

RUBY LAKE NATIONAL WILDLIFE REFUGE

Ruby Valley, Nevada

ANNUAL NARRATIVE REPORT

Calendar Year 1981

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

W.O.

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JUL 26 1982

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U.S. Department of the Interior  
Fish and Wildlife Service  
National Wildlife Refuge System

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6 2 4 1 14 12 16 7 15 3  
Michele Jasper Flash

1. Forrest W. Cameron	Refuge Manager	GS-11/4	EOD 6/3/79
2. Stephen H. Bouffard	Biologist	GS-9/4	EOD 6/27/77
3. David N. Johnson	Assistant Manager (CS)	GS-7/1	EOD 6/1/80
4. Thomas M. Bowser	Maintenance-Mechanic(CS)	WG-9/4	EOD 12/3/78
5. Monica S. McQueary	Clerk-Typist (PPT)	GS-5/3	EOD 6/28/76 Resigned 5/30/81
6. Suzanne D. Haskins	YACC Clerk	Reappointed	12/30/80
	Clerk-Typist(TPT)	GS-3/1	EOD 5/31/81 Resigned 1/9/82
7. David Butler	YACC Maintenance		EOD 9/ /80
8. Marguerite Gould	YACC Biologist		EOD 9/9/81
9. Pat Frazier	YACC Biologist		EOD 3/ /80
10. Marlee Frazier	YACC Biologist		EOD 3/10/81
11. Perry Koontz	YACC Biologist		EOD 9/12/81
12. Tom Fondell	Biological Aid	GS-5/1	EOD 4/20/81 Term. 9/19/81
13. Shane Atwood	Laborer	WG-2/1	EOD 4/20/81 Resigned 7/23/81
14. Howell Marsh	Carpenter	WG-9/1	EOD 7/20/81 Term. 9/19/81
15. Henry Krenka	Eng. Equipment Oper.	WG-8/1	EOD 4/20/81 Term. 9/19/81
16. John Krenka	Eng. Equipment Oper.	WG-9/1	EOD 4/20/81 Term. 9/19/81

Review and Approvals

*Forrest W. Cameron* 6/30/82  
Submitted BY Date

*Jim Messeri* 7/9/82  
Area Office Review Date

*Bob L. Bushblom* 7/19/82  
Regional Office Review Date



1 2 3 4 5 6

1981 OSU Research Team

	<u>Appointment</u>	<u>Function</u>
1. Pat Frazier Fisheries Graduate	YACC	Cree! Census & Support
2. Richard Carmichael Fisheries Graduate	Master Candidate	Fisheries Analysis
3. Lori Carmichael Fisheries Graduate	Sea Grant/Work Study	Sample Analysis
4. Cecile Noyes Wildlife, MS	Volunteer/Work Study	Sample Analysis
5. James Noyes Wildlife Graduate, MS	Master's Candidate	Waterfowl Analysis
6. Ken Dzinbal Wildlife, MS	Research Assistant	Marsh Productivity

A. HIGHLIGHTS

- 1981 had only about 40% normal moisture.
- Collection Ditch was dredged.
- New fence, 8½ miles along west boundary with two new water gaps.
- Habitat Management Plan was completed. See section F-5.
- New water control structures were installed.
- Generator issue.

## B. CLIMATIC CONDITIONS

Temperatures were near normal all year long. The marsh opened earlier than normal in late February and early March. It froze over in late November about the normal time. Precipitation was only 1.1 inches lower for the year, but was poorly distributed. The first nine months of the year were below normal. Less than 0.5 inches of rain fell from June through September. Evaporation during this month was one inch about every three days. Snowpack and run-off was lower than normal. The spring and summer drought also reduced plant growth. Needless to say, the water levels in the marsh dropped rapidly and Franklin Lake dried up in July. The last three months of the year had near or above average precipitation. December had 3.82 inches of precipitation, more than twice the normal amount. This much precipitation in December means deep snow. This snow had a severe effect on wildlife (see Section G) and restricted travel out of Ruby Valley. The roads were often impassable even with four wheel drive and chains for days at a time. Snow pack in the mountains looks pretty good so the marsh should be filled to desired levels next spring and summer.

Table A can be used to compare 1981 with means for the 24 year period, 1951-1973 as published in Climate of Ruby Valley, Nevada by NOAA, April 1978.

Table A. Weather summary for Ruby Lake Refuge, 1981.

	Precipitation		Max.	Min.	Days 32°F or below		Days below 0°F	
	1981	Mean			1981	Mean	1981	Mean
Jan	.22	1.29	56	12	30	29	—	5
Feb	.17	1.23	61	-1	24	26	2	2
Mar	.89	1.07	60	15	25	27	—	1
Apr	.42	1.16	81	21	10	20	—	—
May	1.98	1.30	94	27	6	7	—	—
Jun	.11	1.00	95	31	2	1	—	—
Jul	.02	.54	95	44	—	—	—	—
Aug	.10	.66	94	42	—	—	—	—
Sep	.26	.48	90	34	—	5	—	—
Oct	1.57	.69	74	19	21	19	—	—
Nov	1.08	1.22	68	7	21	25	—	1
Dec	3.82	1.59	60	8	25	29	—	4
	10.64	12.23			164	188	2	13



## C. LAND ACQUISITION

### 3. Other

In June in response to a memo from Realty, refuge inholdings were identified for exchange. This meant reactivating a 1970 proposal to trade BLM land to a neighboring rancher, Clifton Gardner, so that the refuge could receive 120 acres of private land. The private parcel is along the east boundary in the Minnie Springs area which is surrounded on the north, west, and south by refuge land. Mr. Gardner is very willing to exchange land in order to consolidate ownership around his ranch. No action had been taken by Realty by year's end.

## D. PLANNING

### 1. Master Plan

Refuge manager Cameron is serving on the Region One Master Plan Evaluation Team. Team efforts began in February 1981, evaluating the Planning Workbook, National Wildlife Refuge System. Evaluation will continue into 1982, with team efforts directed at evaluation of the final Master Plan resulting from the pilot project at Grays Lake NWR.

### 2. Management Plans

#### a. Habitat Management Plan

A Management Plan was completed in December 1981 although final approval was not given until March 2, 1982. The effort began with aerial photography in 1979 and complete range inventory in 1980. Writing of the Plan was the responsibility of Assistant Manager David Johnson and took most of his time in 1981 to complete. Wildlife output criteria and locational criteria were drafted by Biologist Bouffard for all major wildlife species using the refuge. The Planning Workbook steps two and three provided guidelines for establishing these criteria.

The objectives of the Habitat Management Plan are:

- 1-To provide habitat to preserve, produce and maintain the wildlife diversity of the refuge,
- 2-To protect soils, water and vegetation,
- 3-To establish grazing and prescribed burning systems that can be shown to be beneficial to wildlife, and
- 4-To establish a working relationship between our staff and existing livestock permittees in order to reach wildlife management objectives with minimal impact to their operations.

Neighboring ranchers and existing permittees were continuously involved in developing the Plan. The Plan was also a major topic at the joint meeting of the Elko and White Pine County Sportsman's Clubs that was hosted by the refuge in June. It was discussed in depth again at the September 19 Nevada Wildlife Commissioners meeting held at Gallagher Hatchery, on the refuge, September 19.

b. Strategy Paper-Drawdown of the South Sump

In November the refuge started drafting a formal plan for drawing down the 7,000 acre South Sump. This is a joint effort by our staff and the Region II staff of Nevada Department of Wildlife. Drawing down the South Sump to increase its productivity has been discussed since the refuge's Water Management Plan was completed in 1977. No formal paper has yet outlined all the implications of this management technique even though the drawdown and its documentation is the purpose for most of our present research effort. This strategy paper will explain the mechanics of the two year drawdown process and how FWS and NDOW jointly expect the drawdown to affect wildlife, fish and recreation. The South Sump is the only area on the refuge where boating is allowed and it also provides most of the largemouth bass fishing available on the refuge. The drawdown has been the subject of many congressional inquiries and presentations to sportsman's clubs, county game boards, state wildlife commission meetings, State Multiple Use Advisory Committee on Federal Lands meetings, congressional briefings with Senator Cannon and Laxalt's office and with Congressman Santini.

3. Public Participation

See above, Section D-2.

4. Compliance with Environmental Mandates

Cultural resource Inventories were completed by Biologist Bouffard on two fence construction contracts and on a water system construction proposal for Gallagher State Fish Hatchery which is located on refuge lands. An environmental assessment was done by Cameron for the proposed construction at the hatchery.

5. Research and Investigations

a. Ruby Lake NR 81 - Canvasback/Redhead Productivity (14570-01)



Webtagging a hatching canvasback egg for growth studies. When the ducklings are recaptured nightlighting we know the exact age. We can then graph weight against age.

RC 6/80

and banding and marking. Clutch sizes, duckling survival and growth rates are monitored. A progress report is available on request from the refuge.

b. Ruby Lake NR 81 - Pesticide Effect on Wading Birds (14570-02)

This project was conducted by Dr. Charles Henny of the Pacific Northwest Field Station of the Patuxent Wildlife Research Center. It is part of a pesticide monitoring program in wading birds throughout the west. The study involves collection of eggs for pesticide content analysis, studying the productivity of each species, banding to determine wintering areas of each species and collecting food samples on the refuge to see if they contain pesticides. Emphasis here is on white-faced ibis, snowy egrets, and black-crowned night herons.

c. Ruby Lake NR 81 - Breeding Biology and Productivity of Largemouth Bass (14570-03)

This project was conducted by Michael Green of the Nevada Department of Wildlife. The objectives of this study are to identify factors limiting bass production and growth and to develop an improved fisheries plan.



Taking scale samples to estimate age for growth rate studies.  
6/80 RC

d. Ruby Lake NR 81 - Reconstruction of Past Environments in Ruby Valley (14570-04)

This project was conducted by Bob Thompson, a graduate student at Arizona State University. He is trying to reconstruct the climate and environment of Ruby Valley since the end of the last ice age 20,000 years ago by studying pollen and other fossils in core samples from the marsh and alpine lakes.

e. Ruby Lake NR 81 - Feeding Ecology of Canvasbacks and Redheads (14570-05)

This study was conducted by Jim Noyes, a graduate student of Oregon State University. Funding was provided by the Northern Prairie Wildlife Research Center through the Oregon Cooperative Wildlife Research Unit. The objective of this study was to determine the major food resources and to monitor body condition of canvasbacks and redheads during the breeding season. Field work has been completed and the final report is being written. The final form will be a Master's Thesis by June 1982.





Jim Noyes collecting waterfowl for feeding ecology studies.  
6/80 RC

f. Ruby Lake NR 81 - Feeding Ecology of Bass and Trout (14570-06)

This study was conducted by Rich Carmichael, a graduate student of Oregon State University. Funding was the same as study 14570-05. The objective of this study was to determine the major food items used by bass and trout and to determine the dietary overlap with canvasbacks and redheads. Field work has been completed and the final report is being written. It will be in the form of five technical papers and will be completed in June 1982.



Pumping stomachs of largemouth bass for feeding ecology studies. The method was excellent to sample bass food items but did not work on trout.  
6/80 DNJ



- g. Ruby Lake NR 81 - Distribution and Abundance of Major Invertebrates and Plants (14570-07)

This project was conducted by Ken Dzinbal of Oregon State University. Funding was the same as study 14570-05. The objective of this study was to determine the distribution and abundance of the major invertebrates and plants used for food and cover by diving ducks and fish. Field work will continue through 1982 with the final report due in September 1983.

## E. ADMINISTRATION

### 1. Personnel

The staff at Ruby Lake included many temporary positions this year to finalize the BLHP projects. No transfers in or out of the station were made. Assistant manager Johnson was promoted from GS-5 to GS-7 in March, 1981.

	<u>Permanent</u>		<u>Temporary</u>	<u>Other</u>
	<u>Full-Time</u>	<u>Part-Time</u>		
FY 77	4 (2 CS)	1	4	0
FY 78	4 (1 CS)	1	3	13 YACC
FY 79	4 (1 CS)	1	4	8 YACC
FY 80	4 (2 CS)	1	3	3 OSU & 3 YACC
FY 81	4 (2 CS)	0	4	5 YACC

Permanenet part-time clerk McQueary resigned May 30 after five years of service. This position was re-filled on a temporary basis by a former YACC enrollee (Haskins) who was already familiar with some of the clerical duties. Maintenanceman Bowser went on sick leave and annual leave December 7 pending the outcome of an OWCP decision concerning the tendonitis problem in his shoulders. To date, no decision has been made.

### 2. Youth Programs

Young Adult Conservation Corps (YACC) enrollees were used in biological, clerical, maintenance and research positions in 1981. Pat Frazier completed his years enrollment in March and his wife Marlee started March 10 and continued through years end. They both worked on the OSU research effort doing food sample analysis and creel census. Both were attending OSU. David Butler completed his enrollment October 29, and was used in all refuge operations. Suzanne Haskins, after a few months out of the program to get married, was re-enrolled February 9 doing clerical duties until early June when she was hired as a temporary clerk. Marguerite Gould began enrollment October 9, helping with office and biological duties. She is a wildlife graduate from OSU. Perry Koontz, also an OSU graduate began enrollment October 12 as support for Ken Dzinbal's research on marsh productivity. He worked mostly on invertebrate identification in bottom samples.

The YACC program was again a valuable help to all refuge programs and enrollees benefited from job related training. With its scheduled closure many tasks now done by YACC will be unaffordable and left undone at this station.

### 5. Funding

The table following shows funding levels for the past five years.

Table B. Funding levels for the past five years at Ruby Lake NWR.

FY	CM	O&M	CM	O&M	Other	Operational Total	1994 Quarters	2821 BLHP	Grand Total
82	--	123.0	--	17.0	2.0 <sup>a</sup>	142.0	5.5	--	147.5
81	3.3	115.6	8.2	17.6	--	144.7	4.6	117.8	267.1
80	10.0	101.4	13.0	11.7	--	136.1	--	582.0	718.1
79	9.0	116.4	12.1	16.5	15.0 <sup>b</sup>	169.0	--	130.1	299.1
78	--	128.7	--	39.2	--	176.7	--	8.8	185.5

a. 6810 expsnse for sales funds.

b. 5300 reverted PR funds.

In addition \$6,000 was made available in cost code 14100-1300-750-60 through the Boise Area Office to support research by Oregon State University. The extra support was necessary because YACC positions were no longer available for the 1982 field season. Because of \$100,000 force account BLHP funds for FY-81 most BLHP projects were completed. Hiring of temporary employees and using refuge equipment allowed significantly more work to be accomplished than originally planned through contracting procedures.

Funding is very tight for FY-82. Maintenance tasks for buildings, dikes, and roads are suffering. No vehicle replacement is possible with existing salaries. No temporary maintenance help can be hired. This station has only one permanent maintenance position and this is a career seasonal position. The assistant manager is also career seasonal although a request for his conversion to PFT was submitted in June. Biological programs will take precedence over maintenance in FY-82 and any maintenance task with significant cost will not be done.

## 6. Safety

Consecutive lost time accident days increased to 9,496 days this year. However, maintenanceman Bowser aggravated an already existing condition of tendonitis on 8/7/81 when he handled 200-90 lb. bags of premixed concrete. Formal changes were made in his duties to allow for lighter work. When no light work was available he went on sick leave beginning December 7, 1981.

An incident which occurred in April could have been much more serious when summer temporary Bioaide Thomas Fondell was launching the refuge boat. After backing the boat and trailer into the water, the parking brake on the Chevy Suburban was applied and the engine was left running with the transmission in neutral. The boat was launched and while moving it to the boat dock the parking brake failed allowing the trailer and Suburban to roll into about six feet of water. Other staff personnel responded to the situation and retrieved the vehicle within minutes. However, about \$1,200 worth of damage occurred to the electrical system including the two-way radio transmitter. Boats are now launched with the parking brake applied, engine off and in low gear to prevent similar incidents.



Tom Fondell giving 1979 Suburban a \$1,200 car wash.

DNJ 4/80

Cardiovascular pulmonary resuscitation training was held in April and basic first aid training was held in May in preparation for the public use season. Safety meetings were held on a regular basis throughout the year.

In July, refuge personnel responded to a heart attack victim at Shantytown. Oxygen was administered and the man was comforted until the ambulance arrived from Elko. The person survived the attack. No other public related accidents were reported this year.

## F. HABITAT MANAGEMENT

### 2. Wetlands

We followed the Refuge Water Management Plan closely in 1981. After the South Sump and the dike units were at the desired spring levels we put water in the North Sump. Little precipitation fell after May and we lost water rapidly to evaporation. Water was shut off to the North and East Sumps. The North Sump dried in August and the East Sump was nearly dry all summer. The dike units were maintained near desired levels. Unit 10 was drawn down in June after the nesting season was over and the unit was dry by September. The South Sump was about six inches above normal spring operating level and six inches below normal level by late winter.

The water in the North Sump attracted large numbers of breeding waterfowl including geese and redheads. A pair of trumpeter swans nested in the North Sump. Long-billed curlews and sandhill cranes also nested in the North Sump. The availability of water also attracted 10-15 pronghorn to the North Sump. The mud flats caused by low water levels in the North, East, and South Sumps attracted many shorebirds and wading birds.

We improved our water management capabilities in 1981. The Collection Ditch was cleaned out over most of its length. The areas silted in after the 1979 fire were cleaned of several feet of muck. Eight water control structures were repaired and improved leaving only one double structure at the end of the Collection Ditch that needs repair.

### 5. Grasslands

The Habitat Management Plan for Ruby Lake was completed this year, after review by livestock permittees and interested public. The 191 page document provides in depth information about 34 different habitat management units. Management problems were identified, wildlife objectives were established and management goals were set up to bring the refuge grazing, haying and burning programs into compliance with policy. The new plan will be initiated beginning April 15, 1982.

Much time was spent during late 1981 in preparation for the 1982 grazing season, especially in relation to Unit II and Unit IV. Opening of Unit II, for relief of pressure on Unit I was contested by 7H Livestock Company. The issue dealt with "historical grazing rights"; privileges which were not transferred with the ranch when it was sold in 1973 and 1978. The Habitat Management Plan calls for periodic grazing of Unit II to rejuvenate many decadent areas, but at the same time calls for a decrease in grazing pressure for Unit I.



Therefore, grazing pressure will be temporarily diverted to Unit II until proper stocking levels are reached on Unit I. The changes proposed for Unit IV were questioned by the Fort Ruby Ranch when informed that beginning 1982, it would be a requirement to properly maintain fence prior to turn on and that cattle ran by all permittees must have that permittee's brand.

The 1981 season was used as a transition year to allow for easier initiation of the Habitat Management Plan in 1982. Livestock permittees were informed of changes and pasture rotation was encouraged but not strictly enforced. The 1982 plan will be strictly enforced to meet management objectives.

Many physical improvements were completed this year which will improve wildlife habitat on grasslands and uplands. About eight and a half miles of boundary fence was rebuilt along the southwest side of the refuge. The four strand barbed wire fence was constructed with BLHP funds and was completed in July by Jerome Young of Lakeview, Oregon. Rock cribs were used as brace panels and wire spacing was done in a manner that facilitates deer crossing. This new fence will minimize the livestock trespass problems experienced in the past few years.

Two new water gaps were constructed in the boundary fence at County Line and Ramirez Spring to alleviate springhead trampling. An eight foot tank was installed at each location on an upland-sagebrush type where trampling is not as serious a problem as it was in the springheads.

In the fall of 1981, Unit V-D was plowed with an off-set disc plow behind the refuge TD-14. This old crested wheat field (established 1960) was planted to more desirable species in order to provide greater wildlife benefits. Some old yellow blossom sweet clover seed was used from refuge supplies, and timothy grass was purchased, but most seed was donated by the Nevada Department of Wildlife (NDOW). Following is a summary of actual seeding rates, mixtures, locations and methods used. Figure one is a schematic drawing of the planting site.

<u>Mix # 1</u>	
<u>20 acres</u>	<u>Rate/Acre</u>
Black medic	2 lbs.
White Dutch Clover	3 lbs.
Strawberry Clover	3 lbs.
Ladak Alfalfa	5 lbs.
Timothy Grass	2 lbs.
	<u>15 lbs.</u>

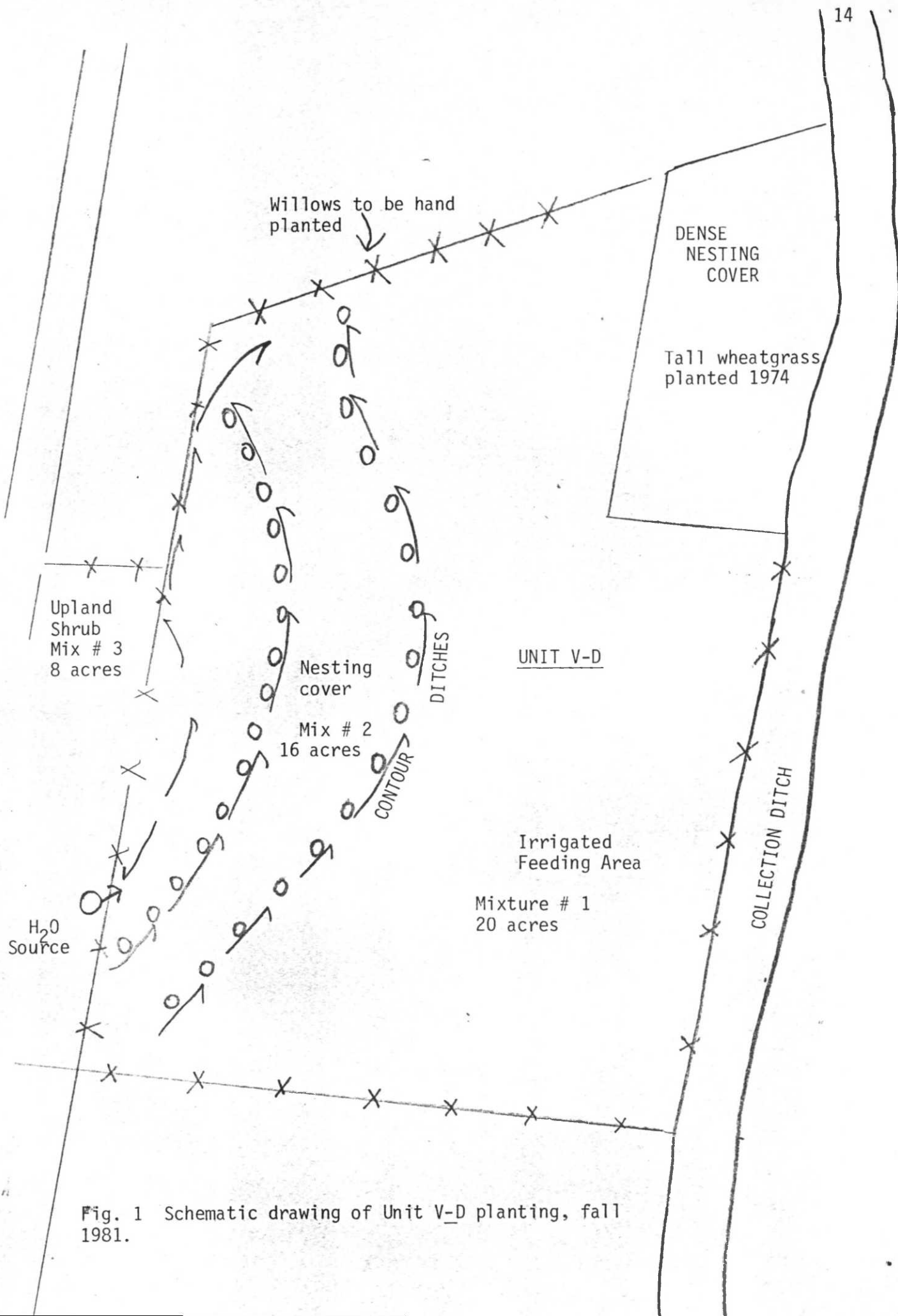


Fig. 1 Schematic drawing of Unit V-D planting, fall 1981.

<u>Mix # 2</u>		
<u>16 acres</u>		<u>Rate/Acre</u>
Cicer Milk Vetch		2 lbs.
Yellow Blossom Sweet Clover		2 lbs.
Eski Sainfoin		2 lbs.
		<u>6 lbs.</u>
<u>Mix # 3</u>		
<u>8 acres</u>		
Yellow Blossom Sweet Clover		8 lbs.
		<u>8 lbs.</u>

The method of seeding involved:

- Heavy fall grazing 1981 to break up ground, reduce competition of crested wheatgrass.
- Disc-plow to prepare seedbed - November 1981.
- Broadcast seed on top of two inches of snow - December 1981, to work into frozen ground.
- Place pasture in non-use status.
- Hand plant willows along contour ditches (proposed for April 1982).

## 7. Grazing

Five special use permits were issued for grazing in 1981. 13,236 acres of upland were grazed by livestock to harvest 5,148 AUM's of forage. Unit V was grazed at the heaviest level to prepare Unit V-D for seeding. Unit II has not been grazed for nine years. Following is a summary of the grazing program for 1981.

<u>Unit</u>	<u># Pastures</u>	<u>#Total Acres</u>	<u>#Acres Grazed</u>	<u>AUM's</u>	<u>AUM's/Acres</u>
I	14	2750	2714	3590	1.32
II	7	8994	0	0	0
III	6	9290	9290	1151	.12
IV	3	1133	1122	157	.14
V	5	312	99	250	2.53

Trespass of off-refuge livestock was a minor problem this year and totalled about two AUM's. Some unavoidable trespass was noted when the new fence was being built on the south west side, but no major impacts were observed. Much of this problem may have been alleviated when trespass warnings and one citation was issued in 1980.

## 8. Haying

About 45 tons of native grass hay were removed from 35 acres in Unit II-F, north of Bressman to remove 10 year old decadent vegetation and to provide spring goose browse. The fact that it was a very dry year helped alleviate some problems, but much time was spent by the permittee getting "unstuck."



Aerial view of haying operation on Unit II-F. 9/81 DNJ

Unit I-C and I-F were also hayed and bunch-raked to provide fall grazing for livestock. About 180 AUM's were harvested from Unit I-C with 80% use on cut hay. About 287 AUM's were taken from Unit II-F with about 75% use on cut hay. Average hay production at the current time is about 3,000 lbs/acre for Unit I-C and 2,600 lbs/acre for Unit I-F.

#### 9. Fire Management

Work commenced in December on the Fire Management Plan and Annual Burn Plan. Cameron, Johnson and Bouffard attended the prescribed burning workshop in November at Malheur NWR. Two prescribed burns were held in 1981. One was about 20 acres in a hayfield to remove old moldy bunch-raked hay on 7 April. The other was in early December in about 13 acres of DNC to remove old rank growth. The field was planted in 1972 and had not been managed since then. Most of the legumes were gone and only tall and intermediate wheatgrass remained.

No wildfires occurred on the refuge. Refuge employees as members of Ruby Valley Volunteer Fire Department responded to five range fires, all lightning strikes, and one car fire. Refuge employees also helped construct a fire house for the Ruby Valley Volunteer Fire Department Truck Number Three.

#### 10. Pest Control

A small concentration of Scotch thistle was identified along the east end of the Brown Dike during mid-July. Cliff Gardner, local representative for the Elko County Weed Control Committee assisted refuge personnel in chopping the weeds by hand to attempt control. This will be monitored in 1982 to determine success.

White top was also found in small concentrations in Unit I-B across from headquarters. Selective hand spraying of Roundup was used on about 60 square meters of the weed patches.

#### 11. Water Rights

The water rights associated with Flynn spring need clarification. The spring located above Shantytown has been traditionally associated with irrigation in Unit I-G-H. However, current domestic use at Shantytown has consumed much of the spring flow.



## G. WILDLIFE

### 1. Wildlife Diversity

Pronghorn use of the north end of the refuge has increased because more water is available in the North Sump. Repair of a windmill and increased water input to the North Sump was responsible for the greater water availability. Pronghorn use should increase again next year when the north boundary fence will be modified to allow easier movement of pronghorn.

### 2. Endangered/Threatened Species

No peregrine falcon sightings were made this year. Although several suspicious birds were seen, they were not able to be clearly distinguished from the common prairie falcon. Several bald eagle sightings were made on the refuge during the winter. Most of the bald eagles in Ruby Valley spend most of their time in the north part of the valley preying on jackrabbits and carrion.

### 3. Waterfowl

Ruby Lake NWR is primarily a production area. It is also used by moderate numbers of migrating waterfowl. Winter populations are usually less than 1,000 birds because of the cold and ice. Overall 1981 was a good year for waterfowl production at Ruby Lake NWR.

#### a. Swans

Trumpeter swans were not native to Ruby Lake NWR but were introduced from Red Rock Lakes in the late 1940's and early 1950's. About nine pairs nested on the refuge and three pairs nested at Franklin Lake in 1981 (see Fig. 2). Notice that only one-third of the pairs nested in the South Sump which contains over one-half the marshlands on the refuge, while nearly each dike unit contained one or more nesting pairs. This distribution is caused by human disturbance which causes most swans to avoid the South Sump for nesting.

Production declined from last year. Franklin Lake dried up by July so no cygnets survived from Franklin Lake. At least 11 cygnets were seen at Ruby Lake NWR but five are known to be dead. Three class two c cygnets died of shock in drive trap. One class three cygnet was killed by a coyote and another died of unknown causes. Estimated production was about seven birds (Table A).

Two hundred to 400 whistling swans used the Refuge from mid-October through November. Peak populations occurred in late October. -

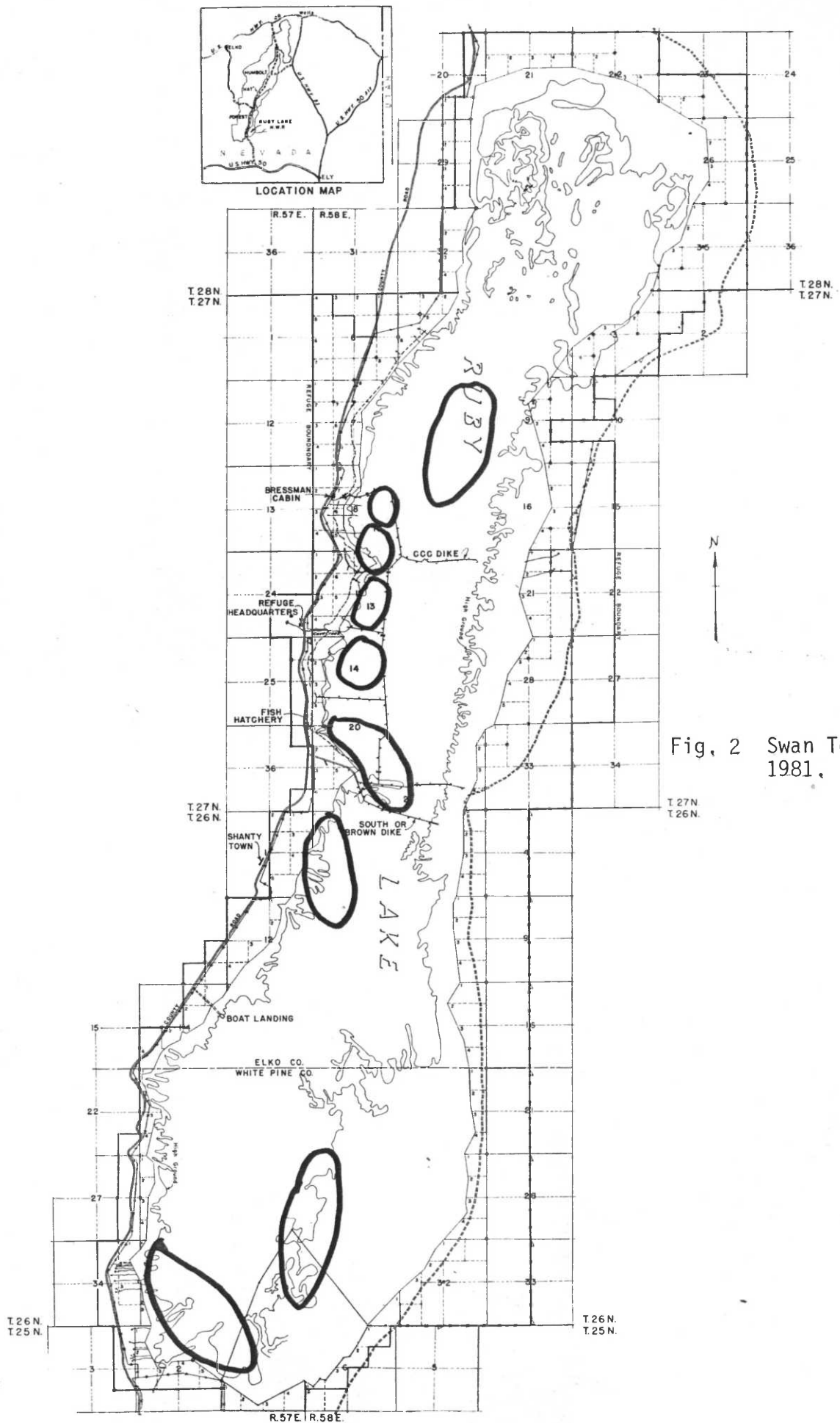


Fig. 2 Swan Territories 1981.

b. Geese

Goose production remained about the same as last year (Table C) even though the breeding population was smaller. Conditions were good and survival of the goslings was high. Once the geese fledged they generally moved north to feed in hay and grain fields. Few geese were on the refuge for the rest of the year with the exception of 300-400 for a few days around Thanksgiving and 100-150 in late December.

Six snow geese were seen this year, a flock of five in early November and a single with a flock of Canada geese in late November.

c. Ducks

Nesting conditions were good during 1981 and duck production increased for most species. Redhead production declined slightly but canvasback production doubled (Fig. 3, 4). Duck use days increased in 1981 largely because of the good production of young. Diving ducks had a high (80-90%) nest success. Dabbling ducks probably did well too but we were not able to spend much time locating and monitoring upland duck nests. We hope to be able to allocate more effort next year on upland nesting ducks.

The drought really affected waterfowl at Franklin Lake. In late summer Cameron saw several redhead broods hiking four to five miles from Franklin Lake to the North Sump of the refuge. One of the ranchers, Cliff Gardner, also saw broods walking south from Franklin Lake toward the refuge.

Table C. Production and use days of Canada Geese and Trumpeter Swans at Ruby Lake NWR.

	1977	1978	1979	1980	1981
Canada Geese					
Production	80	220	185	425	410
Use Days	35,857	37,170	32,053	81,687	72,755
Trumpeter Swans					
Ruby Lake					
Production <sup>a</sup>	4	2	2	11	7
Use Days	7,866	5,153	6,402	8,207	9,830
Franklin Lake					
Production <sup>a</sup>	0	0	11	0	0
Total Production <sup>b</sup>	4	2	13	15	7

a. Birds to flight stage.

b. Production totals may exceed the sum of the production at Ruby Lake and Franklin Lake because of breeding outside Ruby Valley or breeding in the valley that was not observed in any aerial survey.

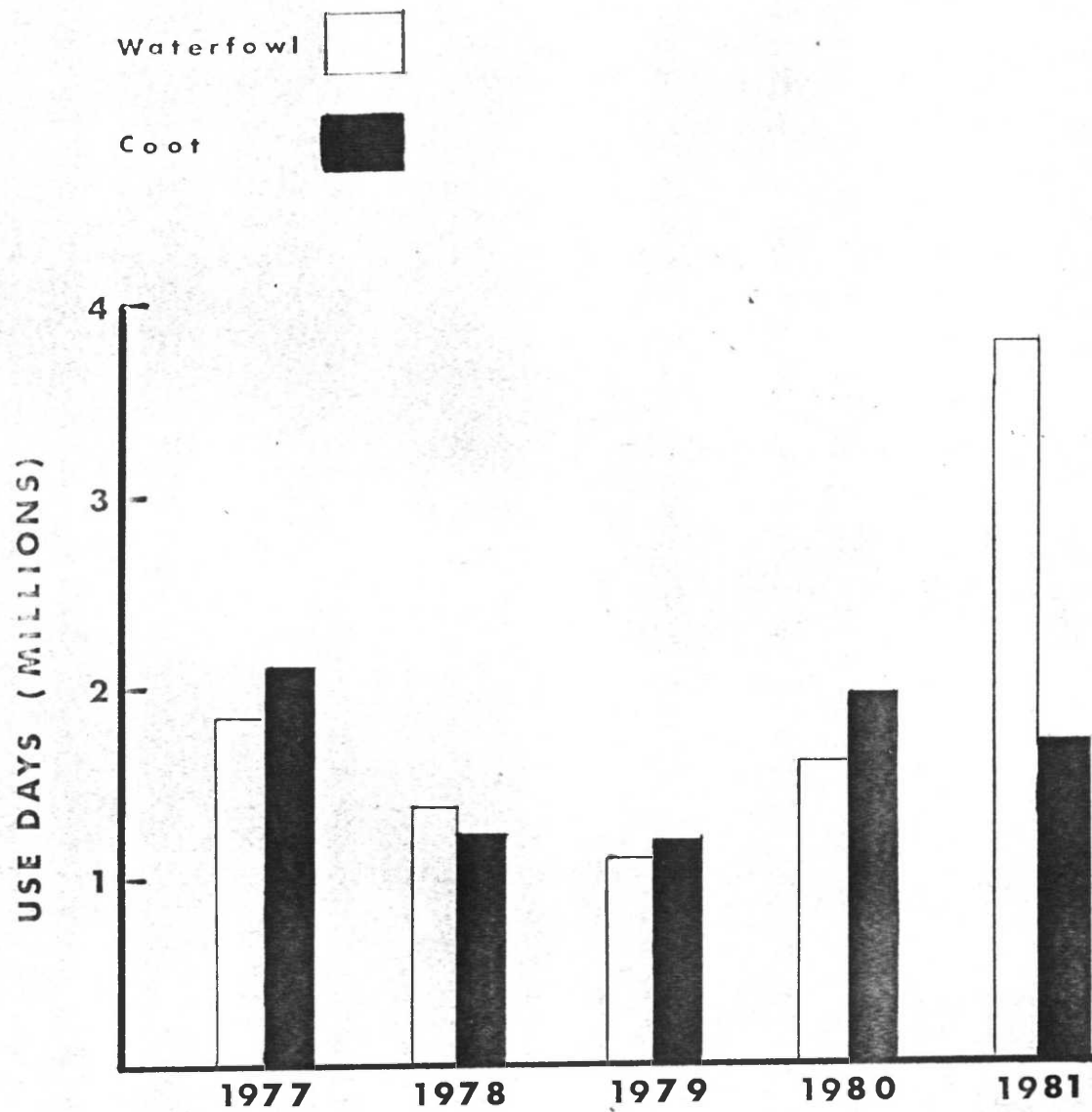


Fig. 3. Estimated waterfowl use days at Ruby Lake NWR.

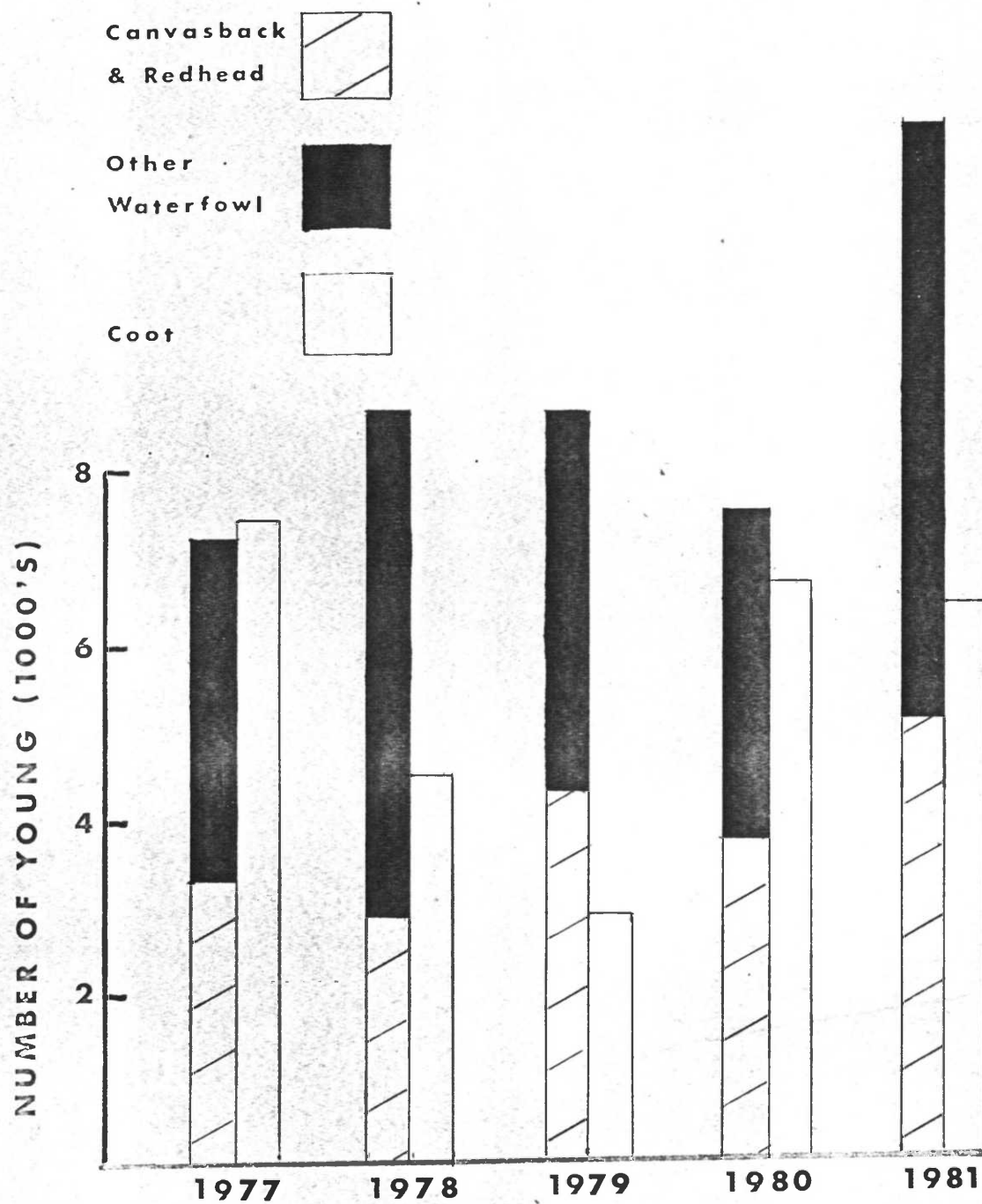


Fig. 4 Waterfowl and coot production at Ruby Lake NWR.



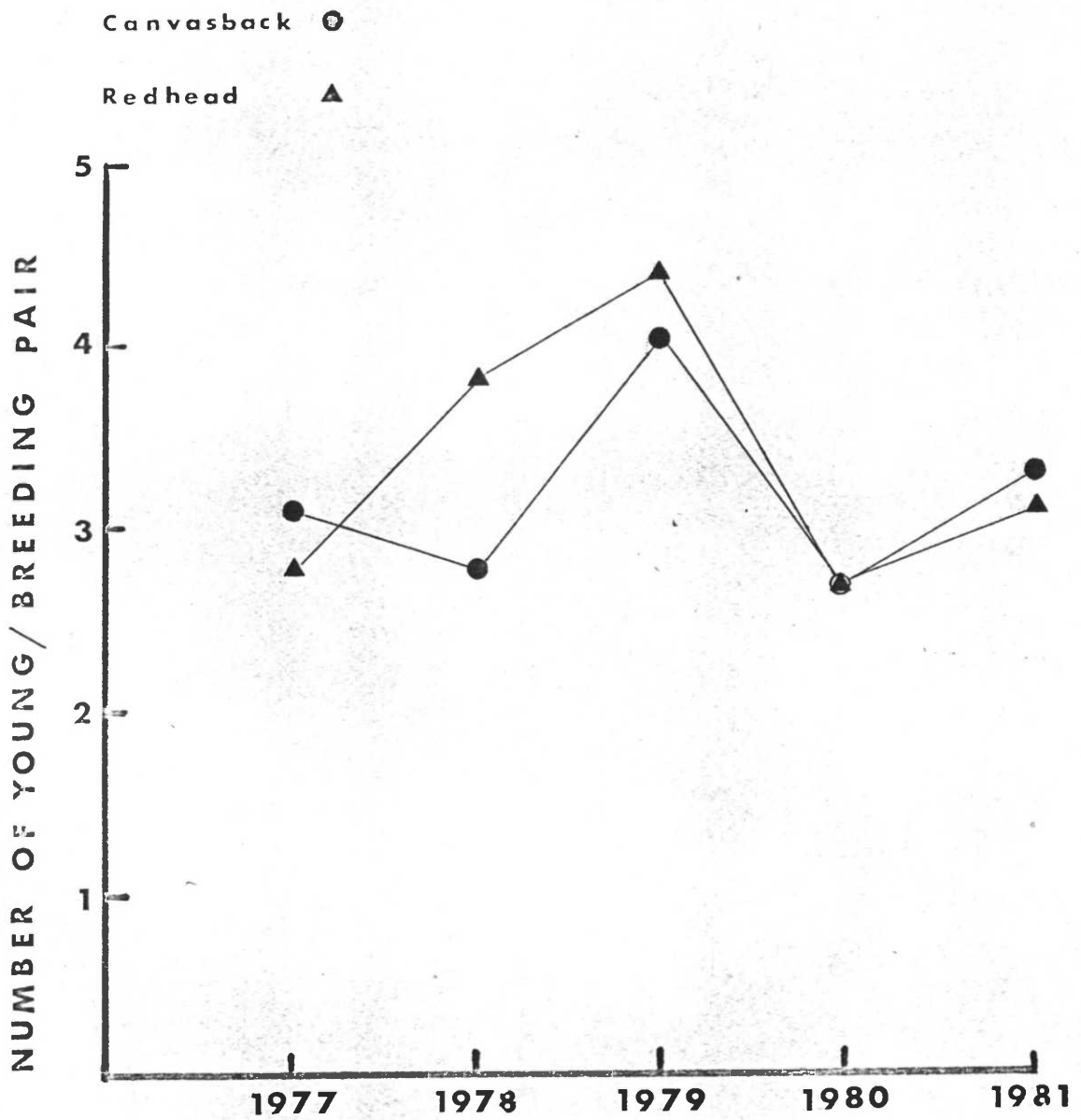


Fig. 5. Productivity of canvasbacks and redheads at Ruby Lake NWR.

#### d, Coots

Coot production and use days declined slightly from 1980 (Fig. 3, 4).

#### 4. Marsh and Water Birds

The number of nests in each rookery checked by the refuge is shown in Table D. Numbers of most species increased in Ruby Valley during 1981. There appears to be considerable movement of these species between Ruby and Franklin Lakes from one year to the next. Franklin Lake was most attractive to wading birds in 1981 because low water levels made large numbers of relict dace easy prey. Even though Franklin Lake dried up in July nearly all young fledged before it dried.

Some wading birds are still experiencing pesticide related egg shell thinning. Dr. Charles Henny of the Pacific Northwest Field Station of the Patuxent Wildlife Research Center has been studying the problem. He collected snowy egret eggs from Franklin Lake and black-crowned night heron eggs from Halleck for pesticide analysis. DDT is the main problem. Food items from Ruby Lake NWR were free of pesticides so the source of the pesticide is probably on the wintering ground. We have been banding as many of these species as possible in effort to locate their wintering grounds. We had quite a successful year banding these species (Table F).

We have problems with black-crowned night herons drowning at Gallagher Fish Hatchery, a Nevada Department of Wildlife Hatchery about one mile



Black-crowned night herons killed at Gallagher Fish Hatchery through May 1981. The 13 birds on the left died in one night, the others died earlier during the year. The raceways are covered with wire but occasionally they get into the raceways and die from drowning or hypothermia. Some hatchery visitors apparently opened one of the wire screens allowing the large kill. 5/81 SHB

Table D. Estimated number of breeding pairs of colonial nesting species on or near Ruby Lake NWR. All nests are in hardstem bulrush except Halleck (willows) and the Doughnut Colony (phragmites).

	1978	1979	1980	1981
RUBY LAKE NWR				
Unit 14				
WFI	150	50	25	15
BCNH	35	15	25	5
SE	50	0	35	5
South Sump #1				
WFI	nd	150	10	150
BCNH	35	30	20	15
SE	nd	30	0	0
GBH	nd	4	0	0
South Sump #2				
GBH	18	35	35	35
FRANKLIN LAKE				
Doughnut Colony				
WFI	90	120	95	0
SE	nd	100	75	150
BCNH				15
North Colonies				
BCNH	nd	nd	15	70
SE	nd	nd	12	30
GBH	nd	nd	0	4
CE	nd	nd	0	1
WFI	nd	nd	0	4
HALLECK				
BCNH	nd	nd	125	150
SE	nd	nd	300	70
GBH	nd	nd	15	10
CE	nd	nd	2	4

WFI = White-Faced Ibis  
 BCNH = Black-Crowned Night Heron  
 SE = Snowy Egret  
 GBH = Great Blue Heron  
 CE = Common Egret  
 nd = no data available

from Refuge Headquarters. All the raceways are screened but some of the older screens do not fit tightly. The herons get in but can not get out and die from drowning or hypothermia. Hatchery personnel have placed boards into each raceway so herons can remain out of the water. They check for trapped birds just before dark and right after daylight each day. Many birds are banded and released. Wet, lethargic birds can be saved by drying them in front of a heater.

Other species of this group that nest on the Refuge include pied-billed and eared grebes, American bittern, sora and Virginia rails and greater sandhill cranes. Reproduction of cranes was good in 1981, nearly every pair of the 20 or so on the Refuge raised one or two young. Nesting of cranes was confirmed on the islands in the South Sump. We also found a nesting colony of western grebes (about 10 pairs) in Franklin Lake in 1981.

#### 5. Shorebirds, Gulls, Terns and Allied Species

Willetts, long-billed curlew, American avocet, black-necked stilt, spotted sandpiper, Forster's and black terns all nested on the Refuge. We had up to 50 ring-billed gulls on the Refuge most of the summer and fall, but found no evidence of breeding. Other species such as greater yellowlegs, long-billed dowitchers and several species of peeps migrate through the Refuge each fall. Migrating shorebird numbers seemed lower than normal although they may have been more dispersed than normal because of the large areas of mudflats exposed because of low water levels.

#### 6. Raptors

Golden eagles, prairie falcons, red-tailed hawks, marsh hawks and great horned, long-eared, and screech owls used the refuge year round. Of these only marsh hawks and long-eared owls are known to nest on the Refuge; the other species nest locally. Short-eared owls and kestrels nested locally but generally wintered elsewhere, although one kestrel was regularly seen in December. During the winter 20-30 rough-legged hawks winter on the Refuge and one to two bald eagles use the Refuge periodically. After the heavy snowstorm around Christmas we found a dead barn owl on the refuge. Barn owls are very rare in this area although they may be more common than once thought because of their secretive, nocturnal habits.

#### 7. Other Migratory Birds

Species found in sagebrush and marshlands of the Great Basin are common on the Refuge. Many other species of songbirds are seen during the spring and fall migrations. The trees near headquarters and the riparian habitat along Cave Creek are the best places to observe these migrants. Dandelion seeds (we do not spray poisons on our lawns) on the refuge lawns attract large numbers of indigo and lazuli buntings, house and Cassin's finches, American goldfinches, pine siskins and black-headed grosbeaks. Unusual sightings on the refuge in 1981 included Townsend's warbler and Harris' sparrow.

Table E. Number of birds of each species seen on the 1981 Christmas Bird Count at Ruby Lake NWR.

Eared Grebe	3	Prairie Falcon	1	Loggerhead Shrike	1
Great Blue Heron	27	Am. Kestrel	1	Starling	13
Whistling Swan	21	Sage Grouse	44	Brown-Headed Cowbird	1
Trumpeter Swan	17	Chukar	12	Dark-Eyed Junco	13
Canada Goose	36	Am. Coot	44	Song Sparrow	11
Mallard	216	Common Snipe	4	<hr/>	
Gadwall	167	Screech Owl	1	Total Species	52
Pintail	52	Great-Horned Owl	1	Total Individuals	1109
Green-Winged Teal	60	Long-Eared Owl	4	Number of Observers	3
Blue-Winged Teal	4	Belted Kingfisher	4	Party Hours	22
Cinnamon Teal	19	Common Flicker	1	* Seen during the count period but not during the count day.	
Am. Wigeon	28	Downy Woodpecker	2		
N. Shoveler	2	Scrub Jay	4		
Ring-Necked Duck	23	Black-Billed Magpie	67		
Lesser Scaup	8	Common Raven	27		
Common Goldeneye	3	Pinon Jay	32		
Barrow's Goldeneye	6	Clark's Nutcracker	1		
Bufflehead	45	Mountain Chickadee	4		
Ruddy Duck	2	Bushtit	20		
Red-Tailed Hawk	4	Dipper	2		
Rough-Legged Hawk	14	Long-Billed Marsh Wren	4		
Golden Eagle	3a, 3i	Canyon Wren	1		
Bald Eagle	1a	Am. Robin	*		
Marsh Hawk	26	Townsend's Solitaire	1		



## 8. Game Mammals

Pronghorn use of the North Sump has increased. The North Sump has more available water and good food resources for the pronghorns. The Ruby-Butte Valley pronghorn herd has been increasing steadily. Next year we plan to modify the fences along the north part of the refuge to allow easier movement of pronghorn.

Mule deer were very abundant on the refuge during the winter, spring and fall of 1981. Summer use of the Refuge by mule deer was more restricted as most deer migrated north. Those that remained used the refuge primarily to water. The western edge of the Refuge is deer winter range thus explaining the large deer populations in winter, spring and fall. The deep snow and cold in late December 1981 drove the deer further south. Over 2,800 were observed from the Refuge headquarters moving south in the week after Christmas. Nevada Department of Wildlife biologists said that this herd is now 50-70 miles south of the Refuge. Those deer that stayed in Ruby Valley are concentrated around haystacks.

Coyotes, bobcats and mountain lion frequently use the refuge.

## 10. Other Resident Wildlife

Upland game birds did quite well in 1981 until the late December cold and snow. Chukar and gray partridge increased in number over previous years but were almost wiped out because deep snows covered their main food items for several weeks. One flock of over 200 chukars dwindled down to less than 10. One chukar was caught by hand; it was too weak to fly or run to escape capture. Sage grouse should have fared better since their main winter food, sagebrush leaves, was not buried by snow. Black-tailed jackrabbits have reached epidemic numbers. Although mountain cottontail and pigmy rabbit numbers have remained near normal. Jackrabbits were causing severe damage to shrubbery and haystacks in December 1981. The large number of jackrabbit carcasses on roads is attracting many raptors exposing them to collisions with vehicles and illegal shooting.

## 11. Fishery Resources

Fisheries resources at Ruby Lake NWR are managed by the Nevada Department of Wildlife under Refuge guidelines. NDOW has completed a draft management plan which will be finalized in 1982. They are also conducting research on the bass fisheries (see Section D-5). Largemouth bass populations are self-supporting but trout must be augmented each year by stocking.

#### 14. Scientific Collections

Dr. Charles Henny of Pacific Northwest Field Station (see Section D-5) collected 25 snowy egret eggs at Franklin Lake. Although Franklin Lake is private land the egrets at Franklin and Ruby Lakes were the same population.

Rich Carmichael collected about 50-60 trout and 10-20 bass to study the feeding ecology of fish (see Section D-5). Jim Noyes collect 60 canvasbacks and 61 redheads for a feeding ecology study on these species (see Section D-5). Collections concentrated on breeding females, but several drakes and ducklings were also collected.

#### 15. Animal Control

No depredation complaints were received in 1981. Muskrats were controlled by trapping in all areas of the marsh. Trapping was done by non-refuge personnel selected by lottery. Details of muskrat control will be discussed further under Section H-10 of this report even though the trapping program at Ruby Lake NWR is more of a control program than a recreational use. One nuisance beaver was destroyed in the Collection Ditch by Nevada Department of Wildlife personnel.

#### 16. Marking and Banding

Table F contains a summary of all banding and marking in 1981. The marsh and water birds were banded to help locate their wintering grounds (see Section G-4). One white-faced ibis was recovered in Sinaloa, Mexico. Two trumpeter swans were collared to help trace their movements off the Refuge in summer and winter. Our permit for collaring swans expired in 1981 and will not be renewed because of the difficulty of capturing swans and the loss of three cygnets to shock in a drive trap. The ducks were banded and marked as part of a canvasback/redhead project (see Section D-5). We will no longer apply nasal saddles. Saddle loss has been high and they are difficult if not impossible to read from a boat even when a spotting scope is used. Wear on the saddles has been very high; one two year old saddle was worn nearly in half.

Our nightlighting success has improved greatly over previous years with new equipment and procedures suggested by Tom Fondell. Our main lighting is an aircraft landing light mounted on a football helmet, powered by a 12-volt battery and a generator in our 9.8 hp outboard motor. We use a deep net with a 10 foot handle; the netter sits on

Table F. Summary of marking and banding at Ruby Lake NWR in 1981.

	Banded	Saddled	Collared	Webtagged
<u>Waterfowl</u>				
Canvasback	884	6		176
Redhead	185	7		119
Ruddy Duck	166			1
Northern Shoveler	19			
Lesser Scaup	19			
Ring-necked Duck	14			
Gadwall	14			
Mallard	14			
Cinnamon Teal	10			
Pintail	4			
Trumpeter Swan	2		2	
TOTAL	1331			
<u>Marsh and Water Birds</u>				
Snowy Egret	249			
White-Faced Ibis	138			
Black-crowned Night Heron	134			
Common Egret	2			
TOTAL	523			
<u>Raptors</u>				
Rough-Legged Hawk	2			
GRAND TOTAL	1856	13	2	296



Tom Fondell bags another one. This is our nightlighting team in action showing the helmet light and holding box. The duck has just surfaced; the bright spot in the net is it's eye. 9/81 SHB

the bow of the boat with feet over the edge. It sounds unsafe, but is really much more stable than kneeling on the bow of the boat. The boat operator is also equipped with a powerful light to locate ducks underwater when they dive to escape. Once located underwater they can be easily netted as they surface if the boat is kept in the proper position. Anyone interested in the technique should feel free to contact us.

#### 17. Disease Prevention and Control

No die-off's or disease problems were apparent in 1981. We collected gizzards and livers from canvasbacks and redheads during the 1981 hunting season for lead poisoning studies. One of 23 redhead gizzards contained two lead shot and 1 of 20 canvasback gizzards contained lead shot.

H. PUBLIC USE1. General

Public use for the past five years is summarized in number of visits in the following table.

Table G. Number of visits to Ruby Lake National Wildlife Refuge from 1976 to 1981.

Year	Fishing	Boating & Waterskiing	Hunting	Wildlife Observation	All Other	Total
1976	45,295	3,300	550	650	220	50,015
1977	45,885	3,720	510	769	496	51,380
1978	41,515	180	377	966	472	43,510
1979	51,419	10	364	1,236	348	53,377
1980	57,698	0	1,590	4,772	341	64,401
1981	64,733	0	704	6,304	402	72,143

Public use increased 12% over 1980 (Table G). The majority of this increase was from fishing. There were about 7,000 (12%) more fishing visits in 1981 than 1980. The other major increase was in wildlife observation. The decline in hunting was not as great as shown in Table G because of gross overestimates in 1980.

Public acceptance and support of the boating regulations seems to be increasing. Fishing has been excellent during the motorless boating season (June 15 through July 31) and declines during the outboard motor season (August 1 through December 31). This difference in angler success has not gone unnoticed by the general public.



## 2. Outdoor Classrooms-Students

On March 21 and 22, Cameron, Johnson, Bouffard and Swede Erickson (NDOW) presented a two day range management tour and training session to eight University of Montana range students and Professor Earl Willard. This was a continuation from last year when it was first done. Topics discussed included grazing for wildlife benefits, conflicts, stocking levels and local plant identification. The faculty at UM has requested that this be an annual event for mid-March.

Teachers and students from the Ruby Valley elementary school were taken on a tour of the refuge for environmental education by Johnson and David Butler (YACC). Bird identification, plant identification and wildlife needs were subjects taught. The school staff has requested this again for next year.



Many of these children from Ruby Valley had never visited the refuge before and were excited to learn about the wildlife here.

DNJ

## 7. Other Interpretive Programs

A joint rendezvous between the Elko County Sportsman's Group and the White Pine County Sportsman's Group was held at refuge headquarters on June 20. Refuge programs and regulations were presented by Cameron and Bouffard to a group of about 60 people. The Oregon State Research Team (Noyes, Dzinbal, and Carmichael) also presented information about current research projects.

Several people from around the country participated in various refuge projects including: nightlighting, nest searching and research efforts. Jerry Serie (NPWRC), Bob Jarvis and Howard Horton (OSU professors) were included when they came in June to evaluate the research projects.

## 8. Hunting

Only waterfowl hunting is allowed on Ruby Lake NWR. All hunting is restricted to White Pine County; about 3,500 acres of marsh is open to hunting. Hunting pressure was light except for the opening weekend. Because of low water levels, access to better hunting areas required more work than most hunters cared for. We received reports of over limits of redheads and canvasbacks, but were unable to make any cases. All our efforts were directed toward collecting gizzard and liver samples at both boat landings according to our AWWA. No manpower was left to patrol the marsh for violations. For the past several years neither the FWS Division of Law Enforcement or Nevada Department of Wildlife have been able to provide any assistance. Wanton waste of canvasbacks and redheads is increasing as a result.

## 9. Fishing

Angling pressure has increased by more than 7,000 fishing visits over the 1980 level of about 58,000. Much of this pressure was observed on the north dikes where pre-boating pressure is rapidly increasing. Michael Green (fisheries biologist-NDOW) has expressed some concern about this since the high pressure period is occurring during bass nesting dates. Many anglers are keeping fish six inches or less in size indicating heavy pressure in this area. Many people are also using motorless boats now and are fishing between June 15 and August 1 when gas motors are prohibited. This shift in use has been dramatic and many people have commented about the quality of experience they receive in a motorless boat.

## 10. Trapping

Trapping is used as the only method for disposal of excess animals. Trapping pressure is concentrated where it will provide the greatest benefit to stated objectives.

As with many muskrat populations, the ability to accurately estimate numbers is unwieldy at best. Data collected from trappers has been coupled with aerial house counts and on the ground observations. Following is a summary of population estimates for the past six years.

Table H.. Muskrat population estimate at Ruby Lake NWR from 1976 to 1981.

Year	Estimate	Sources	Density/Acre
1976	5,000-15,000	Ron Papike	.42-1.25
1977	5,800 houses	Bob Howard	.48
1978	20,000	Trappers	1.67
1979	32,000	Staff/Trappers:	2.67
1980	55,000	J.Sullivan, S.Anderson	3.33
		F. Cameron	
1981	50,000	D.Ashman, S.Eaton, S. Anderson	5.42

Errington (1940) states: "desirable breeding density is 2-4 rats per acre of open, deep water marsh." According to data gathered at this office from previous trappers Anderson, Sullivan, Ashman, Eaton, Jarvie, and Blakeslee as well as observations by refuge personnel, the marsh has a population averaging about 40,000 to 50,000 muskrats. This is slightly above the 2-4 rats per acre described by Errington.

Table I. Muskrat harvest data for Ruby Lake NWR from 1972-73 season through 1980-81

Season	Quota	Harvest	# of Units	25% of rat sales
72-73	3,000	1,715	3	None collected
73-74	4,000	1,200	3	None collected
74-75	3,000	800	3	None collected
75-76	3,000	2,605	3	None collected
76-77	3,000	3,404	3	\$1,724.85
77-78	3,000	2,531	4	\$2,767.61
78-79	3,000	2,768	3	\$2,553.92
79-80	4,000	2,536	4	\$3,240.19
80-81	5,000	4,513	3	\$7,811.93

This harvest information could be much more enlightening to the trapping program if follow-up spring census work had been done to determine percent harvest.

## 11. Wildlife Observation

Wildlife observation and photography increased in visits (Table G) and in percentage of visits (7% in 1980 and 9% in 1981). While these visits represent a small portion of our total visits they are increasing in proportion of visits each year. We are receiving many more inquiries about birding and photography. We welcome increases in this type of use as these visitors are generally very supportive of refuge programs.

## 17. Enforcement

Emphasis remains on enforcement of boating regulations that have been consistent since 1979, as resolved during the 1978 Defenders of Wildlife vs. Interior court case. Few problems have arisen although the restrictions on use dates and horsepower are still very unpopular with the same few vocal local residents. Citations that were issued were mostly from ignorance and occurred in early summer. The word has spread that boating violations are taken seriously and several phone inquiries and office visits are received now from people unsure of the regulations. Fishing and Boating brochures were dispensed to government offices, sporting goods shops, and license vendors throughout the state. Contacts were made with Charles Crunden and Dave Rice, NDOW public information specialists in Las Vegas and Reno so that the correct facts are given in their articles, appearances, and television shows. Emphasis will continue on this preventive type enforcement.

Table J below are citations and formal warnings issued in 1981. All citations were successfully prosecuted.

Table J. Citations and formal warnings issued at Ruby Lake NWR in 1981.

Date	Citation	Number	Fine	Comment
5/23	27.32	1	\$50	Boating
5/31	26.220	1	\$50	No fishing license
6/6	27.32	3	\$50 each	Boating
5/23	27.32	1	Warning	Use of float tube
5/31	27.32	3	Warning	Use of float tube
6/1	37.32	2	Warning	Reported use of float tube

Enforcement efforts were heavy on August 1 and 2, the first weekend that outboard motors were allowed. Refuge officers Johnson and Cameron patrolled jointly with four officers from NDOW. Several citations were made, most often for inadequate personal floatation devices. All were cited through the state court system by NDOW officers. Those and other NDOW citations issued on the refuge in 1981 are summarized for our files, but not available at this time. Joint enforcement efforts such as this are greatly appreciated by this staff since it shows citizens that wildlife laws are not simply restrictions imposed

arbitrarily upon them by the "Feds." And we think the efforts have made refuge recreationists exhibit a very high compliance level.

Illegal kill of canvasback and redhead ducks is a growing problem and will be addressed by the 1982 waterfowl season. Active enforcement has been lacking for several years because the refuge staff mans landings to collect biological data. NDOW officers are unavailable since deer, chukar, Hungarian partridge, and waterfowl seasons open by law on the same day.

Theft and vandalism is still minor here for an isolated area with over 72,000 annual visits. The theft of a 9.9 HP outboard and the cutting of 3 starter ropes on other outboards was reported in early August.



## I. EQUIPMENT AND FACILITIES

### 1. New Construction

All new construction and most rehabilitation was BLHP related. BLHP projects for FY-81 included \$110,000 for silt removal from the Collection Ditch and \$20,000 for a contract to replace boundary fences with materials on hand from YACC. We decided to remove the silt force account so \$100,000 was assigned to our station for silt removal and to complete as many unfinished, approved BLHP projects as possible. Temporary employees were hired to do most construction. Support was given as needed by YACC and refuge staff.



Marsh and Butler put finish on slab for our new oil storage building. Since no redimix companies care to deliver into Ruby Valley, it takes a lot of Sakrete. 8/81 FWC

New construction included replacement of an old wooden oil storage building with a metal Butler Building, purchased unassembled for \$2,500 from Briggs-Bonnet Builders in Twin Falls. For safety, the location was changed from behind the office to near the fuel facilities so that all flammables are in the same area.



Marsh, Fondell and others erected the Butler Building near the fuel facility built by BLHP in FY-80 9/81 FWC

## 2. Rehabilitation

Materials were purchased for 15 miles of boundary and interior fence repair and realignment. This would allow 1982 implementation of the extensive change in grazing required by our Habitat Management Plan.



This delivery was part of a GSA fencing order totalling \$20,882 for 15 miles of BLHP fence material. 10/81 FWC



The originally funded BLHP boundary fence project was contracted to Jerome Young, Lakeview, Oregon. The 8.77 miles of west boundary fence from Brown Dike road south cost \$13,625 and was completed in July.



Young's crew replaces part of the west boundary fence. Shortly after work began we changed specifications to all steel construction with the use of rock cribs such as this for corners and braces. This allows fire to be used easier in upland cover management and should prolong the life of the fences.

6/81 FWC

Another fence contract was awarded to Ken Greene of Carajo Rancho Enterprises, Silver Lake, Oregon for replacement of 10 miles of boundary fence on the north and west sides of the refuge. Work began in late December and stopped before year's end because of snow depth. Bid price was \$10,707.80.

Several short stretches of fence were also completed as summarized below:

Table K. Non-contract BLHP Fence Construction During 1981.

Who	Where	Miles	Labor Cost
Force Account	Gravel Pit Pond Exchange	0.5	700 Est.
Force Account	Bressman Cabin	0.3	500 Est.
John Krenka*	N.E. Boundary	5.5	880
Jerome Young	Between Unit III-C & III-D	1.6	1,700
Quip Risely	Between Unit I-O & IV-C	0.75	→ 1,800
Quip Risely	Between Unit I-J & I-M	0.25	
Quip Risely	Between Unit IV-A & IV-C	0.30	
Quip Risely	Between Unit IV-B & IV-C	0.20	
Quip Risely	Banana Pond Exchange	0.60	

\*Change old fence to barbless bottom wire and 18"-6"-8"-8" spacing for antelope. Project was not complete by year's end.

All old fence was removed at no cost from a priority list of neighboring ranches who wanted to salvage the materials. Much of the wire was still good, but most of the posts were converted to firewood.

The BLHP crew placed cattleguards at Bressman Cabin and Narciss Landing. Guards were on hand, salvaged from other areas, and concrete bases were purchased from Elko County Highway Department for \$1,000. A purchase order for \$3,500 was issued to Elko County Highway Department to furnish and install a 24 foot cattleguard 100 yards north of headquarters in the county road. Work was not completed by year's end. FY-82 O & M funds were used to pay Henry Krenka \$850 for installing cattleguards at Indian Creek fishing access, Passey Spring Hole fishing access, the west end of the CCC Dike road, and the CCC Dike at the Collection Ditch. Cattleguards were on hand. Bridge plank was purchased for use as bases.

Repair of several water control structures was planned and funded as projects for FY-79 BLHP. Only two were completed that year so it was high priority for 1981.



Placing the structure inside the cave at the head of Cave Creek required this elaborate concrete chute. Concrete was poured in water flows of 4 cfs. FWC 7/81

A gauging structure was placed inside the cave at Cave Creek. Five men and a winch cable were used to lower the 60 inch corrugated metal pipe (CMP) structure into place.





The finished structure was faced with native stone for aesthetics and the old plywood and timber flow gate was removed. FWC 7/81

Other control structure repairs were approved as PDW-25 for FY-81 BLHP force account funds. Deteriorated concrete structures were repaired in these locations: Unit 10 to North Sump, East Sump to North Sump, Unit 13 to East Sump, Unit 20 to East Sump, Collection Ditch to Unit 14, Collection Ditch to Unit 20 and Unit 21 to East Sump. The only one not completed was the double structure at the end of the Collection Ditch to Unit 21 and the South Sump.



Repairs were required because of cracked headwalls and stop-log channels, or because of poor design with stop-log channels too close to headwalls allowing pondweed to clog the flow. FWC 6/79





Henry and John Krenka placed coffer dams around the structures so the area could be pumped dry to pour concrete around CMP insert.  
FWC 7/81



Howell Marsh and YACC David Butler made forms and poured concrete to join the new CMP riser to the old headwall.  
FWC 7/81



Sakrete was mixed since no redimix is available. A new 30" riser with 60" stoplogs was inserted against the old headwall and into the old 36" culvert. The reduced volume will not be critical. FWC 7/81

The primary reason for our FY-81 BLHP funding was to clean and reshape the 30 year old, 6.25 mile Collection Ditch. A staggered work week allowed the dragline to be used for 10 hour days, 7 days a week by Henry and John Krenka. Still it took two months to complete the five miles of ditch needing work.



Henry Krenka reshapes the Collection Ditch near headquarters as a brood of redheads look on. FWC 7/81





Silted springheads such as this one near Bressman Cabin were cleaned during the ditch cleaning process. And in some shaded areas, large holes 6 to 8 feet deep were made to improve habitat for Brook, Brown and Rainbow trout.

FWC 5/81

### 3. Major Maintenance

A gravity flow irrigation pipe once used for meadow and lawn irrigation from Cave Creek was reactivated. All headquarters lawns and gardens north of the creek except around Quarters 100 and 101 can now be flood irrigated. This drastically cuts pump repairs and watering costs.

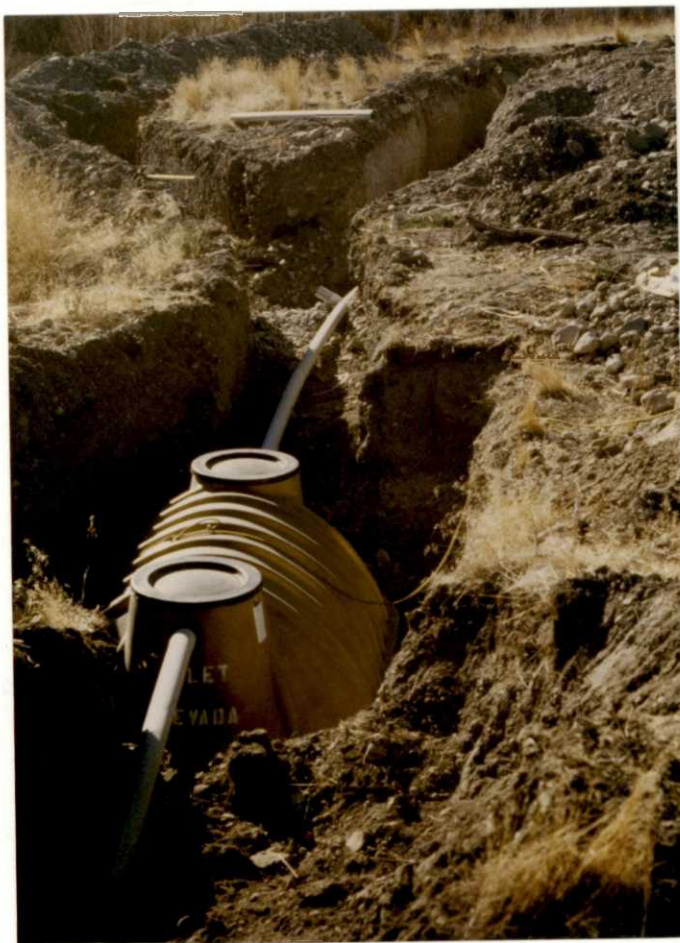


Maintenance mechanic Bowser modifies plumbing near the weather station to more efficiently irrigate the headquarters area. FWC 6/82



Bowser also repaired the sidewalls and porch in front of quarters # 8 and. . . FWC 8/81





...replaced the septic tank system in  
Quarters # 17 from the basement drain through  
the leach field. FWC 8/81



With BLHP funds a purchase order for \$417 was written to  
Louie Nelson, Elko, to replace the garage roof for quarters  
# 8 and 17. Shingles cost \$792. FWC 9/81



BLHP money also purchased \$1,644 worth of red cedar siding for future use on the above garage. That construction planned for FY-82 will finally make all buildings in the headquarters area have matching roofs and siding.

To cover flammable-marked insulation in new quarters 100 and 101, sheetrock was put on basement ceilings. Some sheetrocking and partitioning of basements was also completed. Garbage disposals were installed. Lawns and shrubs were prepared and planted around the two 1980 vintage quarters. Most such work was done by YACC Butler or volunteered by the occupants.

FY-82 O & M money was used to rehabilitate springheads and reactivate flood irrigation systems that have gradually deteriorated since operated by the ranch owners in the mid 1930's.



Springheads had been trampled and abused for many years by cattle under U.S. Forest Service permit coming down to water along the refuge boundary. DNJ 7/81

A purchase order was written to John Krenka from FY-82 O & M funds to repair springhead #'s 8, 75, 91, 103, and 109. Contour irrigation ditches totalling 1.5 miles were also to be cleaned out with a road grader at these same springheads. Total cost was about \$900.



Here a watergap is being completed in the County Line area. The springhead was fenced off for protection and a float-operated tank supplies water to cattle grazing on adjacent Forest Service land. FWC 9/81

#### 4. Equipment Utilization and Replacement

All refuge equipment was heavily utilized in 1981. It proved the value of refuge owned equipment in a station isolated like this. Without equipment our alternative would have been contracting most work and few area contractors want to come here without demanding premium prices.

Equipment including the TD-18, TD-14 and Austin-Western grader had recently been overhauled by Northern Nevada Community College as reported last year. The grader was replaced by a surplus 1963 Adams from Luke AFB, Phoenix. Hauling was done by valley resident Kirk Dahl for \$1,340 which is \$2.00 per loaded mile.

A Honda ATC 200 was purchased for \$1,440 for use in parts runs and creel census being done in the Oregon State University marsh productivity research project. It joins a Kawasaki KLT 200 three-wheeled cycle purchased in 1979. We think the Honda is a much superior and more stable machine. After late summer its uses were primarily livestock monitoring, fence maintenance and vegetation sampling.

The bucket on the ICH 2706 loader tractor was enlarged by Henry Krenka for more efficient loading of materials and snow removal.



The 1951 IHC dump truck was listed as surplus.

Another 9.8 HP Mercury outboard and a Mercury Thruster electric outboard were purchased in September for use in marsh research.

5. Communications Systems

Two General Electric mobile units and crystals for frequency conversion were acquired from YACC.

J. OTHER ITEMS3. Credits

Forrest W. Cameron: D-1-2-3-4, E-2-5, H-17, I-1 thru 7, J-1-2, K.

David N. Johnson: A, E-1-3-, F-5-6-7-8-10-11-12-, H-1-2-9-10,

Stephen H. Bouffard: B, D-5, E-7, F-1-2-9, G-1 thru 9, & 11-14-15-  
16-17, H-8-11

Monica S. McQueary: B, H-1-10, J-3, and typing.

### K. FEEDBACK

I respectfully request that refuge managers be consulted or at least promptly notified when AO, RO, or Washington Office staff is contemplating decisions that affect the management of any refuge.

In April 1981 some citizens from Elko, Nevada asked Senator Laxalt's office to intercede on their behalf to relax some refuge boating regulations here. Senator Laxalt's May 18 letter to Assistant Secretary Arnett requested a review of the issue. And Mr. Arnett replied to Senator Laxalt on July 14, 1981 that some relaxation of regulations could be allowed. Quite by accident in a July 30 phone conversation with Ed Murczek, RO/I&R, requesting a reprint of our Fishing and Boating brochure he asked if I wanted to include the revision. I had absolutely no idea of what he was talking about. He read the RO copy of Mr. Arnett's letter, and that was the first time I had any idea that a relaxation of regulations was being considered.

Whether the decision to relax regulations was biologically and legally correct or not has since filled two inches of file space in my desk. But that is not my point here. A very controversial decision was made that directly affects the refuge that I am charged with managing. No consultation with me or my staff was even attempted and I fully believe that it was done from sheer ignorance of the sensitivity of this situation. Elko County Nevada is the birthplace of the Sagebrush Rebellion movement and Ruby Lake was one of it's key issues. After the fact knowledge of this boating regulation change undermines my credibility in a community that has a firm distrust and contempt for federal bureaucrats anyway.

The backtracking, rethinking, and documentation of this public use decision consumed at least two months of my professional and private time. The final decision was strongly opposed in two resolutions passed by the Nevada Wildlife Federation in February 1982, opposed by the Nevada Wildlife Society Chapter, the National Wildlife Refuge Association and Defenders of Wildlife.

In my opinion, the idea of relaxing regulations was unnecessary to satisfy the public's desires. This issue could have easily been avoided if this refuge's staff had been consulted prior to decision making time. My suggestion is for the RO and WO staff to make the effort to acquaint themselves with key field issues and have enough faith in my staff's professionalism and dedication to allow us early input into the decision making process. We are the ones closest to the problem with the most information about the problems and we live 24 hours a day with the results of your decisions. Please allow our professional voices to be heard. . . before the decision.

I welcome your written or verbal comments on my views.



recommended standards as yet. Changes may occur.

These standards represent a means for ensuring educational quality and stimulating institutional self-improvement. They are aimed at 1) two-year collegiate programs that emphasize career goals and 2) two-year programs that emphasize the needs of transfer students. 1981, 13 pp. Cost: \$5.00

***Standards and Evaluative Criteria for Recreation,  
Park Resources and Leisure Services  
Baccalaureate Curricula***

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Cost: \$5.00

***Vandalism***

*By Ralph Thayer and Fritz Wagner  
Published by NRPA*

This study was done largely in response to requests by professionals in the parks and recreation field who are confronted with the growing problem of vandalism. It attempts to provide an overall statement of what vandalism actually is and what agencies are actually doing to combat it. "The cost to repair vandalism damage is astronomic. To give but one example: the United States Office of Education estimates repair costs for school vandalism are more than one-half billion dollars annually (Abramson: 1977)." With this as an introduction, the authors provide an in-depth look at some of the problems and solutions that confront recreation and park agencies today. 1981, 200 pp.

Cost: \$8.00



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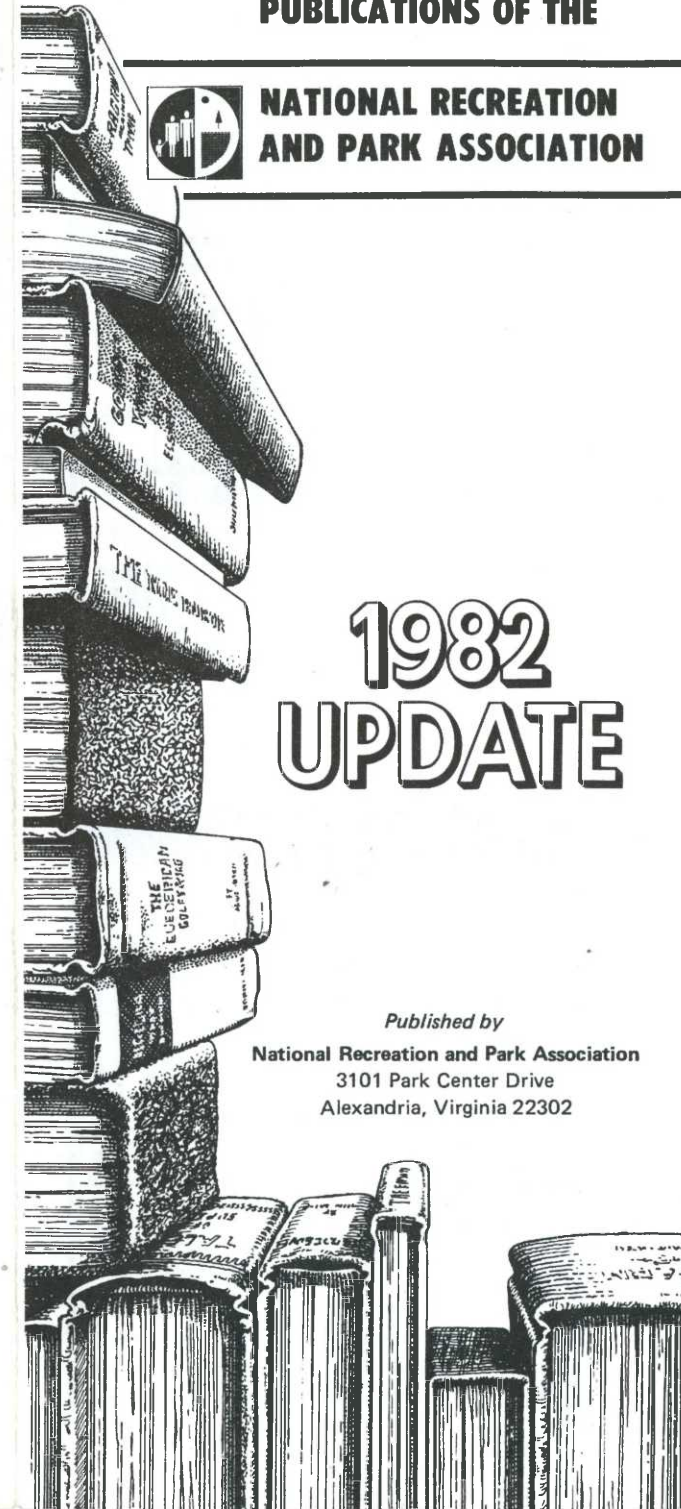
PUBLICATIONS OF THE



**NATIONAL RECREATION  
AND PARK ASSOCIATION**

**1982  
UPDATE**

Published by  
National Recreation and Park Association  
3101 Park Center Drive  
Alexandria, Virginia 22302



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The Publications Department of NRPA has issued 18 new titles since the distribution of the 1981 CATALOG. This 1982 UPDATE lists them alphabetically by title and provides a short abstract of each one. The title *Procedural Guidelines* is not new but is included because it is usually sold as a companion piece to the new *Baccalaureate Degree Standards*.

The 1981 *Directory of College/University Programs* was listed in the 1981 CATALOG and is listed here again. We feel that together with the 1981-82 *Curriculum Catalog* these two documents offer the most detailed and comprehensive data available on parks, recreation and leisure services programs.

Your order will be sent to you library rate. Please allow about 4 weeks for delivery. If you would like a listing of all NRPA publications, write to Jim Stickler at NRPA for a free catalog.

This 1982 *UPDATE*  
and the  
*1981 PUBLICATIONS CATALOG*  
were edited and produced  
by  
Jim Stickler, NRPA Book Center  
Supervisor.

**Listed alphabetically  
by title.**

*Abstracts from the  
1981 Symposium on Leisure Research  
Sponsored by NRPA, National Park Service,  
U.S. Army Corps of Engineers and  
U.S. Forest Service*

This latest edition of leisure research abstracts presents papers precisely as submitted by authors of original research presented at the Leisure Research Symposium in Minneapolis. Topic headings include: Cultural/Sociology and Leisure, Forest and Rivers Recreation, Leisure and Aging, Marine Recreation, Management Research, Play Behavior, Psychology of Leisure, Research Methodology/Evaluation, Resource Planning, Special Populations, Tourism and Commercial Recreation, Urban Recreation. 1981, 143 pp. **Cost: \$5.00**

**American Recreation Society:  
The Middle Years 1952-65**  
*By former ARS members and the  
APRS Retired Professionals Committee*

This publication brings the written history of the American Recreation Society (American Park and Recreation Society) up to January 1, 1966, when a merger of the American Recreation Society, National Recreation Association, American Institute of Park Executives, National Conference on State Parks and the American Association of Zoological Parks and Aquariums was culminated.

This publication presents highlights of each annual ARS presidential administration. It discusses development of society goals and the fostering of relationships with other organizations. *ARS Middle Years* takes up where the written history of the beginning of the Society (1937-52) leaves off. 1981, 62 pp. **Cost: \$4.00**

### ***Cleaning Recreation Sites***

*Published by NRPA in cooperation with  
NSPR and USDA Forest Service*

Announcing a new, cooperative publication: *Cleaning Recreation Sites*, published by NRPA and USDA Forest Service. The National Society for Park Resources, a branch of NRPA, and the Forest Service's Equipment Development Center in San Dimas, California, have put together a manual of basic procedures.

The book includes sections on how to clean waste and non-waste facilities. Vault, flush and chemical recirculating toilets are covered. Tables, grills, water hydrants, rocks and masonry are also given ample treatment. A section on pressure washers is included.

This publication can be used by managers, designers, aides and other personnel involved in maintenance and cleaning. 1982, 88 pp. **Cost: \$8.00**

### ***Curriculum Catalog 1981-1982***

The Biennial Directory of Park and Recreation Curricula by the Society of Park and Recreation Educators, NRPA. This is the most comprehensive single document relating to curricula in parks and recreation. Information for each of the over 100 programs listed in the catalog include the following: name and address and phone number of department chairman; institution's enrollment data and fees; park and recreation degrees offered; list of faculty; program emphasis; prerequisites for admission; degree requirements; major professional courses; financial assistance; etc. 1981, 384 pp. **Cost: \$5.00**

### ***Directory of College/University Programs in Recreation, Leisure Services and Resources 1981***

*Compiled and edited by Donald D. Henkel  
Published by NRPA*

This publication culminates the efforts of NRPA to computerize all known park and recreation curricula in colleges and universities throughout the United States and Canada. Approximately 500 separate programs are listed as compared with the previous listings of 315 in 1973 and 203 in 1969. The Directory is divided into two major sections. Section I is the most comprehensive and presents institutions in alphabetical order by state and prov-

ince, name of department chair and title, department name and address and phone numbers. The second section lists all institutions by options or areas of specialization. Degree levels are identified. 1981, 48 pp. **Cost: \$6.00**

### ***Guidelines for Administration of Therapeutic Recreation Service in Clinical and Residential Facilities***

*Developed by the National Therapeutic Recreation  
Society Standards Committee*

The need for professional standards in the field of therapeutic recreation grows each day. The development of therapeutic recreation as a legitimate health care service has brought with it the responsibility and expectation of accountability. Therapeutic recreation professionals recognize and accept this responsibility and through efforts such as this are constantly working toward upgrading their contribution in the delivery of health care services.

This document is intended to be a guideline or standard for evaluating the therapeutic recreation service within various residential and/or clinical settings in which this service is being provided. It will also serve as a resource in developing recommended standards for various accrediting agencies such as the Joint Commission on Accreditation of Hospitals; Department of Health, Education, and Welfare; and the Commission on Accreditation of Rehabilitation Facilities. 1982, 10 pp. **Cost: \$3.50**

### ***A Guide to Working with the Media*** *Produced by Martha Nudel, NRPA Director of Communications*

Short but succinct, this guide outlines the value of public relations to the park and recreation agency. It helps you define who your audience is. Then it gives you sample courses to follow: setting out the facts, developing media contacts, writing press releases, planning TV and radio talk shows, producing public service announcements, writing editorials, and organizing newsletters. Standing rules for communications departments are laid out.

This manual is an invaluable, inexpensive aid to any department no matter what size or budget. 1981, 19 pp. **Cost: \$2.50**

### ***Innovative Teaching Methods in Recreation and Parks***

*Edited by Arlin Epperson*

Thirteen monographs by 11 different individuals examine various approaches to the education process. Each paper details a specific approach used in creating an effective learning experience. Most of these innovations are aimed at undergraduate and graduate programs. The papers are varied in scope and length. This document originally appeared in the mid-1970's. It is reprinted now due to popular demand. Reprinted 1981, 50 pp. **Cost: \$5.00**

### ***Introductions to Management: Designed for Women in Recreation***

*Margaret Payne, Project Coordinator  
Published by APRS and NRPA*

This training manual was developed as a special project of the American Park and Recreation Society's Committee on Women's Opportunities. The project began under the leadership of Chairman Bette Weseman in 1977 as a way to reach women on the leadership level in recreation who aspire to management and supervisory positions. The book can be used as a course text or as a reference manual. It is divided into many sub-sections which are indicated by chapter tabs. Some of these sub-sections are: Socialization, Communications, Assertion Behavior/Training, Goal Setting/Career Planning, Organizational Structures/The Professional Woman. Includes listings of relevant books, films, professional organizations and other additional materials. 1981, approx. 200 pp. **Cost: \$18.00**

### ***Issues and Guidelines for Establishing Third-Party Reimbursement for Therapeutic Recreation***

*by Fern Kaufman Ingber, edited by Ray E. West  
Published by NRPA and  
National Therapeutic Recreation Society*

Third-party payments are one way in which TR services have the potential of becoming self-supporting. This booklet defines the issues involved in third-party reimbursement. Appendices contain the following information: Selected list



of individuals receiving coverage for TR service, selected bibliography, criteria for reimbursement in Pennsylvania. 1980, 27 pp. Cost: \$4.50

***Journal of Leisure Research Index 1969-78***  
*Edited by Robert Mclellan and Gladys Crawford*

Published by NRPA and Clemson University, this index provides an alphabetical listing of JLR articles from the journal's inception in 1969 up to and including 1978. Each article is listed 3 times, once under the author's last name, once under the article's title and once again under a subject heading. The entire index is alphabetized with subject headings in capital letters serving as easy-reference points.

The design of the index is similar to a normal issue of JLR and is suitable for binding with previous issues. 1981, 64 pp. Cost: \$5.00

***Manual for Systematically Developing Job Descriptions***  
*by James Brademas and George Lowrey of the University of Illinois*

The original study from which this Manual was produced was developed under a grant from the United States Office of Personnel Management under the Intergovernmental Personnel Act (P.L. 91-648).

The Intergovernmental Personnel Act (IPA) of 1970 was enacted to help state and local governments improve their ability to manage public programs. Through the IPA program, financial assistance is made available to state and local governments and institutions of higher learning for studies directed toward improving management practices.

One of the essential functions of good personnel management is a method of analyzing jobs. Accurate, systematically developed job descriptions are basic to recruitment and selection, training, supervision, performance appraisal and employee understanding of job responsibilities. This Manual is developed for use by public sector employees with the expressed purpose of improving personnel management practices as they relate to analyzing jobs. 1982, 57 pp.

Cost: \$5.00

***National Directory of County Park Agencies 1981-82***  
*By Michael Martin and Douglas Knudson of Purdue University in cooperation with the National Society for Park Resources and NRPA*

This directory of 1130 park and recreation departments includes 1112 county park agencies and 18 multi-county agencies. It lists the name and address of each agency and offers two charts listing: number of counties by population class (1970) and number of multi-county park agencies by state and county population class. A short history of county agency growth is offered. The overall listing is alphabetical by state and alphabetical by agency name within each state. 1981, 40 pp.

Cost: \$5.00

***National Workshop on Computers in Recreation and Parks 1980***  
*Published by NRPA*

These papers were presented at the 1980 workshop in St. Louis, Missouri. Paper topics include use of the computer in the following areas: utility monitoring, program registration, facility reservation, management simulation, spatial data analysis and others.

Also included are excerpts from unedited tapes of workshop sessions. Tape topics include: expendable inventory control, computer graphics, touch sensitive input for data entry and using a cash register as a computer terminal. 8 papers plus 4 unedited excerpts. 116 pp., 1981

Cost: \$10.00

***Park Planning Guidelines Revised***  
*By George Fogg*  
*Published by the National Society for Park Resources (NSPR), a branch of NRPA*

This resource book discusses essential considerations in developing large-scale, resource-oriented parks. Some of the topics covered are methods for determining visitor demand, park architecture, trails, roads and parking, utilities, signs, play areas, boating, winter use areas, hunting and wildlife management, and estimating. A glossary of recreation planning terms and a bibliography are included. This revised edition has been updated and much new material has been added. Here are some of the highlights: metric conversions added next to English units; up-

dated data on handicapped facilities; major new section on alternative sanitary systems; vastly expanded trail section—information on bicycle trails, all-terrain vehicles, jeeps, motorcycles; new section on whitewater boating. In all there are 60 pages of brand new text in addition to revisions of the first edition. 1981, 202 pp.

Cost: \$10.00

***Parks and Recreation—An Economic Justification***  
*By Robert L. Wilder*

The purpose of this book is to respond to a problem and a need that is felt by those individuals and agencies who labor on behalf of parks and recreation. The book addresses the need for documentation and justification of the values of parks and recreation in quantifiable terms, the need to defend budgets, influence legislative direction, educate the public and compete for financial resources in a fair and equitable fashion. It attempts to offer a rational rather than an emotional basis for choosing between competing interests in a world of limited resources.

This book is a unique study of a perennial recreation problem. Chapter headings include the following: Intangible Values/Benefits, Measured Values/Benefits, Management Information—A Need, Economic Justification Methodology, Benefit Cost Analysis, Economic Equivalency Index (EEI). 1981, 63 pp.

Cost: \$5.00

***Procedural Guidelines for the Accreditation Process for Recreation, Leisure Services and Resources Programs***

Developed by the Council on Accreditation, sponsored by NRPA in cooperation with the American Association for Leisure and Recreation. Outlines actual procedures for accreditation. Required of institutions undergoing accreditation. 1979, 23 pp.

Cost: \$5.00

***Recommended Standards and Evaluative Criteria for Recreation, Park Resources, and Leisure Services Associate Degree Programs***

Approved by the Society of Park and Recreation Educators (SPRE), a branch of NRPA, October 24, 1981. Submitted to the National Council on Accreditation which has sole responsibility for accreditation. The Council has NOT taken action on these

recommended standards as yet. Changes may occur.

These standards represent a means for ensuring educational quality and stimulating institutional self-improvement. They are aimed at 1) two-year collegiate programs that emphasize career goals and 2) two-year programs that emphasize the needs of transfer students. 1981, 13 pp.

Cost: \$5.00

***Standards and Evaluative Criteria for Recreation, Park Resources and Leisure Services Baccalaureate Curricula***

Established by the Council on Accreditation, sponsored by NRPA in cooperation with the American Association of Leisure and Recreation (AALR). The number of baccalaureate-level park and recreation programs has grown significantly over the past decade. As these programs have been identified, NRPA in cooperation with AALR has refined the accreditation standards used to judge recreation and park departments. This document codifies the latest major revisions in those standards. For the potential student and for the colleges, these standards represent the academic ideals of the profession. This document is recommended to all prospective college students, and required of all departments undergoing the accreditation process. Park and recreation practitioners may find this publication helpful in judging the competencies of prospective employees. 1981, 14 pp.

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Cost: \$8.00



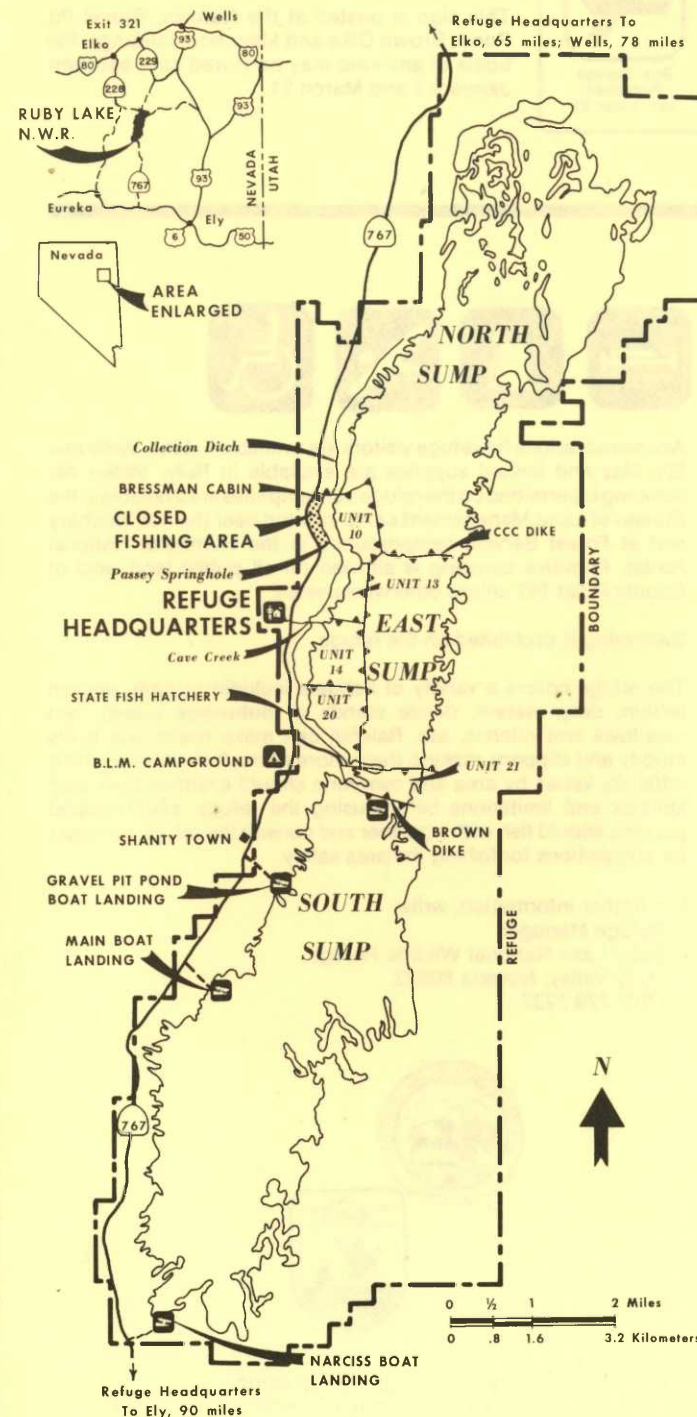
# Ruby Lake National Wildlife Refuge



Ruby Lake National Wildlife Refuge lies within a closed drainage basin in Ruby Valley of northeastern Nevada. The refuge is 65 miles southeast of the town of Elko and lies along the eastern flank of the rugged and scenic Ruby Mountains at an elevation of 6,000 feet above sea level.

The 37,630-acre refuge consists of marshes, open ponds and islands, bordered by wet meadows and grass and sagebrush-covered uplands. The Refuge is an important waterfowl nesting area and is strategically located along migration corridors serving both the Pacific and Central Flyways. Trout and Bass abound in the marsh.

Fishing has become the greatest attraction for the Refuge visitor. Fishing and boating are allowed on the Refuge, however, access to the marsh must be restricted to provide protection and security to nesting and migrating waterfowl.



## Boating Regulations

### North of Brown Dike

Year around: No boats permitted but use of float tubes is permitted in portions of Units 10 & 21 as posted.

### South of Brown Dike (South Sump)

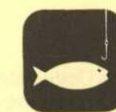
January 1 through June 14, 1982. Boats and float tubes prohibited. June 15 through July 31, 1982. ONLY motorless boats and float tubes and boats with electric motors are permitted.

August 1 through December 31, 1982. Motorless boats, float tubes and boats propelled by motors with a total of 10 horsepower or less are permitted.

Year around: Water skis, jet skis and all terrain vehicles are not permitted at any time.

### Boat Launching:

Boat launching allowed ONLY at Main Boat Landing, Gravel Pit Pond, Narciss, and from the Brown Dike. Narciss, Gravel Pit Pond and Brown Dike are unimproved landings suitable for launching canoes or cartop boats. When parking vehicles at these landings, please park so that they do not obstruct vehicle travel or the launching site.



## Fishing Regulations

### Season and Limits:

The refuge is open year around to fishing except in those areas posted as closed. Hours are 1 hour before sunrise until 2 hours after sunset.

The State of Nevada fishing limits apply to Ruby Lake. Daily and possession limits are 5 trout and 20 black (large mouth) bass. Rainbow, brook and brown trout are most abundant on the north end of the lake. The black bass are most common in the South Sump.

Bank fishing ONLY is permitted in the area north of the Brown Dike and east of the collection ditch, except in units 10 and 21 where wading and personal floating devices (float tubes) are permitted when designated (posted) by the Refuge Manager.

### Closed Waters:

Fishing is prohibited from the west bank of the collection ditch of the Ruby Lake National Wildlife Refuge between the Bressman Cabin and Passey Springhole, in the hatchery rearing and brooding ponds. Cave Creek west of the County Road and from the dike between Units 14 and 20 as posted.

### Artificial Lures and Bait:

Those portions of the collection ditch and associated springs which are open to fishing may be fished ONLY WITH ARTIFICIAL LURES. Possession or use of live or dead bait fish is prohibited anywhere on the Refuge.

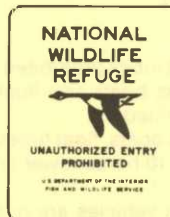
### Ice Fishing:

Refuge waters are open to ice fishing. However, vehicle access to Ruby Lake is more difficult in the winter when Harrison Pass is closed by snow. The drive from Elko is 90 miles in winter and only 60 miles when the pass is open.



## Signs to Follow

Millions of people visit National Wildlife Refuges every year. Millions! The impact of humanity descending upon refuges, if not regulated in part, can degrade these wildlands. Signs grant or restrict certain activities to provide optimum freedom for visitors while also protecting refuge elements from undue human abuse. Please respect the following signs:



This sign delineates the refuge boundary. The refuge is behind this sign. You may enter the refuge only on designated access routes.



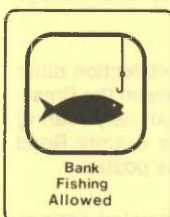
This area is closed to ALL entry. No fishing, boating or sightseeing is permitted. No roads or trails are open to the public. Closed areas are often set to protect nesting birds from disturbance by people.



This sign delineates portions of the Collection Ditch open to fishing. Only artificial lures may be fished here.



Posted on the perimeter of all dike roads where fishing is permitted from the dike shoulders. Look for these signs north of Brown Dike.



Posted on areas other than dike roads where fishing access is permitted.



Only Units 10 and 21 are open year round to wading and the use of personal flotation devices (float tubes). You may wade or float these areas only when these signs are posted. Float tubes may be used June 15 to Dec. 31 in all the South Sump.



This sign is posted at the Narciss, Gravel Pit Pond, Brown Dike and Main boat landings. No boats of any kind may be stored here between January 1 and March 31.



Accommodations for refuge visitors are available in Elko, Wells and Ely. Gas and limited supplies are available in Ruby Valley. No camping is permitted on the refuge but camp sites are available at the Bureau of Land Management camp-ground near the fish hatchery and at Forest Service campgrounds in the Humboldt National Forest. Primitive camping is allowed on all public land west of County Road 767 unless otherwise posted.

Swimming is prohibited on the refuge.

The refuge covers a variety of habitats including rough, uneven terrain, deep waters, dense stands of bulrushes (tules), wet meadows and ditches, etc. Rainfall can make roads and fields muddy and slippery, making them more difficult to cover. Fishing difficulty varies by area and everyone should examine their own abilities and limitations before using the refuge. Handicapped persons should fish with a partner and consult the refuge manager for suggestions for fishing the area safely.

For further information, write:  
Refuge Manager  
Ruby Lake National Wildlife Refuge  
Ruby Valley, Nevada 89833  
(702) 779-2237

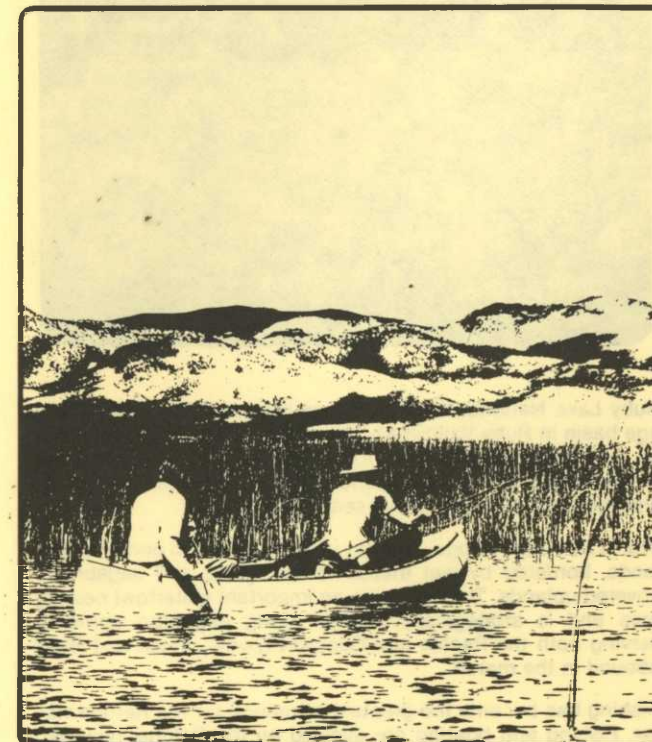


DEPARTMENT OF THE INTERIOR  
U. S. FISH AND WILDLIFE SERVICE

RF 14570-9 APRIL 1982

# 1982 Fishing & Boating Regulations

## Ruby Lake National Wildlife Refuge Nevada





## RECREATION

Refuge roads are open to visitors who enjoy wildlife observation, photography, sightseeing and fishing.

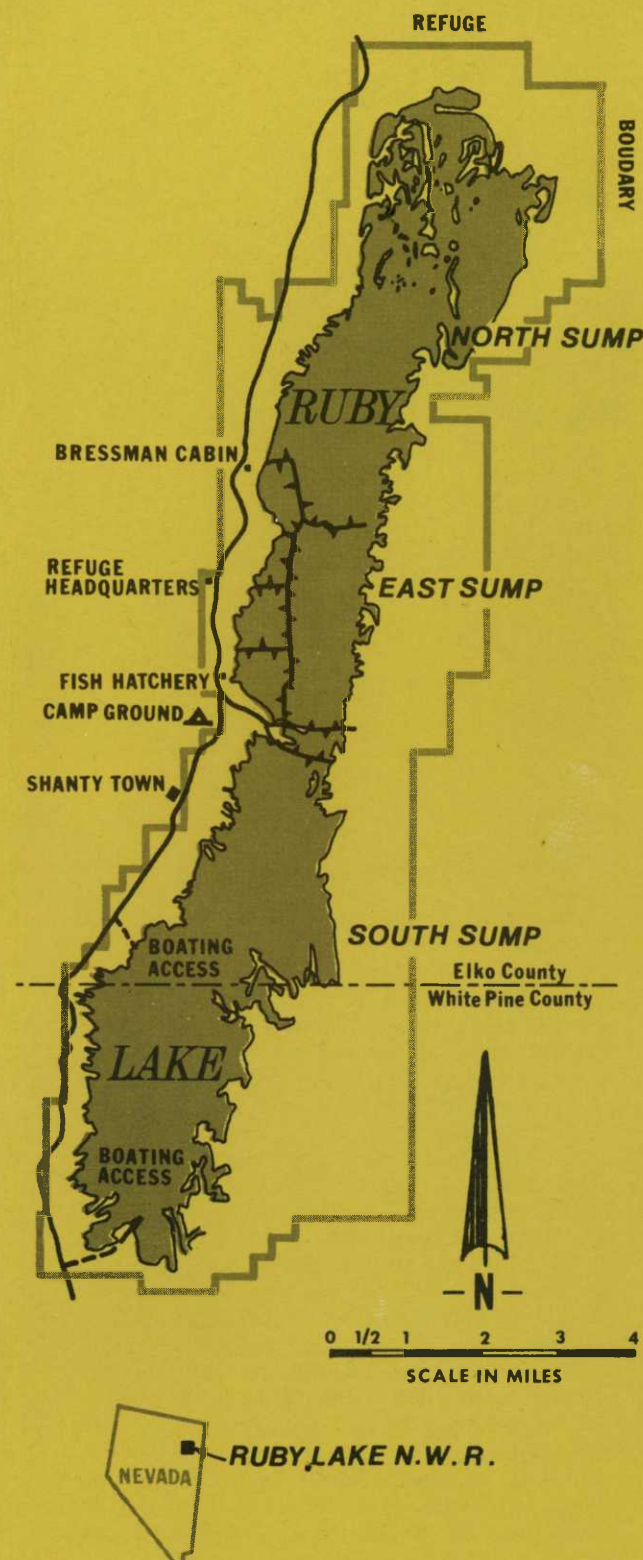
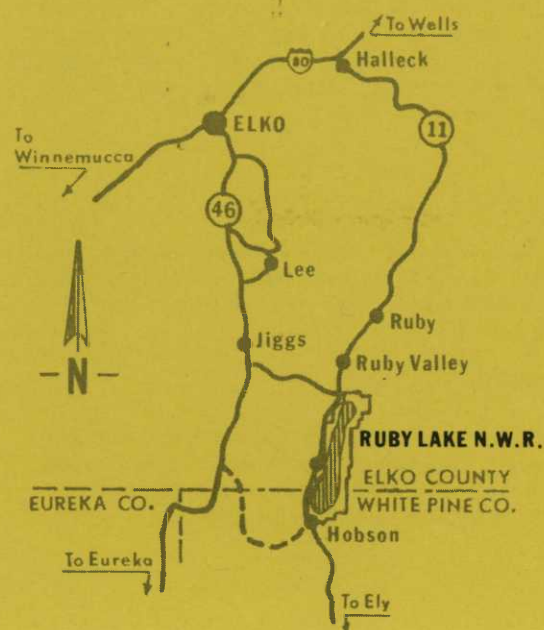
Photography and sightseeing for waterfowl and their young are best during June and July. Canada geese hatch first, followed by mallards and canvasbacks. September and October bring concentrations of up to 25,000 ducks and as many coots. These concentrations are best observed from the dikes.

Fishing, particularly for bass, attracts many thousands of visitors each year. Trout raised at the Gallagher State Fish Hatchery, located on the refuge and operated by the Nevada Department of Fish and Game, also provide many hours of fishing.

Fishing is allowed year-round on the refuge; however, access to the marsh must be restricted to provide protection and security to nesting and migrating waterfowl. Waterfowl hunting is permitted on the refuge on the south portion of the South Sump.

Persons intending to use a boat on the refuge are advised to contact the refuge manager for current regulations. Other special regulations governing the use of the refuge are delineated on maps located on the refuge and by signs.

Accommodations for refuge visitors are available in Elko, Wells and Ely. Gas and limited supplies are available in Ruby Valley. No camping is permitted on the refuge, but camp sites are available at the Bureau of Land Management campground near the fish hatchery and at Forest Service campgrounds in the Humboldt National Forest.



For further information write:

Refuge Manager  
Ruby Lake National Wildlife Refuge  
Ruby Valley, Nevada 89833



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.



RF-11 570-1 APRIL 1977



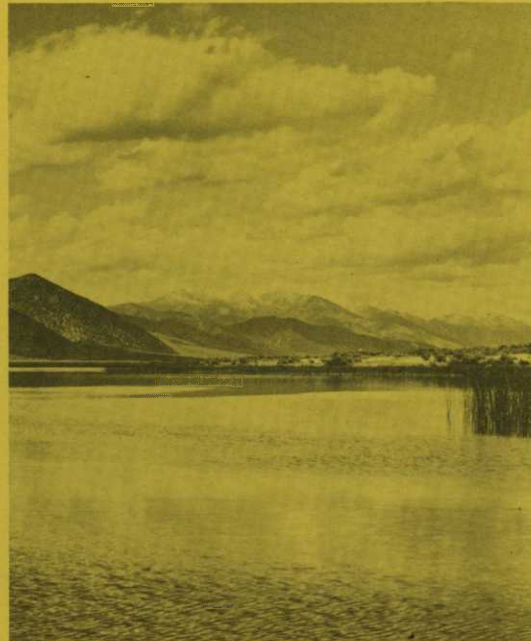
# RUBY LAKE

NATIONAL  
WILDLIFE  
REFUGE

Nevada



## RUBY LAKE NATIONAL WILDLIFE REFUGE



Ruby Lake National Wildlife Refuge lies within a closed drainage basin in Ruby Valley of northeastern Nevada. The refuge is 65 miles southeast of the town of Elko and lies along the eastern flank of the rugged and scenic Ruby Mountains at an elevation of 6,000 feet above sea level.

The 37,630-acre refuge consists of marshes, open ponds and islands, bordered by wet meadows and grass and sagebrush-covered uplands. Ruby Lake Refuge is an important waterfowl nesting area. It is also strategically located along migration corridors serving both the Pacific and Central Flyways. The refuge is a meeting place for birds travelling several routes — west along the Humbolt River and to Owens Valley, east to the Great Salt Lake, northwest to the Klamath Basin, and south to the Colorado River.

### HISTORY

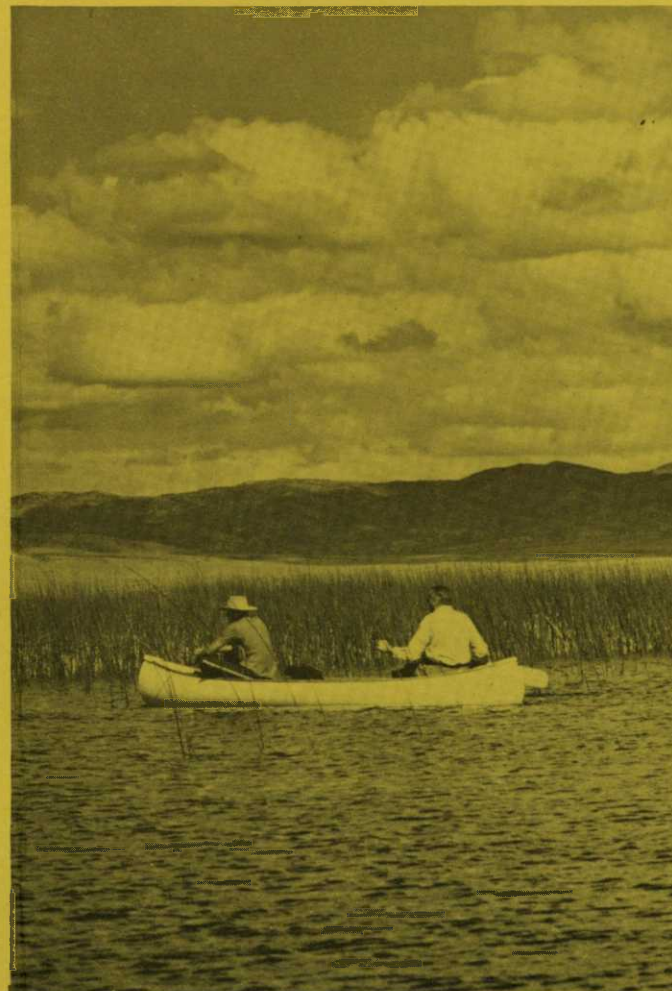
During the Pleistocene Epoch, the Ruby Marshes were part of a much larger body of water known as Franklin Lake. This ancient lake covered about 470 square miles and was over 200 feet deep. As conditions became drier, the lake level began to drop. Today, a balance has been reached and only the Ruby and Franklin Lake marshes remain.

In 1938, the importance of the Ruby Marshes to nesting and migrating waterfowl and water birds was recognized, and the Ruby Lake Refuge was established.

## DEVELOPMENT

A collection ditch and a system of dikes have been constructed along the west central portion of the marsh to collect waters from 135 springs along the base of the Ruby Mountains. Water reaching the end of the dike system runs into the 7,000-acre South Sump, a natural depression. Water can also be diverted to the North Sump to maintain 3,000 acres of wetlands that are especially attractive to puddle ducks and shorebirds.

Water is managed to provide optimum nesting and feeding habitat for migratory waterfowl and water-dependent birds. By careful manipulation of water levels and flows, 12,000 acres of marshlands can be maintained. Periodically, individual habitat units are rejuvenated by drying them up. As a result, the food resources and productivity of the aquatic environment are greatly enhanced. Management tries to imitate the processes of naturally occurring wetland ecosystems as much as possible to maintain the vitality and productivity of the marshes.



## BIRDS

Almost 200 species of birds regularly use the refuge.

Waterfowl are the most conspicuous and most important to the primary objectives of the refuge. Nesting canvasbacks and redhead ducks are particularly important. Most of this nesting occurs on the South Sump, where the refuge supplies some of the finest nesting habitat for these species in Western America. In good years the refuge has produced 5,000 canvasbacks and 4,000 redheads.

The trumpeter swan, originally a transplant from the Red Rock Lakes National Wildlife Refuge in Montana, is also found on the refuge. Up to three pairs nest every year.

In all, 15 different species of waterfowl nest on the refuge as well as a variety of other water-dependent birds such as coots, grebes, sandhill cranes, great blue herons, black-crowned night herons, white-faced ibis, and snowy egrets.

Bald and golden eagles and several other raptors including the endangered peregrine falcon are present at various times of the year. Numerous small birds make use of the riparian habitat along Cave Creek, and several first records of occurrence for Nevada have been made in this area.

## MAMMALS

Mountain lions and bobcats are regularly found in the foothills and mountains bordering the refuge on the west. Mule deer are abundant in the winter, using the refuge daily to water at the springs. Coyotes are common residents throughout the year. In the marsh, muskrats may number over 10,000 in some years. They help keep dense stands of bulrush open and more attractive to waterfowl. Their houses provide resting and nesting platforms for waterfowl and their broods.

## REPTILES

Great Basin rattlesnakes and gopher snakes are often seen crossing the roads during the summer months. Garter snakes are most often found near the marsh.

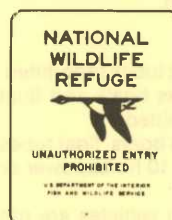
## FISH

Four species of game fish are found in refuge waters: largemouth black bass, brown trout, rainbow trout, and brook trout. All have been introduced over the years for fishing.



## Signs to Follow

Millions of people visit National Wildlife Refuges every year. Millions! The impact of humanity descending upon refuges, if not regulated in part, can degrade these wildlands. Signs grant or restrict certain activities to provide optimum freedom for visitors while also protecting refuge elements from undue human abuse. Please respect the following signs:



This sign delineates the refuge boundary. The refuge is behind this sign. You may enter the refuge only on designated access routes.



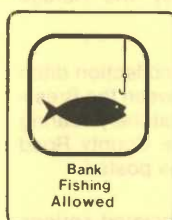
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# 1982 Fishing & Boating Regulations

## Ruby Lake National Wildlife Refuge Nevada





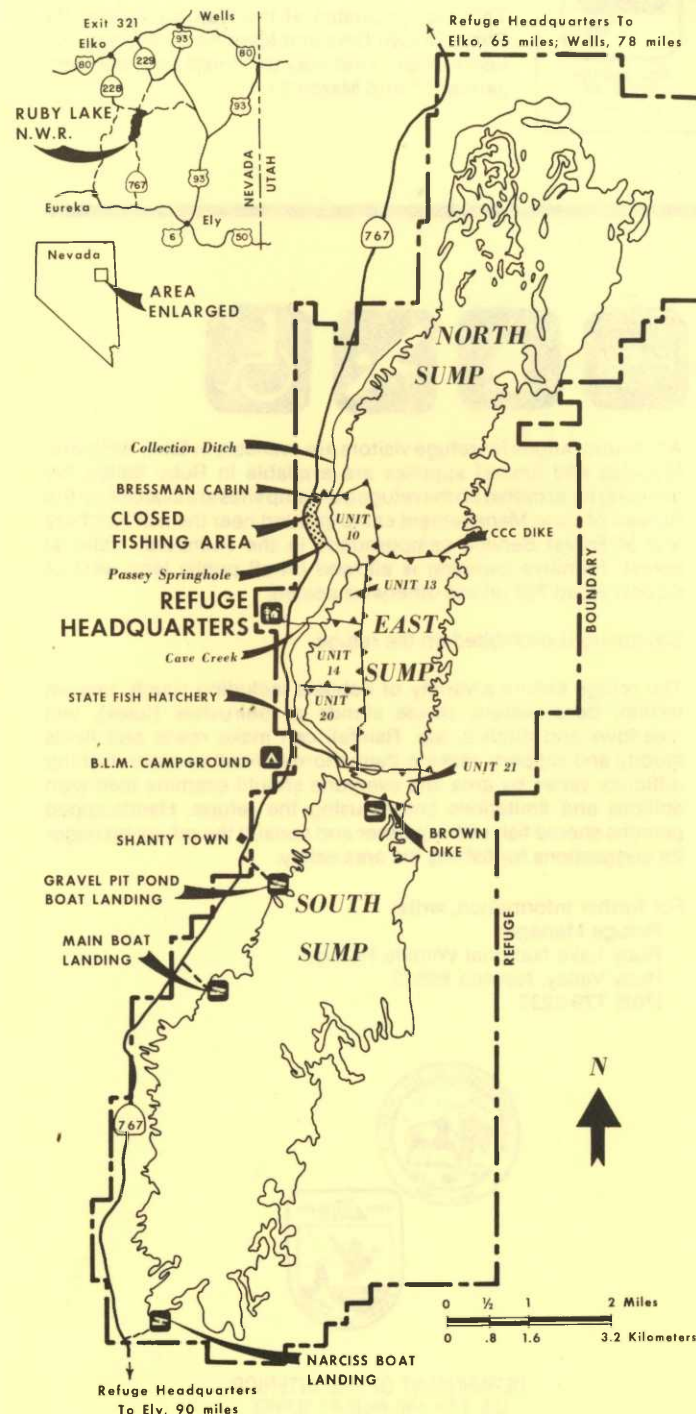
# Ruby Lake National Wildlife Refuge



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The 37,630-acre refuge consists of marshes, open ponds and islands, bordered by wet meadows and grass and sagebrush-covered uplands. The Refuge is an important waterfowl nesting area and is strategically located along migration corridors serving both the Pacific and Central Flyways. Trout and Bass abound in the marsh.

Fishing has become the greatest attraction for the Refuge visitor. Fishing and boating are allowed on the Refuge, however, access to the marsh must be restricted to provide protection and security to nesting and migrating waterfowl.



## Boating Regulations

### North of Brown Dike

Year around: No boats permitted but use of float tubes is permitted in portions of Units 10 & 21 as posted.

### South of Brown Dike (South Sump)

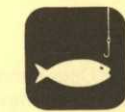
January 1 through June 14, 1982. Boats and float tubes prohibited. June 15 through July 31, 1982. ONLY motorless boats and float tubes and boats with electric motors are permitted.

August 1 through December 31, 1982. Motorless boats, float tubes and boats propelled by motors with a total of 10 horsepower or less are permitted.

Year around: Water skis, jet skis and all terrain vehicles are not permitted at any time.

### Boat Launching:

Boat launching allowed ONLY at Main Boat Landing, Gravel Pit Pond, Narciss, and from the Brown Dike. Narciss, Gravel Pit Pond and Brown Dike are unimproved landings suitable for launching canoes or cartop boats. When parking vehicles at these landings, please park so that they do not obstruct vehicle travel or the launching site.



## Fishing Regulations

### Season and Limits:

The refuge is open year around to fishing except in those areas posted as closed. Hours are 1 hour before sunrise until 2 hours after sunset.

The State of Nevada fishing limits apply to Ruby Lake. Daily and possession limits are 5 trout and 20 black (large mouth) bass. Rainbow, brook and brown trout are most abundant on the north end of the lake. The black bass are most common in the South Sump.

Bank fishing ONLY is permitted in the area north of the Brown Dike and east of the collection ditch, except in units 10 and 21 where wading and personal floating devices (float tubes) are permitted when designated (posted) by the Refuge Manager.

### Closed Waters:

Fishing is prohibited from the west bank of the collection ditch of the Ruby Lake National Wildlife Refuge between the Bressman Cabin and Passey Springhole, in the hatchery rearing and brooding ponds. Cave Creek west of the County Road and from the dike between Units 14 and 20 as posted.

### Artificial Lures and Bait:

Those portions of the collection ditch and associated springs which are open to fishing may be fished ONLY WITH ARTIFICIAL LURES. Possession or use of live or dead bait fish is prohibited anywhere on the Refuge.

### Ice Fishing:

Refuge waters are open to ice fishing. However, vehicle access to Ruby Lake is more difficult in the winter when Harrison Pass is closed by snow. The drive from Elko is 90 miles in winter and only 60 miles when the pass is open.