



EMMA OPEN SPACE INTERIM RESOURCE MANAGEMENT PLAN

OCTOBER 2001

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EMMA OPEN SPACE INTERIM RESOURCE MANAGEMENT PLAN

1.0 INTRODUCTION

The Emma Open Space Property acquisition on June 21, 2000 fulfilled virtually all of the acquisition priorities of the Open Space Program, which seeks to protect lands for recreational, wildlife, agricultural, and scenic purposes. The Open Space parcel serves as a land bridge between the 2,000-acre CDOW Christine State Wildlife Area to the north of the property and the 3,800-acre BLM Light Hill public land to the south of the property. The property is traversed by the Rio Grande Trail and provides a scenic respite along the trail as well as Highway 82. Included also are irrigated pastures which are a part of historical agricultural heritage of the Emma area.

Approximately 2,000 feet of the Roaring Fork River are included in the Open Space parcel. The wetlands have not been modified by humans and provide quality habitat for a variety of small mammals, migrating and local waterfowl, other water birds, and neo-tropical birds. Wintering bald eagles use several snags along the river for hunting perches and great blue herons are often seen wading in the river's shallows.

The property joins two large public lands: the Bureau of Land Management (BLM) Light Hill area on the south and Colorado Division of Wildlife (CDOW) Christine State Wildlife Area on the northwestern side of the Open Space parcel. The BLM land provides winter range for mule deer and elk. The parcel encompasses a critical wildlife corridor between these two public lands, particularly as the animals move to and from the river on a daily basis and between winter and summer ranges while migrating.

2.0 RESOURCE MANAGEMENT OBJECTIVES AND PRIORITIES

Preserve and enhance wildlife migration corridor

Maintain and restore natural and ecological communities

Promote cultural & community values fostering agricultural heritage and working with neighbors to preserve the agricultural component in the Midvalley landscape

Promote environmental and ecological education onsite

Enhance recreation trail corridors

Preserve river access, riparian and wetland habitats

Provide recreational opportunities that complement the values of the open space

Preserve scenic urban buffer

3.0 GENERAL DESCRIPTION OF PROPERTIES

3.1 Acquisition(s) and Legal Status

OST acquired 58 acres of the 68-acre Trimble parcel fee simple through the Trust for Public Land. The seller retained a 10-acre building site. TPL also conveyed the 6.7-acre Thomas parcel to OST. OST conveyed conservation easements on both of these parcels to the Roaring Fork Conservancy. The other 6.7-acre parcel was conveyed to the Town of Basalt and combined with the Town's 2-acre parcel. This 8.7-acre parcel is encumbered by a conservation easement co-held by OST and the Roaring Fork Conservancy.

3.1.1 Type of Acquisition

64.7 acres fee simple; 8.7-acres encumbered by a conservation easement co-held by OST and the Roaring Fork Conservancy.

3.1.2 Public Record

Quit Claim Deed conveyed from Viviane Trimble to Pitkin County for interest in Railroad Right-of-Way, Reception # 444461, June 20, 2000; Special Warranty Deed conveyed from TPL to Pitkin County for 64.7 acres of land, Reception # 444462, June 19, 2000; Quit Claim Deed conveyed from TPL to Pitkin County for water rights, Reception #444463, June 19, 2000, and; Deed of Conservation Easement conveyed from Town of Basalt to Pitkin County and RFC on 8.7 acres, Reception # 733045, June 21, 2000

3.1.3 Title Insurance

Pitkin County Title, Policy # 1312-178327, Case #PCT15224A, June 22, 2000 for 68 acre parcel; Stewart Title, Order #00026089-C2, April 9 1999, for 68 acre parcel; Stewart Title, Order #99017766, April 7, 1999, for 6.7 acre Trimble parcel; Stewart Title, Order #99017765, April 7, 1999, for 6.7 acre Thomas parcel; Stewart Title, Order #00027319, February 7, 2000, for 2.0 acre Basalt parcel

3.1.4 Pre-Existing Encumbrances

Mineral rights, utility easements, encroachment identified by Buettner Survey note #7.

3.1.5 Survey

Louis Buettner Surveying, Plat Book 53 Page 92-93, June 21, 2000.

3.1.6 Water Rights

Water rights for Lot 2 of the Thomas Emma Subdivision (the agricultural parcel) are as follows:

2.0 cfs in the Home Supply Ditch

1.0 cfs in the Cramer Ditch

These water rights are very senior. The Cramer ditch rights were appropriated in 1883, 1885, and 1886. Priorities for the Home Supply Ditch were awarded in 1887 and 1905.

3.2 Physical Characteristics

The irregular-shaped property consists of mostly vacant, natural land. The property is divided by State Highway 82, which is aligned east-west through the area. The property to the north of the highway contains a portion of the Roaring Fork River, which roughly parallels the highway and flows east to west. The area along the river is heavily vegetated with willows, cottonwoods, and wetland vegetation. The central portion of the property is flatter and consists of grazing land. The southernmost portion of the property is north-facing hillside.

3.2.1 Location

The subject property consists of approximately 73.4 acres of land located approximately one mile to the west of Basalt, Colorado. The property consists of four parcels of land: two 6.7-acre parcels, one 2-acre parcel, and a 58-acre parcel. The parcels are located in the south half of Section 12 and north half of Section 13, Township 8 South, Range 87 West of the Sixth Principal Meridian.

3.2.2 Geology

The Emma Open Space Property shows the characteristics of the active geologic history of the Roaring Fork Valley. Light Hill to the southeast defines the up-thrust side of a large fault system running down the valley from Castle Creek to Missouri Heights. The flatter portion of the valley has subsided over the millennia. Sedimentary rocks underlying the hay meadows of the property are most likely Cretaceous shales of the Mancos Shale, dating from 100 million years ago, derived during one of the periods when shallow continental seas covered this area. The red cliffs of Light Hill are Permian sandstone and siltstone dating back to 250 million years old. This formation is classified as the Chinle/State Bridge/ Maroon formation which ties its origin to 3 distinct formations across western Colorado and Arizona. You can literally walk across the fault somewhere southwest of the Home Supply Ditch and transcend 100 million years of difference in the age of the land you are standing on. The fault that cuts the property most likely occurred in the Tertiary, up to 70 million years ago when the entire Colorado plateau was uplifted to the Northeast in the most recent episode of mountain building.

3.2.3 Soils

Evanston loam. Found predominately on the lower bench of the property adjacent to Highway 82 and bounded by the railroad to the southwest.

Antecio-Azeltine complex comprised of 60 % sandy loam and 30% gravelly sandy loam. This soil is found on the upper portions of the property from the schoolhouse to the southeast portion of the property following the railroad right of way more or less.

Empedrado loam. Found on the gradual slopes leading up to the base of Light Hill to the southeast.

Arle-Ansari-Rock outcrop complex 12-50% slopes. These soils are found on Light Hill to the Southeast and is comprised of weathered material from the parent State Bridge/ Chinle /Maroon formation that forms the rock outcrops above the property.

Note: Predicted vegetation on the steeper slopes: Western Wheatgrass, Indian Ricegrass, Ross sedge, Mountain mahogany, Antelope Bitterbrush, Mountain big sagebrush, Bottlebrush squirreltail, Utah serviceberry, Pinyon pine, Utah juniper, Gambel Oak.

3.2.4 Hydrology

The Riparian area of the property is directly tied to the hydrology of the Roaring Fork River.

Upland hydrology is impacted by two irrigation ditches that supply water to the property. The Home Supply Ditch and The Cramer Ditch both have water rights tied to the property. The Home Supply Ditch has created a higher water table than would normally exist on the upland portion of the property. For perhaps 20 years, the point of diversion from the Cramer Ditch has been along a barrow ditch next to Sopris Creek Road and the lower extent of the ditch has not been used. Numerous stands of cottonwood and coyote willow exist in addition to other water loving plant species along the Home Supply that would most likely die if the irrigation ditches were abandoned as evidenced along the old Cramer ditch alignment.

3.2.5 Irrigation

Maintenance of water rights will require continuing beneficial use of the water through irrigation and keeping accurate records for all diversions made on a yearly basis. The annual agricultural lease – see section 3.3.4- requires the lessee to maintain these records.

Irrigation ditches must be maintained to avoid erosion and over-saturation of fields.

Diversion structures will be maintained to adequately control the supply of water to the property.

3.3 Land Use Considerations

3.3.1 Context of Properties

The Emma Open Space property establishes permanent protection of open space between the urbanized population centers of Basalt and El Jebel (a.k.a. East and West Basalt respectively). Pitkin County, Eagle County, and the Town of Basalt have all identified the establishment of such open space buffers as being major policy objectives in their respective master plans. This parcel is the only significant cross-valley open space under permanent protection between Basalt and El Jebel and contains beautiful vistas all the way around, including one of the most striking views of Mount Sopris from the valley floor.

The Emma Open Space parcels were acquired in partnership with the Roaring Fork Conservancy, the Town of Basalt, the Trust for Public Land, Eagle County, the Colorado Division of Wildlife Wetlands Initiative, and Great Outdoors Colorado. Conservation of the agricultural parcel which is bordered by ranches on two sides is an important effort in preserving the valley's ranching heritage in the mid-valley area. The remainder of the

property protects part of riparian corridor along the Roaring Fork, protecting important aquatic and wildlife habitat and river access. Situated between BLM's Light Hill and CDOW Christine State Wildlife Area, this project also preserves a wildlife corridor linking these two lands and creates a buffer between El Jebel and Basalt. The Emma Open Space is bisected by the Denver and Rio Grande ROW and lies on either side of Highway 82. OST holds a trail easement on the rail corridor. The scenic rural and open space attributes of this property are valuable because they lie along these major corridors. (See Map A)

3.3.2 Adjacent Land Use and Ownership

The conserved property lies between 3,800-acre BLM land and the 2,000-acre Colorado Division of Wildlife Christine State Wildlife Area, and bridges the gap in the elk and deer migration corridor for those public lands. Both public parcels enjoy high recreational use and host big game critical habitat.

The privately held lands surrounding the property are primarily agricultural or rural. On the east side of the property lies the 240-acre Grange Ranch, one of the last operational cattle ranches in the midvalley.

The Denver and Rio Grande ROW crosses the property running east-west. It provides for the development of a non-motorized public trail and is encumbered by a conservation covenant.

The northwest corner of the agricultural parcel is adjacent to the old Emma Schoolhouse, owned by the Emma Community Trust. The schoolhouse hosts community events such as meetings, church gatherings and yard sales.

The Minney property, located to the northwest is considered rural/residential and contains historic Emma buildings, including a white farmhouse and the Old Emma Store. Mr. Minney has sought approval to restore the old store and develop it for commercial use, but has been denied such approval to date.

The exception to surrounding lands is a small 3.7-acre parcel inset in the agricultural parcel adjacent to the highway, which is used for storage (mostly old vehicles).

3.3.3 20th Century Land Use

The hay fields have been in agricultural use since at least 1883, as evidenced by the appropriation date for the Cramer Ditch water. See section 3.1.6. Most of the remainder of the land was passive open space. The Town of Basalt parcel served as a landfill at one point, but was closed and covered with clay and soil in the 1970s. Since then, it has been an area for municipal composting, discarding dirt and branches.

At the turn of the century Emma was a small town that built up around the next D&RG train station upvalley from Carbondale. The Town boasted a postmaster, store and a few other businesses, along with a few residences. Although it is not clear exactly when Emma quieted to its current state, the last passenger train stopped running in the 1940s, and the last train carrying agricultural freight left in 1969.

In 1989, Emma changed drastically with the rerouting and expansion of State Highway

82. The highway took 6.78 acres of what is now the Emma Open Space, and divided the agricultural and riparian parcels, negatively impacting wildlife movement and ranching.

3.3.4 Current Leases

The agricultural parcel is leased annually for grazing and haying.

3.3.5 Easements, Right-of-ways, Decrees and Other Rights

The former Denver and Rio Grande Right of Way traverses the agricultural parcel. This includes the Rio Grande Trail completed on this stretch in 2000.

The property is encumbered by utility easements granted to Rocky Mountain Natural Gas (now KN Energy), Holy Cross Electric and Mountain States Telephone and Telegraph (now Qwest).

The Home Supply Ditch crosses the property.

A conservation easement held by Roaring Fork Conservancy covers the large Trimble parcel (agricultural parcel) and one of the Thomas parcel in Eagle County (parcel A & B), which are owned in fee by OST. The 8.7-acre parcel owned by the Town of Basalt is subject to a conservation easement held jointly by Pitkin County and the Roaring Fork Conservancy.

4.0 VEGETATIONAL RESOURCES

4.1 Historic Ecology

4.1 Non-native Plants

4.2 Resource Inventories/Current Conditions

4.2.1 Plant Communities

4.2.1.1 Roaring Fork River Riparian and Wetland Section

The northeast portion of the property is composed entirely of the riparian plant community along the Roaring Fork River bounded by Two Rivers Road on the north and the Emma Trail on the south. Upon close evaluation, the dominant overstory species on the south side of the river, *Betula fontinalis* (*Betula occidentalis*) (River Birch) and *Alnus incana* subsp. *tenuifolia* (thin leafed alder) dominate the overstory with scattered individuals of *Populus angustifolia* (Narrowleaf Cottonwood). Several species of *Salix* spp. (willow) as well as *Swida sericea* (Dogwood) are the dominant shrub species found just beneath the canopies of the Alder and River Birch. Other scattered shrub species are also found with the most notable being *Shepherdia argentea* (Silverberry).

When *Betula fontinalis* is abundant or as abundant as any other shrub species, such as *Alnus incana* and *Swida sericea*, the stand keys to *Populus angustifolia/Betula fontinalis*. Because *Betula fontinalis* is less common and more threatened than *Alnus incana*, co-dominant stands fall to the *Betula* type for tracking. The Colorado Natural Heritage Program (CNHP) has the *Populus angustifolia/Betula fontinalis* community ranked as

G3/S2. The community has been identified in fewer than a dozen locations in Colorado and is highly threatened by development, stream flow alterations, heavy recreation, improper grazing, and expansion and maintenance of roads and railroads.

With further quantitative evaluation, the *Betula* type may or may not be truly extensive enough to be considered a formal community occurrence and the stand would fall into the *Populus angustifolia/Alnus incana* Woodland. This community is not ranked much differently (G3/S3) and is still very rare in the state with only 21 to 100 occurrences thus far being documented. It is a common community along montane streams, but few high quality examples exist. With further data collection, whichever stand the area represents, it is a highly significant riparian plant community within the state of Colorado.

The presence of *Shepherdia argentea* is also of significance although it is not a dominant shrub in this section of the river. Downstream on the Roaring Fork River in the broader floodplain above Carbondale is where the *Shepherdia argentea* shrubland is locally extensive. It can also be found in extensive sections of the lower Crystal River. CNHP has this community ranked G2/S2, making it imperiled in the state because of rarity (6 to 20 occurrences) or because of other factors demonstrably making it very vulnerable to extirpation from the state. In Colorado, *Shepherdia argentea* was probably once more widespread, but is now on the decline with the loss of middle to lower elevation riparian habitats. *Shepherdia argentea* was once a common riparian shrub but is now being replaced by the introduced species and cousin *Elaeagnus angustifolia* (Russian Olive).

4.2.1.2 Agricultural Fields and Irrigation Ditch Section

South of State Highway 82, the property is mostly irrigated agricultural fields. These fields are comprised mostly of the introduced hay meadow species *Dactylis glomerata*, *Medicago sativa*, *Bromus inermis*, with *Taraxacum officinale* and *Trifolium pratense*. Along the main irrigation ditch, *Salix exigua* ssp. *exigua* var. *exigua* (Coyote willow) is dominant with one notable 150' X 350' area of mature *Populus angustifolia* dominating the area along the railroad tracks in the southeast section of the property. Just west of these Cottonwoods also along the ditch is a 50' X 175' stand of mature *Quercus gambelii*.

The predominant understory species along the ditch consist of non-native, weedy species such as *Phalaris arundinaceae*, *Tanacetum vulgare*, *Convolvulus arvensis*, *Carduus acanthoides*, *Breea arvensis* (*Cirsium arvensis*), and *Solanum dulcamara*. The constant disturbances associated with ditch cleaning and the abundance of water are unfortunately ideal conditions for the persistence of these non-native invasives. Colorado's native Clematis, the vine, *Clematis ligusticifolia*, highly noticeable in the fall with its masses of feathery styled fruits, is also abundant amongst the Coyote willows along the ditches. A native East Slope species, a vine in the gourd family, *Echinosystis lobata* (Mock cucumber) was discovered growing in the Coyote willows on a smaller ditch just east of the old Emma schoolhouse. It may have arrived in some East Slope hay, as a hitchhiker in a seed mix, or in the dried mud on the tires of a backhoe cleaning the ditch.

4.2.1.3 Sage Brush and Serviceberry "Pockets"

Very small areas or pockets of sagebrush-dominated communities exist (notably just east of the mature cottonwood stand below the ditch described above) and may represent what

the majority of the agricultural fields consisted of before being transformed for agriculture. *Quercus gambelii/Amelanchier alnifolia* (Oak/Serviceberry) may also have extended down into the hay meadows and are now found intermittently along the ditch right-of-way and up on the southwest hillside below the Piñon/Juniper community.

4.2.1.4 Pinon/Juniper Hillside Section

Pinus edulis/Juniperus osteosperma (Piñon/Juniper) Woodland community dominates the slopes on the southeast corner of the property. *Quercus gambelii/Amelanchier alnifolia* is located at the toe of these slopes. These properties have a sinuous pattern of wildlife trails traversing them. Further inspection is needed to determine the quality of these plant communities and any potential threats to be addressed by Open Space management.

4.2.2 Weeds

Plumeless Thistle (*Carduus acanthoides*):

Status- Plumeless thistle is prevalent on the upper portion of the property. The abandoned field below the Cramer Ditch was found to have heavy infestations of Plumeless thistle during an inventory done in September 2000. The remainder of the property has light infestations that occur on irrigation ditches, the Rio Grande Trail, and unused portions of hay meadows.

Mechanical- Two viable mechanical controls exist for this species on the Emma Open Space. These include using a shovel to cut the root below the soil or hand pulling prior to seed production. Both of these methods are very labor intensive and necessitate large numbers of volunteers to make any significant impact on the infestations.

Biological-There are two species of weevils that are proven to reduce seed production of this plant. *Rhinocyllus conicus* and *Trichosirocalus horridus* both weaken the plant and reduce the amount of energy that it can use to produce viable seed.

Cultural- Revegetation with native species is a proven deterrent to the spread of Plumeless thistle. This will be pursued on portions of the property that were disturbed by agriculture in years past.

Chemical- Numerous herbicides are labeled for this weed species but few exist that are compatible with the existing vegetation on this property. Transline and Tordon are currently the only herbicides in use by Pitkin County because of their reduced impacts on existing native plants. The use of Tordon is not without risks. Training of crews must occur to ensure that the application of this herbicide is done correctly to avoid injuring or killing native species. Tordon cannot be used near any hayfields that have alfalfa present.

Hounds tongue (*Cynoglossum officinale*):

Status- Hounds tongue is common along the Rio Grande Trail and the upper field below the Cramer Ditch.

Mechanical- The biennial nature of this species makes it vulnerable to

mechanical control provided it is done correctly. Like Plumeless thistle the most successful mechanical control is to cut the root several inches below the surface prior to flowering. It can also be hand pulled but the soil must be moist for this to be a realistic option. Hand pulling can be done through flowering and up to seed production but the plants must be bagged and removed.

Biological-No insect species have been approved for use in the United States at this time. Goats have been used to graze this species but must be used repeatedly to counter the ability of this plant to re-sprout after every grazing.

Cultural- This plant spreads from the spread of its Velcro like seeds. It is imperative to keep vehicles, clothing, tools and any other items taken onto the property free of these hitch-hiker seeds. The seeds benefit from bare and disturbed soil so revegetation and management of existing vegetation to outcompete houndstongue is important.

Chemical- Tordon is the only effective herbicide available for this weed species given the numerous desirable plant species on the property. The use of Tordon is not without risks. Training of crew must occur to ensure that the application of this herbicide is done correctly to avoid injuring or killing native species.

Common Tansy (*Tanacetum vulgare*)

Status- Common Tansy is one of the more problematic species on the Emma Open Space Property. It is a very tough perennial that has spread along most of the irrigation ditches on the property as well as unused portions of the hay fields.

Mechanical- The fact that this plant is a perennial necessitates a more innovative management technique. The main goal of managing this species is to deprive the root system of the energy that the above ground portion of the plant provides. This can be achieved through repetitive mowing prior to seed production or flowering. This will also eliminate the production of seed that allows it to spread down waterways.

Biological- Staff needs to research this control method.

Cultural- Education and awareness will go a long way towards the control of this plant. If more people realize that this is not another yellow wildflower and is actually a problematic weed they may start to manage it more aggressively.

Chemical- Transline and Escort are very effective on Common Tansy. They are not labeled for use along irrigation ditches however. Along ditches this weed may have to be mechanically dealt with or possibly the use of aquatic labeled herbicides would be effective. Rodeo or Aquatic labeled 2-4,D may be somewhat effective but have limitations with relation to this species.

Other Alien Species of Concern

- Canada thistle- Not common on the property but a few patches exist.
- Oxeye daisy- This plant is pretty but is a real problem for natural areas.

- Scentless chamomile- Another pretty plant but very invasive on disturbed soil.
- Bitter nightshade- A relative of tomatoes, this plant is quite poisonous and invasive, especially in wet areas.

These management efforts will be assessed for their effectiveness through the vegetation monitoring program and continued GPS mapping.

4.3 Significant Resources

4.3.1 Pastures

The 58-acre upland parcel has been in agricultural use throughout this century. This property contributes to the viability of ongoing ranching on adjoining lands. Much of this area is now occupied by pasture grasses. See section 4.1.1.2

The pasture grasses, and agricultural water rights, will be maintained through an annual grazing and haying lease.

4.4 Management Action Steps: VEGETATION

Management Action Goals:

Goal 1. Maintain or enhance native plant and animal species, their communities, and the ecological processes that sustain them.

Goal 2. Maintain or improve designated agricultural areas and ensure management activities are compatible with Goal 1.

The guiding principal of all management actions should be to minimize any impacts that may reduce the abilities of the riparian, wetland and upland areas to support existing native plants and native plant associations. Activities on the agricultural areas should be exercised in a manner compatible with this overall guiding principal. Overall management actions should attempt to maintain or enhance existing native plant communities and improve the quality of specified agricultural areas.

Management Action Objectives for Vegetation on the Riparian, Wetland and Upland sites:

- Maintain or increase the number of native plant species.
- Maintain or increase the existing number of uncommon native plant species.
- Maintain or increase the existing number of occurrences of uncommon plant species.
- Reduce the abundance of invasive and noxious non-native species present.
- Prevent the establishment of and spread of invasive and noxious non-native species that have not been previously encountered.
- Maintain or increase the existing number and types of plant associations dominated by native plants.
- Maintain or increase the vegetation quality for each plant association or for any associations identified in the future.

- Maintain or increase the aerial extent of the existing native shrublands.
- Maintain or increase the aerial extent of the existing riparian areas.
- Maintain or increase the aerial extent of the existing wetland areas.

4.4.1 Management Action Steps: Current Specific Management Actions:

- Control all invasive non-native species with special emphasis on any state listed noxious weeds and Bittersweet or Climbing Night Shade (*Solanum dulcamara*), a plant poisonous to wildlife and threatening the wetland areas.
- Stop the application of any nutrient inputs (e.g. fertilizer or composted animal waste products) onto the agricultural areas, as the wastewater carries these into the adjacent wetland and riparian areas, exacerbating the weed problems and decreasing the wetland species diversity by favoring cattails.
- Revegetate and control weeds on the “Overlook” area.
- Eliminate any Russian Olive trees either within the riparian corridor or elsewhere.
- Work with the Rail Road authorities and encourage weed control along their right-of way.

5.0 WILDLIFE RESOURCES

5.1 Resource Inventories/Current Conditions

Emma Open Space is comprised of three distinct wildlife habitats with each supporting a different suite of vertebrates. As described in the Plant Communities section, the northeast portion of the property is composed entirely of the riparian plant community; south of State Highway 82, the property is mostly of irrigated agricultural fields; and mixed Piñon Pine /Utah Juniper Woodland Gambel Oak/ Serviceberry Shrub community (with pockets of mountain big sage) dominates the slopes on the southeast side of the property (Figure 1).

Several sources of information were used in evaluating wildlife resources. The first stage of the Pitkin County Open Space Biological Inventory and Monitoring protocol was initiated on Emma in May 2000. Permanent bird point transects and small mammal trapping grids are currently being set up and will be repeated every other year. Den searches and scat transects will be conducted in 2001. Carnivore track surveys will be conducted during the 2001-2002 winter and 2001 summer field seasons. Ungulate browse assessments will also be conducted in 2001.

5.1.1 Mammals

The habitat types on Emma provide habitat for a diverse array of mammal species from mule deer to deer mice. The combination of structural diversity, fruit-bearing shrubs, and abundant grass seed in the riparian area and shrub-dominated slopes provide an

abundance of food, cover, and denning sites. The concentration of mammals is heightened during the winter when snow and harsh weather move animals down from higher elevations. At least thirty-two mammal species are known or suspected to occur on the Emma OS. Black bear, coyotes, red fox, badgers, mule deer, Wyoming ground squirrels, pocket gophers, golden-mantled ground squirrels, least chipmunks, meadow and montane voles, and deer mice are known to use Emma Open Space for part of their reproductive process.

5.1.1.1 Mammalian Carnivores and Bats

Carnivore or predator species are critical to maintaining the integrity of native ecological communities. Mammalian carnivores (or their sign) such as red fox, coyote, black bear, bobcat, badger, long-tailed weasel, and mountain lion have been historically sighted on the Emma OS via tracks, scat, or other sign.

Estimates of animal abundance are among the most important information needs of managers and researchers. Unfortunately, secretive habits of most carnivore species and the low density of most carnivore populations preclude accurate, precise, and inexpensive estimation of population size. Hence, indices of relative abundance often substitute. Winter track transects and summer scent-station surveys will be conducted in the winter of 2001-2002 and summer 2001 field season accordingly. Tracks detected at scented baits (scent stations) have been used for decades to index abundances and monitor distributions of carnivores.

Although we are not currently surveying bats on the Emma OS it is important to note that a healthy bat community is critical to nearly every ecosystem. There are four bat species that may occur on the Emma OS based upon habitat affinity and geographic distribution (Fitzgerald et al. 1994).

5.1.1.2 Ungulates

The continuing loss of winter and migration habitat is the most serious problem for mule deer and elk in the Roaring Fork Valley and the western U.S. Of particular concern is the resident herd of mule deer that use Emma Open Space as part of a home range that also includes the Christine State Wildlife Area to the north and Light Hill to the south. These deer use BLM, Emma OS, and privately owned portions of the piñon-juniper and oak-serviceberry dominated slopes of Light Hill throughout the year to feed, socialize, and rest. Light Hill and Christine SWA provide critical winter range and winter concentration areas for the mule deer of the Roaring Fork Valley in even the worst winters. With the improvements made by Pitkin County and the Roaring Fork Conservancy to the wildlife underpass under State Highway 82 connecting the public lands of Light Hill, Emma Open Space, and Christine SWA, mule deer are now actively moving back and forth between these protected areas throughout the year. (The Roaring Fork Conservancy will be monitoring wildlife use of the underpass with a motion camera beginning this fall.) Fawning has not been confirmed on the property but very young fawns have been seen on the property in June.

Similarly, Light Hill and Christine SWA provide critical winter range and winter concentration areas for elk. Elk use Emma OS primarily as transition range in the late fall/early winter and again in the late spring. Elk can be found on the north-facing slopes

of Light Hill on Emma in light snow years but are concentrated on the south-facing slopes and crown of this 8600 foot hill. During the winter of 2000-2001 elk came down from Light Hill to the underpass daily to feed on the hay and salt blocks placed on either side and in the Highway 82 underpass to coax mule deer into using it. There is no indication that elk calve, rut, or summer on Emma OS. Nonetheless, it is important to preserve any lands that provide migration and winter habitat given that this habitat type is one of the principle limiting factors for the elk herds of the Roaring Fork Watershed.

5.1.2 Birds

Breeding birds were sampled on the Emma Open Space for the first time in 2000. Prior to this effort, 73 bird species were known or suspected to occur on the Emma OS. Of those, 43 species were identified in informal counts conducted during the height of the 2000 breeding season. Based on the results of one field season, the 43 species identified in 2000 are believed to either breed on or at least incorporate part of Emma within their home range for hunting/foraging or some other aspect of their life history. The relatively high species diversity found on the Emma OS is likely attributable to the interspersed nature of the piñon-juniper, oak-serviceberry, mountain sage dominated slopes as well as Emma's connectivity to the Roaring Fork River riparian area. Species normally associated with the mountain shrub (e.g., western tanager, dusky flycatcher, and Virginia's warbler) and riparian shrub (e.g., yellow warbler, cordilleran flycatcher, American dipper, and spotted sandpiper) communities are in abundance on Emma, as were some species more commonly associated with grassland habitat such as vesper and savannah sparrows.

5.1.3 Amphibians and Reptiles

Herpetofauna sampling may be conducted in the future. Western chorus frogs are known to breed in the permanent and ephemeral ponds along the river. Western terrestrial garter snakes, western rattlesnakes, bull snakes, sagebrush lizards, plateau lizards, and northern leopard frogs may occur on the Emma Open Space.

5.1.4 Fish

Fish sampling may be conducted in the future. Non-native game fish such as brown and rainbow trout are known to occur in the Roaring Fork River at this location. Non-native brook trout, native Colorado cutthroat trout, native mottled sculpin, and the mountain whitefish (native to Colorado but not the Roaring Fork drainage) are all likely to occur in the river at Emma.

5.1.5 Invertebrates

Invertebrate sampling could be conducted in the future.

5.2 Significant Resources

5.2.1 Mammals

Of the mammal species known or likely to occur on the property, one is designated by one or more governmental agencies as having special status (Appendix B): Long legged myotis (*Myotis volans*) is listed as Category 2 by the United States Office of Endangered Species.

5.2.2 Birds

Of the bird species known or likely to occur on the property, at least 3 are designated by one or more governmental agencies as having special status: 1. Brewer's Sparrows (*Spizella breweri*) are listed as a species of concern by the U.S. Office of Migratory Bird Management (USOBM). 2. Virginia's Warblers (*Vermivora virginiae*) are listed as a species of concern by USOBM. It is widely accepted that overall neotropical migrant songbird populations are declining and that the principle cause is habitat loss. Although we have little control over habitat protection in Central and South America, it is imperative that we protect lands that support breeding neotropical songbirds in the United States. 3. Lewis' Woodpecker (*Melanerpes lewis*) is a U.S. Forest Service Region 2 Sensitive Species and Watchlisted by CNHP and Partners in Flight.

1. Brewer's Sparrow - Although often the most abundant songbird in sagebrush habitats, the Brewer's Sparrow is seriously declining across its range. A species of concern due to population declines and threats to breeding habitat, the Brewer's Sparrow is vulnerable to loss and fragmentation of sagebrush habitats. It has been given a high priority rating by Audubon and the Colorado Natural Heritage Program ranks their Colorado population as "vulnerable" and Partners in Flight have added it to their Watch List of conservation priority species (Muehter 1998). Large-scale reduction and fragmentation of sagebrush habitats occurring due to a number of activities, including land conversion to tilled agriculture, urban and suburban development, and road and power-line rights of way is the major threat to Brewer's sparrow persistence.
2. Virginia's Warbler - Associated with dense shrubby habitats. Listed on the Partners in Flight Watch Listed as a species of moderate conservation priority chiefly due to limited knowledge of the species' biology (Muehter 1998). It is classified as a species of concern by the U.S. Fish and Wildlife Service in the Great Plains/Rocky Mountain and Southwestern administrative regions based on the Partners in Flight ranking (USFWS 1995) and may be vulnerable due to its narrow geographic distribution on breeding and wintering ranges and lack of large populations in breeding range (Reed 1992).
3. Lewis' Woodpecker – Breeding predominantly in deciduous riparian habitats where they nest in decadent cottonwoods, Lewis' woodpecker show population declines on twice as many Breeding Bird Survey Routes than population increases. The loss of habitat due to the destruction of suitable riparian habitat for roads and housing is the greatest threat to this species.

5.3 Maintaining Habitat Effectiveness

In 1988 the Colorado Department of Transportation (CDOT) completed the installation of a wildlife underpass beneath Highway 82 during the construction of the Basalt Bypass. The underpass is constructed of concrete and connects the north and south portions of the property. Due to some design issues the underpass was rarely used by wildlife. When the property was purchased the underpass was wet from irrigation overflow, the southern entrance was overgrown, and a barbed wire fence ran across the front of the southern entrance.

In September 2000 staff from the Conservancy and Pitkin County Open Space and Trails collaborated with CDOT and Utilicon to begin rehabilitation work on the underpass. This work involved grading the approach to slope inward toward the underpass and removing some of the vegetative screening in front of the opening. Berms were created parallel to the deer fence and were planted with grass in the autumn of 2000, and with shrubs and trees in spring 2001. The Roaring Fork Conservancy is researching how to improve the surface of the underpass will also be made, so that it is more conducive to wildlife use.

Highway 82 remains a serious threat to migrating wildlife. A continuing problem is that animals which get into the highway corridor currently have no way of getting back through the wildlife fencing. Pitkin County staff will work with CDOT over the next season to install one-way gates for wildlife to safely re-enter the Emma Open Space upper parcels.

5.3.1 Recreation and Wildlife

Open space land use by recreationists has increased throughout the United States. As open space use rises and penetrates natural areas, encounters between humans and wildlife increases. There is concern among scientists and the public that recreationists may have a negative impact on wildlife. Recreationists can affect wildlife through unintentional disturbance, the primary way recreationists affect wildlife, or intentional disturbance (Knight and Cole 1995). Due to the escalating use of open space unintentional disturbance has become particularly impactful. Understanding the impacts and responses of wildlife to recreationists can provide open space managers with the information to develop mitigation measures such as codes of conduct. The behavior of recreationists affects wildlife responses. Predictability of a behavior partly determines wildlife response. If the disturbance is predictable and non-threatening there is little overt response, but if the disturbance is predictable and threatening there is a strong response (Knight and Knight 1984). Practical considerations such as trail placement, user education and regulations, and informational materials at trails could be effective mitigation strategies.

5.4 Management Action Steps: Wildlife

- 5.4.1 The management of approved recreational activities will rest on the results of the biological inventory and monitoring of the property, as well as, periodic assessments of the impacts of recreational activities on the ecological resources identified by the inventories and monitoring activities.
- 5.4.2 The habitat management of the property will focus on maintaining and enhancing the habitats of sensitive species, habitat interior species, species of special or cultural concern, and declining or rare species. These species include, but are not limited to, the following: Lewis' woodpecker, Brewer's sparrow, Virginia's warbler, and northern leopard frogs.
- 5.4.3 Monitor birds and small mammals via the Pitkin County Open Space Wildlife Inventory and Monitoring protocol.
- 5.4.4 Monitor effects of human, agricultural, and wildlife impacts and effects of management actions on the wildlife of the Emma Open Space according to the Pitkin County Open Space Wildlife Inventory and Monitoring protocol.
- 5.4.5 Monitor water quality in the river and wetlands.
- 5.4.6 Identify and map critical wildlife habitats. (The Pitkin County Open Space Wildlife Inventory and Monitoring protocol was implemented on the Emma Open Space in 2000.)
- 5.4.7 Monitor cottonwood regeneration.
- 5.4.8 Adapt management methods and objectives based upon the results of monitoring.
- 5.4.9 Maintain the connectedness of Emma Open Space with adjacent, undeveloped lands.

6.0 CULTURAL RESOURCES

The Cramer Supply Ditch bisects the upland parcel from east to west. This ditch is in need of repair. Currently, Pitkin County Open Space and Trails is in the process of getting the ditched repaired.

The Home Supply Ditch flows into the property in roughly a southeasterly to northwesterly direction. The property's lessee, Willie Fender, cleaned the ditch in the summer of 2000. Cleaning the ditch cleared up an overflow problem and the low point in front of the southern entrance to the wildlife underpass has subsequently dried up. He also installed a small culvert near the deer fence and put dirt over it to allow the movement of vehicles within the property. Upon recent inspection the culvert was holding up well. As indicated in the Vegetation Description, the irrigation ditches provide ideal habitat for the proliferation of non-native, invasive weedy species.

Determining the grazing capacity of an area can be complex and confusing and is the main factor affecting the success of a prescribed grazing strategy. Rates of stocking vary over time depending upon season of use, climate variations, site, and previous and current management goals. A safe initial stocking rate is an estimated stocking rate that is fine tuned by land managers by adaptive management through the years and from year to year.

There are currently about 30 irrigated acres of pasture on the property. This number could be increased to about 49 acres if the field under the Cramer ditch is brought into production following the repair of the Cramer ditch. A safe estimate for the total grazing capacity would be to allow 1 cow/calf pair per 2 acres of irrigated pasture for 5 months or 1.25 yearlings per 2 acres for 5 months. Monitoring by Open Space staff will occur to ensure the property is not overgrazed. Non-irrigated pasture will not withstand high grazing pressure and should not be grazed. Another management option would be to partition off the 3 pastures, similar to how they are already managed, and start a rotational grazing program. If done correctly, the stocking rates could be increased beyond the rates mentioned above with a monitoring program to ensure that overgrazing is not occurring.

Agricultural use is leased, which allows OST to monitor and adjust grazing rates as appropriate.

6.1 Cultural History

The entire property was first owned by Adrienne Letey prior to 1940. The property was transacted to Arthur Vasten in January 1945. Arthur Vasten transacted the two-acre parcel to the Town of Basalt in June 1957. Mr. Vasten then transacted the remainder of the property to Leonard M. Thomas in May 1962. Leonard M. Thomas died in June 1968, leaving the three parties as the coexecutors of his estate: The First Pennsylvania Banking & Trust Company, Winfield A. Hupphoch II, and William E. Clark. Viviane Thomas Trimble and Gwendolyn G. Thomas took ownership of the property in a January 1981 Executor's Deed.

6.1.1 Historic Context

The subject property was primarily grazing land, but also had wetland vegetation on the property near the Roaring Fork River. Agriculture has apparently been ongoing since 1883 when the first water appropriations occurred for the property.

The Emma town site was located immediately to the west/northwest of the subject property. The town of Emma was an early railroad stop and stage stand (see photo). A rail line, built in the 1887, traverses the parcel A (see map), and is now used for the Rio Grande Trail. Nearby structures include: two brick buildings and one brick house built in 1898 by Charles A. Mather and one schoolhouse built between 1910 and 1912. In addition, there existed a municipal landfill in the 1960s on the eastern property boundary.

The Old Emma Schoolhouse, adjacent to the Emma Open Space, served the Emma community since shortly after turn of the century. In the late 1920s, the single room school had a class of 20 students. Class sizes diminished in the thirties and forties, as teachers moved to other schools in the valley. By the early 1950s, the school closed.

After closing, the schoolhouse remained dormant for some time, until the Emma Community Trust took over the building's management. Today, it is used for community meetings, 4-H meetings, the local hispanic church group, and local events such as yard sale and Christmas bazaars.

6.2 Cultural Sites and Structures

6.2.1 There are no Historic Structures on the Emma Open Space itself.

7.0 VISITOR SERVICES

7.1 Recreation Potential

The property is being preserved as agricultural land, wildlife habitat, and passive open space. Recreational uses afforded by this parcel include public trails, discussed in the section 7.1.2, wildlife viewing from the trails, and fishing. With the Roaring Fork Conservancy as a partner on this project, the opportunity to provide interpretive or educational experiences to the public will be pursued (see section 7.2).

7.1.1 Significant Resources

The Roaring Fork River flows through the Eagle County portion of the Emma Open Space and is frequented by local fishermen and commercial fishing guides. In the summer, float trips will also occasionally enjoy that section of the river. Access to this stretch of river is gained from Two Rivers Road below Basalt. The location of existing access points and trails at the river should be reviewed to ensure protection of riparian vegetation.

7.1.2 Trail System Considerations

Though technically not on the Property, two major trails traverse the Emma Open Space: the Emma Trail and The Rio Grande Trail. The most significant issue with both trails involves conflicts of trail users with livestock and wildlife on the property. Livestock should not be an issue if all fences are well maintained. Adequate signage should be used to inform all trail users to stay on the trail and keep dogs leashed and on the trail at all times. Wildlife conflicts should be minimized if trail users abide by the above regulations. There will be occasional encounters between trail users and wildlife that occur on the trail that may be unavoidable. Closing the trails after dark could be considered to minimize this potential.

No new trails will be constructed on this property.

7.2 Education Potential

Emma Open Space offers a range of educational opportunities for students of all ages. Potential opportunities range from outdoor education classes led by Educators to designing interpretive signs at various locations on the property. (See Section 7.4) The Roaring Fork Conservancy in conjunction with the Pitkin County staff will initiate ideas and implementation strategies over the next year.

7.3 Fencing

Emma Open Space was purchased primarily to connect two large parcels of Public land so as to provide a corridor for wildlife across the valley. With this in mind any fences that are installed or maintained on the property should not impede wildlife. With the exception of the Colorado Department of Transportation fence along Highway 82, no fence should exceed 48 inches in height and preferably not exceed 42 inches if horses are not present. The top two wires of all fences should be at least 12 inches apart. The bottom wire of all fences should be at least 16 inches off of the ground. Barbed wire should be avoided if possible and replaced with high tensile or smooth wire which can be electrified with solar chargers to keep livestock from pushing them down.

7.4 Visitor Amenities

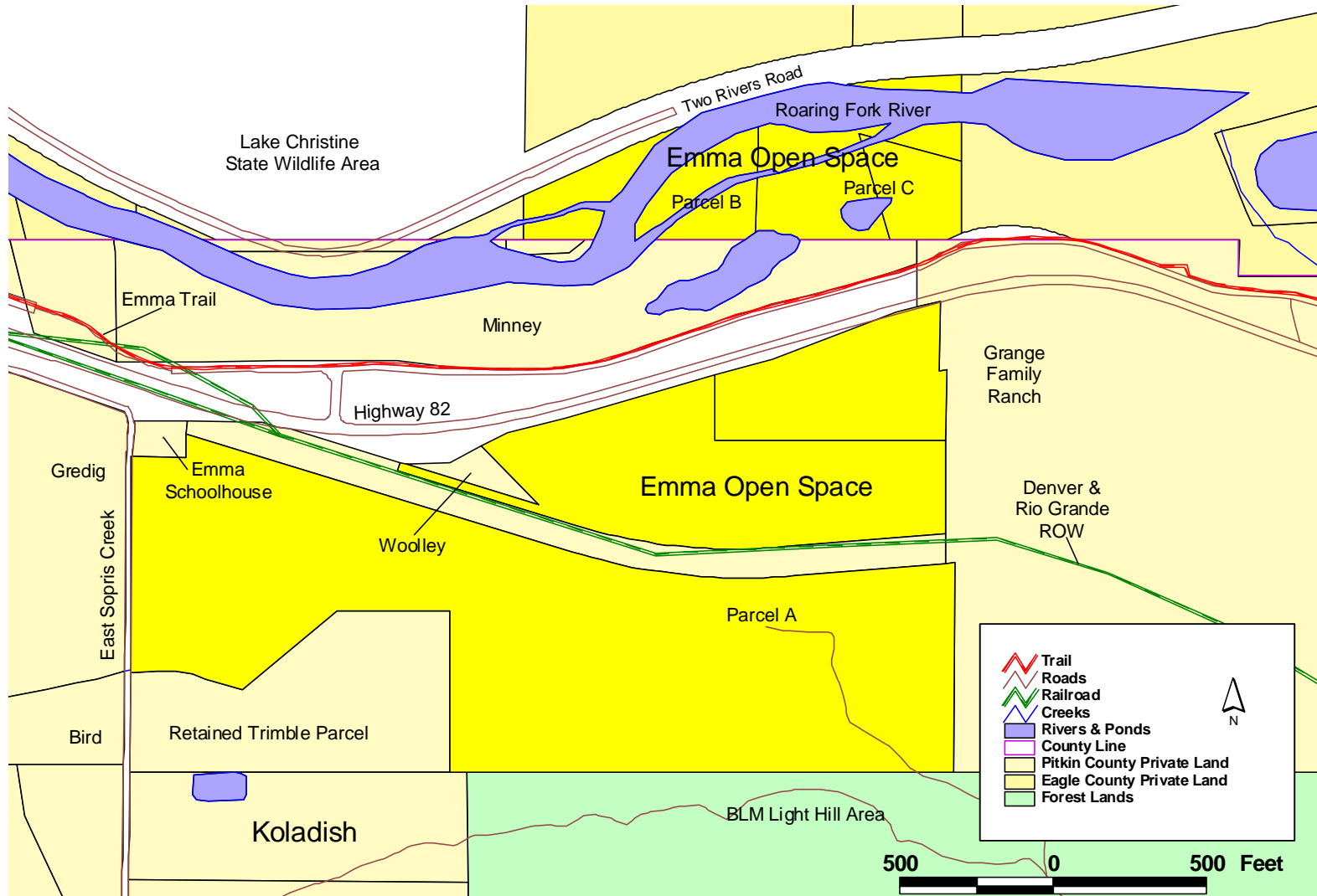
A riparian interpretive station is planned for the 8.7-acre parcel held by the Town of Basalt. The Town is currently using the site for composting and stockpiling of tree trimmings. The Conservation Easement on this parcel provides that this use may continue until the Town obtains an alternative site. The development of the interpretive station is pending the relocation of the Town's composting operation.

As discussed above, the Rio Grande Trail transects the property and provides visitors with a corridor for viewing the upper parcels.

8.0 REGULATIONS

The regulations governing the management, maintenance, and utilization of Pitkin County Open Space and Trails properties are set forth in Title IX of The Pitkin County Code (Ord. 01- 04), and apply to the Emma Open Space.

Emma Open Space



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