

# Level 4 Potential Conservation Area (PCA) Report

Name Illinois River and Reservoirs

Site Code S.USCOHP\*28036

## IDENTIFIERS

Site ID 2688 Site Class PCA  
 Site Alias None

## Network of Conservation Areas (NCA)

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

## LOCATORS

Nation United States Latitude 403850N  
 State Colorado Longitude 1061807W

## Quad Code Quad Name

40106-G3	Cowdrey
40106-E4	Coalmont
40106-E2	Owl Ridge
40106-E3	MacFarlane Reservoir
40106-F2	Gould NW
40106-F3	Walden

## County

Jackson (CO)

## Watershed Code Watershed Name

10180001	North Platte Headwaters
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## SITE DESCRIPTION

Minimum Elevation	8,580.00 Feet	2,615.18 Meters
Maximum Elevation	9,040.00 Feet	2,755.39 Meters

## Site Description

The Illinois River and Reservoirs site is located in North Park, an intermountain glacial basin located in north-central Colorado that is approximately 35 miles wide and 45 miles in length. There are numerous soil types within the site, but the most dominant are sandy loam soils that have slow to moderate permeability. The dominant features are the Illinois River, its associated tributaries, and Walden and Macfarlane reservoirs and their associated wetlands. There is approximately 1,500 acres of open water that support abundant populations of waterfowl including species of conservation concern like the American White Pelican (*Pelecanus erythrorhynchos*), Forster's Tern (*Sterna forsteri*), White-faced Ibis (*Plegadis chihi*), and Willet (*Catoptrophorus semipalmatus*). Walden and MacFarlane reservoirs hosts one of Colorado's three known breeding sites of the American White Pelican and Walden Reservoir hosts Colorado's largest nesting populations of Willets and Eared Grebes (*Podiceps nigricollis*). Walden Reservoir also is the only known site of nesting Franklin's Gulls (*Leucophaeus pipixcan*) in the state (Audubon 2009, Kingery 1998) and it regularly supports nesting California Gulls (*Larus californicus*), Double-crested Cormorants (*Phalacrocorax auritus*), and Western Grebes (*Aechmophorus occidentalis*). Black Terns (*Chlidonias niger*) may nest at Walden in small numbers. Other wetland dependent species recorded from the site include numerous species of ducks, grebes, herons, egrets, sandpipers, phalaropes, gulls, and American Bittern (*Botaurus lentiginosus*), wood frog (*Rana sylvatica*), northern leopard frog (*Rana pipiens*), American beaver (*Castor canadensis*), and river otter (*Lontra canadensis*) among others (Audubon 2009, CNHP 2009, USFWS 2004, Kingery 1998). There are over 15,000 acres of sagebrush shrublands in the uplands that support the Greater Sage Grouse, a species of conservation concern. Plant communities consist of four broad types including riparian, wetland, meadow, and upland (USFWS 2004). Habitat ranges from emergent wetlands dominated by sedges at the lowest elevations along the Illinois River and its tributaries, to uplands dominated by big mountain sagebrush at higher elevations. There are over 4,000 acres of riparian habitat that includes willow carrs along portions of the channel and floodplain of the Illinois River and Spring Creek (USFWS 2004). The willow complex supports numerous species of migrating songbirds such as yellow warbler and willow flycatcher. There are over 1,500 acres of wetlands in the site consisting of over 70 natural and created ponds and lakes (USFWS 2004). These wetlands supply critical habitat to numerous wetland dependent species including aquatic birds, amphibians, and aquatic mammals. There are over 2,500 acres of irrigated hay meadows within the site along the Illinois River and Spring Creek that supply nesting habitat for waterfowl, shorebirds, and songbirds (USFWS 2004). Other secondary plant communities limited patches of greasewood.

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## Key Environmental Factors

The hydrology of the area is the important feature of the site. Prior to settlement, the bottoms and meadows of the Illinois River and its tributaries flooded annually from snow melt and spring runoff, creating significant breeding habitat for wetland dependent species (USFWS 2004). With settlement, numerous irrigation ditches were constructed altering the natural hydrology. Subsequently much of the natural floods and pond creation were reduced and irrigated meadows replaced ponds and marshes. The majority of the site lies within the Arapaho National Wildlife Refuge and since its creation in 1967 refuge management has created new wetland habitat through the diversion of water into natural depressions and the Fish and Wildlife Service has constructed ponds (USFWS 2004). The islands of Walden and MacFarlane reservoirs are another important feature of the site. Construction of the dams and formation of the reservoirs and their islands created nesting habitat for the American White Pelican, Willet, Forster's Tern, Double-crested Cormorant and other aquatic birds that rely on the protection afforded by islands from ground predators like fox and coyote (Knopf and Evans 2004).

## Climate Description

The climate is semiarid and is characterized as having short, cool summers followed by long, cold winters. Mean annual air temperature in Walden, one mile north of the site, is 36.4 degrees Fahrenheit and temperatures range from minus 39 degrees to 90 degrees Fahrenheit, based on the National Weather Bureau's 30-year average data (USFWS 2004). The annual mean rainfall in Walden is 10.83 and seventy percent falls as snow with Walden averaging 53 inches of snow per year (USFWS 2004). The highest average monthly precipitation occurs in March, April, May, and August (Lischka et al. 1983).

## Land Use History

Prior to 1820, the Ute peoples used North Park to hunt wild game in the summer but moved to lower altitudes in the fall to avoid the severe winters that are common in the mountain park. After 1820, European trappers started to visit the area and miners and prospectors who panned for gold followed them. Since European settlement began in earnest in the late 1880's and 90's and up until 1967 ranching, including both hay production and cattle, has been the dominant land use at the site. In 1967, the area became part of the National Wildlife Refuge system and the Fish and Wildlife Service has since then managed the area to provide suitable nesting and rearing habitat for migratory birds.

## Cultural Features

The only specific historical or cultural resources within the site are grave sites, which the refuge protects. The philosophy of the refuge is to comply with existing cultural resource-related laws and policies and to protect cultural resources from degradation (USFWS 2004).

## SITE DESIGN

**Site Map** Y - Yes **Mapped Date** 11/24/2009  
**Designer** Sovell, J.R.

## Boundary Justification

The wetland complex, riparian areas associated with the Illinois River and its tributaries, the surrounding meadows, and Walden and MacFarlane reservoirs all lie within the boundary. Field surveys verified the location of the important plant communities and the boundary was drawn using field notes, GIS layers from the Colorado Vegetation Classification Project, and the digital orthophoto quad for Jackson County. The site protects a large area to provide enough space for the American White Pelican, Forster's Tern, and Willet that can cover significant distances during foraging trips (Knopf and Evans 2004, Ryan and Renken 1987). The site also provides both grassland habitat and a diversity of wetland types that are necessary for successful reproduction of the species attached to the site (Kantrud and Higgins 1992). Forster's Tern require open water for nesting and the boundary includes over 70 lakes, ponds, and reservoirs suitable as habitat for nesting Forster's Terns.

**Primary Area** 46,799.81 **Acres** 18,939.29 **Hectares**

## SITE SIGNIFICANCE

**Biodiversity Significance Rank** B4: Moderate Biodiversity Significance

## Biodiversity Significance Comments

The site contain an excellent (A-ranked) breeding occurrence of the Willet (*Catoptrophorus semipalmatus*) and an extant occurrence of Forster's Tern (*Sterna forsteri*), two species that are extremely rare (S1 and S2 respectively), in Colorado. This site also contains two of the best breeding occurrences (both C-ranked) in Colorado of the globally vulnerable (G3/S1) American White Pelican (*Pelecanus erythrorhynchos*).

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Other Values Rank V2 - High values

## Other Values Comments

This site protects a wetland complex and extensive riparian habitat that are important to a diverse number of animals including river otter, wood frog, northern leopard frog, and numerous waterfowl and shorebirds. There are two Audubon Society Important Bird Areas (IBA) in the site, the Walden Reservoir and Arapaho National Wildlife Refuge IBAs. The U.S. IBA Committee, a panel of nationally recognized bird experts, prioritizes IBAs as continentally or globally significant and in this case, the IBAs conserve habitat for colonial waterbirds and shorebirds.

## LAND MANAGEMENT ISSUES

### Land Use Comments

Past and current uses include cattle grazing and hay production and some grazing is still permitted on the refuge. Grazing is used as a tool to invigorate and maintain healthy grass stands necessary for migratory bird nesting. On the refuge, cattle are applied as a tool generally in mid- to late summer for grassland management, but they are not wintered on the refuge (USFWS 2004). Other activities include a driving tour of the wetlands in the northwest portion of the site, hiking, hunting, fishing, wildlife observation, and photography at designated parking areas, and there is a refuge visitor center and headquarters.

### Natural Hazard Comments

No Data

### Exotics Comments

Canada thistle can be abundant along ditch banks, dikes, and in the edges of riparian and sub-irrigated areas within the site (USFWS 2004). Other non-native species that occur in small amounts include musk thistle, yellow toadflax, white top, and houndstongue (USFWS 2004). Other invasive plants reported, particularly along highway right-of-ways, include spotted, diffuse, and Russian knapweeds, Dalmatian toadflax, and leafy spurge (USFWS 2004). Non-native fish include brook, brown, and rainbow trout (USFWS 2004). Management of the invasive plants is required by Jackson County and management actions of the refuge include annual monitoring and control of invasives through a combination of mechanical, biological, cultural, and chemical applications (USFWS 2004). The refuge actively manages to promote both the native and non-native fishery through the altering irrigation diversions to restore in-stream flows, installation of structures to prevent erosion and increase sinuosity, and monitoring fish responses to the management applications.

### Offsite

The main offsite activities include livestock grazing and hay production on irrigated pastures. Use of the Illinois River flows by offsite ranches could affect water management on the refuge and thus this site. Because the refuge holds water rights on the Illinois River of over 17,000 acre feet and 550 cubic feet per second for its reservoirs, ponds, and ditches shortages of water, although possible during drought, are unlikely during periods of normal precipitation.

### Information Needs

No Data

## ASSOCIATED ELEMENTS OF BIODIVERSITY

<u>Element</u>			<u>Global</u>	<u>State</u>	<u>Driving</u>
<u>State ID</u>	<u>State Scientific Name</u>	<u>State Common Name</u>	<u>Rank</u>	<u>Rank</u>	<u>Site Rank</u>
17407	<i>Catoptrophorus semipalmatus</i>	Willet	G5	S1B	Yes
18431	<i>Sterna forsteri</i>	Forster's Tern	G5	S2B,S4N	No
20637	<i>Plegadis chihi</i>	White-faced Ibis	G5	S2B	No
19495	<i>Pelecanus erythrorhynchos</i>	American White Pelican	G3	S1B	Yes
19495	<i>Pelecanus erythrorhynchos</i>	American White Pelican	G3	S1B	Yes

## REFERENCES

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## Reference ID

## Full Citation

198473	Audubon Society. 2009. Important bird areas. Accessed at < <a href="http://iba.audubon.org/iba/viewSiteProfile.do?siteId=471&amp;navSite=state">http://iba.audubon.org/iba/viewSiteProfile.do?siteId=471&amp;navSite=state</a> >.
198407	Culver, D.R., K. Decker, J. Parker, J. Bell, J. Sovell, and J. Huggins. 2010. CNHP Final Report: Identification and Assessment of Important Wetlands within the North Platte Watershed, CO. Colorado Natural Heritage Program, Fort Collins, CO.
170808	Kantrud, H.A., and K.F. Higgins. 1992. Nest and nest site characteristics of some ground-nesting, non-passerine birds of northern grasslands. <i>Prairie Naturalist</i> 24:67-84.
162919	Kingery, H. E., editor. 1998. Colorado Breeding Bird Atlas. Colorado Bird Atlas Partnership and Colorado Division of Wildlife, Denver, CO. 636 pp.
198472	Knopf, F. L., and R. M. Evans. 2004. American white pelican ( <i>Pelecanus erythrorhynchos</i> ). <i>The Birds of North America Online</i> (A. Poole, editor). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: < <a href="http://bna.birds.cornell.edu/bna/species/057">http://bna.birds.cornell.edu/bna/species/057</a> >.
198469	Lischka, Joseph J., Mark E. Miller, R. Branson Reynolds, Dennis Dahms, Kathy Joyner Mcguire, and David Mcguire. 1983. An Archaeological inventory in North Park, Jackson County, Colorado, Bureau of Land Management report, Denver Colorado, 359 pp.
198474	Murphy, E.C. 2005. Biology and conservation of the American White Pelican: current status and future challenges. <i>Waterbirds</i> 28 (special Publication 1): 107-112.
162105	Ryan, M.R., R.B. Renken. 1987. Habitat use by breeding Willets in the northern Great Plains. <i>Wilson Bull.</i> 99(2):175-189.
198470	USFWS. 2004. Comprehensive conservation plan: Arapaho National Wildlife Refuge. <a href="http://www.fws.gov/mountain-prairie/planning/States/Colorado/colorado.htm">http://www.fws.gov/mountain-prairie/planning/States/Colorado/colorado.htm</a>

## ADDITIONAL TOPICS

### Additional Topics

No Data

## VERSION

Version Date 11/24/2009

Version Author Sovell, J.R.

## Disclaimer

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