

**THE NORTH PARK WETLANDS
FOCUS AREA STRATEGY**

**PREPARED BY THE NORTH PARK
WETLANDS FOCUS AREA COMMITTEE**

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With the assistance of

Vital Resources
P. O. Box 991
Walden, CO 80480
Vitalres@aol.com

EXECUTIVE SUMMARY

The North Park Wetlands Focus Area Committee was created to assist the community in preserving the wetlands of North Park. The hydrological functions of these wetlands are ecologically significant and socio-economically important to North Park residents. The North Park Wetlands Focus Area Committee is the local implementation of the Colorado Division of Wildlife Wetlands Program, which oversees and administers nine additional Focus Area Committees in Colorado. This program is strictly voluntary and does not involve regulatory protection through permitting or mitigation.

The Committee works with willing public and private landowners on projects encompassing wetland enhancement, creation, research and education. The Committee is an informal group in which anyone with interest in issues associated with wetland conservation in North Park is welcome to participate. Wetland Conservation efforts in North Park have already occurred, this plan is meant to promote collaboration and communication among a growing diversity of partners.

The North Park Wetlands Focus Area Strategy outlines the purposes, objectives and vision of the Wetlands Focus Area Committee for regional wetland conservation. This document reflects the community's intention to assist with continued organization and development of wetlands conservation efforts in North Park. It provides information, which should assist the committee in recognizing wetlands conservation opportunities. This plan also identifies opportunities for integrating wetlands conservation with other land management practices. It also provides an organizational tool for the committee to further develop action plans.

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PART I: AN OVERVIEW OF NORTH PARK

Description of North Park:

Extensive mountain grasslands and expansive meadows characterize mountain parks. North Park is Colorado's northern most and one of the largest parks. Middle Park, South Park and the San Luis Valley are Colorado's other well-known natural Park features. A wide intermountain basin surrounded, and somewhat isolated, by mountains forms North Park. The basin contains flat and rolling sage and grasslands ranging in altitude from about 8,000 feet to 9,000 feet. The Medicine Bow Mountains (also referred to as the Rawah Mountains), and the Never Summer Mountains border North Park on the east and southeast. Rabbit Ears Range and Park Range (also referred to as the Zirkel Mountains), which are part of the Continental Divide, form North Park's south and west boundaries. Independence Mountain, and several lesser mountains are located on the northern edge of North Park. Surrounding peaks generally range in altitude from 10,000 to 13,000 ft. (Robson and Graham 1996).

North Park became part of Jackson County in 1905. Consequently, North Park and Jackson County refer to the same area, and will be used interchangeably in this document. Walden is the county seat and principal town. Over 60% of Jackson County is public land. Land ownership patterns are described below in Table 1 as well as Map 1.

Table 1: North Park Land Ownership (Data compiled by Jackson County)

<i>Land Ownership</i>	<i>Approximate acreage</i>	<i>Pct. County Acreage</i>
Private	370,357	35.5%
U.S. Federal Forest		
Arapaho Ntl. Forest: 4,658 acres	334,212	32.1
Rout Ntl. Forest: 329,554 acres		
Bureau of Land Management	188,247	18.1
U.S. Arapaho Wildlife Refuge	23,267	2.2
Colorado State Forest	71,408	6.9
Colorado State Lands	51,388	4.9
Colorado Division of Wildlife	3,041	0.3
Jackson County	1,041,920	100

Map 1: North Park Land Ownership

Climate & Hydrology

North Park has a cool, semi-arid to moderately moist climate. The relatively high elevation of the area results in long cold winters and relatively short cool summers. North Park is colder during the winter months than surrounding areas because cold mountain air sinks into the valley bottom and becomes trapped by surrounding mountains. Intense solar radiation and thin dry air allow more rapid heating and cooling than at lower elevations. Nighttime temperatures frequently drop below freezing during the summer months (Mutel and Emerick 1984).

The mean-annual precipitation in North Park is 19 inches (Robson and Graham 1996). However, rainfall is variable; the mountainous areas are moist whereas the basin lowlands are arid (Hail 1965). For example the 1961-90 annual precipitation average was only 10.2 inches in Walden, while snow-pack information showed an average precipitation of 35.1 inches on Muddy Pass and 58.7 inches on Buffalo Pass (NRCS 2002). The valley is drained by the northward-flowing North Platte River and its principal tributaries, the Canadian, Michigan, and Illinois Rivers, and Grizzly Creek. These mountain ranges supply abundant waters to the lowlands through an extensive irrigation system.

Almost all streams in North Park flow into the North Platte River, and pass the Northgate streamflow gaging station at the northern end of the Park. The mean annual flow at the Northgate gage is about 314,000 acre-ft/yr, and an additional 2,000 acre-ft/yr is diverted from North Park through small ditches; therefore, the total surface water discharge from North Park is about 316,000 acre-ft/yr. On average, precipitation provides 1,450,000 acre-ft/yr. There are no other important significant sources or sinks of water in North Park other than evaporation from open water, snow, and ice and by transpiration from vegetation (evapotranspiration). Therefore, the difference in the mean-annual volume of water lost by evapotranspiration is 1,134,000 acres-ft./yr; 78 percent of the annual precipitation in North Park. Approximately 115,000 acres of pasture and hay meadow are irrigated in North Park, which use about 100,000 acre-ft of water per year. Jackson County water Commissioners recently installed lysimeters on the National Arapahoe Wildlife refuge in order to obtain a rate for evapotranspiration in North Park. Commercial and residential water consumption in the town of Walden is about 207 acre-feet/year (7 acres from the Illinois River, and 200 acre-feet from wells). The rest of the population in Jackson County (less than a third) uses private wells, and consume on average 1 acre-foot/year per family of five (Jackson County Water Commissioner database).

Geology

A continuous and impermeable border of Precambrian rock along the northern, eastern, and western edges of North Park prevent additional contributions to groundwater supplies other than local precipitation. On the southern edge of the Park, the Rabbit Ears Range mostly consists of permeable Coalmont Formation rock. However, these rocks form a ground water divide that prevents rain that falls on the west side of the Rabbit Ears Range and recharge the aquifer, to flow to the North Park side of the divide. The alluvium in North Park is much less extensive than the Coalmont Formation, but is an important source of groundwater in larger streams such as the Michigan River.

North Park lies between two faulted anticlines. The Medicine Bow and Park Ranges are composed of hard igneous and metamorphic Precambrian rock, and the Rabbit Ears Range is formed of volcanic material. North Park is underlaid by rocks of Precambrian (400 million years ago), Triassic (230-195 million years ago), Jurassic (195-140 million years ago), Cretaceous (140-65 million years ago), and Tertiary ages (65-2 million years ago) and by unconsolidated sediments of Quaternary age, all of which have some water-bearing potential. During the cretaceous era shallow seas were formed and drained in the Plains region, which may have been connected to the Arctic Ocean. The final retreat of the seaways left rare deposits of freshwater fish in North Park (Wiley 1986).

In these ancient seas, rocks were deposited onto sediments. These rocks were faulted and fractured to form a syncline that is today North Park. The upturned sides of the syncline compose most of the Medicine Bow and Never Summer Mountains, the Park Range on the Continental Divide, and Independence Mountain. Erosion from these structures deposited sand and gravel on alluvial fans, and silt and clay around lakes and swamps. These materials became the Coalmont formation widely spread in North Park, which consist of non-marine water-yielding sandstone, claystones, siltstones, and carbonaceous shales.

Other formations present in North Park include the White River formation, which consists of siltstone and claystone, and the North Park Formation, which consists of sandstone, conglomerate, claystone, and volcanic ash. Owl Ridge and Peterson Ridge are erosion remnants of the White River formation and the North Park formation. On Owl and Peterson Ridges, these impermeable remnants, lay over the Coalmont Formation and can cause groundwater to discharge in springs rather than flowing downward.

Alluvium deposits prevail within the rest of North Park. Alluvium consists of unconsolidated gravel, sand, silt and clay, which can yield important sources of water. Such deposits are common along the following perennial streams: the North Platte River, Canadian River, Michigan River, Illinois River, and Grizzly Creek (Robson and Graham, 1996).

Vegetation

Vegetation in the dry lowlands is mainly composed of sagebrush and sparse grass. Native Mountain Big Sagebrush (*Artemisia tridentata*) Silver Sagebrush (*Artemisia cana*), Alpine Timothy (*Phleum Alpinum*), and Grama (*Bouteleoua*) species, as well as introduced Brome (*Bromus*) and Fescue (*Festuca*) species are predominant. Shrubs, willows and sedges are fairly abundant along many stream and irrigation ditches (Hail 1986). Cinquefoil (*Potentilla*) and Bitterbrush (*Purshia*) species, and Beaked and Threadleaf sedge (*Carex*) species are the most common understory species in the wet areas. The Park provides important foraging vegetation for mammals. The valley provides optimal summer range for elk and deer, as it did in the past for bison. Timberline occurs at about 11,000feet, and the trees species present in North Park occur on higher ground or rocky outcrops below treeline where coarser soils and higher precipitation favor their establishment.

Land-use History and Trends

Early Inhabitants

At the turn of the 18th century, the Parusanuch and Yampa Utes (later called the White River Utes) and Arapahoe Indians inhabited North Park (D'Azevedo 1986). They referred to the area as Bull Pen for the large number buffalo, elk, deer and antelope (Kohlman 2000). The streams of North Park, abundant with beaver, soon attracted white trappers who first came in 1819 (Patten 1994). When the Fremont expedition passed through North Park in 1843, his men frequently saw and killed bison (Simmons 2000).

United States Geological Survey geologist F.V Hayden surveyed the area in 1868 and described the park as "a vast depression which might once have formed the bed of a lake". Hayden also observed ample water sources: "Streams of the purest water flows through the park, and there are some of the finest springs I have seen, a few of them forming good sized streams where they issue from the ground" (Hayden 1871).

Hayden in 1871, and later Grinnell in 1879, both noticed with surprise that the North Platte or tributary streams to the North Platte River in North Park did not contain a single trout while the South Platte did

(Hampton 1971). Hayden suggested that the trout dumped in the lakes became too alkaline when water evaporated (Hayden 1871). The Platte River has been known to go dry several times before water was diverted for irrigation, and in 1985, trout appeared in the North Platte (Kohlman 2000).

Grinnel ended his essay on his trip through North Park by saying: “As I look back on the past ten years, and see what changes have taken place in these glorious mountains since I first knew them, I can form some idea of the transformations which time to come will work in the appearance of the country, its fauna and its flora.... the game, once so plentiful, will have disappeared with the Indian ...the valleys will be filled with fattening cattle, as profitable to their owners as the mines of theirs...water is scarce enough anywhere in the West at present, but in the mountains, at least there is plenty of it. Should timber, however, be destroyed...the streams would be sadly diminished in volume, if not dried up...” (Hampton, 1971).

Mining

Gold panning started in the early 1870's near Independence and Owl Mountain (Patten 1994). Most of the early gold mining activities were centered around Independence Mountain and, later, Hans Peak. The first claim was recorded in 1879 when productive veins of silver, gold and lead were discovered near the headwaters of the Illinois and Jack Creek. Subsequent claims led to the development of Park city and Teller City (also known as Jack City). By 1880, a number of mines were developed in Jackson County, but the larger camp continued to be Teller City, at one point a city of 3,000 residents (Duncan 1990).

The mining boom encouraged the expansion of transportation routes, from wagons and stagecoach routes to railroad. The first coal mine was developed in 1905, and brought the railroad into the new town of Coalmont in 1911. However, transportation from the mines to Fort Collins and Laramie became too costly. The lack of water pumping facilities to reach deeper veins and the expense of transportation made the handling of anything but very high-grade silver impossible, and Teller City became a ghost town in 1885 (Swire 1924). The town of Pearl at the Northwestern end of the Park was created when copper was discovered in 1900. However Pearl died shortly after a new smelter was built in 1905, because the cost of transportation of Copper to Laramie became too high (Patten 1994).

Prospectors looking for copper first discovered fluorspar in 1900, but the first claim wasn't made until 1918 in the Northgate district. Fluospar production was intermittent until the mines closed in 1959 (Jackson County Star 1949). Three open pit coalmines began operation in 1974, and ceased in 1993 (Patten 1994).

Agriculture

Sheep ranching began in North Park during 1918 with about 500 head raised on ranches for personal consumption. Sheep numbers increased through 1921, but cattle ranching, which had been introduced to North Park in 1878, remained the dominant form of ranching in Jackson County (Patten 1994). As cattle grazing attracted more settlers, free-range cattle ranching became too difficult, and more land was divided and fenced. When the mines died, many miners homesteaded in North Park (Kohlman 2000). By the turn of the century, all ranchland along the rivers was fenced off and homesteaded. By 1979, livestock was left to winter in North Park, however severe winters (in 1882 and 1885) killed half of the entire stock (Patten 1994).

Irrigation

During the 1880's ranchers started to develop irrigation systems and irrigated meadows (the first water appropriation was on Owl Creek in 1880). Irrigation became very important after the winter of 1887 when steers and game had diminished, much of the bunchgrass had been overgrazed, and sagebrush began to dominate the landscape (Kohlman 2000). Ranchers started irrigating actively and by 1889, approximately 40,000 acres were under irrigation. The number of estimated irrigated acres doubled by 1889, and reached its peak in 1939 with 131,810 acres. Some ditches have been abandoned since, and the actual number of irrigated acres is now approximately 114,000 acres (Basin Rank Listings 1978).

Senior water rights on the North Platte River and its tributaries in North Park date from the early 1880's. The earliest priority date for a well is 1890, and only four wells have priority dates earlier than 1900; most wells have priority well dates after 1940. Legal availability of ground water in Colorado is determined on the basis of a site-specific evaluation of the aquifer and nearby streams. Under those specifications, the Illinois River, Michigan River, and Canadian River are "over-appropriated". At this time (2002) the full stem of the North Platte River running in North Park is not over appropriated. However, restrictions on the use of North Platte River water occurs according to legislative amendments (Robson and Graham 1996). Such restrictions include the "Priority of Appropriation" of article XVI in the Colorado Constitution, the Colorado restrictions on wells C.R.S. 37-92-101 to 602 (1972), and the Supreme Court Decrees of Interstate Compact between Nebraska and Wyoming 325 US 665 (1945), a modifying order 345 US 981 (1953), and the latest Nebraska versus Wyoming and Colorado decree 534 US created in 2001. Currently, use of water for ordinary domestic, municipal, and stock watering purposes is not restricted but irrigation is limited to 145,000 acres, storage for irrigation to 17,000 acre-ft/yr, and water exports for the basin to 60,000 acre-ft in any consecutive 10-year period.

Timber

Many of the forested area on the foothills have been logged and managed for more than 100 years. Activities such as logging and railroad building (floating of ties in the streams), in addition to placer mining for gold, changed the riparian and aquatic zones of some watersheds (Knight 1994). However, since records of water flow and quality during early mining in North Park are sparse, it is difficult to measure the effect of such activities today. According to recent water quality samples conducted by Jackson County, most streams and rivers do not show evidence of heavy metal or other contamination.

Fire was a dominant force in the ecosystem in this part of the Rockies prior to settlement. Grinnel described numerous fires burning at that time (Hampton, 1971). North Park was sparsely settled when Grinnel went through, and major fires between 1880 and the turn of the century burned thousands of acres of mature timber. In many cases, fires weren't extinguished until snow fell in the fall and winter.

"Early settlement created a demand for forest products, and heavy timber harvest resulted. The North Platte watershed was harvested for railroad ties beginning with construction of the Union Pacific Railroad in 1869. Union Pacific records show that 3.5 million ties were fished out of the North Platte at Fort Steele between 1870 and 1873 alone. There was also a heavy demand for fuel, fence rails, house logs, lumber, and mine props... As a result of uncontrolled fire and harvest, there was much less standing green timber when the national forests were established than there is today. The first inventories in what is now the Routt Forest showed about 2.7 billion board feet of green timber." (Wagner and Holt) The present inventory on the Routt Forest is about 6 billion board feet.

By the 1930s, a number of small sawmills operated in North Park. The town of Gould was a thriving logging community in 1930. Small portable mills were common until the early 1960s. At one point during the 1940s, the Colorado State Forest had eighteen portable sawmills operating. The Bockman's logging camp was the largest logging camp ever to operate in Colorado. Bockman's operated on the Colorado State Forest from 1949 to 1972. "At the height of operations the camp housed about one-hundred families, plus a number of bachelors." (Beier 1978).

Current Economy

In recent years, declining National Forest harvests, poor markets, and other factors have led to a general decline in the timber industry in Colorado. In North Park, closing the Louisiana Pacific mill negatively impacted the community economically. The timber industry in Colorado today faces significant challenges against a flood of cheap imports and a public increasingly hostile to the harvesting of trees for any purpose. Despite these challenges, the timber industry continues to be an important part of the economy and way of life in North Park today.

The percentage of irrigated land accounts for only a small portion of the total acreage of Jackson County but grazing and agriculture especially (haying) is still an important land use of both private and public land. However, the number of privately owned ranches has been reduced to a few families. The majority of agricultural land is now owned by a small group of individuals (According to Jackson County Assessor office records, Silver Spur Ranches purchased 64,277 acres during the past few years). Such demand has generally raised the cost of land in Jackson County. As profitable ranching becomes increasingly difficult, and as the Front Range population continue to grow rapidly, individuals are buying extensive tracts and subdividing them into smaller parcels, which appears to be the current trend in Colorado.

The first oil well was drilled in 1926. Production in Jackson County has since declined but several wells are still producing. In 2001, the total oil production in Jackson County was 103,621 barrels, and gas production was 743,529 NCF (Colorado Oil and Gas Conservation Commission). A carbon dioxide gasification plant was built a few miles north of Walden in 1984 producing liquid carbon dioxide and dry ice. In 2001 the plant produced 37,590 tons of carbon dioxide and 24,000 tons of dry ice from naturally occurring carbon dioxide in McCallum fields (Colorado Oil and Gas Conservation Commission).

Other sources of employment include gravel extraction, schools, federal, state and county based employment, small construction and tourism related businesses. The area's outstanding beauty and its developing yearlong recreational opportunities attract increasing numbers of people, and force change upon the more traditional uses of the land. Tourism is slowly replacing the mining and timber industries. In ten years, the Colorado State Park has witnessed a considerable increase of total number of visitors (from 124,261 visitors in 1992 to 224,703 visitors in 2002). According to a survey conducted in 1997, each visitor would have spent an average of \$117 per visit at the destination, which in 2002 would have contributed \$ 26,290 to Jackson County (Colorado State Park, Gould Office). The Colorado Division of Wildlife conducted an analysis of the economic impact of resident and out of state hunters and fishermen in Colorado Counties (Devenney 1997). The results of this research indicate that in 1996, hunting and fishing brought \$17,364 into Jackson County, a relatively higher expenditure than in other less populated counties such as Dolores or Ouray Counties. During that year, elk hunting and fishing were more popular in Jackson County than other big and small game hunting.

Despite increase in tourism, population in Jackson County has decreased over the past two decades. According to the U.S. Census Bureau the total population in Jackson County in 2000 was 1,577, a slight decrease from 1,605 in 1990, 1,811 in 1970, and 1,976 in 1950. The population density is one person per square mile while it is about forty-one in Colorado and eighty in the United States. These numbers suggest that residential and exurban sprawl will inevitably occur in North Park. "We are spreading out

more and more. The next 50 years will be more sprawling than the last 50 because we find that low-density development grows faster than does population." (Travis 2000). Consequently, coordinated land management preventing the loss of North Park's natural heritage is vital.

Wetlands in North Park

Prior to developed irrigation, the majority of wetlands in North Park were located in mountain riparian areas and adjacent to streams in the valley floor. Numerous streams, beaver ponds, and natural "kettle ponds" existed throughout the park. A few lakes such as Boettcher Lake, Big Creek Lake, and Hebron slough may have existed, and these wetlands provided ideal nesting habitat for many species of ducks and shorebirds.

The creation of irrigation ditches and reservoirs increased waterfowl habitat by establishing temporary and permanent wetlands. These wetlands provide nesting, molting, and staging areas throughout spring, summer and fall. Large numbers of waterfowl migrate through North Park each spring, but due to severe winters very few waterfowl remain in North Park year around. The majority of wetlands in North Park are created by the delivery of melting snow through irrigation systems. If spring thaw is late, many wetlands will be dry during spring migration and unattractive to waterfowl. Because the spring thaw is so unpredictable, wetlands should be filled with water in late fall whenever possible in order to provide water in the spring. Unfortunately, fall is the time of year when water is least available.

Wetlands created by controlled irrigation provide benefits to wildlife but create inherent problems as well. The availability of water may not coincide with the critical brood-rearing period. Irrigation reservoirs are initially filled in spring or late fall by ranchers then slowly drained to irrigate meadows to be harvested for hay. As reservoirs are drawn down, the amount of available wetland habitat decreases. Therefore, the timing of reservoir fill, irrigation or crop harvest can greatly influence waterfowl food sources and protection, and consequently should coincide with waterfowl migration and brood-rearing periods. Such management is particularly important for massive private water rights holdings (such as those on Boettcher and Big Creek lakes).

Aquatic plants, amphibians and invertebrates are the primary food source for most waterfowl and shorebirds in North Park. Consistent water supplies are essential for the long-term existence and productivity of this flora and fauna. Hay fields in North Park produce a food source for Canada geese, but are of little value to waterfowl. Hay fields provide food not only for summer nesting birds but also to the large number of waterfowl that migrate to North park to molt or just pass through during migration. Banding studies have shown that both ducks and Canada geese come from considerable distances to molt in North Park. The larger, relatively shallow, reservoirs such as MacFarland and Walden reservoirs provide excellent molting habitat. Because this type of habitat is relatively uncommon in Colorado, North Park is extremely valuable to waterfowl in the central flyway.

Numerous ponds, lakes, marshes and riparian wetlands are found throughout the valley floor and surrounding mountains, and along the 1700 miles of streams that meander through North Park. The following public and private areas provide significant habitat for wetland related species, but represent only a portion of the wetlands North Park encompasses.

The Arapaho National Wildlife Refuge

The Arapaho National Wildlife Refuge was established in 1967 with the primary purpose of providing waterfowl and other migratory birds suitable habitat to nest and rear their young. The Refuge was created to offset some of the losses of waterfowl habitat in the prairie wetland region of the Midwest. Most of the land was purchased with funds derived from the sale of Waterfowl Stamps, which by legislation, duck and goose hunters have been required to purchase in order to hunt waterfowl in Colorado since 1990. The legislation specifies that all funds generated from the sale of the stamps must be used for the sole benefit of waterfowl-wetland habitats (Colorado Waterfowl Stamp Program 2002).

Located one mile south of Walden, the Refuge encompasses approximately 24,804 acres divided into 9,066 acres of irrigated meadow, 14,304 acres of sagebrush uplands, 839 acres of wetlands, and 200 acres of riparian willow and stream habitat, 320 acres of mixed conifer and aspen, and 75 acres of administrative building sites and roads. The Illinois River, which crosses the Refuge, provides nearly all the water used to irrigate meadows and fill wetlands.

The Refuge's main objectives are habitat based, with a general aim of supplying the needed habitat for a variety of wetland species, with an emphasis on waterfowl. The Refuge's major wetland/meadow objectives are: 1. To produce wetland acres with the vegetative foundation to provide escape cover and foraging habitat for duck broods, molting ducks and foraging habitat for waterbirds. 2. To produce meadow acres with the vegetation basis to provide for the nesting needs of waterfowl and foraging areas for shorebirds and sage grouse broods. In order to meet these objectives and provide optimum habitat conditions for other wildlife species as well, the Refuge uses several habitat enhancement techniques such as pond development, water manipulation, irrigation, rest-seasonal grazing systems, and prescribed burning.

Boettcher and Big Creek Lakes

Boettcher and Big Creek Lakes are located in the northwestern part of Jackson County. Boettcher lakes comprise five natural kettle ponds, which lie primarily on private land, and a small portion of BLM land. Big Creek Lakes lies on U.S. Forest Service land. Silver Spur Ranches own water rights on both lakes.

The source of water for Big Creek lakes comes directly from rain and snow melt from the Mount Zirkel Wilderness area, while Boettcher Lakes receive a supplemental amount from irrigation. Boettcher lakes are often occupied by a variety of bird species.

Colorado State Wildlife Areas (SWA)

Originally, Colorado's State Wildlife Areas were acquired exclusively to conserve wildlife habitat. However, today, Division of Wildlife managers are faced with the challenge of protecting habitat and satisfying the growing recreational needs of the public. Fishing and hunting are common activities among visitors to the State Wildlife areas of North Park. In order to maintain habitat quality, and meet this recreational need, regulations have been enacted to minimize associated impacts from recreation.

Located ten miles northwest of Walden, *Lake John SWA* has the largest reservoir in North Park (approximately 800 surface acres). This lake's aquatic vegetation provides a good food source for both fish and waterfowl. Adjacent to the reservoir is the *Lake John Annex*, which receives water from Lake Creek, and is controlled by the Division of Wildlife. The fairly constant level of water of the Lake John

Annex allows for vegetation to grow along the shoreline, that provides nesting habitat for many bird species.

The *Richard SWA* lies along the North Fork of the North Platte River, south of Lake John. Richard SWA is approximately 2,000 acres and provides 6 miles of river access. Sparsely vegetated with willows, the meandering stream provides good wildlife habitat.

Delaney Butte lakes SWA is situated ten miles west of Walden, and includes 435 acres of water and 2,132 acres of land. The SWA encompasses three extremely productive reservoirs (North, East and South Delaney lakes) at the base of the landmark butte. Sagebrush, rock outcropping, and small groves of aspen dominate the landscape of Delaney Butte. These lakes and surrounding areas provide nesting habitat for a variety of waterfowl.

Located south of Delaney Butte Lakes, *Manville SWA* gives access to one mile of the Roaring Fork. Waterfowl use the creek from spring to fall.

The *Irvine SWA* offers remote access to both the Roaring Fork and Raspberry creeks, which flow out of the Mount Zirkel Wilderness to join other, smaller streams in the headwaters of the North Platte River. Small and heavily willowed, these four miles of stream access provides greater waterfowl habitat and fishing access.

Situated fifteen miles west of Walden, the *Odd Fellows SWA* allows access to two miles of the Roaring Fork upstream from the Irvine SWA. Small ponds created by diversions of irrigation water provide good waterfowl habitat in this area. Public access is limited to fishing along the river.

Only five miles west of Walden, the *Verner* and the *Brownlee SWAs* offer access to the North Platte River. Both areas are common habitat for waterfowl.

Cowdrey Lakes SWA provides eighty acres of water and good waterfowl habitat. Most of the property surrounding this lake is privately owned and not open to the public.

Just North of Walden, the large *Diamond J SWA* (3,129 acres) includes access to six miles of the Michigan River and one mile of the Illinois River. Its proximity to Walden Reservoir creates a situation that results in heavy waterfowl use.

Walden Reservoir SWA is located west of Walden, and includes 739 acres of Bureau of Land Management land. The reservoir's water rights are divided among the Division of Wildlife, and private entities. A large portion of the Canada Geese hatched in North Park comes from the Walden Reservoir area. The shallow and heavily vegetated reservoir is an excellent environment for waterfowl and mourning doves. A study conducted by the Colorado Bird Observatory showed that the Walden Reservoir supports a relatively large number of willets (*Catoptrophorus semipalmatus*) (Giroir 1999). In 1999, Walden Reservoir was also found to be one of the first Franklin's gulls (*Larus pipixcan*) breeding sites in Colorado (Levad 2000).

Near the town of Walden, the *Murphy SWA* provides access to five miles of the Michigan River. The deep channels that braid through the property provide fair waterfowl habitat particularly in the spring when the adjacent meadows are flooded.

Owl Mountain SWA rises from the rolling floor of North Park in the southeast part of the valley, and comprises 920 acres of sage, aspen and pine. Waterfowl are scarce because the intermittent stream (Deer Creek) dries up in the summer months, waterfowl do not use this area significantly.

Seymour Lake SWA lies ten miles west of Rand, in the southwest part of North Park. The eighty-one acre area is home to water associated birds in spring and summer.

Hebron Waterfowl Area

The Hebron Waterfowl Area is located southeast of Walden and is composed of 2,720 acres of public land administered by the Bureau of Land Management. Bureau of Land Management works cooperatively with the Arapaho National Wildlife refuge, Ducks Unlimited, the Colorado Division of Wildlife, and Owl Mountain Partnership to enhance the natural waterfowl and shorebird habitat. The products of this collaborative effort include surveys and aerial photos of the area, construction of islands in existing ponds, enlargement of natural impoundments, and development of Eighteen Island Reservoir. This reservoir contains 160 acres of surface water varying from 6 inches to 24 inches deep, and provides outstanding habitat for species such as mallards, pintails, green-winged teal, blue-winged teal, Canada geese, American avocets, willets, and black-crowned herons.

MacFarlane Reservoir

MacFarlane Reservoir is a supplemental water source to the adjacent Hebron Waterfowl Area. MacFarlane Reservoir lies on Bureau of Land Management Land. Arapaho National Wildlife Refuge and private landowner Blaine Evans own the water rights jointly. The BLM and Arapaho NWR have a Memorandum of Understanding concerning the use of the Refuge's share of the water in the Reservoir. MacFarlane Reservoir is one of the most important molting areas for ducks and geese in North Park, and also provides nesting habitat for White Pelicans.

Pole Mountain Reservoir

Pole Mountain Reservoir provides some nesting and brood rearing habitat, but provides an excellent molting and resting site for waterfowl, as well as habitat for aquatic invertebrates. Pole Mountain Reservoir may be the most important privately owned wetland for waterfowl population.

Part II. WETLANDS AND THE COLORADO WETLANDS PROGRAM

Importance of Wetlands

Wetland Description

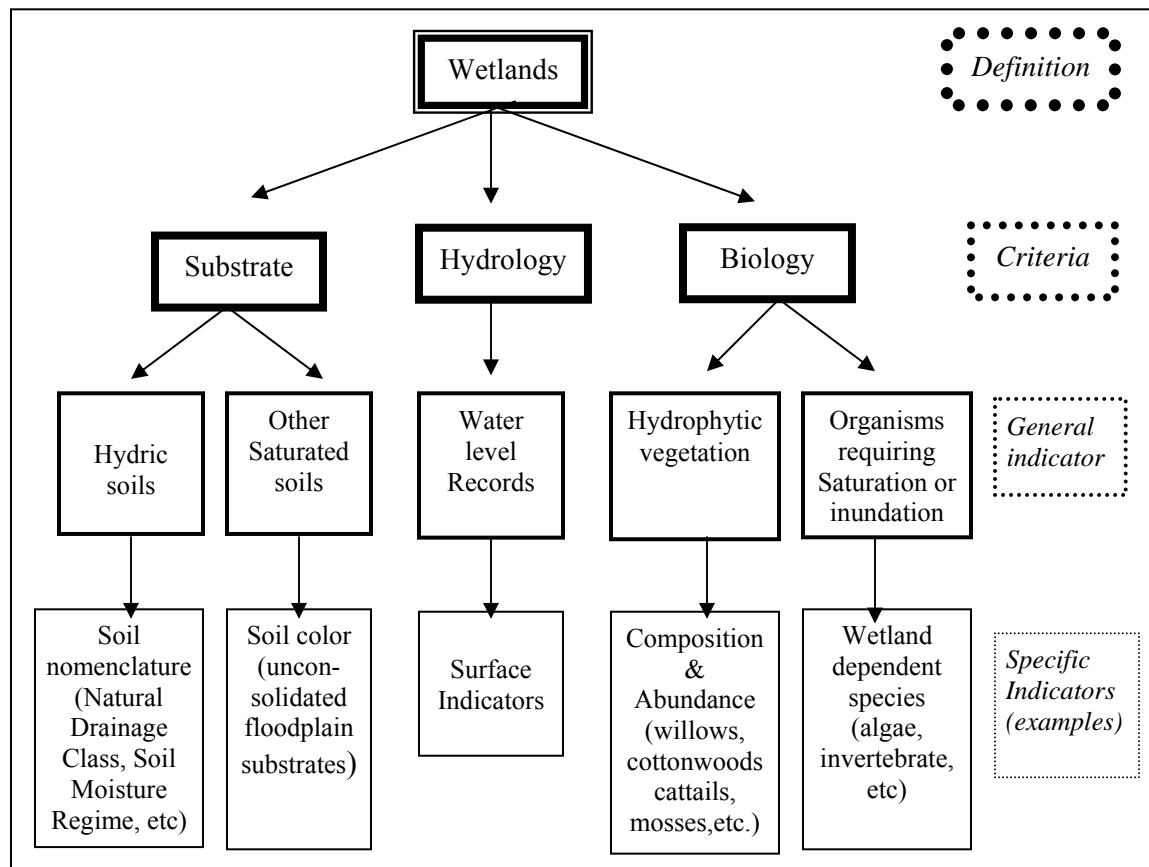
Because of the highly dynamic character of wetlands, there is not just one commonly used wetland definition. The Colorado Wetlands Program defines the term "wetlands" as "the transitional lands between terrestrial (uplands) and aquatic (open water) systems where the water table is usually at or near the surface. Wetlands do not have to be wet all the time... In general terms, a wetland is an area that is wet long enough during the growing season to have developed specific characteristics that are unique to wetlands, such as the plants, the soils and the water source".

Specific characteristics are commonly applied to help identify and describe wetlands. Plants are generally water tolerant, soils poorly drained, and the amount of water stored sufficient to provide habitat for

wetland dependant species (A list of hydric soils and wetlands plants occurring in North Park can be found in Appendices A and B). The hydrology of a wetland refers to the amount of water entering and leaving, as well as the amount stored (Finlayson and Moser 1991). Hydrologic conditions dictate the creation and maintenance of a wetland, and a subtle difference in flooding can greatly affect the status of a wetland. Water at or near the surface supports the development of characteristic organisms and substrate forming a wetland rather than the reverse (Lewis 1995). Figure 1 illustrates the importance and relationship between water, soils and vegetation characteristics, which can give considerable information about a wetland and the variations within a single wetland.

In North Park, most wetlands are wet meadows, peatlands, marshlands, or riparian wetlands. A wet meadow is a grassland with soil filled with water near the surface but with no standing water most of the year. The term "peatland" refers to any wetland that accumulates partially decayed matter. Peatlands occurs in two types: bogs¹ and fens¹; the latter being the peatland type found in Colorado. Marshlands encompass the largest categories of wetlands, and generally the greatest biological diversity. They may occur next to non-flowing open bodies of water, but with a dynamic hydrology. Riparian wetlands are associated with adjacent moving water, and are periodically flooded. Riparian wetlands are commonly thought of as those lands bordering streams, rivers, and lakes, where vegetation is dominated by trees and shrubs. A wetland can be naturally occurring or artificial. The Natural Resources Conservation Service (NRCS) defines an artificial wetland as land that was not a wetland under natural conditions, but which has been induced by humans (such as through irrigation), and meets requirements of wetlands by water, soils, and vegetation (Montana Watercourse).

Figure 1: Illustration of the relationships between the "reference" definition, criteria, general indicators, and specific indicators for wetlands. (Derived from the Figure 3.1 page 60 in Wetlands: Characteristics and Boundaries, Lewis, W. M., 1995).



Wetland Benefits

For decades, researchers were unaware of the critical functions wetlands perform. The Colorado Wetland Program defines the benefits of wetlands to society as the following:

- Wetlands are wildlife habitat for wetland-dependant species that include imperiled, threatened, endangered, increasing, and stable species. Fish, reptiles, amphibians, mammals and birds (shorebirds, waterfowl, and neo-tropical migratory songbirds) may use wetlands during part or all of their life cycles.
- Wetlands sustain the biological diversity of plant and animal species and plant and animal communities wherever they are located in the landscape.
- Wetlands can provide water and forage for livestock. Wet meadows can produce excellent hay crops.
- Wetlands contribute to better water quality by physically, chemically, and biologically cleansing water of pollutants and debris.
- Wetlands contribute to flood attenuation by retarding the flow of fast-moving water that can be erosive and destructive and by reducing sedimentation that contributes to the pollution of water bodies. Wetlands can store large volumes of water during spring runoff and during storms and release it slowly back into the ground or the water channel.
- Wetlands often contribute to ground water recharge by allowing it to infiltrate to deeper ground layers.
- Wetlands provide recreational opportunities including photography, wildlife watching, hunting, fishing, and nature walks.
- Wetlands provide open space, therefore, protection of wetlands simultaneously protects open space and provides all the benefits derived from open space.
- Wetlands lend themselves to be studied and observed at many levels and provide tremendous informal and formal educational opportunities in the fields of biology, zoology, ecology, and chemistry.
- Wetlands provide economic value by providing all of the above and providing food, fish, and medicines. Some of the functions that wetlands perform would otherwise cost society.

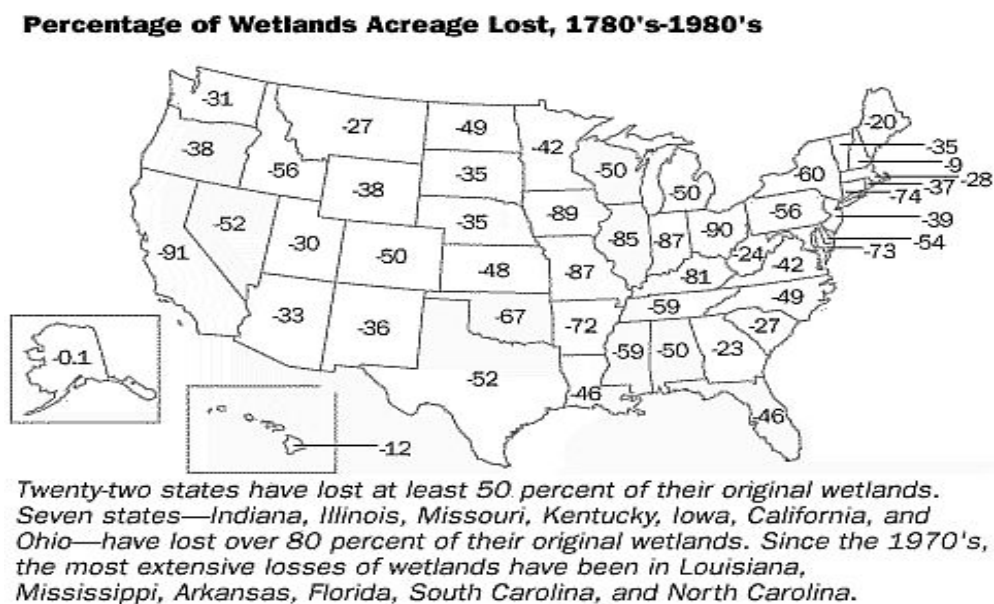
It is clear that wetlands provide critical benefits at both the population and ecosystem levels. Wetland dependent species provide an aesthetic and natural heritage value, which at the ecosystem level, help maintain biodiversity, moderate the effect of floods, improve water quality, and contribute to the stability of global levels of available nitrogen, atmospheric sulfur, carbon dioxide, and methane.

Many observers agree that we are currently experiencing losses of biodiversity that are unprecedented in human history and that these losses are a significant problem relating to human welfare (Szaro 1996). The term biodiversity (biological diversity) has often been discounted as “fashionable jargon” (O’Connell 1996). It is a somewhat general term, but naturally implies the interdependence among species and their habitat, an essential aspect of a wetland’s function as they encompass a high number of species in a small area; hence, the need for biodiversity conservation versus one single species. Consequently, the reduction of wetlands in a landscape often reduces biodiversity in the area because many organisms found in uplands depend on the wetlands (Lewis 1995).

Wetland loss

During the early 19th century, the term “wetland” was used euphemistically to replace the term “swamp” (Lewis 1995). Wetland management was then driven by the misconception that wetlands were wastelands that should be avoided or if possible, drained and filled. In this country, this opinion of wetlands led to the destruction of more that half of the total wetlands in the lower 48 states (Mitsch and Gosselink 1993).

The map below illustrates the percentages of wetlands acreage lost within a century in the United States.



By the end of the century, agricultural practices caused fewer wetlands losses than non-agricultural activities (such as residential and commercial development), as figure 2 illustrates.

Figure 2: Causes of Wetland Losses (U.S. Fish and Wildlife Service, National Research Council)

1974 to 1983	1986 to 1997
Agricultural: 54%	Agricultural: 26%
Non-agricultural: 46%	Non-agricultural: 74%
Total acreage lost: 2.5 million	Total acreage lost: 644,000

Water diversion structures alter the water temperature and control the rate at which water moves into and through wetlands. As a result, patterns of sedimentation can be changed, and fish and wildlife habitat altered. Overgrazing of riparian areas by livestock reduces streamside vegetation, preventing runoff filtration, increasing stream temperatures, and eliminating food and cover for fish and wildlife. Erosion resulting from vegetation loss can cause downstream sedimentation (Kent 1994). Sedimentation reduces

stream and lake capacity, resulting in decreased water supply, diminished water quality, and jeopardized aquatic life and wetland habitat. As a result, the reduction of water quality and quantity, and wetland habitat from overgrazing of riparian vegetation can cause important economic losses. However, if stocking of livestock is properly managed (for example, using rotational grazing practices), grazing can coexist with wetlands, benefiting ranchers and increasing habitat diversity. Good range management usually is considered good watershed management, particularly in regards to maintaining soil stability (Turner and Paulsen 1976).

Natural events, such as climate change and beaver damns can negatively alter wetland habitat (Mitsch and Gosselink 1993). Nevertheless, current activities such as commercial and residential development, road construction, resource extraction, and industrial production and waste, pose a greater threat to wetland loss and degradation than livestock grazing or natural disturbances. In addition to sediments, the functionality of a wetland can be greatly diminished by pesticides, heavy metals, low dissolved oxygen, selenium, and the presence of weeds. Despite the fact that wetlands have the capacity to absorb a certain amount of acidity and pollutants, over time, their assimilative capacity may become saturated (Kent 1994). Acid drainage from active and abandoned mines can introduce high levels of acidity and heavy metals into wetland environments through runoff or direct drainage, and can affect wetlands' functions (Mitsch and Gosselink 1993).

Wetland management

“Someday, surely, we will love these low and damp places as much as the lofty, cold, and granite ones. Maybe even more, since our bodies are wetlands too, warm and ticking, buzzing, growing, blooming, mysterious and glorious...” (McKibben 1996). Education and cooperative management of wetlands may help develop appreciation for wetlands.

Biological diversity and endangered species protection often raises public concern, however, since most wetland management practice influences its functionality, the fauna and flora it supports need to be addressed (Szaro 1996). The value of a wetland should arise from its ability to support multiple species, and therefore should not be standardized. Wetlands should be considered from the perspective of population, ecosystem and global biological levels, and societal values, which are influenced by their extent and location (Mitsch and Gosselink 1993). Being composed of local government officials, landowners, and land managers, the North Park Wetlands Focus Area Committee endorses such perspectives.

Private landowners and managers are also faced with the challenges created by the critical connection of wetlands and uplands, and the disturbances and changes are a fundamental feature of natural ecosystems. Agricultural uses, for example, affect the amount and quality of water that reaches adjacent wetlands (Lewis 1995). This plan focuses on a local geographic scale but with the vision of being part of the Colorado Wetlands Program, and the Initiative being part of a global wetland preservation effort.

The need for a non-isolated approach has been greatly adopted by The Nature Conservancy (TNC) throughout the Gap Analysis and a continuous effort to incorporate wetland preservation into a landscape level concept. For example, after efforts to protect narrowleaf cottonwood along a small stretch of the Yampa River, TNC managers realized that the patch initially sought to be protected was only one of several dynamic patches within a larger dynamic riparian ecosystem, and the protection initiative had to be broadened (Poiani et al, 2000). Also, in an other study, Poiani et al (2000) concluded that many waterfowl species are sensitive to patch size, wetlands density, and proximity to other wetlands.

Wetland management requires a true interdisciplinary approach. Fortunately, most local North Park residents possess a considerable knowledge about their home landscape and are passionately attached to

those areas. The private sector can play a crucial role in education by demonstrating wetland protection practices and priorities. In order for a demonstration project to be successful, theoretical principles must be translated into practical and flexible programs to accommodate the range of objectives a private owner has for its property (O’Connell 1996). Wetland protection considerations should be a part of land-use decision-making processes rather than a postscript to the list of objectives and goals owners desire or one obliged to consider. “If we combine local knowledge and appreciation of nature in our own backyards with the contextual, farsighted thinking enabled by a broad, biogeographic perspective, we have a basis for a fully informed conservation planning. Think globally, act locally? No, think *and* act locally, regionally, and globally.” (Loucks 2000)

The Department of Natural Resources Division of Wildlife Wetlands Program

As population in Colorado is rapidly increasing, both wetlands and agriculture are at risk. In 1995, the results of a state survey showed that 80% of Colorado residents agreed that wetlands were very important and should be protected. As a result, The Colorado Division of Wildlife created the Wetlands Program in 1997 (Colorado Wetlands Program 2000), with the following goals and objectives:

- **Protect wetland-dependent wildlife** through incentives and voluntary means. Several wildlife species that use wetlands habitat are imperiled, threatened, or endangered; therefore, their protection is priority.
- **Protect wetlands habitat** through incentives and voluntary means. In the program, the term “protection of wetlands habitat” refers to the use of one or all of the following actions: restoration, enhancement, management, and acquisition – of fee title or conservation easement – by a conservation entity such as a land trust, an individual, a non-governmental organization, or a government entity.
- **Establish and foster wetlands protection partnerships** between the Division of Wildlife, communities, non-governmental organizations, state government agencies, federal government agencies, and private landowners – for example, ranchers and farmers.
- **Assist Colorado communities** in generating a wetlands protection strategy for their community upon their request.
- **Encourage interaction, cooperation, and partnering** among wetland protection participants and provide an organizational tool – a statewide wetlands strategy that identifies opportunities to make wetlands protection programs in Colorado work better. A statewide strategy is a process for bringing together citizens, communities, development interests, water interests, government officials, and others to help identify common wetland protection goals and workable equitable solutions that achieve those goals. The process draws on all levels of government and the private sector to focus and coordinate wetland protection efforts.

Key Objective of the Wetlands Program: Protect 100,000 acres of biologically significant wetlands and associated uplands for wetland-dependent species – imperiled, threatened, endangered, increasing, or stable – by 2005.

The Wetlands Program uses 11 strategies to achieve its goal and objectives (see Table 2: Strategies of the Department of Natural Resources, Division of Wildlife Wetlands Program). The Colorado Wetlands Initiative, a key strategy to the Wetlands Program, protects wetlands and wetlands dependent species to voluntary, incentive-based means “willing to participate landowners” and local communities. The Wetland Initiative is a partnership that includes Ducks Unlimited, The Nature Conservancy, Partners for Fish and Wildlife, Great Outdoors Colorado, the Division of Parks and Outdoor Recreation, and the

Division of Wildlife, private landowners, and other organizations and agencies (see Appendix A for detailed list of partners).

Table 2: The strategies of the Department of Natural Resources, Division of Wildlife Wetlands Program (Colorado Wetlands Program 2000).

<u>WETLANDS INITIATIVE</u>	The strategy has protected nearly 100,000 acres of biologically significant wetlands and associated uplands.
<u>WETLANDS PARTNERSHIPS</u>	This strategy promotes the opportunity for numerous entities (individuals, organizations, or agencies) to cooperate or partner with DOW and each other on wetlands protection efforts on a project-by-project basis or a long-term basis.
<u>COMMUNITIES WETLANDS STRATEGIES</u>	This strategy provides the opportunity for communities that request it to receive information and assistance in planning wetlands protection and developing a wetlands strategy.
<u>NORTH AMERICAN WATERFOWL MGMT. PLAN PLAYA LAKES AND INTERMOUNTAIN WEST JOINT VENTURES IN COLORADO</u>	This strategy provides for participation in the Intermountain West Joint Venture and Playa Lakes Joint Venture of the North American Waterfowl Management Plan.
<u>USDA FARM BILL LIASON</u>	This strategy provides for a Farm Bill Liaison on the Wetlands Team to facilitate coordination with Farm Bill programs.
<u>U.S. CLEAN WATER ACT SECTION 404 PROGRAM LIASON</u>	This strategy provides for a Section 404 Liaison on the Wetlands Team to facilitate understanding of that program and the continuing communication with Army Corps of Engineers and EPA on Section 404.
<u>COLORADO WATEFOWL DUCK STAMP</u>	This strategy delivers wetlands protection projects with an emphasis on waterfowl.
<u>WETLANDS PROJECTS DATABASE</u>	This strategy involves a database that tracks all DOW wetlands projects, including design, implementation, completion, project identification, funding allocations.
<u>WETLANDS FUNDING PROCESS</u>	This strategy facilitates securing funds for wetlands protection efforts.
<u>WETLANDS PROJECTS MONITORING AND EVALUATION</u>	This strategy evaluates and monitors the efficacy of various wetlands protection efforts. Such evaluations will improve project design and refine funding allocations.
<u>WETLANDS TEAM</u>	This team of people assists in project design and implementation. The Wetlands Team brings together many diverse disciplines in the DOW to address wetlands and associated wildlife. The team includes members with expertise in wetlands ecology and management, waterfowl and shorebird management, engineering, accounting, contracting, legal issues, water rights, and more.

The Wetlands Focus Area Concept

One of the strategies in the Division of Wildlife Wetlands Program (WP) involves the North American Waterfowl Management Plan (NAWMP). Wetlands Focus Areas were initially designated to implement the NAWMP and to focus protection efforts on wetlands in need of conservation. In order to divide the monumental amount of work necessary to complete the Colorado Wetlands Program, Colorado was divided into ten Wetlands Focus Areas: The San Luis Valley, South Platte River, Playa Lakes/Arkansas River, North Park, Middle Park, South Park, Yampa/White River, Lower Colorado River, Gunnison River, and the Front Range Urban.

The Wetlands Focus Areas are the grassroots support for wetlands protection, which provides on-the-ground experience and knowledge. A Committee composed of local concerned individuals and partners was created in each Wetlands Focus Area. The members of the Committees (actually “working groups”) are impressive in number and diversity; educators, recreationists, hunters, anglers, scientists, politicians, landowners, professionals, non-governmental organizations, and agencies are often present. Among the roles of the Wetlands Focus Area Committee are the following:

- Generate project proposals
- Rank and submit project proposals to the Wetlands Funding Process
- Generate NAWCA grant proposals with assistance from the Wetlands Program team
- Assist in site visits for NAWCA grant proposals
- Assist in communicating with the local community on wetlands conservation and Wetlands Program goals and objectives
- Assist in forming and nurturing wetlands conservation partnerships

The CDOW Wetlands Program is now involved in the monitoring and evaluation of projects.

PART III: NORTH PARK WETLANDS FOCUS AREA COMMITTEE STRATEGY

The North Park Wetlands Focus Area Committee (see Appendix D, Members List) has reviewed its original goal to “enhance as many of the existing wetlands as possible by stabilizing water sources and improving existing cover” (Steinert 1996), and has developed the following goals, objectives and strategies:

North Park Wetlands Focus Area Committee – Goals, Objectives and Strategies:

To maintain, restore and enhance wetland habitats in order to sustain waterfowl populations, wetland dependent wildlife species, and other important functions such as assuring good soil and water quality of wetlands in North Park.

To increase recreational and educational opportunities by improving wetland management in North Park.

Objectives and Strategies of North Park Wetlands Focus Area Committee:

1. Protect, restore and /or enhance existing wetlands on private and public lands for the benefit of wetland dependent wildlife.

-By stabilizing water sources through activities such as improving water delivery systems, purchasing water rights, and facilitating conservation easements (with water rights tied to the land) and land exchanges.

-By identifying, encouraging and promoting grazing management systems through activities such as supporting grazing management workshops, and providing assistance to both governmental and individuals.

-By improving riparian corridors through activities such as fencing, stabilizing stream, and promoting willow cover.

-By creating buffer areas with adjacent landowners by facilitating land use agreements, conservation easements, and land exchanges.

2. Identify opportunities to create wetlands while satisfying management goals of private landowners and agencies.

-By landowner contacts through communication with participating partners of the Wetlands Program.

-By utilizing wetland related information through tools such as databases, maps, and Geographic Information Systems.

3. Form and foster voluntary partnerships between private landowners and public organizations and agencies that facilitate the conservation of North Park's wetlands, associated uplands, and wetland-dependent species.

-By working closely with state and county water officials and districts, county commissioners, land trusts and other interested entities through sharing information, developing relationships, and commenting on zoning and land use planning.

4. Outreach and educate the community and public about the value of wetlands, protection opportunities, and wetlands conservation accomplishments in North Park..

-By using local media, school programs, and Jackson County Cooperative Extension through activities such as the water carnival, newspaper articles and Project Wild.

-By supporting the development of wetland interpretation through activities such as the assistance in the completion of Jackson County Lion's Park, and the implementation of the Hebron Slough watchable wildlife site and interpretive plan.

5. Monitor projects to determine if objectives are achieved.

-By working with the assistance of the Wetlands Program Monitoring team.

-By completing an Action Plan and reviewing it every two to three years.

-By continuing to update the Strategic Plan as necessary.

North Park Community Views on Wetlands

Carl Trick (ranch owner): "Even if we preserve or enhance the wetlands of North Park, it would not make much difference since they are already in pretty good shape, and not really threatened. May be some wetlands areas need to be designated as "sacrificed areas" in order to better preserve others."

Todd Peterson (Red Feather Outfitters co-owner): " People in North Park need to be better educated about the importance and benefits of wetlands. Wetlands in North Park need to receive greater appreciation for their educational values. The creation of new wetlands can't hurt, and may help outfitters since the price of private fishing and hunting leases has increased so much during the past few years that they have almost become unaffordable. Enhancing existent wetlands in North Park would also be beneficial"

Jim Baller (ranch owner): "Wetlands are an important part of the ecosystem, but are sometimes overrated."

Cary Lewis (ranch owner): "By virtue of irrigating their pastures, ranchers create wetlands."

Kent Crowder (President, Jackson County Water Conservancy District): "Natural wetlands in riparian areas are very important not only for wildlife habitat but also for water quality purposes. I believe that wetlands can be enhanced by men. Wetlands in Jackson County are not being threatened, however can be more easily impacted by climate changes than by human impacts. We probably have more wetlands in Jackson County than those provided by nature because of the good stewardship of the ranching community."

Stabilizing water sources by activities such as improving water delivery systems and purchasing water rights, which is stated as an objective of the Committee appears to be appealing to the community. Other activities, which would increase river stream flow, and provide more water storage for the town (where the majority the North Park population resides) are particularly supported during drier years. However, a portion of the North Park population believes that no government agencies should own water rights.

It appears that the community doesn't understand the importance of wetlands in maintaining water supply, as well as the benefit of wetland habitat preservation to related wildlife species.

The community largely fears government involvement in land management and often believes that "strings" are attached to financial assistance, which will eventually force them to modify their land management practices. Some landowners are reluctant to participate in government-assisted programs for fear of being identified as "bad" land managers.

Project Status and Accomplishments of North Park Wetlands Focus Area Committee

The following projects were preceded by project proposals generated by the Wetlands Focus Area Committees and the WI Partners. Project proposals contained project site identification, baseline information, a description of the anticipated benefits to the wetlands and/or the wetlands species, and project cost estimates. The work of the Wetlands Focus Area Committees was funneled to a central, coordinating point—the Wetlands Program. The project proposals were further developed, reviewed, evaluated, presented to the WI Partners, and, if selected, fostered to completion.

Town of Walden: The Lions Park wetland enhancement project was initiated by the Lions Club in 1996. With assistance from GOCO, in kind contributions from the U.S. Fish and Wildlife and local contractors, and volunteer labor, ponds, restroom and concrete access trails were built.

Bureau of Land Management (BLM): Most projects proposed for Hebron Sloughs Waterfowl area (T7N, R80W) received funding and have been completed (water impoundments, ditch maintenance, water control structures, and fencing). Projects, which have not yet received funding: island reconstruction and peninsula cut off within the Eighteen Islands Reservoir, and watchable wildlife site development.

Colorado Division of Wildlife (DOW): The proposed pond development for Walden Reservoir (T9N, R79W, Sec 23&24, BLM property) was not completed. DOW purchased water shares from the Walden Reservoir Company (Karl Trick, President), in order to maintain a conservation pool, for fish habitat during winter. DOW is not allowed to release water, however during dry years, DOW shares have been allocated to irrigation. Since DOW cannot build ponds without changing the status of the legal water usage, which only allows storage or irrigation, DOW now wishes to sell its shares for irrigation. Silver Spur Cattle Company owns pastures downstream, which if flooded, would provide waterfowl habitat.

Colorado State Forest: The proposed wetland restoration and education projects have not been funded. However, the upper part of the Michigan reservoir has been fenced off to cattle. Future fencing may be recommended by the new grazing management plan currently being developed by Natural Resource Option (Dennis Phillipi, President). The State Forest is very interested in receiving assistance with the funding and coordination of wetland educational programs involving schools. Mr. John Twitchell, Forest Manager, also suggested wetland restoration on Grass Creek.

Arapaho National Wildlife Refuge update:

CO Waterfowl Stamp funding was received to construct Graf (T7N, R80W, Sec 11&14), Shroeder (T7N, R80W, SW $\frac{1}{4}$ S13), and Willet (T7N, R80W, NW $\frac{1}{4}$ S13) ponds; completion is planned for spring or fall 2002.

Water rights issues, involving depletion from Platte River, need to be resolved before completing DeVries (T8N, R79W, SW $\frac{1}{4}$ S21) and Dehmer (T9N, R79W, SW $\frac{1}{4}$ S33) Ponds.

Bilbeisi pond (T8N, R79W, NW $\frac{1}{4}$ S5) received funding through CO Duck Stamp and was built during fall of 2001 by using an existing road for dike, replacing culvert under the road, and placing a water control structure.

Private Landowner's proposed projects update:

- A small pond was constructed on land owned by Frank and Deanna McCormick (T8N, R77W, S29&32), however, water source is often low.

- The proposed pond development by Mr. Robert Murphy (T6N, R79W, NW $\frac{1}{4}$ S27) was not funded, but was completed by the owner.

- Pond development on State Trust and David Wattenberg lands (T10N, R80W, S36) did receive funding through CO Waterfowl Stamp, Ducks Unlimited engineers started excavation. However Mr. Kirk Snyder is presently working on obtaining necessary water rights.

- Irrigation system improvement, in order to maintain irrigation efficiency and water level in a natural wetland located on Mr. Ernest Koller's land (T11N, R79W, S32) was not funded. However, according to Mr. Al White, NRCS, these natural wetlands demand attention. Mr. Koller sold the ranch (550 acres) to Mr. & Mrs. Sean & Tawnya Miller, 15486 Red Stone Court, Longmont, CO 80503-9182.

- Ginger Quill ranch fencing project (T12N, R80W, S33) was accomplished.

- Wetland restoration on Joseph Brands (T9N, R81W, SW $\frac{1}{4}$, Sec11) was completed by DOW. (Silver Spur Land & Cattle now owns the land).

- Dike Construction on Jay Warburton's land (T8N, R78W, NW $\frac{1}{4}$, S30) was not funded. Mr. Warburton is still interested in receiving assistance.

- Wetlands have been developed on the Verl Brown Ranch (T6N, R78W, S21).

- Two ponds were built on Hampton property (T7N, R77W, SW $\frac{1}{4}$ S27).

- One of the 2 proposed shallow dikes was constructed on James Baller's land (T7N, R77W, S5). The second is located in a very wet area and would cause damage to the area to bring in equipment.

North Park Wetlands Focus Area Committee Action Plan:

The Action Plan focuses on communication between partners by requiring regular reports and record of activities related to wetlands in North Park from each Committee member. Frequent reporting will allow each partner to stay informed on the status of projects as well as how different partners are pursuing funding. Members will send a copy of any application submitted by members to CWI or other sources of funding for wetland related projects to the Chairperson. Meetings shall be held at least bi-annually in order for each partner to present his or her involvement in wetland protection in North Park and provide a written report to the Chairperson. These reports will describe all wetland related projects undertaken in North Park, and will include the name of the coordinating agency (single or multiple), the actual or estimated date of project completion, the sources and amount of funding received, and its exact geographic coordinates. The information will then be utilized to update the Strategic Plan. An updated Strategic Plan will highlight and recognize the various wetland protection efforts conducted by the North Park Community and land managers, as well as an avenue for new members (private land owner or agency personnel) to quickly familiarize themselves with the accomplishment and current projects undertaken by the committee.

In addition to keeping an updated list of projects, members have also expressed the need for a wetland inventory of North Park in order to improve their understanding of North Park wetlands and to help identify priority areas. Such an inventory would provide an invaluable resource to both private landowners and agency land managers who have worked in North Park for multiple years and are familiar with the various wetland areas. However, it can be difficult for land managers new to the Park to gain an understanding of the wetland areas. An inventory of wetlands occurring in North Park would not only provide a common reference, but would identify species and ecological communities of interest, the most important sites to protect, and finally, what actions are needed for the protection of those sites and the significant elements of biological diversity they contain. Identifying the actions needed for enhancement of protection of wetlands would help measure the committee's progress towards meeting its wetland protection goals. The committee agreed to provide support to Jackson County if the County seeks assistance with a wetland inventory.

In order to improve communication between members, and target the efforts of the Committee, the Committee created the Action Plan described in table 4.

Table 4: North Park Wetlands Focus Area Committee Action Plan for 2002-2004

Time Line	Committee Action	Date Completed
December 2002	Finalize North Park Wetlands Focus Area Strategic Plan	December 15, 2002
April 2003	Hold committee meeting to acquaint past and new participants with current funding programs in order to identify new projects. Organize visits to potential project sites. Chairperson will provide an update on current status of CWI funding.	April 14, 2003
May 2003	Convene Committee to review potential projects. Identify projects for which the Committee should apply for funding to the CWI. Organize working groups to prepare funding application if applicable.	May 19, 2003
June 2003	Working groups meet and develop funding application to submit by completion date.	June 30, 2003
November 2003	Hold Committee meeting to present update on committee and partners accomplishments, and develop a comprehensive list of projects completed or initiated, between January 2003 and October 2003. At this point, the Committee will also determine the funding status of project proposals.	November 28, 2003
December 2003	Re-organize working groups and submit new projects or re-submit projects proposals to CWI.	January 15, 2004
January 2004	Review and update Strategic Plan including list of projects accomplished and addition of newly available Geographic Information System database. Evaluation of accomplishment according to goals and objectives.	February 27, 2004

Current and Potential Projects

BLM is currently working with the USFWS Arapaho National Wildlife Refuge to expand Hebron waterfowl breeding area. Arapaho National Wildlife refuge purchased McFarlane reservoir, and is currently working on the registration of its water rights, which are evenly divided between USFWS and Mr. Blaine Evans.

Partners for Fish and Wildlife representative, Mark Lainer will assist Bob Thompson, Manager of Willow Creek ranch near Rand with the construction of a new pond where a 450' dike will back up about 7.4 surface acres of water. NRCS is working with Bob Thompson on a riparian restoration project funded through NRCS Continuous CRP Signup Program.

Partners for Fish and Wildlife, DOW and Ducks Unlimited visited with John Zigman, Buffalo Creek Ranch manager, regarding the repair of a structure and ditch, which supplies water to Shawver reservoir. The project has potential but appears to be costly.

Cary Lewis proposed building a structure in Deer Creek at a point where an old ditch apparently was once developed. Though the water would flow on BLM and Lewis' land, the structure itself would be on BLM ground. The North Park Wetlands Focus Area Committee agreed that the project had potential, but would only divert water during high precipitation years.

Ducks Unlimited and Partners for Wildlife are working together on a ditch repair project which transfers water from Big Creek Lakes and irrigates meadows and recharges the Boetcher Lakes area. This project received funding from Partners for Fish and Wildlife.

Ducks Unlimited is in the process of obtaining funding for the next phase of the Silver Spur/Hill ranch project, and are also seeking funding for Haworth Meadows projects in the Hebron area.

North Park Wetlands Focus Area submitted a proposal to the Colorado Wetlands Program to fund the material cost and construction of boardwalk at the Lions Park.

PART IV: SOURCES OF INFORMATION REGARDING NORTH PARK WETLANDS

Documents such as aerial photos provide a historical record of an area at a given point in time; therefore, changes in wetland areas and condition can be visually assessed by comparing aerial photos taken at different dates. Satellite images can provide a broad ecosystem perspective of a watershed. Remote sensing techniques, which include aerial and satellite imaging, provide valuable information for both ecosystem-based and site-specific-wetland management decisions (Clemmer 1994). Remotely sensed data can also be helpful in evaluating the proper functioning condition of riparian-wetland areas (Prichard 1993).

Tools such as Geographic Information System (GIS) and long-term data sets can be useful in placing individual wetlands in appropriate spatial context (such as in a watershed or in a waterfowl flyway), and can combine information about wetlands with information about their surrounding environment. Relationships between resource loss and measure of environmental degradation can be developed with a GIS (such as degradation of water quality or loss of biodiversity over time) (Lewis 1995). Accordingly, wetlands management in Jackson County would benefit from increased use of digital information for attributes such as topography, soils types, critical wildlife habitat, landownership, zoning, and wildfire potential for forested areas.

Please note that Internet sites and contact names for the following agencies and organizations are provided in Appendix C.

Public Information Available from Agencies and Local Governments

Ponds located on the *Arapaho National Wildlife Refuge (ANWR)* have been scanned from satellite imagery and will be integrated into a Geographic Information System (GIS) after ground proofing is completed. Waterfowl brood counts are being conducted monthly, which allows for indexing of production estimation. Shore and colonial bird populations are counted each year. Arapahoe National Wildlife Refuge currently is conducting meadow vegetation surveys and will start conducting aquatic vegetation surveys in the near future.

Wildlife studies are commonly conducted at the Arapaho National Wildlife Refuge. A research on Brown-headed Cowbird (*Molothrus ater*) parasitism of Willow (*Empidonax traillii*) and Alder (*E. alnorum*) flycatchers was conducted on the Refuge (Sedgwick and Knopf 1988). The results of the study showed that, at the time, cowbird Parasitism on Willow Flycatchers on the Arapaho National Wildlife refuge was high in comparison to other research in other parts of Colorado. Grazing impacts upon bird habitat was also studied at the refuge (Knopf, Sedgwick and Cannon 1988). The result of the study illustrated that birds respond to changes in vegetation structures due to grazing, particularly in habitat generalist species.

The Bureau of Land Management does not have information pertaining to wetlands in North Park other than for the Hebron Sloughs area. BLM is currently analyzing the results of an inventory of fens in Jackson County, which has identified several unique habitats. Public release should be available in 2003.

Division 1 (South Platte River) and Division 6 (Yampa and White Rivers) of the *Colorado Water Conservation Board* administrators of the North Platte River Basin, which is comprised of portions of the Larimer and Jackson Counties. The Colorado Division of Water Resources can provide information on the amount of water of the North Platte River annual discharges, storage capacity per reservoir, and major exports from the North Platte river Basin in Jackson County. The *North Park Water Conservancy District*, along with Western Environment and Ecology, Inc., is currently conducting water sampling throughout Jackson County. Digitized sampling points and sampling information (including heavy metals and nutrients) are available through the Jackson County Administrator office.

The *Colorado Division of Wildlife* (CODOW) Wildlife Resource Information System (WRIS) data provides geographic information on wildlife species, which for the most part have “economic” values and occur statewide. However, additional information regarding other species occurring in North Park may be available by contacting the CODOW GIS Center. Such information includes digitized data for species such as the Boreal Toad and Pelican. The CODOW is currently in the process of developing a comprehensive riparian vegetation map for Colorado. At this time, digitized riparian and wetland information is only available for the southern part of Jackson County (Hyannis Peak, Lake Agnes, and Whiteley Peak quadrangles). A vegetation preliminary draft has been completed for the state of Colorado from satellite imagery. GIS information will be available for Jackson County after ground proofing is completed. The CODOW also developed a High Priority Habitat map for threatened, endangered and species of special concern in Colorado.

The CODOW monitors duck and Canada goose population in North Park yearly (which can be found in digital and print formats at the North Park Wetlands Focus Area Library). The CODOW Walden office has compiled information on specific research such as waterfowl food habits and geese introduction, and is interested in developing a wetland monitoring program.

Digitized site information, including occurrences and breeding sites, is available for boreal toads in Jackson County through the CODOW Research Center. The Boreal Toad Conservation Plan and Agreement (Boreal Toad Recovery Team and Technical Advisory Group 2001) provides valuable information on recommended boreal toad management practices in North Park.

The CDOW has authorized the use of orthoquads in order to identify wetlands in North Park (Appendix F).

The *Colorado State Forest* (CSF) produced several wetland related reports such as: “Aquatic Ecosystem Inventory”, a macroinvertebrate analysis of the North Fork Michigan River and the North Fork Canadian River (Mangum 1995), “Monitoring Aquatic Macro invertebrates, Boreal Owls, Northern Goshawks, and Migratory landbirds on the Colorado State Forest” (Cavallaro, Jones and Eley 1996), and “Monitoring Riparian and Wetland Communities on Colorado State Forest” (Jones and Napp 1997). An Annual Report of Wildlife Monitoring was completed in 1998 (Western Environment and Ecology, Inc. 1998). Avian productivity was inventoried in 2000 (Bonfield 2000). Water Quality monitoring was initiated in 1998 and is conducted annually. A new grazing management plan, which includes upland and riparian vegetation monitoring, is currently being developed.

Over ten years ago, *Jackson County* gathered and adapted some of the first GIS coverage for the county. The County purchased a meta-database, which included the original land ownership information. Most of the extensive coverage now utilized by Jackson County has been adapted from public data sources such as NRCS and CODOW. Jackson County incorporated WRIS data pertaining to sage grouse populations in Jackson County, and is in the process of obtaining global position coordinates of leek locations. The Water Commissioner is in the process of mapping locations of headgates in Jackson County. The Water Commissioner strongly recommends the North Park Wetlands Focus Area Committee to register any wetland construction in order to assure water right priority over further water diversion (Notice of Intend to Construct a Water Impoundment Structure can be found at the North Park Wetlands Focus Area Library).

The Natural Resources Conservation Services (NRCS) Walden office provides soils maps of Jackson County, and a listing of the hydric soils within North Park. The soil maps may be used to identify areas containing hydric soils. NRCS has identified eleven hydric soil types in Jackson County (A list can be found in digital and print formats at the North Park Wetlands Focus Area Library).

NRCS soil survey division has produced a Soil Survey Geographic (SSURGO) database accessible on the Internet (Appendix C). SSURGO data is collected and archived in 7.5-minute quadrangle units, and distributed as complete coverage for a soil survey of Jackson County. The data includes information such as water capacity, soil reaction, salinity, flooding, water table, bedrock, rangeland and pastureland. NRCS has identified watershed and subwatersheds in Jackson County (Both printed and digitized maps are available at the North Park Wetlands Focus Area Library).

NRCS offers programs, which can help install riparian buffers and protect wetlands such as the Quality Incentives Program, the Wildlife Habitat Incentives Program, the Wetlands Reserve Program, and the Stewardship Incentives Program.

The *U.S. Geological Survey* (U.S.G.S.) produces county maps at 1:50 000 scale (4 sheet for Jackson County), and a 30 x 60 minute series at 1:100 000 (Walden 40106-E1 represents North Park). The quadrangle maps of the Primary Map Series at 1:24000 scale (7.5 minute scale) are the most detailed maps produced by the U.S.G.S. for Jackson County. These provide topography for the area as well as the location of streams, and often times, wetlands.

North Park lies within the following quadrangles: Davis Peak, Mont Zirkel, Mount Ethel, Buffalo Pass, Rabbit Ears Peak, Teal Lake, Pitchpine Mountain, Boettcher Lake, Pearl, Independence Mountain Lake John, Delaney Butte Coalmont, Spicer Peak, Spicer Peak, Buffalo Peak, McFarlane Reservoir, Walden, Cowdrey, Northgate, Kings Canyon, Eagle Hill, Gould NW, Owl Ridge, Rand, Jack Creek Ranch, Gould, Johnny Moore Mountain, and Shipman Mountain quadrangles.

The U.S.G.S. is currently processing recent aerial photographs of North Park. Aerial photographs are then prepared into planimetric orthophotoquads, onto which color, contours, and symbols are added to produce orthophotomaps. National Wetland Inventory Maps (NWI) are presently being produced by the U.S. Fish and Wildlife and distributed by the U.S.G.S. based on orthophotomap interpretation of vegetation communities which are field-verified. These maps provide an excellent starting point for identifying wetland resources; however, dependent upon the region and its vegetation community types, the accuracy may be variable.

The NWI produces two types of maps: composite maps that photographically combine the wetlands inventory information with standard U.S.G.S topographic map information, and overlays that contain wetland information only. To date, digital format as well as hard copies of McFarlane reservoir, Walden, Gould NW, and Owl Ridge quadrangles are available free of charge through the National Wetlands Inventory internet site. The remaining quadrangles are available as hard copy maps only.

The U.S.G.S coordinates Geographic Analysis Program (GAP) was initiated in 1996. The goals of the program are to map land cover and animal species occurrences in order to document natural land cover and animal species types that are inadequately represented (gaps) in special management areas.

The major objectives of the Colorado Gap Analysis Project are:

1. Develop geographic information system (GIS) based databases describing the state's vegetation/land cover, terrestrial vertebrate wildlife distributions, and land management status at a scale of 1:100000, interpreted to identify land stewardship categories consistent with those described in the Wildlife Monograph, entitled Gap Analysis: A Geographic Approach to Protection of Biological Diversity (Scott et al., 1993).
2. Identify land cover types and terrestrial vertebrate species that are either not represented, or are under-represented in areas managed for long-term maintenance of biological diversity.
3. Facilitate cooperative development and use of information so that institutions, agencies, and private landowners may be more effective stewards of Colorado's natural resources.

To date, land cover, species distribution, land stewardship, and a final output of Gap Analysis of Colorado biodiversity mapping are available for Colorado, including Jackson County. A new analysis (REGAP), offering more detailed information (30 meter pixels) is in the process of being completed.

The U.S. *National Forest Service* has compiled riparian areas (including streams, polygons and points) for the Routt National Forest into a digital format.

Information from Organizations involved in land management and protection in North Park

Ducks Unlimited (D.U.) participated in the enhancement and restoration of wetlands, and the construction of nesting islands within 288 acres of the Hebron Slough Waterfowl Area.. D.U. has restored 250 acres of wetland area at Lake John, and assisted the Colorado Partners for Wildlife wetlands water enhancement projects. D.U. is currently compiling GIS information related to North Park for the North Park Community Wetlands Committee to utilize.

The Habitat Partnership Program (HPP) has collaborated with OMP in the monitoring of vegetation transects located in their project areas.

The Nature Conservancy (TNC) is conducting a riparian classification for the Colorado watershed (Data can be downloaded from the internet as indicated in Appendix C). Fifteen Riparian vegetation transects were conducted in 1998 for major stream reach, as well as mapping of the rare plant North Park phacelia (*Phacelia formosula*). The North Park Phacelia was listed as an endangered plant species in 1982 by the USFWS. In 1984, the BLM designated the North Park Research Natural Area to protect the plant on approximately 300 acres. A recovery plan was subsequently developed by the U.S. FWS in 1986. TNC, U.S.F.W.S., and BLM developed a Preliminary Site Conservation Plan to protect North Park Phacelia habitat along the North Platte River (Kipfer and Neely 1995). The North Park Phacelia was located on three sites along the North Platte and California Gulch, in addition to 2 sites along Potter Creek, a tributary of the Illinois River on the Arapahoe National Wildlife Refuge.

TNC developed a Landscape Site Conservation Plan for the North Platte River in 1999 (Stark 1999), which mainly concentrates on Wyoming but offers analysis of riparian habitat condition and functioning, and conservation strategies applicable for the southern section of the North Platte River running through North Park.

TNC has developed an Ecoregional Assessment and Conservation Blueprint for the Southern Rocky Mountains. Ecoregions were stratified into sections, and include North Park within the Northern Park and Ranges section. The central area of North Park was thus identified as a key place within the ecoregion, which TNC recommends to protect or restore if the full range of species and natural communities are to survive for many generations.

The Colorado Natural Heritage Program is currently working on a wetland design and evaluation project, and a wetlands classification system in Colorado. Projects include a statewide project identifying the vegetation structure of riparian zones and wetlands as well as defining how that structure corresponds to bird habitat requirements; and wetlands vegetation classification throughout the state including all plants, from rare to common. The Colorado Natural Heritage Program also assists in prioritizing sites for conservation action.

TNC has been contacted by North Park Land Owners who have considered establishing conservation easements on their properties.

Owl Mountain Partnership initiated the vegetation monitoring of riparian and upland areas in the Owl Mountain area in 1996. A database was developed, and transects located on a map, however no latitude and longitude coordinates were recorded. During the past few years, vegetation transects have been conducted outside the original Owl Mountain area in collaboration with the Habitat Partnership Program. A database of riparian vegetation transects is available in hard copy. The database has been partially transferred into a GIS format by Jackson County. OMP also contributed to the Colorado Breeding Bird Atlas (which is distributed by the Colorado Wildlife Heritage Foundation) (Colorado Bird Atlas Partnership 1998), and possess comprehensive bird population information for North Park.

The ***Rocky Mountain Bird Observatory*** coordinates the Monitoring Colorado's Birds program funded by DOW, BLM, and USFS. Transect surveys were randomly located on fourteen habitats throughout Colorado. The goal of the program, which started in 1999, is to detect population changes in most species breeding in Colorado in a period of 30 years. Of these transects, twelve are located in Jackson County, four of which are wetlands transects.

Colonial nesting birds are also monitored by RMBO in a program called Colony Watch. The program is mostly accomplished by volunteers, who have recorded 81 species-locations for North Park (see N.P.C.W.C. library). RMBO, assisted in the development of the Colorado Breeding Bird Atlas (Colorado Bird Atlas Partnership 1998) as well as the Owl Mountain Partnership (OMP) for North Park. OMP compiled the Colorado Breeding Bird survey for Jackson County by quadrangle. The Colorado Breeding Birds Atlas describes habitat, breeding behavior, and distribution for each species. Occurrence is reported within 25km² (10 Sq. miles) blocks, and three levels (possible, probable and confirmed). Although not as recent, the Colorado Birds: A Reference to their Distribution and Habitat (Andrews and Righter 1992) also provides useful information on all bird distribution and habitat in Colorado organized by family.

The ***Legacy Land Trust*** concentrates most of its work in Larimer County, but has completed conservation projects in Connor Creek Ranch (590 acres) and on the Deline Ranch (240 acres).

The ***Yampa Valley Land Trust*** mainly focuses on Routt County but has already developed an agreement with a North Park landowner to protect agricultural land from development (approximately 600 acres on the Buffalo Pass Ranch) and has developed a good knowledge of North Park's natural resources to answer the needs of its land owners.

North Park Community Wetlands Committee Library

Since the production of the original Strategic Plan in 1996, during the implementation of projects, and while developing this document, a library composed of publications and databases relevant to wetland conservation in North Park has been compiled. These sources of information can be useful in gathering inventory or monitoring data, preparing grant applications and educational presentations, and learning about new wetland conservation approaches. The Committee Chairperson maintains the library, and is responsible for sharing with and encouraging all members to utilize and update the library. Please see Appendix G for a list of the Library contents.

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APENDICES

Appendix A

Colorado Wetlands Program Partners

Source: Colorado Department of Natural Resources Division of Wildlife

Ducks Unlimited *www.ducks.org*

The mission of Ducks Unlimited is to fulfill the annual life cycle needs of North American waterfowl by protecting, enhancing, restoring and managing important wetlands and associated uplands. Since its founding in 1937, DU has raised more than \$1 billion, which has contributed to the conservation of more than 9 million acres of prime wildlife habitat in all 50 states, each of the Canadian provinces and in key areas of Mexico. In the U.S. alone, DU has helped to conserve nearly 1.3 million acres of waterfowl habitat. Some 900 species of wildlife live and flourish on DU projects, including many threatened or endangered species.

The Nature Conservancy *www.tnc.org*

The mission of The Nature Conservancy is to preserve plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. TNC is an international, non-profit conservation organization dedicated to preserving species and their habitats by buying the lands needed to ensure their survival. TNC has protected many habitats, including wetlands, through its many conservation projects, totaling 416,000 acres in Colorado and more than 70 million acres worldwide.

Partners for Fish and Wildlife *partners.fws.gov*

The mission of the U.S. Fish and Wildlife Service's Partners for Fish and Wildlife is to work with others to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people. Technical and financial assistance is offered to private landowners to voluntarily restore wetlands and other fish and wildlife habitats on their land. The program has traditionally been directed at waterbird habitat through wetland, riparian, and associated upland projects. Projects directly benefiting declining species are also emphasized.

Great Outdoors Colorado *www.goco.org*

Great Outdoors Colorado awards grants with a portion of state lottery dollars for projects that protect and enhance parks, wildlife, trails, rivers and open space. A 15-member board appointed by the Governor governs the Trust, which receives approximately \$40 million annually. While GOCO has awarded more than 1,400 grants, its signature projects are called "Legacy Projects." They are projects of regional and statewide significance to which GOCO makes multiyear, multi-million dollar commitments. There are only 16 such projects in the state. The Colorado Wetlands Program is a GOCO Legacy Project.

Colorado Division of Parks and Outdoor Recreation *www.parks.state.co.us*

The Colorado Department of Natural Resources and its Division of Parks and Outdoor Recreation was created to develop, protect and enhance Colorado's natural resources for the use and enjoyment of the state's present and future residents, as well as for visitors to the state. The Colorado Natural Areas Program, which is housed within the Division of Parks and Outdoor Recreation, preserves some of the finest examples of Colorado's original and unique landscapes for the benefit of present and future generations. State Parks has completed a wetlands inventory of all 40 parks in the State Parks and Natural Areas Program and noted opportunities to acquire, restore, enhance, or create wetlands.

Colorado Division of Wildlife www.wildlife.state.co.us

The Division of Wildlife of the Colorado Department of Natural Resources is responsible for management of the state's 960 wildlife species. It regulates hunting and fishing activities by issuing licenses and enforcing regulations. The Division also manages more than 230 wildlife areas for public recreation, conducts research to improve wildlife management activities, provides technical assistance to private and other public landowners concerning wildlife and habitat management, and develops programs to protect and recover threatened and endangered species. The Division has increased its emphasis on wetlands protection and management. It has a Wetlands Program that seeks to protect wetlands and wetland-dependent wildlife through voluntary and incentive-based mechanisms.

Colorado Natural Heritage Program www.cnhp.colostate.edu

The mission of the Colorado Natural Heritage Program is to preserve the natural diversity of life by contributing the scientific foundation that leads to lasting conservation of Colorado's biological wealth. In an effort aimed at wetland conservation, CNHP has been classifying, inventorying, and assessing Colorado's wetlands since 1992.

Playa Lakes Joint Venture northamerican.fws.gov/nawmphp.html

The Playa Lakes Joint Venture is an implementation component of the U.S. Fish and Wildlife Service's North American Waterfowl Management Plan, a voluntary, non-regulatory approach to conserving migrating birds and their habitat. Joint Ventures are habitat-based partnerships comprised of individuals, corporations, conservation organizations and local, state, and federal agencies. The Playa Lakes Joint Venture includes southeastern Colorado.

Intermountain West Joint Venture dewey.cers.byu.edu/iwjb

The Intermountain West Joint Venture is an implementation component of the U.S. Fish and Wildlife Service's North American Waterfowl Management Plan, a voluntary, non-regulatory approach to conserving migrating birds and their habitat. Joint Ventures are habitat-based partnerships comprised of individuals, corporations, conservation organizations and local, state, and federal agencies. The Intermountain West Joint Venture includes western and northeastern Colorado.

Wetlands Focus Area Committees www.wildlife.state.co.us

Wetlands Focus Area Committees are local wetland working groups of farmers, ranchers, wetland enthusiasts, and local, state, and federal agencies concentrating their wetland conservation efforts on a specific geographic area. There are 10 Wetland Focus Areas in Colorado. They are a local implementation component of the North American Waterfowl Management Plan.

U.S. Fish and Wildlife Service - National Wildlife Refuge System www.fws.gov

The U.S. Fish and Wildlife Service manages more than 500 National Wildlife Refuges encompassing more than 93 million acres. Most refuges were established to protect and enhance wetlands for the conservation of migratory birds.

Environmental Protection Agency ww.epa.gov/region08/cross/wetland/wetlands.html

The mission of the Wetlands Program of the Environmental Protection Agency is to use its authorities, and to encourage and enable others, to act effectively in protecting and restoring the nation's wetlands and other aquatic resources.

Bureau of Land Management www.blm.gov

The mission of the Bureau of Land Management is to sustain the health, diversity, and productivity of public lands for the use and enjoyment of present and future generations.

Natural Resource Conservation Service *www.nrcs.usda.gov*

The mission of the Natural Resource Conservation Service is to provide leadership in a partnership effort to help conserve, improve, and sustain our natural resources and environment. Programs include the Wetlands Reserve Program, Flood Risk Reduction Program, and the Wildlife Habitat Incentives Program.

Bureau of Reclamation *www.usbr.gov*

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Colorado's Private Landowners

Many wetlands occur on private land. The success of the Wetlands Program and other wetland protection efforts depends on the support and cooperation of private landowners.

Note: This list highlights a few of the many Wetlands Program partners and is not intended to be all-inclusive.

Appendix B

Wetlands Program Application Guideline and Forms

INSTRUCTIONS FOR USING THE COLORADO WETLANDS PROGRAM APPLICATION FOR FUNDING SEARCH OPEN TO COLORADO WETLANDS PARTNERS (Revised May 2, 2002)

I. INTRODUCTION

The CDOW Wetlands Program “Wetlands Funding Process” was created in 1997 as a result of input received that indicated that many individuals had wetlands project proposals but no time to explore funding opportunities. The Wetlands Funding Process (WFP) is, essentially, a service that the CDOW Wetlands Program provides to Wetlands Program partners (and all Division of Wildlife personnel) to enhance and improve the efficiency of acquiring funding for wetlands or wetlands-associated-uplands protection projects. In the Colorado Wetlands Program the term “protection” includes acquisition of fee title or conservation easement, restoration, creation, or enhancement of wetlands, and management of wetlands.

The Wetlands Funding Process is:

- A service and a process that searches for funds for a wetlands project proposal
- A user-friendly process. The application for a funding search is simple to fill out and can be submitted any time so there are no deadlines to worry about (must be submitted electronically in Microsoft Word doc. format)
- Responsive - the applicant will receive feedback on the proposal within 45 days of receipt of the application that will summarize the likelihood of the proposal obtaining funding.
- An efficient way of translating wetlands project ideas into action. The WFP has funding sources information, application deadlines, application requirements, match requirements, possible sources of match money, lists of potential project partners, a comprehensive view of many sources of funding possibilities for wetlands projects and the expertise to finalize funding.

The Wetlands Funding Process is:

- Not a source of funds, i.e., it is not a “pot” of money
- Not a guarantee of funding for a project
- Not a grant application or grant process

II. USING THE WETLANDS FUNDING PROCESS

If you are interested in participating in wetlands protection efforts and you want to contribute to attainment of the 100,000acre goal by the year 2005, please use WFP Application For Funding Search. When you develop a wetlands project idea into a proposal, submit it to the WFP and we will respond within 45 days.

These are some suggestions for using the WFP:

1. Keep in mind that the WFP data base now includes many of the more popular wetlands projects funding sources you might already be aware of (such as the following examples) and which you can now apply for through the WFP. These are only a few examples!
 - Colorado Waterfowl Stamp
 - GOCO
 - North American Wetlands Conservation Act (small grants and regular grants)
 - EPA (for example, 319 or 104-b-3 programs grants)
- DOW funds allocated to the WP
2. The CDOW WP summary pages that follow serve as an excellent guide and aid to understanding the goals and objectives of the Program.
3. It is strongly recommended that you submit a complete application that includes a meaningful project description that concisely describes the project, its goals, its purpose and its benefits to the wetlands resource and associated species. Please realize that most funding sources have clearly defined goals and objectives, therefore, if we are to be successful in finding a source that fits your project (or vice-versa) we have to have good information about your project.
4. Applications are accepted anytime; there is no deadline; this is an open-ended process. Please complete the entire application (the quality of the information you provide in your application does have a bearing on how it is viewed by the Partners) and e-mail in Microsoft Word doc. file format to alex.chappell@state.co.us
5. Please review the goals and objectives of the Wetlands Program which manages the Wetlands Funding Process you have just been reading about. Also, please read the information on the Wetlands Initiative which is also managed by the Wetlands Program and which has its own criteria used in project selection.

The following is provided for your information only! **In the case of the Wetlands Initiative (WI)**, when the WI Partners allocate funds they use the Requirements Filter and the Significance Filter as part of their Project Selection Process. The Requirements Filter is reflected in the application you fill out and the Significance Filter follows so that you can get a glimpse of how your proposal will be evaluated.

THE SIGNIFICANCE FILTER

The function of the Significance Filter is to screen out project proposals that are not biologically significant or do not provide state or regionally significant wetlands benefits. The criteria are grouped as follows:

BIOLOGICAL

I. ECOLOGICAL

A. UNIQUENESS

1. What is the Biodiversity Rank of the project?

B. WETLAND VALUES AND FUNCTIONS

1. How does the project preserve, restore, enhance, or create wetland functions and values such as:
 - X flood control
 - X water quality
 - X erosion control
2. Does the project buffer or benefit a nationally significant site?
3. Does the project provide needed ecological values to the surrounding landscape? How does the project site relate to the overall landscape needs (juxtaposition)?

4. Does the project restore historic wetland values and functions to an area in which they have been lost, reduced, or degraded?
5. Will the resulting benefits be local, regional, statewide, or national in scope?
6. Will a significant percentage of wetlands in the wetlands focus area (or equivalent) will benefit?

II. WILDLIFE

A. ENDANGERED AND DECLINING SPECIES

1. How does the project benefit declining species and/or sensitive species and/or endangered species; and does the project advance the goals of existing conservation programs/projects such as:
 - X COVERS
 - X COLORADO MOA WITH DOI
2. How does the project benefit declining/sensitive/endangered habitats?

B. NON-ENDANGERED SPECIES

1. How will the project enhance the diversity and abundance of wetlands wildlife?
2. How does the project produce positive benefits to species?
2. How does the project advance the goals of the NAWMP (waterfowl and shorebirds)?

PROGRAMMATIC

III. SOCIETAL

A. URGENCY, JEOPARDY, AND OPPORTUNITY

1. What is the overall urgency of the project?
2. Is this a unique opportunity in time to conserve the parcel?
3. What is the management urgency of the project?
4. Why does the parcel need to be protected?
5. What is the immediacy and nature of the threat to the parcel?
6. What is the consequence if the parcel is not protected right now?

B. CATALYST AND DEMONSTRATION VALUES

1. Does the project demonstrate unique or important tools, techniques, or processes that further the missions of GOCO, TNC, DU, PFW, DOW, and State Parks?
2. Will the completion of the project promote other projects in this area or other similar projects in the state?

C. RECREATION

1. What are the values of the site for wildlife viewing, photography, angling, hunting?
2. Are there potential adverse impacts and what are they?

IV. STRATEGIC

A. SITE CHARACTERISTICS AND PROJECT INTEGRITY

1. What are the current and anticipated land uses of the area surrounding the project site?
2. Are the anticipated land uses of the site compatible with the project goals?
3. What water rights are necessary to protect the parcel's attributes?
4. What are the existing land use practices on the site (management)?
5. Is the site owned by the project proponent - who currently owns the site?
6. What are the public access attributes of the site and are they compatible with project?
7. Is the project viable and defensible for the long term?

B. LEVERAGING

1. Does the project lend itself to leveraging funds by the Partners?
2. Is there opportunity to leverage funds at the Wetlands Focus Area Committee level?
3. Is there opportunity to leverage non-federal monies?
4. Is there opportunity to leverage federal monies?
5. Does the project incorporate working with a variety of organizations to acquire lands and to restore and manage critical wildlife habitats?

C. STEWARDSHIP

1. What are the provisions for stewardship?
2. How will stewardship be funded and implemented and monitored?

D. INTEGRATED PLANNING (Is the project compatible with existing local, regional, state, and federal plans?)

1. How does the project incorporate working with a variety of organizations to acquire lands and to restore and manage critical wildlife habitats?
2. How does the project adhere to DOW Watchable Wildlife project guidelines?
3. How does the project advance the DOW goals of providing comprehensive wildlife education?
4. Does the project clearly advance the goals of the following:
 - X DU COLORADO CONSERVATION PLAN
 - X TNC STATEWIDE CONSERVATION PLAN FOR COLORADO
 - X COLORADO PFW
 - X PARKS 5-YEAR HORIZON PLAN
 - X DOW STRATEGIC PLAN
 - X GOCO STRATEGIC PLAN
5. Does the project provide open space benefits, such as scenic values, and what are they?

E. PROJECT SUPPORT

1. Does the project have local community support?
2. Does the project have the support of a WI Partner?
3. Does the project have legislative support?

Administrative Fields – Assigned by Wetlands Program Office			
Tracking #	Project Type	Wetland Type	Categorical Objective
Received			

Please provide a concise narrative description of the project. This section should communicate the essence of what your project intends to accomplish and how it contributes to the Wetlands Program goal of protecting biologically significant wetlands in Colorado. Please forward graphics, maps, etc., as separate email attachments.

Hit TAB to select next field. Hit ENTER for carriage return within fields. Do Not use double quotes (“”)

Project Name					
Contact Person(s)	1		2		
Contact Person(s) phone #					
Contact Person(s) address					
Contact Person(s) e-mail address					
Wetlands Focus Area					
Complete physical address of project and legal description					
UTM Location	Zone		Easting		Northing
Nearest town to project					
Drainage name					
Project site owner					
Wetland acres of project	Pre		Post		
Upland acres of project	Pre		Post		
Owner/adjudication of water					
Public access	<input type="checkbox"/> Open				

In addition to your summary above please answer all of the following questions. Please note that wetlands protection may entail acquisition of fee title or conservation easements; restoration or enhancement of wetland functions; creation of a new wetland; and management, education, or assessment (inventory, monitoring, evaluation). Please note that ‘wetlands’ means all wetland types in Colorado, including riparian wetlands.

1. How does the project site relate to the overall landscape? Describe adjacent habitat types and land-use patterns. Is the project site located within a larger wetland complex?

2. What are the **current habitat conditions** at the projects site? Include information on **hydrology** (water sources, timing of flooding, duration of flooding, average depth and range of depths during flooding, percent of project area that is currently surface-flooded each year) if any wetlands currently exist on the project site. Also include information on **vegetation** (dominant species, percent coverage and distribution on project site, an assessment of height, density and vigor [increasing, decreasing, dead, alive, etc.], presence of any weeds), and past/current **land use** (e.g., grazed pasture, irrigated grain).

3. What are the **expected habitat conditions** to be produced and sustained at the site as a result of the project? What are the expected hydrologic characteristics, vegetation community, and land use patterns at the site (compare to same information above)?

4. How will the desired habitat conditions be **produced** and then **maintained**? Is the project site currently protected (e.g., project is on a SWA)? Provide details on planned water delivery and control, if applicable. Provide details on any direct vegetation manipulation (e.g., loosestrife control, fence manipulation, etc.). Provide details on what kind of management/maintenance activities are expected and who will conduct them. What are the provisions for stewardship and how will it be funded, implemented, and monitored?

5. Use the following table to describe the primary wildlife benefit(s) expected from the project. Comments on these benefits may be provided below.

Species	Life Cycle Event	Measurable Benefit

6. Characterize the urgency, jeopardy, and opportunity, around this project. Is this a unique opportunity in time to protect the project site? Why does the site need to be protected? What is the immediacy and nature of the threat to the site? What are the consequences if the site is not protected? Will the completion of the project promote other projects in this area?

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7. What are the societal values of the site – for wildlife viewing, photography, angling, hunting, education, or outreach?

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8. Please use the following table to develop a project budget describing requested and matching funds– from whom and how much – federal or non-federal – as well as in-kind contributions.

Funding Partner	Cash	In-kind
Federal		
Non Federal		
Wetlands Program Request		

9. Does the project have local community support? If this project is in a wetlands focus area, has the project been presented to the wetlands focus area committee? If so, then please summarize their reaction to the proposal.

Please save your application as a MS-Word document (.doc) and e-mail the document with all appurtenant attachments to: alex.chappell@state.co.us

Appendix C

Wetlands Online Resources

FEDERAL & STATE GOVERNMENT RESOURCES

Colorado Division of Natural Resources. <http://www.dnr.state.co.us>

- Colorado Division of Wildlife. <http://wildlife.state.co.us>
- Boreal Toad Conservation Section: <http://www.dnr.state.co.us/wildlife/aquatic/boreal>
- Riparian and Wetland Mapping Page. <http://ndis.nrel.colostate.edu/ndis/riparian/riparian.htm>
- Colorado State Trails Program. <http://parks.state.co.us/home/>
- Colorado Oil and Gas Conservation Commission. <http://www.oil-gas.state.co.us>

Montana Wetlands Information Clearinghouse. <http://nris.state.mt.us/wis/wetlands>

U.S. Department of Agriculture. <http://www.usda.gov>

- Forest Service. <http://www.fs.fed.us>
- Information on trail management. <http://www.fs.fed.us/im/directives/fsh/2309.18/2309.18.1>

Natural Resources Conservation Service. <http://www.nrcs.usda.gov/>

- Hydric Soils of United States. <http://www.statlab.iastate.edu/soils/hydric/>
- National Soils Data Access Facility. <http://www.statlab.iastate.edu/soils-info/osd/>
- The National SSURGO Database. http://www.ftw.nrcs.usda.gov/ssur_data.html
- Wetland Science Institute. <http://www.pwrc.usgs.gov/WLI/>
- National Water and Climate Center: http://www.wcc.nrcs.usda.gov/water/wets_doc.html

Army Corps of Engineers. <http://www.usace.army.mil/>

- Wetlands and Waterways Regulation and Permitting.
<http://www.usace.army.mil/public.html#Regulatory>
- Waterways Experiment Station Environmental Laboratory.
<http://www.wes.army.mil/el/wetlands/wetlands.html>

U.S. Department of Energy. <http://www.energy.gov/>

- Center of Excellence for Sustainable Development. <http://www.sustainable.doe.gov>
- Council on Environmental Quality - NEPANet. <http://ceq.eh.doe.gov/nepa/nepanet.htm>

U.S. Environmental Protection Agency. <http://www.epa.gov>

- Education: activities, curriculum, teaching tools. <http://www.epa.gov/owow/wetlands/education/>
- Environmental Protection Agency Catalogs. <http://www.epa.gov/epahome/Catalog.html>
- Guidance on developing local wetlands projects.
<http://www.epa.gov/OWOW/wetlands/partners/local.html>
- Landowner Assistance and Stewardship. <http://www.epa.gov/owow/wetlands/landasst>

- Monitoring Water Quality. <http://www.epa.gov/owowwtr1/monitoring/volunteer>
- Office of Water. <http://www.epa.gov/owow/>
- Surf Your Watershed. <http://www.epa.gov/surf>
- Wetlands Division. <http://www.epa.gov/owow/wetlands/>

U.S. Department of the Interior. <http://www.doi.gov>

Bureau of Land Management. <http://www.blm.gov>

- General statement about stewardship activities, including trails. <http://www.blm.gov/budget/1998/98rec.html>

Bureau of Reclamation. <http://www.usbr.gov>

Fish and Wildlife Service. <http://www.fws.gov>

- Bird Habitat Conservation Program. <http://birdhabitat.fws.gov/index.htm>
- Endangered Species Act. <http://endangered.fws.gov.esa.html>
- National Wetlands Inventory. <http://www.nwi.fws.gov/>
- North American Waterfowl Management Plan (NAWMP). <http://northamerican.fws.gov/NAWMP/nawmphp.htm>
- Reports regarding adaptive harvest management and migratory bird population status. <http://migratorybirds.fws.gov/reports/reports.html>
- Wetland Plant Lists. <http://www.nwi.fws.gov/Ecology>

National Park Service. <http://nps.gov>

- Planning Homepage. <http://planning.den.nps.gov>

Geological Survey. <http://www.usgs.gov>

- Biological Resources Division. <http://www.nbs.gov>
- Geologic Information. <http://geology.usgs.gov>
- National Mapping Information. <http://mapping.usgs.gov>
- Water Resources Information. <http://water.usgs.gov>

National Gap Analysis. <http://www.gap.uidaho.edu/default.htm>

Colorado Gap Analysis Project. <http://ndis.nrel.colostate.edu/cogap/>

Western Wetland Flora: <http://www.npwrc.usgs.gov/resource/othrdata/westflor/species.htm>

National Wetland Research Center: <http://www.nwrc.usgs.gov/>

Colorado water Conservation Board. North Platte River Basin. <http://cwcb.state.co.us/>

RESTORATION RESOURCES

Army Corps of Engineers: Habitat Restoration Recommendations.
http://www.swt.usace.army.mil/factbook/tc_71.htm

Ecological Restoration Publication. <http://ecologicalrestoration.info/>

Ecological Restoration. <http://ecologicalrestoration.info/>

Restoration and Management News. <http://ecologicalrestoration.info/201.html>

Riparian Restoration Roundtable. <http://www.treelink.org/woodnotes/vol1/no1/rrres.htm>

Riparian Restoration/Revegetation Projects, Techniques and Standards in the Western United States.
<http://www.americantrails.org/resources/wildlife/WildBiblioRestore.html>

EDUCATIONAL/OUTREACH RESOURCES:

A Thousand Friends of Frogs. <http://cgee.hamline.edu/frogs>.

American Wetlands Conference, American Wetlands Month and nonpoint source pollution.
<http://www.terrene.org>

Colorado Mountain Club. <http://www.cmc.org/cmc/>

Colorado Riparian Association. <http://www.coloradoriparian.org/>

Craighead Environmental Research Institute corridors and reserve design.
<http://www.grizzlybear.org/condesign.htm>

EnviroNet Monitoring Projects. http://earth.simmons.edu/monitoring_projects.

Leagues of Women Voters wetlands education projects.
<http://www.lwv.org/where/protecting/webwalk/index.html>

North American Amphibian Monitoring Program. <http://www.im.nbs.gov/amphibs>.

Society for Conservation Biology. <http://conbio.net/scb/Services/Education/>

Sustainable Earth Inc. Envirolink Project. <http://www.envirolink.org/pubs>

GIS RESOURCES

Colorado Division of Wildlife RISK data at the Colorado Natural Diversity Information Source:
<http://ndis.nrel.colostate.edu/>

Global network of geographic information users and providers. <http://www.geographynetwork.com>

Geo-spatial data repository. www.gisdatadepot.com

Compilation of data collected by the Federal Government. <http://www.nationalatlas.com>
<http://www.landnetusa.com>

Terra Server. Download aerial photos (Georeferenced in UTM).
<http://terraserver.homeadvisor.msn.com/default.asp>

GENERAL INFORMATION

Audubon of Colorado Important Bird Areas. <http://www.audubon.org/chapter/co/co/wildlife.htm>

Colorado Internet Center for Environmental Problem Solving.
<http://www.colorado.edu/conflict/environment/>

Colorado Water Knowledge. <http://waterknowledge.colostate.edu/>

Colorado Water Research Institute Research (CWRI). <http://cwri.colostate.edu/research/research.html>

Endangered Species Act Online Resource Guide. <http://www.envirolink.org/issues/esa>

North American Waterbird Conservation Plan. <http://www.nacwcp.org/>

Outdoor Recreation Research. <http://www4.ncsu.edu/~leung/recres.html>

Partners In Flight. <http://www.partnersinflight.org>

Managers, Inc. <http://www.aswm.org/>

The Nature Conservancy. <http://nature.org/>
TNC's Vegetation Classification System. <http://consci.tnc.org/library/pubs/class/index.html>

The North American Bird Conservation Initiative. <http://www.nabci.org/>

United States Shorebird Conservation Plan (USSCP). <http://www.manomet.org/USSCP.htm>

Wetlands Regulation Center. Environmental Technical Services Co. <http://www.wetlands.com/index>

Wildlife Habitat Council management tools. <http://www.wildlifehc.org/managementtools/>

Wildlife Habitat Council. <http://www.wildlifehc.org/managementtools/>

Appendix D

North Park Wetlands Focus Area Committee Members (December 2002)

Pam Bilbeisi	Chair, North Park Wetlands Focus Area Committee, Wildlife Biologist	Arapahoe Wildlife Refuge, P.O. Box 457, Walden, CO 80480	970/723-8202	pam_bilbeisi@fws.gov
Tootie Crowner	Jackson County Commissioner	P.O. Box 816, Walden, CO 80480	970/723-8461	
Liza Graham	Habitat Ecologist	Colorado Division of Wildlife P.O. Box 775777, Steamboat Springs, CO 80477	970/871-2861	liz.graham@state.co.us
Dave Harr	Associate Field Manager	Bureau of Land Management, 116 Park Avenue, P.O. Box 68, Kremmling, CO 80459	1/800-496-3285	dave_harr@co.blm.gov
Kirk Snyder	District Wildlife Manager	Colorado Division of Wildlife P.O. Box 70, Walden, CO 80480	970/723-4625	Kirk.snyder@state.co.us
Mark Lainier		Arapahoe Wildlife Refuge, P.O. Box 457, Walden, CO 80480		mark_lanier@fws.gov
Todd Peterson	President, Habitat Partnership Program	49794 Hwy 14 Walden, CO 80480	970/723-4204	
John Twitchell	Forst Manager	Colorado State Forest, 59228 Hwy 14, Gould 80480	970/723-4505	johntw@lamar.colostate.edu
Richard Vail,	Construction Engineer	Ducks Unlimited, 2231 Ayrshire Drive, Fort Collins, CO 80526	970/484-8038	rvail@ducks.org
Al White	Natural Resources Conservation Service	100 Main St., P.O. Box 649, Walden, CO 80480		allen.white@co.usda.gov

Appendix E

LIST OF CONTACTS (PAGE 1 OF 3)

Organization	Contact Name	Phone	Address	E-Mail	
Bureau of Land Management	Dave Harr	800/496-3285	P.O. Box 68, Kremmling, CO 80459	dave_harr@co.blm.gov	
Colorado Division of Wildlife	Alex Chappell (Program Coordinator)	970/241-5326	2069 Rim Shadow Ct, Grand Junction, CO 81503	alex.chappell@state.co.us	
Wetlands Prog. Monitoring & Evaluation	Matt Reddy (Project Leader)	970/472-4319	RMBO, 317 West Prospect, Fort Collins, CO 80526	matt.reddy@rmbo.org	
	Kirk Snyder (District Wildlife Mgr.)	970/723-4625	P.O. Box 70 Walden, CO 80480	kirk.snyder@state.co.us	
Research Center	Jim Hicks (Terrestrial Biologist)	970/871-2843	P.O. Box 775777, Steamboat Springs, CO	jim.hicks@state.co.us	
	Liza Graham (Habitat Biologist)	970/871-2861	P.O. Box 775777, Steamboat Springs, CO	liz.graham@state.co.us	
	Mark Jones (Aquatic Research Dir.) (Wildlife Biol.)	970/472-4461	317 West Prospect Rd., Fort Collins, CO 80526		
	GIS Center	Jon Kindler (GIS Specialist)	970/472-4361		jon.kindler@state.co.us
	GAP Analysis	Donald L Schrupp	303/291-7277 fax 291-7456	Wildlife Habitat Resources Section, Denver, CO 80216	hqwris@lamar.colostate.edu
Colorado Natural Heritage Program	Denise Culver (Wetland Ecology Coordinator)	970/491-2998	College of Nat Resources, 254 General Svcs Bldg, Ft Collins, CO 80523	dculver@lamar.colostate.edu	
Colorado State Forest Service	John Twitchell (Forest Mgr)	970/723-4505	59228 Hwy 14, Walden, CO 80480	johntw@lamar.colostate.edu	
Colorado State Parks & Outdoor Recreation Div.	Tim Metzger	970/723-8366	2746 JCR 41, Gould, CO 80480		
Ducks Unlimited	Robert Sanders (Biologist)	719/852-0925	206 Lyell St Monte Vista, CO 81144	rsanders@ducks.org	
	Richard Vail (Constr. Eng.)	970/484-8038	2231 Ayrshire Drive, Ft. Collins, CO 80526	rvail@ducks.org	

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EPA Wetlands Hotline		800/832-7828		wetlands.help@epa.gov
Habitat Partnership Program	Todd Peterson (President)	970/723-4204	49794 Hwy 14 Walden, CO 80480	
Intermountain West Joint Adventure	Jim Cole (Coordinator)		12369 W Orton Circle, Ste 50, West Valley City, Utah 84119	iwjv@xmission.com
Jackson County	Kent Crowder (Admin./Water District Pres.)	970/723-4660	404 4th St, Walden, CO 80480	
	Brenda Brown (Coop.Ext.)	970/723-4298	312 5th St, Walden, CO 80480	jackson@coop.ext.colostate.edu
	Tootie Crowner	970/723-8461	P.O. Box 816, Walden, CO 80480	
	Don Stinton, (Noxious Weed Prog. Coord.)	970/723-4636	P.O. Box 222 Walden, CO 80480	
	Sue Petersman (Water Commissioner)	970/723-4761	Rand, CO 80473	
Legacy Land Trust	Steve Ryder, Exec Director	970/266-1711	236 Linden St, Ft Collins, CO 80524	lt@frie.com
Natural Resource Option, Inc.	Dennis R. Phillippi, Dir.	406/587-7792	P.O. Box 1871, Bozeman, MT 59771	
North American Bid Conservation Initiative	Rebecca Frank	970/243-1603	2004 Wood Court, Grand Junction, CO 81503	rfrank@wic.net
North Park Community Wetlands Committee	Pam Bilbeisi, (Chair)	970/723-8202	953 JCR 32, Walden, CO 80480	pam_bilbeisi@fws.gov
Office of the State Engineer	Division of Water Resources	303/866-3581	Water Res. Div. 6 Steamboat Spgs., CO 80477	
Owl Mountain Partnership	Jerry Jack (Executive Director)	970/723-0020	100 Main St, Walden, CO 80480	
Rocky Mnt. Bird Observatory (RMBO) Monitor. CO's Birds Project Colony Watch	Tony Leukering	303/659-4348	14500 Lark Bunting Ln, Brighton, CO 80603-8311	leukering@rmbo.org
	Richard Levad,		RMBO, 337 25 3/4 Rd, Grand Junction, CO 81503	colonywatch@rmbo.org

LIST OF CONTACTS (PAGE 3 OF 3)

RMBO Wetlands Program	Alison Banks (Wetlands Prog. Coord.)	970/ 482-1707	1510 S. College Ave. Ft. Collins, CO 80524	alisonbanks@rmbo.org
Natural Resources Conservation Service	Al White	970/723-4724	100 Main St, P.O. Box 649 Walden, CO 80480	allen.white@co.usda.gov
The Cattleman Association	Lynn Sherod	303/431-6422		ccaglt@aol.com
The Nature Conservancy	Ann Oliver (Northwestern CO. Prog. Mgr)	970/879-1546	PO Box 775528, Steamboat Springs, CO 80477	aoliver@tnc.org
University of Wyoming's Spatial Data & Visualiz. (SDVC)	Nathan Nibling	307/766-2532	PO Box 4008 University of Wyoming, WY 82071	Nathan@uwyo.edu
U.S. Forest Service	Chuck Oliver (District Ranger)	970/723-8204	100 Main St, Walden, CO 80480	
US Bureau of Reclamation		970/667-4410 970/248-0601		
USFWS Arapaho National Wildlife Refuge	Greg Lanier (Project Leader)	970/ 723-8202	953 JCR 32, Walden, CO 80480	
USFWS Partners for Fish & Wildlife	Bill Noonan, (Colorado State Director)	303/275-2435	755 Parfet St, Ste 361, Lakewood, CO 80215	bill_noonan@fws.gov
	Mark Lanier (Refuge Operation Specialist)	970/723-8202, ext.5	Arapahoe Wildlife Refuge, P.O. Box 457, Walden, CO 80480	mark_lanier@fws.gov
USFWS Wetlands National Inventory	Kevin Bon (Coordinator)	888/275-8747, Nat. Distrib. Ctr.		kevin_bon@fws.gov
	South Dakota St. University (printed quads)	605/688-5894	Wetlands NWI, Attn: Lisa, SDSU Box 2140 B, Room 138, NPBL Brookings, SD 57007	sdsu_wetland@sbspate.edu
Western Env't. & Ecology, Inc.	Greg Sherman (President)	303/730-3452	2217 W Powers Ave, Littleton, CO 80120	
Yampa Valley Land Trust	Susan Ottis (Program Director)	970/879-7240		yvltsdo@cmn.net

Appendix F

CODOW Orthoquads Loan Authorization

STATE OF COLORADO
Bill Owens, Governor
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF WILDLIFE
AN EQUAL OPPORTUNITY EMPLOYER

Russell George, Director
6060 Broadway
Denver, Colorado 80216
Telephone: (303) 297-1192



*For Wildlife-
For People*

July 9, 2002

Vital Resources
Emmanuelle Vital
P.O. Box 991
Walden, CO 80480

Dear Ms. Vital,

I am in receipt of your letter outlining your work for the Division of Wildlife Wetlands Program and subsequent request for use of the Habitat Section's Jackson County orthoquads. We are in support of your efforts to gather data in order to develop a strategic plan for the North Park Wetlands Focus Area. I think your assessment that the orthoquads could be helpful in identifying wetland areas is correct.

To facilitate the completion of your project we are authorizing the loan of the orthoquads to you with the following stipulations for their use:

1. The orthoquads may be used for the purpose of identifying wetlands within the North Park area.
2. The orthoquads may be used as a base for overlaying wetlands or other features and the subsequent product may be used in the report and reproduced digitally (i.e. graphic files) or as hard copy.
3. The original orthoquads may not be reproduced digitally or as hard copy and may not be used as an attachment in any report.
4. The orthoquads are to be used by Vital Resources for this project only and may not be used for any other project without permission of the DOW.
5. The orthoquads may not be used by any one other than Vital Resources and may not be loaned or used by any other entity including those associated with this project without the permission of the DOW.
6. A courtesy copy of the draft and final report will be provided to the West Region Habitat section.

It is hoped that the use of these orthoquads will be of benefit to you as you prepare this report. Please contact Liza Graham to borrow the quads. If you have any questions regarding the use of the quads please contact Liza Graham 970-830-2861 or Mike Grode, 970-255-6185. Good luck in your endeavor!

Sincerely,
Michael R. Grode

West Region Habitat Manager

Cc L. Graham

DEPARTMENT OF NATURAL RESOURCES, Greg E. Walcher, Executive Director
WILDLIFE COMMISSION, Rick Enstrom, Chair • Robert Shoemaker, Vice-Chair • Marianna Raftopoulos, Secretary
Members: Bernard Black • Tom Burke • Jeffrey Crawford • Philo James • Brad Phelps • Olive Valdez

Appendix G

North Park Community Wetlands Committee Library

Geographic Information System Databases (digital format)

- Jackson County Land Ownership and Zoning
- CODOW WRIS Data including: Ducks, Canada Goose, White Pelican, Osprey and River Otter
- SSURGO Data and watershed/subwatershed designation
- USGS Topographic Orthoquads
- Vegetation cover when available through DOW

Other Databases (in digital and print format)

- Wetlands Program Application Guidelines and Forms
- CODOW Ducks and Canada Goose Population
- Notice of Intent to Construct a Water Impoundment Structure
- NRCS Sub-watershed Jackson County Map
- Hydric Soils Description (NRCS)

Publications

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Vital Resources is very grateful to Eric Wagner and Sue Petersman for generously sharing their expansive knowledge on the hydrology and history of the Park. Thank you to Kent Crowder for sharing his vast understanding of the natural and economical resources of North Park.

Finally, Vital Resources would like to express its gratitude to Alex Chappell and John Carney for their advice, support and patience throughout the process of developing this plan.