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OURAY NATIONAL WILDLIFE REFUGE

Vernal, Utah

ANNUAL NARRATIVE REPORT

Calendar Year 1979

NATIONAL WILDLIFE REFUGE SYSTEM

FISH AND WILDLIFE SERVICE

U. S. DEPARTMENT OF THE INTERIOR



Troester, Tornow, Littleton, Hacking
and Wardle

Littleton and Hacking are holding Special Achievement Awards they received for building the Johnson bulk-head. They saved the Government \$29,175 and split a \$400 award. Hacking also has a ten-year certificate.

OURAY NATIONAL WILDLIFE REFUGE

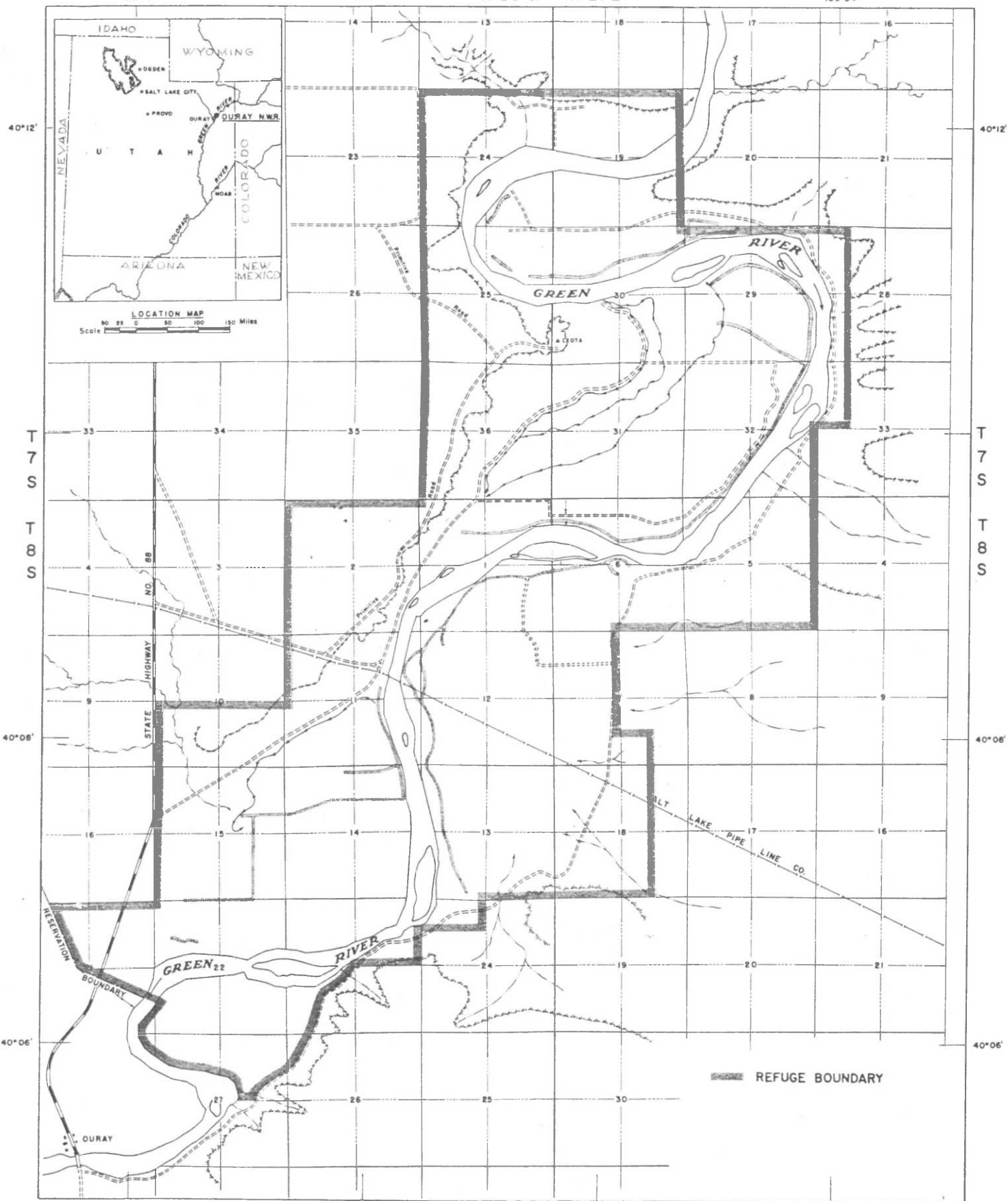
UINTAH COUNTY, UTAH

UNITED STATES
DEPARTMENT OF THE INTERIOR
109°40'

UNITED STATES
FISH AND WILDLIFE SERVICE
109°34'

109°38'

R 20 E R 21 E



COMPILED IN SURVEYS AND MAPS FROM
SURVEYS BY BLM, USGS AND FWS

DENVER COLORADO

APRIL 1977

SALT LAKE MERIDIAN



MEAN
DECLINATION
1975

6R UTAH 543 403

OURAY REFUGE

When God was making the world he didn't have much else to do.
Some places he made rather quickly--great care was taken on a chosen few.
That's why we have Ouray Valley with its gifts for everyone.
God looked down on it and smiled when all of his work was done.
"This is one of my chosen places, to watch it grow will be a delight."
Starting out with God's blessing, everything had to be right.
As time went on man saw the need of a wildlife refuge along the river
called Green.
That is why, today, the refuge is one of the choicest spots ever seen.
From the banks of a beautiful slow moving river there is a view of
majestic mountains so high,
Of deer and other wildlife where waterfowl and raptors soar through the
sky.
Song birds, marsh and shore birds--all of their songs sound loud and
clear.
Yes, there is such a wonderful place--Ouray Refuge--a place we can all
hold dear.

--- Lew Littleton



Vernal Fishery Biologist Del Robinson viewing the refuge.

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NARRATIVE REPORT

Ouray National Wildlife Refuge
1980

I. GENERAL

A. Weather Conditions

The following weather information was recorded at the U. S. Weather Station at refuge headquarters.

Table 1.

	<u>Temperature</u>		<u>Precipitation</u>	
	<u>Max.</u>	<u>Min.</u>	<u>This Month</u>	<u>10-Year Ave.</u>
January	28 ^o	-43 ^o	.37"	.41"
February	40	-33	.09	.36
March	60	- 1	1.77	.40
April	77	22	.87	.60
May	88	32	1.02	.70
June	101	37	.18	.71
July	99	51	.22	.52
August	103	48	1.05	.73
September	96	33		.61
October	88	21	1.21	.61
November	35	0	.17	.38
December	50	- 2	.46	.28
Extremes:	103 ^o	-43 ^o	Totals: 7.41"	6.31"

Calendar year 1979 was an average year as far as temperatures go. A little more moisture fell than average, due to thunderstorms that centered on the refuge.

The first of January there was approximately 16 inches of snow on the ground. This was dry snow with not much moisture in it. The last week of March was wet with good moisture in the form of rain and snow.

In April there were several days when we had strong winds. The strong winds continued into May, which offset the moisture we received. Temperatures in June got over 100^o, which is a little uncommon for June.

We were fortunate in July and August when several thundershowers gave us some precipitation on the refuge.

September was the only month when there was no precipitation. On October 20 there was a good storm. Up until this storm ended there

hadn't been a killing frost. It seemed odd to see farmers putting up hay the first of November in Uintah Basin.

November and December were months with typical weather, a little moisture and a little cool. As the year ended there was about 2 inches of snow on the ground.

Freezing weather from November 10, 1978 until March, 1979 killed many of the fruit trees in the Uintah Basin.

B. Habitat Conditions

1. Water

Green River froze over at the end of November. This was the last of the open water on the refuge.

Most of the units on the refuge were dry with water only in Woods and Sheppard Bottom at the end of the year.

We had problems all of the year with the pumps in Leota Bottom. Although they were new units, they failed to run properly. After running about 20 to 30 minutes the motors got hot and would shut off. We did get enough water for some nesting birds in Leota. .



Littleton and two Leota pumps we installed.

The pump bought to be used in Johnson Bottom was installed at Leota and tested, which resulted in some water in Leota Bottom for fall use by ducks and geese.

Ouray Park Irrigation Company fills Pelican Lake with water during the winter months. Pelican Lake is a storage reservoir about four miles northwest of the refuge. All of the drainage below Pelican Lake comes onto the refuge. In February, Pelican Lake was filled to capacity. When the ditch company attempted to shut the water off from coming into the lake they found their headgates under several feet of ice. Before they got their headgates closed the water went over their control structures on the south side of the lake. The water followed their ditches about one-half mile before it broke their ditches. This water then followed the natural drainage and ended up on the refuge in Sheppard Bottom.



Aerial view of flooded Sheppard Bottom from the southeast, April 6, 1979.

When Sheppard Bottom got so full from this runoff that it started flooding the farm fields, we opened the headgate on the Sheppard drain to let the water go into Green River. The only real damage was that it washed out a section of the entrance road coming into refuge headquarters. Sheppard Bottom had plenty of water until fall. We then ordered water from Pelican Lake to freshen up the Sheppard units. The refuge owns 700 shares of water in the Ouray Park Irrigation Company.

Woods Bottom filled up in June from high water in Green River. Some water was drained from Woods Bottom back into the river to dry up a section where we were going to have a dike constructed. There was water left in Woods at year's end.

We had no pump to put water into Wyasket Bottom. Johnson Bottom was also dry due to not having the pump bulkhead completed.

2. Food and Cover

Farming on the refuge has been done by a permittee on a percentage basis. It seems that something happens each year to keep our farmer from planting his crops when they should be planted. Therefore, he hasn't raised a decent crop. It hasn't worked out too badly for the refuge as most of his crops haven't been worth harvesting. He has left a big percent unharvested, which has supplied good feed and cover for pheasants and also for waterfowl use.

There was a fair crop of smartweed in Unit 10 in Leota, and also in Woods Bottom. There wasn't enough water in Unit 10 in Leota for fall waterfowl use. The water in Woods Bottom was below the smartweed contour, so we didn't receive much benefit from it. The water in Woods Bottom couldn't be raised due to construction.

Controlled burning on the refuge is paying off. The grasses on the burned areas come back higher and thicker than before burning. This makes better nesting habitat. Burning off the salt cedar the second time has killed lots of it. What regrowth came after the burning doesn't seem to be very hearty. Given time, it looks like salt cedar can be controlled by fire in places where there is enough grass to carry the fire through it.

The long, cold winter we had last winter was too much for a large percent of the pheasants on the refuge--lots of them winterkilled. What birds didn't winterkill were in the farm fields. The hawks and eagles worked on them all winter.

There was enough moisture last winter and in the spring to bring the grasses and wild flowers on the bench areas.

Young willows and cottonwood sprouts that came after burning have been heavily used by deer.

Alkali bulrush came well in the marsh areas, but some of it is high and dry this fall.



There has been enough high water in the river to flood some areas. These areas are full of carp. Great blue herons, black-crowned night herons, terns and cormorants fed on them all fall. Now that the units are frozen over, bald and golden eagles are getting some fish where they can get to them around the ends of culverts and structures where the water isn't frozen.

Several thousand acres of wheat, barley and corn are raised on farms near the refuge. Ducks and geese used these fields heavily until the first of the year.

C. Land Acquisition

No land was acquired in 1979.

D. System Status

1. Objectives

Our main objectives are duck and goose production and waterfowl maintenance. Goals are to produce 13,000 ducks and 1,000 Canada geese per year. These need revision, as do all our objectives. This will probably be done in the next year or so.

2. Funding

The table below summarizes fund targets for FY 78 through FY 80:

	<u>FY 78</u>	<u>FY 79</u>	<u>FY 80</u>
1210	\$108,900	\$132,000	\$130,000
1220	1,000	0	200
1240	4,600	5,000	4,000
1340	1,320	2,000	2,000
1400	<u>2,100</u>	<u>2,100</u>	<u>0</u>
Totals:	\$117,920	\$141,100	\$136,200
BLHP		\$344,000	\$ 45,000

II. WILDLIFE

A. Migratory Birds:

1. Waterfowl

Peak populations of waterfowl occurred in September and March. The high on spring migration was 13,450 ducks. The peak goose population was in October with 838 birds. Sandhill cranes stopped over on the refuge in both spring and fall. The first ones in the spring were March 20 and the last ones in the fall on October 20.

Two whistling swans visited the refuge on November 3.



Waterfowl Use Days

	<u>Use Days</u>
Canada geese	83,580
Mallard	270,750
Gadwall	133,350
Pintail	171,780
Greenwinged teal	158,820
Bluewinged teal	91,500
Baldpate	49,860
Shoveler	35,670
Redhead	1,200
Ringneck duck	6,300
Canvasback	1,020
Lesser scaup	6,420
Bufflehead	2,190
Ruddy	1,770
Goldeneye	300
American merganser	<u>3,600</u>
Total ducks:	934,530
Total waterfowl:	1,018,110

Duck production for 1979 was measured by making a full pair count of the refuge and then a brood index count, following Merrill Hammond's formula. Littleton, Hacking and Tornow counted pairs from vehicles and by walking-wading around the back sides of pools. We did our best to make a 100 percent pair count according to Hammond's criteria. However, we counted only pairs, lone drakes and up to three drakes as indicated pairs. We employed no correction factors, but counted only actual birds seen.

1979 Pairs

Mallard	247
Gadwall	281
American widgeon	61
Pintail	112
Greenwinged teal	65
Bluewinged teal	186
Shoveler	82
Redhead	30
Ringneck	8
Scaup	5
Ruddy	<u>10</u>
Total:	1,087

We used two methods for counting duck broods. Our Index Count was initiated and run on June 26, July 25 and August 23. For comparison, we also made a day by day count of IA broods. We recorded species, size, number and location and took care not to duplicate recordings. Next year one day of each week will be set aside for counting IA broods to achieve better consistency. Results of the Brood Index Count (3C) and the daily count (IA) are as follows:

	Roadside											
	Leota		Sheppard		Pond		Woods		Wyasket		Total	
	3C	IA	3C	IA	3C	IA	3C	IA	3C	IA	3C	IA
Mallard	2	5	6	3	1		5		2	2	20	16
Gadwall	26	18	8	11			9	24			43	53
Widgeon	3	1	4	3							7	4
Pintail		1	1	3					2	3	3	7
GW teal		1		3	1						0	5
BW teal	1	9	1	6	2		5				2	22
Shoveler		2	1		1						1	3
Redhead				1							0	1
Scaup	2	2									2	2
Ruddy											0	0
Unknown	1	2	2								1	4
Totals:	35	41	21	32	5		9	34	4	5	69	117

Hammond's method of calculating productivity rate and production was used to calculate Ouray's duck production.

$$\frac{\text{Brood/Pair Index}}{\text{Average Brood/Pair Index}} = \frac{\text{Production Rate 1979}}{\text{Assumed Average Productivity Rate}}$$

The Brood/Pair Index is the brood sample count divided by the pair count. The average BPI for the year will be the same as the BPI since this is our first year's data. The assumed average productivity rate is 45 percent, based on information from Patuxent Research Center. As we accumulate data in succeeding years, our average BPI and average Productivity Rate will become more precise.

$$\text{The BPI} = 69/1087 = .063$$

$$\frac{\text{BPI} = .063}{\text{Average BPI} = .063} = \frac{\text{Production Rate 1979}}{.45} = .45$$

A production rate of 45 percent for 1,087 pairs = 489 broods produced.

Calculation of Duck Production

	Pairs x	Productivity Rate	Broods	Flight Age Value	Production
Mallard	247	.45	111	6	666
Gadwall	281	.45	126	6	756
Widgeon	61	.45	27	6	162
Pintail	112	.45	50	6	300
GW teal	65	.45	29	7	203
BW teal	185	.45	84	7	588
Shoveler	82	.45	37	7	222
Redhead	30	.45	13	6	78
Ringneck	8	.45	0*	-	0
Scaup	5	.45	2	6	12
Ruddy	10	.45	4	4	16
Totals:	1,087		483*		3,003

* Ringnecked ducks did not stay to nest.

This production resulted from excellent water in Sheppard, marginal water in Leota, Woods Bottom flooded, Wyasket flooded in the huge flat but dry in the diked area, and with Johnson Bottom entirely dry. With better pumps and more water in the future we expect production to increase proportionately. Our DNC plantings will also contribute to increased production.

The coot breeding population of 1,200 produced about 1,000 coots to flight stage. A less than 50 percent coverage of Unit S-2 (Sheppard Bottom) found 33 coot nests with an average incubation clutch size of 11. Hatching success was higher than 90 percent, but the chicks soon disappear. We think that natural mortality, Great blue herons, American bitterns and black crowned night herons cause their disappearance.

The Canada goose breeding population was 250. We made a check of islands in the Green River where most all the geese nest. We found 30 nests of which 28 were destroyed, apparently by raccoons. We estimate 20 goslings raised to flight stage.

2. Marsh and Shore Birds

The usual amount and species of marsh and shorebirds were on the refuge all summer. Nothing unusual happened in numbers or otherwise.

Marsh and Water Birds

	<u>Use Days</u>
Eared grebe	2,770
Western grebe	3,000
Piedbilled grebe	9,390
Great blue heron	9,960
Black crowned heron	1,470
White faced ibis	7,980
American bittern	600
Sandhill cranes	1,619
Double crested cormorant	360
Snowy egret	<u>14</u>
Total:	37,163

Shore Birds

	<u>Use Days</u>
Killdeer	23,460
Willet	1,000
Greater yellowlegs	5,770
Dowitcher	5,990
Avocet	2,830
Phalarope	7,910
Spotted sandpiper	4,490
Sora rail	90
Virginia rail	90
Black tern	1,800
Forster's tern	5,760
Black necked stilt	<u>2,340</u>
Total:	61,530
Grand Total:	100,693

3. Mourning Doves

There were more mourning doves on the refuge than we have seen before, approximately 5,000 birds in Sheppard Bottom on August 3. There was a bountiful supply of feed for doves in the farm fields and areas that were flooded over by Pelican Lake water. On some burned areas there was also a good growth of sun flowers.

B. Upland Game Birds

1. Ringnecked Pheasant

As mentioned before in this report, pheasants really took a beating last winter. There weren't enough birds left this spring to be censused by the crow count.

Sheppard Bottom was closed to pheasant hunting this year. If we can save the birds we have left around the farm fields, maybe pheasants will make a come back. One hundred four hunters visited the refuge, but very few birds were taken.

2. Other Game Birds

We saw two pair of Gambel's quail on the refuge this year. We don't know if they produced any young.

C. Big Game Animals

1. Mule Deer

We estimate there were 100 deer on the refuge as of January 1, 1979. Most of the deer wintered pretty well, even with 16 inches of snow on the ground most of the winter. Coyotes worked on the deer herds some last winter and it is believed they really worked on the fawn crop last spring.

Hunters made 190 visits to the refuge hunting deer with rifles. Only seven bucks were taken.



No deer were taken during archery season. Only 25 hunters hunted on the refuge. Deer numbers seemed to be down all fall. More deer are being seen this winter, but it is doubtful if there are more than 75 on the refuge.

Some poaching of deer has been done on the refuge. Two hunters were apprehended. These were both Indian men. One man was run over by a car and killed before his trial. The other violation was handled by the Ute Indian Tribal Court, as it was on Indian ground leased to us where the poaching was done. This man plead guilty and paid his fine.

We found where three other deer had been killed by poachers, but we were too late to catch any violators.

2. Antelope

Antelope used Wyasket and Johnson Bottoms during the summer months to come to the river for water. Four kids were with the antelope in Wyasket Bottom. The area joining the refuge on the east side was open to antelope hunting, but the refuge itself has never been opened to antelope hunting.

D. Fur Animals and Predators

No permits were issued for beaver trapping on the refuge this year due to lack of interested trappers. Some beaver were trapped above and below the refuge. More beaver should be trapped on the refuge as they give us lots of trouble in our water distribution.

Most of the muskrats on the refuge in the past were in Leota Bottom. Last year and this year Leota Bottom has been mostly dry and the muskrats have moved out.

Skunk numbers don't seem to increase.

Raccoon completely destroyed the goose nests that were on the islands in the river. It is strange because there really isn't that amount of sign seen where coons have been. Tom Tornow trapped seven coons in November. A few others were shot during the summer.

Bobcats are seen once in a while. We are glad they are protected here on the refuge because their numbers are down all over eastern Utah.

Coyotes are getting to be a problem. When they travel in packs of six or seven they are too thick. Right now rabbits seem to be on a low cycle and the coyotes may be working on the deer. Sixteen coyotes have been shot on ground bordering the refuge.

Once in a while we see a badger. One has been working a prairie dog town in Unit 1 in Leota Bottom. We haven't decided if this

is good or bad. Most of the dog holes are in a dike with one of our main roads. First we bounced through dog holes and now it is badger holes. Prairie dog numbers are expanding. They are now in Sheppard and Leota Bottoms.

E. Hawks, Eagles and Owls

Raptorial Birds

	<u>Use Days</u>
Golden eagle	1,350
Bald eagle	510
Redtailed hawk	1,230
Roughlegged hawk	1,220
Marsh hawk	2,250
Sparrow hawk	2,520
Shorteared owl	60
Longeared owl	90
Great horned owl	1,260
Prairie Falcon	140

We also saw Ferruginous, roughleg, Harlan's, sharp-shinned, goshawks and osprey. A pair of golden eagles nested again this year on Leota bluff and fledged two chicks.



Linda Sanders and Carol Cranford from Bear River Refuge viewing the eagle chicks on Leota Bluff.

F. Other Birds

Nothing unusual to report.

G. Fish

Eastern Utah has very good trout fishing. Flaming Gorge lake has been yielding some record breaking brown trout and mackinaw, but people still like to fish for catfish in the Green River. It takes a special breed of person to put up with the mosquitoes just to catch a few fish.

This last year 278 visitors came to the refuge to fish the Green River. A total of 1,328 hours was expended.

The Colorado River Fishery Project office in Vernal reported the following fishes were found in the Green River through the refuge:

Catostomidae

Bluehead sucker
Flannelmouth sucker
Razorback sucker (proposed as threatened)
White sucker

Centrarchidae

Bluegill sunfish
Green sunfish
Smallmouth bass

Cottidae

Mottled sculpin

Cyprinidae

Colorado squawfish (endangered)
Bonytail chub (proposed as endangered)
Carp
Fathead minnow
Humpback chub (endangered)
Red shiner
Redside shiner
Roundtail chub
Speckled dace

Ictaluridae

Black bullhead
Channel catfish

Percidae

Walleye

H. Reptiles

We saw two rattlesnakes on the area this year.

I. Disease

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

1. Contracts

Skewes & Hamilton Construction, Inc., of Duchesne, Utah, were successful bidders on blacktopping the courtyard in front of the refuge shop. They were awarded Contract No. 14-16-0006-79-120 in the amount of \$27,300. This contract called for six inches of coarse base primer with a two-inch cap of hot oil surface mix.

Skewes & Hamilton were also successful on bidding a protection dike in Woods Bottom. This called for the construction of approximately three miles of protective dike with 47,200 total yards of fill, installing 124 linear feet of 24" diameter 16-gauge CMP with three metal end sections, and 24 linear feet of 30" diameter 14-gauge CMP with metal end sections. Contract No. 14-16-0006-79-100, total cost of \$52,710.



An aerial view of protective dike at Woods Bottom.

Regarding Invitation for Bid No. FWS-6-77-59 for Johnson Bottom pump installation, the only bid received was in excess of the engineer's estimate, so the invitation was cancelled.

This project was done by refuge force account. It included building a pump bulkhead by driving 8-gauge sheet metal piling and putting 6" double walers around the outside of the bulkhead walls and tying this all together with one-half inch cables going from the walers to a deadman buried at the back side of the bulkhead.



Aerial view of Johnson bulkhead, constructed by force account.

We then installed a 14" vertical mixed flow pump on the bulkhead. As this discharge ditch going from the pump to the desilting basin was through gravel, we laid 850 feet of 15" plastic line from the pump discharge pipe to the desilting basin.



Littleton and Tornow completing installation of Johnson Bottom pump.

About one mile of road was graveled going into the Johnson Bottom. Approximately 2,300 cubic yards of gravel was used.

During spring, Units 4 and lower Unit 7½ in Leota were burned. Also, the bottom between Unit 10 and the river was burned.

Woods Bottom was also burned to get rid of debris that would hinder the construction of the protective dike.

The farm fields in Sheppard were burned in the spring.

In the fall Units 1, 6 and 8 in Leota were burned, plus Unit 1 in Sheppard Bottom.

The water line at the shop had to be replaced. The old galvanized steel line was replaced with a plastic line.

Many days were spent working on and checking the new pumps that were installed in Leota Bottom. We worked with the Johnston Pump Company and also our engineers. As of this writing the pumps still wouldn't work.



Tornow burning L-8.

Larger motors (30 horse power) are going to be installed on the Leota pumps, replacing the 20 horse power motors that are on them now. One 20 horse motor will be used on a 10-inch pump to be installed in Wyasket Bottom and the other on the pump to be installed at the Sheppard No. 2 pumpsite.

Our Lorraine backhoe was converted to a dragline. The boom from the old Link Belt was installed on the Lorraine. We needed a dragline to make a pile driver to drive the piling in Johnson Bottom.

2. Habitat Development

Sixty acres of DNC were planted in Unit 9 in Leota. Ten pounds of tall wheat grass, two pounds of alfalfa and one pound of yellow clover were planted per acre. By planting and irrigating in September, we expect that a lot of the alfalfa will not be old enough to withstand freezing and will be killed out. We were unable to plant it earlier due to pump problems.

Twenty acres in upper Wyasket were summer fallowed to be planted into DNC. This plot wasn't planted as we never did get a pump in Wyasket.

Weeds were mowed from refuge roads in Sheppard and Leota Bottoms.



Hacking irrigating DNC in L-9.



Aerial of DNC field.

After we received our new John Deere motor grader, all refuge roads were graded.



Hacking leveling Pool 9 with new motor patrol for DNC planting.

2,4-D was used to spray giant whitetop in Sheppard and Leota Bottoms. We have a problem in trying to control the whitetop. Just when we should be spraying is when we are having high water in the river. This causes enough subbing that we can't get around with our spraying equipment.

Three new fuel pumps were installed, one for diesel, the others for unleaded and regular gas. Two new 1,000 gallon fuel tanks were buried, and our old 1,000 gallon tank was also moved and buried. These fuel pumps and tanks were installed where our new fuel house will be built. We wanted to have this done before the court was blacktopped in front of the shop.

Headache bars and protective screens were built for the two new trucks we got from GSA. A grill was also made for the Dodge pickup to protect the radiator.

Road barrier gates were made to close roads going into Sheppard Bottom. Sheppard was closed to all hunting this year.

A YCC camp was held at Ouray Refuge again this year. The enrollees only spent two weeks at the refuge. The rest of the time they were at Jones Hole Fish Hatchery and at the Browns Park Refuge.

While at Ouray they removed three-quarters of a mile of old fence in upper Wyasket.

They also painted propane tanks and gave the refuge headquarters a general cleanup. The campgrounds around Pelican Lake were cleaned up again this year.

Litter along State Road 88 was picked up where the road borders the refuge.

The boundary fence on the west side of the refuge was repaired and all refuge signs that needed it were replaced.

IV. OTHER ITEMS

A. Field Investigations

An "Inventory of Potentially Threatened and Endangered Plant Populations of Jones Hole National Fish Hatchery and Ouray National Wildlife Refuge, Utah" was completed by Dr. Stanley L. Welsh and Elizabeth Neese of Endangered Plant Studies, Inc. in September, 1979.

"Ouray National Wildlife Refuge.--The refuge consists of about 19 square miles of land, mainly bottom lands and river surface along the shallowly entrenched Green River near Ouray in Uintah Co., Utah. Benchlands are held up by upper strata of the Uinta Formation which form rounded and sculptured bluffs bordering the river valley. Pleistocene and earlier terrace gravels cover the benchlands. Bajadas and alluvial fans derived from the benches cover the margins of river terraces in the valley bottom.

"Vegetation is representative of the habitats available at Ouray. Banks of the Green River and abandoned meanders, some containing oxbow lakes, are fringed by cottonwood, willow, and tamarix. These woody species form extensive stands on some meander bends in the refuge. Skunkbush, greasewood, saltgrass, and alkali saccaton occur as secondary dominants in the stream-side forests.

"Marshes, both naturally occurring and artificial, support cattail and rush species as emergency. Alisma, Echinodorus, and Sagittaria are representative of shallow ponds. Saltgrass is widespread in the saline margins of marshes and forest types.

"Greasewood, seepweed, and shadscale grow along the drainages into the drier bajadas and fans, where shadscale, sagebrush, spiny hop-sage and horsebrush become co-dominant with Indian ricegrass, galleta, and numerous other species. This dryland shrub community is also present on the benchlands.

"Bluff margins and some of the more saline bajadas and fans are only thinly vegetated, with greasewood and dock as main perennial components.

"Annuals tend to cover the barren bluffs and fans in years of favorable rainfall. Species of buckwheat, mustard, and sunflower give the appearance of lushness, no matter how evanescent.

"The refuge has had a long history of use, primarily as grazing land for cattle, sheep, and horses, but also for use as cultivated land. There are few areas which can be judged as pristine, and with the orientation of management towards maximum production of water fowl, most of the area will not return to a pristine condition. Burning of underbrush or willow and tamarix is an integral part of that management.

"The bluffs and benchlands included in the refuge are protected from grazing of domestic livestock by fences. These areas are in good condition, and are representative of the nature of the region prior to settlement. They should improve further if grazing is restricted or excluded altogether.

"The refuge lands are only moderately used for fishing, but hunting of deer and waterfowl is extensive and heavy. Impact on the refuge is related to use of vehicles along the road systems and the tendency to drive off-road, especially along the bluffs in the western portion of the refuge.

"The vascular plant flora of the refuge is relatively large. -- In addition to those species collected during this investigation numerous others were observed. --"

"No endangered or threatened plant species were found in the Jones Hole National Fish Hatchery lands. Four species of plants which have been proposed for status under the Endangered Species Act were found growing in the Ouray National Wildlife Refuge lands. They are Astragalus duchesnensis, Cymopterus duchesnensis, Eriogonum viridulum, and Sclerocactus glaucus. All are locally common in the refuge lands, and only one of them, Sclerocactus glaucus, will be proposed for final rule-making procedures. The others will be delisted. --"

"A peculiar Arabis species was collected from cliffs of the calcareous Morgan formation in Jones Hole. It has not been

identified with other species known from this region, and might be undescribed---

"Echinodorus rostratus grows in the ponds at the Ouray National Wildlife Refuge, the only known locality for Utah.

"Proposed endangered and threatened plant species are not known from Jones Hole, but four have been taken from the Ouray National Wildlife Refuge.

"The four species are Astragalus duchesnensis, Cymopterus duchesnensis, Eriogonum viridulum, and Sclerocactus glaucus. Of these, only Sclerocactus glaucus is recommended for final rule-making procedures. The others have been demonstrated to be widespread in the Uinta Basin. Although the basin fishhook cactus is more abundant than previously known it has the potential for commercial exploitation. Populations of this beautiful cactus in the refuge lands should be protected from encroachment. Populations should also be protected from habitat destruction such as evidenced by harvesting of gravel from the bluffs."



Sclerocactus glaucus in flower on Ouray Refuge.

B. Cooperative Programs

1. CETA

For almost two years we have had two and sometimes more Indian men working on the refuge. They were working under the CETA program through the Ute Indian Tribe.

We hated to see the last two go. They had worked with us so long they seemed part of the crew.

Mr. Richard Jenks, Jr., went to work for Law and Order in Ft. Duchesne as a radio dispatcher. His last day with us was March 23.

Mr. Alvin Ignacio worked until July 12. He then went to work for the Forest Service of the Ute Tribe in Ft. Duchesne.

I would like to mention here that I think the CETA program as it was handled locally was one of the better Government programs. We received a lot of good work from these fellows. At the same time they were learning. When they left us they were both good welders and could work any of the equipment that we have on the refuge.

Their work habits showed a big improvement while working with us. One had a drinking problem, which he mostly overcame. They also got to where they were dependable coming to work on time.

2. Breeding Bird Survey

We run the 25 mile Altonah Breeding Bird Survey each year, and started in 1968.



Mike Perry of the Vernal Field House, Ed Lindquist, Wildlife Biologist with USFS, and Tom Tornow on the Breeding Bird Survey.

C. Items of Interest

The Refuge Manager presented a slide talk entitled "Fire Management of Riparian Habitat at Ouray National Wildlife Refuge" to the Central Mountains and Plains Section of the Wildlife Society meeting in Spearfish, South Dakota, in August.

D. Safety

We ended the year with 4,940 days without a lost time accident.

E. Credits

Report written by Lew Littleton.

