

Level 4 Potential Conservation Area (PCA) Report

Name Rio Grande

Site Code S.USCOHP*050

IDENTIFIERS

Site ID 294 Site Class PCA
 Site Alias None

Network of Conservation Areas (NCA)

<u>NCA Site ID</u>	<u>NCA Site Code</u>	<u>NCA Site Name</u>
-		No Data

LOCATORS

Nation United States Latitude 373318N
 State Colorado Longitude 1060050W

Quad Code Quad Name

37106-E1	Homelake
37106-E2	Monte Vista
37105-D8	Alamosa West
37105-E8	Mount Pleasant School

County

Rio Grande (CO)
 Alamosa (CO)

Watershed Code Watershed Name

13010002	Alamosa-Trinchera
13010003	San Luis

SITE DESCRIPTION

Minimum Elevation	7,590.00	Feet	2,313.00	Meters
Maximum Elevation	7,650.00	Feet	2,332.00	Meters

Site Description

The Rio Grande, in the San Luis Valley, is a sediment-dominated system. Historically, the Rio Grande was a braided, dynamic, and avulsive system (RGHRP 2001). Structures and diversions associated with irrigation have altered the dynamics of the Rio Grande (RGHRP 2001). For example, near Del Norte the Rio Grande is now confined to two moderately entrenched channels whereas historically the river had constant streamflow through multiple channels. Between Monte Vista and Alamosa, the river is dominated by a single active channel with numerous abandoned or inactive channels, meander scars, and sloughs interspersed in the floodplain (RGHRP 2001). Although channel avulsion, meander cutoff, and overbank flow still occur along this reach, historical dynamics which created the myriad of meanders scars, inactive channels, and sloughs in the area, no longer occur as the river is under capacity (RGHRP 2001). Nonetheless, current and past features resulting from the hydrological dynamics of the Rio Grande dominate the landscape along this reach. The reach between Monte Vista and Alamosa is considered to be depositional and very avulsive (RGHRP 2001). Near Alamosa, the Rio Grande is confined by a series of levees which transport water and sediment through city limits to downstream reaches (RGHRP 2001). This site encompasses a segment of the Rio Grande and its floodplain between the municipalities of Monte Vista and Alamosa. Inactive channels, sloughs, abandoned oxbows, and alluvial groundwater associated with the river support numerous wetland types, such as decadent cottonwood riparian forests, marshes, open water wetlands, willow shrublands, and fresh and saline wet meadows, within this site. These wetland types are scattered throughout the floodplain and constitute a diverse oasis of wetland habitat in Colorado's driest mountain valley. Cottonwood density along the Rio Grande in the San Luis Valley is thought to be less than historical times due to the impact of agricultural clearing in the floodplain and altered hydrological dynamics necessary for cottonwood regeneration (RGHRP 2001). However, Pike noted, during his 1807 expedition, that cottonwoods were largely absent from the Rio Grande between Alamosa and the confluence with the Conejos River (Simmons 1999). Depending on the exact location in which he reached the Rio Grande, this would suggest that the extensive cottonwood galleries just upstream of Alamosa (those contained in this site) were not present or were much smaller in extent at this time, given their conspicuous presence today. Although some regeneration is occurring, most cottonwood stands remaining within the site are of a mature class. Downstream of this site, large cottonwood stands decrease in abundance as the riverbanks are mainly dominated by willow and graminoid species. The Rio Grande Headwaters Restoration Project (2001) estimates that 41-60% of the reach between Monte Vista and Alamosa contains large stands of dense cottonwood stands or willow vegetation along at least one bank.

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Cottonwood density is especially high at the Rio Grande/Alamosa county line where cottonwood and willow density reach 81-100% cover of at least one side of the river. Mature cottonwood stands are dominated by narrowleaf cottonwood (*Populus angustifolia*) with an understory of western wheatgrass (*Pascopyrum smithii*), smooth brome (*Bromus inermis*), quackgrass (*Elymus repens*), and Kentucky bluegrass (*Poa pratensis*). Most stands have a predominant non-native understory. Canada thistle (*Cirsium arvense*) is very common. Shrubs such as black twinberry (*Lonicera involucrata*), rabbitbrush (*Chrysothamnus nauseosus*), and various willows (*Salix* sp.) are occasionally present in the understory. Willow shrublands are a common vegetation type growing along the Rio Grande riverbanks. Coyote willow (*Salix exigua*) is the most common species while mountain willow (*S. monticola*), strapleaf willow (*S. eriocephala* var. *ligulifolia*), and Pacific willow (*Salix lasiandra* var. *lasiandra*) are occasionally present. The understory consists of various graminoids such as Kentucky bluegrass, woolly sedge (*Carex pellita*), Nebraska sedge (*C. nebrascensis*), smooth brome, Baltic rush (*Juncus balticus*), common horsetail (*Equisetum arvense*), and western wheatgrass and forbs such as silverweed (*Argentina anserina*), whitetop (*Lepidium latifolium*), Indian hemp (*Apocynum cannabinum*), and wild mint (*Mentha arvensis*). Structural diversity is low as there is typically a dense shrub canopy (3-8 ft. tall) and a dense to sparse understory of herbaceous species. The width and length of these willow stands varies within this site. These willow shrublands are important habitat for the Federally Listed Endangered Southwestern Willow Flycatcher (*Empidonax traillii extimus*) which breed in relatively dense riparian vegetation near surface water or saturated soil (Southwestern Willow Flycatcher Recovery Team Technical Subgroup 2002). The Southwestern Willow Flycatcher is decreasing due to extensive habitat loss and modification caused by alteration of surface and groundwater levels by agriculture and development, changes in flood and fire regimes due to dams and channelization, clearing of vegetation for human use, livestock grazing, changes in soil and water chemistry from altered hydrological cycles, and non-native plants (USFWS 2002). The range of the Southwestern Willow Flycatcher spans over seven states. Habitat and breeding characteristics, potential threats, management concerns, and recovery objectives vary over this large region. Thus, the range of the Southwestern Willow Flycatcher has been divided into six Recover Units to ensure recovery efforts are in alignment with the biological and logistical realities of each region (Southwestern Willow Flycatcher Recovery Team Technical Subgroup 2002). Due to recent genetic work confirming Southwestern Willow Flycatcher populations in the San Luis Valley, the Final Recovery Plan for the Southwestern Willow Flycatcher has included the San Luis Valley within the range of this subspecies and has designated the San Luis Valley as a Management Unit within the Rio Grande Recover Unit (Southwestern Willow Flycatcher Recovery Team Technical Subgroup 2002). Important nesting habitat is found along a portion of the Rio Grande, including this site. These critical habitat areas exist in a range of conditions, due to various levels of grazing, past clearing for agriculture, and altered hydrology (USFWS 2002). Hawks Aloft conducted willow flycatcher surveys throughout the San Luis Valley in 2002 and 2003. Some of the willow shrublands in this PCA were found to support breeding populations of the Willow Flycatcher (*Empidonax traillii*) (Hawks Aloft 2003). Given that they were recorded during the breeding season, they are assumed to be the Southwestern Willow Flycatcher (Terry Ireland, personal communication, 2004). Almost all are associated with shrublands dominated by coyote willow. CNHP visited most of the breeding locations within this site, as well as other locations along the Rio Grande. The old river bottoms are permanently saturated and in a few places a deep accumulation of peat can be found. Hardstem bulrush (*Schoenoplectus acutus*), cattail (*Typha latifolia*), arrowhead (*Sagittaria cuneata*), mare's tail (*Hippuris vulgaris*), common spikerush (*Eleocharis palustris*), and American mannagrass (*Glyceria grandis*) are dominant in many of the old river bottoms. The sloughs have permanent standing water and are lined with various species of willow (*Salix exigua*, *S. monticola*, and *S. eriocephala* var. *ligulifolia*). In open water areas, species such as water ladysthumb (*Polygonum amphibium*), floating pondweed (*Potamogeton gramineus*), mare's tail, duckweed (*Lemna minor*), greater duckweed (*Spirodela polyrhiza*), an aquatic liverwort (*Ricciocarpus natans*), and bur-reed (*Sparganium angustifolium*) dominate. Wet meadows occur in low-lying areas where awned sedge (*Carex atherodes*), woolly sedge, short-beaked sedge (*C. simulata*), and beaked sedge (*C. utriculata*) are the predominate species. In more saline areas, saltgrass (*Distichlis spicata*) and Baltic rush (*Juncus balticus*) dominate wet meadows. Common threesquare (*Scirpus pungens*), alkaline bulrush (*Scirpus maritimus*), and slim reedgrass (*Calamagrostis stricta*) are common in saline marshes. Saline bottomland shrublands, the matrix vegetation type in the San Luis Valley, dominate in areas that are not heavily irrigated or under cultivation. Species such as greasewood (*Sarcobatus vermiculatus*), saltgrass, and Baltic rush are predominant here. Scattered throughout the saline meadows and saline bottomland shrublands are populations of the globally imperiled slender spiderflower (*Cleome multicaulis*). A population of the slender spiderflower, northwest of Rio Grande State Wildlife Area, appears to be taking advantage of the soil disturbance caused by livestock grazing. For example, in areas that would appear to be too moist for this species, it has established on the rims of livestock "pits." These pits are formed when livestock hoofs push soil

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up above the surrounding soil surface, due to their heavy weight and very moist soil. This microtopography appears to be very beneficial for slender spiderflower in this population. It is not clear how palatable or preferred slender spiderflower is to livestock as forage, but this population appears to be tolerant of current grazing management. The current landowner grazes this area in early spring and late summer. This rotation may allow slender spiderflower to flower and set seed prior to being subjected to grazing impacts in late summer. More information is needed to determine seed viability when passing through ungulates and the general mechanisms for pollination and dispersal for slender spiderflower. Another population of slender spiderflower was found south of the Rio Grande and just north of Centennial Ditch in Alamosa County. Irrigated pastures are dominated by many wet meadow species such as common spikerush, arrowgrass (*Triglochin maritima*), redtop (*Agrostis gigantea*) and Baltic rush. Grazing occurs in much of the area and there is a conspicuous presence of non-native species. Most notable are Canada thistle, buyan (*Sphaerophysa salsula*), smooth brome (*Bromus inermis*), reed canarygrass (*Phalaris arundinacea*) and quackgrass. Natural overbank flooding still occurs, however the frequency and volume has been altered due to upstream water diversions and water control structures. Irrigation, via numerous ditches, is prevalent. Water control structures and levees dictate movement and impoundment of water within State Wildlife Areas and local wetland enhancement projects to benefit some wildlife species. Although the natural hydrology of the site has been severely altered, many of the site's wetlands are associated with old river bottoms and sloughs where a high alluvial groundwater table, associated with the Rio Grande and local irrigation, still support the hydrology of many local wetlands.

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 04/06/2004

Designer Rocchio, F.J.

Boundary Justification

The site boundary encompasses a large portion of the Rio Grande's floodplain between Monte Vista and Alamosa. Topography within the site is very flat. Important hydrologic inputs include alluvial groundwater tables that are associated with water levels in the river, surface water runoff from rain events, and periodic overbank flooding of the Rio Grande. The site boundary was drawn to incorporate an area where these natural processes would maintain viable populations of the elements. The boundary provides a buffer from nearby agriculture fields and roads where surface runoff may contribute excess nutrients and/or herbicides/pesticides that could be detrimental to the elements. The site contains many old oxbows and sloughs that could provide a source for recruitment for species associated with the elements. It should be noted that the hydrological processes necessary to the elements are not fully contained by the boundaries established for this site. Given that the elements are closely tied to natural processes associated with the Rio Grande, any upstream activities could detrimentally affect the elements.

Primary Area 22,945.11 Acres 9,285.59 Hectares

SITE SIGNIFICANCE

Biodiversity Significance Rank B3: High Biodiversity Significance

Biodiversity Significance Comments

There are multiple known breeding locations for the globally critically imperiled (G5T1T2) Southwestern Willow Flycatcher (*Empidonax traillii extimus*) contained in the site. The Southwestern Willow Flycatcher reaches it's northernmost range in the San Luis Valley. Numerous threats, such as agricultural clearing, impacts from excessive grazing, and water diversions, have decreased the amount and quality of southwestern willow flycatcher habitat range-wide (Southwestern Willow Flycatcher Recovery Team Technical Subgroup 2002). The site also supports fair (C-ranked) and extant occurrences of a globally imperiled (G2G3/S2S3) plant species. The slender spiderflower (*Cleome multicaulis*) has a global range from southern Wyoming to central Mexico. The San Luis Valley contains the most numerous, largest, and healthiest populations in the world. Slender spiderflower has a limited distribution due to its requirement of

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moist alkaline soil along with periodic soil disturbance, such as pocket gopher (*Thomomys talpoides*) diggings. These habitat requirements limit the slender spiderflower to the edges of alkaline wet meadows and playas. The site also supports three types of wet meadows (*Carex simulata* and *C. lanuginosa*), a water ladysthumb emergent wetland (*Polygonum amphibium*), and a montane riparian shrubland (*Salix ligulifolia*). The globally vulnerable (G3/S3) wooly sedge wet meadow (*Carex pellita*) is documented from Oregon east to South Dakota and Montana south to Colorado and Kansas. This community has increased in abundance along regulated rivers on the Colorado Western Slope and may have decreased in abundance on streams on the eastern plains of Colorado. Few, pristine high-quality stands are known, and no stands are formally protected. The state vulnerable (G4/S3) analogue sedge wet meadow (*Carex simulata*) is known from Colorado, Idaho, Montana, Nevada, Oregon, Utah, Wyoming, and may possibly occur in California. It is commonly found with many other sedge species, but its presence is associated with deep organic soils and a perennially high water table. The globally imperiled (G2G3/S2S3) strapleaf willow riparian shrubland (*Salix eriocephala* var. *ligulifolia*) is known only from Colorado, but it is expected to occur in New Mexico. This association occurs in moderately wide valleys along low terraces and floodplains, and streambanks of narrower streams. The water lady's thumb (*Polygonum amphibium*) emergent wetland is state rare (G5/S3) and is found in slough and old oxbows where slow-moving water persists.

Other Values Rank No Data

Other Values Comments

No Data

LAND MANAGEMENT ISSUES

Land Use Comments

No Data

Natural Hazard Comments

No Data

Exotics Comments

Control of non-native plant species is an issue for this site. There are current efforts underway to control Canada thistle (*Cirsium arvense*) populations (both within the SWAs and private parcels). The success of such efforts should be monitored and management should change if current methods are not successful.

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
18080	<i>Cleome multicaulis</i>	slender spiderflower	G2G3	S2S3	Yes
24155	<i>Salix ligulifolia</i> Shrubland	Montane Willow Carr	G2G3	S2S3	Yes
18080	<i>Cleome multicaulis</i>	slender spiderflower	G2G3	S2S3	No
16887	<i>Carex simulata</i> Herbaceous Vegetation	Wet Meadow	G4	S3	No
21815	<i>Carex pellita</i> Herbaceous Vegetation	Montane Wet Meadows	G3	S3	No
18080	<i>Cleome multicaulis</i>	slender spiderflower	G2G3	S2S3	Yes
21881	<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	G5T1T2	SNA	Yes
17983	<i>Polygonum amphibium</i> Permanently Flooded Herbaceous Vegetation [Placeholder]	Montane Wet Meadows	G5	S3	No
18080	<i>Cleome multicaulis</i>	slender spiderflower	G2G3	S2S3	No

REFERENCES

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Reference ID

Full Citation

184664	Hawks Aloft. 2003. Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>) surveys in the San Luis Valley, Colorado, 2003. Annual Report Submitted to Alamosa National Wildlife Refuge.
184707	Ireland, Terry. U.S. Fish and Wildlife Service. Personal communication. 2004.
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.
184695	RGHRP. 2001. Final Report: Rio Grande Headwaters Restoration Project. Unpublished report prepared for San Luis Valley Water Conservancy District. Prepared by Montgomery Watson Harza, Lidstone and Associates, Inc., Agro Engineering, Inc., and SWCA, Environmental Consultants, Inc.
184706	Rocchio, J. 2004. Final Report: Survey of Critical Wetlands and Riparian Areas in Southern Alamosa and Costilla Counties, San Luis Valley, Colorado. Colorado Natural Heritage Program, Fort Collins, CO.
184699	Simmons, V. McConnell. 1999. The San Luis Valley. Land of the Six-Armed Cross. Second Edition. University Press of Colorado. Niwot, CO.
184700	Southwestern Willow Flycatcher Recovery Team Technical Subgroup. 2002. Final Recovery Plan: Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>). Prepared for: Region 2, U.S. Wildlife Service, Albuquerque, New Mexico, 87103. On-line at < http://southwest.fws.gov/htflycatcher.html >
184704	United States Fish and Wildlife Service (USFWS). 2002. Alamosa - Monte Vista National Wildlife Refuge Complex: Draft Comprehensive Conservation Plan and Environmental Assessment. Alamosa - Monte Vista National Wildlife Refuge Complex, Alamosa, CO 81101.

ADDITIONAL TOPICS

Additional Topics

No Data

VERSION

Version Date 04/06/2004

Version Author Rocchio, F.J.

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