

BROWNS PARK NATIONAL WILDLIFE REFUGE

Maybell, Colorado

ANNUAL NARRATIVE REPORT

Calendar Year 1991

U.S. Department of the Interior
Fish and Wildlife Service

NATIONAL WILDLIFE REFUGE SYSTEM

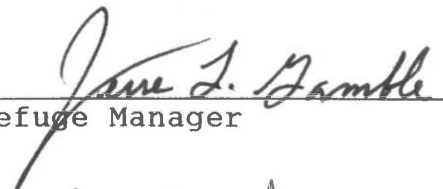
REVIEW AND APPROVALS

BROWNS PARK NATIONAL WILDLIFE REFUGE

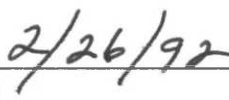
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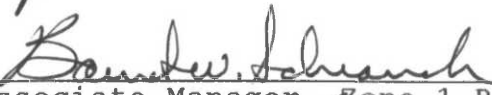
Calendar Year 1991



Refuge Manager



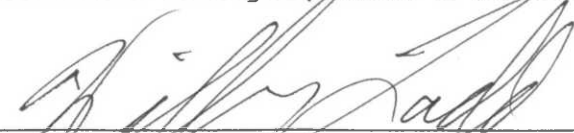
Date



Associate Manager, Zone 1 Review



Date



Regional Office Approval



Date

INTRODUCTION

Browns Park National Wildlife Refuge is located in an isolated mountain valley in extreme northwestern Colorado. It lies along both sides of the Green River, entirely within Moffat County, 25 miles below Flaming Gorge Dam. It contains 13,455 acres of river bottomland and adjacent benchland. The Utah-Colorado state line delineates the western boundary and to the south it shares a mutual boundary with Dinosaur National Monument. The remainder of the refuge shares a mutual boundary with the Bureau of Land Management lands. The refuge is 53 miles northwest of Maybell, Colorado on State Highway 318, 50 miles northeast of Vernal, Utah over Diamond Mountain, and 95 miles south of Rock Springs, Wyoming via State Highway 430 or 70 miles via State Highway 191 and Clay Basin, Utah.

The primary purpose of Browns Park Refuge is to provide high quality nesting and migration habitat for the Great Basin Canada goose, ducks and other migratory birds. Before Flaming Gorge Dam was constructed in 1962, the Green River flooded annually, creating excellent waterfowl nesting, feeding and resting marshes in the backwater sloughs and old stream meanders. The dam stopped the flooding, eliminating much of the waterfowl habitat. Pumping from the Green River, along with water diverted from Beaver Creek, now maintains nine marsh units comprising approximately 1,430 acres. The river covers approximately 1,000 acres along with sedimentary river bottomlands. Well vegetated grasslands interspersed with cottonwood, willows, salt cedar, greasewood and sage cover approximately 5,000 acres. The remainder of the refuge (6,000 acres) is alluvial benchlands and steep rocky mountain slopes. Elevations vary from 5,355 to 6,200 feet above sea level.

On August 20, 1963, the Migratory Bird Conservation Commission approved acquisition of Browns Park National Wildlife Refuge to develop and manage waterfowl habitat in that portion of Browns Park within the state of Colorado. The private land was purchased with funds from the Migratory Bird Hunting Stamp Act. On July 13, 1965, the first tract of private land was acquired. At this time, 5,356 acres have been purchased at a cost of \$622,976, 6,794 acres have been withdrawn from public domain lands, and 1,305 acres are leased from the state of Colorado (state school sections). There is one private inholding on the refuge, a 200 acre tract of grassland and cottonwood groves located at the southeast end of the refuge.

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ANNUAL NARRATIVE REPORT
BROWNS PARK NATIONAL WILDLIFE REFUGE

1991

A. HIGHLIGHTS

Two permanent staff vacancies were filled during July.
(Section E.1)

Refuge receives Colorado Waterfowl Stamp funds for wetland projects (Section E.5).

Special Achievement Awards received by two staff members.
(Section E.1).

Refuge enters into multi-agency agreements regarding fire fighting and Bighorn Sheep studies (Section J.1).

Station Fire Equipment upgraded (Section F.9).

B. CLIMATIC CONDITIONS

Total precipitation for 1991 was 8.90", 0.43" more than 1990 and .44" more than the 16 year average of 8.46". The wettest month of the year was August with 1.50" of precipitation recorded and the driest month was February with only a trace of precipitation recorded. The most significant amount of snowfall occurred in March and April for a combined total of 15.5". The coldest temperature for the year was on November 3rd when the mercury dropped to minus 17 degrees Fahrenheit, while the highest temperature recorded for the year was on July 13th and 14th when the temperature reached 96 degrees Fahrenheit.

The refuge staff maintained two thermographs throughout most of the year. The purpose of this activity was to monitor temperatures as related to flows in the Green River.

For the second year, an evaporation pan was monitored along with recording the regular weather data. The evaporation pan was set up in cooperation with the Colorado Division of Water Resources. This data will be used in various predictions, studies, and court proceedings that involve hydrologic evaluation of evaporation from reservoirs and evapotranspiration from irrigated lands.

The following table #1 provides the monthly high and low temperatures and the total precipitation for the month:

<u>Month</u>	<u>High</u>	<u>Low</u>	<u>Precipitation</u>	<u>Snowfall</u>
January	42 F.	-16 F.	.13"	3.5"
February	55 F.	-12 F.	T "	
March	63 F.	13 F.	1.36"	8.5"
April	76 F.	14 F.	.85"	7.0"
May	83 F.	22 F.	.62"	
June	92 F.	35 F.	.41"	
July	96 F.	41 F.	1.08"	
August	95 F.	41 F.	1.50"	
September	92 F.	24 F.	1.16"	
October	84 F.	- 1 F.	.92"	.64"
November	64 F.	-17 F.	.75"	.73"
December	50 F.	8 F.	.14"	.14"
Total			8.90"	

Based on recorded precipitation, we may be emerging from a drought cycle that plagued us in recent years. This past year Browns Park exceeded the 20 year precipitation average (8.79"). Total precipitation each year for the past 11 years is shown in the following table #2:

<u>Year</u>	<u>Total Precipitation</u>
1991	8.90 inches
1990	8.47 "
1989	6.77 "
1988	4.63 "
1987	7.09 "
1986	10.87 "
1985	9.31 "
1984	9.12 "
1983	10.69 "
1982	9.84 "
1981	10.61 "

Wildlife populations on the refuge are often weather related. A late "freeze-up" will often result in higher numbers of ducks on the refuge whereas an early "freeze up " will result in the departure of migrating waterfowl. Wintering Mule deer and Elk numbers are dependent on the amount of snowfall in the mountain areas adjacent to the refuge. A heavy snowfall at higher elevations will result in higher numbers of deer and elk on the refuge. During winters when there is light snowfall at the higher elevations, the elk and Mule deer tend to remain in the high country.

C. LAND ACQUISITION

Nothing to report.

D. PLANNING

2. Management Plan

A comprehensive Grassland Management Plan was approved by the Regional Office in September. Revision of the Fire Management Plan was initiated due to a multi-agency cooperative agreement signed this year.

4. Compliance with Environmental and Cultural Resource Mandates.

An Environmental Assessment and Archeological Review were completed for the relocation and re-construction of the Spitzie pump support structure.

E. ADMINISTRATION

1. Personnel



Left to Right, 1, 5, 3, 4, 2
12/20/91 Photo 1

1. Jerre L. Gamble, Refuge Manager, GS-11, EOD 09/23/87, PFT.
2. Theodore D. Ondler, Assistant Refuge Manager, GS-09, EOD 01/12/88, PFT.
3. Terry D. Kostinec, Refuge Clerk, GS-05, EOD 07/14/91, PFT.
4. Robert E. Harding, Maintenance Worker, WG-08, EOD 04/18/82, PFT.
5. Mac Rodgers, Engineering Equipment Operator, WG-08, EOD 07/28/91, PFT.
6. John Cook, Range Technician, GS-04, Temporary Appointment 04/21/91 - 10/05/91.
7. Keith D. Madsen, Range Technician, GS-05, Temporary Appointment 04/21/91 - 10/05/91.

Refuge Manager Gamble and Equipment Operator Rodgers received Special Achievement Awards for performance of duties.

Two permanent staff changes occurred during the year. Refuge Assistant Carole Henry resigned on 05/03/91 due to an illness in her family. Her presence and good work will be missed.

Heavy Equipment Operator, Lynn Barber was reassigned to Ouray NWR on 06/25/91 due to consideration for his school-age children. Both Lynn and Linda Barber contributed significantly to this station.

Two permanent staff vacancies were filled during the month of July. Refuge Clerk Terry Kostinec EOD the 14th and Engineering Equipment Operator Mac Rodgers EOD the 28th. Terry transferred from Audubon NWR where he had served 2 years as a volunteer and an additional two years as a Bio. Tech. Mac transferred from Alamosa/Monte Vista NWR where he had been an Eng. Equip. Operator for several years. Both are welcome additions to our staff and have already proven to be "good hands".

The Table below displays personnel status of Browns Park NWR.

Table 3	<u>PERMANENT</u>		<u>TEMPORARY</u>		<u>Total FTE</u>
	<u>Full-time</u>	<u>Part-time</u>	<u>Full-time</u>	<u>Part-time</u>	
FY 1992	5	0	2	0	6.0
FY 1991	5	0	2	0	6.0
FY 1990	4	1	2	1	6.3
FY 1989	4	1	1	1	5.2
FY 1988	4	1	1	0	4.7
FY 1987	4	0	3	0	5.0

4. Volunteer Program

Two volunteers provided valuable assistance this past year. Linda Barber cumulatively spent many hours recording daily weather data at the National Weather Service recording station located on the refuge.

John Cook utilized his excellent mechanical skills repairing a pickup truck. John also helped with cleaning the shop and taking phone messages.

Total volunteer activity hours were 65 for the year.

5. Funding

The following table #4 is a summary of funding levels by subactivity for the last five years:

<u>FY</u>	<u>ACTIVITY</u>	<u>AMOUNT</u>	<u>TOTAL</u>
1992	1261	\$110,000	\$313,490
	1262	100,000	
	1262 (MMS)	67,500	
	6860	5,000	
	8610 (w/carry over)	4,990	
	9110	1,000	
	9120	25,000	
1991	1261	110,000	427.387
	1262	100,000	
	1262 (Flex)	53,000	
	6860	5,000	
	8610 (w/carry over)	7,400	

	9110	500	
	9120	151,487	
1990	1261	110,000	223,700
	1262	100,000	
	6860	5,000	
	8610(w/carry over)	8,500	
	9120	12,200	
1989	1261	110,000	225,500
	1262	69,000	
	1262 (Flex. Maint.)	43,000	(-\$13,000 budget cut 5-1-89)
	6860	5,000	
	8610 (with carry over)	11,500	
1988	1261	147,000	227,400
	1262	65,000	
	6860	5,000	
	8610	10,400	

The State of Colorado appropriated \$22,000 for waterfowl projects on Browns Park NWR using proceeds from the sale of State Duck Stamps. The projects will be initiated in FY 92.

6. Safety

Assistant Manager Ted Ondler served as station safety chairman. Carole Henry and Lynn Barber were committee members until their respective departures in May and June. Terry Kostinec and Mac Rodgers became replacement safety committee members in July.

Four station safety meetings were held during the year. Topics included the following: 1) The proper procedure for handling, disposing of, reporting, data collection, and preservation of wildlife specimens found dead due to disease, poisoning, or injury. An informational handout was provided to each staff member for future reference. 2) A review of safety precautions regarding the operation of 4-wheeler ATV's was discussed. Also discussed were special precautions for operation of 4-wheelers while waterfowl nest-dragging. 3) The safe operation of newly acquired fire equipment including fire pumpers was discussed. A "hands on" demonstration was provided by Range Technician John Cook. 4) A review of the safe use of wood stoves and chimney maintenance was discussed during a fall meeting. One accident report was filed during the year. Maintenance worker Robert Harding lost his footing while carrying fence posts twisting a knee. The mishap caused a slight sprain but

no lost time.

The refuge staff received their annual hearing exams in Craig, CO. on January 3rd.

Radon detection kits were placed in all refuge residences. Test results were within safe limits.

F. HABITAT MANAGEMENT

1. General

The refuge consists of the following broad types of habitat:

<u>Habitat</u>	<u>Acres</u>
Seasonally Flooded Basins or Flats	30
Shallow Fresh Marshes	1,035
Deep Fresh Marshes	355
Rivers and Streams	1,004
Native Grasslands	3,335
Grasslands - Introduced	180
Brush	6,816
Rocky Outcroppings	500
Administrative Lands	<u>200</u>
TOTAL	13,455

Green River water levels were lower than normal throughout the year. Decreased discharges from Flaming Gorge Dam, located 25 miles upriver, were due to less than normal snowpack and subsequent run-off.

Continued loss of cottonwood trees along the Green River is due to substantially lower water levels in the river and the absence of seasonal flooding. The only cottonwood regeneration occurring is along ditches where water is pumped to maintain marshes, along tributaries (Beaver and Vermillion Creeks) of the Green River and along the river banks and islands of the Green River.

Flows in Beaver and Vermillion Creeks were above average during spring and fall due to frequent rain showers during that period.



Overview of Green River as seen from south boundary of refuge, before entering the gates of Lodore into Dinosaur National Monument. 09/20/91 Photo 2 JLG

2. Wetlands

Before the Flaming Gorge Dam was completed during the early 1960's, seasonal flooding of the bottomlands created excellent waterfowl habitat. After the dam was completed, the flooding ceased, thus eliminating the natural wetland areas. Since the establishment of the refuge, pumping from the Green River along with a diversion ditch from Beaver Creek presently creates approximately 1,430 acres of marsh. There are currently nine separate marshes on the refuge.

Flynn and Hoy Marshes along with Hog Lake were maintained at prescribed water levels from early March through early December when freeze-up occurred.

Nelson and Warren Marshes were flooded from mid-March through mid-August, then allowed to dry in preparation for emergent vegetation control.

The Butch Cassidy Marsh remained at optimum water levels until mid-summer when flows in Beaver Creek diminished following an above average spring run-off period.

The Spitzie Marsh was flooded during early April following a two year draw-down. A Crisifulli pump was utilized throughout the pumping season (April 1- December 14) while a permanent lift pump site was being constructed. The former lift pump support structure became deteriorated and needed to be replaced.



The Green River and some of the marsh units. Foreground is Hog Lake (lower left), then Flynn marsh (center) and Spitzie marsh (left of center).

05/10/91 Photo 3 GM

The Horseshoe Marsh was flooded during March and April following a fall prescribed burn. The marsh was utilized as "pair water" for waterfowl during spring and then allowed to dry. A small food plot (Appr. 4 Acres) of Japanese Millet was planted during mid-July. The plot was periodically flooded during the growing season with excellent plant growth resulting. However, an early frost occurred in September that prevented the seed heads from fully developing, so very little waterfowl use resulted. An earlier planting date is scheduled for next year.

Water from the Green River was not pumped into the Grimes Marsh due to its inability to hold water. If the surface water rights application for Vermillion Creek is approved, water diverted from the creek carrying silt-laden spring runoff should make the marsh bottom less permeable.

Green River water levels remained low due to less than normal run-off this spring. Flaming Gorge Dam releases fluctuated from 700 to 3,500 cfs but only averaged about 800 cfs.

3. Forests

Narrow and broad-leafed trees grow along Beaver and Vermillion Creeks. There are several groves of broad-leaf cottonwoods in the bottoms along the Green River. Since the establishment of Flaming Gorge Reservoir in the early 1960's, there has been less cottonwood regeneration due to the lack of seasonal river flooding. Care is taken to protect the existing trees and to encourage new tree growth. Beaver numbers are controlled where excessive tree damage occurs. (See Section G.15)

5. Grasslands

Approximately 3,500 acres of refuge grasslands are located on benches, river bottoms adjacent to marsh units, and in meadows along Beaver Creek. The meadows along Beaver Creek are irrigated (gravity flow) from the creek.

Allowing controlled winter grazing of cattle on the refuge removes dead grass, improves cycling of nutrients and structural diversity of post-grazing vegetation in grazed units.

6. Other Habitat

Roadways and dikes were mowed to improve visibility for maintenance purposes and for benefit of visitors.

Approximately 6,000 acres of the refuge consist of alluvial benchlands and steep rocky mountain slopes.

7. Grazing

The winter grazing plan implemented on December 1, 1990 was continued through March 31, 1991. The general location of refuge grazing units can be found on the refuge leaflet map (back cover).

This grazing program is an integral part of the station Grassland Management Plan. In accordance with the goals and objectives for the refuge, grassland management endeavors will be to increase residual vegetation for nesting waterfowl, improve range conditions, and increase the ecological diversity of native grasses and forbs to provide habitat for nesting migratory birds and resident wildlife.

1990-91 Grazing Program

<u>Grazing Units</u>	<u>Unit Acreage</u>	<u>AUMs*</u>	<u>Number of Cattle</u>
Beaver Creek/Rye Grass	475	247	62
Butch Cassidy	478	166	41
Horseshoe	275	316	79
Allen	410	355	89
Grimes	630	193	48
Nelson	755	84	21
Hoy	1,240	88	22
Warren	<u>295</u>	<u>84</u>	<u>21</u>
Totals	4,558	1,533	383

*Animal Unit Months

This grassland management plan provides for several different treatments to be used to meet grassland and wildlife objectives. 1) Three levels of winter grazing intensity applied on a total of 12 grazing units: a) heavy stocking rate on six grazing units; b) light to moderate stocking rate on three grazing units; c) no grazing on three grazing units. 2) Prescribed burning. 3) Drawdowns of the marsh units adjacent to grassland areas.

The current stocking rate represents a 35% reduction from an annual average of 2,400 AUM's. This reduction was seen as necessary to improve residual cover for nesting waterfowl and was implemented over a three year period out of economic concern for the permittee. During the 1987-88 winter grazing period there were 2,600 AUM's. This has been reduced to 1,533 AUM's for the 1990-91 grazing period. An additional reduction in AUM's may be necessary to further improve nesting cover for waterfowl (with further development of two marsh units).



Reduced AUM's provides more nesting cover.
02/20/91 Photo 4 JLG



Daubenmire surveys-photo point.
09/27/91 Photo 5 TDK

Robel pole readings and photo points were also taken during the year to monitor changes in vegetation.

Table #7

AUM SUMMARY

<u>Permittee</u>	<u>Grazing Period</u>	<u>#AUMs</u>	<u>AUM Rate</u>	<u>Revenue</u>
Wright Dickinson	12/01/90-- 03/31/91	1,279.37	7.10/AUM (cattle)	\$9,083.00
Jerre L. Gamble	01/01/91-- 12/31/91	48	9.25/AUM (horses)	444.00
Ted Ondler	01/01/91-- 12/31/91	32	9.25/AUM (horses)	296.00
Robert Harding	01/01/91-- 12/31/91	60	9.25/AUM (horses)	555.00

Base AUM Rate for 1990 was \$7.10
 Base AUM Rate for 1991 was \$7.40
 Each horse is counted as 1.25 AUM

9. Fire Management

Fire funds again this year allowed for the hiring of two seasonal (April-October) firefighters. Their valuable assistance was much appreciated by refuge staff and the entire local fire fighting community involving several local and federal agencies. Browns Park NWR is an active cooperator regarding an interagency fire agreement which includes both wildfires and prescribed burns. Other cooperators participating in the agreement are the Moffat County Sheriff's department, National Park Service (Dinosaur National Monument), U.S. Forest Service (Routt National Forest) and Bureau of Land Management.

Several purchases were made with fire funds that significantly upgraded our equipment. These procurements included: a Case model 1550 bulldozer with ripper attachment (currently on order), two pickup trucks (a one-ton dual wheel 4X4 and a heavy duty 3/4 ton 4X4) both with extended cabs, a 250 gallon slip on pumper unit, two mobile and two portable radios and three chainsaws.

Two seasonal Range Technicians (seasonal fire-fighters) entered on duty 4/22.

On 4/22 and 4/29 Brad Petch, Colorado Division of Wildlife District Wildlife Manager and EMT, conducted step tests for refuge staff. Four permanent staff and two seasonal Range Technicians were red-carded.

On the evening of 6/14 extending into the morning of 6/15, refuge staff suppressed two lightning caused wildfires on adjacent BLM land. Less than two acres of mixed cedar and shrub burned prior to suppression.

Refuge firefighters were called to assist the BLM from 6/18-6/19 to suppress a wildfire on BLM land near Elk Springs, CO.

During July, refuge staff responded to four wildfires located on adjacent BLM lands. All were lightning caused fires. They occurred on the following dates and locations: 7/23 near Greystone, CO., 7/23 & 7/24 near Gates of Lodore, CO., 7/26 near the Swinging Bridge adjacent to the refuge and on 7/28 above Swallow Canyon in Utah.

Refuge staff responded to a wildfire report on Cold Springs Mountain on 8/27. This run turned into a false alarm as the fire was inaccurately reported by Central Dispatch and was actually located in Wyoming. BLM out of Rock Springs, Wy. suppressed the fire which was approximately five acres in size.

Refuge Range Technicians Cook and Madsen assisted Neil Folks, Utah Division of Natural Resources, with two prescribed burns during September.

Refuge staff suppressed a wildfire on adjacent BLM land on 10/23. The 1/4 acre fire was caused by a lightning strike.

Prescribed burn plans were submitted and approved for Nelson, Warren and Horseshoe Marshes. However, several early snows during October and November precluded any fall burning.

10. Pest Control

Mormon crickets were seen again this year during late spring in some of the draws on the south side of the Green River. Large numbers of crickets were observed on Diamond Mountain, located south of the refuge. Since the crickets tend to forage on much of the vegetation along their path, the BLM annually applies pesticides on the heaviest cricket concentrations. Nosema locustae, a biological agent applied in a bait formula, was also utilized on BLM land adjacent to the refuge. Normally, the crickets never reach refuge lands. However, during the last five years, they have been seen on the refuge along the south side of the Green River in the vicinity of the Nelson and Warren Marshes. During the last three years, Mormon crickets have been observed on the north side of the Green River. Fortunately, they were not very numerous making control unnecessary. Various birds and fish apparently enjoyed feeding on them.

The following table #8 illustrates pesticide use for noxious weed control.

<u>Pesticide Name</u>	<u>Target Species</u>	<u>Acres Treated</u>	<u>Pounds of AI or AE</u>	<u>Cost</u>
2, 4-D Amine	R. Knapweed Whitetop	52.0	104	\$234.00
Krenite	Leafy Spurge	3.0	18	\$513.00
Escort	R. Knapweed	3.0	3 oz.	* 0.00
Telar	R. Knapweed	3.0	3 oz.	* 0.00

* Escort and Telar chemicals donated by Dupont for experimental and promotional purposes.



Leafy Spurge problems are just starting.

08\15\91 Photo 6 JLG

11. Water Rights

Refuge and Colorado Division of Wildlife meadows adjacent to Beaver Creek were irrigated during alternate weeks under our cooperative water sharing agreement. The state honored all conditions of the agreement including the minimum instream flow requirement. Personnel from CDOW irrigated the state meadows during spring and early summer after the state's

permittee terminated his agreement.

A water rights application for 20 cfs (cubic feet second) of surface water was filed with the Colorado Division of Water Resources during November of 1989. If granted, gravity flow water out of Vermillion Creek can be utilized to fill the Grimes Marsh located just to the west of the creek. This would aid the operation of the refuge twofold: less water would be pumped out of the Green River into the Grimes Unit which would mean a savings in the cost of electricity and pump maintenance. Also, silt carried by gravity flow water from Vermillion Creek would help seal the bottom of the Grimes Marsh which has a history of not holding water very well. It seems that during construction of the Grimes Unit, the contractor excavated several areas too deep, digging below an impermeable clay layer into sandy material that won't hold water. Because of this, the Grimes Marsh has been seldom utilized due to the high cost of operating a lift pump which has to run almost constantly to keep the marsh full of water.

During February 1990, Pat Carson from Region 6 Realty Division surveyed proposed ditch lines that would allow gravity flow of water from Vermillion Creek to the Grimes Marsh.

12. Wilderness and Special Areas



Lodore Hall historic site (left), Two-Bar ranch (right).
09/05/91 Photo 7 JLG

There are four National Historic Sites registered in Moffat County, Colorado. Three of them are located on the refuge. One is the Two-Bar Ranch, winter headquarters of one of the largest cattle and sheep ranch operations in the west during the late 1800's. It is protected from vandals and is being allowed to yield to the effects of nature without interference.

Lodore Hall, built in 1911, was the first district funded school in the area. It presently serves as the Community Hall for Browns Park residents. The Browns Hole Homemaker's Club has a Special Use Permit for the building and grounds with the stipulation that they maintain and repair the building when needed.



Metate's were used by people of the Fremont culture to grind cereal grains and cattails.

Photo 8 File photo

The third National Historic Site on the refuge is the White-Indian Contact Site. It is believed to be the site of Fort Davy Crocket, an old fur trading post. The area was partially excavated by Scientific Applications in 1980, then re-covered by refuge personnel. Since then, it has been protected from further disturbance.



Indian petroglyphs.

Photo 9 File photo

G. WILDLIFE

1. Wildlife Diversity

The rich mixture of habitat types ensures a diverse array of wildlife species. The physical topography lends itself to extensive habitat edge. Several broad habitat types can be found within the long narrow river corridor. Bottomland grasslands, freshwater wetlands, riverine islands, cottonwood groves, and extensive benchlands comprise the predominant habitat types.

2. Endangered and/or Threatened Species

Bald Eagles are commonly observed roosting near the Green River during the late fall and winter months. An average of 9-12 Bald Eagles winter on the refuge.

There were two sightings of Peregrine Falcons this past year. There is an active peregrine aerie near the Gates of Lodore on the Dinosaur National Monument (located adjacent to the refuge).

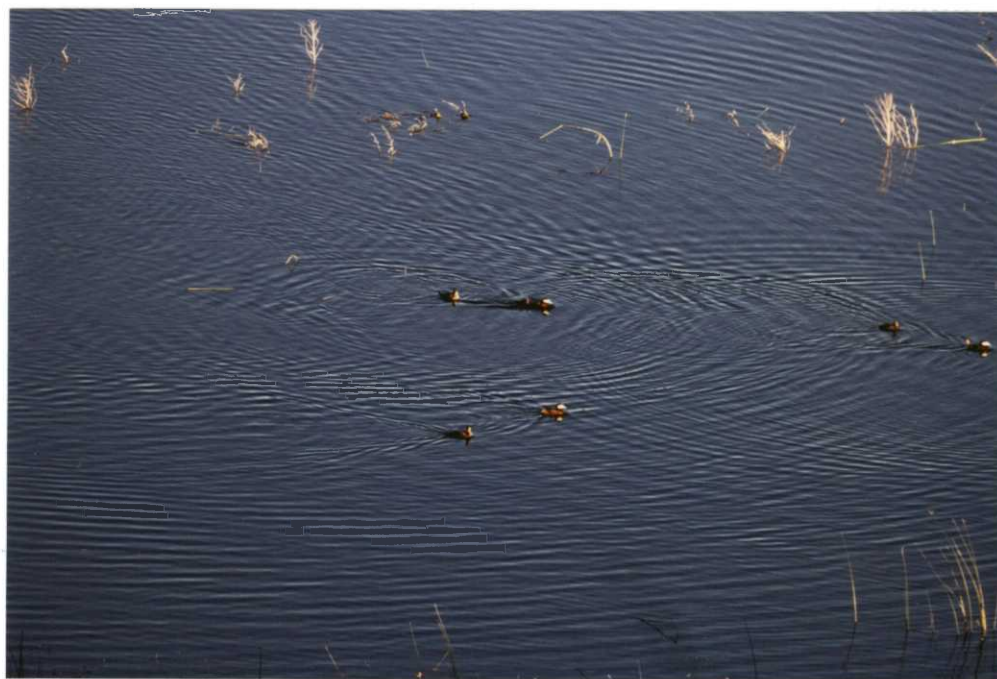
Without protection, the Colorado squawfish, humpback chub, bonytail chub, and razorback sucker may disappear from the Upper Colorado River Basin. These four species are classified

as endangered under Colorado state law and federal law. Restricted releases of water from Flaming Gorge Reservoir are part of continuing studies on endangered fish species. The Colorado River Fisheries Project is primarily concerned with the Colorado squawfish which is found in the Green River. During the past year there were no reports of squawfish being caught on the refuge.

The River Otter is currently classified as endangered by the state of Colorado. During 1989 and 1990 the Utah Division of Wildlife Resources (UDWR) released several river otters on the Green River below Flaming Gorge Reservoir. During the past year, researchers working for the UDWR electronically tracked a female River Otter. On several occasions this particular otter was on the refuge. Refuge visitors also reported a family group of otters on the Green River.

3. Waterfowl

The 1991 duck breeding pair survey was conducted on May 1st. The survey included the Green River, Beaver Creek and all of the refuge marshes. Data was tabulated in the same manner as in past years using the modified Hammond's formula. For dabbling ducks: pairs, single drakes and groups of drakes numbering less than five were counted as pairs; for divers only pairs actually observed were counted as pairs. A total of 493 pair of dabblers and 267 pair of divers were counted.



Ruddy Duck pairs in Spitzie Marsh.
05/20/91 Photo 10 JLG

Dabbler production was calculated by multiplying the total number of dabbler pairs by the average brood size (6.1) and then multiplying this product by the estimated dabbler survival rate (45 percent). Diver production was calculated by multiplying the total number of diver pairs by the average brood size (6.3) and multiplying this product by the estimated diver survival rate (60 percent).

Production estimates from the 1991 breeding pair count were as follows:

Dabbler Pairs

Mallard	75
Pintail	15
Green-winged Teal	19
Blue-winged/ Cinnamon Teal	63
Northern Shoveler	98
American Widgeon	41
Gadwall	<u>182</u>
Total Dabbler Pairs	701

493 pairs x 6.1 (average brood size) = 3,007

3,007.3 x .45 (estimated dabbler survival rate) = 1,353
(estimated dabbler production)

Diver Pairs

Redhead	53
Canvasback	10
Common Goldeneye	-
Common Merganser	4
Ring-necked duck	83
Bufflehead	10
Ruddy duck	34
Lesser Scaup	<u>73</u>
Total Diver Pairs	267

267 pairs x 6.3 (average brood size) = 1,682

1,682.1 x .60 (estimated diver survival rate) = 1,009
(estimated diver production)

Gadwall, Northern Shoveler, Mallard, Blue-winged/Cinnamon Teal (in that order) represented the most abundant dabblers. Ring-necked ducks, Lesser Scaup, Redhead and Ruddy Ducks were the most abundant diving ducks.

Estimated duck production (based on pair counts) showed a increase from the previous year. Total production of dabblers and divers was estimated at 2,362 ducks compared with 2,253 in 1990.

Table 11. Waterfowl Production for 1973 Through 1991

<u>Year</u>	<u>Geese</u>	<u>Ducks</u>	<u>Coots</u>
1973	150	3,200	5,700
1974	150	3,275	2,000
1975	250 (69)	3,200	2,000
1976	150 (61)	3,100	500
1977	225 (75)	3,060 (1,001)	1,500
1978	290 (85)	2,450 (807)	4,300
1979	225 (73)	2,725 (953)	3,150
1980	170 (60)	2,855 (955)	2,280
1981	245 (72)	4,025 (1,391)	2,500
1982	264 (76)	4,318 (1,427)	2,600
1983	305 (106)	4,406 (2,491)	3,600
1984	296 (107)	4,112 (1,376)	2,330
1985	277 (145)	4,036 (1,396)	1,772
1986	334 (106)	6,382 (1,957)	3,000
1987	357 (151)	3,789 (1,027)	2,500
1988	336 (69)	2,475 (820)	1,900
1989	41 (128)	3,903 (1,288)	2,400
1990	180 (77)	2,253 (788)	1,500
1991	263 (109)	2,362 (760)	1,820

Breeding pair counts in parenthesis.

The goose nesting survey was conducted on April 24 with subsequent nest rechecks on May 21-28. A total of 55 successful nests were observed. The average brood size was 5.13 goslings/brood. A total of 55 successful nests produced an estimated 263 goslings.

During the past five waterfowl nesting seasons (1987-1991), duck nests have been located by dragging a chain between two four-wheeled ATV's. During the past four waterfowl nesting seasons (1988-1991), a Mayfield analysis was completed. The current objectives of nest dragging are as follows: 1) Identify high use nesting habitats. 2) Calculate nest success. 3) Provide insight for future management including assessing the value of predator control. 4) Compare nesting preference and success of grazed and ungrazed habitat.

Eight areas were searched on three occasions (May 31-June 6, June 25-July 3, July 22-31), with a total of 362 acres of nesting habitat being dragged each time. The areas searched consisted of 148 acres that were not grazed during the winter of 1990-91, 154 acres that were lightly to moderately grazed

and 60.3 acres that were heavily grazed.



Flooding of Spitzie Marsh following fall prescribed burn. Canada goose on nesting structure in center of photo. 03/10/91 Photo 11 JLG

Table 12. Nests Found Within Marsh Units 1991

<u>Management Unit</u>	<u>Acres Searched</u>	<u>Total Nests</u>	<u>Nests/Acre</u>	<u>Success. Nests</u>
Ungrazed Units				
Hog	60.6	4	.06	2
Flynn	56.9	24	.42	13
Spitzie	30.5	0	0	0
Light to Moderately Grazed Units				
Warren	43.6	4	.09	4
Nelson	54.5	23	.42	12
Hoy	55.9	9	.16	0
Heavily Grazed Units				
Butch Cassidy	21.2	6	.28	6
Horseshoe	<u>39.1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Totals	362.3	70	.18 avg.	37

A total of 70 nests were located in 1991. Of these, 46 percent were Blue-winged or Cinnamon Teal, 24% Mallard, 20% Gadwall, 8% Green-winged Teal and 1% American Widgeon.

Table 13. Nest Success Over Four Year Period 1988-1991

	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>
Total No. Nests	54	80	128	83
No. Nests Usable for Mayfield	42	70	116	70
Apparent Nest Success	53.7%	48.6%	56.0%	52.8%
Shortcut Mayfield Nest Success	29.4%	33.3%	38.7%	40.9%
Mayfield Nest Success	26.9%	28.1%	37.8%	37.2%
Grazed Habitat Apparent Nest Success	62.1%	45.0%	26.1%	52.4%
Grazed Habitat Shortcut Mayfield	36.7%	29.9%	14.6%	41.2%
Grazed Habitat Mayfield	37.8%	24.4%	14.3%	35.9%
Not Grazed Habitat Apparent Nest Success	38.5%	53.0%	63.4%	53.6%
Not Grazed Habitat Shortcut Mayfield	16.1%	36.4%	46.3%	40.4%
Not Grazed Habitat Mayfield	7.9%	33.4%	45.9%	38.9%
Trap Nights	0	0	2,718	2,364
Total Predators Removed	0	0	20	7

Predator management at Browns Park NWR was initiated as part of an effort to monitor and improve nest success. This is the second year that predator management was conducted on the refuge. Management commenced on March 26 and was discontinued on June 1, 1991. All trapping was done by refuge staff. Predator management was conducted on the Hoy marsh, Hog Lake and Butch Cassidy marsh units. Baited wooden cubby sets with #220 conibear traps were employed to catch predators.

The following species and numbers of animals were removed:

Striped Skunks - 2	Raccoons - 4
Magpie - 1	Porcupines - 1

A total of 12 sets were made on each of three marshes. Each trap was set an average of 65.6 trap nights. Total trap nights were 2,364.

Trapped and non-trapped areas were compared with regard to nesting success. The results of that comparison are as follows:

	<u>Trapped Units</u>	<u>Non-trapped Units</u>
Apparent Nest Success	42%	57%
Shortcut Mayfield	28%	46%
Mayfield	22%	43%

4. Marsh and Water Birds

There is an active Great Blue Heron rookery located on the eastern end of the refuge, along the Green River. The first heron was observed in early March. An estimated 20-30 young are produced annually.

White-faced Ibis commonly migrate through the area during late April. Approximately 60 birds were observed on Hoy and Warren marshes this spring. Flocks of White-faced Ibis are usually observed moving through the area during August during fall migration.

Migrating Sandhill Cranes were seen passing over the refuge during the spring and fall months. Flocks of cranes frequently stop-over for one/two days during their migrations.

On several occasions during the summer months, small flocks (10-12) of white pelicans were observed on the refuge marshes.

Other marsh and water birds sighted were: Western Grebe, Horned Grebe, Pied-billed Grebe, American Bittern, Snowy Egret and Sora Rail.

5. Shorebirds, Gulls, Terns, and Allied Species

Black-necked Stilts were occasionally sighted during the spring and summer months. Small numbers of American Avocets are usually present on the refuge throughout the summer months. A flock of migrating avocets (34) were observed on the Green River during April.

Wilson's Phalarope were abundant during early May.

Other birds commonly observed were: Common Snipe, Lesser Yellowlegs, Black Terns, Marbled Godwit, Western Willet, Spotted Sandpiper, and Killdeer.

6. Raptors

Golden Eagles were most frequently observed during the winter months. They were observed year round and nested near the refuge.

Red-tailed hawks, American Kestrel, Merlin, Northern Harriers, and Great-horned Owls were observed during most months and are known to nest on the refuge. Rough-legged hawks were infrequently observed during the winter months. Cooper's, Sharp-shinned, Swainson's, and Ferruginous hawks were occasionally observed.

7. Other Migratory Birds

Mountain Bluebirds generally arrived in early March and departed around the first of October. Mountain Bluebirds annually nest on the refuge.

Common Nighthawks were often observed around the refuge residences during summer evenings.

Feeders at refuge residences hosted scores of Black-chinned, Broad-tailed and Rufous Hummingbirds.

8. Game Mammals

The refuge is a wintering area for Mule deer which migrate into the river valley from Cold Springs Mountain to the north and Diamond Mountain to the south. The number of deer wintering in Browns Park is dependent on snow depth at the higher elevations. The following is a summary of the aerial deer counts conducted on the refuge over the past two years.

Table #15

<u>Date</u>	<u>Total Deer Counted</u>	<u>Number Deer North of River</u>	<u>Number Deer South of River</u>	<u>Number Antlered Deer Observed</u>
01/04/90	244	187	57	* 2
02/05/90	428	355	73	* 0
12/08/90	208	143	65	8
01/03/91	350	166	184	* 7
02/02/91	330	165	165	* 3

*Bucks probably shed their antlers by this time.

Elk were commonly observed on the south side of the river during the winter months. Elk numbers ranged from 160-190 head during the aerial deer counts.



They seem to know when the hunting season has past.
11/20/91 Photo 12 TDK

10. Other Resident Wildlife

There are three species of rabbits present on the refuge. A refuge visitor can expect to see Cottontail rabbits and both White-tailed and Black-tailed Jackrabbits. The coyote population on the refuge remains high. Porcupine, Badger, Raccoon and Striped Skunks were occasionally observed.

Beaver and small numbers of muskrats can be found in all refuge marshes as well as the Green River and Beaver Creek.

There is a small population of Sage Grouse on the refuge. They were most often observed in the Hoy unit and the Rye Grass meadow. There were no sightings of Chukar Partridge during the past year.

A cow and calf Moose ranged throughout Browns Park during the summer months and a lone yearling bull Moose was occasionally sighted on the refuge.



Cow and calf pair in Horseshoe Marsh bottoms.
09/05/91 Photo 13 JLG

11. Fisheries Resources

The Green River, which flows through the center of the refuge, is a popular sport fishery. Brown, cutthroat and rainbow trout were the species most sought after. Carp, catfish and suckers are also present in the river.

Beaver Creek supports a Brook Trout fishery in the segment of the stream that flows through the refuge.

12. Wildlife Propagation and Stocking

On May 10th and 23rd, the Colorado Division of Wildlife stocked approximately 8,000 catchable size rainbow trout (9"-12") in the Green River at five locations on the refuge.

15. Animal Control

Several nuisance raccoons and skunks were removed in the vicinity of the refuge residences. A small number of beaver that were plugging control structures or irrigation ditches were also removed.

16. Marking and Banding

Pre-season duck banding was conducted at Browns Park NWR from September 16-27th. Banding efforts were initiated at the request of the Colorado Division of Wildlife (CDOW).

Four wetlands on the refuge were selected for trap sites. The sites selected included the following: Butch Cassidy marsh, Spitzie marsh, Hog Lake and Flynn marsh. Salt plains duck traps were used at all sites (furnished by the CDOW). Whole kernel corn was used as bait.



Refuge Clerk Kostinec at Flynn banding site.
09/20/91 Photo 14 KM

The initial trapping site was at Butch Cassidy marsh. This site was abandoned after one trap night, due to a raccoon entering the trap and killing 12 Mallards. Total mortality for the entire trapping period was 14 Mallard ducks. Total trap nights was 50.

A total of 125 Mallard ducks and 8 Northern Pintail were banded. See table 16 for a breakdown of age and sex.

Table 16 -Age and Sex

<u>Species</u>	<u>AHY-M</u>	<u>HY-M</u>	<u>AHY-F</u>	<u>HY-F</u>	<u>Totals</u>
Mallard	26	26	37	36	125
Pintail	1	1	4	2	8

Assistant Manager Ondler was detailed to Medicine Hat, Alberta to assist with the Western Canada Cooperative Banding Program. The banding operation was conducted from August 1-30. A total of 4,064 ducks of 6 species were banded during the month. This included 2,966 Mallards and 1,061 Blue-winged Teal which together made up 99% of the total catch.

H. PUBLIC USE

1. General

Refuge visitor use increased from 1990 (11,100 in 1991 and 10,600 in 1990). Average annual visitor use (over the past five years) was 9,850. A large number of refuge visitors travel from Craig, Colorado (85 miles) and the Steamboat Springs, Colorado area (140 miles) to recreate in Browns Park.

5. Interpretive Tour Routes

A graveled tour road begins at the Crook Campground near the east end of the refuge and parallels the Green River for most of its seven mile length. The west end of the tour road is just north of the Swinging Bridge which is a local landmark. There are several interpretive signs and "Overlook Sites" above the marshes. Refuge leaflets, available in boxes along the route, were utilized by an estimated 2,275 visitors.

6. Interpretive Exhibits/Demonstrations

The refuge continues to maintain an exhibit at the Craig Chamber of Commerce Visitor Center. The refuge exhibit, which is a series of photographs and captions, was put together in 1990. The refuge exhibit compliments photo exhibits put together by the U.S. Forest Service, U.S. Bureau of Land Management, Dinosaur National Monument-National Park Service and the Colorado Division of Wildlife. In addition to the exhibit inside the visitor center, the agency logo is displayed on the visitor center sign which is located on State Highway 40 in Craig, Colorado. Refuge leaflets are provided to the visitor center for distribution to the public.

7. Other Interpretive Programs

As a result of our remote location, the opportunity to provide interpretive programs occurs infrequently. On May 18th and 19th, Manager Gamble led a trail ride for 32 members of the Hole-in-the-Wall Horse Club from Craig CO. The ride included a tour of several historical sites within Browns Park. Manager Gamble also gave an interpretive talk at a fireside gathering at the Crook campground. Mrs. Freddie Blevins, a lifelong resident of Browns Park, recounted some of the rich history of the area.

A Vernal Utah weekly newspaper published a special edition promoting tourism. The special edition contained an article on Browns Park. The article described what is available at the BLM's Jarvie Historical Site and Browns Park National Wildlife Refuge.

Refuge Manager Gamble and refuge Clerk Kostinec staffed the FWS booth at the State Fair in Pueblo, CO. on August 26th and 27th.

8. Hunting

Hunting is permitted on the refuge under State and Federal regulations. Mule deer and cottontail rabbits may be hunted in all areas except those so-posted. Ducks, coots and geese may be hunted within the confines of the Green River channel and on Hog Lake and Butch Cassidy bottom.

Archery deer season was August 23-31 (bucks only) and September 1-25 (either sex). Muzzleloading rifle season was September 15-25. There were very few hunters during either season. No animals (Mule deer) were harvested on the refuge during either season.

The refuge is included within two separate big game management units. The north side of the Green River is included in unit 201 and south side of the Green River is included in unit 1. There were three separate rifle deer seasons again this year: October 12-16; October 19-30; and November 2-10. The first and second seasons carried antler point restrictions of three points or better on one antler (unit 1).

There were no antler restrictions on bucks in unit 201 however, the number of animals harvested was restricted by limited draw. A limited number of antlerless licenses were issued for units 1 and 201 during the second and third seasons. During the first rifle deer season there were only a total of eight hunters. No deer were harvested during the first season. During the second season there were approximately 18 hunters and a total of 8 antlerless deer harvested. During the 3rd rifle deer season a total of 12 antlerless and 1 antlered deer were harvested. During the third season, there were fewer than fifty hunters on the refuge.

Cottontail rabbit season was from September 1, 1991 until February 28, 1992. There is a daily bag limit of 10 and a possession limit of 20. Few people travel to Browns Park just to hunt rabbits. Rabbit hunting usually occurs in conjunction with deer or waterfowl hunting trips.

The Browns Park Special Goose Season was from October 26 until

December 8. The daily bag limit was one goose and the possession limit was two geese. Approximately 25 geese were harvested during the entire season.

Browns Park NWR is within the Pacific Flyway. This past season was split into three segments. The first season split opened on October 5 and closed on October 17. Hunting pressure was very light as was the harvest. The most common ducks in the bag were Gadwall and Blue-winged Teal. The second of three split duck seasons opened on November 9 and closed on December 1. The third of three split duck seasons opened on December 14 and closed on January 5, 1992. Very few ducks were harvested during the 2nd and 3rd seasons. Cold weather and snow pushed a large number of ducks out of the area just prior to the "2nd opener" and very few ducks were present during the remainder of the seasons.



Opening day of duck season. 10/05/91 Photo 15 TDK

This was the very first year that non-toxic shot was required for migratory waterfowl hunting at Browns Park NWR. This may be the reason that we saw a lower number of waterfowl hunters this past season.

9. Fishing

Approximately 1,985 refuge visitors spent an estimated 7,540 hours fishing this past year. The most common fish species in the creel were Rainbow, Cutthroat and Brown trout. Channel

Catfish were occasionally caught incidental to trout fishing. Beaver Creek provides a Brook trout fishery for those who are willing to walk the stream.

11. Wildlife Observation

The vast majority of the refuge visitors are here to hunt or fish. Wildlife observation is a fringe benefit of those activities. However, every once in a while there is the occasional visitor who travels to the park to go "birding" or to just observe and photograph wildlife.

12. Other Wildlife Oriented Recreation

An estimated 2,050 people visited the refuge spending approximately 21,500 hours camping, boating and rafting.

15. Off-Road Vehicling

No violations were written this past year for off-road vehicle use. The terrain on the refuge is very fragile. Off-road use of three and four-wheeled ATV's has left permanent scarring of the landscape at several locations. Whenever a refuge visitor is observed with three or four wheelers, it has become a standard practice to explain where they can be used.

16. Other Non-wildlife Oriented Recreation

Most refuge camping visits were related to hunting and fishing ventures. An exception to this was the Memorial and Labor Day weekends when many of the campers were here to attend dances at the Lodore Hall. Each year the Browns Hole Homemaker's Club hosts several dances at the Lodore Hall.

17. Law Enforcement

Refuge law enforcement was low-key but highly visible. Special enforcement patrols were conducted during the deer and waterfowl seasons.

During 1991, there were no violation notices written.

Refuge Manager Gamble was at Marana, Arizona from January 20-30 and February 19-29, serving as firearms instructor.

Assistant Manager Ondler and Maintenance Worker Harding attended L.E. refresher training at Marana, Arizona from February 19-29.

Refuge Manager Gamble and Maintenance Worker Harding attended a State Law Enforcement Coordination meeting at Glenwood Springs, Colorado on August 8th. Firearms instructors Gamble

and Maurice Wright (R.O.) conducted semi-annual qualifications for the Colorado Refuge Officers.

During September, Firearms Instructor/Refuge Manager Gamble traveled to Salt Lake City, Utah to conduct semi-annual qualifications for the Utah Refuge Officers.

During October, Firearms Instructor Gamble conducted semi-annual qualifications for Assistant Manager Ondler and Fehribach (Arapaho NWR).

I. EQUIPMENT AND FACILITIES

1. New Construction

The maintenance staff constructed a large utility trailer capable of hauling four ATV's. The trailer will also be used to haul lift pumps to repair facilities.

A cement walkway was poured and a prefabricated handicapped-accessible comfort station was installed at the Crook Campground.

A new cattle guard was installed near the Crook Campground. This cattle guard eliminated the need for an electric fence near the Horseshoe Unit (during the Dec.-March grazing period).

The maintenance staff constructed a section of permanent fence near the Lodore Hall. This permanent fence eliminated one section of electric fence.

A contractor drove wooden pilings for the relocation of the Spitzie pump site during mid-October. The refuge equipment operator installed the new bulkhead and back-filled the pump site. Construction of the pump site was halted by inclement weather.

2. Rehabilitation

The pump motors for the Nelson and Warren marshes were overhauled (rewound) prior to the spring pumping season.

The pit-toilets at the Swinging Bridge and Crook campgrounds were pumped out in the spring.

Two storage buildings and the restrooms at both campgrounds were painted during the summer months.

A drainage problem at the Refuge Manager's residence was

corrected.

4. Equipment Utilization and Replacement

During January a 1979 Ford 4X4 pickup truck was sold via GSA.

In April we received a truck-mounted crane from Benton Lake NWR. The crane will be used to remove and install our vertical lift pumps.

A new 3/4 ton 4X4 pickup truck was delivered in June. This truck will be used as a fire truck.

Two 1 ton 4X4 pickup trucks were delivered in August and September respectively. These trucks will also serve as fire trucks. The maintenance staff installed pumper units complete with foam application equipment on the new trucks. A 1983 1 ton pickup truck was retired from service as a fire truck.

During September, seven miscellaneous items including a 14 foot flat-bottom boat and several chainsaws were sold via a GSA small lot sale.

Four Motorola mobile radios were transferred to Ouray NWR.

5. Communication Systems

During the year, two King mobile and two King hand-held portable radios were purchased for the station.

A telephone-switching device and a facsimile machine were installed on the telephone line. This enables us to use our modem, fax machine and telephone while using only one telephone line.

Our telephone service was only disconnected once this past year (due to late payment of the bill). This has been a rather common occurrence in the past. We are now paying our telephone bill out of the imprest fund.

6. Computer Systems

The following items of software were received during January:

- a. PC Tools Deluxe
- b. FAB software
- c. Procomm Plus
- d. SummaSketch Series

Refuge Manager Gamble attended MapInfo Training in Fort Collins, CO. from June 18-21. It was a course requirement that the stations computer be used for the course work.

Following MapInfo Training the computer was transported to Craig, CO. for replacement of a damaged harddrive.

Managers Gamble and Ondler attended DBase III+ and MS/DOS computer training in Fort Collins, CO. from 12/10-12/12.

7. Energy Conservation

The three staff members living on the east end of the refuge continued to car pool to save on fuel consumption.

We continued to use the woodstove in the shop to minimize the use of electricity for the forced-air heating system.

J. OTHER ITEMS

1. Cooperative Programs

A weather station was maintained at the refuge sub-headquarters where daily temperatures, precipitation and evaporation were recorded in cooperation with the National Weather Service.

The refuge has a cooperative agreement with the National Park Service, Dinosaur National Monument, to provide mutual aid in the areas of law enforcement and fire fighting. A common boundary is shared with the Park Service on the southeast side of the refuge.

The refuge also has a cooperative fire-fighting agreement with the Bureau of Land Management (BLM). We share a common boundary with the BLM on the north and south sides of the refuge.

The refuge provided logistical support for a Rocky Mountain Bighorn Sheep study in Beaver Creek canyon. During October to December, employees of Dinosaur National Monument (NPS) and volunteers observed and recorded sheep behavior and pre-baited the area with apple mash to facilitate capture at a later date.



Bighorn Sheep- "Getting Hooked" at the bait site.
12/01/91 Photo 16 JLG

3. Items of Interest

Refuge Manager Gamble attended several meetings of the Moffat County Weed Advisory Board during the past year. During 1991, Manager Gamble was appointed chairman of the Moffat County Weed Advisory Board.

Managers Gamble and Ondler attended the project leaders meeting in Billings, Montana from 2/4-2/7.

During March, the Colorado State Highway Department erected a sign recognizing the refuge for adopting two miles of highway (to keep it litter free).

During April, Refuge Manager Gamble presented the revenue sharing check (\$10,580.00) to the Moffat County Commissioners.

Ms. Patty Schrader, Grand Junction FWE, visited the refuge on 4/11. The purpose of her visit was to review three proposed projects (relocation of the Spitzie pump site, Vermillion Creek Diversion and Rye Grass marsh development). She raised the issue of water depletion as it relates to endangered fish species.

Bradford Petch an E.M.T., conducted step tests for refuge

staff members on 4/22 and 4/29. Brad is the local District Wildlife Manager for the Colorado Division of Wildlife.

Assistant Manager Ondler attended the Administrative Workshop in Lakewood, CO. during the week of 5/20.

On 5/1, Mr. Richard Cohen of the U.S. Geological Survey visited the refuge. The purpose of the visit was to install a survey marker for the Colorado State-wide GPS survey network. A 25 foot stainless steel rod was driven into the ground near refuge headquarters. This point will have a relative accuracy of 1:1,000,000. This project is being done by the Colorado Department of Highways and the National Geological Survey. Like survey markers will be installed on all three National Wildlife Refuges in Colorado.

Refuge Manager Gamble met with BLM District Manager Glen Secrist on 5/15. The purpose of the meeting was to discuss management concerns for the proposed Diamond Breaks Wilderness Area. The subject area is adjacent to the refuge's south boundary.

Associate Manager, Barney Schranck visited the refuge on 6/25. Several management related topics were discussed.

Bruce Haines, fisheries biologist from the Colorado River Fisheries Project, Vernal Utah visited the refuge on 7/26. Bruce was here to discuss endangered fish habitat on the refuge. We also discussed moving the Spitzie lift pump-site with regard to impacts on endangered species.

Rod DeWeese, FWS Contaminants, Denver, CO., was on station 7/24. The purpose of his visit was to sample flora and fauna for heavy metal analysis.

Refuge Manager Gamble attended Accessibility Standards Training at Valentine, Nebraska from 10/29-10/31.

Throughout the year Refuge Manager Gamble participated on the Coordination Resource Management Committee (CRM). CRM consists of a group of resource owners, land managers and users which work together to resolve issues of national concern. CRM also develops and implements management plans for major resource areas.

On three occasions, Milt Suthers, Land Management Specialist for Region 6 visited the refuge. The purpose of his visits involved noxious weed control and grassland management strategies.



Browns Park, the pot-o'-gold at the end of the rainbow.
09/05/91 Photo 17 JLG

4. Credits

Jerre Gamble wrote the Introduction, Sections A, C, D, E and F. Ted Ondler wrote Sections B, G, H, I, and J. Managers Gamble and Ondler edited the report. Terry Kostinec typed, and assembled the report.

Photo credits other than refuge staff:

GM- Gary Montoya, Refuge Manager, Ouray NWR.

BROWN'S PARK SELF-GUIDED TOUR

BROWN'S PARK is a remote valley lying across the borders of Utah and Colorado. This high desert valley was formed by the Green River. Because of its mild winters and abundant game, grass, and water, Brown's "Hole" was a favorite wintering place for Ute and Shoshone Indians, mountain men, and cattlemen. Later, because of its remoteness and easy access to three state borders, it became a haven for outlaws including Butch Cassidy and Sundance Kid, Isom Dart, Tom Horn, Matt Rash, Annie Bassett, John Bennett, and others. Today, Brown's Park appears much the same as it did one hundred years ago. We invite you to take your time here, camp along the way, and see all that you can.

As you spend time in this fascinating corner of our state, let your imagination drift back to the adventure and danger of life in Brown's "Hole" during the 1800s.

Other tours are available. Please inquire at the Moffat County Visitor Center.

CAUTION - Services are limited. Take along food, water and gasoline.

1. VERMILLION FALLS: This 25-foot waterfall located on public land may be viewed from Highway 318.

2. IRISH CANYON: This colorful and scenic canyon offers sightseeing, picnicking, camping, hiking, climbing, and viewing wildlife and Indian rock art. The canyon was named for three Irishmen who robbed a Rock Springs

saloon and stopped to consume part of the take in the north end of the canyon. County Road 10N, a maintained gravel road, provides easy access through the canyon to Rock Springs, Wyoming.

3. GATES OF LODORE: Spectacular red canyon walls tower above the Green River in Dinosaur National Monument. Offers white-water boating (by permit), picnicking, camping, abundant wildlife, and a ranger station. Telephone: (303)365-3693

4. BROWN'S PARK STORE: Offers gasoline, propane, picnic supplies, fishing and hunting equipment, and camping. Ask the Blevins about viewing the legendary Bassett home site and cemetery. Telephone: (303)365-3658

5. TWO BAR RANCH: Located on Brown's Park National Wildlife Refuge. The log buildings, corrals, and sheds were built with hand-hewn logs by Thomas White in 1887. Please use caution while exploring the Two Bar Ranch. As inviting as early 20th century cabins and abandon ranches may appear, they can be extremely dangerous. It is best to enjoy these structures from the outside!

6. LODORE HALL AND CEMETERY: Located on Brown's Park National Wildlife Refuge. Listed on the National Register of Historic Places, Lodore Hall was built in 1911 and was used as a church, school, and for meetings and funerals. It is still used as a community center. John Jarvie and other local pioneers are buried at the Lodore Cemetery. The log cabin and corral just south of Lodore Cemetery were built by Frank and Felix Myers to accommodate Frank's children while school was in session.

7. BROWN'S PARK NATIONAL WILDLIFE REFUGE: The Refuge is managed by the U.S. Fish & Wildlife Service as a nesting/resting area for migratory waterfowl along the Green River. Hikers, sightseers, fishermen, and photographers are welcome year-round. Nationally known for trout fishing. Float boat access and camping are available. Telephone: (303)365-3613

8. SWINGING BRIDGE: Taking this one-lane swinging bridge (County Road 83) across the Green River is a real experience! Size and weight restrictions apply: Two axle vehicles - three tons; Three axle vehicles - six tons. The bridge is nine feet-eight inches wide. Float boat access and camping are available.

9. CROUSE CANYON: Across Swinging Bridge, the road winds through a scenic steep and narrow canyon along Crouse Creek.

10. SWALLOW CANYON: The south rim of Swallow Canyon provides a vista of the Green River below and into Brown's Park.

11. JOHN JARVIE HOMESTEAD: First settled in 1880, this 35-acre homestead once boasted a post office, trading post, and river ferry. It was a regular stopping place for travelers and a secret meeting place of outlaws. The Jarvie site has been historically reconstructed to include John Jarvie's original dugout home, blacksmith shop, and store, as well as a cemetery and museum. The site is managed by the Bureau of Land Management and visitors are welcome May-October 8 a.m.- 5 p.m. Campsites and float boat access are available nearby. Telephone: (801)885-3307







BROWN'S PARK

SELF-GUIDED TOUR

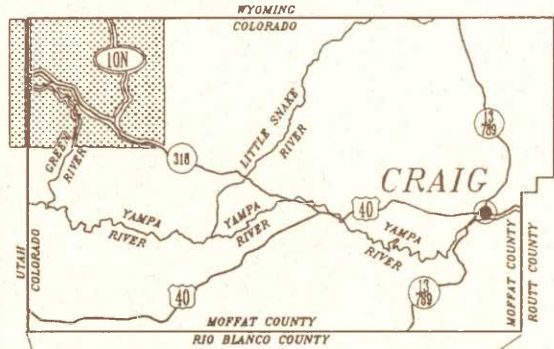


COLORADO COWBOY COUNTRY
MOFFAT COUNTY

LEGEND

-  FEDERAL HIGHWAY
-  STATE HIGHWAY
-  COUNTY ROAD
-  POINT OF INTEREST
-  CAMPGROUND
-  STATE BOUNDARY

VICINITY MAPS

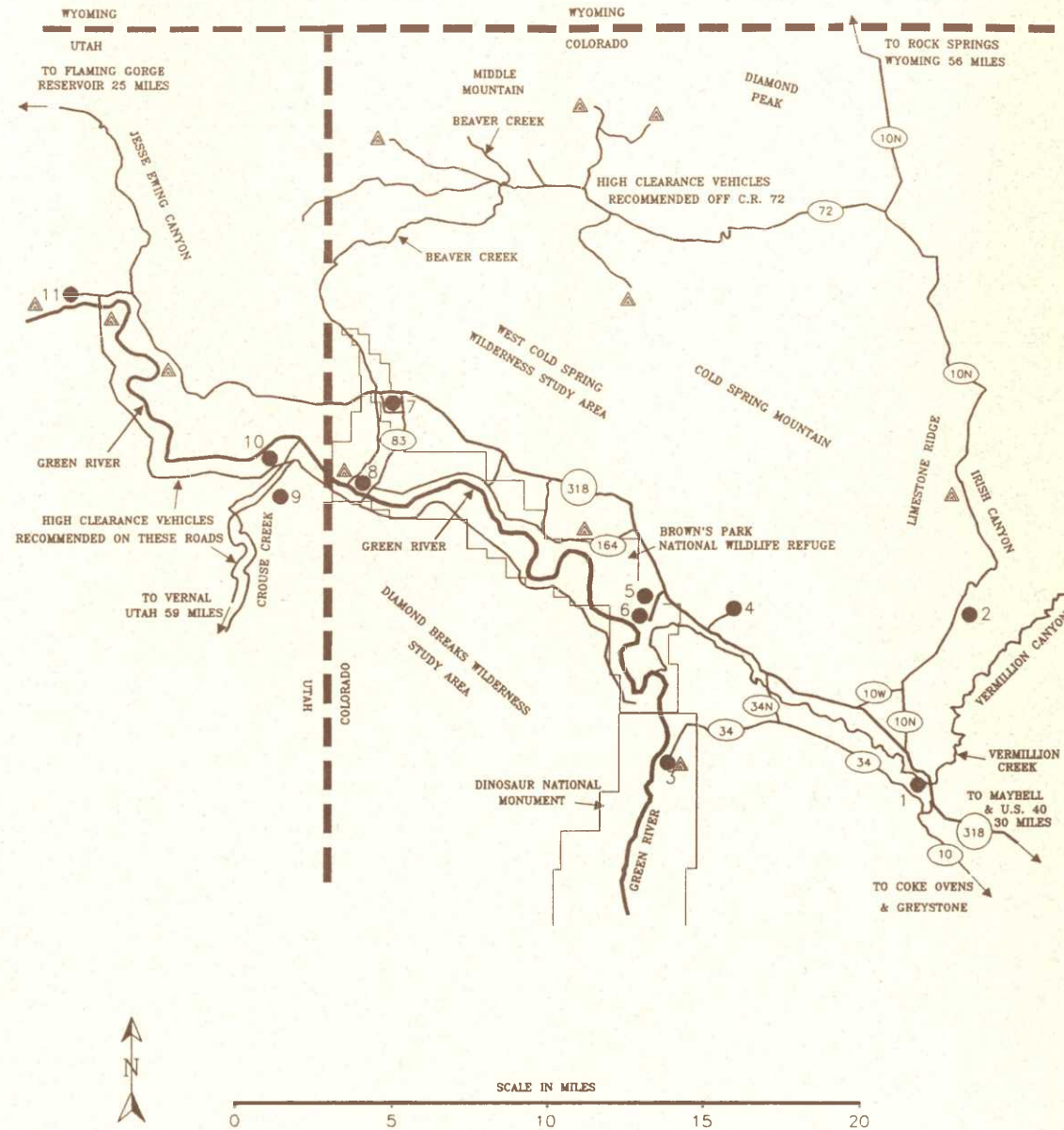


MOFFAT COUNTY



COLORADO

BROWN'S PARK TOUR



For more information on Moffat County please contact:

MOFFAT COUNTY VISITOR CENTER AND THE GREATER CRAIG AREA CHAMBER OF COMMERCE
360 E. Victory Way
P.O. Box 1091
Craig, Colorado 81625
(303)824-5689

BUREAU OF LAND MANAGEMENT CRAIG DISTRICT OFFICE
455 Emerson Street
Craig, Colorado 81625
(303)824-8261

BUREAU OF LAND MANAGEMENT CRAIG DISTRICT LITTLE SNAKE RESOURCE AREA
1280 Industrial Avenue
Craig, Colorado 81625
(303)824-4441

UNITED STATES FOREST SERVICE ROUTT NATIONAL FOREST BEARS EARS DISTRICT
356 Ranney Street
Craig, Colorado 81625
(303)824-9438

UNITED STATES FISH AND WILDLIFE SERVICE BROWN'S PARK NATIONAL WILDLIFE REFUGE
1318 Highway 318
Maybell, Colorado 81640
(303)365-3613

NATIONAL PARK SERVICE DINOSAUR NATIONAL MONUMENT HEADQUARTERS
Dinosaur, Colorado 81610
(303)374-2216

COLORADO DIVISION OF WILDLIFE
360 East Victory Way
Craig, Colorado 81625
(303)824-9438

BIRDS OF BROWNS PARK NATIONAL WILDLIFE REFUGE
COLORADO

Most birds are migratory, therefore their seasonal occurrence is coded as follows:

SEASON	
s - Spring	March-May
S - Summer	June-August
F - Fall	September-November
W - Winter	December-February

RELATIVE ABUNDANCE

a - <u>abundant</u>	a species which is very numerous
c - <u>common</u>	certain to be seen or heard in suitable habitat
u - <u>unusual</u>	seen only a few times in a season
r - <u>rare</u>	seen at intervals of 2 to 5 years
acc - <u>accidental</u>	seen only once or twice

* Nesting has occurred on the refuge

LOONS-GREBES-CORMORANTS-HERONS-IBISES

	s	S	F	W		s	S	F	W
Common Loon	acc				Snowy Egret	u	c		
Horned Grebe	c	c	r		Green Heron	u			
Eared Grebe*	c	c	c		Black-crowned Night Heron	u	u	u	
Western Grebe*	u	u	u		American Bittern*	c	c	c	
Pied-billed Grebe*	c	c	c		White-faced Ibis*	c	c	c	
White Pelican	u								
Double-breasted Cormorant	r								
Great Blue Heron*	c	c	c						
Cattle Egret	u	u							

Sage Grouse*

S S F W
c c c

s S F W

Gambel's Quail*

u u u u

Red-necked Pheasant

u u u u

Chukar*

u u u u

Sandhill Crane

c c

Virginia Rail*

u u u

Sora Rail*

u u u

American Coot*

c c c

PLOVERS-SNIPES-SANDPIPERS-AVOCETS-PHALAROPES

Semipalmated Plover

u u

Wilson's Phalarope

c c u

Killdeer*

c c c

Northern Phalarope

c u

Black-bellied Plover

acc

Mountain Plover

u u

Common Snipe*

c c c

Long-billed Curlew

r r r

Spotted Sandpiper*

c c c

Solitary Sandpiper

c c

Willet

c c

Greater Yellowlegs

u u u

Lesser Yellowlegs

u u u

Long-billed Dowitcher

c c c

Marbled Godwit

u r u

American Avocet

c c c

Black-necked Stilt

r r

GULLS-TERNs-DOVES-OWLS-NIGHTHAWKS

	<u>s</u>	<u>S</u>	<u>F</u>	<u>W</u>		<u>s</u>	<u>S</u>	<u>F</u>	<u>W</u>
California Gull	u	u	u	u	Barn Owl	r			
Ring-billed Gull	u	u	u	u	Western Screech Owl		r		
Franklin's Gull	u	u	u	u	Great Horned Owl*	c	c	c	c
Bonaparte's Gull	u	u	u	u	Pygmy Owl	r			
Forster's Tern	c	u	u	u	Burrowing Owl	r	r		
Black Tern	u				Short-eared Owl	u	u	u	
Rock Dove	r	r	r	r	Common Poorwill*	u	c	u	
Mourning Dove*	a	a	a		Common Nighthawk*	a	a	a	

SWIFTS-HUMMINGBIRDS-KINGFISHERS
WOODPECKERS-FLYCATCHERS
LARKS-SWALLOWS

White-throated Swift*	c	c	c		Say's Phoebe*	c	c	c	
					Western Wood Pewee*	u	u	u	
Black-chinned Hummingbird*	c	c	c		Olive-sided Flycatcher*	u	u	u	
Broad-tailed Hummingbird*	c	c	u		Horned Lark*	c	c	c	a
Calliope Hummingbird		r	r		Violet-green Swallow*	c	c	c	
Rufous Hummingbird		c	u		Tree Swallow*	c	c	c	
Belted Kingfisher*	c	c	u		Bank Swallow*	c	c	c	
Northern Flicker*	c	c	c	c	Northern Rough-winged Swallow*	c	c	c	
Red-headed Woodpecker	r				Barn Swallow*	a	a	a	
Lewis' Woodpecker	u		u						
Red-naped Sapsucker	u								
Hairy Woodpecker	u	c	u						
Downy Woodpecker	c	c	c						
Eastern Kingbird	c	c	c						
Western Kingbird*	c	c	c						
Cassin's Kingbird	u	u							
Gray Flycatcher		u							
Ash-throated Flycatcher	r	r	r						

SHRIKES-WARBLED-BLACKBIRDS-TANAGERS

	<u>s</u>	<u>S</u>	<u>F</u>	<u>W</u>		<u>s</u>	<u>S</u>	<u>F</u>	<u>W</u>
Northern Shrike				u	Bobolink	u			
Loggerhead Shrike	c	c	c	c	Western Meadowlark*	c	c	c	
European Starling*	c	c	c		Yellow-headed Blackbird	a	a	c	
					Redwinged Blackbird*	a	a	c	
Yellow Warbler*	c	c	c		Tri-colored Blackbird	c	c		
Yellow-rumped Warbler	c	c	c		Bullock's Oriole*	c	c	c	
Black-throated Gray Warbler	u	u			Brewer's Blackbird*	c	c	c	
Northern Waterthrush	u				Common Grackle*	u	u	u	
MacGillivray's Warbler	u				Brown-headed Cowbird*	c	c	c	
Common Yellowthroat*	c	c	c		Western Tanager*	u	u	c	
Yellow-breasted Chat*	c	c	c						
Wilson's Warbler	c	c	c						
House Sparrow	r	r	r	r					

GROSBEAKS-SPARROWS-BUNTINGS

Black-headed Grosbeak	r				Tree Sparrow	u		u	u
Blue Grosbeak	u	u			Chipping Sparrow	c	c	c	
Lazuli Bunting	u	u			Harris' Sparrow				r
Lark Bunting	r				White-crowned Sparrow*	c	c	c	
Snow Bunting				u	Lincoln's Sparrow	u	u	u	
House Finch*	c	c	c		Song Sparrow*	c	c	c	
Gray-crowned Rosy Finch				u	Dark-eyed Junco	u	u	u	c
Pine Siskin*	c	c	c						
American Goldfinch*	c	c	c						
Green-tailed Towhee	r	r							
Rufous-sided Towhee*	c	c	c						
Savannah Sparrow*	c	c	c						
Vesper Sparrow*	c	c							
Lark Sparrow*	c	c							
Sage Sparrow*	c	c							

BROWNS PARK

NATIONAL WILDLIFE REFUGE

GENERAL REFUGE REGULATIONS

- Motor vehicles are allowed only on roads. Closed roads are marked with signs.
- Parking is permitted along roadways. Please do not block roads or gates.
- Pets must be leashed or closely supervised.
- Plants and animals are protected. Do not remove or molest them.
- Please use trash barrels or take litter out with you.
- Boating is permitted on the Green River.
- Camping is allowed only in the Swinging Bridge and Crook Campgrounds.
- Fires are permitted only in camp areas.
- Firearms must be unloaded and cased on the Refuge except during authorized hunting seasons.
- No target or indiscriminate shooting.
- Please contact a refuge officer if you have questions on regulations or on other activities.

U.S. FISH AND WILDLIFE SERVICE
Department of the Interior



RF6-65571-1

GPO 834-584



Reprinted 1991



THE REFUGE

Browns Park National Wildlife Refuge lies on the Green River in the far north-western corner of Colorado, between the Utah-Colorado stateline and Dinosaur National Monument. The Refuge is managed by the U.S. Fish and Wildlife Service as a nesting and resting area for migratory waterfowl.

In pristine times, annual flooding of the Green River maintained the wet meadows preferred by nesting waterfowl. Flaming Gorge Dam now prevents this flooding. Consequently, Refuge personnel now pump water from the river to maintain approximately 6,000 acres of developed waterfowl habitat.

This semiarid region receives less than 10 inches of precipitation annually. Ducks, geese, and other water birds travel hundreds of miles to utilize this unique habitat.

Spitzie Marsh - U.S.F.W.S. photo - J.L. Sellers.

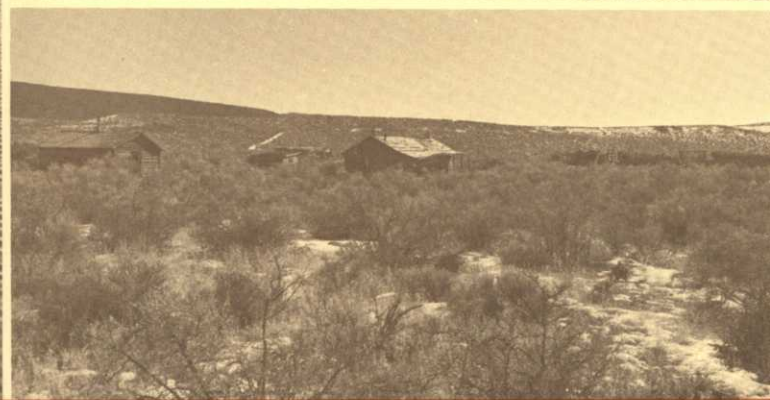


HISTORY

The sheltered valley and abundant wildlife of the Green River lured Indians and fur trappers. "Browns Hole," as it was then called, was a favored winter rendezvous as far back as 1826. By the 1890's, Butch Cassidy and other cattle rustlers used this remote area to rest and hide their stolen herds. Browns Park was the winter headquarters for some of the larger livestock operations in the West, including Ora Haley's Two Bar Ranch.

Lodore School National Historical Site - U.S.F.W.S. photo - Jim Creasy.

Two-Bar Ranch National Historical Site - U.S.F.W.S. photo - Jim Creasy.



WILDLIFE

Mallards, redheads, teal, canvasbacks, other ducks, and Great Basin Canada geese nest on the Refuge. About 300 goslings and 2,500 ducklings are hatched annually and production should increase when more habitat is developed. The waterfowl population swells by thousands during the spring and fall migrations. Wading birds, shore birds, song birds, and a variety of hawks and eagles also use the Refuge during various seasons.

Resident species include mule deer, antelope, chukar partridge, and sage grouse. Elk and bighorn sheep occasionally visit the Refuge.



ENJOYING BROWNS PARK

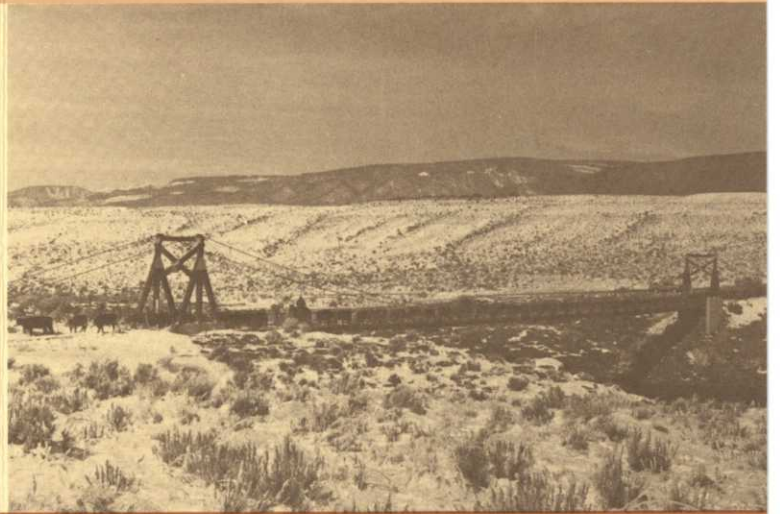
Hikers, sightseers, and photographers are welcome year round. A graveled tour road provides ample opportunities to view wildlife and wildlife habitat.

Primitive camping facilities are provided at Swinging Bridge and Crook Campgrounds. This is remote country. Maybell, Colorado, and Vernal, Utah, are 50 miles away and Dutch John, Utah, is 40 miles. The Browns Park Store is within 5 miles of the Refuge.

Hunting and fishing are allowed on the Refuge under State and Federal regulations. Deer and cottontails may be hunted in all areas except those posted, "Area Closed." Ducks, coots, and geese may be hunted within the Green River channel, Hog Lake, and Butch Cassidy Bottoms.

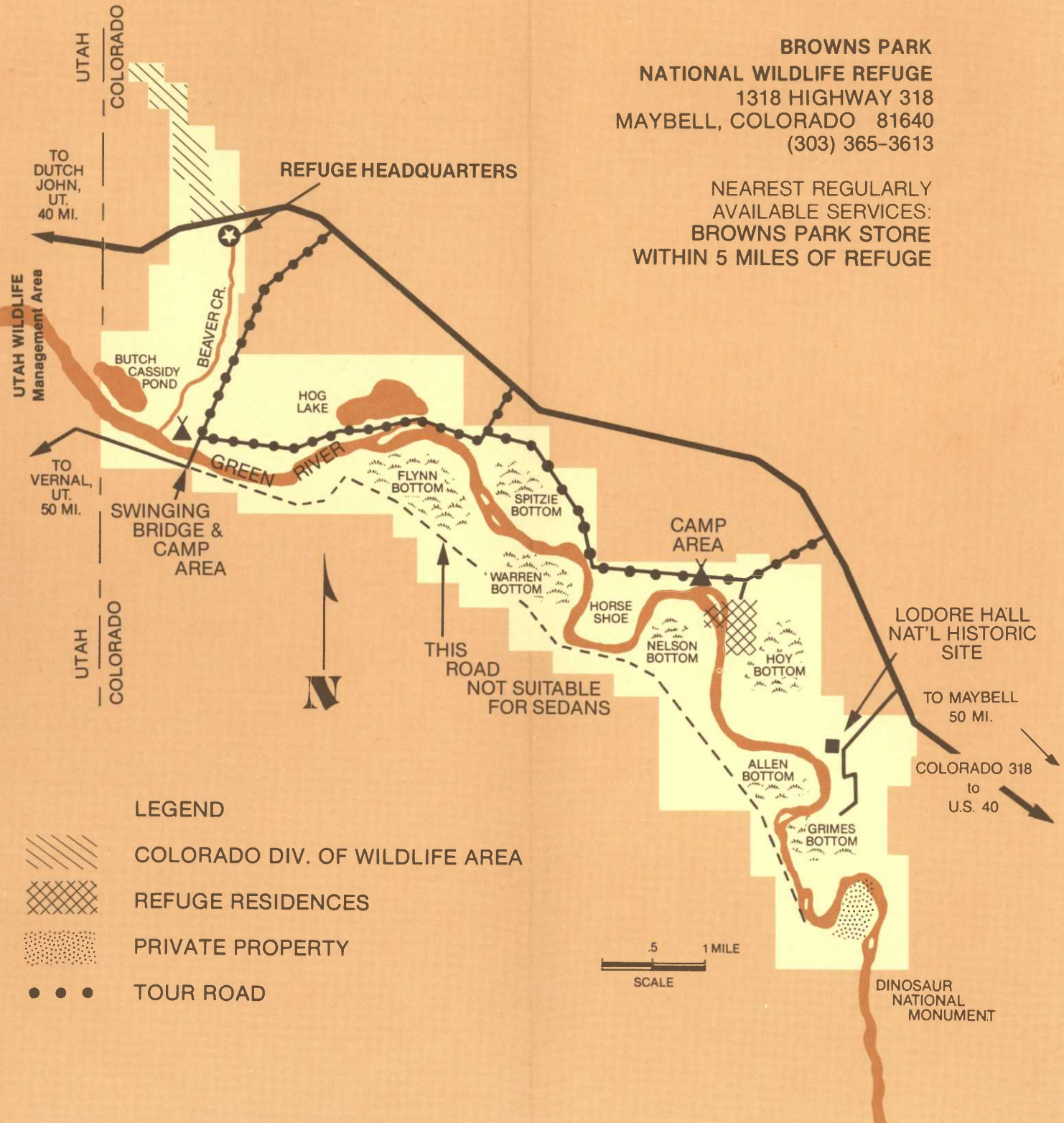
Left: Canada Goose - U.S.F.W.S. photo - Rex Gary Schmidt. Pronghorn Antelope - U.S.F.W.S. photo - Jim Creasy.

Below: Cattle Crossing Swinging Bridge - U.S.F.W.S. photo - Jim Creasy.







**BROWNS PARK
NATIONAL WILDLIFE REFUGE**
1318 HIGHWAY 318
MAYBELL, COLORADO 81640
(303) 365-3613

NEAREST REGULARLY
AVAILABLE SERVICES:
BROWNS PARK STORE
WITHIN 5 MILES OF REFUGE



LEGEND

-  COLORADO DIV. OF WILDLIFE AREA
-  REFUGE RESIDENCES
-  PRIVATE PROPERTY
-  TOUR ROAD

