BROWNS PARK NATIONAL WILDLIFE REFUGE

Maybell, Colorado

ANNUAL NARRATIVE REPORT

Calandar Year 1994

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 1994

Jane L. Gamble — Refuge Manager — Date 3/20/95

Refuge Supervisor Review — Date

[signature] — Regional Office Approval — Date 3.27.95

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 this waterfowl habitat. Pumping from the Green River, along with water diverted from Beaver and Vermillion Creeks, 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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H. PUBLIC USE

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1993

A. HIGHLIGHTS

Traditional livestock grazing ends! E.A. for upland habitat management completed (Section F.7).

Warren Marsh dike extension completed (Section F.2).

Refuge Operations Specialist Terry Kostinec transfers to Flint Hills N.W.R. (Section E.1).

Biological Technician Suzanne Fellows converts to Administrative Support Clerk (Section E.1).

Avocet nesting confirmed (Section G.5).

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

B. CLIMATIC CONDITIONS

Total precipitation for 1994 was 9.92", 0.32" less than 1993 and 0.36" more than the 13 year average of 9.56". The wettest month of the year was October with 3.47" of precipitation recorded and the driest month was July with 0.01" recorded. The coldest temperature for the year was on 4 November when the mercury dropped to -19 degrees Fahrenheit, while the highest temperature recorded for the year was on 25 June when the temperature reached 99 degrees Fahrenheit.

However, these figures are not an accurate portrayal of 1994's weather. There was little snow in the winter and there was very little spring runoff. Most of the precipitation fell in four separate rainstorms in August (0.48"), September (0.91"), and October (3.02", 0.43") and in one snowstorm in November (0.50"). High temperatures did not dip below 82 in July or August and there were only a few days in May and June that registered in the 70's.

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

Photo 1. Despite the long dry summer, fall rains brought the measured precipitation up to normal. JLG 10/94.

Table 1. Monthly high and low temperatures and the total precipitation for the month.

Month	High	Low	Precipitation	Snowfall
January	59	-12	0.12"	
February	54	-12	0.77"	7.00"
March	71	14	0.58"	0.75"
April	82	21	0.91"	3.00"
May	88	27	0.46"	
June	99	31	0.14"	
July	98	37	0.01"	
August	97	32	0.73"	
September	88	71	1.34"	
October	73	12	3.47"	
November	62	-19	1.37"	18.00"
December	51	-3	0.02"	
Total			9.92"	10.75"

Table 2. Total precipitation each year for the past 13 years.

Year	Total Precipitation
1994	9.92"
1993	10.24"
1992	7.86"
1991	8.90"
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"

For the fifth consecutive year, an evaporation pan was monitored. 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.

Photo 2. Elk used the refuge during the summer as their water resources in the high country became limited.
JLG 7/94

Wintering wildlife populations on the refuge are often weather related. A late "freeze-up" will often result in higher numbers of ducks on the refuge during the fall, 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 Mule 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.

Snowfall was very minimal in the high country during the winters of 1993-1994 and 1994-1995 resulting in relatively little Elk and Mule Deer use of the refuge during winter seasons. However, dry weather conditions during the spring and summer resulted in heavier than usual Elk use of the refuge. During these months they are usually found in the high country surrounding the refuge.

C. LAND ACQUISITION

Nothing to report.

D. PLANNING

2. Management Plan

A revision of the Fire Management Plan was initiated. The Fire Dispatch Plan was updated to reflect changes in personnel and equipment.

3. Public Participation

A local public hearing was held at the Lodore Hall regarding the Alternatives For Management of Upland Habitats Environmental Assessment. Twenty-one people attended and virtually all voiced support for the preferred alternative (All Tools Alternative). Approximately the same number of comments were received in writing indicating the same support for the alternative selected.

4. Compliance with Environmental and Cultural Resource Mandates.

The following documents were completed to satisfy a

compatibility lawsuit filed against the Service by several environmental groups: An Environmental Assessment of Alternatives For Management of Upland Habitats, Section 7(FONSI), Recreational Funding Analysis, Environmental Action Memorandum, as well as Compatibility Determinations for all consumptive and nonconsumptive uses.

E. ADMINISTRATION

1. Personnel

1. Jerre L. Gamble, Refuge Manager, GS-11, EOD 09/23/87, PFT.

2. Terry D. Kostinec, Refuge Operations Specialist, GS-07, EOD 07/14/91, Transferred to Flint Hills NWR 03/19/94, PFT.

3. Robert E. Harding, Maintenance Worker, WG-08, EOD 04/18/82, PFT.

4. H. Mack Rodgers, Equipment Operator, WG-08, EOD 07/28/91, PFT.

5. Suzanne D. Fellows, Administrative Support Clerk, GS-06, EOD 05/01/93, PFT.

6. Frederic B. Wirick, Range Technician, GS-05, Temporary Appointment, 04/17/94-10/01/94.

7. Sharon A. Walker, Range Technician, GS-04, Temporary Appointment, 06/02/93-09/17/93.

Table 3. Personnel status of Browns Park N.W.R. during the past five fiscal years.

	PERMANENT		TEMPORARY		
Year	Full-time	Part-time	Full-time	Part-time	Total FTE's
FY 1995	5(4 filled)	0	2	0	5.0
FY 1994	5(4 filled)	0	3	0	6.0
FY 1993	5	0	2	0	6.0
FY 1992	5	0	2	0	6.0
FY 1991	5	0	2	0	6.0

Photo 3. Permanent Staff 3, 5, 1, 2, 4. RLG 3/94

Terry Kostinec transferred to Flint Hills NWR, Kansas effective 03/20/94.

Suzanne Fellows was chosen to fill the Administrative Support Clerk position effective 03/20/94.

Special Achievement Awards for performance of duties were received by: Gamble, Kostinec, Rodgers, Fellows and Wirick.

4. Volunteer Program

Five volunteers provided valuable assistance this past year. Rita Gamble, Ellen Heilhecker, Diana Radosevich, Alice Rodgers, and Sven Weyns contributed in a variety of activities involving maintenance, resource, public use, fire fighting, and administrative support.

Total volunteer activity hours were 1,148 for the year. This is a significant increase compared to last year when only 152 hours were reported. Previously, the lack of housing was the drawback to using volunteers. However, losing one permanent staff member, housing both firefighters together, and having local volunteers allowed us more freedom in employing volunteers.

5. Funding

Table 4. Summary of funding levels by subactivity for the last five years.

FY	ACTIVITY		AMOUNT		TOTAL
1995	1261		$101,500		$351,300
	1262		97,000		
	1262	(MMS)	22,500		
	6860		5,000		
	8610	(w/carry over)	8,200		
	9110		61,400		
	9120		1,000		
	7201		38,700	Colorado Waterfowl Stamp sales funding; 3 year money (carryover)	
	7208		16,000	Colorado Waterfowl Stamp sales funding 3 year money (carryover)	
1994	1261		$125,100		$365,800
	1262		59,700		
	1262	(MMS)	89,000		
	6860		5,000		
	8610	(w/carry over)	6,400		
	9110		1,000		
	9120		27,500		
	7201		6,900	Colorado Waterfowl Stamp sales funding; 3 year money (carryover)	
	7208		56,200	Colorado Waterfowl Stamp sales funding 3 year money (carryover)	
1993	1261		$89,000		$322,500
	1262		100,000		
	1262	(MMS)	31,100		
	6860		5,000		
	8610	(w/carry over)	5,900		
	9110		1,000		
	9120		23,000		
	1971		67,500	Colorado Waterfowl Stamp sales funding	

1992	1261		$110,000	$335,490
	1262		100,000	
	1262	(MMS)	67,500	
	6860		5,000	
	8610	(w/carry over)	4,990	
	9110		1,000	
	9120		25,000	
	1971		22,000	Colorado Waterfowl Stamp sales fund
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	

6. Safety

Refuge Operations Specialist Kostinec served as station safety chairman until his departure. At that time Administrative Support Clerk Fellows took over. Equipment Operator Rodgers and Maintenance Worker Harding were safety committee members.

Topics discussed at the formal station safety meetings included the following: fire fighting safety and the safe operation of the station's fire fighting equipment, wildfire communication and deployment, how our fire crews are to coordinate with the Craig and Vernal BLM fire dispatch offices, status of Hantavirus disease and prevention, annual review of the station's safety plan, and a refresher CPR class.

The refuge staff completed annual hearing exams in Craig, CO in April.

Maintenance Worker Harding attended a hantavirus respirator fitting and training course in March.

Manager Gamble and Administrative Support Clerk Fellows attended aviation safety training in June.

Heavy Equipment Training was held at Ouray NWR for Range Technicians Walker and Wirick in June.

Volunteers Rita Gamble and Ellen Heilhecker attended S-130/190 fire training in June.

Two accidents resulting in lost time were reported this year. Administrative Support Clerk Fellows was hospitalized overnight after she became dehydrated after fighting a wildfire in Utah. Maintenance Worker Harding broke a rib while attempting to cut a lock with bolt cutters.

A visitor suffered an embolism while camping on the refuge over the July 4th weekend. The Maybell Volunteer Ambulance crew responded and took him to Memorial Hospital in Craig, Colorado.

7. Technical Assistance

Biological Technician Jim Spence (Charles M. Russell NWR) conducted a Hazardous Building Materials Inventory in April.

Colorado Division of Wildlife Area Manager Dan Prenslow toured the refuge in May. Colorado Division of Wildlife and Ducks Unlimited are two entities with which we have cooperative agreements to do wetland enhancement programs.

The final report from the Riparian Ecosystem Management Review, conducted in 1993 by Dr. Paul Hansen of Montana State University, was released in July.

Photo 4. Dr. Paul Hansen's review of the refuge will assist us in developing a healthy riparian zone for resident and migratory wildlife. JLG 6/94

Greg Siekaniec and Adam Halvorson of Seedskadee NWR assisted in the Breeding Waterfowl Count.

Biologist Kelli Stone, hired by Ouray NWR and responsible for serving the biological needs of all three Green River refuges, visited the refuge in November. She will be assisting the writing and implementing of several of the station's biological reports and projects.

8. Other Items

Manager Gamble participated in several meetings of the Moffat County Commissioners and Northwest Colorado Coordinated Resource Management team meetings throughout the year. He was also appointed chairman of the Moffat County Weed Advisory Board.

Manager Gamble attended several Interagency Fire Dispatch meetings in Craig, Colorado. Administrative Support Clerk Fellows represented the refuge at a Vernal, Utah Interagency Fire Dispatch meeting.

Manager Gamble and Administrative Support Clerk Fellows attended several round-table Upper Colorado River Ecosystem meetings.

Refuge Operations Specialist Kostinec attended a meeting concerning public informational and directional signing in Moffat County in January.

Administrative Support Clerk Fellows was on a two-week clerical detail at the National Elk Refuge in February.

Phil Ellsworth, Daily Press of Craig, Colorado, visited the refuge in May. Jim and Mildred Clark of the Refuge Reporter toured the refuge in June. Their story of the grazing issue was written up in the Winter 1994 issue.

Manager Gamble participated in an interagency workshop concentrating on the water flow levels of the Green River in August.

Administrative Support Clerk Fellows completed the 40-hour Small Purchase Course in May and attended credit card training in November.

Manager Gamble attended an Intermountain West Joint Venture meeting in December. Administrative Support Clerk Fellows will be serving on the committee for the Green/Yampa/White River Valleys focus group.

F. HABITAT MANAGEMENT

1. General

The refuge consists of the following broad types of habitat:

Habitat	Acres
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 (Shrubs)	6,816
Rocky Outcroppings	500
Administrative Lands	200
TOTAL	13,455

Green River water levels were lower than normal throughout the year, except during the months of May and June. Discharges during a six week period were increased by the Bureau of Reclamation for the purpose of flooding backwater areas of the Green River to enhance spawning habitat for the endangered Colorado Squawfish. Decreased discharges during the balance of the year from Flaming Gorge Dam, located 25 miles upriver, were due to less than normal snowpack and subsequent run-off. Flaming Gorge Dam releases fluctuated from 700 cubic feet per second to 4,300 cfs in May, but only averaged about 800 cfs.

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 natural 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 immediate river banks and islands of the Green River.

Flows in Beaver and Vermillion Creeks were below average during spring and summer months due to less than normal snowpack. However, frequent fall rains resulted in above average flow rates during the fall to early winter period.

2. Wetlands

Before the Flaming Gorge Dam was completed during the early 1960's, seasonal flooding of the bottomlands along the Green River 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 water 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 Spitzie Marshes were maintained at prescribed water levels throughout the spring, summer and fall. The pump on Hoy Marsh broke down in the spring. As a result Hoy Marsh was left to drawdown during the summer. A portable pump was used in late summer until a replacement pump was installed in the fall. Warren and Nelson marshes were not flooded due to dike extension projects. The projects are cooperatively funded between the FWS, the Colorado Division of Wildlife Duck Stamp funds and Ducks Unlimited. Hog Lake was on drawdown status until September. A nesting island and a physically challenged accessible hunting blind were constructed within the unit during the fall months. The Butch Cassidy Marsh remained full during the spring months. However, marsh water levels became very low by late summer due to low flow rates in Beaver Creek caused by drought conditions. Fall rains filled the marsh back up to prescribed levels. Gravity feed water was utilized from Vermillion Creek to fill the Grimes Unit during the spring run-off period. Supplemental pumping of water from the Green River took place during summer and fall months for the purpose of watering the hundreds of seedling cottonwood trees found within the unit. The Horseshoe Unit was not flooded due to budget constraints.

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 Dam 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 from fire, Beaver, Mule Deer and Elk, and to encourage new tree growth. Beaver numbers are controlled where excessive tree damage occurs.

An experimental project was conducted again this year to try and establish cottonwood trees at locations along the Green River where flooding and cottonwood regeneration no longer occur. Approximately one hundred pole size cottonwoods from Ouray NWR were cut during the dormant season (March) and planted near the Crook Campground. The site selected was in a low area adjacent to the river and close to the water table. Following a one year growing season, it appears the trees have realized an 85% survival rate.

Photo 6. Cottonwood poles are planted along old oxbows as part of Riparian Habitat Restoration. JLG 10/94

5. Grasslands

Approximately 3,500 acres of refuge grasslands are located in river bottoms along the Green River, adjacent to marsh units and in meadows along Beaver Creek. Upland grass species are found on benchlands adjacent to and above the river and creek bottoms.

6. Other Habitat

Roadways and dikes were mowed to improve visibility for maintenance purposes and for the benefit of visitors. Approximately 6,000 acres of the refuge consist of alluvial benchlands and steep rocky mountain slopes.

7. Grazing

The 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 provide residual vegetation for nesting waterfowl, improve range conditions, and increase the ecological diversity of native grasses and forbs to provide suitable habitat for migratory birds and resident wildlife.

The Grassland Management Plan provides for several different

treatments to be used to meet grassland and wildlife objectives. The treatments include: 1) Three levels of winter grazing intensity applied on a total of 12 grazing units: a) moderate to heavy stocking rate on six units; b) light to moderate stocking rate on three units; c) no grazing on three units. 2) Prescribed burning scheduled for all grazing units. 3) Scheduled drawdowns of all marsh units adjacent to grassland areas.

The winter grazing plan implemented on December 1, 1993 was continued through March 31, 1994. The general location of refuge grazing units can be found on the refuge leaflet map (back cover of narrative).

Table 5. Summary of the 1993-94 grazing program.

Grazing Units	Unit Acreage	AUMs*	# of Cattle
Butch Cassidy	478	160	40
Horseshoe	275	160	40
Hoy	1,240	180	45
Hog Lake	445	240	60
Nelson	755	200	50
Allen\Carr	410	304	76
Upland Unit 8	190	96	24
Totals	4,273	1,340	335

* = Animal Unit Month

Table 6. Summary of the AUMs grazed by permittee.

Permittee	Grazing Period	#AUMs	AUM Rate	Revenue
Wright Dickinson	12/01/93-03/31/94	1,340	$7.55/AUM (cattle)	$10,117.00
Jerre Gamble	01/01/94-12/31/94	44	$9.44/AUM (horses)	$415.25
Suzanne Fellows	03/13/94-12/31/94	9.5	$9.44/AUM (horse)	$89.66
Robert Harding	05/15/94-12/31/94	7.5	$9.44/AUM (horse)	$70.78

Base AUM Rate for 1994 was $7.55/AUM.
Each horse is counted as 1.25 AUMs.

Following many years of annual dormant season grazing (since the establishment of the refuge in 1965), refuge grasslands are showing signs of decline. The primary reason for this decline is that invading noxious weed species, such as giant whitetop, Russian knapweed, leafy spurge, and salt cedar are

crowding out native grass species on many sites. Giant whitetop became widespread following the disturbance of soil during the construction of refuge dikes and ditches as impoundments were established in the 1970's and 1980's. The other weed species most likely became established from seed sources on adjacent lands located above the refuge along Beaver Creek and the Green River.

There is a need to re-focus attention and effort toward managing refuge grasslands to prevent further decline. An environmental assessment regarding the management of upland habitats was completed to address this concern as well as to satisfy a compatibility lawsuit. The lawsuit filed by environmental groups did not specifically name this refuge. However, since livestock grazing constitutes an economic use, the preparation of an E.A. was a requirement of the lawsuit. The preferred action alternative selected from the E.A. is called Prescription Management - Including All Tools Alternative.

All management of refuge uplands would be by prescription to improve habitat conditions to achieve refuge purposes and objectives. Management of uplands would include the use of all tools available. A monitoring plan would be prepared to observe the condition of refuge habitat and the wildlife response to management actions. Monitoring techniques would include collecting information on vegetative height and density (visual obstruction (Robel) readings), plant canopy cover, frequency, and composition (Daubenmire vegetative surveys), trends in vegetational cover (photo points), and monitoring response by wildlife (duck nest searches, Mayfield success indices, and wildlife population surveys). When monitoring indicates that action is needed on a tract to improve habitat in order to better accomplish the refuge purposes and objectives, a plan (prescription) will be prepared specifying: 1) a description of the tract location and size, 2) what the problem(s) is in the tract, 3) what the objective(s) is for the management action, 4) which tool(s) is to be used to achieve the objective(s), 5) how this tool(s) will be employed, 6) the timing, duration, and the extent of the management action(s), and 7) a monitoring schedule to track the effect of the action(s). This management prescription need not be elaborate and detailed. A two to three page form will be developed for this purpose. Post-treatment monitoring will be conducted in accordance with the habitat monitoring plan to determine the effects of the action. This will build a record of experience for each management tool which will ensure the most successful tools that will alleviate the problems and provide beneficial habitat will be used. Successful tools will be reconsidered when another prescription is necessary to produce desired habitat conditions for wildlife.

No grazing will be done on the refuge during the dormant season effective the winter of 1994. The refuge will be monitored for specific responses by wildlife over the next several years. Dormant season grazing will not be reinstated until such time as it can be demonstrated through monitoring that grazing can be used to benefit wildlife. Limited grazing will be implemented to enhance habitat for wildlife or for experimental whitetop control. The impacts of grazing will be closely monitored to evaluate the response by wildlife and the impact upon the noxious weed giant whitetop. Prescription burning will be limited to heavily vegetated marsh and associated upland units for the purpose of improving habitat for migratory birds and wintering elk. There may be periods when cattle may be effectively used in place of fire for this operation. Critical riparian areas supporting cottonwoods, willow, and shrub understories (natural as well as reestablished), will be managed through long term rest and will not be burned or grazed without further evaluation. Weed control will be done utilizing the integrated pest management approach, which will allow for use of a combination of mechanical and chemical treatments, fire, biological control, and grazing to control noxious weeds.

Management tools such as burning, grazing, long term rest, and integrated pest management will not necessarily be performed on an annual schedule. These practices will take place based on demonstrated need (based on monitoring results) for management intervention. On-going monitoring will determine if and when a prescribed action is warranted and which tool(s) is to be used. Regarding the use of management tools, it would not be expected that any more than 10-20% of refuge uplands would be affected annually by any combination of management tools.

9. Fire Management

Fire funds again this year allowed for the hiring of two seasonal firefighters (Range Technicians). The term of appointment was mid-April through September. The refuge also had two volunteer firefighters on staff this year. Following required training, Ellen Heilhecker and Rita Gamble assisted with wildfire suppression efforts. Our fire crew's valuable assistance was much appreciated by refuge staff and the entire local fire fighting community involving several local cooperating agencies. Browns Park NWR is an active cooperator regarding two interagency fire agreements which includes both wildfire suppression and prescribed burns. The Craig, Colorado Interagency Fire Dispatch Center serves the refuge along with the following entities: Moffat County Sheriff's Department, National Park Service (Dinosaur National Monument), U.S. Forest Service (Routt National

Forest), Colorado State Forest Service, and the Bureau of Land Management (Craig District). The Uintah Dispatch Center in Vernal, Utah serves the Ashley National Forest, BLM (Vernal District), Bureau of Indian Affairs (Ute Tribe), as well as both Ouray and Browns Park NWRs.

Range Technician Rick Wirick conducted step tests for our staff. Two permanent staff, two seasonal firefighters and two volunteers were red-carded. Two additional staff members achieved a level four rating which allowed them to assist in prescribed burns and as initial attack on wildfires.

Nine very successful prescribed burns (no bonus or over-achievement acreage involved!) were conducted on the refuge during March and April. The burns were completed within the Warren, Nelson, Spitzie, Horseshoe, Hog Lake and Grimes Units. A total of 1,062 acres of cattail, bulrush and upland brush was burned.

Photo 6. Mack "Torch" Rodgers lights off the Nelson during a prescribed burn to remove excess emergent vegetation. JLG 03/94

Northwest Colorado experienced a very active wildfire season this year. Dry conditions prevailed through the summer period coupled with higher than average lightning activity levels. Refuge personnel responded to 17 wildfires

involving 3,650 acres. All fires occurred off-refuge but within our closest forces response area. Lightning was responsible for 15 ignitions while a careless rancher burning a dump and a careless cigarette smoker caused the other two fires.

Because of the extreme fire danger, the refuge enforced the ban on open burning put in effect by the state.

10. Pest Control

Mormon Crickets were seen again this year during late spring within refuge units on the south side of the Green River. Various birds and fish were frequently observed feeding on them. 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, making control on the refuge unnecessary.

Herbicides were used for spot treatment of noxious weeds within the Beaver Creek, Hog Lake and Hoy units. Control ranged from between 40-90 percent.

Table 7. Use of Pesticides for noxious weed control:

Pesticide Name	Target Species	Acres Treated	Pounds of AI or AE	Cost
2, 4-D Amine	R. Knapweed & Whitetop	21	63	$157.00
Krenite	Leafy Spurge	3	18	$283.50
Telar	R. Knapweed	35	1	$363.95
Escort	R. Knapweed	18	1	$336.00

11. Water Rights

Refuge and Colorado Division of Wildlife meadows adjacent to Beaver Creek were irrigated during alternate weeks in accordance with our water sharing agreement. The States' permittee honored all conditions of the agreement including the minimum instream flow requirement designed to protect the fishery.

12. Wilderness and Special Areas

There are four National Historical 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 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.

The second is Fort Davy Crockett, an old fur trading post. This White-Indian Contact Area was partially excavated by Scientific Applications in 1980, then covered by refuge personnel. Since then, it has been protected from further disturbance.

The third National Historic Site on the refuge is the Lodore Hall. It was built in 1911 and 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 as needed.

Photo 9. The old Wilson homestead in the Grimes Unit represents a historical period of the area. SDF 10/94

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 several sightings of Peregrine Falcons this past year. There is an active Peregrine Falcon aerie near the Gates of Lodore on the Dinosaur National Monument (located adjacent to the refuge). A pair was seen in the Grimes Unit during the spring but no nesting on the refuge was confirmed.

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. This year signs were put up on the refuge kiosks to alert fishermen to the existence and care of these endangered fish. The Colorado River Fisheries Project is monitoring the releases from Flaming Gorge Reservoir in order to better manage for these endangered fish species. During May - mid June, the releases from Flaming Gorge were increased to create spawning habitat for the endangered Razorback Sucker and Colorado Squawfish. The Bureau of Reclamation increases flows from Flaming Gorge Dam to match the Yampa River peak.

The River Otter is currently classified as endangered by the state of Colorado. During 1989 and 1990 the Utah Division of Wildlife Resources released several River Otters in the Green River below Flaming Gorge Reservoir. Since that time, River Otters have been observed all along the Green River including the refuge. There were a few sightings of River Otters, including young, along the Green River and in a few of the Refuge wetlands again this year.

3. Waterfowl

The 1994 duck breeding pair survey was conducted on April 25th. 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 605 pairs of dabblers and 230 pairs of divers were counted.

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).

Estimated duck production (based on pair counts) showed an increase from the previous year. Total production of dabblers and divers was estimated at 2,530 ducks compared with 1,907 in 1993. This estimate is lower than the refuge goal of 7,500-10,000 ducklings produced annually and can be attributed to the fact that many of the marshes were drawn down due to budgetary constraints and on-going construction projects.

Production estimates from the 1994 breeding pair count were as follows:

Dabbler Pairs	
Mallard	83
Pintail	18
Green-winged Teal	109
Blue-winged/ Cinnamon Teal	2
Northern Shoveler	12
American Widgeon	3
Gadwall	255
Total Dabbler Pairs	605

605 pairs x 6.1 (average brood size) = 3,691

3,691 x .45 (estimated dabbler survival rate) =
1,661 (estimated dabbler production)

Diver Pairs	
Redhead	62
Canvasback	2
Common Goldeneye	2
Common Merganser	9
Ring-necked duck	92
Bufflehead	19
Ruddy duck	20
Lesser Scaup	24
Total Diver Pairs	230

230 pairs x 6.3 (average brood size) = 1,449

1,449 x .60 (estimated diver survival rate) =
869 (estimated diver production)

Photo 8. Goose production on the refuge remains high.
JLG 04/94

Predator management at Browns Park NWR was not conducted during the waterfowl breeding season in 1994 due to the lack of "cost effective" results from previous years and lack of staff time. Predator control (primarily for raccoons) was attempted during the duck banding exercises in August, however no predators were captured.

Table 8. Waterfowl production for 1973 through 1994.

Year	Geese	Ducks	Coots
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
1992	206 (84)	2,516 (843)	2,180
1993	---	1,907 (609)	---
1994	---	2,530 (835)	---

Breeding pair counts in parenthesis.

The goose nesting and pair survey along with the coot count was not conducted in 1994.

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. One adult bird was found dead on the rookery from unknown causes.

White-faced Ibis commonly migrate through the area during spring and fall. Approximately 60 birds were observed on Hoy marsh and the lower Beaver Creek meadow this spring. Hoy marsh went through an unplanned drawdown during 1994 as the result of a broken pump. The low water levels were used by approximately 30 ibis during the summer.

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.

Photo 9. Pelicans, waterfowl and shorebirds used Hog Lake heavily during its drawdown. JLG 05/94

Other marsh and water birds sighted were: Tundra Swan, Double-crested Cormorants, Horned Grebe, and Snowy Egret.

Juvenile Western Grebes, Pied-billed Grebes, American Bitterns, Black-crowned Night Herons, and Sora Rails were seen on the refuge which indicated that they were breeding on the refuge.

5. Shorebirds, Gulls, Terns, and Allied Species

Black-necked Stilts were numerous and suspected of breeding on the refuge this year, however no nests or chicks were found. Spotted Sandpipers nested in large numbers along the banks and islands of the Green River. Killdeer and Common Snipe nested along the marshes and meadows of the refuge. Wilson's Phalarope were abundant during early May. Other shorebirds commonly observed were: Greater and Lesser Yellowlegs, Marbled Godwit, Western Willet, Long-billed Dowitchers, and Baird's, Least and Western Sandpipers. A Dunlin, rare in northwest Colorado, was sighted in March on Hog Lake.

Although small numbers of American Avocets are usually present on the refuge throughout the summer months, this is the first year that breeding was confirmed for this species. At least eight broods (26 chicks) were hatched on Hoy marsh

during the low water conditions. Seventeen pre-fledged juveniles were seen on the marsh later in the summer.

Photo 10. First record of American Avocets breeding on the refuge. SDF 06/94

Black Terns were commonly observed during the spring and summer. There were also occasional sightings of Ring-billed Gulls and Caspian Terns.

6. Raptors

Golden Eagles were most frequently observed during the winter months but can be seen year round and have nested near the refuge. Red-tailed Hawks, American Kestrel, Merlin, Northern Harriers, Turkey Vultures, 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. Ospreys, Prairie Falcons, and Cooper's, Sharp-shinned, Swainson's, and Ferruginous Hawks were occasionally observed.

7. Other Migratory Birds

Mountain Bluebirds 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, chickadees, juncos, Pine Siskins, and finches.

Other common species found on the refuge include Common Flickers and other woodpeckers, kingbirds, flycatchers, wrens, swallows, shrikes, vireos, warblers, orioles, Western Meadowlarks, blackbirds, Western Tanagers, Lazuli Buntings, American Goldfinches, and a variety of different sparrows.

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.

A wintering Elk herd of approximately 150 were commonly observed on the south side of the river during the winter months. Very few elk used the north side of the refuge during the winters of 1993-1994 and 1994-1995 due to relatively mild winters.

Photo 11. There is heavy Elk use of the refuge during moderate and severe winters. JLG 01/94

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, Muskrats, and small numbers of Mink can be found in all refuge marshes as well as on the Green River and Beaver Creek.

Ten to fifteen Moose commonly range throughout Browns Park during the summer months. Several calves were born on the refuge this year. A herd of about 15 Pronghorn Antelope was also commonly sighted.

A graduate student from Colorado State University looked for Kit Fox sign around the Browns Park area during the summer as part of an ongoing project sponsored by Colorado Division of Wildlife. Although there had been one sighted near the refuge shop earlier in the year, none were sighted during the study in the Browns Park area although several areas of good habitat are thought to be available.

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. Once again there were no sightings of Chukar Partridge during the past year.

Photo 12. There are several small Sage Grouse Leks on the refuge. SDF 08/94

11. Fisheries Resources

The Green River, which flows through the center of the refuge, is a popular sport fishery. Brown, Cutthroat, and Rainbow Trout and Catfish were the species most sought after. Carp and a variety of 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. Butch Cassidy marsh has a Brook Trout fishery during years when Beaver Creek flows (which are diverted into the marsh) are adequate to support good wetland depths.

12. Wildlife Propagation and Stocking

An unreported number of catchable size Rainbow Trout (9"-12") were stocked by the Colorado Division of Wildlife in May. Several ponds along the Beaver Creek, just upstream of the refuge, were stocked with Brown Trout fry by the Colorado Division of Wildlife.

15. Animal Control

Although raccoon traps were placed around the waterfowl banding sights, no animals were caught.

16. Marking and Banding

Pre-season duck banding was conducted at Browns Park NWR from August 17th through September 4th.

Three wetlands on the refuge were selected for trap sites. The sites selected included the following: one site on Spitzie marsh, three locations on Flynn marsh, and one on Butch Cassidy. Salt plains duck traps were used at all sites (furnished by the Colorado Division of Wildlife). Whole kernel corn was used as bait.

The trap sites at Spitzie and Flynn Marsh were very successful. They were used until trap mortality due to raccoons became problematic.

Total mortality for the entire trapping period was ten Mallard ducks. Mortality was due to Raccoons (8) and exposure/trap related injuries (2). Total trap nights were 62. A total of 199 Mallard ducks, 4 Teal, 1 Gadwall and 4 American Coots were banded. There were also 41 previously banded ducks that were recaptured. See Table 10 for a breakdown of banded ducks according to age and sex.

Table 10. Banded ducks by age and sex.

Species	AHY-M	AHY-F	HY-M	HY-F	Totals
Mallard	106	89	1	3	199
Teal		3	1		4
Gadwall			1		1
Coots					4
					208

H. PUBLIC USE

1. General

Average annual refuge 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. New brochures were written and printed this year.

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 welcome sign which is located on State Highway 40 in Craig, Colorado. Refuge leaflets are provided to the visitor center for distribution to the public.

Two kiosks constructed during 1989 contain informational panels including local maps and a variety of refuge interpretive material. One of the kiosks is located next to

the office/visitor center and the second is situated at the east end of the tour route.

7. Other Interpretive Programs

As a result of our remote location, the opportunity to provide interpretive programs occurs infrequently.

On April 23th and 24th, Manager Gamble led a trail ride for approximately 50 members of the Hole-in-the-Wall Horse Club from Craig, Colorado.

Photo 13. The Hole-in-the-Wall Horse Club use Crook Campground as their base camp during their weekend trail ride. JLG 04/94

On May 19, Administrative Support Clerk Fellows provided a refuge tour for 24 students and 22 accompanying adults from Whiteman School in Steamboat Springs, Colorado.

Administrative Support Clerk Fellows conducted a talk and refuge tour for 20 South and Central American students participating in a Parks & Wilderness Management course taught through Colorado State University on July 27th.

Administrative Support Clerk Suzanne Fellows and Volunteer Rita Gamble staffed the Fish and Wildlife Service booth at the State Fair in Pueblo, Colorado on August 21st and 22nd.

8. Hunting

Hunting is permitted on the refuge under State and Federal regulations. Elk, Mule Deer and Cottontail Rabbits may be hunted in all areas except where posted around building sites. Ducks, coots and geese may be hunted within the confines of the Green River channel and on Hog Lake and Butch Cassidy pond.

The refuge is included within two separate state 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.

Archery Elk/Deer season was August 27-September 25 (either sex). Muzzleloading rifle season was September 10-18. There were very few hunters during either season due to most animals remaining at higher elevations outside of refuge boundaries. No animals were harvested on the refuge during either of these seasons.

There were three separate rifle seasons again this year: October 15-19 (buck deer, unit 1, Oct. 15-17); October 22-November 2 (buck deer, unit 1, Oct. 22-24); and November 5-13 (buck deer, unit 1, Nov. 5-7). Bull and cow Elk and either sex/doe Mule Deer licenses for Unit 1 were subject to a limited draw, buck only licenses were available over the counter. All Elk and Mule Deer licenses for Unit 201 were available through a limited draw.

During the first rifle season there were a total of 19 hunters. One antlerless and five buck deer were harvested during the first season. One six point bull elk was also taken. During the second season there were approximately 24 hunters who harvested a total of eight antlerless and six buck deer. During the third rifle season there were approximately 53 hunters that harvested a total of 14 antlerless and 13 antlered Mule Deer and two cow Elk.

Cottontail Rabbit season was from September 1, 1994 through February 28, 1995. 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 NWR is within the Pacific Flyway. The goose season was split into two segments. The first season was from October 1-16 and the second season was from October 22-January 13, 1995. The daily bag limit was two geese and the possession limit was four geese. During the first goose season, a total of 20 goose hunters bagged approximately 12 Canada Geese. The second season had approximately 40

hunters come up with 17 geese.

The duck season was divided into three split seasons. The first season was from October 1-16, the second season was October 29 - November 27 and the third was from December 17 - January 8, 1995. The daily bag limit was as follows: Four ducks with further restrictions as to species and sex. No more than three Mallards of which no more than one can be a hen, no more than one Pintail, and no more than one Canvasback and two Redheads. The possession limit is two legal daily bag limits. In addition to the daily bag limit of ducks, the daily bag and possession limit for coots is 25 birds. Approximately 45 duck hunters harvested an estimated 140 ducks and 35 coots.

9. Fishing

Approximately 1,900 refuge visitors spent an estimated 7,500 hours fishing this past year. The most common fish species caught from the Green River were Rainbow, Cutthroat, and Brown Trout. Channel Catfish were occasionally caught incidental to trout fishing. Beaver Creek provides a Brook Trout fishery.

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 or Audubon society group that travels to the park to go "birding" or to just observe and photograph wildlife.

12. Other Wildlife Oriented Recreation

An estimated 3,000 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 long-term 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 that they can be used only on designated roads.

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 which is used as a community center.

17. Law Enforcement

Refuge law enforcement was low-key but highly visible. Enforcement patrols were conducted during the weekends of Elk, Mule Deer and waterfowl seasons.

There were four citations written during 1994. A summary of the violations follows:

Month	Number of Violations	Violation	Court	Disposition
October	3	Failure to retain evidence of waterfowl species	State	$68.50 fine 5 points against lic.
November	1	Failure to wear min. florescent orange	State	$68.50 fine 5 points against lic.

Manager Gamble and Maintenance Worker Harding attended Law Enforcement Inservice Training in Marana, AZ from February 13-20. Requalifications were at Arapaho NWR in August.

I. EQUIPMENT AND FACILITIES

1. New Construction

A large waterfowl nesting island was created in Hog Lake.

A gravity feed ditch was created between the Flynn and Warren marshes. This will allow water to be pumped into Warren by the Flynn pump. Several ponds were also created that will provide shallow ephemeral wetland areas between the two marshes.

A culvert and road that were washed out in May 1993 at Beaver Creek were replaced. A pond, formed by runoff, provides a shallow ephemeral wetland area for migrating waterbirds and waterfowl. It was used heavily by white-faced ibis this spring.

Photo 14. Ducks use the shallow water ponds for loafing. JLG 06/94

Photo 15. After completion of the Warren Dike Extension Project, all disturbed ground was reseeded with a mix of native grasses and forbs to prevent the invasion of noxious weeds. JLG 09/94

The Warren dike extension project was completed. Islands were constructed and all disturbed ground was reseeded in hopes of controlling white top and other weed species.

A yard fence was installed around the manager's residence.

A hunting blind for the physically challenged was constructed on Hog Lake.

Nelson Marsh was surveyed in September to lay the groundwork for the dike extension project.

2. Rehabilitation

The Hog Lake and Warren marsh lift pumps and electric motors were taken in for repairs. Following routine repairs, they where installed on new support structures.

The fence around the assistant manager's residence was replaced with a more sturdy fence.

Plastic sheeting was replaced around the base of the refuge headquarters and then covered with rocks in an attempt to control the growth of weeds around the building.

Photo 16. Range Technicians Walker and Wirick replaced plastic sheeting around the base of the office building between fire calls. SDF 08/94

4. Equipment Utilization and Replacement

An old typewriter, copier, and camera were replaced with MMS monies. A slide storage and viewing bank, microwave, and television/vcr were also purchased.

The Hoy Marsh pump was replaced. The old one had been in service since 1961.

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.

The electric furnace in the office was replaced with a propane heating unit in February. This new system is much more economical.

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 cooperative fire-fighting agreements with both the Craig, Colorado and Vernal, Utah Bureau of Land Management.

4. Credits

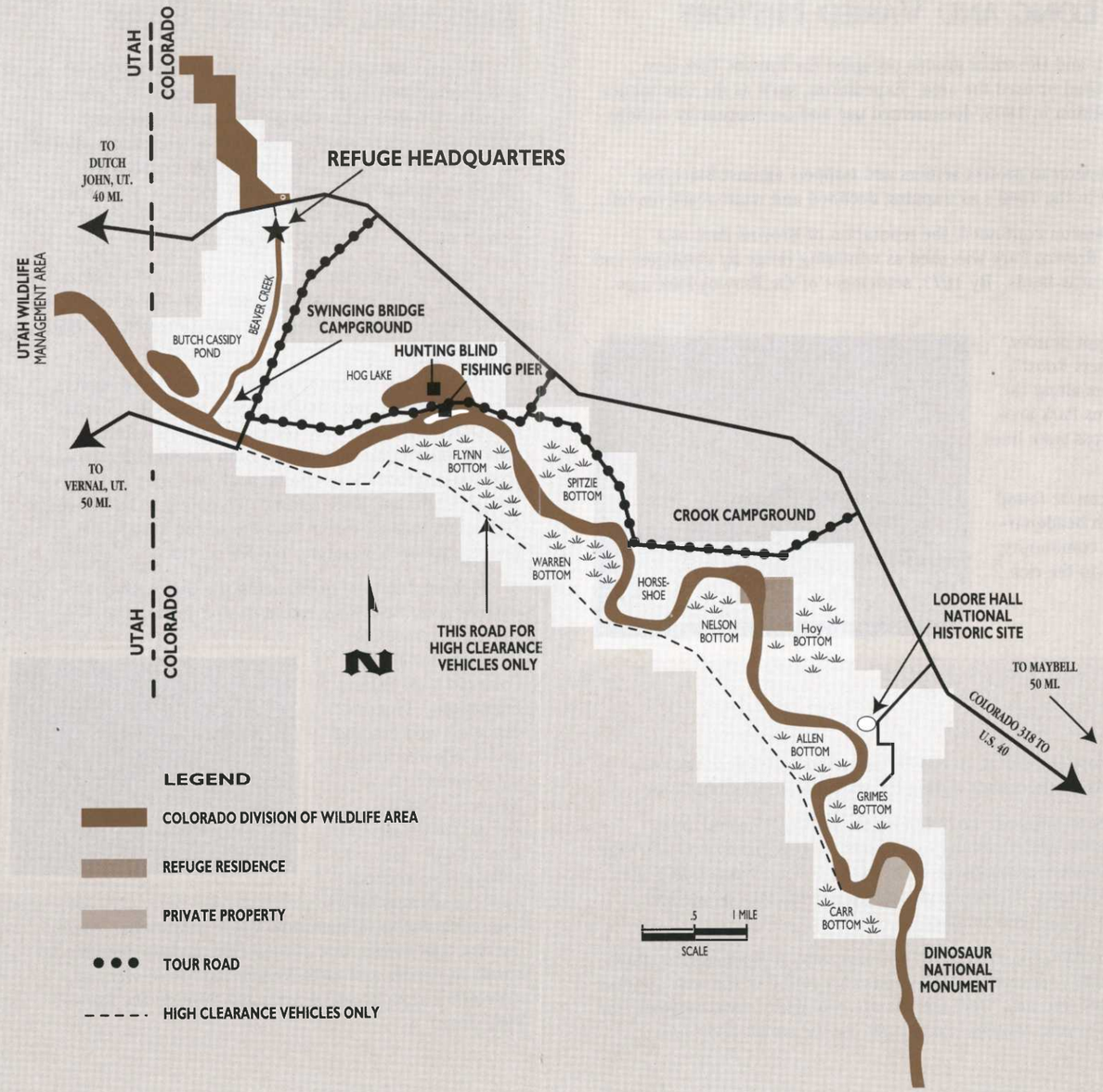
Jerre Gamble wrote the Introduction, Sections A, D, F, and H. Suzanne Fellows wrote Sections B, E, G, I, and J. Suzanne assembled the report.

K. FEEDBACK

Nothing to report.

L. INFORMATION PACKET---(inside back cover)

Browns Park National Wildlife Refuge



Accessibility

The Refuge Headquarters and Visitor Center are wheelchair accessible and have wheelchair accessible rest rooms. Both Crook and Swinging Bridge Campgrounds have rest rooms that are wheelchair accessible. There are cooking grills that are wheelchair accessible at the Crook Campground but not at Swinging Bridge Campground. A fishing pier for the physically challenged is located between Spitzie and Hog Lake. A waterfowl hunting blind for physically challenged hunters is available upon request.

The U.S. Fish and Wildlife Service seeks to afford persons with disabilities full accessibility or reasonable accommodation. Contact Refuge Headquarters for information or to address accessibility problems. For the hearing impaired, use your State Relay System for the Deaf.

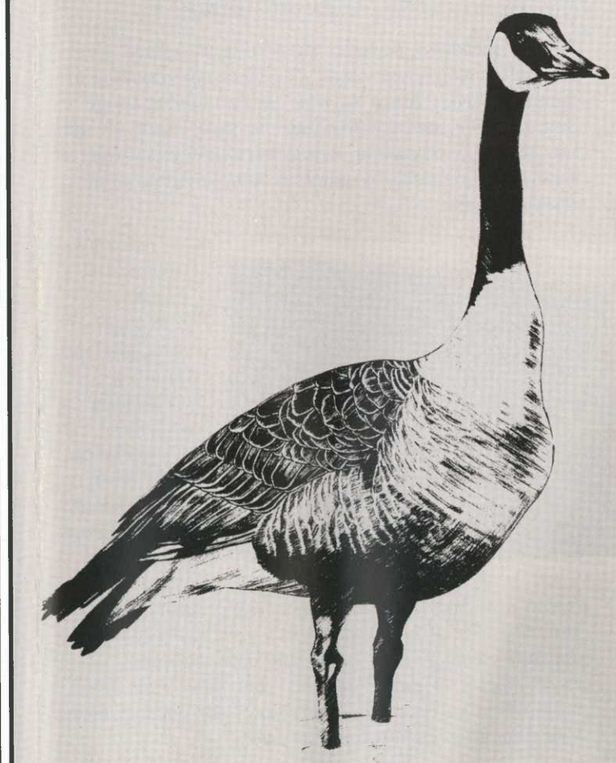
Browns Park National Wildlife Refuge
1318 Highway 318
Maybell, Colorado 81640
(970) 365-3613

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

September 1994

Browns Park

National Wildlife Refuge

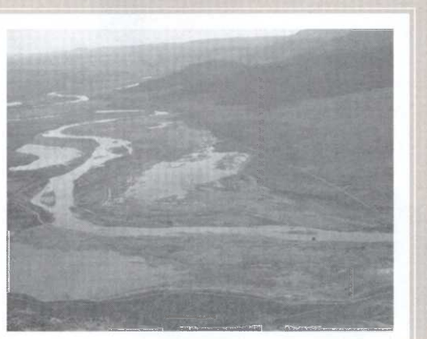


Browns Park National Wildlife Refuge

The Refuge

Browns Park National Wildlife Refuge lies on the Green River in the far northwestern corner of Colorado between Dinosaur National Monument and the Utah-Colorado state line. Managed by the U.S. Fish and Wildlife Service, this 13,455 acre Refuge serves as a nesting and resting area for migratory waterfowl. During the winter months, management emphasis shifts toward providing habitat for wintering elk and deer.

Wet meadows, preferred by nesting waterfowl, were originally created and maintained by annual flooding of the Green River. Since the mid 1960's, Flaming Gorge Dam has prevented this flooding. To compensate for this loss of waterfowl habitat, Refuge personnel pump river water, flooding fields to maintain approximately 6,000 acres of habitat.



Nearby mountain ranges intercept precipitation from approaching weather fronts before they reach Browns Park. Thus, Browns Park is a semi-arid region receiving less than 10 inches of precipitation annually. The green meadows and wetlands found along the river create an oasis in an otherwise semi-arid environment. Ducks, geese, and other water birds travel hundreds of miles to use the meadows and marshes made lush through irrigation from the river.

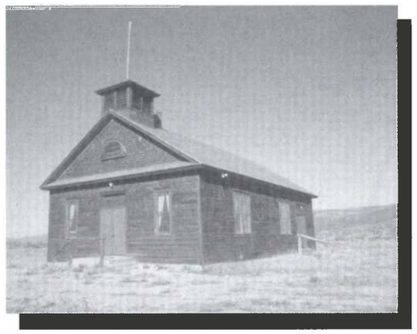
From Outlaws to Wildlife— A Long and Varied History

At the time of Euro-American contact, Comanche, Shoshoni, and Ute tribal groups occupied the Browns Park area. Blackfeet, Sioux, Cheyenne, Arapaho, and Navaho tribes also visited or used the area. Expeditions, such as the Dominguez and Escalante expedition in 1776 and the Lewis and Clark expedition in 1805, documented use and occupation by various tribes in the Browns Park area.

In 1837, Fort Davy Crockett was built on present Refuge property to protect settlers and trappers against Blackfoot Indians and to serve as a trading post. The Fort was abandoned in the 1840's as trapping declined and white residents left.

As gold was discovered in California and the westward expansion continued, the reputation of Browns Park as a favorite wintering area for cattle began to grow. By the 1860's, Browns Park was used as wintering range by cattlemen and as a safe haven for outlaws and rustlers who preyed on nearby cattle herds. By 1873, settlement of the Browns Park area began.

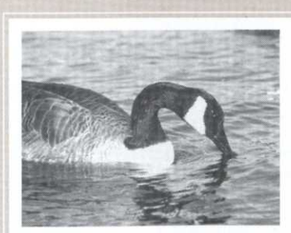
The Browns Park ethic allowed for most "outlaw deeds" except murder. Browns Park, along with Hole-in-the-Wall, Wyoming and "Robbers Roost", Utah, became a major hideout for horse thieves and cattle rustlers along the Outlaw Trail. In fact, Butch Cassidy was often seen in the Browns Park area. Law officers were often frustrated as their quarry could easily cross state lines from Browns Park and be out of their jurisdiction.



Today, evidence of the early settlers and Native Americans can be found throughout the Refuge. Three historical sites (the Two Bar Ranch headquarters, Fort Davy Crockett, and Lodore Hall, which still serves as a community center) and several old abandoned cabins and homesteads attest to the rich history of the area.

A Wildlife Oasis

Mallards, redheads, teal, canvasbacks, other ducks, and Canada geese nest on the Refuge. About 300 goslings and 2,500 ducklings hatch annually. The waterfowl population swells by thousands during the spring and fall migrations.



Approximately 200 species of birds can be found on the Refuge. Several areas provide excellent opportunities for bird watching in habitats ranging from semi-arid sage brush to lush wetlands and cottonwood stands adjacent to the Green River. Bald eagles frequent the Refuge during the winter. Golden eagles and peregrine falcons are seen soaring over the Refuge during spring and summer.

The Refuge is also home to deer, elk, pronghorn antelope, and an occasional bighorn sheep especially during moderate or severe winters. Moose are found in the wet, riparian areas during the spring, summer, and fall. Deer and elk are commonly seen anywhere on the Refuge during moderate to severe winters. River otter use the Green River and Refuge wetlands year round.

Enjoying Browns Park

Hikers, sightseers, horseback riders, wildlife watchers, and photographers are welcome year round. A graveled, 11 mile auto tour route complete with interpretive exhibits provides opportunities to view and study wildlife and wildlife habitat. Notice that Refuge marshes are closed to visitors between March 1 and July 31 to reduce disturbance to nesting waterfowl. Visitors are asked to remain on the road during this period.

Primitive camping facilities can be found at Swinging Bridge and Crook Campgrounds. Primitive toilets are provided. There is no drinking water, firewood, or trash removal.

Beware, this is remote country with great distances between services and conveniences. Maybell, Colorado and Dutch John, Utah are the closest communities and provide only minimal services. Both are 50 miles away. Motel accommodations can be made in Craig, Colorado; Vernal, Utah; and Rock Springs, Wyoming. The Browns Park store, located within 10 miles of the Refuge, has limited groceries, gasoline, and RV services.

Fishing, floating, or canoeing the Green River are popular activities. Year-round fishing for trout and catfish is allowed on the Refuge subject to Colorado state fishing regulations. Floating, canoeing, and boating is also allowed along the Browns Park National Wildlife Refuge stretch of the Green River. It's always wise to check water conditions before launching due to frequent low water conditions. There are two boat ramps, one at each campground, suitable for handling canoes and rafts. Vehicle shuttle services or canoe/boat rentals can be arranged through the Browns Park store.