Level 4 Potential Conservation Area (PCA) Report

Name Spring Creek at Greenie Mountain **Site Code** S.USCOHP*20687

IDENTIFIERS

Site ID 1514 **Site Class** PCA

Site Alias Monte Vista Refuge Macrosite

Network of Conservation Areas (NCA)

NCA Site ID	NCA Site Code	NCA Site Name
-		No Data

LOCATORS

Nation United States **Latitude** 372906N

State Colorado **Longitude** 1060535W

Quad Code	Quad Name
37106-E1	Homelake
37106-E2	Monte Vista
37106-D1	Waverly
37106-D2	Fulcher Gulch

County

Rio Grande (CO)

Alamosa (CO)

Watershed Code	Watershed Name
13010002	Alamosa-Trinchera

SITE DESCRIPTION

Minimum Elevation	7,580.00	**Feet**	2,310.00	**Meters**
Maximum Elevation	7,800.00	**Feet**	2,377.00	**Meters**

Site Description

This site contains a diverse assemblage of open water, emergent marsh, saline wet meadows, peatland, riparian communities, and some uplands. Historically, much of the site received flow from Spring Creek and possibly from groundwater discharge. The natural hydrology has been altered due to groundwater pumping and water diversions for local irrigation and for habitat management on the Monte Vista National Wildlife Refuge. Remnants of a large fen occur near the headwaters of Spring Creek. Most of the Refuge's cultural resources occur in this area suggesting that the site used to support large populations of wildlife and was a predominant feature on the landscape (Mike Blenden - pers. comm.). The fen is almost entirely dry, as the series of springs have not exhibited flow since the late 1970's due to the development of large wells in the area. The remaining portion of the site is heavily managed for waterbird use. Water is conveyed via numerous ditches and canals to waterbird management units to inundate these areas during seasonal use. Spring Creek has also been channelized for much of its length. Although the hydrology does not likely represent natural historic conditions, current hydrologic management supports all of the elements. For instance, seepage from canals, ditches, and ponds supplement natural groundwater discharge is supporting sedge meadows (*Carex simulata, C. atherodes*, and *Scirpus pungens*) and emergent marshes (*Scirpus maritimus, S. acutus, Eleocharis palustris, Typha latifolia*, and *Sparganium eurycarpum*) whereas open water areas within the habitat management units support floating/submergent species (*Ranunculus aquatilis* and *Potamogeton* spp.). It has been speculated that much of the refuge, prior to European settlement, was dominated by greasewood (*Sarcobatus vermiculatus*), saltgrass (*Distichlis spicata*), alkali sacaton (*Sporobolus airoides*), and rabbitbrush (*Chrysothamnus* spp.). There are still some very large tracts of land dominated by such species. Exact species composition varies with the degree of soil moisture and salinity. For example, in areas where seasonal soil moisture is high, salt crusts may develop on the soil surface, limiting species composition to those tolerable of saline and/or alkaline soils. This occurs when the soil solution (soil water and its constituents (nutrients, salts, etc.)) becomes concentrated due to evaporation. This increase in concentration limits the solubility of calcium sulfate, calcium carbonate, and magnesium carbonate, which, as evaporation increases, eventually precipitate out of the soil solution and form salt crusts. This process also increases the proportion of soluble sodium in the soil solution, thus creating a saline soil environment (United States Salinity Laboratory Staff 1954). Often areas with thick salt crusts are void of any vegetation, however pickleweed (*Salicornia rubra*) is sometimes found in these areas and is the most saline tolerant species in the area. However, no pickleweed was located at this site. Broom seepweed (*Suaeda calceoliformis*), saltgrass, and Nevada bulrush (*Scirpus nevadensis*) occupy slightly less saline areas. Decreasing salinity and moisture allows greasewood

(*Sarcobatus vermiculatus*), alkali sacaton (*Sporobolus airoides*), and Baltic rush (*Juncus balticus*) to establish. Thus, a consistent pattern of species distribution is conspicuous on the landscape: the lowest areas of saline bottomland meadows and shrublands were typically void of vegetation; saltgrass occupied bands of slightly less saline soils whereas Baltic rush and greasewood occurred on sporadic knolls. Slender spiderflower was typically found growing around the base of these knolls, occupying a very narrow band between the more saline saltgrass community and the less saline areas of Baltic rush and greasewood. Near the northeastern edge, a large stand of greasewood and alkali sacaton occupies slightly drier areas than those dominated by greasewood and Baltic rush. In addition to Spring Creek, it has also been suggested that Cat Creek and potentially Rock Creek used to flow through portions of what is now the Refuge and that most natural wetlands probably occurred along these drainages (Mike Blenden - pers. comm.). Examples of which species these wetlands may have been comprised of can still be found along Spring Creek, where the creek has not been channelized. A nice example of this occurs just east of where Spring Creek crosses CO Highway 15. Here, the creek exhibits a slow, meandering flow allowing productive stands of sedges (*Carex* spp.), rushes (*Juncus* spp.), and slough grass (*Beckmannia syzigachne*) to establish across a relatively broad floodplain. Early explorers who came to the Valley in the late 1800's noted that the Alamosa River, which is just south of this site, was a sinuous, marshy stream with cottonwoods and willows only occurring in periodic patches (Essington 1996). Early records also indicate that marshy areas along the Conejos River were more frequent than they are today (Essington 1996). This area along Spring Creek, although small in extent, may best represent what freshwater marshes were like in the western portion of the San Luis Valley prior to European settlement.

Key Environmental Factors

No Data

Climate Description

No Data

Land Use History

No Data

Cultural Features

No Data

SITE DESIGN

Site Map Y - Yes **Mapped Date** 03/03/2000

Designer Rocchio, F.J.

Boundary Justification

The boundary is drawn to encompass the ecological processes believed necessary for long term viability of the majority of the elements. The source of Spring Creek (the historic fen) is captured to ensure natural surface water flow through the site and also to allow future restoration efforts of the fen. Much of the Refuge was encompassed in order to provide rare and imperiled bird species the area, and ability to move freely in this area to find necessary resources. This also provides many source areas for seed dispersal for the plant and plant community elements. Such areas are extremely important to buffer long-term population fluctuations of the elements. Although the boundary does encompass the source of surface water input to the site, it is difficult to account for areas that contribute groundwater discharge. Thus, it is important to note that any changes in the current status of groundwater pumping and water diversions from water bodies that recharge groundwater would likely affect the elements (both positively and negatively depending on the element). Also, although the silky pocket mouse occurrence is encompassed within this site, it should be noted that site boundaries were not drawn to account for the ecological processes necessary for the viability of this element.

Primary Area 14,683.81 **Acres** 5,942.35 **Hectares**

SITE SIGNIFICANCE

Biodiversity Significance Rank B2: Very High Biodiversity Significance

Biodiversity Significance Comments

This site supports good (B-ranked) examples of the globally imperiled (G2G3/S2S3) plant, slender spiderflower (*Cleome multicaulis*), and a state vulnerable plant species, fair to good examples of three plant communities vulnerable on a global scale, six good examples of widespread to abundant plant communities, and excellent occurrences of waterbirds.

Other Values Rank No Data

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Other Values Comments

No Data

LAND MANAGMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

Whitetop (*Cardaria* spp.) and Canada thistle (*Cirsium arvense*), introduced and highly aggressive species, are occupying wet meadows and irrigated areas.

Offsite

No Data

Information Needs

No Data

ASSOCIATED ELEMENTS OF BIODIVERSITY

Element State ID	State Scientific Name	State Common Name	Global Rank	State Rank	Driving Site Rank
20637	*Plegadis chihi*	White-faced Ibis	G5	S2B	No
24486	*Sarcobatus vermiculatus / Sporobolus airoides* Sparse Vegetation	Saline Bottomland Shrublands	G3?	S2	No
18080	*Cleome multicaulis*	slender spiderflower	G2G3	S2S3	Yes
16887	*Carex simulata* Herbaceous Vegetation	Wet Meadow	G4	S3	No
20637	*Plegadis chihi*	White-faced Ibis	G5	S2B	No
24138	*Juncus balticus* Herbaceous Vegetation	Western Slope Wet Meadows	G5	S5	No
23668	*Grus canadensis tabida*	Greater Sandhill Crane	G5T4	S2B,S4N	No
18046	*Schoenoplectus maritimus* Herbaceous Vegetation	Emergent Wetland (Marsh)	G4	S2	No
23668	*Grus canadensis tabida*	Greater Sandhill Crane	G5T4	S2B,S4N	No
24564	*Schoenoplectus acutus - Typha latifolia - (Schoenoplectus tabernaemontani)* Sandhills Herbaceous Vegetation	Great Plains Marsh	G4	S2S3	No
18654	*Schoenoplectus pungens* Herbaceous Vegetation	Bulrush	G3G4	S3	No
17188	*Distichlis spicata* Herbaceous Vegetation	Salt Meadows	G5	S3	No
17271	*Egretta thula*	Snowy Egret	G5	S2B	No
18783	*Eleocharis palustris* Herbaceous Vegetation	Emergent Wetland	G5	S4	No
21249	*Haliaeetus leucocephalus*	Bald Eagle	G5	S1B,S3N	No
17752	*Sparganium eurycarpum*	broodfruit burreed	G5	S2?	No
23668	*Grus canadensis tabida*	Greater Sandhill Crane	G5T4	S2B,S4N	No

REFERENCES

Reference ID	Full Citation
163910	Essington, K. 1996. San Luis Valley. Preliminary Conservation Plan: Summary of Ecological Significance of the San Luis Valley. Masters Thesis for University of Colorado, Boulder. Submitted to The Nature Conservancy, Colorado Field Office. 79 + p.
165924	Kettler, S., J. Rocchio, R. Schorr, J. Burt. 2000. Biological Inventory of Rio Grande and Conejos Counties, Colorado. Unpublished report prepared for The Nature Conservancy. 234 pp.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 03/03/2000

Version Author Rocchio, F.J.

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