, surrounded by cottonwoods on the riparian benches. Native tree species include plains cottonwood (*Populus deltoides*), narrowleaf cottonwood (*Populus angustifolia*), coyote willow (*Salix exigua*), peach-leaf willow (*Salix amygdaloides*), box elder (*Negundo aceroides*), and alder (*Alnus incana*). Common non-native tree species include black locust (*Robinia pseudoacacia*) and Russian-olive (*Elaeagnus angustifolia*).

The understory is generally dominated by introduced grasses such as smooth brome (*Bromus inermis*) and meadow fescue (*Fesuca pratensis*); weedy species such as diffuse knapweed (*Centaurea diffusa*), Canada thistle (*Cirsium arvense*), and reed canarygrass (*Phalaris arundinacea*); with some native grasses and forbs such as needle-and-thread grass (*Stipa comata*), wild licorice (*Glycyrrhiza lepidota*), and blue vervain (*Verbena hastata*) (Meaney 2001; ERO 2001a; Beane 2000). In some areas, scattered shrubs such as snowberry (*Symphoricarpos occidentalis*), chokecherry (*Prunus virginiana*) and hawthorn (*Crataegus erythropoda*) complement the understory (Jones 1997b; Beane 2000). While the riparian forest runs the extent of the Creek, more significant patches occur in areas near the western end of the corridor.

Changes in hydrology and land use have resulted in reduced cottonwood regeneration, providing stands with many mature and standing dead cottonwood trees but relatively few young cottonwoods and willows (Beane 2000; RMC 1994). This lack of regeneration threatens the continued health of this community. Flood events have been reduced in both frequency and magnitude. These problems are apparent throughout Colorado's Front Range, and within the St. Vrain corridor they are attributed to stream alterations and diversions that have eliminated the successional forces that naturally stimulate riparian forest regeneration (RMC 1994).

Weed infestations also have contributed to the degradation of riparian forests along the corridor. Understory grasses have, in some cases, been completely taken over by noxious weeds such as diffuse knapweed, perennial sweet pea (*Lathyrus latifolius*), St. Johnswort (*Hypericum perforatum*), common mullein (*Verbascum thapsus*), and bouncing bet (*Saponaria officinalis*) (Meaney 2001; ERO 2001a).

Riparian forests within the corridor, including mature trees along irrigation ditches, provide important habitat for numerous wildlife species. Standing dead cottonwoods play an important role for raptors and cavity nesting birds and many mammals.

Upland Grasslands – Upland grasslands within the corridor are characterized by native and introduced grasses such as blue grama (*Bouteloua gracilis*), crested wheatgrass (*Agropyron cristatum*), junegrass (*Koeleria macracantha*) and smooth brome. In some areas, there are scattered stands of tall grasses, including big bluestem (*Andropogon gerardii*), yellow indiagrass (*Sorghastrum nutans*), and prairie cordgrass (*Spartina pectinata*) (ERO 2001a). Other plants include yucca (*Yucca glauca*), prickly pear (*Opuntia polyacantha*), and needle-and-thread grass. Dominant noxious weeds include downy brome (*Bromus tectorum*), diffuse knapweed, ragweed (*Ambrosia artemisiifolia*), field bindweed (*Convolvulus arvensis*), Canada thistle, common mullein and yellow toadflax (*Linaria vulgaris*) (ERO 2001a; Beane 2000). Some heavily disturbed areas, such as the Braly homestead site, are dominated by a monoculture of cheatgrass (Meaney 2001). Reclaimed areas, including mining areas, are generally dominated by smooth brome, crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Agropyron*

intermedium), orchard grass (*Dactylis glomerata*), and various weed species (ERO 2001a). Upland grasslands, some of which are irrigated, are important to the ecological and agricultural integrity of the area.

Wetlands – Wetlands in the corridor consist mainly of streamside wetlands, wet meadows, and emergent marshes. A few are fed by natural springs. The wetlands in the corridor provide diverse habitats for a variety of wildlife species, and are important in sustaining water supplies for aquatic species and downstream users. Streamside wetlands generally include various types of willow and a variety of sedges and rushes. Streamside wetlands occur throughout the corridor along the bottomlands adjacent to the St. Vrain Creek and along some ditches. These wetlands are important for floodwater retention and habitat diversity. Irrigation return flows hydrologically influence many of the wetlands along the Creek.

Wet meadows generally consist of sedges, rushes, and mesic grasses. Some of the more significant wet meadow complexes in the corridor include several areas on the Gage and Pella Crossing properties, and two areas along the south side of the Creek on and near the Golden/Fredstrom property. Typical plant species include three-square bulrush (*Schoenoplectus pungens*), prairie cordgrass (*Spartina pectinata*), Nebraska sedge (*Carex nebrascensis*), Emory's sedge (*Carex emoryi*), hard-stem bulrush (*Schoenoplectus lacustris* ssp. *Acutus*), and arctic rush (*Juncus arcticus*). In the Western Mobile Complex, a variety of wetlands occur within the area to be mined. Approximately 52 acres (representing 5% of the total permitted area) will be impacted. The most significant of these occur in two locations: one on the Western Mobile 40 property, and one ¼-mile west of the CEMEX plant on private property (Anderson & Company 1996). Many of these wetlands occur in remnant stream meander channels. Wet meadows generally occur among upland grasslands and irrigated pastures dominated by blue grama, crested wheatgrass, and smooth brome (ERO 2001a).

Emergent wetlands consisting primarily of cattail (*Typha latifolia*), sedges, and rushes and are scattered throughout the corridor. These wetlands are intermixed with both streamside wetlands and wet meadows in areas where favorable conditions exist. Emergent wetlands are more prevalent along the Creek to the west of 75th Street, while stream side wetlands are more dominant in the historical river meanders east of 75th Street. Several areas on the Keyes (North) property offer opportunities for wetland enhancement.

Not all properties in the corridor have been inventoried for wetlands. The Golden Farm, Peschel, and Western Mobile Complex properties had comprehensive wetland assessments completed as part of their permitting process for mining. Properties that have yet to be inventoried include Birnbaum, Custode, Golden Gravel, Hall Ranch Meadows, Montgomery, Pella Crossing, and Roger's Grove. Those properties that have been inventoried are summarized below in *Table 1* and are represented on *Figures 4a* and *4b*.

Table 1: Wetlands

Property	Wetland ID	Wetland Type	Dominant Plant Community
Gage	GAGE-1	Mineral soils flats	Three-square bulrush
	GAGE-2	Riverine	Three-square bulrush,

			prairie cordgrass, Emory's sedge
	GAGE-3	Mineral soil flats	Prairie cordgrass, Emory's sedge
	GAGE-4	Riverine	Rush
	GAGE-5	Riverine	Broadleaf cattail
Pella Crossing (Marlatt)	MARL-1	Depressional, open water	Nebraska sedge
	MARL-2	Riverine	Emory's sedge
Braly	BRAL-1	Depressional	Nebraska sedge, three square bulrush
	BRAL-2	Depressional	Nebraska sedge, three square bulrush
Ramey	RAME-1	Depressional	Redtop, rice cutgrass
	RAME-2	Depressional	Redtop, <i>Persicaria</i> sp.
	RAME-3	Depressional	Emory's sedge
	RAME-4	Depressional	Emory's sedge, small- fruited bulrush
Bullock (South)	BULL-1	Depressional	Broom sedge, redtop
Golden/Fredstrom	GOFR-1a	Depressional	Nebraska and Emory's sedges
	GOFR-1b	Depressional	Emory's sedge
	GOFR-2a	Depressional	Emory's sedge, redtop, rush
	GOFR-2b	Depressional	Emory's and Nebraska sedges
	GOFR-2c	Depressional	Broadleaf cattail, Emory's/Nebraska sedges, small burreed, small-fruited bullrush
	GOFR-3	Depressional	Dudley's rush, Emory's sedge
	GOFR-4	Riverine	Emory's sedge
	GOFR-5	Depressional	Redtop/broom sedge, three square bulrush/Nebraska sedge, soft-stem bulrush and narrowleaf cottonwood
Keyes (North)	KEYE-1	Riverine	Reed canarygrass
	KEYE-2	Riverine	Sandbar willow /reed canarygrass
	KEYE-3	Riverine	Reed canarygrass and duckweed
	KEYE-4	Riverine	Sandbar willow and duckweed
Toteve	TOTE-1	Depressional	Spikerush, reed canarygrass, three square bulrush, small fruited bulrush

	TOTE-2	Depressional	Peach-leaf willow
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The Gage property contains five wetlands comprising approximately 10 acres, almost all of which are supported by irrigation. GAGE-2 and GAGE-3 are considered significant due to their size, according to a 1999 wetland study (Boulder County 1999).

The Golden/Fredstrom property contains five complexes with eight wetlands and likely meets the 1999 criteria for significance, although it was surveyed in 2003.

In a separate study, 12 wetlands were delineated on the Keyes (North) property, 9 of which were recorded by GPS. All of them were described as either willow shrub or emergent communities (ERO Resources 2000).

Toteve contains two depressional wetlands (TOTE-1 is essentially a series of ponds and TOTE-2 is a large pond) with fringe wetland plant communities.

Wallace was assessed and contained no wetlands, only fringe riparian vegetation.

Noxious Weeds – One of the most serious and fastest growing problems in the West today is the spread and establishment of invasive non-native plants. Noxious weed infestations have contributed to the loss of productivity and ecological functions on both public and private lands, seriously impacting agriculture, native plants and wildlife. Weeds are rapidly becoming the most pressing management issue for many private landowners and public land managers.

Noxious weeds threaten native plant communities by displacing desirable native species. Alien plants that are highly invasive usually do not have natural pathogens and predators to keep their populations under control. Some non-natives, like diffuse knapweed, contain allelopathic chemicals, which can suppress the growth of other species and allow the plant to grow in single-species stands.

The Colorado Noxious Weed Act (as amended 2004) identifies noxious weeds that require varying levels of management. Noxious weeds present on properties in the corridor include the following:

- **List B species:** bouncing bet, Canada thistle, common teasel, diffuse knapweed, field bindweed, Russian-olive, salt cedar, and dalmatian and yellow toadflax.
- **List C species:** chicory, common mullein, downy brome, and St. Johnswort.

Kochia has been removed from the State Noxious Weed List, but continues to present challenges on BCPOS lands.

Sensitive Plant Species

Many of the wetland areas along the St. Vrain corridor provide potential habitat for the Ute ladies'-tresses orchid (*Spiranthes diluvialis*) and Colorado butterfly plant (*Gaura neomexicana* ssp. *coloradensis*). Both of these species are listed as federally threatened under the Endangered Species Act, and are known to occur in wetland riparian habitats along Colorado's Front Range.

The following types of habitat are considered to potentially support populations of the Ute ladies'-tresses orchid:

- Areas determined to be jurisdictional wetlands,
- Seasonally moist areas near springs, lakes, irrigation ditches, or perennial streams and their associated flood plains,
- Old stream channels and alluvial terraces,
- Sub-irrigated meadows,
- Areas supporting vegetation indicative of seasonally wet areas or areas dominated by vegetation considered to be facultative wet.

The Colorado butterfly plant was listed as a threatened species on October 18, 2000; however, the U.S. Fish and Wildlife Service has not yet published formal survey guidelines for this species. The Colorado butterfly plant occurs on sub-irrigated alluvial soils on level or slightly sloping floodplains and drainage bottoms with elevations between 5,000 and 6,400 feet in north-central Colorado, southeastern Wyoming, and western Nebraska. Colonies are often found in low depressions along wide, active stream channels.

The Colorado butterfly plant typically occurs in habitats created and maintained by streams that are active within their floodplains, and with vegetation that is relatively open and not overly dense or overgrown. As with the Ute ladies'-tresses orchid, the corridor should be considered to contain potential habitat for the butterfly plant. On August 6, 2004, the USFWS proposed critical habitat for the species, which in Colorado was confined to only Weld County (USFWS 2004c).

While the St. Vrain corridor contains potential habitat for these species, they have not been identified in recent surveys of the Lyons mining area (Beane 2000), Pella Crossing (Marlatt) property (ERO 2001b), Golden/Fredstrom property (Anderson & Company 2002), and Peschel property (SRK Consulting 1998). According to a CNHP element occurrence record, *Spiranthes diluvialis* was documented on the Golden/Fredstrom property in 1992 and 1993. A 1999 survey showed the orchid no longer exists on site and BCPOS staff replicated these negative survey results in 2003. The Braly, Ramey, Toteve, and Western Mobile Complex properties may be good candidates for hosting rare plants and should be surveyed in the future.

Common Wildlife Species

The St. Vrain River corridor provides habitat for a broad range of wildlife species. Common mammal species include mule deer (*Odocoileus hemionus*), whitetail deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), porcupine (*Hystrix cristata*), fox squirrel (*Sciurus niger*), eastern cottontail (*Sylvilagus floridanus*), American beaver (*Castor canadensis*), and various mice and voles.

The Colorado Division of Wildlife (DOW) is interested in the movement of deer and Chronic Wasting Disease (CWD). In early 2003, DOW placed radio collars on 20 deer in northern Boulder County. Three of those were white-tailed deer found in the St. Vrain corridor on the Bullock (South), Western Mobile Complex, and Braly properties. Those three deer moved up and down the St. Vrain, utilizing the riparian forest and farm field edges. Of these three deer, one traveled between Lefthand and St. Vrain Creeks, another moved all the way through Longmont to gravel pits west of I-25, and the third was hit by a car and tested positive for CWD.

Numerous birds utilize the corridor for nesting and foraging habitat, including black-billed magpie (*Pica pica*), European starling (*Sturnus vulgaris*), brown-headed cowbird (*Molothrus ater*), common grackle (*Quiscalus quiscula*), American robin (*Turdus migratorius*), blue jay (*Cyanocitta cristata*), mourning dove (*Zenaida macroura*), house wren (*Troglodytes aedon*), killdeer (*Charadrius vociferous*), belted kingfisher (*Cerle alcyon*), downy woodpecker (*Picoides pubescens*), American goldfinch (*Carduelis tristis*), black-capped chickadee (*Poecile atricapillus*), northern flicker (*Colaptes auratus*), Canada goose (*Branta canadensis*), and mallard (*Anas platyrhynchos*) (ERO 2001a). Various raptor species also occur within the corridor and are detailed in the next section.

Common raptor species identified within the corridor include red-tailed hawks (*Buteo jamaicensis*), American kestrels (*Falco sparverius*), and great horned owls (*Bubo virginianus*). These species are habitat generalists, and are less vulnerable to human impacts if sufficient habitat is available (Jones 1997a). A red-tailed hawk nest located on the Creek southeast of the CEMEX plant was active in 2004 (Jones 2004). Other, more sensitive raptor species also occur and are addressed in the next section.

Fish occur throughout the corridor in the Creek and in ponds. The western reaches of the Creek are dominated by brown trout (*Salmo trutta*) with a very few rainbow trout (*Oncorhynchus mykiss*) and brook trout (*Salvelinus fontinalis*). This cold water trout fishery persists down to about Hygiene Road. Lower reaches of the Creek contain native fish assemblages that are addressed in detail in the next section. The Fairgrounds, Pella Crossing, Braly, and Western Mobile Complex properties contain ponds with warm water fisheries. Common warm water species include bass (*Micropterus* spp.), bluegill (*Lepomis macrochirus*), catfish (*Ictalurus* spp.), and some perch (*Perca flavescens*) and crappie (*Pomoxis* spp.). On the Braly property, only the pond south of the A-frame contains fish (largemouth bass).

Sensitive Wildlife Species

The St. Vrain Creek corridor provides important habitat for several sensitive wildlife species, including the Preble's meadow jumping mouse, black-tailed prairie dog, bald eagle, and several bird and fish species (*Figures 6a and 6b*).

Preble's Meadow Jumping Mouse – The Preble's meadow jumping mouse (*Zapus hudsonius preblei*) (Preble's) was listed as a federally threatened species in 1998 under the Endangered Species Act (ESA). On December 18, 2003, the U.S. Fish and Wildlife Service (USFWS) determined that the mouse will remain listed as threatened under the ESA after evaluating three petitions to delist the species. The agency will conduct a five-year review of the mouse's status in the near future as required by the ESA.

Preble's is 8-9 inches long (much of which is its tail) and hibernates underground from September to May. Preble's occurs in habitat adjacent to streams and waterways along the Front Range of Colorado and southeastern Wyoming. The USFWS determined that Preble's habitat generally occurs within the riparian zone, primarily defined by the 100-year floodplain, and adjacent uplands extending out about 100 meters.

According to the Colorado Natural Heritage Program (CNHP), the St. Vrain Creek corridor contains a "fair" occurrence of Preble's (NDIS 2003). The U.S. Fish and Wildlife Service did not include the St. Vrain corridor in its proposed Critical Habitat for

Preble's (USFWS 2003a). Preble's is known to occur at several locations in the corridor west of 75th Street, namely on the Pella Crossing (Marlatt), Gage, and Western Mobile Complex properties. Suitable habitat may be present on the Ramey property. The Braly property is likely to serve as a movement corridor. In the eastern reach of the corridor, habitat is generally unsuitable and no Preble's occurrences have been documented. Several surveys have been conducted by BCPOS on corridor properties with negative results, including Golden Farm (1998), Golden/Fredstrom (2000), and Keyes (North) (2003).

Habitat for the mouse has been identified along most of the St. Vrain Creek, as well as many of the ditches and wetlands in the western portion of the corridor. Many of these areas have been identified as Mouse Management Areas in the Draft Boulder County Habitat Conservation Plan (HCP) (Boulder County 2002). The Draft HCP defines three Preble's habitat designations:

- ***Mouse Management Areas*** – Areas of known occupation by Preble's, as documented from trapping surveys. Designated 1 mile upstream and 1 mile downstream from known capture sites, including any tributaries or ditches that are confluent with the main drainage. This includes the area along the Creek from the Golden/Fredstrom property west to Lyons.
- ***Suitable Contiguous Habitat*** – Areas with suitable habitat where Preble's have either not been captured or where trapping has not occurred, and is contiguous to a known population. This includes the area along the Creek from the Golden/Fredstrom property east to Longmont's Golden Ponds Park; as well as the corridor through the Hall Ranch and Custode properties.
- ***Possible Linkages*** – Areas that offer potential habitat connectors to known Preble's populations. These areas occur on the Gage and Braly properties.

Preble's habitat and occurrences associated with the Lyons mining site in the western end of the corridor are well documented. Within their mining permit area, Lafarge has committed to habitat mitigation outside of the proposed mining areas (Beane 2000). With the overall goal of no net loss of Preble's habitat during mining operations and a long-term gain in the quantity and quality of habitat, the following mitigation measures are being pursued:

- Avoidance of habitat
- Preservation of habitat and travel corridors
- Restoration and enhancement of disturbed areas
- Creation of new habitat

Much of the pre-mining mitigation will focus on improving the riparian vegetation along the South Branch. This habitat is being enhanced through a combination of weed management, fencing to exclude livestock, and planting native grasses, forbs and shrubs (Beane 2000). Lafarge is required to collect baseline data prior to mitigation activities and annual monitoring after mitigation is initiated and submit annual reports to the Corps and USFWS. This existing mitigation will be incorporated into BCPOS management when ownership changes.

Further downstream, the Pella Crossing (Marlatt) and Gage properties are being managed to preserve Preble's habitat through fencing projects, weed reduction, and native plant

restoration. BCPOS has also identified the priority need of intensive research aimed at assessing species abundance and distribution through the corridor.

Black-tailed Prairie Dog – On August 12, 2004, the USFWS removed the black-tailed prairie dog (*Cynomys ludovicianus*) from the candidate species list (USFWS 2004a). The species had been a candidate species for listing as threatened under the ESA since February 4, 2000. Candidate species receive no statutory protection under the ESA (USFWS 2003b).

Existing prairie dog colonies on County-owned lands are shown on *Figures 6a* and *6b*. In the western portion of the corridor, the most significant colonies occur on the Brady property and north of the railroad tracks on the Toteve property. Smaller colonies have been observed within the Western Mobile Complex and on the Gage property. In the eastern part of the corridor, significant colonies occur on the Keyes (North) and Golden Farm properties. Smaller colonies have been observed on the Fairgrounds and Golden Gravel properties.

Several areas within the Western Mobile Complex were designated as conservation areas for prairie dogs. Several of these colonies were observed in April 2004 and were well populated (Jones 2004).

Bald eagle – The bald eagle (*Haliaeetus leucocephalus*) was listed as a federally endangered species in 1967 under the Endangered Species Act (ESA) and was down-listed to a threatened species in 1995 where it currently remains. The bald eagle is likely to be removed from this listing by the end of 2005. If this occurs, the species will still be protected by the Bald Eagle Protection Act passed in 1940, which prohibits the taking, possession, and trade of the species.

Heavier concentrations of bald eagles occur in the western portion of the corridor in the basin owned by CEMEX and Lafarge. Bald eagles were seen constructing a “winter nest” near the South Branch from 1994-1997, while golden eagles have been identified more centrally in the corridor (Jones 1997a). In 1997, a bald eagle nested along the South Branch of the Creek about ½ mile east of the CEMEX plant. Several area lakes and reservoirs add to the viability of nesting habitat for bald eagles. The recent occurrence of successfully breeding, summer resident bald eagles along Coal Creek and Boulder Creek adds to the probability that the St. Vrain corridor could host breeding pairs. The Pella Crossing (Marlatt) and Gage properties may serve as winter night roosting habitat for bald eagles. Bald and golden eagles continue to be sighted in the CEMEX/Lafarge basin.

According to an April 2004 report, there is no evidence of nest building and no pre-existing nests in the Western Mobile Complex (Jones 2004). One immature and two adult bald eagles were seen perched on the property in February 2004, and none in the following March and April. Based on this information and previous observations, two or more bald eagles continue to winter on or adjacent to the Western Mobile Complex with no nesting activity.

Other Raptors – The St. Vrain corridor provides nesting and/or foraging habitat for several sensitive raptor species, including the golden eagle (*Aquila chrysaetos*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus*), prairie falcon

(*Falco mexicanus*), northern harrier (*Circus cyaneus*), eastern screech owl (*Otus asio*), barn owl (*Tyto alba*), and short-eared owl (*Asio flammeus*) (Jones 1997a).

Bald eagles, golden eagles, and ferruginous hawks depend on prairie dogs for foraging. Significant raptor winter use areas are mapped in *Figure 6a*.

Other Birds – The St. Vrain corridor provides nesting and/or foraging habitat for several bird species of local conservation interest/concern. These species include the great blue heron (*Ardea herodias*), black-crowned night heron (*Nycticorax nycticorax*), bobolink (*Dolichonyx oryzivorus*), double-crested cormorant (*Phalacrocorax auritus*), wood duck (*Aix sponsa*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), savannah sparrow (*Passerculus sandwichensis*), American redstart (*Setophaga ruticilla*), American dipper (*Cinclus mexicanus*), Lewis' woodpecker (*Melanerpes lewis*), and the gray catbird (*Dumetella carolinensis*). The American white pelican (*Pelecanus erythrorhynchos*) also occurs on ponds within the corridor and is listed as a state species of special concern.

A great blue heron rookery that was established in April 2002 along the South Branch of the St. Vrain near the CEMEX plant (where bald eagles formerly maintained a winter nest) showed no activity or signs of nest use in 2004. They may have moved east to the Pella Crossing (Marlatt) property where a rookery consisting of three nests located on the south side of the Creek was also observed in 2002 (*Figure 6b*).

On the Western Mobile Complex, the South Branch and the area northwest of Lake IV near the Creek contained the highest species and individual counts for breeding birds (Jones 1997b). If managed appropriately, this area could become a breeding area for pelicans and cormorants.

Native Fish Species – The St. Vrain Creek below Hygiene Road supports populations of numerous sensitive native fish. Five state listed fish species occur within the Creek that passes through BCPOS lands. The brassy minnow (*Hybognathus hankinsoni*), common shiner (*Luxilus cornutus*), and stonecat (*Noturus flavus*) are listed as state threatened; while the stoneroller (*Camptostoma anomalum*) and Iowa darter (*Etheostoma exile*) are identified as state species of special concern. Historic occurrences of the Northern redbelly dace (*Phoxinus eos*) and lake chub (*Couesius plumbeus*) date to 1980 (VanBuren 2003). The St. Vrain also supports the cylindrical papershell (*Anodontoidea ferussacianus*), a mollusk considered by the CNHP to be imperiled within the state (S2) (NDIS 2003).

According to the Colorado Division of Wildlife, the reach downstream of 75th Street supports the highest biodiversity of native minnow species in the South Platte basin of Colorado. Sampling in 1998 yielded such species as common shiner, brassy minnow, stonecats, Johnny darter (*Etheostoma nigrum*), Iowa darter, and plains topminnow (*Fundulus sciadicus*) (VanBuren 2002). At Golden Ponds Park, species diversity is high with 25 species. This reach of significant riparian corridor is mapped on *Figures 6a* and *6b*.

Further downstream near the Golden Farm property and over to Longmont's Sandstone Ranch in Weld County, 1999 sampling for sensitive species revealed only Johnny darters. The dramatic shift in composition occurs in the vicinity of the confluence with Left Hand Creek and just below the effluent entrance for the sewage treatment plant (VanBuren 2003).

The native fish that occur below Hygiene Road are referred to as a transition zone assemblage. These species prefer waters warmer than is provided in the upper reaches of the Creek, and cooler than is available on the eastern plains. Conditions in the Creek are key to supporting these fish populations and to the species viability in the state.

DOW biologists do not have a wealth of data on this system or a complete understanding as to why these populations are so healthy. The unique water quality and temperature conditions of this reach may be key factors for these native species. Conditions not favorable to predatory fish (trout) also contribute to their success. The biology of these fish shows that spring flooding events trigger and enhance spawning.

County Designated Lands

The Boulder County Comprehensive Plan depicts areas of special concern that are designated as Critical Wildlife Habitats, Significant Riparian Corridors, Stream Habitat Connectors, Environmental Conservation Areas, and Natural Landmarks. Critical Wildlife Habitat (St. Vrain Creek and wetlands) occurs in the corridor west of 61st Street near the Ramey property over to Lyons, including South St. Vrain Creek. A Significant Riparian Corridor occurs entirely within the Golden/Fredstrom property east of 75th Street. All major Creek branches serve as Stream Habitat Connectors. An Environmental Conservation Area (East County) occurs on the Keyes (North) property. And a Natural Landmark occurs on the Pella Crossing (Marlatt) property where the Hygiene Plains Cottonwood tree is situated. These designated areas are mapped in *Figures 6a* and *6b*.

Water Resources

The St. Vrain Creek defines many of the natural features found along the corridor. The hydrology associated with normal stream processes sustains the riparian and mesic plant systems. Seasonal high water and flooding events also contribute greatly to the diversity and functionality of plant and animal life. Snowmelt typically provides peak flows in late May and early June; however, flows in certain reaches are altered by irrigation diversions.

The Creek channel is entrenched in many places, but appears stable due to its rocky bottom and the presence of large rooted trees and other bank vegetation. Despite the many dams and diversions within its course from Lyons to Weld County, the Creek appears to be functional. The overwhelming presence of non-native vegetation throughout the corridor adds an element of caution to this functional rating.

The reach of Creek located on the Hall Ranch Meadows property was assessed for restoration feasibility and a range of four alternatives was developed (Ayres Associates 2000). The alternatives and their expense ranged from No Action (\$0) to Management (\$450,000) to Limited Surface Modification (\$1.55 million) to Floodplain Restoration (\$3.90 million).

In addition to the St. Vrain Creek itself, many ponds and lakes exist on BCPOS properties within the corridor. All of these ponds were created artificially by aggregate extraction and are fed by groundwater, except Western Mobile Lake IV, which is a sealed reservoir. Groundwater monitoring wells can be found on the Golden/Fredstrom property and some may also be located in the Western Mobile Complex. The Fairgrounds, Pella

Crossing, Golden/Fredstrom, Braly, and Toteve properties all contain ponds. *Table 2* summarizes their key attributes.

Table 2: Lakes and Ponds

Property	Name of Lake/Pond	Size in Acres	Avg. Depth in Feet	Max. Depth in Feet
Fairgrounds	Fairgrounds Lake	8	11	17'2"
Pella Crossing (Frontier Materials, Inc.)	Webster Pond	13	10	15
	Heron Lake	31	11	22
	Sunset Lake	18	19	23
Pella Crossing (Marlatt)	Clearwater	16	18	23'7"
	Dragonfly	8	11	16'2"
	Poplar	6	19	23'1"
	Refugia N	5	7	11'8"
	Refugia S	5	6	12'6"
Braly	<i>West A-frame</i>	11	17	23
	<i>South A-frame</i>	11	23	28'5"
	<i>Refugia SW</i>	4		13
Western Mobile Complex	Lake IV	35		

The location of some of the ponds in the corridor, namely at Pella Crossing and Western Mobile Lake IV, may prove useful for releasing water into the Creek for instream flow purposes should they ever be lined and used for storage. Likewise, a few of the properties (Ramey, Western Mobile Complex) could potentially have excess water available that could be used on other agricultural properties or used for instream purposes.

Agricultural water rights in the corridor are generally considered to be robust and provide for some flexibility between management of irrigated land and habitat enhancement. Excess water may be available on the Pella Crossing (Marlatt), Peschel, Ramey, Toteve, and Western Mobile Complex properties. At Pella Crossing (Marlatt), 4.46 cfs of water in the Runyan Ditch is currently not being used for irrigation and may be available for additional uses. At Peschel, 14.50 shares of the Bonus Ditch may be available for use to refresh and recharge the future created wetlands. At Ramey, excess water appears to be available and water usage should be further evaluated. At Toteve, there are additional springs that have not been filed for in water court.

Cultural Resources

Numerous historic and archaeological sites occur within a mile on either side of the Creek. Within the area between Highway 36 to the west and Golden Ponds Park to the east, more than 61 sites inventoried and cataloged with the Colorado Historical Society's Office of Historic Preservation and Archaeology (OAH) are field eligible for the National Register of Historic Places (NRHP). These sites occur on both public and private lands. *Appendix B* provides a more

detailed inventory of cultural resources within the corridor assessed during the development of the St. Vrain Trail Master Plan.

Historic Farms and Homesteads - Of the 61 cultural resource sites identified during the development of the trail plan, 12 are homesteads or farms. The Colorado Historical Society has recognized two farms, the Montgomery Farm and the Zweck Farm, as Colorado Centennial Farms (Colorado Historical Society 2002). This designation recognizes farms and ranches that have remained in the same family for more than 100 years, are working enterprises, and have a minimum of 160 acres. Of the BCPOS properties that lie within the corridor, the following historical homesteads and farmsteads occur either on County property or are directly adjacent to County lands:

- **Golden Farm**: Located northwest of the Keyes (North) property just east of 119th St. on the County's Golden Farm property. The site contains locally significant WWII-era barracks that were later moved to the site for use as migrant farm worker housing. Two similar structures were razed on site in 2003. A historic site survey was completed in 1995.
- **Zweck Farm**: Located east of the Golden/Fredstrom property off of N. 85th Street on private property. A Centennial Farm with a number of significant historic resources, including several residences, a barn, granary, garage and a silo. A historic site survey was completed in June 1999.
- **Montgomery Farm**: Located north of the Montgomery property across Highway 66 on private property. A Centennial Farm with several significant historic resources, including a Late-Victorian house, garage, barn, outbuildings, and root cellar. The property was landmarked on 12/16/2003.
- **McCaslin Homestead/Leonard Property**: Located west of the Pella Crossing (Marlatt) property off of Crane Hollow Drive on private property. Historic resources consist of three NRHP field eligible residences built in 1865, 1871, and 1902. The property was landmarked on 4/13/99.
- **W.W. Marlatt and Company Property**: Located east of the Pella Crossing (Marlatt) property on private property restricted by a conservation easement. Several significant historic resources exist on site, including a Late-Victorian house and an ornamental concrete block foundation barn. A historic site survey was partially completed in March 1995.
- **Ramey Farm**: Located on the County's Ramey property. The property contains Boulder County's oldest documented and best preserved farm complex dating from the 1860s. It is the second oldest property of any kind on record with the County Assessor's Office. The site includes six buildings built between 1862 and 1870, including a house, rock cellar, privy, granary, log barn, and buggy shed. A chicken house was built in 1920. A historic site survey was completed in May 1997. In 2003, stabilization work was completed on the granary, lean-to, and barn and the homestead complex was fenced. The roof on the house has been patched several times and needs to be replaced.
- **Braly Farm**: Located west of Ramey on the County's Braly property. The property was settled in 1867 and contains numerous structures dating from the 1920s. A historic site survey was completed in 2003. A non-historic 1953 secondary house was razed on site in 2003.
- **Henning Farm**: Located west of the Braly property in the Western Mobile Complex that was acquired by BCPOS. This site has three buildings from several different eras that are eligible for the NRHP, including a 1905 barn, a 1920s ice house/cellar, and a 1930s scale house. A later era silo exists that is

considered locally important. A historic site survey was completed in November 1997.

- **Adams Place:** Located west of the Braly property in the Western Mobile Complex that was acquired by BCPOS. The site is currently used as an animal shelter, but was originally a historic homestead. A variety of historic archaeological fragments and structures have been documented on the property. A historic site survey was completed in November 1997.
- **Atkin's Farmstead, "Chuck's Place":** Located south of the Braly property on private property restricted by a conservation easement. The site contains numerous historic structures dating from 1920-1940, including a residence, several sheds, milk and chicken houses, two silos, barn, and privy. A historic site survey was completed in January 1998.
- **Jacob Buvy Farmstead:** Located south of Highway 66 and the Montgomery property, in the Western Mobile Complex that was acquired by BCPOS. The site includes three buildings, two of which are NRHP eligible and were built prior to 1910 (sandstone slab shed and a bank barn). A historic site survey was completed in November 1997.
- **Tom Fox Farmstead:** Located south of Highway 66 and north of the BNSF rail line, and west of the Toteve property on private property restricted by a conservation easement. The site contains numerous historic structures dating from 1880-1960, including two residences, a garage, milk and chicken houses, and smoke house. A historic site survey was completed in February 1998.
- **Crane Hollow Ranch:** Located on the west side of Crane Hollow Drive on the County's Gage property, opposite the McCaslin Homestead/Leonard Property. This site consists of a barn, loafing shed, silo, and corral area. Historically part of the McCaslin Homestead, the parcel was separated when the property was subdivided. A historic site survey was completed in December 2003.
- **Broughton/Tietz Farm:** Located south of Crane Hollow Ranch on the west side of Crane Hollow Drive on the County's Gage property. This site consists of a non-historic modular house, open shed, loafing shed, pump house and historic small barn. The 1861 Pella Grist Mill site is reportedly located just to the south of the building complex. Nothing remains of the site today. A historic site survey was completed in January 2004. The modular house is currently leased.

Additional documentation of cultural resources has also been conducted in connection with field surveys performed for the approval of special use permits for mining.

Lafarge's (formerly Western Mobile) plan for the Lyons site identified several historic resources (Western Historical Studies 1997):

- the Weisner Cemetery (not on BCPOS land),
- the 1905 Foothills Reservoir bunkhouse (west of Lake IV across the South Branch on land that BCPOS holds an Option to Purchase; near the privately owned feed lot),
- and a historic school site (north of Hygiene Road on land that BCPOS holds an Option to Purchase).

In addition to the homesteads and farms, there are 23 named irrigation ditches that are field eligible for the NRHP.

In the eastern part of the corridor, several other historic resources occur on open space properties. The Golden Farm property contains a WWII-era barracks building previously

used for migrant farm worker housing. Two other similar barracks structures on the property were razed in 2002. Further east in Weld County, at the Sandstone Ranch property owned and operated by Longmont, the historic Coffman Homestead is preserved and is subject to an historic preservation easement that Boulder County is party to. The easement requires that BCPOS monitor the homestead and its structures annually and submit a report to the State Historical Fund.

Figures 6a and 6b depict relevant historic sites.

Archaeological - Twenty-one archaeological sites have been identified in or near the 2-mile wide St. Vrain Trail Master Plan study area. Most of the sites are located in the Dowe Flats area north of Highway 66. Because of the risk of potential vandalism, OAHP only provides information related to the township, range and section where the site is located. Of the 21 sites, only one site is located within an area that was considered for a potential trail alignment. That site is an open camp dating from between 1880 and 1920, consisting of a historic fence, and several historic artifacts identified during the inventory of Western Mobile's Lyons Site.

The Boulder County Comprehensive Plan identifies the St. Vrain corridor as a travel route, but does not identify the area as otherwise archaeologically sensitive.

Agricultural Resources

The St. Vrain valley has long been defined by its agricultural heritage. Early settlers used the water resources of the Creek and fertile soils to produce agricultural goods. Most of the land was used for the production of irrigated grass for hay and pasture. Row crops were also cultivated in some areas. Virtually all of the St. Vrain corridor contains significant agricultural land. The western portion is dominated by farmlands of statewide importance, while the eastern end of the corridor contains nationally significant farmland (*Figures 6a and 6b*). For more than a century, agriculture and wildlife have coexisted on these lands. These resources, including water rights, allow for the continued production of agricultural goods and provide the region with its cherished rural character. The following table summarizes the water rights inventory for properties in the corridor.

Table 3: Water Rights

Property	Water Rights
Bullock (South)	0.50 shares of Palmerton Consolidated Ditch; one irrigation well in SE corner of property
Fairgrounds (N of Boston Rd.)	0.08 shares of South Flat Ditch Company
Gage	24.50 shares of Davis and Downing Ditch; 100% of Mcaslin Private Nos. 1,2,3,4 Ditches; 24.0 shares of Swede Ditch Company; 33.30% of Webster & McCaslin Ditch Company
Golden Farm	50% undivided interest in 2.0 shares of Bonus Ditch
Golden/Fredstrom	41.7% of Zweck and Turner Ditch (tied to augmentation and part of future gift conveyance)
Hall Ranch Meadows	50% of Matthews Ditch 40% of Otto Ditch
Keyes (North)	9.0 shares of Bonus Ditch
Pella Crossing (Marlatt)	100% of 4.46 cfs and 5% of 5.23 cfs of Runyon Ditch; 5% of one share Denio and Taylor Ditch

Pella Crossing (Frontier Materials, Inc.)	4.6 shares of Denio and Taylor Ditch; up to 100 af of Zweck and Turner Ditch
Peschel	14.50 shares of Bonus Ditch
Quicksilver Farm	4.2 shares of Bonus Ditch (adjusted for fields north of Quicksilver Rd.)
Ramey	50% of Clough and True Ditch
Toteve	2.5 shares of Palmerton Consolidated Ditch; 48 af of reservoir storage
Western Mobile Complex	2.5 shares of Palmerton Consolidated ditch; 10.0 shares of Swede Ditch Company

Information on water yields and irrigated acreage is available in *Appendix C*.

Agriculture is conducted on many of the BCPOS properties within the corridor. Currently, grass and livestock are raised by private producers on nine of the properties: Keyes (North), Birnbaum, Gage, Golden/Fredstrom, Quicksilver Farm, Ramey, Toteve, Western Mobile Complex, Western Mobile 40, and Hall Ranch Meadows. BCPOS does not manage agricultural operations on the Golden/Fredstrom and portions of the Western Mobile Complex properties, as they will not become the possession of the County until a later date. In 2002, \$21,383 in revenues were earned from eight properties. Agricultural land maintenance expenses on properties in the corridor, including some not under lease, totaled \$11,767 in 2002.

BCPOS agricultural resource specialists work with tenants on developing plans that guide grazing management, crop production, and irrigation management. Extensive ditch systems exist on these properties, as well as other infrastructure used for agricultural operations (*Figure 10*). Ditches and fencing often require special maintenance attention.

RECREATION FACILITIES

Parks and Open Space

At the eastern end of the corridor, between Airport Road and the county line, BCPOS and the City of Longmont have protected significant acreage and collectively own about 450 acres. West of Airport Rd. to just beyond the town of Lyons, BCPOS has protected about 1500 acres of open space in the corridor. The County's open space properties (including those jointly owned) are listed in the *Property Inventory and Descriptions* section and offer several developed recreation sites, including the Fairgrounds, Roger's Grove, Golden Gravel, and Pella Crossing properties. Visitation at Fairgrounds Lake averages about 64,000 persons a year, with the most activity in summer and the least in winter. Pella Crossing (Frontier Materials, Inc.) receives about 60,000 visits a year- summer receives the most visitations; spring and fall activity is about equal; winter accounts for only 15% of visits. Golden Ponds Park is owned and managed by Longmont.

Facilities at these properties include parking, picnic areas, restrooms, fishing ponds, and multiple use trails. Many gravel ponds offer sport fishing opportunities for warm water species such as bass, crappie, perch, bluegill, and catfish. Currently, two properties offer pond fishing: Fairgrounds and Pella Crossing. Belly boating is allowed at both properties. Fishing within the St. Vrain Creek on BCPOS properties is available only on the Custode property, offering cold water trout fishing.

Trails and Greenways

At the eastern end of the corridor, Longmont manages and maintains the St. Vrain Greenway Trail. This concrete trail, with an adjacent soft-surface equestrian trail, currently runs east from Golden Ponds Park into the city. Longmont has plans to extend the trail further eastward to Sandstone Ranch Park in Weld County. The Longmont-owned Golden Farm property and jointly-owned Peschel property are scheduled to be used for part of this trail extension, as is a small portion of the northeast corner of the Keyes (North) property. Longmont's St. Vrain Greenway Master Plan- East Corridor Update depicts a trailhead on the Keyes (North) property (Design Workshop Inc. 2001). Since then, the Peschel property was acquired and is being designed to accommodate this trailhead.

BCPOS is currently working with Longmont to extend the trail west from Golden Ponds Park (currently the western terminus of the St. Vrain Greenway Trail) to Airport Road. The St. Vrain Greenway is part of the Colorado Front Range Trail. Airport Road is the western boundary of Longmont's planning area and serves as the point where BCPOS will pick up future trail implementation and management responsibilities. Continued development of the St. Vrain Trail is envisioned in the Front Range Trail initiative and will offer multiple connections to a variety of recreation areas. As the system works its way east to Weld County, it is planned to tie into St. Vrain State Park.

The St. Vrain Trail Master Plan, adopted by the Board of County Commissioners in January 2004, outlines recommended and alternate trail alignments through the corridor. Several BCPOS properties could be used to accommodate trail alignments and make trail connections, including the Pella Crossing, Gage, Ramey, Braly, and Western Mobile Complex properties. *Figure 9* depicts existing and proposed trail alignments in the corridor.

At the western end of the corridor (just west of the intersection of Highways 66 and 36), Lyons plans to develop their portion of the St. Vrain Trail. Immediately west of Highway 36, a proposed trail alignment is located on the north side of the Creek. This trail continues west until it intersects with an already developed section of trail that runs into the town of Lyons. Opportunities may exist to establish connections with trails on both Hall and Heil Ranches from the Lyon's system, as depicted in the Boulder County Comprehensive Plan. Opportunities also exist for connections to Rabbit Mountain and other open space areas outside of the immediate corridor.

GRAVEL MINING

Mining for aggregate materials such as sand and gravel has become a readily recognizable land use in the St. Vrain corridor. Mining has occurred for over 30 years and is likely to continue for many years to come. Past mining activities have resulted in many lakes, ponds, and wetlands throughout the corridor. Many of the properties BCPOS has acquired in the corridor are subject to previously approved permits and plans for gravel extraction. Most gravel mining is market driven, so there is no way to tell exactly when mining will be completed at active sites. Mined Land Reclamation Board (MLRB) permits are valid during the duration of mining operations. Furthermore, technical revisions can be filed by mine operators at any time, so reclamation designs should be considered tentative. *Figure 5* depicts the location of mining areas on the subject properties. Brief descriptions of the plans for affected BCPOS properties follow:

Peschel: Permit # M-89-029 (Aggregate Industries' Distel Farm Resource Permit). Mining commenced in 2001 and must be completed by December 31, 2005. The

reclaimed landform will include two sizeable ponds (10.5 and 7.5 acres) and a variety of diverse wetlands in all other areas of the mining pits. The wetlands will be connected in series and will discharge down gradient into other wetlands located on the adjacent City-owned properties to the east. Eventually, water will be discharged into the St. Vrain Creek through an outfall located just west of the confluence with Boulder Creek. A 100-foot mining setback from the St. Vrain and 25-foot setback from Dry Creek will be employed. A greenway with a trailhead on the property will be incorporated into the post-mining layout. Reclamation will be completed within 2-5 years after mining operations have concluded. Final grading and shaping will accommodate the regional trail through the property. The property is accessed from E. Co. Line Road. The City of Longmont will be responsible for management of this property.

Golden Farm: This property was added to the County's Special Use approval for the Fredstrom site (SU 94-22, 23, and 24; SD-94-28). The parcel west of 119th St. is scheduled to be mined around 2010, but is permitted through December 31, 2035. The reclamation plan calls for a post-mining landscape of one 20-acre pond to the south and three wetland complexes totaling 27 acres to the north. The wetland complex is being designed to assist with the filtration of effluent from the adjacent water treatment plant. The City of Longmont will be responsible for management of this property.

Golden/Fredstrom: Permit # M-2001-016 (Aggregate Industries' Fredstrom Permit). Mining will commence once the nearby Redmond/Neighbors mine site is complete (anticipated around 2006) and will proceed from south to north. The property is permitted through July 1, 2025 and will be mined in six phases. The reclamation plan will remove or lower dikes, allowing for re-establishment of natural stream processes (flooding and sedimentation) that regenerate riparian communities. The reclaimed landform north of the Creek will include wetland basins, marshes, water storage reservoirs, and uplands. South of the Creek it will include wetland basins and lakes.

Braly: Permit # M-82-034 (Lafarge's Miller Pit). This property had a reclamation completion date of December 31, 2003, which is also when the mining lease expired. Pit #1 (the lake south of the A-frame) was mined in 1999 and reclaimed in 2000. Pit #2 (the lake west of the A-frame) was mined in 1993 and reclaimed in 2000. Lafarge is being required to re-seed a ¼-acre area on the eastern bank. Pit #4 (the small kidney-shaped pond to the south) was mined in 2000 and reclaimed in 2001-2. Pit #3, although approved, was never mined. It appears that Pit #2 was enlarged and occupies some of the area in which Pit #3 was laid out.

The Division of Minerals and Geology (DMG) inspected the site on November 20, 2003 and noted erosion concerns on the east shoreline of Pit #1. Lafarge submitted a technical revision (TR-8) on February 20, 2004 to address the erosion issue and revise the final mining configuration of Pit #4. DMG has not yet released the bond for the property.

Western Mobile Complex: Permit # M-74-015 (Western Mobile's Lyons Pit). The site was originally permitted for 237 acres (Lyons site) and was increased to 891 acres (West Plant, East Plant, and Rockin' WP South Phases) in 1999. This permit was succeeded by Lafarge, Inc. Mining to occur in 17 stages, with no more than 35 acres mined at a time from west to east. Mining will be setback at least 300 feet from the Creek. Estimated life of mining on the permitted complex is 30 years. Lafarge will utilize a system of conveyors to move aggregate material to a central processing facility located on the north side of the Creek, to the northwest of the Braly property. The central portion of the

complex will be mined last. Reclamation plans call for an “open valley” reclamation concept with shallow ponds, wet meadows, wetlands, uplands, and some deep lakes.

Mining and reclamation is complete in the eastern portion of the site (the initial permitted 237 acres), except for reclaiming the roads, which will continue to be used to serve the expanded permit area. The MLRB will partially release reclaimed areas from the bond, but it has to be at the operator’s request and Lafarge has not made such a request.

Habitat mitigation for the Preble’s meadow jumping mouse, including the planting of trees and shrubs, was completed within the complex in 2003. The South Branch was a focal area for Preble’s enhancements.

The County currently owns Parcels 1a and 1b, 2, 3, and 4 (totaling 353.1 acres) in the Complex. The County has agreed to lease these areas back to Lafarge for the duration of mining and reclamation activities and until all obligations under the MLRB permit are satisfied. BCPOS is currently in the process of finalizing these lease agreements. The lease provides that BCPOS can inspect the leased property during reasonable business hours upon 24 hours advance notice, in addition to access in the event of an emergency. BCPOS has an option to purchase Parcels 5, 6, and 7 (totaling 179.1 acres) after mining is complete.

Pella Crossing (Frontier Materials, Inc.): Permit # M-77-015 (Hygiene Pit). The MLRB file is terminated and the property was released effective 4/26/2000.

Pella Crossing (Marlatt): Permit # M-76-029 (Golden Gravel Company). The MLRB file is terminated and the property was released effective 11/6/2000.

RESOURCE MANAGEMENT

NATURAL RESOURCES

Vegetation

The St. Vrain corridor contains three distinct vegetation community types: riparian forest, upland grasslands, and various types of wetlands. In general, the riparian communities have an overstory of mature plains cottonwood trees and an understory composed of non-native shrubs and grasses. Upland grasslands are often used for hay production and as pasture for livestock, and as such contain non-native grasses such as smooth brome and intermediate wheatgrass. Within some of these areas are significant native plant communities that require attention and management. Grazing greatly influences the structure and composition of vegetation within these areas, as does the proliferation of noxious weeds. Wetlands are largely supported by stream flow and flood irrigation. Sub-alluvial floodplains provide potentially suitable habitat for rare plants. Many opportunities exist for native plant enhancement and restoration.

Riparian Areas- Throughout the corridor, restoration of the ground layer, particularly bare ground, with a diverse mixture of grasses and forbs is needed both to reduce opportunities for weed colonization and to improve wildlife habitat. The understory can be restored by implementing weed control followed by native grass seeding. On many properties, rocky and cobbly soils near the Creek harbor noxious weeds and prove difficult for establishing native plants. Experimentation with revegetation in riparian areas should be pursued. One approach includes the addition of organic material and the use of cattle to imbed native seeds in these soils where revegetation success may be limited. Cattle could also be used to prepare the soil for later seeding efforts. Priority properties for restoration, and for which work has already begun, include Hall Ranch Meadows, Pella Crossing (Marlatt), Gage, and Ramey. Priority properties yet to be addressed include Braly, Bullock (South), Wallace, and Keyes (North). Restoration opportunities on the Western Mobile Complex should be evaluated once BCPOS assumes management control.

Removal of crack willows, tamarisk, honey locust, and Russian-olive on corridor properties (Peschel, Keyes (North), Golden/Fredstrom, Gage, Ramey, and Braly) will enhance conditions for younger native cottonwoods along the Creek. Restoration of the shrub layer with native species such as American plum, chokecherry, coyote willow, and golden currant would greatly increase wildlife value and help to prevent bank erosion.

Fencing is a useful tool for managing the effect of grazing on vegetation and for preventing impacts to more sensitive areas such as wetlands and riparian areas. Construction of new fence on the Golden/Fredstrom and Gage properties should be pursued for vegetation management in the riparian corridor.

Many large cottonwood trees border the main stem of the St. Vrain and are located within the historical ditch easement. The ditch companies are responsible for maintaining their easements; however, BCPOS should participate in maintenance activities such as tree pruning and limb removal to ensure that ditches remain unaffected and significant trees are not unnecessarily removed.

Several properties (Pella Crossing, Braly) contain ponds that have eroded banks and require both stabilization and restoration. Utilizing bio-engineering techniques in conjunction with hard materials will improve their functionality and benefit for wildlife.

Uplands- In a corridor dominated by open water and irrigated meadows, uplands should be retained and enhanced as much as practical to provide habitat diversity. The Keyes (North) property is heavily disturbed and needs restoration. However, due to the condition of soils on site and the presence of a large prairie dog population, restoration should be postponed. If a plague event occurs, restoration should be initiated. Soil amendments and organic matter will be needed to allow for plant establishment. Uplands on the Gage property should be enhanced for their habitat connectivity value. A reduction in upland grazing should also be evaluated for the Gage property. The Braly property should also be included in restoration plans.

Restoration opportunities on the Western Mobile Complex should be evaluated once BCPOS assumes management control. Currently identified needs include the rehabilitation of mining roads and ongoing weed control.

Rare Plants and Significant Native Communities- Rare plants such as the Ute ladies'-tresses orchid and Colorado butterfly plant are negatively affected by highly competitive or invasive species. The use of winter or early spring grazing is commonly used as a best management practice. Providing disturbance that reduces or eliminates competition from weeds such as reed canarygrass or Canada thistle is beneficial. Using herbicides will reduce competition and allow for a more open stand; however, it may injure the rare plants if applied at the wrong time.

These rare plants prefer high water tables and are found in wet meadows that are supported by flood irrigation and ground water recharge. Historic irrigation practices should be continued in order to retain the appropriate hydrologic conditions.

Significant cottonwood forests occur within the riparian zone and are sustained by high water tables and frequent flooding. In areas where the Creek has incised and no longer has access to its floodplain, restoration should be initiated to re-create a functional stream system and ensure ongoing recruitment of trees and shrubs.

Grazing Response – The number, distribution, and timing of grazing animals has an impact on vegetation. Plant communities that are important for riparian functionality and wildlife, such as bank vegetation, unique wetland vegetation, and upland shrubs, should be monitored for grazing impacts. Plant inventory and monitoring information can be very valuable in establishing prescriptions for future grazing.

Noxious Weeds- According to the Colorado Noxious Weed Act (as amended 2004), landowners are required to manage noxious weeds on their lands. List A species, not known to be present on BCPOS properties within the corridor, are targeted for eradication and require specific management actions as well as coordination with the State Weed Coordinator within one year of detection. List B species require active management to stop their spread. List B species present in the corridor include bouncing bet, Canada thistle, common teasel, diffuse knapweed, field bindweed, Russian-olive, salt cedar, and dalmatian and yellow toadflax. List C species are widespread and are targeted

for improved management and public education. List C species present in the corridor include chicory, common mullein, downy brome, and St. Johnswort.

Kochia has been removed from the State Noxious Weed List, but continues to present challenges on BCPOS lands, including the Fairgrounds, Pella Crossing, and Ramey properties. Herbicide application in the spring and fall has shown effective control.

Integrated weed management, employing mechanical, cultural, biological, and chemical control techniques, should be used. The most important part of any weed management program is prevention. Weed infestations should be monitored and vigorously addressed to prevent dispersal and the need for future control actions. Certified weed-free materials should be used in recreational developments and reclamation projects. Restoring and maintaining healthy plant communities, in particular grasslands, and reducing human impacts and use patterns can prevent weed invasion. The use of prescriptive grazing can be very beneficial for weed management by allowing animals to graze weeds, which reduces competition with native plants.

The establishment of favorable plant species is important for providing competition to weed species. Grass species in particular are important as they are tolerant of selective weed management practices such as mowing and herbicide applications. In many areas, retaining non-native perennial grass species, such as smooth brome and crested wheatgrass, provides desirable competition to noxious weeds. Weed management should be performed in conjunction with the goal of establishing a healthy stand of native perennial grass.

The Boulder County Noxious Weed Management Plan (as amended 1999) provides additional direction and identifies noxious weeds of local concern. Thirteen species are listed as County noxious weeds. According to the plan, diffuse knapweed, Mediterranean sage, Dalmatian toadflax, Canada thistle, musk thistle, and yellow toadflax are the most serious noxious weeds on BCPOS lands because of their extent and aggressive nature. Only three of these species have been noted on properties within the corridor: diffuse knapweed, Canada thistle, and yellow toadflax.

Recognizing these laws and policies in conjunction with existing conditions, the primary weeds of concern in the corridor are diffuse knapweed, Canada thistle, dalmatian and yellow toadflax, and downy brome. The following control techniques and strategies should be pursued:

- **Diffuse knapweed-** Prevention of seed dispersal is critical for control of this biennial species. Hand pulling can be very effective. For larger infestations, insect bio-control provides effective suppression and containment. Applications of the herbicides Transline or Tordon provide excellent control. Native grass establishment to compete with subsequent weed infestations is critical. Affected properties include: Pella Crossing, Golden/Fredstrom, Gage, Fairgrounds, Roger's Grove, Hall Ranch Meadows, Bullock (South), Wallace, Western Mobile Complex, Toteve, Montgomery, Ramey, and Braly.
- **Canada thistle-** Mowing during the growing season followed by herbicide application (Curtail, Redeem, Transline, Tordon) in the fall, combined with establishment or promotion of perennial grasses has proven to be the best management practice for this tough-to-control perennial. Affected properties include: Golden/Fredstrom, Pella Crossing, Braly, Western Mobile Complex, Toteve, Bullock (South), Wallace, and Montgomery.

- **Dalmation & Yellow toadflax**- Bio-control releases using the insect *Mecinus janthinus*, a stem-boring weevil, for suppression and containment. Herbicide applications in the fall using Plateau for dalmation toadflax, and Telar for yellow toadflax provide best control. Affected properties include: Golden/Fredstrom.
- **Downy brome** (Cheatgrass)- A winter annual grass, probably the most prevalent exotic species in the Rocky Mountain region. Establishment of competitive, favorable vegetation provides best management. Initially, reduction of dense infestations may be necessary prior to restoration efforts. This can be accomplished by way of prescribed fire, tillage, or herbicide application (Plateau or RoundUp). Affected properties include: Golden/Fredstrom, Pella Crossing (Marlatt), Gage, Ramey, Braly, Bullock (South), Wallace, Western Mobile Complex, and Toteve.

BCPOS should continue to map and monitor noxious weeds. Weed monitoring should occur annually while more intensive mapping should be performed about every five years.

Water

The St. Vrain corridor contains water resources that support many of the corridor's important conservation values, including wetlands, fisheries, wildlife, and agricultural resources.

Wetlands Management

It is important to collect hydrological data prior to the commencement of mining activities so that baseline information can be used in the design and management of reclaimed mining areas as wetlands. In the Western Mobile Complex, wells should be installed and monitored for this purpose. BCPOS should also work with Lafarge on the implementation of its reclamation plans so that the design and operation of wetland features is compatible with wildlife objectives. Installing structures that allow for manipulation of water levels is important so that diverse vegetative systems can be created and maintained with various water regimes, inundation seasons, and periods.

At Hall Ranch Meadows, there may be an opportunity to restore hydrologic processes and improve wetlands through minimal earth moving activities and the removal of flow barriers. Despite the findings of the Ayres restoration feasibility study (2000), the site should be further evaluated by staff for basic management actions that could have significant restoration outcomes.

Water Management for Fisheries

Creek Flow- Preservation of existing water regime conditions is encouraged. No major alterations of stream flow or habitat conditions should be initiated. The management emphasis should be on limiting mitigating factors such as extreme low flow and/or drought. For example, in extreme drought conditions, releasing 2 or 4 c.f.s. of water to sustain populations is encouraged. Periodic flushing to simulate minor flooding events may also be useful.

Pond and Lake Levels- Management of water levels in ponds will be dictated by groundwater levels, with the exception of Western Mobile Lake IV. Lake IV is lined and used for the specific purpose of providing augmentation water. The lake may become drawn down to low levels or even dried up to dead storage. This has significant relevance to the use of this lake as a fishery. Water acquisition during drought conditions may be necessary for fisheries management. At least 1/3 of the pond depth should be

retained as a conservation pool. If a pond contains fish and is not used as a public fishing area, a conservation pool should still be retained to support the fishery as a food source for birds and other wildlife.

BCPOS should continue to examine water use on agricultural properties and take steps to improve water availability on water-short properties, as well as use excess water for other beneficial uses such as wildlife enhancements and in-stream flow.

Wildlife

The St. Vrain corridor provides habitat for numerous wildlife, including some significant species. Several special status species are found on BCPOS lands and throughout the corridor. The corridor provides nesting and foraging habitat for many raptors, serves as a travel corridor for neotropical migratory birds and large mammals, and hosts important sport and native fish.

BCPOS and DOW should continue to coordinate on wildlife management needs and issues. White-tailed deer numbers in the St. Vrain corridor are fairly low and CWD does not appear to be a major issue at this point in time. The presence of CWD in deer in the area poses a threat and a resource management challenge. Due to the residential environment and human presence in the corridor, culling may not be an option if CWD impacts expand. Deer and CWD management may be a wait-and-see venture. Disease knowledge is still in its infancy and is not detectable by sight, nor is there a dependable field testing method. DOW will continue to be the authority on this topic and will lead response and management strategies.

Conflict with domestic pets and human-tolerant predators such as striped skunk, raccoon, coyote, and red fox may become management issues on the various properties because of their proximity to residential developments. Domestic pets are known to pose a threat to wildlife. Human tolerant species may proliferate with increasing development and cause a decline in less tolerant species.

Wildlife management on BCPOS lands within the corridor seeks to limit habitat fragmentation and maintain and enhance significant habitat. Major species of concern that require special management attention include the Preble's meadow jumping mouse, black-tailed prairie dog, several raptors, and several native fish.

Threatened, Endangered, and Candidate Species Management- Passed in 1973 and reauthorized in 1988, the Endangered Species Act (ESA) regulates a wide range of activities affecting plants and animals designated as federally endangered or threatened. By definition, an endangered species is any animal or plant listed by regulation as being in danger of extinction. A threatened species is any animal or plant that is likely to become endangered within the foreseeable future. A candidate species is any animal or plant for which reliable information is available that a listing under the ESA may be warranted. There are no mandatory federal protections required under the ESA for a candidate species; however, it is advisable to voluntarily protect these species. The Act prohibits a number of activities involving endangered species. BCPOS lands within the corridor contain known populations of two federally listed species- the bald eagle and Preble's meadow jumping mouse. Five state listed fish species occur within the St. Vrain Creek that passes through BCPOS lands- the brassy minnow, common shiner, stonecat, stoneroller, and Iowa darter.

Bald eagle- Known concentrations in the corridor are heaviest west of 75th Street. Annual monitoring should focus on this area. Nesting, roosting and perching habitat should be protected utilizing the following techniques (Craig 2002):

Nest Site: Year-round closure to surface occupancy (beyond that which has historically occurred in the area) within ¼ mile radius of the nest. No human encroachment within ½ mile radius of the nest from November 15-July 31. Recent evidence suggests that pairs nesting at lower elevations frequent and maintain their nests throughout the year. If it is necessary to work within the ½ mile buffer, the intrusion should be restricted to August 15-October 15.

Winter Night Roost: Activity should be eliminated within ¼ mile radius of winter roosts from November 15-March 15. Should periodic visits be required within the buffer zone during this time, activity should be restricted to between the hours of 10:00 AM and 2:00 PM.

Hunting Perch: Diurnal perches associated with important foraging areas should also be protected from human encroachment. Preferred perches should be buffered by 1/8 – ¼ mile depending on vegetation screening.

The bald eagle is likely to be removed from its listing as a federally threatened species under the ESA by the end of 2005. If this occurs, the species will still be protected by the Bald Eagle Protection Act, which prohibits the taking, possession, and trade of the species. Critical habitat designations and land use matters will not be regulated. Even so, temporal and spatial closures should be used to protect the bald eagle as with other raptors.

Preble's meadow jumping mouse- Although certain properties within the corridor have been previously trapped with negative results and received USFWS clearance for habitat impacts, this clearance is valid only for one year from the date of survey. Additional surveys and research may be needed for pending projects to determine whether or not Preble's have reoccupied an area.

Additional baseline data and more intensive research are needed to assess Preble's density and distribution on about 4 miles of riparian corridor. Data collection should be conducted at three levels- presence/absence surveys, more intensive transects, and mark/recapture studies. Presence/absence surveys should be initiated on the Braly, Ramey, Toteve, and Golden Farm properties. Intensive transects with the goal of assessing habitat and species distribution should be conducted on the Gage, Pella Crossing (Marlatt), and Golden/Fredstrom properties. Mark/recapture studies for tracking of population dynamics within the corridor should be initiated as a long-term goal.

Existing Preble's habitat can be protected by excluding grazing from riparian corridors using fencing. The South Branch is of particular importance. Habitat can be created/enhanced by incorporating diverse native riparian plantings of forbs and grasses, and especially coyote willow. The latter can be readily sprigged along the Creek and ponds. Willow lined ditches that connect to the Creek are also beneficial. Upland shrubs can be added in patches within about 100 meters of the Creek, ponds, and/or ditches for use as hibernation sites.

If ditch burning or mowing is conducted in designated Preble's habitat or Mouse Management Areas, such activities should be limited to November through April when the mouse is hibernating.

Black-tailed prairie dog- As of August 12, 2004, prairie dogs are no longer listed as a candidate species and therefore have no statutory protection under the ESA (USFWS 2004b). Conservation of the species is still important because they are an important component of the grassland ecosystem and because agriculture and development pressures along the Front Range continue to displace them. Consequently, open space preserves with appropriate habitat have become increasingly important for preserving viable colonies. Species such as burrowing owl (*Speotyto cunicularia*), prairie rattlesnake (*Crotalus viridis*) and mountain plover (*Charadrius montanus*) use prairie dog colonies for food, cover, or both. Prairie dogs also provide an important prey resource for predators including badger (*Taxidea taxus*), coyote, bald eagle (*Haliaeetus leucocephalus*), ferruginous hawk (*Buteo regalis*), and other raptors.

Prairie dogs on lands within the St. Vrain corridor will be managed according to the County's adopted *Grassland Management Plan, Prairie Dog Habitat Element*. This plan attempts to balance wildlife, ecological, and agricultural resource concerns. BCPOS lands within the corridor are classified as either Multiple Objective Areas (MOA) or No Prairie Dog (NPD) areas. MOA areas (the eastern half of Keyes (North), Golden Gravel, Pella Crossing, Braly, Western Mobile Complex, and Western Mobile 40) allow prairie dogs to coexist and may require more intensive management. All other properties in the corridor require the removal of prairie dogs because they are classified as NPD. Many of the NPD areas are in agricultural production and are unsuitable for prairie dog habitation. Priority sites for prairie dog thinning or removal include the Toteve and Gage properties. Although prairie dogs are compounding weed problems at Keyes (North) and limit revegetation options, the population should be retained. Should a plague event occur, the site should be restored.

Sensitive Native Fish- Preservation of existing water regime conditions is encouraged. The management emphasis should be on limiting mitigating factors. Stream flow levels are important and it is imperative that flows be maintained or augmented during low flow cycles. Likewise, adding deep pools to a reach that is routinely water deficient is encouraged. The Gage property should be assessed for enhancement opportunities.

In order to minimize impact to native fish species, siltation and disturbance should be minimized. Periodic flushing to simulate minor flooding events may be useful. Releasing 200 c.f.s. of water for ½ day in late May to provide flushing flows (if it does not occur naturally) will help alleviate siltation and may help trigger spawning activity. The release of 200 c.f.s. is equivalent to about 400 a.f./day. Some modification to the existing agreement with St. Vrain & Lefthand Water Conservancy District would likely be required as the County only owns about 400 a.f. in total.

Developing refugia sites in small, shallow ponds that are away from public access is an important strategy for preserving and rearing sensitive native fish. The Pella Crossing (Marlatt) and Braly properties contain small isolated ponds that are excellent candidates for this use. The ponds provide ideal conditions for slow water species. BCPOS should

work with DOW on evaluating these ponds for use in rearing fish such as killifish and topminnows. These ponds will require renovation in order to eliminate all competitive species. The ponds will require periodic monitoring to ensure population success. Once successful, the fish stock could be used for reintroduction and restoration on BCPOS properties, the Creek, and in other areas of the state.

Other Raptors- Tolerance limits to disturbance vary among, as well as within, raptor species. As a rule, ferruginous hawks and golden eagles are more sensitive to human activities at greater distances than ospreys and kestrels (Craig 2002). While it is important to protect nest sites, equal attention should be paid to protecting important foraging areas. Observation and study should be employed to define these areas.

Table 4 summarizes recommended buffer zones for nest sites and seasonal restrictions that should be used for protection of raptors known to exist in the corridor (Craig 2002).

Table 4: Raptor Buffers

Species	Buffer Distance to Surface Occupancy*	Seasonal Restriction to Human Encroachment
Golden eagle	¼ mile	Jan.1 – July 15
Osprey	¼ mile	April 1 – Aug. 31
Ferruginous hawk	½ mile	Feb. 1 – July 15
Red-tailed hawk	1/3 mile	March 1 – July 15
Swainson's hawk	¼ mile	April 1 – July 15
Peregrine falcon	½ mile	March 15 – July 31
Prairie falcon	½ mile	None

* Surface occupancy includes both human and non-human habitation, such as oil and gas wells, tanks, roads, tracks, trails, etc.

No known raptor nest or perch sites will be adversely affected by existing or proposed recreational use. Any new recreational development should be preceded by a raptor survey and implementation of buffers whenever possible.

Lafarge has been informed about the red-tailed hawk nest located on the Creek southeast of the CEMEX plant and was advised to take special care from March – July (Jones 2004).

Other Birds of Special Interest- Approximately eleven avian species of local conservation interest occur in the corridor: the great blue heron, black-crowned night heron, bobolink, double-crested cormorant, wood duck, yellow-headed blackbird, savannah sparrow, American redstart, American dipper, Lewis' woodpecker, and the gray catbird. These are birds that have been identified as species of special concern within Boulder County. These birds require varying habitat niches.

Maintaining a diversity of quality habitats (riparian woodlands, lakes or wetlands, and grasslands) is important. Maintaining a diverse age mix of native riparian trees, including standing dead trees, will improve habitat for raptors and other woodland species. Maintaining undisturbed riparian areas with adequate water flows is important for the American dipper. Creating and maintaining cattail/rush marshes will provide valuable nesting habitat for wetland-dependant species such as the yellow-headed blackbird, great blue heron, Northern harrier, and Virginia rail. Planting native shrubs

and performing aggressive weed control will improve habitat for grassland and shrub-nesting birds. Delaying haying operations until after July 15 will provide protection for ground nesting bobolinks and savannah sparrows.

Sport Fisheries Management- Large ponds and lakes are best used as warm water sport fisheries (VanBuren 2003). Ponds with undulating shorelines and varying topographic features provide the best fish habitat. Ponds on the Fairgrounds and Pella Crossing properties contain warm water fisheries that support smallmouth and largemouth bass, bluegill, crappie, and catfish, with some cool aspect species such as yellow perch and walleye. These fisheries are self-sustaining and only catfish have been recently stocked. In the past, gizzard shad were periodically introduced to serve as a food fish. BCPOS and CDOW cooperatively manage these ponds. CDOW provides technical assistance and performs electroshocking surveys about every 3-5 years.

Ponds at Braly and the Western Mobile Complex should be surveyed to determine their composition and management requirements. These ponds will likely require stocking well in advance of public fishing and may need to be manipulated over time. Adding additional structural components to the ponds is often necessary and also allows for the development of targeted fishing spots. Possible management recommendations that may result from survey results include the addition of bait fish or alteration of catch regulations.

Cold water sport fishing is available in the Creek at the Custode property. Best management practices include appropriate site management to prevent overfishing. Management of water resources is also a focus and is addressed in a previous section.

MANAGEMENT AREAS

Management areas define specific zones that are suitable for visitor use, appropriate conservation, and resource preservation. Management area designations for the subject properties are described below and depicted on *Figure 8*. These designations represent the proposed future use of a property. In general, properties to be mined are used for agriculture prior to extraction, but will be used for a different purpose once mining and reclamation are completed.

Recreation/Visitor Use Area

These areas are suitable for public recreation and typically contain developed recreation facilities such as parking lots, trailheads, restrooms, picnic areas, shelters, and interpretive facilities. These areas can accommodate higher levels of visitor use and density of trails/facilities and often have more evidence of previous human use and impacts. Portions of the following properties are included in this category: Peschel, Golden Farm, Fairgrounds, Roger's Grove, Pella Crossing, and Braly.

Agricultural Area

These areas include properties where soil and water resources are best utilized, conserved, and managed through sustainable agriculture. Crop production and livestock grazing are common uses. In general, public use is not compatible with ongoing agricultural operations. There are circumstances where visitor use can be accommodated with little or no injury to the agricultural operation, but dispersed recreational use is not appropriate. Portions of the following properties are included in this category: Keyes (North), Gage, Ramey, Hall Ranch Meadows, and Toteve.

Natural Area

These areas contain resources that are not especially sensitive but contribute to the natural heritage of an area and/or provide valuable wildlife habitat. Conditions of these areas are variable, but they generally contain significant natural values or have potential for restoration of natural ecosystems. Natural areas have the dual goal of conserving resources while allowing for compatible recreation, which may include activities such as trail use and interpretation. In order to prevent visitor use impacts to non-target areas, trail corridors and interpretive features should be well planned, delineated, and managed. Policies such as on-trail travel, prohibition of off-trail access, dogs on leash, and nighttime closures are appropriate tools to maintain the conservation values of these areas. Natural areas may also be utilized for agricultural uses, but agricultural production is not the focus. Portions of the following properties are included in this category: Peschel, Golden Gravel, Golden/Fredstrom, Braly, Western Mobile Complex, Western Mobile 40, Hall Ranch Meadows, and Custode.

Habitat Conservation Area

Habitat conservation areas are sensitive areas that serve as refugia for significant plant and/or animal communities. These areas contain naturally functioning ecosystems and typically represent the largest block of an ecosystem type. These areas have high biodiversity and often include wetlands and riparian areas. They also may provide habitat for rare, threatened, or endangered species. These areas are sensitive to human impacts and influence. Recreational use should be prohibited in these areas and they should be considered for seasonal or permanent closure.

The St. Vrain corridor contains plant communities and water resources that provide significant wildlife habitat, as well as the occurrence of sensitive and/or threatened and endangered species. In order to protect these significant resources, certain areas and properties should be permanently closed to public access. Portions of the following properties are recommended for permanent closure (*Figure 8*):

- **Golden/Fredstrom**- This 39-acre area is defined by the boundaries of Gift Parcels 2 and 3 and includes both sides of 0.75 miles of the Creek. The County-designated Significant Riparian Corridor on the property contains a mature cottonwood forest and excellent habitat for sensitive native fish. The north side of the Creek contains an oxbow slough, or meander scar. The site is identified as a Mouse Management Area by the USFWS and contains potentially suitable habitat for the federally threatened Preble's meadow jumping mouse and Ute ladies'-tresses orchid. This effective habitat unit is also important to birds, including raptors, and other mammals. This site is directly adjacent to the existing conservation closure area located to the west on the Pella Crossing (Marlatt) property and will enhance its overall function.
- **Gage**- This 89-acre area includes both sides of 0.35 miles of the Creek and over 0.75 miles of the South Branch of the St. Vrain. Both of these corridors have been identified as Mouse Management Areas by the USFWS for the federally threatened Preble's meadow jumping mouse. The site contains BCPOS-designated Significant Wetlands totaling about 10 acres. The property contains important habitat for sensitive native fish. The property is used by raptors, deer, coyote, and other wildlife. Furthermore, the property provides some excellent opportunities to restore a natural ecosystem. The site is directly adjacent to the existing conservation closure area located to the east on the Pella Crossing (Marlatt) property and will enhance its overall function.

- **Ramey**- This 4-acre area includes both sides of 0.25 miles of the Creek. This corridor has been identified as a Mouse Management Areas by the USFWS for the federally threatened Preble's meadow jumping mouse. The property also contains County-designated Critical Wildlife Habitat. The site contains mature riparian vegetation that is used by raptors, deer, coyote, and other wildlife.
- **Braly, Western Mobile Complex, Montgomery**- This 138-acre area includes 1.25 miles of the Creek and approximately 0.75 miles of the South Branch of the St. Vrain. Both of these corridors have been identified as Mouse Management Areas by the USFWS for the federally threatened Preble's meadow jumping mouse. The property also contains County-designated Critical Wildlife Habitat. The site contains two ponds that have mature vegetation providing an important connection to the St. Vrain corridor. This area contains significant habitat for waterfowl and shorebirds, as well as numerous trees and shrubs used by songbirds and raptors. Deer, black bear, and other large mammals have been known to frequent the area as well.
- **Wallace, Bullock (South)**- This 14-acre area includes both sides of nearly ½ mile of the Creek. This corridor has been identified as a Mouse Management Area by the USFWS for the federally threatened Preble's meadow jumping mouse. The property also contains County-designated Critical Wildlife Habitat. The site contains mature riparian vegetation that is used by raptors, deer, coyote, and other wildlife.

These proposed closure areas are conceptual as they are based on the general occurrence of significant resources and mapped elements. Field verification is required to assess the specific location of significant elements in relation to viable management boundaries. For example, the boundary of a habitat conservation area may be extended to an existing fenceline for visitor management and resource protection purposes. Conversely, the edge of a conceptual habitat conservation area could remain open for the same reasons. There may be a few cases where the perimeter of a conservation area could feasibly accommodate passive recreation without substantial injury to its conservation values. These circumstances need to be evaluated on a case-by-case basis and with thorough field analysis to ensure that the preservation objectives remain viable. Once approved, BCPOS staff should field verify proposed conservation areas and take necessary measures to ensure their protection (i.e., fencing, signing, etc).

Temporary closures may have to be adopted in order to protect such things as raptor nest sites and for revegetation purposes. In particular, the riparian corridor near the western lake on Braly and Western Mobile Lake IV contains standing dead cottonwoods that are frequently used as perch sites for bald eagles and other raptors. The Custode property contains steep cliffs that are used by nesting raptors and swallows. These areas should be monitored for sensitive wildlife use and temporarily closed if necessary. Visitor safety concerns may also prompt the temporary closure of certain areas. Resource management and law enforcement staff should coordinate on these issues and needs.

CULTURAL RESOURCES

The St. Vrain corridor contains many significant cultural resources including historic farms and homesteads, irrigation ditches, and archaeological sites. These sites occur on both public and private lands and include numerous sites/structures that are field eligible for the National Register of Historic Places. Several of these resources occur on BCPOS lands and should be preserved.

Protection and Courses of Action - Cultural resource preservation begins with resource identification, mostly through surveys of the built environment and possibly any prehistoric sites.

An analysis is then conducted to determine its significance and potential eligibility for the National, State or Local Registers of Historic Places. Historic site surveys should be completed for all of the known sites on BCPOS lands within the corridor.

Once this information is gathered, needs and courses of action can be developed, ranging from demolition to preservation, rehabilitation, restoration, or reconstruction. At the Golden Farm property, the remaining WWII-era barracks structure has been stabilized and is intended to be used as an interpretive feature that highlights the history of migrant farm workers. At Braly, a priority need includes stabilization of the barn in the northwest corner of the property. The cinder block garage should be restored over time. At Ramey, priority needs include stabilization of the westernmost open lean-to and patching of the farmhouse roof, with total replacement over time. On the Western Mobile Complex, several significant resources were saved within the property; however, their condition will have likely deteriorated by the time BCPOS assumes management control. These historic resources should be re-evaluated and needs identified once management responsibility is assumed.

At the Sandstone Ranch property located in Weld County (owned and operated by Longmont), the historic Coffman Homestead has been preserved and is subject to an historic preservation easement that Boulder County is party to. The easement requires that BCPOS monitor the homestead and its structures annually and submit a report to the State Historical Fund.

Interpretation - Once a cultural resource treatment is pursued, these resources can provide opportunities for education and interpretation. Should interpretation be pursued, it is important to design access such that the resource is adequately protected and vandalism is prevented. The Golden Farm, Ramey, Braly, and Western Mobile Complex properties, because of their easy access and proximity to the proposed route of the St. Vrain Trail, offer excellent opportunities for interpretation. Before access and visitation can be offered, appropriate action (such as fencing and signage) must be initiated in order to ensure public safety.

AGRICULTURAL RESOURCES

The St. Vrain corridor is known for its agricultural resources and production history. Agriculture should be continued on select open space lands within the St. Vrain corridor. Continuation of this land use preserves the historic character and rural legacy of the area and makes possible the production of valuable goods.

BCPOS agricultural lands are leased to private operators and are managed for agricultural production. Consistent with current BCPOS rules and regulations, these properties are closed to the public. However, where appropriate, agricultural lands can accommodate recreational and interpretive facilities. Should agricultural lands be used to implement the St. Vrain Trail, all efforts should be made to limit the loss of productive land and the impact on agricultural operations, including fencing and irrigation management.

Grazing Management - Past grazing management can be described as seasonal grazing coordinated with hay production. Livestock was typically pastured in the fields from winter into early spring, at which time they were removed for production and harvest of hay. Stock was then brought back on the land to pasture after grass dormancy in the fall.

Current grazing practices can be described as adaptive grazing management that is guided by forage production and environmental conditions. Temporary fencing is used by

agricultural resource managers to control the timing, number of cattle, and size of pastures in order to control plant utilization and vigor. Growing season grazing requires close management and an adequate rest and recovery period between uses.

Grazing can also be used to improve ecological conditions. On certain properties (such as portions of Pella Crossing (Marlatt) and Braly), prescriptive grazing may be used to manage weeds and promote healthy vegetative conditions.

Construction of new perimeter fencing at the Gage property should be pursued in conjunction with assessment of interior fencing needs.

The Agricultural Resources Division develops and annually reviews farm management plans with its tenants and works towards improvements in productivity and land condition.

Irrigation Management- Managing and maintaining water conveyance systems is a necessary component of farm and ranchland management. Ditches must be monitored for performance and water loss and often require mowing or burning to eliminate water-consuming vegetation. Head gates and laterals must also be tested and cleaned for proper performance. On the Keyes (North) property, recommended irrigation improvements include alternate points of diversion to avoid excessive lateral seepage and/or application of Polyacrilimide (PAM) to improve water delivery efficiency. Water measurement devices are also needed at Keyes (North) to accurately gauge water usage and delivery.

Ditches owned by the County should be burned, mowed, or mechanically cleaned. BCPOS should also work with ditch companies to do the same where ditch easements are located on BCPOS properties. If ditch burning or mowing is conducted in designated Preble's habitat or Mouse Management Areas, such activities should be limited to November through April when Preble's are hibernating, according to the section 4(d) special rule promulgated by the USFWS. Any work to clean, maintain, or repair the ditch below the ordinary high water mark is completely exempt (Jeffers 2003). Ditch maintenance activities that cause the loss of riparian shrub habitat along one or both sides of the ditch are allowed, as long as the total area of disturbance does not exceed ¼ mile per one linear mile of the ditch per calendar year. Impacts to shrub vegetation and habitat should be avoided as much as practical. The 4(d) rule also exempts ongoing agricultural activities, landscape maintenance, noxious weed control, and the use of existing water rights. As of May 20, 2004, the 4(d) rule was permanently extended to exempt from liability any incidental take of the mouse resulting from these approved activities (USFWS 2004).

RECREATION AND VISITOR SERVICES

The St. Vrain corridor is an attractive resource that offers opportunities for public recreation. From bird watching to hiking to fishing, BCPOS lands within the corridor currently offer a variety of visitor use opportunities. Much potential exists for environmental education and interpretation due to the outstanding natural and cultural resources that exist within the corridor. The following properties are likely candidates for some new recreational development: Pella Crossing, Ramey, Braly, Western Mobile Complex, and Hall Ranch Meadows.

Fencing will be a necessary management tool for managing visitor access and resource protection. Fencing can help delineate boundaries, focus access onto open space land from public trailheads, reduce casual access points from private land, control trespass onto private land, reduce liability concerns around ditches, and control grazing animals. In places where fence is constructed for visitor management or resource protection purposes, wildlife-friendly fencing such as smooth wire or post and dowel should be used. Some properties have fencing that is potentially dangerous to visitors and should be removed. Fencing may also have adverse impacts on animal movement. Where fencing is not necessary for visitor or livestock management, it should be removed.

Trails

Trail development within the corridor will be guided mostly by the St. Vrain Trail Master Plan. This document presents recommended and alternate trail alignments running from Longmont to Lyons (*Figure 9*). Due to the presence of sensitive resources in the corridor, the Trail Master Plan seeks to avoid paralleling the riparian corridor and uses existing disturbances where feasible. Pursuing implementation of the Recommended Route should be the focus. Proposed trailheads are depicted on the Braly and Western Mobile Complex properties. Longmont's adopted 2001 greenway plan depicts a trailhead on the Keyes (North) property, but since then the jointly-owned Peschel property was deemed more suitable by Longmont and BCPOS and is being designed for this use.

Trail management and enforcement for the regional trail will be the responsibility of both the City of Longmont and BCPOS. It is envisioned that east of Airport Road, Longmont will be responsible for management, including trail maintenance and law enforcement. West of Airport Rd., BCPOS will be responsible for maintenance and enforcement. Emergency response for properties that remain in the unincorporated county fall under the Boulder County Sheriff's Department and BCPOS Rangers. This presents a unique challenge when Longmont is expected to respond to incidents within their region. Longmont is currently in the process of annexing all park and open space land that they own. As segments of the regional trail are planned and constructed, the topic of emergency response and management should be discussed and necessary agreements should be initiated.

The Braly and Ramey properties offer opportunities for site specific trails that provide interpretation and fishing access and should be pursued independently of implementation progress of the regional trail. At Braly, a trail system should be developed that provides access to the southern lake, the south and east sides of the western lake, and the easternmost reach of the Creek. Trails around the lakes will provide for fishing and hiking, while a spur loop along the Creek will afford interpretive opportunities. The Braly A-frame site should serve as a trailhead and parking area. Trails should be constructed of natural materials such as crusher fines and be accessible to persons with disabilities. Near the Creek, a boardwalk system may best accommodate hiking in areas subject to seasonal high water and flooding. Appropriate signage should be installed with the goal of minimizing conflicts between recreational users, particularly in segments where local trails serve as regional trail connections. At Ramey, a trail that offers viewing and interpretation of the historic farmstead should be developed.

A Recreation and Visitor Use Plan that outlines needs and recommended actions was completed for the Pella Crossing property. This plan guides the development of new facilities and upgrades at the two properties. Much of the trail on the western parcel has been constructed and the property is scheduled to be opened for public use by fall 2004. The parking lot at Pella Crossing is proposed for expansion from 19 to 39 spaces to accommodate increased use.

The Western Mobile Complex provides opportunities for future trail development among the created wetlands in its post-mined state. Any trail development should seek to minimize impacts to sensitive resources. Fencing needs for trail management through the Western Mobile Complex should be evaluated for visitor and resource management purposes. Localized trails independent of the regional trail alignment should consider potential impacts to sensitive species, and, if pursued, may need to utilize seasonal trail closures. Due to its remote location and the quality of adjacent habitat, preventing and restoring social trails is important. Monitoring for social trails will need to be a priority.

An extension of the St. Vrain Trail from the Town of Lyons to Hall Ranch has been identified as a priority and should be pursued. Preliminary assessments indicate that the trail could continue west along the south side of the Creek along Old St. Vrain Road. The trail could utilize the roadway itself, which would require that it be transformed into a one-way route for use by local traffic only. The installation of traffic barriers and signage would also be necessary. Or, the trail could parallel the roadway and utilize the existing right-of-way. Some acquisition and engineering would likely be required to accommodate a safe multi-use trail along the road.

As the trail continues west, it could then access the County-owned Hall Ranch Meadows and cross the Creek to the north. Two bridges would likely be required: one where the trail leaves the roadway and crosses the paralleling ditch/wetland; and one that spans the Creek to access the existing stock underpass at Highway 7. The existing box culvert is about 6 feet high and could accommodate most hikers and bicyclists. It may have to be modified in order to accommodate equestrians. Once through the underpass, users could then access the existing Hall Ranch trailhead and trail system. Opportunities also exist to connect into the Heil Valley Ranch trail system by acquiring and establishing a southeasterly link from Old St. Vrain Road.

Figure 9 depicts existing and proposed trails in the corridor, as well as connections to other trail systems.

Fishing and Boating

The St. Vrain corridor presents a variety of opportunities for fishing and boating access. The Braly, Western Mobile Lake IV, and Western Mobile Complex properties present excellent opportunities for warm water sport fishing. Braly has two ponds that should be developed for public fishing. Similar to what exists at Pella Crossing, the property could be developed to include loop trails, accessible piers, and belly boating access. The western lake on Braly has potential for providing non-motorized canoeing access. This could be achieved by developing a trail that leads to the pond's east side where a suitable grade exists for the development of a walk-in boat ramp. The Braly A-frame site could serve as a trailhead and parking area. The Braly property could also serve as access to the Lake IV property immediately to the west. Lake IV should be further evaluated for use as a fishery given its primary use as a water storage vessel. All ponds open to public access should be named for visitor and staff reference, whereas lakes closed to the public should be numbered.

A Recreation and Visitor Use Plan that outlines needs and recommended actions was completed for the Pella Crossing property. This plan guides the development of new facilities and upgrades. Fishing and belly boating access is planned to be available at the Pella Crossing (Marlatt) property by fall 2004.

Fisheries need to be established and monitored prior to opening. Banks and shorelines may also need additional armoring in order to prevent erosion. In particular, the eastern shoreline of the pond located to the immediate south of the A-frame on Braly should be stabilized. BCPOS

should continue to coordinate with Lafarge and the DMG on finalizing the mine operator's reclamation responsibilities. Bio-engineering techniques and hard materials such as rip rap should be evaluated. Shade trees are needed at nearly all of the lakes proposed for fishing. BCPOS should consult with DOW about its fishery objectives and limitations.

Three existing ponds on the Western Mobile Complex offer fishing potential, but, due to their proximity to the riparian corridor and the associated habitat values, should not be pursued for public fishing access. Two of these ponds lie to the northwest of Lake IV on the south side of the Creek. The third lies to the northeast on the north side of the Creek. These ponds could be utilized to produce catchable sport fish for transfer to other properties in the corridor open to public fishing.

A number of other ponds will be developed over time in the corridor as a result of continued gravel mining. Portions of Golden/Fredstrom, Golden Farm, and the Western Mobile Complex will host ponds that could offer fishing potential. The Golden Farm property will have a 20-acre lake that the City of Longmont plans to utilize for public fishing. Public fishing access is not anticipated at the other two properties. However, with the development of the St. Vrain Trail and the placement of trailheads, fishing access on these properties should be reevaluated once reclaimed. Large, deep reclaimed lakes are often best used as sport fishing sites.

Accessibility

Developing facilities that are accessible to persons with disabilities is important and required by federal law. Existing accessible facilities at Pella Crossing include parking, a restroom, and trails. Recommendations that addressed restroom facilities, picnicking, and fishing opportunities were outlined in the Pella Crossing and Marlatt Open Space Recreation and Visitor Use Plan (Boulder County 2003) and should be implemented. Furthermore, new facilities proposed for the Braly and Ramey properties should be accessible.

Interpretive and Environmental Education

Interpretative and educational opportunities abound. Significant natural and cultural resources occur within the corridor and on BCPOS properties, ranging from riparian and wildlife resources to historic buildings and agricultural activities. Interpretive programs are currently offered at the Pella Crossing property, including birding and environmental programs catered to kids and families. Specially requested guided visits to the Champion Cottonwood Tree located on the Pella Crossing (Marlatt) property are also offered. The opening of the northern half of the Pella Crossing (Marlatt) property will present additional opportunities to expand interpretive activities. Please refer to the Pella Crossing and Marlatt Open Space Recreation and Visitor Use Plan (Boulder County 2003) for additional detail.

The Ramey, Braly, and Western Mobile Complex properties present significant opportunities for natural and cultural interpretation. The Ramey property contains the oldest and best preserved homestead in Boulder County with six buildings built between 1862 and 1870. These structures have been rehabilitated and offer outstanding insight into 19th century farm life. A variety of programs could be developed using this resource. Riparian values, including the endangered Preble's meadow jumping mouse, could be interpreted through signage. The Braly property contains a double A-frame residence that has great potential for conversion into an environmental center. Visitors would be able to witness and interpret wetlands and pond ecology, wildlife, and agricultural history from this location. The vision for this facility includes developing it into the premier interpretive and educational attraction on the St. Vrain Creek. Facility use and development could range from use as a staging area for programming to the development of a

staffed nature/interpretive center. The facility could also be used for volunteer training and workshops.

Promoting environmental education by using BCPOS properties as field sites is part of the Department's mission. Two properties, Walden Ponds and Rabbit Mountain, have been utilized since 2001 to host sixth grade students from the St. Vrain Valley School District. Under the District's Project TEN (Teaching Environmental Science Naturally) program, an average of 550 students per year have visited the Rabbit Mountain property. Walden Ponds has not been utilized in recent years due to the continued drought and low water conditions. The Braly property, and its access to the St. Vrain corridor and numerous ponds, provides an excellent opportunity to expand and enhance the utility and attractiveness of Project TEN or other similar programs. Working with the St. Vrain Valley and other school districts, this area could be developed and used for programs that would deliver valuable field instruction and environmental education to elementary aged children.

In addition to formal programs and guided activities, stationary interpretive opportunities also exist. The Lake IV and Western Mobile Complex properties have potential to host watchable wildlife stations. These stations could focus on the viewing of wildlife in the distant foothills or waterfowl on the nearby lakes. Implementation of the St. Vrain Trail provides an excellent opportunity for interpretation through trailside signage. Signage and displays should focus on the importance and wealth of natural resources within the corridor, in addition to the complementary topics of cultural and agricultural resource significance. As opportunities for each of these properties are refined, site plans and signage plans should be developed.

Volunteer Opportunities

BCPOS offers many volunteer opportunities for interested citizens and organizations, ranging from land maintenance activities to providing services to visitors. Most of these programs are organized through BCPOS interpretive staff. Volunteer opportunities include:

Adopt a Park/Trail- This program gives families, schools, community groups, and businesses an opportunity to be part of the County's park maintenance system. Generally, there is an adopted site, such as a parking area or trail. Work can include trash pick-up, trail construction/maintenance, weed control, wildlife habitat enhancement, and other park improvements. Training is provided by BCPOS staff.

Park Hosts- Park hosts work at specific open space properties orienting visitors to the recreational opportunities of an area. Training is provided by BCPOS staff.

Volunteer Naturalists- Volunteer naturalists are trained to provide environmental education programs to the public, school groups, and organizations. Each year, one or two classes of 20-25 people are chosen from applicants for the training program.

Emergency Services

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

Law Enforcement - Primary law enforcement responsibility for the properties rests with the Boulder County Sheriff's Department, as the properties are located within the

unincorporated county. Three commissioned Sheriff's Deputies are assigned full-time to patrol open space properties, as are BCPOS Rangers who have limited commissions and enforce BCPOS rules and regulations only.

About half of the properties in the corridor are under agricultural lease and closed to the public. Visitation to these properties by law enforcement staff is minimal (10 hours in 2002) and patrol is primarily limited to "drive-by" inspections. Law enforcement staff rely heavily on contact and communication from the agricultural operators/lessees to be informed of any problems or potential violations. Between the two main properties open to the public (Pella Crossing and Fairgrounds Lake), law enforcement staff logged 206 patrol hours and issued a total of 42 violations in 2002. Two-thirds of those violations were issued for fishing regulations, illegal parking, and dogs off leash. Use of parks outside of designated hours (after sunset) was also noted. Respecting closed areas, such as agricultural lands and sensitive wildlife habitat areas, is also an issue of concern.

Many of the properties in the corridor will remain closed to the public as agricultural lands; however, some properties will be developed for passive recreation and public use. Implementation of the St. Vrain Trail will also change law enforcement and resource protection needs in the corridor and patrol duties should be adapted accordingly.

Fire Protection - Fire potential on the properties is generally limited to wildland fire, probably in the form of a grass fire. Illegal fires or escaped grill fires could be contributors. Agricultural ditch burning may also be a consideration. Primary fire protection responsibility varies depending on the location of the property and its initial attack jurisdiction. At the eastern end of the corridor, the Longmont Fire Protection District (FPD) is responsible for protection of the Peschel, Keyes (North), Quicksilver Farm, Golden Farm, Fairgrounds, Golden Gravel, and Roger's Grove properties. The Hygiene FPD is responsible for Pella Crossing, Golden/Fredstrom, Birnbaum, Gage, and Ramey. Lyons FPD is responsible for Braly, Western Mobile Complex, Toteve, Montgomery, Wallace, Bullock (South), Western Mobile 40, Hall Ranch and Custode. BCPOS has staff trained in wildland fire response and can assist with coordination and firefighting resources.

RULES AND REGULATIONS

The following general rules and regulations, which apply to all BCPOS properties according to Resolution 2001-50, are applicable to properties in the St. Vrain corridor:

- Properties that are open for public use are open from sunrise to sunset. Overnight camping is prohibited.
- Collecting, removing, destroying, or defacing any natural or manmade objects within parks and open space is not permitted.
- Discharging or carrying firearms, crossbows, fireworks, or projectile weapons of any kind is not permitted (except law enforcement officials and as allowed by the Board of County Commissioners to carry out a wildlife management program).
- Ground fires are not permitted. Fires may only be built in established grills and fireplaces in picnic areas. Fires may be prohibited entirely by order of the Board of County Commissioners, the Boulder County Sheriff, or the Director of Parks and Open space by posting of special notices or notification through the press.
- Feeding, disturbing, trapping, hunting, or killing wildlife is not permitted (except as allowed by the Board of County Commissioners to carry out a wildlife management program).

- Motorized vehicles are not permitted (County, emergency, and agricultural lessees on official business are excepted; exceptions may also be granted to persons with disabilities, by written permission from the Parks and Open Space Department, for the use of single-rider, motorized vehicles adapted for recreational use by people with disabilities).
- All dogs or other domestic animals shall be restrained by a leash, cord, rope or chain and under physical control of a person, except as otherwise provided for or specially posted.
- Swimming, diving, wading (except as required for fishing), ice skating, ice fishing or boating (operating a vessel or a single-chambered device) in or on any lake, pond or stream, unless the area is specifically posted to allow such activity, is prohibited.
- Trail use shall be limited to officially designated trails and roads only and trail right-of-way rules shall be obeyed.
- Vehicles must be parked in designated areas only.
- It is unlawful to place rock bolts, install gates, establish or construct trails or other facility for public or private use without the written permission from the Parks and Open Space Department.
- The Parks and Open Space Department may temporarily close areas to public use for repairs or due to wildlife, vegetation, and/or public safety concerns. It shall be unlawful for the public to enter such areas.
- The Board of County Commissioners may adopt use restrictions on trails or park and open space areas for resource protection or public safety. Such restrictions shall be posted and it shall be unlawful to violate these restrictions.
- Open space lands being managed for agricultural purposes, whether by the Parks and Open Space Department or by a lessee, are closed to the public unless trails or other related facilities are designated by the Board of County Commissioners.
- It is unlawful to consume, possess, or serve alcoholic beverages, as defined by state statute, in any park or open space area.
- Activities that unduly interfere with the health, safety, and welfare of the users or the neighbors in the area, or that create a nuisance or hazard to the use and safety or persons using or neighboring such areas are prohibited. Disorderly conduct (including amplified sound) shall be prohibited.
- Fishing is permitted in accordance with the Colorado Wildlife Commission's land and water regulations, except in areas designated and posted with special county parks and open space regulations.

In addition to the previously listed general regulations, the following specific rules and regulations apply at select fishing properties:

Fairgrounds Lake

- All ponds are designated as catch and release fishing for largemouth and smallmouth bass. Anglers must use terminal tackle, such as flies and lures. Creel limits for all species other than largemouth and smallmouth bass must adhere to the Colorado Wildlife Commission's regulations.
- All vessels and single-chambered devices are prohibited, with the exception of float tubes.

Pella Crossing (Frontier Materials, Inc.)

- All ponds are designated as catch and release fishing for largemouth and smallmouth bass. Anglers must use terminal tackle, such as flies and lures. Creel limits for all species other than largemouth and smallmouth bass must adhere to the Colorado Wildlife Commission's regulations.

- Non-motorized, portable vessels are allowed on Sunset and Heron Lakes. Such use is allowed only for the purpose of fishing.
- All vessels and single-chambered devices are prohibited on Webster Pond.

Pella Crossing (Marlatt) [once opened for public use]

- All ponds are designated as catch and release fishing for largemouth and smallmouth bass. Anglers must use terminal tackle, such as flies and lures. Creel limits for all species other than largemouth and smallmouth bass must adhere to the Colorado Wildlife Commission's regulations.
- Non-motorized, portable vessels are allowed on all ponds open to the public (Poplar, Dragonfly, and Clearwater). Such use is allowed only for the purpose of fishing.

Braly [once opened for public use]

- All ponds are designated as catch and release fishing for largemouth and smallmouth bass. Anglers must use terminal tackle, such as flies and lures. Creel limits for all species other than largemouth and smallmouth bass must adhere to the Colorado Wildlife Commission's regulations.
- Non-motorized, portable vessels are allowed on all ponds open to the public (Ponds S and W).

Western Mobile Lake IV [if opened for public use]

- This lake is designated as catch and release fishing for largemouth and smallmouth bass. Anglers must use terminal tackle, such as flies and lures. Creel limits for all species other than largemouth and smallmouth bass must adhere to the Colorado Wildlife Commission's regulations.
- Non-motorized, portable vessels are allowed on this lake. Such use is allowed only for the purpose of fishing.

PLAN IMPLEMENTATION

Successful implementation of the St. Vrain Creek Corridor Management Plan requires that the recommended action items be prioritized in order to accomplish management objectives and Plan goals. Each member of the inter-disciplinary Plan advisory team rated the action items. The team then met as a group to discuss and ratify the final results shown in *Table 5*. These prioritized action items should be reviewed regularly to ensure that they are factored into annual work plans. *Table 6* presents a summary of the key action items by property.

Many of the management actions will be implemented within the first few years of approval of the Plan, while others will take many years to accomplish. Some management actions are ongoing, some are short-term, and others are long-term, representing considerable investments of time and energy.

Each of the action items was assessed relative to its timing and priority. Timing, or how long it will take to accomplish an action after Plan approval, was rated using the following terms:

- **Short-term (S)** actions can be initiated immediately and should take less than one year to accomplish after Plan approval.
- **Mid-term (M)** actions take longer than one year and less than three years to accomplish, or for some reason cannot be initiated immediately following Plan approval.
- **Long-term (L)** actions take longer than three years to complete once they have been started. In some cases, projects cannot be initiated until a number of years after Plan approval.
- **Ongoing (O)** actions involve more routine tasks or projects that take place at regular intervals over time.

Management actions were also rated for priority. Criteria for prioritization included the urgency, importance, and relationship of each action item to other resource goals, objectives, and action items. Other considerations included community need, legal requirements, budget, and personnel. Priority was rated using the following terms:

- **High priority (1)** actions should be accomplished first. These management actions are considered extremely important to the protection of the conservation values of the St. Vrain Creek corridor. High priority actions are directly related to the accomplishment of other resource objectives and goals.
- **Medium priority (2)** actions are considered important, but not urgent, and meet a combination of other resource goals and objectives.
- **Low priority (3)** actions are important, but not critical to resource protection needs. Low priority actions items do not have to be completed in the immediate future and primarily fulfill a specific resource goal or objective.

Table 5. Summary of Management Recommendations

MANAGEMENT GOALS, OBJECTIVES, AND ACTIONS	TIMING	PRIORITY
Vegetation Goal: <i>Protect and enhance native vegetation and restore degraded plant communities.</i>		
Objective 1: Preserve, restore, and create diverse and functional wetland communities.		
Action: Conduct wetland inventories on the Golden Farm, Golden Gravel, Roger's Grove, Hall Ranch Meadows, and Custode properties.	L	3
Action: Evaluate and support the implementation of mined land reclamation plans.	O	1
Action: Evaluate wetland restoration needs and implement where necessary.	L	2
Objective 2: Conduct periodic inventories for protected and/or sensitive plant species such as the Ute ladies'-tresses orchid and Colorado butterfly plant.		
Action: Conduct rare plant surveys on the Braly, Golden/Fredstrom, Pella Crossing, Ramey, Toteve, and Western Mobile Complex properties.	O	3
Objective 3: Control noxious weeds.		
Action: Initiate weed control on corridor properties.	O	2
Action: Map and monitor weed infestations.	O	2
Action: Plan all ground-disturbing activities, such as trail construction or other recreational developments, with a weed strategy in mind.	O	1
Objective 4: Conserve and restore upland habitat.		
Action: Work with the County Transportation Department to determine the feasibility of preserving the Gage property in its current state.	S	1
Action: Restore uplands on the Braly property.	L	1
Objective 5: Review grazing management practices in order to minimize impact to significant plant communities.		
Action: Develop and implement grazing plans in cooperation with agricultural lessees.	M	1
Action: Install fence on the south side of the St. Vrain Creek at the Gage property to control livestock grazing.	S	1
Objective 6: Restore riparian ecosystems.		
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Action: Remove tamarisk and Russian-olive from the Peschel, Keyes N, Gage, Golden/Fredstrom, Pella Crossing, Ramey, and Braly properties.	O	1
Action: Stabilize shorelines on Webster and Heron Ponds at the Pella Crossing property.	L	1
Action: Continue revegetation efforts on the Gage, Pella Crossing, Ramey, and Braly properties; initiate restoration of the Keyes N property.	L	1
Action: Evaluate need for new fence for vegetation management at the Golden/Fredstrom and Gage properties.	M	2
Wildlife Goal: <i>Protect and enhance wildlife habitat and movement corridors.</i>		
Objective 1: Determine the status of threatened, endangered, and sensitive species in the corridor.		
Action: Inventory important wildlife populations (bald eagle, Preble's meadow jumping mouse, black-tailed prairie dog, ferruginous hawk, common shiner, brassy minnow) that use the properties and monitor changes in frequency, distribution, and behavior.	O	2
Action: Identify wildlife enhancement needs and opportunities.	O	2
Objective 2: Implement proactive and protective management strategies for important wildlife species.		
Action: Confirm raptor nest sites and maintain appropriate buffers.	O	1
Action: Provide undisturbed roosting and feeding sites/habitats for raptors such as bald and golden eagles and ferruginous hawks.	O	1
Action: Protect important habitat and evaluate and implement fencing and riparian protection measures for the Preble's meadow jumping mouse.	O	1
Action: Monitor and manage black-tailed prairie dog populations in accordance with the BCPOS Grassland Management Plan.	O	2
Action: GPS and map closure area boundaries and install necessary fencing and signage on the Golden/Fredstrom, Gage, Ramey, Braly, Montgomery, Wallace, and Bullock properties.	M	2
Action: GPS and map closure area boundaries and install necessary fencing and signage on the Western Mobile Complex.	L	2
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Objective 3: Improve conditions for sensitive native fish by working with CDOW, water users, water rights, and BCPOS recreational development plans.		
Action: Evaluate the use of small ponds in closed areas as refugia sites for rearing sensitive native fish (Braly, Pella Crossing, Western Mobile Complex).	O	3
Objective 4: Implement strategies to protect breeding bird habitat.		
Action: Locate new trails in areas that minimize habitat fragmentation and wildlife disturbance.	O	1
Action: Avoid disturbance (burning, mowing, haying, etc.) of grassland bird habitats during nesting season (through July 15).	O	1
Action: Conduct breeding bird inventories and monitor populations.	O	1
Objective 5: Promote the conservation of adjoining open lands to contribute to enhanced protection of the corridor.		
Action: Pursue acquisition of remaining corridor lands that improve or enhance the conservation values of the corridor.	O	1
Objective 6: Improve habitat in ponds and lakes for sport fishing.		
Action: Conduct fish surveys in ponds on the Braly property.	S	2
Action: Conduct fish surveys in ponds at the Western Mobile Complex.	M	2
Action: Stock fish in ponds on the Braly property.	S	2
Action: Create structural habitat such as shelves and hiding areas at Braly by adding trees and other natural materials.	M	2
Action: Utilize large ponds in closure areas at the Western Mobile Complex to supply sport fish for public fishing sites.	L	3
Water Resources Goal: <i>Ensure that the quantity of water rights and quality of water resources are sufficient to support the conservation values of the corridor.</i>		
Objective 1: Enhance pond and stream water quality where possible.		
Action: Establish baseline water quality data that develops standards for management action.	O	1
Objective 2: Manage water resources to support important vegetation communities and sensitive native fish.		
Action: Evaluate in-stream flow requirements and acquire or transfer water rights as appropriate.	O	2
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Action: Coordinate with Aggregate Industries and Lafarge to ensure proper reclamation of the Golden/Fredstrom, Peschel, and Western Mobile Complex and manage water resources and wetlands as necessary.	O	1
Action: Release water to simulate flooding events that support cottonwood regeneration and riparian plant establishment.	L/O	2
Action: Augment low flows during drought conditions and simulate periodic flushing events for sensitive native fish.	L/O	2
Cultural Resources Goal: <i>Protect significant cultural resources and provide compatible interpretive opportunities.</i>		
Objective 1: Evaluate cultural resources.		
Action: Identify and assess eligibility of cultural resources.	S	1
Action: Nominate eligible resources to the local, State or National Registers.	S	2
Action: Re-evaluate cultural resources within the Western Mobile Complex once management control is assumed.	L	1
Objective 2: Assess physical condition of historic structures.		
Action: Develop potential future uses for historic structures to determine proper treatment.	S	1
Action: Develop potential future uses for historic structures to determine proper treatment of resources within the Western Mobile Complex once management control is assumed.	L	2
Objective 3: Apply for funding for the preservation, restoration or rehabilitation of identified historic structures.		
Action: Develop priority list and timing for projects that would qualify for State Historical Fund grants.	S	1
Objective 4: Stabilize, preserve or rehabilitate identified historic structures.		
Action: Patch Ramey farmhouse roof; complete interim stabilization of the Ramey open lean-to; stabilize Braly small barn.	S	1
Action: Evaluate treatment options for the Braly cinder block garage; replace Ramey farmhouse roof.	M	2
Action: Replace the Ramey farmhouse roof.	M	2
Action: Complete stabilization of the Golden Farm barracks.	M	2
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Agricultural Resources Goal: <i>Preserve agricultural resources and practices where appropriate to ensure the legacy and rural character of the corridor.</i>		
Objective 1: Maintain sustainable agricultural operations.		
Action: Employ sound fertilizer application and irrigation techniques.	O	1
Action: Construct new livestock watering facilities on the Gage property.	S	1
Action: Manage prairie dogs on agricultural properties in accordance with the BCPOS Grassland Management Plan.	O	1
Action: Develop written grazing management plans in cooperation with agricultural lessees.	M	1
Objective 2: Maintain agricultural infrastructure, including fencing, ditch systems, and irrigation structures.		
Action: Maintain irrigation ditches to improve water conveyance efficiency [including the use of Polyacrilimide (PAM)].	O	1
Action: Evaluate collapsed tile drains on the Keyes N property.	S	2
Action: Coordinate with ditch owners to maintain the ditch easement on the Gage property.	O	1
Action: Replace perimeter fencing where needed and assess interior fencing needs on the Gage property.	M	2
Objective 3: Maintain water rights and improve irrigation efficiency where possible.		
Action: Utilize water resources, maintain diversion and application records, vote ditch shares, and pay annual assessments.	O	1
Action: Install flow measurement and recording devices at all agricultural properties, especially Gage and Keyes N.	S	1
Action: When replacing worn water diversion structures (i.e., headgates), utilize updated systems that allow for the delivery of small, measurable quantities of water.	O	1
Objective 4: Evaluate and coordinate agricultural management practices to enhance plant and wildlife resources.		
Action: Evaluate fencing needs in order to protect important habitat for sensitive species.	M	1
Action: Remove fencing from across the St. Vrain Creek wherever it is not needed for livestock or visitor management purposes.	M	2
Action: Reduce stream siltation in recognized sensitive native fish habitat by limiting cattle access points and adding hardened approaches.	M	2
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Visitor Use Goal: <i>Provide passive recreation, education, and interpretive opportunities that are compatible with the conservation values of the corridor.</i>		
Objective 1: Continue to support the planning and implementation of a safe and environmentally sensitive regional trail network.		
Action: Implement the St. Vrain Trail Master Plan on the Pella Crossing, Gage, Ramey, Braly, Western Mobile Complex, and Wallace properties.	O	1
Action: Evaluate possible trailhead locations on the Peschel, Pella Crossing, Braly, and Western Mobile Complex properties and expand and/or develop parking lots accordingly.	O	1
Action: Plan and implement a western extension of the St. Vrain Trail connecting the town of Lyons to Hall Ranch.	M	1
Action: Evaluate fencing needs for trail and resource management purposes through the Western Mobile Complex.	L	1
Objective 2: Develop site specific recreational facilities that complement the regional trail system.		
Action: Pursue development of independent trail systems at the Braly and Ramey properties.	M	2
Action: Complete implementation of the Pella Crossing trail and site improvements.	S	1
Objective 3: Evaluate opportunities for fishing and boating access and implement where feasible.		
Action: Coordinate with Longmont on post-mining fishing opportunities at the Golden Farm property.	L	2
Action: Pursue development of public fishing areas at the Pella Crossing property, including the establishment of fisheries and related amenities.	O	1
Action: Pursue development of public fishing areas at the Braly property, including the establishment of fisheries and related amenities.	M	2
Action: Evaluate the use of Lake IV and ponds in the Western Mobile Complex for use as public fishing areas.	L	2
Action: Create fishing opportunities accessible to persons with disabilities on the Fairgrounds, Pella Crossing, and Braly properties by adding accessible piers, shoreline fishing pads, etc.	M	2
Objective 4: Develop an environmental education program for corridor resources.		
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Action: Identify possible themes and develop programs and written materials.	O	2
Action: Develop signage that focuses on the significance and protection of riparian resources.	O	2
Action: Expand the Project TEN program to include the Pella Crossing, Braly, and Western Mobile Complex properties and proactively work with the St. Vrain Valley and other school districts.	O	2
Objective 5: Provide interpretive activities where opportunities exist.		
Action: Evaluate and pursue necessary improvements to provide access to the Champion Cottonwood Tree.	M	1
Action: Explore the development of an environmental center on the Braly property using the double A-frame building.	M	3
Action: Provide viewing opportunities and develop programs and interpretive signage at the Ramey property.	M	2
Action: Work with Longmont to provide viewing opportunities and interpretive signage at the Golden Farm barracks.	L	2
Action: Provide viewing opportunities and develop programs and interpretive signage at the Braly property.	M	2
Action: Evaluate viewing opportunities and interpretation potential of Western Mobile Complex resources once management control is assumed.	L	2
S: Short-term; M: Mid-term; L: Long-term; O: Ongoing; 1: High priority; 2: Medium priority; 3: Low priority		

Table 6: Summary of Key Action Items by Property

Property	Action
Peschel	<ul style="list-style-type: none"> -Weed control -Russian-olive removal -Monitor mineland reclamation activities -Coordinate future trail & trailhead development
Keyes (North)	<ul style="list-style-type: none"> -Weed control -Russian-olive removal -Riparian restoration -Slash pile removal -Repair drain tiles and improve irrigation system -Install water measurement devices -Coordinate future trail development
Golden Farm	<ul style="list-style-type: none"> -Weed control -Wetland inventory -Preble's meadow jumping mouse survey -Historic structure improvements -Develop future trailside interpretive signage
Golden Gravel	<ul style="list-style-type: none"> -Weed control -Wetland inventory
Fairgrounds	<ul style="list-style-type: none"> -Weed control -Develop handicapped-accessible fishing opportunities
Roger's Grove	<ul style="list-style-type: none"> -Weed control -Wetland inventory -Prairie dog management in accordance w/ approved plans
Golden/Fredstrom	<ul style="list-style-type: none"> -Weed control -Russian-olive removal -Riparian fencing -Slash pile removal -Preble's meadow jumping mouse survey -Rare plant survey -Improve cattle/Creek approaches -Monitor future mineland reclamation -Define and map conservation area boundary
Pella Crossing (Frontier Materials, Inc.)	<ul style="list-style-type: none"> -Weed control -Russian-olive removal -Pond shoreline stabilization -Complete trail extension -Complete recreational site amenities -Expand parking lot
Pella Crossing (Marlatt)	<ul style="list-style-type: none"> -Weed control -Russian-olive removal -Complete recreational trail and site amenities -Develop access to Champion Cottonwood Tree -Develop handicapped-accessible fishing opportunities -Plant shade trees -Pond shoreline stabilization -Riparian restoration -Preble's meadow jumping mouse survey -Rare plant survey -Develop native fish refugia
Birnbaum	<ul style="list-style-type: none"> -Weed control
Gage	<ul style="list-style-type: none"> -Weed control -Coordination w/ Co. Transp. Dept. to preserve gravel area -Riparian and boundary fencing

Gage (cont.)	<ul style="list-style-type: none"> -Russian-olive removal -Riparian restoration -Prairie dog management in accordance w/ approved plans -Upland restoration -Install water measurement devices -Fence repair/replacement -Preble's meadow jumping mouse survey -Evaluate native fish enhancements -Historic structure survey -Further evaluate regional trail development opportunities -Construct and screen new livestock waterer -Improve cattle/Creek approaches -Define and map conservation area boundary
Ramey	<ul style="list-style-type: none"> -Weed control -Rare plant survey -Russian-olive removal -Riparian restoration -Preble's meadow jumping mouse survey -Historic structure improvements -Develop interpretive trail and amenities -Define and map conservation area boundary
Braly	<ul style="list-style-type: none"> -Weed control -Rare plant survey -Russian-olive removal -Riparian restoration -Upland restoration -Conduct fish survey -Enhance sport fish habitat and stock lakes -Develop handicapped-accessible fishing opportunities -Pond shoreline stabilization -Plant shade trees -Preble's meadow jumping mouse survey -Develop native fish refugia -Historic structure improvements -Selective fence removal -Develop recreation site and amenities -Evaluate development of an environmental center -Define and map conservation area boundary
Western Mobile Complex	<ul style="list-style-type: none"> -Weed control -Rare plant survey -Install and monitor groundwater wells -Monitor future mineland reclamation -Develop trails according to adopted plans -Evaluate trailhead locations according to adopted plans -Conduct fish survey -Utilize large lakes in closure areas for rearing sport fish -Evaluate future sport fishing opportunities -Evaluate future development of native fish refugia -Historic structure assessment and improvements -Selective fence removal -Define and map conservation area boundary
Toteve	<ul style="list-style-type: none"> -Weed control -Prairie dog management in accordance w/ approved plans -Rare plant survey -Preble's meadow jumping mouse survey

Montgomery	<ul style="list-style-type: none"> -Weed control -Define and map conservation area boundary
Wallace	<ul style="list-style-type: none"> -Weed control -Riparian restoration -Develop trails according to adopted plans -Define and map conservation area boundary
Bullock (South)	<ul style="list-style-type: none"> -Weed control -Riparian restoration -Trash removal -Define and map conservation area boundary
Western Mobile 40	<ul style="list-style-type: none"> -Weed control -Monitor future mineland reclamation
Hall Ranch Meadows	<ul style="list-style-type: none"> -Weed control -Wetland inventory -Research and develop Lyons-Hall Ranch trail connection -Riparian restoration
Custode	<ul style="list-style-type: none"> -Weed control -Wetland inventory

RESOURCE MONITORING AND RESEARCH NEEDS

Resource monitoring is conducted to determine if management objectives are being achieved. Monitoring provides information about changes that are occurring within the corridor and helps inform decisions about future land management activities. The monitoring of specific resources is performed on a periodic basis in relation to resource sensitivity. Some monitoring takes place through routine staff activities, while others take place annually or every few years. *Table 7* summarizes the recommended monitoring activities for properties within the corridor.

Table 7: Resource Monitoring

Activity	Frequency	Responsible Party	Properties
Raptor nest survey	Annual	BCPOS/Volunteer	All
Prairie dog survey	Annual	BCPOS	All
Weed monitoring	Annual	BCPOS/Lessee	All
Weed inventory and mapping	Every 5 yrs.	BCPOS	All
Wetlands monitoring	Within 5 yrs.	BCPOS	Peschel, Keyes (N), Golden/Fredstrom, Pella Crossing (Marlatt), Gage, Ramey, Braly, Western Mobile Complex, Toteve, Western Mobile 40
Breeding bird survey	Every 3-5 yrs.	Volunteer	Riparian Corridor
Riparian plant inventory, including rare species	Within 5 yrs.	BCPOS	Golden/Fredstrom, Gage, Ramey, Braly, Western Mobile Complex, Toteve, Montgomery
Preble's baseline survey	Within 5 yrs.	BCPOS	Golden Farm, Golden/Fredstrom, Pella Crossing (Marlatt), Gage, Ramey, Braly, Toteve,
Irrigation water	Ongoing	BCPOS/Lessee	Gage, Keyes (N), Ramey, Toteve, Western Mobile Complex
Agricultural land and infrastructure	Ongoing	BCPOS/Lessee	Birnbaum, Gage, Hall Ranch Meadows, Keyes (N), Ramey, Toteve, Western Mobile 40, Western Mobile Complex
Historic structures	Annual	BCPOS	Golden Farm, Gage, Ramey, Braly, Western Mobile Complex
GOCO CC&R Monitoring	Every 3 yrs.	Longmont	Keyes (N), Ramey, Braly, WM Lake IV
Historic Preservation Easement Monitoring	Annual	BCPOS	Sandstone Ranch (Coffman Homestead)

POTENTIAL PROJECT FUNDING SOURCES

(organized by topic area)

HABITAT MANAGEMENT & RESTORATION

U.S. Army Corps of Engineers <http://w3.now.usace.army.mil>

Section 206 funds: This federal program provides financial assistance to restore historic habitat conditions (aquatic ecosystems). Total project costs are shared 65% Federal and 35% non-Federal, including costs of studies, designs, construction, monitoring, and lands. The Federal share is limited to a maximum of \$5 million. In-kind contributions are eligible as match, including land value. Sample projects include reconnecting old river channels and backwaters, creating wetland subimpoundments on the perimeter of reservoirs, improving water quality through the reduction of erosion and sedimentation, or manipulating wetlands and vegetation in shallow headwaters of reservoirs.

Boulder County Urban Drainage

Colorado Department of Agriculture- Division of Plant Industry www.ag.state.co.us/DPI

Noxious Weed Management Fund: This state program provides grants that promote cooperative efforts to manage noxious weeds. Previous projects included weed management, mapping, and educational efforts. Grants ranged from \$750-30,000, with an average of about \$5,000-10,000. In 2003, the Fund was discontinued by the Colorado Legislature in order to deal with the State's financial crisis. It is uncertain as to if/when this program will be reestablished.

National Fish and Wildlife Foundation (NFWF) www.nfwf.org

This private foundation awards General Matching Grants to projects that address priority actions promoting fish and wildlife conservation and the habitats on which they depend, work proactively to involve other conservation and community interests, leverage grant funding, and evaluate project outcomes. Grant awards average \$25,000-75,000. Many NFWF grants utilize federal funding sources and are therefore subject to a range of federal stipulations. In addition to the general matching grant and small grant programs, the foundation administers a number of special grant programs identified below.

Bring Back the Natives: This program funds on-the-ground efforts to restore native aquatic species to their historic range. Emphasis is placed on restoring native populations of sensitive or listed species in partnership with private landowners. A 2:1 non-federal match is required. A preproposal is required prior to submittal of a full proposal.

FMC Corporation Bird and Habitat Conservation Fund: This program funds habitat conservation that benefits birds, with a particular focus on prairie species and waterfowl. A preproposal is required prior to submittal of a full proposal.

Five-Star Restoration Matching Grants Program: This program supports community-based wetland, riparian, and coastal habitat restoration projects that build diverse partnerships and foster local natural resource stewardship through education, outreach and training activities. Multiple partners, funders, and/or participants are a necessary element. Grant awards averaged \$10,000 in 2003, with 56 of 240 projects receiving funding.

Native Plant Conservation Initiative: This program supports on-the-ground conservation projects that protect, enhance, and/or restore native plant communities on public and private lands. Projects typically fall into one of three categories and may contain elements of each: protection and restoration, information and education, and inventory and assessment. Emphasis is placed on projects that involve local communities and citizen volunteers in the restoration of

native plant communities. Grants range from \$5,000-40,000, with an average of \$15,000. A 1:1 non-federal match is required.

Pulling Together Initiative: This program provides a means for federal agencies to be full partners with state and local agencies, private landowners, and other interested parties in developing long-term weed management projects within the scope of an integrated pest management strategy. The primary activity is supporting the formation of a Weed Management Area (WMA) for the purposes of successful weed management and education. Grant awards range from \$10,000-100,000, with an average of \$30,000.

U.S. Fish and Wildlife Service

Section 6 funds

Colorado DNR- Division of Wildlife (DOW) <http://wildlife.state.co.us>

Wetlands Program: This state program is described as the one-stop shopping center for wetlands. The program seeks to protect wetlands and wetland-dependant wildlife through coordination and multi-source funding. Projects include restoration and management as well as land protection.

Natural Resource Conservation Service (NRCS) www.nrcs.usda.gov

Wildlife Habitat Incentives Program (WHIP): This federal program provides technical and financial assistance for the development of upland, wetland, and aquatic habitat areas through the Farm Bill. The applicant works with the NRCS to develop a wildlife habitat development plan, which becomes the basis for the cost-share agreement that may fund up to 75% of the project cost. Applications are accepted at any time.

Wildlife Forever www.wildlifeforever.org

This private organization provides Challenge Grants targeted at habitat restoration and acquisition, research and management, and educational projects. Special emphasis is placed on grassroots programs. Grant funds must be matched on at least a 1:1 basis from a third party and sent through Wildlife Forever. Typical grants range from \$1,000-10,000, with no set minimum or maximum. Another fund provides Sportmen's Challenge Grants (up to \$2,500 per project) that are designed to help small conservation projects in local communities.

Colorado Wildlife Heritage Foundation <http://wildlife.state.co.us/cwhf>

This program is designed to assist with the coordination of wildlife projects, search for project funding, and the stewardship of grant funds. Projects focus on wildlife management, land protection, restoration, and environmental education. On-line applications are accepted year-round.

LAND AND WATER ACQUISITION

Great Outdoors Colorado (GOCO) www.goco.org

Open Space- This program helps protect land and natural areas such as urban open space, riparian corridors, wildlife habitat, agricultural land and community separators. Grants are for land preservation purposes only and cannot be used for projects involving active recreation or development of facilities. 25% of the total project cost must come from outside sources, with at least 12.5% being cash. Application cycles are typically offered twice a year.

Legacy Initiative- Legacy projects are large-scale, multi-year projects of regional or statewide significance and often integrate outdoor recreation, wildlife, open space, and local government. This grant program is currently inactive.

AGRICULTURAL ENHANCEMENTS

Natural Resource Conservation Service (NRCS) www.nrcs.usda.gov

Environmental Quality Incentives Program (EQIP): This federal program promotes agricultural production and environmental quality as compatible goals for agricultural producers through the Farm Bill. National and State priorities include conservation practices that reduce nonpoint source pollution, emissions, or soil erosion and promote habitat conservation for at-risk species. The applicant works with the NRCS to develop the EQIP plan of operations, which becomes the basis for the cost-share agreement that may fund up to 75% of the project cost. Typical projects include the installation of grass waterways, filter strips, manure management facilities, or capping abandoned wells. Applications are accepted at any time.

RECREATIONAL DEVELOPMENT

Great Outdoors Colorado (GOCO) www.goco.org

Local Government- This program helps to acquire, establish, expand, and enhance park, outdoor recreation and environmental education facilities. Projects include ballfields, sports complexes, skate parks, playgrounds, and swimming pools. Regular grants have a maximum grant amount of \$200,000. 30% of the total project cost must come from outside sources, with 10% being cash. Application cycles are typically offered twice a year.

Planning & Capacity Building- These two programs help develop plans to preserve or enhance open space, parks and outdoor recreation or to help build the capacity of organizations to do so. Planning grants support multi-jurisdictional planning efforts, site specific park/open space plans, assessments and inventories, and unique plans on a single topic. Planning grants are capped at \$75,000 with average grants between \$10,000-50,000. Capacity building grants support organizational development or new program development and have a cap of \$50,000. Average grants range from \$10,000-35,000. The capacity building grant program is currently inactive.

Colorado DNR- State Parks <http://parks.state.co.us>

State Trails Grants Program: Three grant categories are offered to plan, construct, maintain, or enhance trails on lands open to the public. Project costs incurred six months prior to the application deadline are eligible. Grant awards are typically made in August.

Planning- Grants up to \$15,000 that are related to the planning, research, or capacity building of trails. A 25% match above and beyond the grant request is required.

Small- Grants up to \$15,000 for construction, reconstruction, maintenance or enhancements to an existing or new trail or trailhead, snow grooming equipment, and land acquisitions. A 25% match above and beyond the grant request is required.

Recreational- Grants of \$15,000 or more for construction, reconstruction, maintenance or enhancements to an existing or new trail or trailhead, snow grooming equipment, and land acquisitions. Maximum grant request is \$200,000 and a match equal to the grant request is required.

Colorado DNR- Division of Wildlife (DOW) <http://wildlife.state.co.us>

Fishing Is Fun Grant Program: This program provides federal matching funds for the development of aquatic resources and angler access. Reimbursing grants fund up to 75% of project costs. Projects focus on improving the sportfishing resource and the angler's ability to access it, like obtaining public access to a water resource, constructing or renovating public fishing ponds, constructing ramps, docks, fishing piers, or other site improvements, and adding stream habitat improvement structures. Applications are typically available in mid-November each year. The application process must begin by contacting DOW area staff at least 30 days

prior to the application deadline (usually in March). Applicants may not participate in more than two projects annually.

Watchable Wildlife Program: This program provides funding for projects that create and enhance wildlife viewing recreation opportunities. Projects are usually capital construction based and include items such as trails, facility development, and habitat enhancement that benefits people's experiences with wildlife. Projects are considered partnerships with the DOW and compete for funds through the DOW's regional budget process. There is no formal application process. Projects are initiated through staff contacts [Karen Hardesty, (303) 291-7291].

CULTURAL RESOURCE PROTECTION & REHABILITATION

Colorado Office of Archaeology and Historic Preservation (OAHP)- State Historical Fund
<http://www.coloradohistory-oahp.org/programareas/shf/shfindex.htm>

Approximately \$15 million is available for annual distribution through a competitive process. All projects must demonstrate strong public benefit and community support. Grants vary in size, from a few hundred dollars to amounts in excess of \$100,000. The Fund assists in a wide variety of preservation projects including restoration and rehabilitation of historic buildings, architectural assessments, archaeological excavations, designation and interpretation of historic places, preservation planning studies, and education and training programs.

General Grants - Are made for the following project types with no defined dollar limit:

Acquisition and Development - Those projects that involve the excavation, stabilization, restoration, rehabilitation, reconstruction, or acquisition of a designated property or site are considered "acquisition and development." Archaeological projects are considered Acquisition and Development when the level of investigation is "intensive excavation." In such cases, the affected site must be designated before the application is submitted. Designated properties include those listed on one or more of the following:

1. National Register of Historic Places, which is administered by the National Park Service
2. State Register of Historic Properties, which is administered by the Colorado Historical Society
3. Local Landmark lists, which are administered by local governments

Education - Those projects that provide historic preservation information or information about historic sites to the public. Includes publications, videos, brochures, markers, exhibits and other interpretive programs.

Survey and Planning - Those projects that involve identification, recording, evaluation, designation, and planning for the protection of significant historic buildings, structures, sites, and districts. For archaeological projects, all levels of survey and test excavations are considered Survey and Planning projects and prior historic designation is not required. However, once testing reveals eligibility for designation, further excavation may not occur without designation.

Archaeological Assessment Grants - Are made for the collection and evaluation of archaeological information for the purpose of creating a plan for preservation or additional work. Applications are accepted anytime during the year.

Historic Structure Assessment Grants - Are made for the preparation of a Structure Assessment by an architect licensed in the state of Colorado; where the request is \$10,000 or less. Applications are accepted anytime during the year.

Emergency Grants - Are made exclusively for interim stabilization of a historic property that has been damaged due to some unforeseeable event and typically do not exceed \$10,000. No cash match is required. Applications are accepted anytime during the year.

ENVIRONMENTAL EDUCATION

Colorado DNR- Division of Wildlife <http://wildlife.state.co.us>

Watchable Wildlife Program: This program provides funding for projects that create and enhance wildlife viewing recreation opportunities. Projects are usually capital construction based and include items such as trails, facility development, and habitat enhancement that benefits people's experiences with wildlife. Projects are considered partnerships with the DOW and compete for funds through the DOW's regional budget process. There is no formal application process. Projects are initiated through staff contacts [Karen Hardesty, (303) 291-7291].

Environmental Protection Agency (EPA) <http://www.epa.gov/enviroed/grantsols.html>

Environmental Education Grants Program: The program supports projects that are based on sound science and enhance the public's awareness, knowledge, and skills to make informed and responsible decisions that affect environmental quality. Most grants are less than \$25,000, with quite a few less than \$5,000. Grants above \$25,000 must be approved by the Washington Headquarters. Approximately 200 projects are funded annually out of 1,000 applications received. Grantees must provide 25% of the projects cost as non-Federal funds (salary and equipment costs are eligible). Applications are usually due in mid-November and grants are awarded the following June.

VOLUNTEER TRAINING AND LABOR

Colorado Outdoor Training Initiative (COTI) www.nttp.net/coti

This private organization offers assistance and training for crew leaders and volunteers working on land stewardship projects.

Volunteers for Outdoor Colorado (VOC) www.voc.org

This private organization provides and coordinates volunteer work projects focusing on resource management and trail development.

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APPENDIX A

Relevant Goals and Policies

Those goals in the Boulder County Comprehensive Plan (as amended, 1999) of particular relevance to the St. Vrain Creek Corridor include:

- **Environmental Management**

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.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 protection 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.

- **Parks and Open Space**

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.

C.3 Open space shall be used as a means of preserving the rural character of the unincorporated county and as a means of protecting from development those areas which have significant environmental, scenic or cultural value.

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.

- **Community Facilities**

E.1 Preservation and utilization of water for agricultural purposes within the county shall be encouraged.

- **Cultural Resources**

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.

- **Natural Hazards**

L.1 Inappropriate development in natural hazard areas should be reduced as much as possible or eliminated in order to minimize potential harm to life, health, and property.

- **Agricultural Resources**

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.

Those policies in the Boulder County Comprehensive Plan (as amended, 1999) of particular relevance to the St. Vrain Creek Corridor include:

- **Natural Hazards**

NH1.04 The level of risk from natural hazards should be reduced through positive county action such as guiding development away from areas prone to natural disturbances, mitigating existing development from hazards, and considering the impact on ability to provide emergency services.

- **Environmental Resources**

ER1.01 Natural Landmarks and natural areas shall be protected from destruction or harmful alteration.

ER2.07 The county shall identify and work to assure the preservation of critical wildlife habitats, Natural Areas, environmental conservation areas and significant agricultural land.

ER2.08 The county shall use its open space program as one means of achieving its environmental resources and cultural preservation goal.

ER4.07 To the extent practical, the county shall encourage land use decisions that maintain the function and quality of the water courses and areas designated on the *Comprehensive Plan* environmental resources maps as high quality aquatic habitat.

ER6.02 The county shall work toward minimizing human impacts to riparian ecosystems from development, roads and trails.

ER6.05 Management of riparian areas shall encourage use or mimicry of natural processes, maintenance or reintroduction of native species, restoration of degraded plant communities, elimination of undesirable exotic species, minimizing human impacts, and development of long-term ecological monitoring programs.

ER8.01.01 The county shall work with landowners and other entities to promote sound conservation practices and, where appropriate, to establish cooperative management plans.

- **Open Space**

OS2.01 The county shall identify and work to assure the preservation of Environmental Conservation Areas, critical wildlife habitats and corridors, Natural Areas, Natural Landmarks, significant areas identified in the Boulder Valley Natural Ecosystems Map, historic and archaeological sites, and significant agricultural land.

OS2.02 Significant natural communities, rare plant sites, wetlands, and other important stands of vegetation, such as willow carrs, should be conserved and preserved.

OS2.03 The county shall provide management plans and the means for the implementation of said plans for all open space areas that have been acquired by or dedicated to the county.

OS2.03.02 Management of county open space lands shall consider the regional context of ecosystems and adjacent land uses.

OS2.03.03 Management of individual open space lands, including those under agricultural leases, shall follow good stewardship practices and other techniques that protect and preserve natural and cultural resources.

OS2.04 The county, through its Parks and Open Space Department, shall provide appropriate educational services for the public which increase public awareness of the county's irreplaceable and renewable resources and the management techniques appropriate for their protection, preservation, and conservation.

OS2.04.02 The Parks and Open Space Department shall seek to meet the needs of diverse populations in the county by providing information and programming to accommodate special groups such as disabled persons, young people, senior citizens, and Spanish-speaking citizens.

OS2.04.04 The Parks and Open Space Department shall utilize trained volunteers, cooperating groups, and private individuals to assist in the delivery of environmental education and interpretive services.

OS2.05 The county, through its Weed Management Program, shall discourage the introduction of exotic or undesirable plants and shall work to eradicate existing infestations through the use of Integrated Weed Management throughout the county on private and public lands.

OS4.02 Except as the county may establish a regional park, such as the Boulder County Fairgrounds, or others similar facilities, the county will provide only a minimum level of maintenance or development on park land (consistent with policy OS 2.03).

OS4.03 Recreational use of county open space land may be permitted where such use is consistent with the management plan for the property and does not adversely impact natural and cultural resources or other management objectives of the property.

OS4.03.01 Recreational use shall be passive, including but not limited to hiking, photography or nature studies, and, if specifically designated, bicycling, horseback riding, or fishing. Only limited development and maintenance of facilities will be provided.

OS4.03.02 Accessibility for special populations such as disabled persons, young people, senior citizens, and Spanish-speaking people shall be addressed on a system-wide basis.

OS4.04 Requests for special uses or events on county open space shall be evaluated for their impacts to natural and cultural resources as well as other management objectives and maintenance considerations.

OS5.01 Boulder County shall, in consultation with affected municipalities, utilize open space to physically buffer Community Service Areas, for the purpose of ensuring community identity and preventing urban sprawl.

OS5.02 The county shall utilize Intergovernmental Agreements with one or more municipalities to encourage the preservation of open space lands and the protection of the rural and open character of the unincorporated parts of Boulder County.

OS5.04 The county shall use its open space acquisition program to preserve agricultural lands of local, statewide, and national importance. Where possible, purchase of conservation easements, purchase of development rights, or lease-back arrangements should be used to encourage family farm operations.

OS6.01 Trails and trailheads shall be planned, designed, and constructed to avoid or minimize the degradation of natural and cultural resources, especially riparian areas and associated wildlife habitats. Riparian areas proposed for preservation but for which trail development is inappropriate include: [the] St. Vrain Creek west of Airport Road.

OS6.02 Adverse effects on private lands shall be minimized insofar as possible by trail and trailhead placement, posting of rules and signs against trespassing, installation of containing fences where critical, and any other appropriate measures.

OS6.04 Trails shall provide for pedestrian, equestrian, bicycle, and/or other non-motorized uses, where each is warranted. Incompatible uses shall be appropriately separated.

OS6.08 Trails constructed by the county Parks and Open Space Department shall be soft-surface except where necessary to prevent erosion and/or other resource damage.

OS8.03 In developing management plans for open space areas, Parks and Open Space staff shall solicit public participation of interested individuals, community organizations, adjacent landowners and the Parks and Open Space Advisory Committee. Plans shall be reviewed by the Parks and Open Space Advisory Committee, including public comment, and recommended for adoption after public hearing by the Board of County Commissioners.

- **Cultural Resources**

CR1.02 Significant archaeological and historic sites and structures acquired by the county both in unincorporated and incorporated areas, shall be documented, protected, preserved, and where appropriate, restored.

- **Agriculture**

AG1.01 It is the policy of Boulder County to promote and support the preservation of agricultural lands and activities within the unincorporated areas of the county, and to make that position known to all citizens currently living in or intending to move into this area.

AG1.02 The county shall foster and encourage varied activities and strategies which encourage a diverse and sustainable agricultural economy and utilization of agricultural resources.

AG1.03 It is the policy of Boulder County to encourage the preservation and utilization of those lands identified in the Agricultural Element as Agricultural Lands of National, Statewide, or Local Importance and other agricultural lands for agricultural or rural uses. The *Boulder County Comprehensive Plan* Agricultural Element Map shall include such lands located outside of the boundaries of any municipality or the Niwot Community Service Area.

AG1.07 The county shall continue to actively participate in state, federal, and local programs directed toward the identification and preservation of agricultural land.

AG1.11 The county shall encourage that water rights historically used for agricultural production remain attached to irrigable lands and shall encourage the preservation of historic ditch systems.

AG1.12 The county shall continue to discourage the fragmentation of large parcels of agricultural land and to encourage the assemblage of smaller parcels into larger, more manageable and productive tracts.

APPENDIX B

Cultural Resources Overview: Field Eligible Historic Sites, Ditches, and Archaeological Sites

Summary

A search of the Colorado Historical Society's (CHS) database of cultural resources was conducted for the St. Vrain Trail Master Plan in 2003. Numerous historic and archaeological sites occur within a mile on either side of the Creek. More than sixty-one sites that are field eligible for the National Register of Historic Places (NRHP) have been inventoried and cataloged with the CHS. These sites occur on both public and private lands.

Of the sixty-one (61) sites, twelve (12) are homesteads or farmsteads. Two farmsteads are recognized as Colorado Centennial Farms by the Colorado Historical Society, an award that recognizes farms and ranches that have remained in the same family for more than 100 years, are working enterprises and have a minimum of 160 acres.

In addition to the homesteads, there are twenty-three (23) named irrigation ditches that are field eligible for the National Register of Historic Places.

Twenty-one (21) archaeological sites have been identified. Because of the risk of potential vandalism, the OAHF only provides information related to the township, range and section where the site is located. The sections where the archaeological sites are located are identified in the St. Vrain Trail Master Plan.

Historic Sites - Homesteads

The following summary describes the location and general characteristics of each of the twelve homesteads or farmsteads that are field eligible for the NRHP.

Zweck Farm - (5BL.1993)

11007 North 85th Street

Zweck Farm is located on the west side of Airport Road at the St. Vrain River in T3N R69W Section 31 NW NW. The Zweck Farm is a privately owned, working family farm that is recognized as a Centennial Farm. The Zweck Farm has a number of significant historic resources, including several residences, a barn, granary, garage and a silo. One of the residences dates to 1864.

Montgomery Farm – (5BL.4248)

5475 Ute Highway

Montgomery Farm is located in T3N R70W Section 21 SE NE NE SE. The Montgomery Farm is a working family farm that is recognized as a Centennial Farm, and has several significant historic resources, including the 1880-Montgomery House, a garage, barn, outbuildings and root cellar. This site is locally landmarked.

Dunn Property – (5BL.5578)

12185 N. 75th Street

Located in Hygiene, T3N R70W Section 25 NE NE SW. The Dunn Property includes a number of significant historic resources. The Dunn House dates to 1900, a wash house, two chicken houses and a barn date to 1920, and a garage was built in 1940.

McCaslin Homestead/Leonard Property – (5BL.5637)

11666 Crane Hollow Drive

The historic resources associated with the property include three NRHP field eligible residences built in 1865, 1871 and 1902. The two newer houses are of the Late-Victorian style.

W.W. Marlatt and Company Property – (5BL.5760)

11627 N. 75th Street, Hygiene

The single-family residence, located on the Marlatt Property is considered to be field eligible for the NRHP. The house is located in T3N R70W Section 36 NE SE NW. The house is of the Late-Victorian style, built in 1900 with a rectangular plan and cross-gabled roof.

Garner/Harroun Dairy Farm – (5BL.5783)

16635 N. 53rd Street, Longmont

The Garner/Harroun Dairy Farm is located on the northern edge of the study area in T3N R70W Section 21 NE NE NE. The Farm has 22 buildings of which five were built between 1890 and 1915. The earliest buildings include a residence in the Late-Victorian style, a bunkhouse, a shed and a privy.

Ramey Farm – (5BL.6936)

12104 N. 61st Street, Longmont

The Ramey Farm is considered to be the oldest and best-preserved homestead in Boulder County, according to the Rapid Site Assessment conducted by Boulder County Open Space. The Ramey Farm is located in T3N R70W Section 27 SE NE SE. Six buildings were built between 1862 and 1870, including the house (1862), cellar (1862), privy, granary (1879), barn (1865), and buggy shed (1870). A chicken house was built in 1920.

Henning Farm – (5BL.7085)

Hygiene Road

The Henning Farm is located near Lyons in T3N R70W Section 27 NW NW NE SW. The Henning Farm had buildings from several different eras, beginning with a 1905 barn. A shed was built between 1920 and 1929, and a scale house was added in the years between 1930 and 1939. The other buildings were built between 1940 and 1959, including a garage/bunkhouse (1950-59), a residence (1940-49), a shed (1950-59), an equipment shed (1950-59), and a silo (1950-59). Only the barn, silo, and a loafing shed remain.

Adams Place – (5BL.7086)

Hygiene Road

The Adams Place is currently an animal shelter, but was originally a historic homestead. The site is located in T3N R70W Section 27 NW NW NE SW. Historic archaeological fragments and structures have been documented on the property. Historic resources included a residence, a shed/garage, milking barn, equipment shed, stock tank, wagon fragments, machinery, milled lumber, cinder block fragments, fence wire, metal pipes, and screens. The residence has since been demolished.

Jacob Buvy Farmstead – (5BL.7090)

Hwy 66

The Jacob Buvy farmstead is located in T3N R70W Section 21 SE SW SE SE SW SE SE SE, within Western Mobile's sand and gravel operations. The site includes four buildings that were built prior to 1910, three built between 1950 and 1959, and one built in 1985. Historic resources include a residence (1899), a chicken house (1900) not in use, an abandoned barn (1910), a milk house (1950), a silo (1950) not in use, and a chicken house (1950-1959) not in use. A horse barn was built in 1985.

Atkin's Farmstead, Chuck's Place – (5BL.7139)

11855 N. 61st Street, T3N R70W Section 27 NW SW SE SE. The site contains numerous historic structures dating from 1920-1940, including a residence, several sheds, milk and chicken houses, two silos, barn, and privy. None of the structures are field eligible for the NRHP. Two historic districts were recommended.

Tom Fox Farmstead – (5BL.7140)

5608 Ute Hwy., T3N R70W Section 22 NW NE SW SW. The site contains numerous historic

structures dating from 1880-1960, including two residences, a garage, milk and chicken houses, and smoke house. The main house dates to 1900 and is field eligible for the NRHP.

Historic Sites – Irrigation Ditches

The following summary describes the twenty-three irrigation ditches, portions of ditches or associated features that are field eligible for the NRHP. The following provides a brief description and the general location of each of the irrigation ditches or features.

St. Vrain Supply Canal / Supply Ditch / Eisley Lateral – (5BL.3110)

no date; located in T3N R70W Section 21 NW SW NE

St. Vrain Supply Canal / Supply Ditch – (5BL.3110.1)

no date; located in T3N R70W Section 9 N ½ N ½ NE, SE NW NE, NW SW NE, SE SE NW, W ½ E ½ SW, SE SW SW; T3N R70W Section 16 W ½ NW NW, S ½ SE SW, S ½ SE SE, S edge SW SW SE; T3N R70W Section 15 S ½ SW, S ½ SW SE; T3N R70W Section 21 N ½ NW, N ½ NW NE

Rough and Ready Ditch – (5BL.3113.1)

1862 irrigation ditch located in T3N R70W Section 21 SW NW NE

Highland Ditch (segment) – (5BL.3114.1)

1862 irrigation ditch located in T3N R70W Section 21 NE NE NE and Section 22 N ½ N ½ NW

Palmerton Ditch – (5BL.3115.1)

1862 irrigation ditch located in T3N R70W Section 21 NW SW NE

Palmerton Consolidated Ditch – (5BL.3115.2)

1865 irrigation ditch located in T3N R70W Section 22 E NE SW SW S NW SE SW

Longmont Supply Canal – (5BL.4476.4)

1865 irrigation ditch located in T3N R70W Section 22 SE SW SE SW SW SE SE SW

Oligarchy Ditch Spreader – (5BL.4832.14); (5BL.4832.15); (5BL.4832.16); (5BL.4832.18); (5BL.4832.19); (5BL.4832.20); (5BL.4832.22); (5BL.4832.23); (5BL.4832.24)

Oligarchy Ditch Lateral – (5BL.4832.17); (5BL.4832.21)

no date; irrigation ditch located in T3N R70W Section 31 C SE NW NW

Oligarchy Ditch Foothills Outlet – (5BL.4832.25)

1866 irrigation ditch located in T3N R70W Section 27 SW SE SW, SE NW SE SW, NW NE SE SW, NW NE SE SW, SE SE NE SW, NW SW NW SE, NW NW SE, SE SW NE, S SE NE

Zweddwek-Turner Ditch – (5BL.4836)

irrigation ditch located in T3N R69W Section 31 E SE SE NE

Mill Ditch – (5BL.4840.1); (5BL.4840.2)

irrigation ditch located in T3N R69W Section 31 E SE SE NE

Mill Ditch Spreader – (5BL.4840.3); (5BL.4840.4); (5BL.4840.5)

irrigation ditch located in T3N R69W Section 31 SE NE SW NW; T3N R69W Section 31 NE NE SW NW; T3N R69W Section 31 SE NE SW NW

James Ditch/South Branch – (5BL.4841.15)

irrigation ditch located in T3N R70W Section 21 E NW SE SE SW NE SE SE; T3N R69W Section 27 W NW NW SW SE NW NW

Smead Ditch – (5BL.7075.1)

irrigation ditch located in T3N R70W Section 20 N NE SE, W NE SE SE, W SE NE SE, E SE SE SE; T3N R70W Section 21 N S NW SW, SW NE SW, N N SE SW, S S SW, NW SW SE, SE SW SE; T3N R70W Section 28 N NW NW, S NE NW, W NE, N SW NE, N S SE NE; T3N R70W Section 27 SW NW NW, SW SE NW NW, N NE SW NW, N NW SE NW, W NW SW, NE NW SW SW, NE SW SW, S NW SE SW, NE SW SE SW, SE SE SW, S SW SE, W SW SE SE.

Montgomery Private Ditch – (5BL.7076)

1865 irrigation ditch located in T3N R70W Section 21 NE SE SW SE, S SE SE, NE SE SE, S SE

SW NW, NW NE SW, SE NE SW, S NW SE, S SW NE SE, NE SW SE; T3N R70W Section 27 NW NW NW, NW SE NW NW.

Weese Private Ditch – (5BL.7077)

1870 irrigation ditch located in T3N R70W Section 27 SW SE NW NW, NE NE SW NW.

Foothills Reservoir Inlet – (5BL.7078.1)

1905 irrigation ditch located in T3N R70W Section 28 W W NW NE, NW SW NE, SW NE SW NE; T3N R70W Section 21 W W SE.

Goss Private Ditch – (5BL.7079)

1865 irrigation ditch located in T3N R70W Section 27 E SW SE NW

Clough and True Ditch – (5BL.7080.1)

1862 irrigation ditch located in T3N R70W Section 27 NW NE SE, NE NE NW SE, SW SE SW NE, NE SW SW NE, SW NW SW NE, NE SE NW, S SW NE NW, SE NW NW, NW NW NW.

Baker and Weese Ditch – (5BL.7081)

1862 irrigation ditch located in T3N R70W Section 21 SE SW NE SE, SW SE NE SE; T3N R70W Section 22 NW NW SW SW, SE NW SW SW, SW NE SW SW, N SE SW SW, SW SW SE SW; T3N R70W Section 27 W NW NE NW, SE NW NE NW, E SW NE NW, NE NW SE NW, NW NE SE NW.

Chapman and McCaslin Ditch – (5BL.7082.1)

1865 irrigation ditch located in T3N R70W Section 27 SE SW SE SW, NE NW NE NW, NW NE NE NW.

Clough Private Ditch – (5BL.7083.1)

1863 irrigation ditch located in T3N R70W Section 27 SW NW SE, SW SE NW SE, NE SW SE, SW SE SE.

APPENDIX C

Water Rights Information

Gage: 24.50 shares of Davis and Downing Ditch; 100% of McCaslin Private No. 1, 2, 3, 4 Ditches; 24.0 shares of Swede Ditch Company; 33.30% of Webster & McCaslin Ditch Company

Irrigated acreage = 142.2 acres; Estimated water yield = 444 acre-feet (a.f.), which does not include the McCaslin Private Ditches #1-4. This equals an average application of 3.1 a.f./acre. The McCaslin Private ditches are currently used but there are no records of water yield on the property. Also located on the property, north of the St. Vrain Creek, is the common headgate and feeder ditch (a.k.a. North Branch Ditch) for the Denio-Taylor, Runyan, and Zweck and Turner Ditches.

Hall Ranch Meadows (S of Hwy. 7): 50% of Matthews Ditch; 40% of Otto Ditch

No diversion records exist.

Keyes (North): 9.0 shares of Bonus Ditch

Estimated water yield = 225 a.f., which irrigates the **Keyes (North)** parcel. The irrigated acreage is approximately 89 acres, for an annual irrigation application of about 2.5 a.f./acre. The actual application rate is likely somewhat less due to general poor condition of the laterals serving the property.

Pella Crossing (Marlatt): 100% of 4.46 c.f.s. and 5% of 5.23 c.f.s. of Runyon Ditch; 5% of one share of Denio and Taylor Ditch

Boulder County owns 4.46 c.f.s. of the 10.3 c.f.s. Runyan Ditch Decree. Currently, this water is not being used for irrigation and may be available for additional uses. Originally it was believed that this water was being used to augment evaporation from the gravel ponds on the property. However, the Reinstatement and Modification of the Gravel Lease between W.W. Marlatt and Co. and Golden Gravel Company, dated May 11 and August 15, 1984, indicates that Golden Gravel was responsible for providing necessary augmentation water for the ponds. The County also owns a 5% undivided interest in an additional 5.23 c.f.s. of the Runyan Ditch, and a 5% undivided interest in one share of the Denio Taylor Ditch. The remaining 95% ownership of this water is split between the five outlot owners.

Pella Crossing (Frontier Materials, Inc.): 4.6 shares of Denio and Taylor Ditch; up to 100 a.f. of Zweck and Turner Ditch

The Denio Taylor (Mill) and Zweck and Turner water rights are tied to an existing augmentation agreement with the St. Vrain and Left Hand Water Conservancy District. The County is also a joint applicant with Frontier Materials, Inc. for an 800 a.f. conditional storage right in Sunset and Heron Ponds. The County owns 200 a.f. of the storage right. However, the ponds must be properly lined and sealed before the storage right can be made absolute. Frontier Materials has indicated that it may be interested in sealing the ponds and selling the storage rights. If the ponds were lined and sealed, they would no longer be hydrologically connected to the groundwater aquifer and thus could be emptied. The County, as minority owner in the storage right, may have

little control over water levels in the ponds if lined which could impact recreation and shoreline habitat. In the Agreement Regarding Supplemental Conditions for Acceptance of the Property, Frontier and its successors agreed to “cooperate with the County in establishing a minimum water level in the ponds or reservoirs on the property to sustain piscatorial life”. Furthermore, Frontier agreed to notify the County in advance of any improvements it proposes to make on the property. If the ponds were lined, the County could consider purchasing the remaining storage right. Acquisition of the storage rights for instream flow purposes may conflict with the desire to maintain water levels in the ponds however.

Peschel: 14.50 shares of Bonus Ditch

Water rights may be used to refresh and recharge future created wetlands. Need to evaluate actual water needs once wetlands are established.

Quicksilver Farm: 4.7 shares of Bonus Ditch (adjusted for acreage north of Quicksilver Road)

Seven shares of Bonus Ditch Water are used to irrigate the Quicksilver Farm parcel that includes the two irrigated fields north of Quicksilver Road. The total irrigated acreage of this Parcel is 46.6 acres. A total of 31 acres are irrigated to the north of Quicksilver Road. The Bonus Ditch owns a relatively senior water right from St. Vrain Creek with an average annual yield of nearly 25 acre-feet per share, or a total yield of 175 acre-feet from the seven shares. Therefore for the entire parcel, the average water yield is approximately 3.75 acre-feet per acre. Records indicate that the yield of the Bonus Ditch water right does not diminish significantly in drought years.

There is a partially blocked field drain north of Quicksilver Road that backs up water onto the property, causing some difficulty with respect to farming due to saturated conditions. This blocked drain has also led to the creation of wetland habitat on the adjacent Keyes (North) property near St. Vrain Creek. It has also been reported that a portion of another drain tile on the property has collapsed. The drain still functions but the collapse has created a potential hazard for farm equipment.

Ramey: 50% of Clough and True Ditch

Diversion records show an average yield of 254 a.f. Boulder County owns a 50% interest in the ditch, which would equal an average annual yield of 127 a.f. for the property. The current irrigated acreage on Ramey is 13.4 acres, which is equal to an application of more than 6 a.f./acre, which would be indicative of potentially available excess water. Water usage on this property should be evaluated to determine if this is indeed the case. While diversions from the Clough and True Ditch are currently measured, the actual amount of water diverted from the ditch to the property is not. The City of Longmont has previously changed its water rights in the Clough and True Ditch to municipal use. It is often easier to change the point of diversion for water rights that have previously been through change cases.

Toteve: 2.5 shares of Palmerton Consolidated Ditch; 48 a.f. of reservoir storage

Irrigated acreage is 73.5 acres. Average annual yield of 2.5 Palmerton Ditch shares equals approximately 189 a.f., or an annual application of 2.6 a.f./acre. There are also two adjudicated springs and associated drainage tiles on the property which in total are decreed for 11.62 c.f.s. The actual yield of the springs is unknown. Boulder County also has ownership in a portion of the storage rights in reservoirs numbers two through seven which yield approximately 48 a.f. of water. Gaynor Toteve has indicated that there are additional springs on the property that have not

been filed on in water court. The County may consider investigating the feasibility of filing on these water rights. However, in some cases it may be advantageous to have these water sources remain undecreed due to the cost and administrative responsibilities associated with adjudicating these types of water rights.

Western Mobile Complex: 2.5 shares of Palmerton Consolidated Ditch; 10.0 shares of Swede Ditch Company

Irrigated acreage north of the St. Vrain Creek is 51.9 acres. Average annual yield of 2.5 Palmerton Ditch shares equals approximately 189 a.f., or an annual application of 3.6 a.f./acre. The irrigated acreage south of the Creek is 78.1 acres. The average annual yield of the 10.0 shares of the Swede Ditch Company is approximately 23 a.f., or an annual application of 3.3 a.f./acre. The actual yield for lands irrigated by the Swede Ditch is probably somewhat less. The average annual yield from additional water rights purchased with the property (Clough and True, Baker Weese, Clough Private Ditches) is unknown. Water usage on this property should be evaluated to determine annual application and potential availability of excess water. Excess water could potentially be changed for storage in Lake IV to augment instream flow releases to the St. Vrain Creek.

APPENDIX D

Vegetation Community Definitions

(for Figures 3a and 3b)

Active Mining Area (AMA): This area is being actively mined for sand and gravel.

Irrigated Cropland (IC): Irrigated grassland defined by species such as smooth brome, fescue, or wheatgrass that is used for the production of hay and for pasturing of livestock.

Riparian (R): A zone that contains water-dependant plant shrubs and grasses and typically parallels streams, ditches or other water features.

Riparian Forest (RF): An overstory plant community defined by tree species such as plains and narrowleaf cottonwood, box elder, alder, peachleaf willow, black locust, and Russian-olive that is associated with stream systems or well-defined ditches.

Upland Forest (UF): A forest community dominated by tree species such as scattered ponderosa pine.

Upland Grassland (UG): A grass community defined by native and introduced species such as crested wheatgrass, blue grama, smooth brome, junegrass, Kentucky bluegrass, or fescue. Some areas host scattered stands of big bluestem, needle-and-thread grass, yucca, and prickly pear.

Introduced Upland Grassland (IUG): An upland grass community dominated by introduced species and used mostly for agricultural purposes.

Reclaimed Upland Grassland (RUG): A zone that was mined and reclaimed and may contain a mixture of both native and introduced species, such as crested wheatgrass, blue grama, intermediate wheatgrass, or other reclamation grasses.

Rock Outcrop (RO): An area defined by exposed rock that contains no major plant associations.

Wetland (W): An area at least occasionally inundated by water that supports water-dependant species such as rushes, sedges, three-square bulrush, reed canarygrass, prairie cordgrass, or cattails.

APPENDIX E

List of Resource Documentation/Reports

(grouped by property)

Braly: Rapid Resource Assessment (Meaney & Company 2001)

Corridor-wide reports: St. Vrain Trail Master Plan (ERO Resources 2004); St. Vrain Corridor GOCO Legacy Grant Application (BCPOS 1999); BCPOS Wetland Inventory (1999)

Custode: Rapid Resource Assessment (ERO Resources 2001)

Fairgrounds: St. Vrain Greenway Master Plan (Longmont 1999)

Gage: Rapid Resource Assessment (ERO Resources 2001); Wetland Inventory (BCPOS 1999)

Golden Farm: Master Mining Plan-Irwin/Thomas Resource (Rocky Mountain Consultants 2001); Wetland Delineation Report for the St. Vrain Greenway (ERO Resources 2000)

Golden Gravel: St. Vrain Greenway Master Plan (City of Longmont 1993, 2001)

Golden/Fredstrom: Comprehensive mining plan (1994); Clover Basin Water Transmission Line Environmental Impact Analysis (Anderson & Company 2002); Element Occurrence Record, *Spiranthes Diluvialis* (CNHP 1993)

Hall Ranch Meadows: Northern Foothills Open Space Management Plan (BCPOS 2000); Hydrological Evaluation (Ayers & Associates, 199X)

Keyes (North): Rapid Resource Assessment (LREP, Inc. 2002); Wetland Delineation Report for the St. Vrain Greenway (ERO Resources 2000)

Pella Crossing (Marlatt): Rapid Resource Assessment and *Spiranthes diluvialis* Habitat Assessment and Survey Report (ERO Resources 2001); Vegetation and Forest Inventory (BCPOS 1997); Preliminary Avian Survey (BCPOS 2001); Wetland Inventory (BCPOS 1999); Pella Crossing and Marlatt Open Space Recreation and Visitor Use Plan (BCPOS 2003)

Pella Crossing (Frontier Materials, Inc.): Draft Management Plan (BCPOS 1995); Pella Crossing and Marlatt Open Space Recreation and Visitor Use Plan (BCPOS 2003)

Peschel: Longmont and Peschel Property Expansion, Longmont Distel Operations Mining and Reclamation Plan (SRK Consulting 2000); Wetland Delineation Report for the St. Vrain Greenway (ERO Resources 2000)

Ramey: Rapid Resource Assessment (Wilkinson & Associates 2001)

Roger's Grove: St. Vrain Greenway Master Plan (Longmont 1999)

Western Mobile 40: Comprehensive mining plan

Western Mobile Complex: Comprehensive mining plan (1996); Birds of Prey Report (Stephen Jones 1997); Western Mobile Class III Cultural Resource Inventory, Volumes I and II (Western Historical Studies, Inc. 1997 and Addendum 1998)

APPENDIX F

Plan Advisory Team

Boulder County Parks & Open Space

Patrick Malone, Natural Resource Planner and Lead Author

Ron Stewart, Director

Ben Pearlman, Special Projects Manager

Rich Koopmann, Manager, Resource Planning Division

Jeff Moline, Resource Planner

Peter Conovitz, Water Resource Specialist

Carol Beam, Historic Preservation Specialist

Brad Seaman, GIS Supervisor

Brent Wheeler, Manager, Park Operations Division

Kathy Kron, Landscape Architect

Al Hardy, Trails Supervisor

Therese Glowacki, Manager, Resource Management Division

David Bell, Lead Ranger

Dave Hoerath, Wildlife Specialist

Mark Brennan, Wildlife Specialist

Claire DeLeo, Plant Ecologist

Pascale Fried, Interpretive Services Coordinator

Tim D'Amato, Weed Management Coordinator

Rob Alexander, Agricultural Resource Specialist

City of Longmont

Dan Wolford, Superintendent of Open Space and Trails

Paula Fitzgerald, Project Coordinator (Parks)

Town of Lyons

Dave Cosgrove, Director of Parks and Recreation

Colorado Division of Wildlife

Randy VanBuren, Regional Fisheries Biologist

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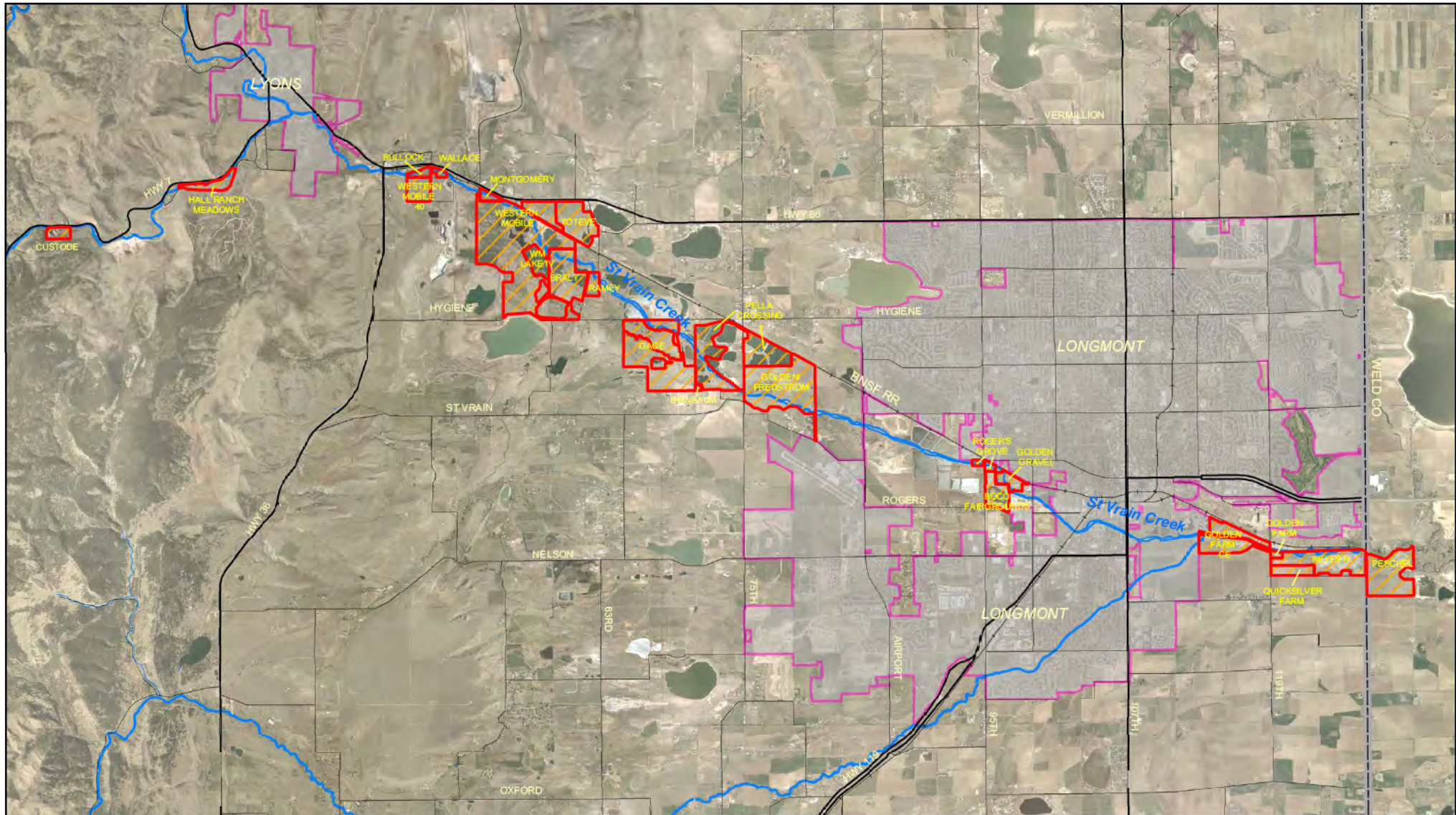
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0 0.5 1 2 Miles



Figure 1:
Location



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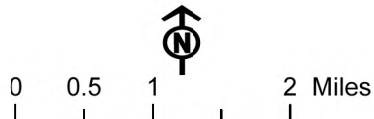
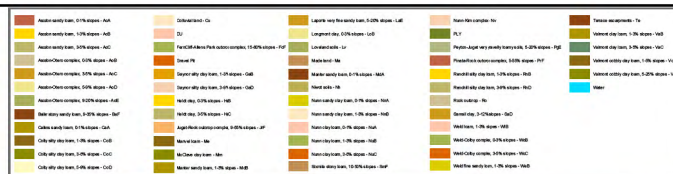
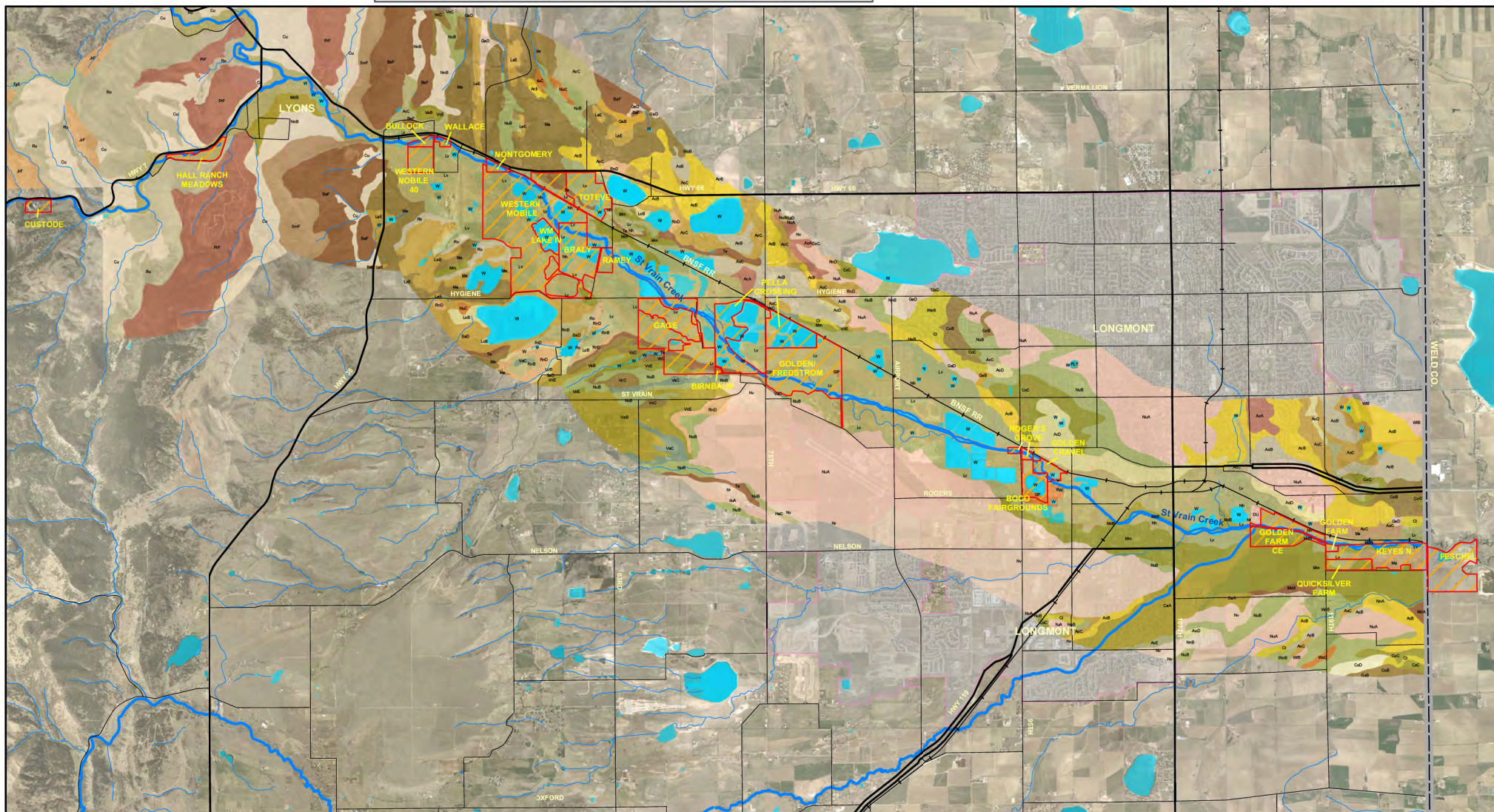
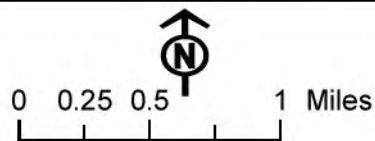


Figure 2:
Soils

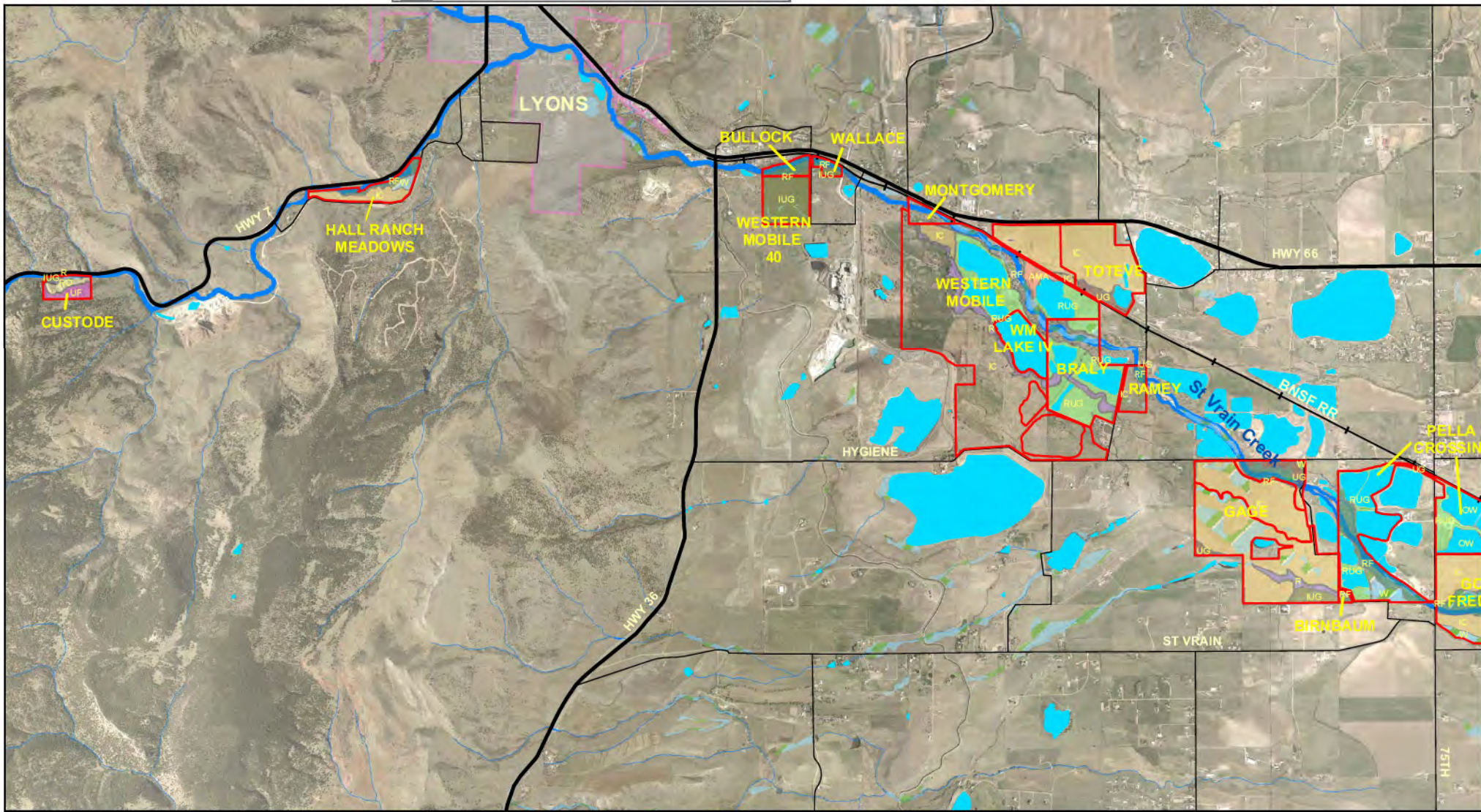


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**Figure 3a:
Vegetation
Communities**



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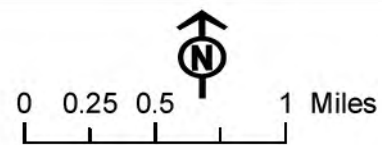
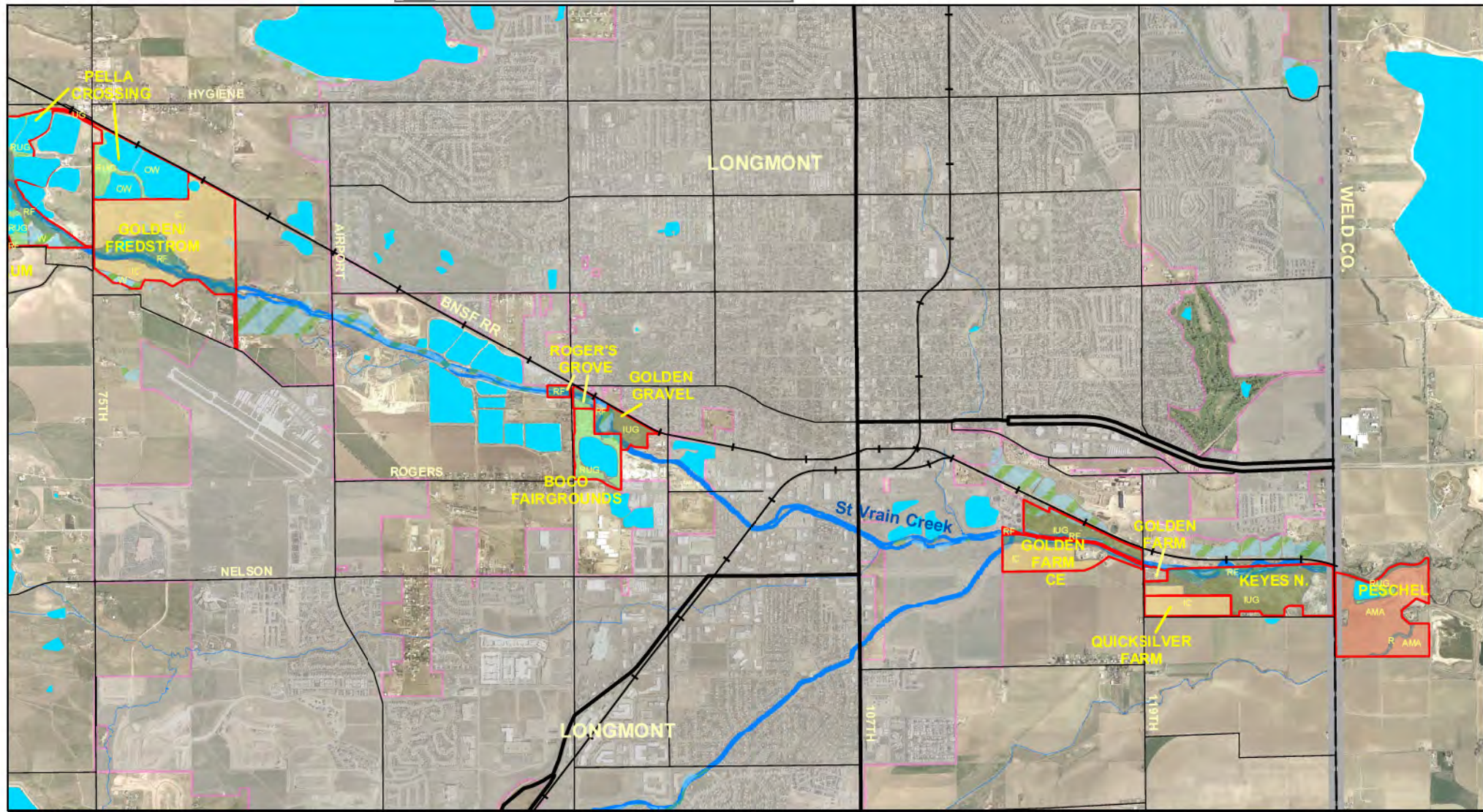


Figure 3b:
Vegetation
Communities

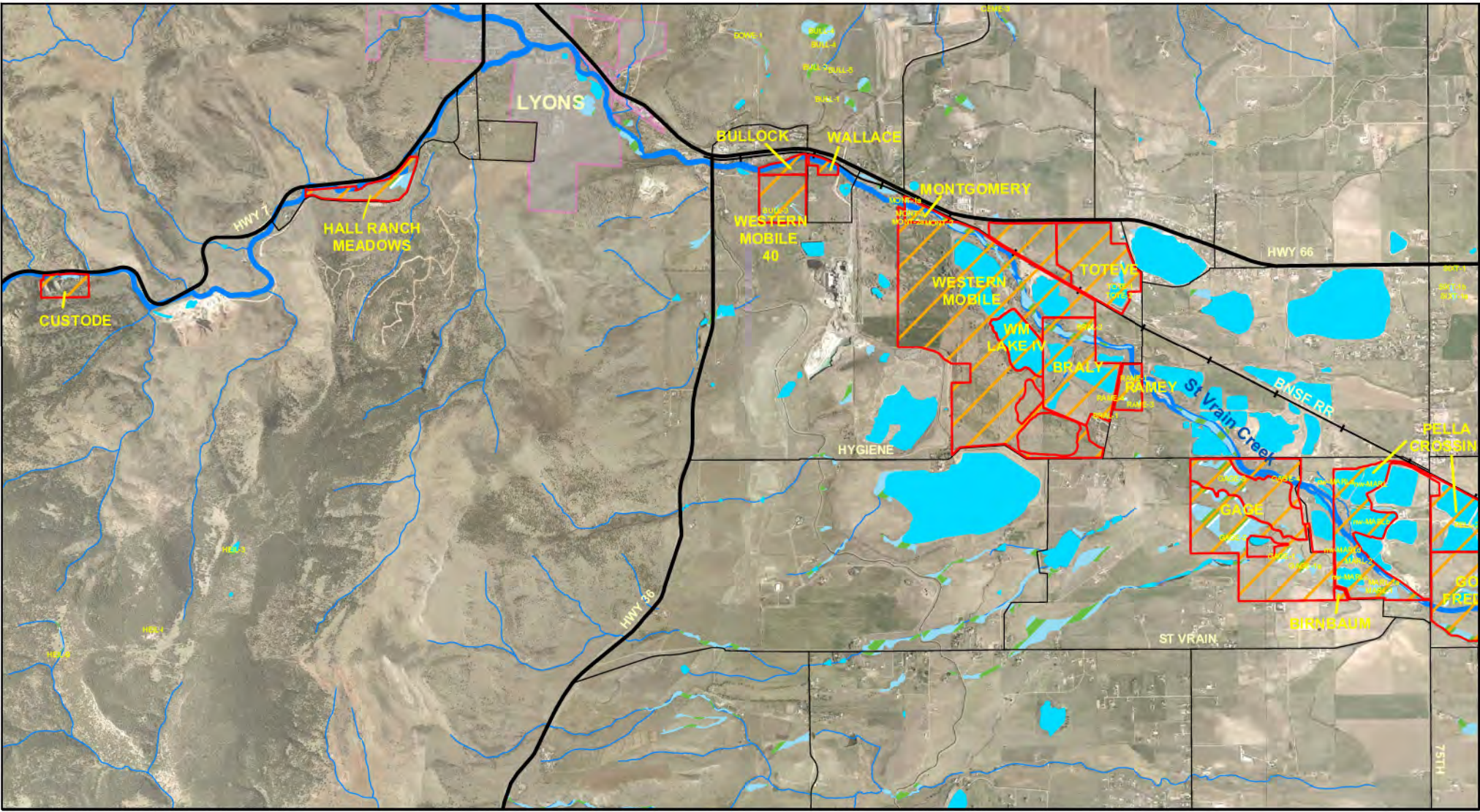


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Figure 4a:
 Wetlands



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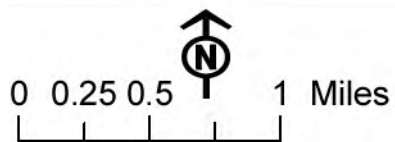
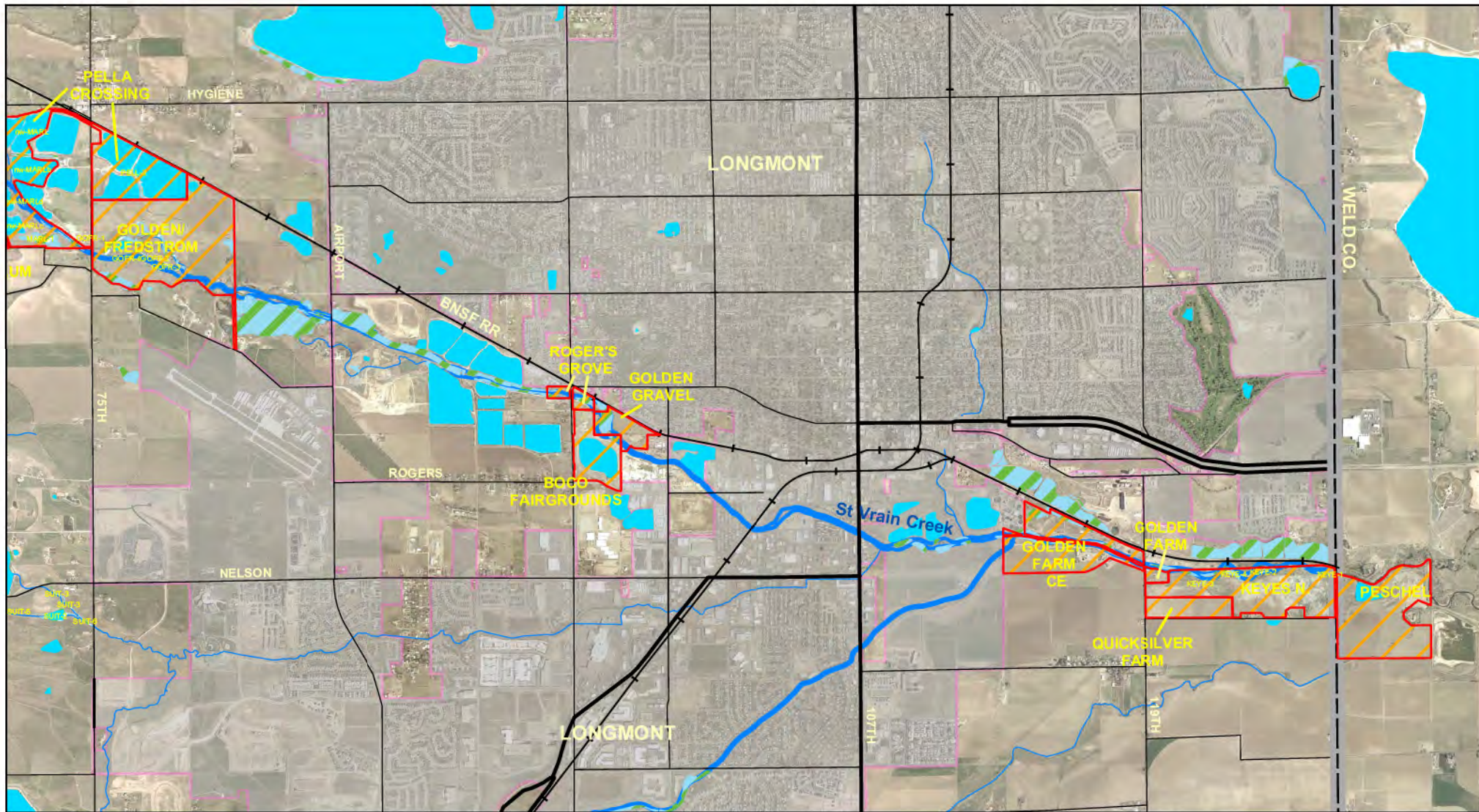



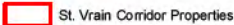


Figure 4b:
 Wetlands

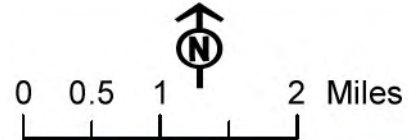


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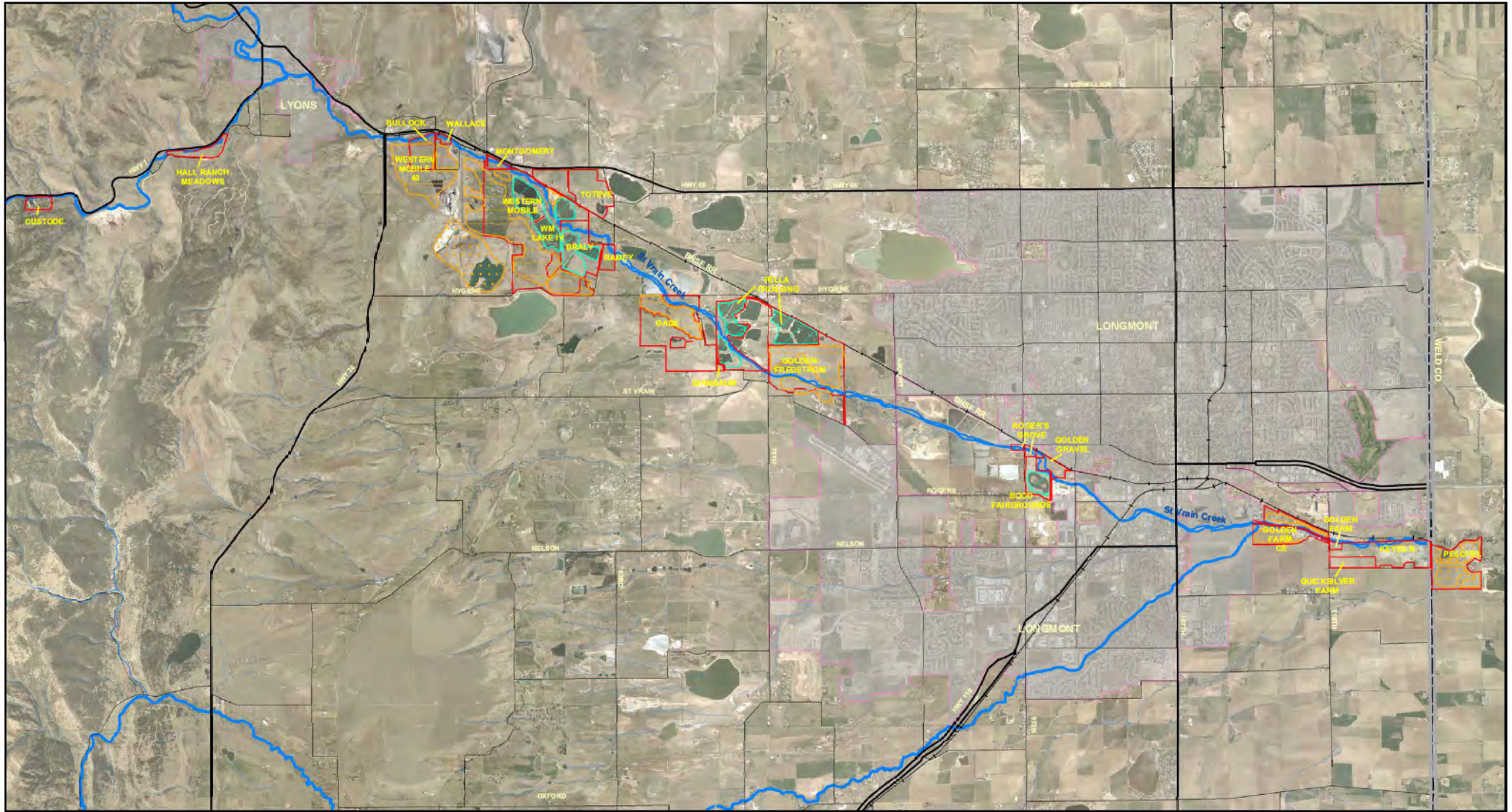
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Mining Areas

 Active	 St. Vrain Corridor Properties
 Future	
 Reclaimed	



**Figure 5:
Mining Areas**



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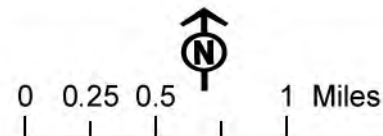
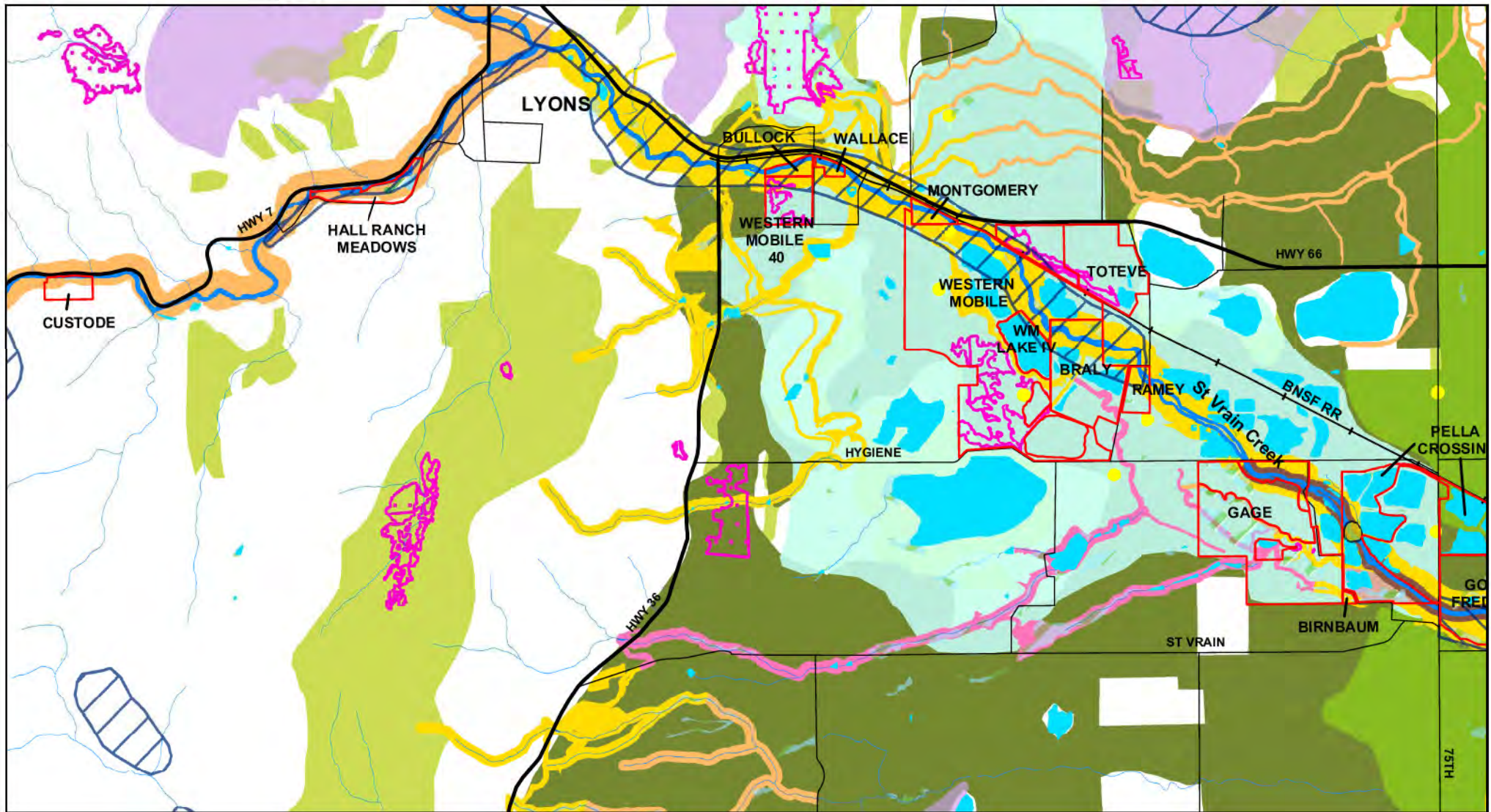


Figure 6a:
Significant Resources



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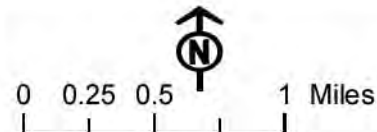
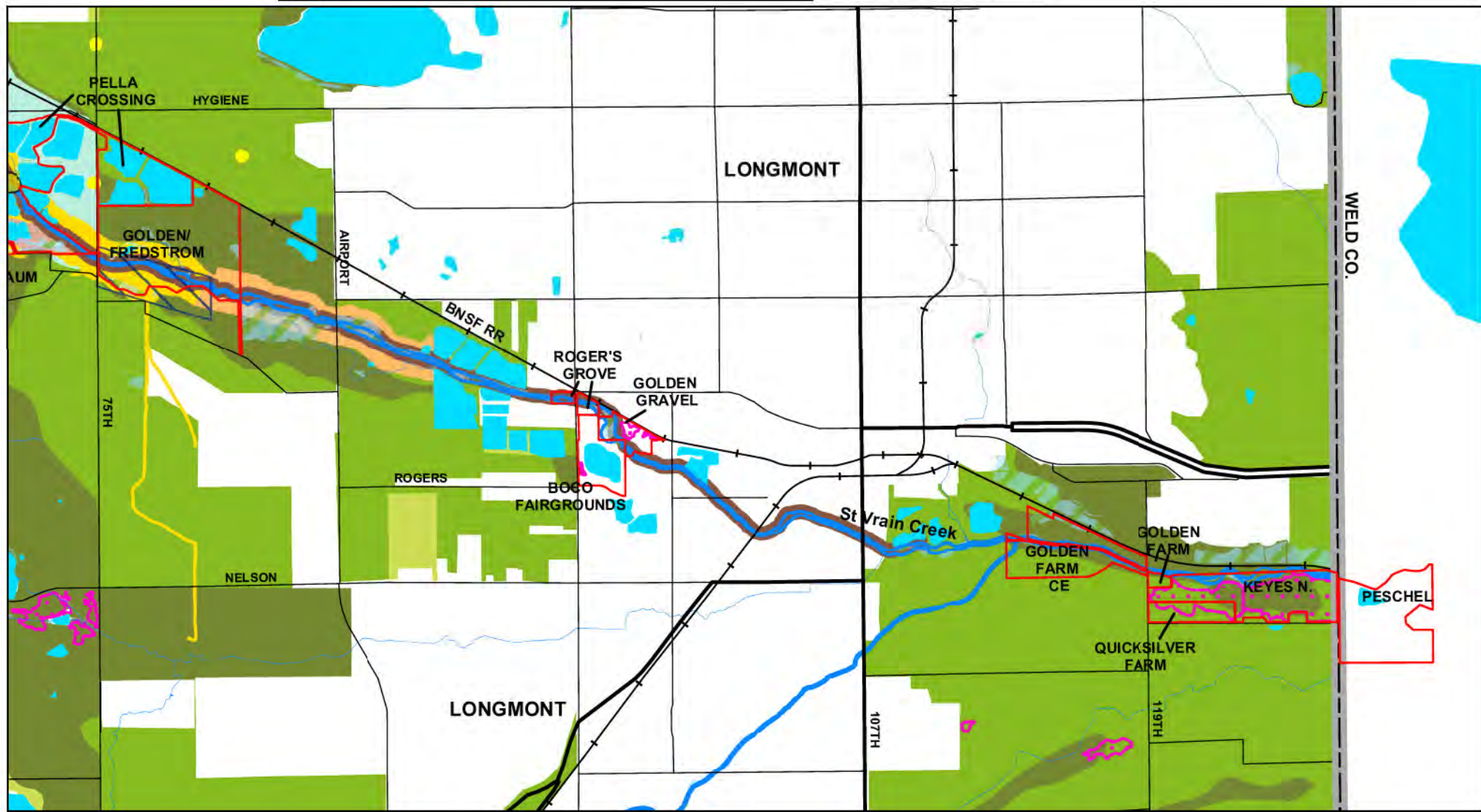


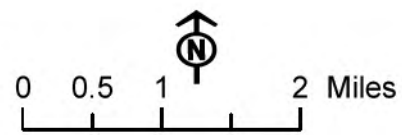
Figure 6b:
Significant Resources



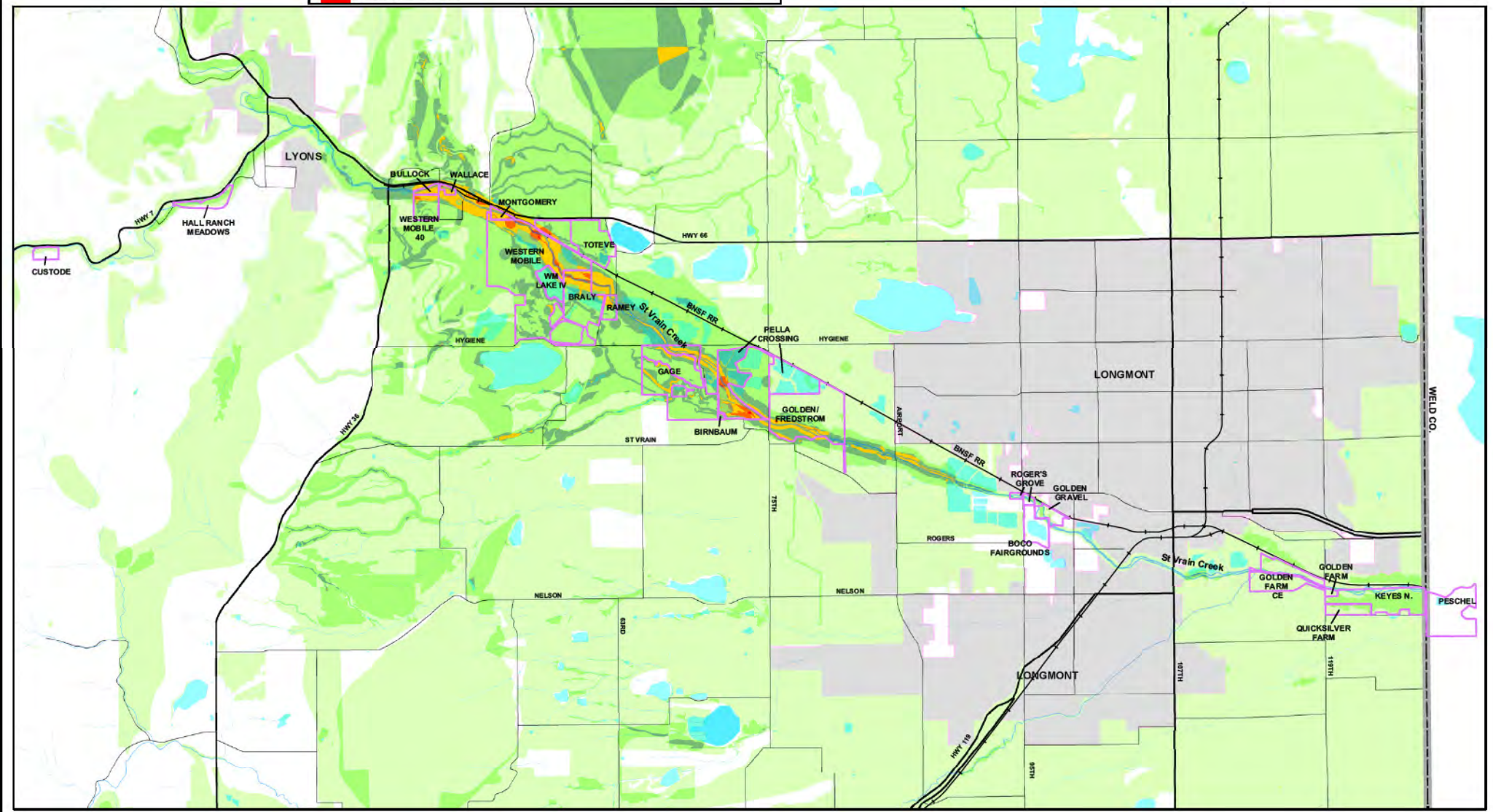
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<p>Very Low Resource Occurrence</p> <p>Some Resource Occurrence</p> <p>Low-Moderate Resource Occurrence</p> <p>High-Moderate Resource Occurrence</p> <p>Very High Resource Occurrence</p> <p>Significantly High Resource Occurrence</p>	<p>Lakes</p> <p>St. Vrain Corridor Properties</p>	<p><i>Resources Considered (all weighted equally):</i> NHP Field Eligible Sites Prebles' Mouse Management Areas, Potential Linkages, and Suitable Contiguous Habitat County Natural Landmarks Great Blue-Heron Recovery Critical Wildlife Habitat Significant Riparian Corridor Prairie Dog Colonies Sensitive Native Fish Habitat Significant Wintering Raptor Habitat Wetlands Agricultural Land of National, State, and Local Importance</p>
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**Figure 7:
 Resource Composite**



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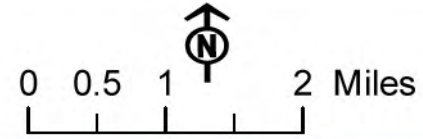
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Management Areas*

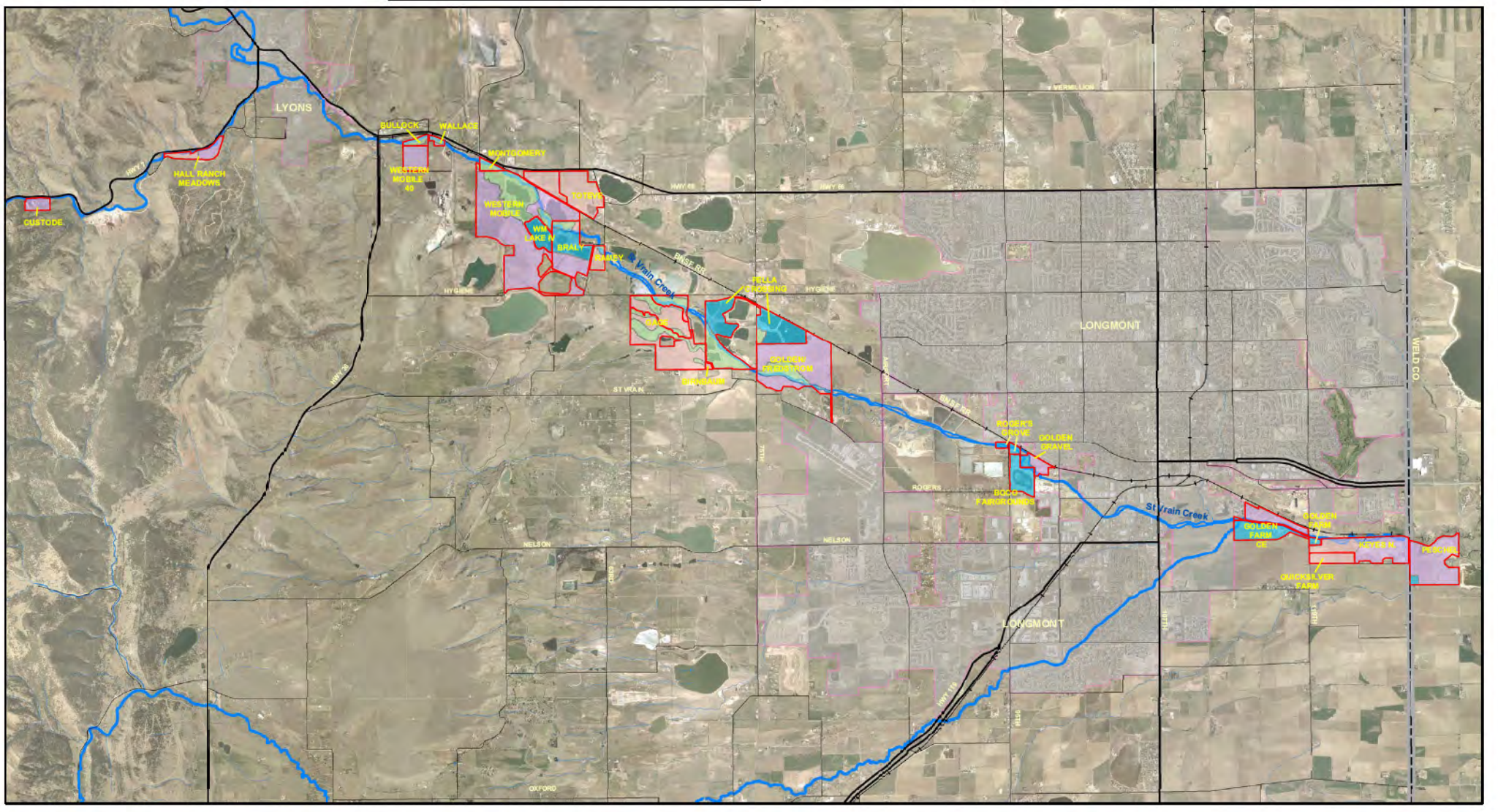
- Natural
- Recreation/Public Use
- Sensitive (Closed to Public Access)
- Agricultural (Leased to private agricultural producers - closed to Public Access)

*Note - Management Area designations represent the proposed future use of a property












St. Vrain Corridor Properties



**Figure 8:
 Management Areas**



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-  Existing Trailheads
  Existing Trails
  Potential Interpretive Sites
  Boulder County Comprehensive Plan Trail Alignment
  Proposed Trailheads
  Boulder County Comprehensive Plan Trail Corridor
  Recommended Alignments
  Longmont Conceptual Trail (Primary Greenways from Longmont Comprehensive Plan)
  Alternate Alignments
  St. Vrain Corridor Properties
  Conceptual Alignments
 
- Source: St. Vrain Trail Master Plan
 Adopted: Jan. 6, 2004

Source: St. Vrain Trail Master Plan
Adopted Jan. 6, 2004

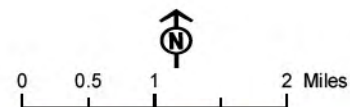
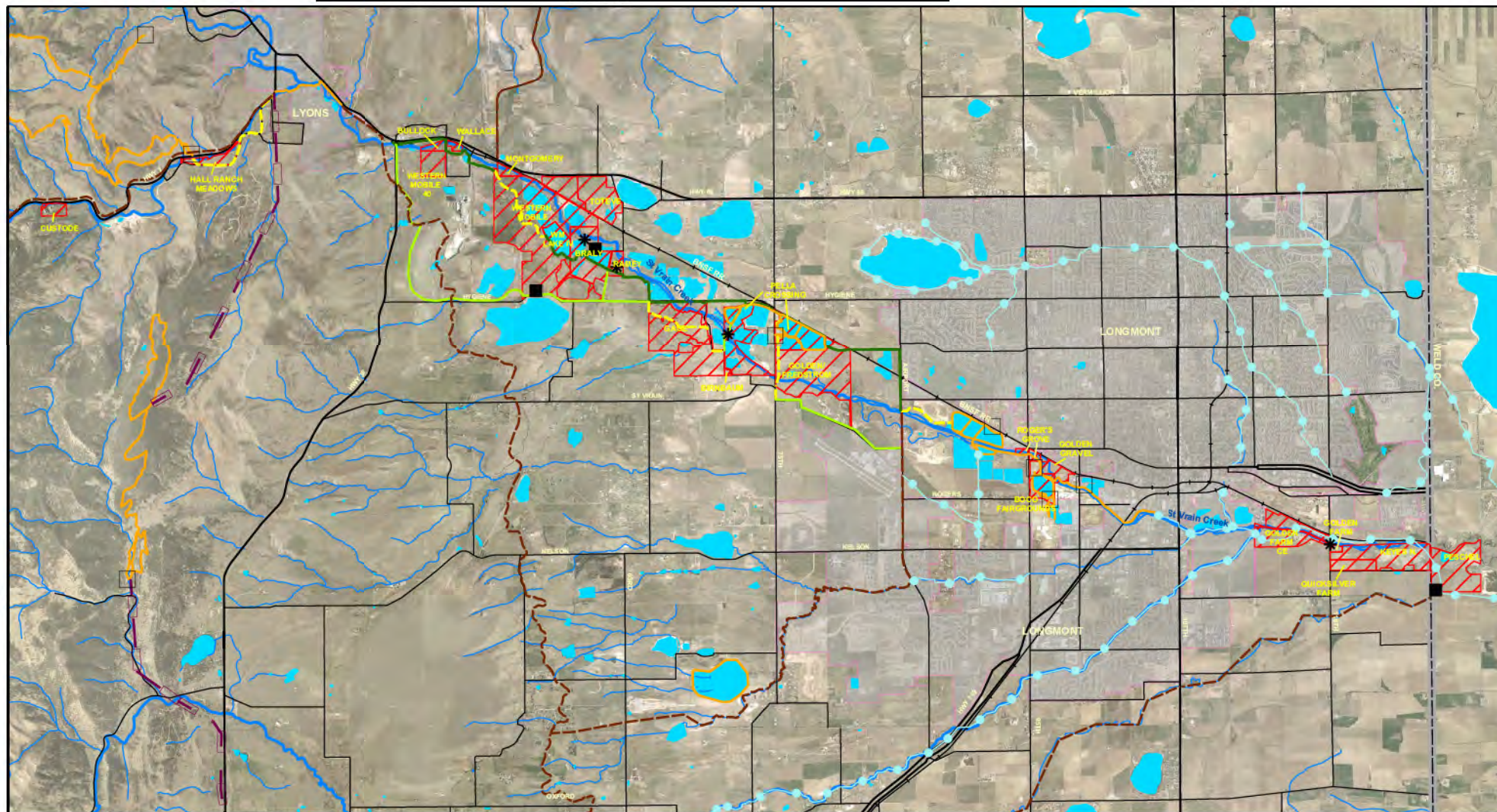


Figure 9:
Trails



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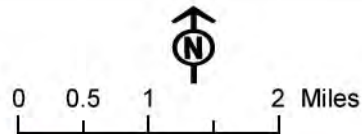
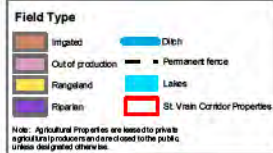


Figure 10:
Agricultural Infrastructure

