RUBY LAKE NATIONAL WILDLIFE REFUGE

Ruby Valley, Nevada

ANNUAL NARRATIVE REPORT

Calendar Year 1987

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

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REVIEW AND APPROVALS

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Calendar Year 1987

Refuge Manager — Date 2/26/88

Regional Office Approval — Date 3/4/88

Ruby Lake National Wildlife Refuge. Photo taken over North Sump looking south over refuge. DLP 09/87

INTRODUCTION

Ruby Lake National Wildlife Refuge (NWR) 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 6000 feet above sea level.

The 37632 acre refuge consists of marshes, open ponds and islands bordered by wet meadows and grass/sagebrush covered uplands (Figure 1). Ruby Lake NWR is an important waterfowl nesting area. It is also strategically located along migration corridors serving both the Pacific and Central Flyways. Birds from the Humboldt River to the west, Owens Valleys to the southwest, the Great Salt Lake to the east, the Klamath Basin to the northwest and the Colorado River to the south come together on the refuge during migration.

During the Pleistocene Epoch, the Ruby Marshes were part of a much larger body of water known as Franklin Lake. This ancient lake covered approximately 300800 acres and was over 200 feet deep. As conditions became drier, the lake level began to drop. Today, only 27000 acres of wetlands remain forming Ruby and Franklin Lake marshes.

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

Over 200 springs along the base of the Ruby Mountains feed the marsh. Water from many of these springs flows into a collection ditch where it can be distributed among five diked units. Water reaching the end of the collection ditch flows into the 7000 acre South Sump, a natural depression. Water can also be diverted to the North Sump through the diked units and the East Sump, maintaining 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. Careful manipulation of water levels and flows provides 12000 acres of marshlands in normal water years. Periodically, individual habitat units are rejuvenated by drying them up. This greatly enhances the food resources and productivity of the aquatic environment.

Upland areas bordering the marsh are managed for upland nesting waterfowl, sandhill cranes, Canada geese, white-faced ibis and long-billed curlews. Irrigation, grazing and fire are used to manipulate the habitat. Management of the refuge's wetland and upland habitats tries to maintain the ecosystem's vitality and high level of productivity in order to meet the growing demands of wildlife on these public lands.

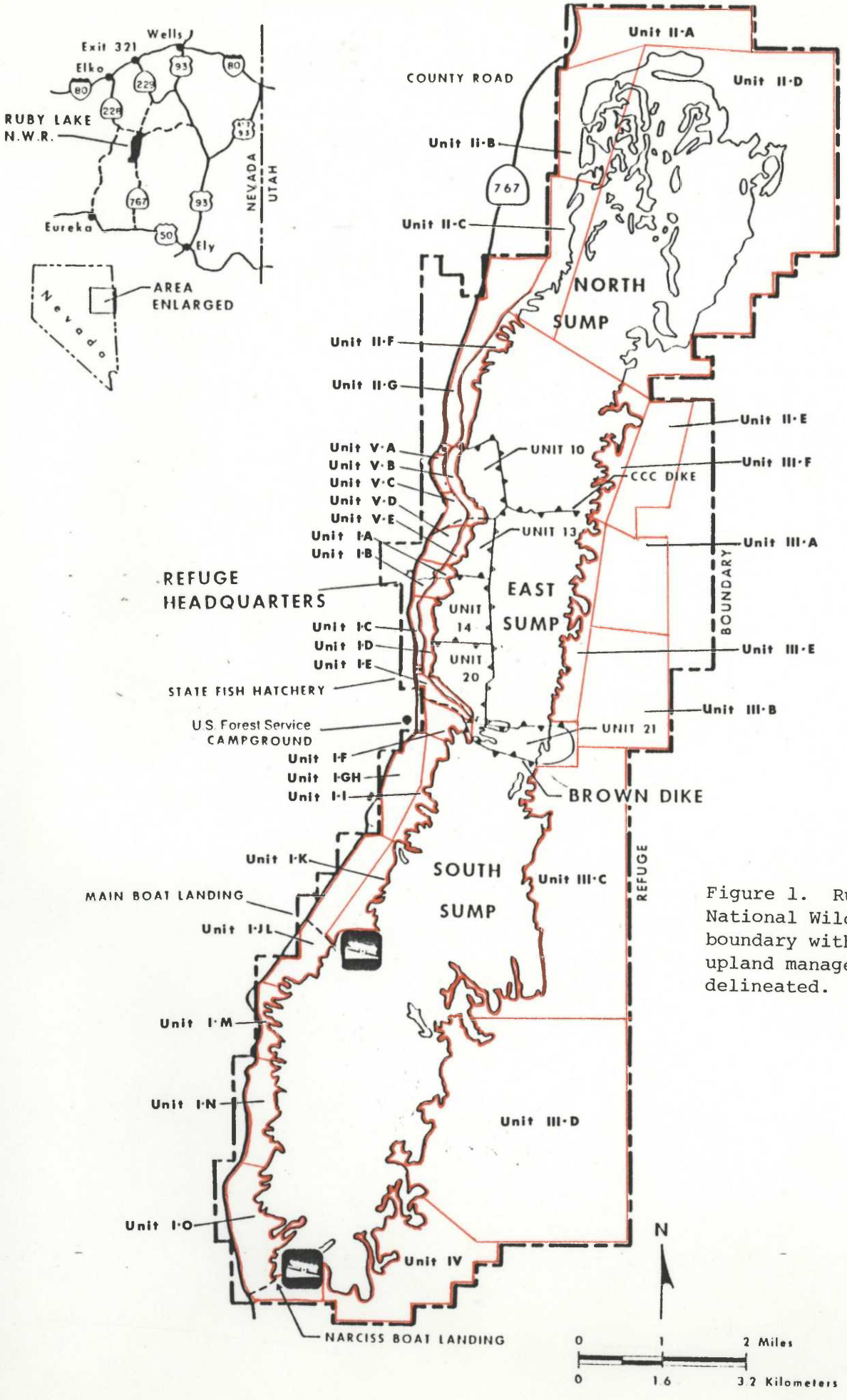

Figure 1. Ruby Lake National Wildlife Refuge boundary with marsh and upland management units delineated.

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(inside back cover)

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--Dry summer months coupled with high evaporation rates (Section B) caused water levels to once again reach objective levels during late summer (Section F-2).

--Refuge Manager Jerry Wilson transferred in June. Daniel Boone filled in as Acting Refuge Manager until August (Section E-1).

--Dan Pennington was selected as the new Refuge Manager (Section E-1).

--Initiation of duck nesting was later than normal with low production (Section G-3).

--Public use increased to an estimated 70547 visits; a 19 percent increase over 1986's figure (Section H-1).

--Construction related to $398000 Special Congressional Fund was completed. (Section I).

--Refuge purchases a new backhoe along with several other major items (Section I-4).

--Long awaited computer arrives (Section I-6).

--Major construction and renovations accomplished on quarters (Section I).

B. CLIMATIC CONDITIONS

Temperatures in 1987 proved to be comparable with the last 10-year average (Table 1). This year's precipitation totaled 11.57 inches compared with the last 10 years' average of 16.61 inches. No precipitation fell in September, making it the first time since 1974 that this has occurred.

The marsh was ice free by 16 March; this is within the normal ice out time frame. The marsh froze over on 15 November, but thawed and froze twice more before finally surrendering to the ice on 7 December.

Table 1. Comparison of 1987 climatic conditions with the 10-year average at Ruby Lake NWR.

Month	Precipitation (Inches)		Evaporation (Inches)	Snowfall (Inches)		Temperature (F°) Maximum		Minimum	
	87	Avg[a]	1987[b]	87	Avg[a]	87	Avg[a]	87	Avg[a]
January	0.82	1.71	0.00	7.75	8.72	59	52	-13	- 7
February	1.11	1.46	0.00	7.00	4.66	54	58	- 4	- 6
March	1.86	2.10	0.00	1.06	5.18	62	62	7	11
April	0.25	1.10	0.00	0.00	2.80	80	72	20	19
May	2.59	1.48	3.59	0.00	0.53	82	84	32	26
June	0.20	0.95	9.25	0.00	0.00	90	91	40	33
July	0.45	0.50	11.14	0.00	0.00	96	95	42	41
August	0.16	1.11	10.41	0.00	0.00	94	93	40	39
September	0.00	1.73	7.00	0.00	0.05	91	88	30	27
October	0.85	1.15	4.08	0.00	1.89	83	77	21	19
November	2.05	1.62	0.00	0.51	2.41	60	66	12	6
December	1.23	1.70	0.00	6.00	8.30	57	54	0	- 2
Totals	11.57	16.61	45.47	9.45	34.54				

[a]Ten-year averages compiled from refuge records during 1976-79 and 1981-86; 1980 data is missing.

[b]Evaporation not measured during the months of January through April, November and December.

D. PLANNING

4. Compliance with Environmental and Cultural Resource Mandates

The U.S. Army Corps of Engineers issued the refuge a permit under Section 404 of the Clean Water Act. This allowed a channel in the southwest corner of the East Sump to be dredged and the material removed to be placed on an adjacent baltic rush wetland.

The Nevada State Gallagher Fish Hatchery located on refuge lands proposed to modify their water collection system. The portion of the proposal that was covered by an environmental assessment completed in 1986 began in December 1987. The State applied for a 404 permit to place fill in the North Spring pond and the Corps of Engineers determined that this activity would be covered under a nationwide permit.

An archeological dig was required before rock could be removed from a point projecting into the CCC gravel pit. Under contract # 14-16 0001-87105, gravel was to be removed from this pit, crushed and placed on the dike roads (Section I-2). Anan Raymond, U.S. Fish and Wildlife Service archeologist stationed at Stillwater NWR, was detailed to Ruby Lake to evaluate the site through surface reconnaissance, site mapping, surface collection and test excavation (Figure 2). Flaked stone was found scattered over the site indicating the site was primarily used for biface reduction and tool manufacturing. The final report concluded the site had no significant information for the National Register of Historic Places. Excavated rock from the site is still pending on the State archeologist's concurrence. Although the gravel contract that initiated this investigation was completed without removing rock from this point, the clearance of this site will benefit future gravel operations.

Figure 2. Archeological investigation of point extending into the CCC gravel pit. SMB 10/88

5. Research and Investigations

Investigation of Small Mammals Using Selected Habitat at Ruby Lake National Wildlife Refuge (14570-11).

Small mammal trapping continued from April to October 1987 to complete a two year study whose main objective was to identify the mammal species currently using the refuge. Mark Ports, an instructor at Northern Nevada Community College in Elko, used Sherman live traps and pitfall traps in various habitat types including two new types in 1987 - burned canyons and low horsebrush. During 1987, a little pocket mouse was trapped, increasing the number of new species to six. The trapping of a grasshopper mouse verified previous records. These two species increased the number of species trapped over the two-year period to 26. Bats were mistnetted over a cattle trough on the east side of the refuge this year resulting in the capture of all lactating females. Previous attempts at Cave Creek on the west side of the refuge resulted in the capture of only males. Mark has submitted study results titled, "Associations of Small Mammals Occurring in

E. ADMINISTRATION

1. Personnel (Figure 3)

4 3 2 1

SMB 02/88

1.	Daniel L. Pennington, Refuge Manager	GS 11/1	EOD 08/30/87
2.	Sara M. Brown, Wildlife Biologist	GS 09/1	EOD 05/25/86
3.	Sharon L. Storm, Refuge Assistant	GS 05/2	EOD 06/03/85
4.	Bradley M. Storm, Maintenance Mechanic	WG 08/5	EOD 05/01/83

Over the past five years, staffing at Ruby Lake NWR has included the following:

	Permanent		Temporary	Total FTE's
	Full-Time	Part-Time		
FY-87	4	0	1	5.8
FY-86	5	0	2	5.8
FY-85	4 (1 CS)	1	2	5.8
FY-84	4 (1 CS)	1	3	5.8
FY-83	4 (1 CS)	1	4	5.8

Refuge Manager Jerry Wilson transferred to Eufaula NWR, Alabama in June after spending four years at Ruby Lake NWR (Figure 4). Many refuge programs were upgraded under Jerry's direction along with improved relations with the public. His accomplishments will affect refuge management for many years.

Upon Jerry's departure, Daniel Boone, Assistant Refuge Manager from William L. Finley NWR, Oregon, was detailed to Ruby Lake from June to August to fill in as Acting Refuge Manager until the new manager was selected (Figure 5). Dan was immediately confronted with construction technicalities with two contracts underway and another in the planning stage. His assistance and guidance contributed greatly to the smooth operation of the refuge throughout the busy summer months.

Figure 4. Refuge Manager Jerry Wilson (standing) transferred to Eufaula, Alabama. 05/85

Figure 5. Daniel Boone, Acting Refuge Manager
SMB 09/87

Daniel Pennington reported for duty on 30 August to assume the refuge manager position vacated by Wilson. Dan transferred from Pahranagat NWR, Nevada and was promoted from a GS 9/3 to a GS 11/1. Besides tackling the paperwork that had been stacking up on his desk, he was bombarded with all the additional paperwork that arrives at the end of the fiscal year.

Hal Marsh, Temporary Carpenter, returned again during the summer of 1987 to assist with the maintenance program (Figure 6). Hal has been working during the summer months since 1981. His work has been excellent and his accomplishments will be evident on facilities at the refuge for many years to come. Both Hal and his wife, Alice, are welcome additions to the refuge.

Howard Bosch, Contract Inspector, was detailed to the refuge this year to inspect the four remaining contracts to complete the 1984 Special Congressional Fund package (Figure 7) (Section I-1 and I-2). Howard's assistance was greatly appreciated and the finished products were of high quality.

The assistant manager's position vacated by James Nissen in January was not filled this year. The plan is to select a cooperative-education student at the GS-7 level sometime next year and thus, create an assistant manager trainee position.

Figure 6. Hal Marsh, Temporary Carpenter SMB 06/87

Figure 7. Howard Bosch (right) talking with Art Lacey (contractor). SMB 06/87

3. Other Manpower Programs

A prison honor camp crew from Wells, Nevada was utilized to remove a 1.6 mile stretch of fence between Units III-E and III-F that had been washed out with the high water of the past few years. They also spent one day picking up litter along the dike roads. An average of eight crew members and one foreman from Nevada Division of Forestry spent 12 days on the refuge. Although the refuge was not charged for this labor, the estimated labor cost was $1515.

4. Volunteer Program

Six individuals (Peter and Susan Bradley, Art Lacey, Ken Wilkinson, Donald Unruh, Jr. and Donald Unruh, Sr.) contributed 44 volunteer hours during 1987. These volunteers assisted in nest searching, colonial bird surveys, aerial censuses and seeding channel edges.

During Workfest 1987, only two volunteers participated despite contact from several other interested individuals. Donald Unruh, Jr., an Eagle Scout from Elko, along with his father spent a morning planting seed (Section F-5).

5. Funding

Funding levels for FY-87, covering all fixed costs, planned items and scheduled ARMM projects were at an acceptable level (Table 2). The absence of an assistant manager for almost 9 months allowed for the purchase of a new John Deere front-end loader/backhoe (Section I-4).

The procedure for handling quarters upkeep, etc. through 8610 funding is working very well. Although the fund was depleted again this year, most of the items required to bring refuge quarters up to maintenance standards have been completed.

Table 2. Funding levels for the past five years.

FY	ARMM	O & M[a] 1261	1262	6860	8610	Total
87		130.8	83.8	2.0	7.0	223.6

FY	ARMM	Fire Mgmt.	O & M	1270	6860	8610	add on[b]	Total
86	22.0	10.3	177.2	--	2.0	6.9	--	218.4
85	43.6	4.3	167.6	0.5	2.0	4.5	--	222.5
84	70.0	8.6	131.2	0.5	2.5	5.0	5.0	222.8

FY	1210 CM	1210 O & M	1240 O & M	1220	1230	6810	1994	2821	Total
83	19.0	125.9	16.6	15.5	0.5	2.0	2.0	30.7	212.2

[a] Small ARMM funds included in 1262. Fire management funds included in both 1261 and 1262.
[b] Grader overhaul.

6. Safety

Safety meetings were held throughout the year covering such topics as office, aircraft, tractor and wader safety, proper clothing and equipment, operation of fire suppression equipment and extinguishers, chimney safety and weather hazards. On 7 December, Bill Webb, Elko County Deputy Coroner, donated a day of his time to certify refuge personnel in CPR and first aid.

Only one reportable accident/illness occurred in 1987. The Temporary Carpenter was varnishing book shelves on a back porch. He had opened both doors for ventilation; however, there was no breeze that day. He worked most of the day on the shelves, but did not realize there was anything wrong until later that night. He was too dizzy to walk and remained home the next day. No additional complications surfaced; preventative measures were discussed.

All power tool and extension cords were inspected. Several cords and plugs needed to be repaired or replaced.

Safety inspections were conducted this year on all refuge vehicles. Items inspected were seat belts, steering, fluid levels, brakes, lights, windshield wipers and horns; all deficiencies were corrected. The three oil furnaces on the station were inspected and cleaned.

In February, refuge staff took Defensive Driving at Elko's BLM office.

Throughout the summer months, dike roads were periodically closed to vehicle traffic for the public's safety during dredging and road rehabilitation operations. Through individual contacts and newspaper articles, the dangers of fishing around draglines and other equipment was pointed out to refuge users.

Five rescue attempts were made during the motorless and electric motor boat season. Four occurred during the first week when strong winds came up in the afternoon and the parties could not maneuver their boats to the landing. The fifth was a party that became disoriented in the marsh. An unsuccessful attempt to locate them caused them to spend the night on the marsh. The refuge boating leaflet warns visitors about sudden weather changes, what to look for and the proper gear to take in case you have to spend the night on the marsh. Buoys were purchased this year to replace the steel poles that guide boaters through the main channel to the boat landing. They will be installed next summer.

7. Technical Assistance

Throughout the year, Dave Livermore from the Nature Conservancy showed the 7-H and UX ranches located north of the refuge to prospective buyers. Sara Brown, Wildlife Biologist, accompanied these tours to explain the wildlife aspects of the two associated wetlands - Ruby Lake and Franklin Lake. The refuge was also consulted during the writing of the proposed conservation easement on the wetlands portion of the two ranches. The perseverance of Dave Livermore paid off as described in Section J-3.

F. HABITAT MANAGEMENT

2. Wetlands

After five years of high water, objective levels were once again reached in most units during late summer. Highest water levels (0.35 - 1.86 feet above objective levels) were recorded during mid-March. The South Sump, an important area for nesting diving ducks, was 0.99 feet above objective level at this time. With less than an inch of precipitation during June through September compared with the 10-year average of 3.5 inches and high evaporation rates, water levels dropped rapidly throughout the summer. They continued to decrease until mid-October. Large mud flats became exposed at the north end of the refuge and along the entire east side (Figure 8). Due to the smaller size of the diked units, water levels were more easily manipulated to facilitate dredging operations and the installation of three water control structures.

Eighty-two "fish holes" (100 ft x 50 ft x 10-14 ft deep) were dredged along the dikes during 1987 (Figure 9). These holes were part of a Special Congressional Fund designated for fish habitat improvement at Ruby Lake NWR. These "fish holes" will minimize winter fish kill and provide places for fish to escape to during periodic drawdowns. In addition, these "fish holes" will improve water flow through the units since they were generally placed where the channel was silted in, shallow or choked with vegetation. Because the entire channel was not cleaned, a few shallow areas remain and are visible when water level is low.

Figure 8. The North Sump decreased rapidly in size as water approached objective levels after five years of high water. DLP 08/87

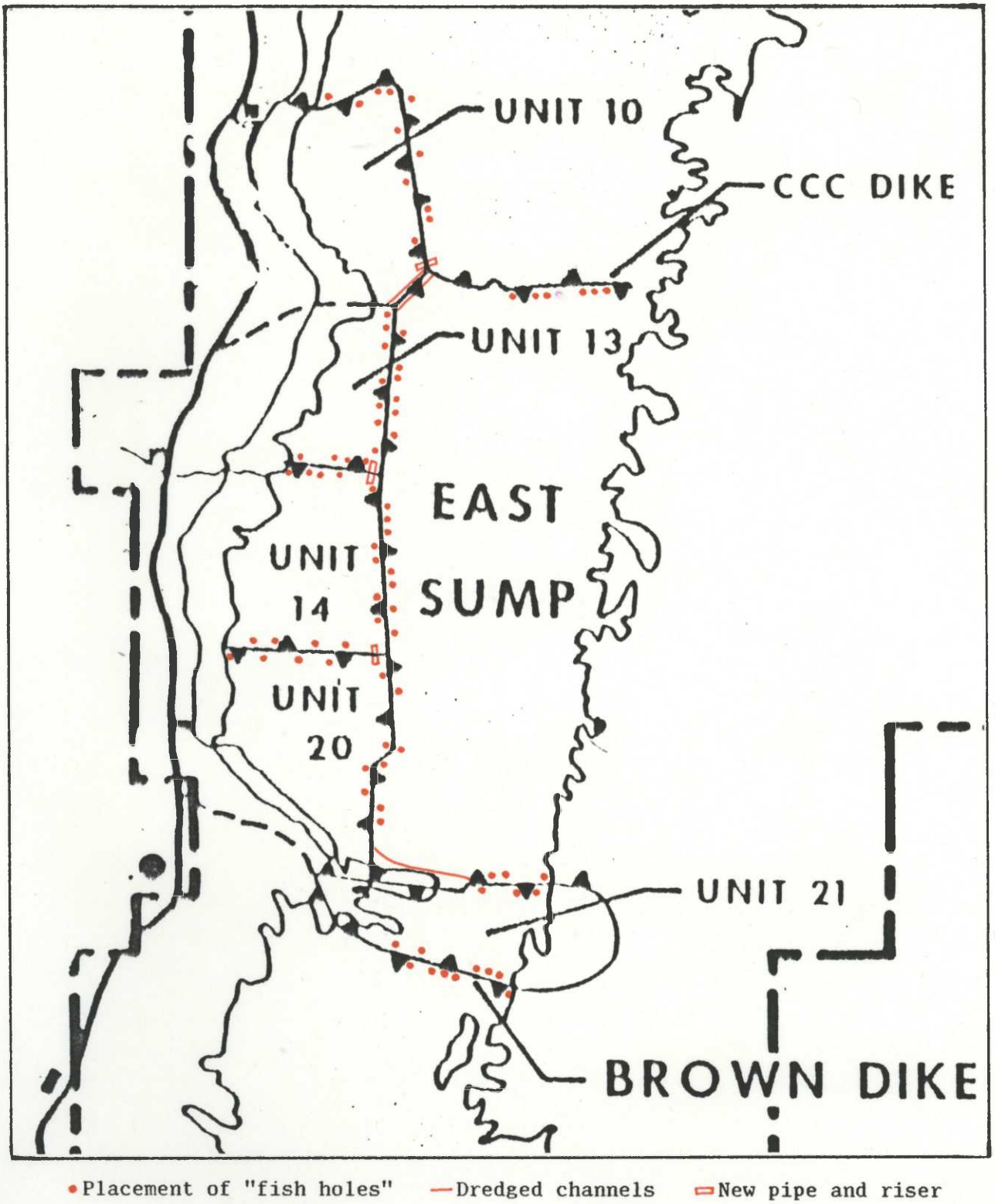


Figure 9. Location of "fish holes" and channels dredged in 1987.

A channel in the southwest corner of the East Sump was dredged to allow water to pass between Unit 20 and 21 without filling the entire 1755 acre East Sump (Figures 10 and 11). To improve water manipulation further, a channel in Unit 10 and another in the northwest corner of the East Sump were dredged (Figures 12 and 13). These channels partially existed prior to dredging but were vegetated in and a land block caused water to fan out over the units rather than traveling a direct route.

Three water control structures were also installed; increasing the refuges options for marsh management (Figure 14). The structures were placed between Unit 10 and the North Sump, Unit 13 and 14 and Unit 14 and 20.

5. Grasslands

The refuge Habitat Management Plan was put into effect in April 1982 serving as a guide for the grazing and habitat monitoring programs. The high water during the past several years necessitated adjustments be made in the schedules as stated. Modifications continue to be made depending on the vegetation conditions and other refuge activities.

Habitat monitoring in 1987 concentrated on vegetation composition and density of those units scheduled to be burned in 1987 or spring of 1988. Photos were taken at each transect and also at permanent photo plots.

Rejuvenating areas covered by dense mats of baltic rush is an ongoing project. Prescribed burning is used followed shortly by grazing when the new growth of baltic rush is most palatable to cattle. In this way, baltic rush is set back, giving other plants a chance to become established.

Irrigation in Unit I-C was improved during 1987 by placing pipes with an end cap perpendicular to the ditch. Further work is needed, however, to obtain water through the entire length of the ditch. Four units (Unit I-C, I-E, I-F and I-I) were irrigated between 18 May and 31 July. These flooded fields attracted large numbers of white-faced ibis (Section G-4). With little moisture through the summer, the growing season was shortened and landscape was soon dominated by shades of brown.

Along with dry conditions, exposed soil was present as water levels receded, irrigation ditches were cleaned and dredged material was placed over the dikes. Foxtail barley colonized the edge of the bare mudflats. A mixture of old clover and alfalfa seed obtained from the Nevada Department of Wildlife was spread along an irrigation ditch leading from Cave Creek through Unit I-B to Unit I-C that was cleaned during fall 1986. Some of the seed germinated, but not enough to provide a good soil stabilizer. On the dredged material along the dikes, a mixture of 40 percent streambank wheatgrass and 60 percent western wheatgrass was scattered in September over a portion of the area in hopes of eliminating some of the infestation of thistles and mustards that is anticipated (Figure 15). Seeding will continue with the spring thaw.

Figure 10. The southwest corner of the East Sump where a new channel was dredged. SMB 06/87

Figure 11. Completed channel in the southwest corner of the East Sump. SMB 07/87

Figure 12. Vegetated channel in the northwest corner of the East Sump prior to dredging. SMB 06/87

Figure 13. Cleaned channel in the northwest corner of the East Sump. Material from this channel and the dredged channel on the opposite side of the dike completely covered this dike to depths of six feet - a real challenge to spread and blend into the surrounding dike system. SMB 06/87

Figure 14. Installation of water control structure by Art Lacey Construction. SMB 09/87

Figure 15. Volunteers Donald Unruh, Jr. and Donald Unruh, Sr. scattered seed over dredged material in southwest corner of the East Sump during Workfest '87. SMB 09/87

7. Grazing

The main objective of the grazing program is to increase wildlife diversity. This is accomplished by having permanent non-use areas and a rest-rotation system on the remaining units. Special use permits for grazing privileges on the refuge were issued to Duval Ranching Company, Dawley Creek Ranch and Slim Saxton. Grazing occurred on 9992 acres resulting in approximately 3593.1 AUMs of forage removed (Table 3). Grazing fees were $4.00 for cattle and $4.50 for horses.

With a dry growing season in 1987, permittees were more persistent in using their allotted refuge AUM's. Because the U.S. Forest Service is reducing the number of AUM's over the next four years on Duval's allotments adjacent to the refuge, more pressure will be placed on refuge lands.

Fence repair continued throughout 1987, but was limited to those units that were to be grazed. Cliff Gardner of Dawley Creek Ranch re-built the fence extending into the marsh between Units II-D and III-F. Brad Storm, Maintenance Mechanic, repaired the boundary fence and re-built the fence across the exposed mud flats between Units II-A and II-D. The fence between Units II-E and III-F was completely washed out by high water. A prison honor camp crew disassembled the tangle of wire and posts (Section E-3). Instead of replacing it with permanent fence this year, Snell electric fencing was purchased and used. Two charged wires extended 1.6 miles. A solar powered unit kept the battery charged throughout a two month period (Figure 16). Next year, plans are to use this fencing to create an exclosure around a potentially high nesting area and manipulate grazing within large units.

A proposal for a contract to repair remaining fences was sent to engineering at the end of 1987 in hopes funding would be obtained in the near future.

8. Haying

Four units under Duval Ranching Company's grazing permit are allowed to be cut and bunch-raked from mid-August through September. This hay, with higher nutritional value than if left standing, is utilized in November and December. Each year, only three of the four units are hayed. The one unit not hayed is usually burned. By haying selected meadows, dense overstory plant species are removed to a consistent height which provides feeding habitat the following spring for sandhill cranes and Canada geese. Irrigating these hayed units also attracts large numbers of white-faced ibis.

Table 3. Summary of the 1987 grazing program at Ruby Lake NWR.

Unit	Acres	AUM's Allowed	AUM's Removed	Season[a] of Use	Remarks
I-A	79.0	100.00	124.36	E	Heavily grazed
I-B	42.9	0	0	-	Permanent Non-Use
I-C	31.4	0	0	-	Rested and Burned
I-D	54.8	$200/_{79}$*	$257.89/_{103.13}$*	E/L	Moderately grazed/poor hay utilization
I-E	55.3	$220/_{80}$*	$109.34/_{81.96}$*	E/L	Moderately grazed/good hay utilization
I-F	145.2	$200/_{65}$*	$125.74/_{64.48}$*	E/L	Moderately grazed/good hay utilization
I-G/H	265.7	220.00	250.28	E/M	Heavily grazed
I-I	102.5	118.00	166.00	M/L	Moderately grazed
I-J/L	530.1	394.00	393.77	M/L	Moderately grazed/south end heavily grazed
I-K	203.8	289.00	72.00	E	Lightly grazed. Too late putting cattle on baltic rush.
I-M	220.0	250.00	257.82	M/L	Moderately grazed
I-N	310.0	0	0	-	Rested
I-O	757.6	645.00	450.21	M/L	Moderately grazed
II-A	728.0	119.00	102.21	L	Lightly grazed
II-B	736.0	117.00	107.48	M/L	Moderately grazed. Permittee concerned with water quality of evaporating alkali ponds.
II-C	590.0	0	0	-	Rested
II-D	5788.9	0	0	-	Rested

[a]Season of Use: Early (E) = 15 April to 15 June, Mid (M) = 16 June to 15 September and Late (L) = 16 September to 31 December.
*AUM's before cutting/AUM's after haying.

Table 3. (continued)

Unit	Acres	AUM's Allowed	AUM's Removed	Season[a] of Use	Remarks
II-E	529.5	0	0	-	Permanent Non-Use
II-F	364.6	266.00	275.00	M/L	Moderately grazed. Cattle not contented with forage.
II-G	256.0	0	0	-	Permanent Non-Use
III-A	858.0	0	0	-	Rested
III-B	997.5	106.00	127.58	M	Moderately grazed
III-C	2758.6	0	0	-	Rested
III-D	3619.0	220.00	215.13	E/M	Moderately grazed
III-E	324.0	122.00	109.90	M	Moderately grazed
III-F	688.6	200.00	101.50	M	Moderately grazed with areas heavily grazed.
IV-A	460.0	0	0	-	Rested
IV-B	481.0	0	0	-	Rested
IV-C	192.0	0	0	-	Rested
V-A	50.5	0	0	-	Rested
V-B	96.4	0	0	-	Permanent Non-Use
V-C	61.1	80	24.64	M/L	Horses/lightly grazed
V-D	59.3	70	72.68	E/M/L (rotated with V-C use)	Horses/heavily grazed
V-E	45.1	0	0	-	Rested

[a]Season of Use: Early (E) = 15 April to 15 June, Mid (M) = 16 June to 15 September and Late (L) = 16 September to 31 December.

This year, Units I-D, I-E and I-F were hayed during the week of August 17. Approximately 150 acres out of a total of 255 acres were cut (Table 4). Cutting earlier than the past few years resulted in higher palatability of the hay and better utilization. A total of 250 AUMs were removed between November 9 and December 26. Good utilization of cut hay occurred in Units I-E and I-F. Even though more AUM's were taken off of Unit I-D than originally planned, poor utilization of hay piles occurred. For the second consecutive year, large amounts of hay remained after the grazing season which will inhibit vegetation growth. Plans are to burn I-D in the near future. Burning Unit I-F during fall 1986 increased the hayable portion of the unit.

Figure 16. Dan Pennington and Dan Boone discussing the newly purchased portable electric fence that was used to replace a washed out permanent fence. The permanent fence will eventually be re-built, but as you can see from the photo, the electric fence worked well. SMB 09/87

Table 4. Summary of Ruby Lake NWR's 1987 haying program.

Unit	Acres	Dates Cattle On	AUMs Allowed	AUMs Removed
I-C	31.4	Rested		
I-D	54.8	11/24 - 12/17	79	103.1
I-E	55.3	12/03 - 12/26	80	82.0
I-F	145.2	11/09 - 12/03	65	64.5
Total			224	249.6

9. Fire Management

Prescribed burning was used to improve habitat conditions on 318 acres during 1987 (Table 5). Spring burning encompassed 240.5 acres while fall burning covered 77.5 acres. Unit I-J/L was scheduled to be burned in the spring of 1987. However, due to moisture conditions and inadequate time to burn a blackline, this burn was not accomplished and is re-scheduled for spring 1988. Recently, fire has been primarily used as a means of rejuvenating areas covered by dense matted baltic rush that has restricted new vegetation growth. Burning of these areas also promotes more evenly distributed grazing over the unit.

Two units burned in the spring (Units I-I and I-K) were utilized before and after by sandhill cranes. Canada geese, willets and blackbirds used Unit I-I just as it was greening up. Walking over these units after they were burned revealed a large number of nesting attempts from previous years. Nesting was less abundant in Units I-C, V-B and V-A. After Unit V-A was burned, eleven trumpeter swans were observed loafing on the burned area surrounding a frequently used spring.

Refuge staff responded to one lightening caused wildfire on 15 May. Bureau of Land Management also responded to this 15 acre burn in Unit II-E, on the east side of the refuge. Updating the Memorandum of Understanding between BLM and the refuge followed this fire. Despite dry conditions, we were lucky in not having any major wildfires threatening the refuge. Two wildfires occurred on the west side of the Ruby Mountains and smoke from neighboring states put a haze over the valley for a couple of weeks.

The refuge is equipped with one dual-wheel truck that carries a 200 gallon slip-on pumper at all times. A second 200 gallon slip-on pumper is also available at the station. Firebreaks are maintained each year around refuge headquarters and the State Gallagher Fish Hatchery as a precautionary measure. The refuge and Gallagher Fish Hatchery personnel along with Shantytown residents comprise the crew for Ruby Valley Volunteer Fire Department Truck #3. The truck is stationed at the fish hatchery.

Table 5. Prescribed burns conducted in 1987 on Ruby Lake NWR.

Unit		Acres Burned	Date	Notes
I-C		32.0	24 November	Quick, hot fire - did not burn matted hay piles entirely.
I-I	South	14.0	16 April	Backing fire burned majority of litter.
	Center	16.5	29 April	Clean backing fire through matted baltic rush.
I-K		200.0	22 April	Burned clean.
V-A	North	12.5	23 November	Burned clean.
	South	33.0	2 December	Burned quickly over area leaving approx. 5 inches of baltic rush standing.
V-B	Center-South	5.0	4 May	Burned clean.
	Center-North	5.0	6 May	Patchy burn due to green vegetation.

10. Pest Control

The four main noxious weed species on the refuge are Scotch thistle, Canada thistle, whitetop and Russian knapweed. Of the four, Canada thistle poses the most serious problem because of the number of sites and acreage involved. In the past, arrangements for spraying were made with a private pest control service in Elko. This year, a tractor-mounted 200 gallon Continental sprayer was purchased (Section I-4) which will allow refuge staff to conduct more efficient control operations. Not all parts for the sprayer arrived in time to do any spraying this year.

11. Water Rights

The 200+ springs on the refuge were surveyed in 1983. To date, water rights to these springs which feed the marsh have not been secured by the U.S. Fish and Wildlife Service. The State of Nevada has continuously tried to restrict government agencies from obtaining water rights within the state (Figure 17). At this time, the water adjudication process on the springs has progressed as far as the Solicitor's Office in Sacramento, California.

Elko water-rights ruling scheduled to be appealed

This month's water-rights lawsuit ruling may have temporarily protected water allotments for Nevada's ranchers, but it likely won't be the last word on the subject, since the ruling will be appealed.

Elko District Judge Joseph O. McDaniel ruled Feb. 5 that state water engineer Peter Morros erred in granting livestock and wildlife watering permits to the Bureau of Land Management and the U.S. Forest Service. Morros issued the permits in July of 1985.

McDaniel's ruling said the BLM could not have livestock watering permits under Nevada law because it did not own any livestock. McDaniel added the Forest Service wasn't entitled to wildlife watering permits under state law because wildlife watering alone isn't considered a beneficial use.

However, an appeal of the landmark ruling is planned to the Nevada Supreme Court, according to a secretary in the office of Reno attorney Earl M. Hill. Hill represented Morros. Because his appeal still is pending, Hill would not discuss the case.

Deputy Attorney General Harry W. Swainston represented the state in the suit. He said the state has a strong position, but noted he is not surprised McDaniel's verdict is being appealed. He also added the case may be appealed as far as the U.S. Supreme Court.

"Certainly the issues are substantial enough," Swainston commented.

Swainston pointed out the state paid for Morros' defense because it wanted an answer to the controversy. Now that a verdict has been issued, Swainston said, it was unclear whether the state would fund appeals on Morros' behalf.

Elko attorney Stewart Wilson represented several ranchers plus the state cattlemen's and woolgrowers' associations against Morros in the suit. He agreed the case is important. "It's significant because it not only clarifies the law of Nevada in an area that may not have been clear but it also consolidates the control of the state engineer over the waters in Nevada," Wilson stated.

Federal control of water was a key issue, according to Mountain States Legal Foundation attorney Casey Shpall. Mountain States also was a co-plaintiff against Morros.

"About 88 percent of the State of Nevada's land is owned by the federal government," Shpall stated in a press release. "The state engineer's ruling ensured that the water flowing through the state was also subject to federal control."

"In essence, we felt we were heading for a day when federal grazing permits would have to be accompanied by federal water permits," Shpall concluded.

McDaniel noted in his ruling the government had protested having to apply for a permit by claiming to Morros it "has a right to use such water without the filing of this application."

McDaniel observed "such a declaration could cause a person whose livelihood is dependent on water rights on the public domain to be nervous."

Ranchers have particular reason to be nervous because they cannot operate without water rights. If federal agencies succeed in tying water rights to grazing permits, "they could jack the permitees around pretty good," Swainston observed.

To explain why the federal agencies want to control the state's water, Wilson pointed out they are "buffeted" by special interest groups, such as the Sierra Club which intervened in the suit in defense of Morros, intent on perpetuating their own interests. Swainston added the Sierra Club dislikes any use of public land inconsistent with its own preferences, "and livestock operations... top the list."

Wilson said that, if upheld, McDaniel's ruling should protect ranchers' ability to obtain state water rights.

Figure 17. Article appearing in the Elko Daily Free Press on Wednesday, February 18, 1987.

G. WILDLIFE

1. Wildlife Diversity

The diversity of habitat found on the refuge and the surrounding area provides for a large diversity of wildlife. Waterfowl, shorebirds, water birds, songbirds and raptors utilize the various habitats during migration or as seasonal residents. Mammals, including mule deer, pronghorn, muskrats rodents, rabbits and a variety of predators also rely on the refuge's wetlands and uplands during at least part of their yearly cycle. Refuge management practices emphasize the maintenance of habitat diversity for all forms of wildlife.

2. Endangered and/or Threatened Species

The Peregrine Fund from Santa Cruz, California, under contract with Nevada Department of Wildlife, continued the peregrine falcon re-introduction program in Ruby Valley for the fourth consecutive year. A 30 foot high "hack" tower on the east side of the refuge was used as the release sight during 1984, 1985 and the first release in 1986. Since then, peregrine falcons have been released on U.S. Forest Service land from a hack box placed on a rock outcrop in a canyon behind refuge headquarters. A second hack box was placed nearby in 1987. Four males and two females were released on 25 July. One male never returned to the site after fledging, but the other five dispersed with a good chance of survival. Two peregrines were also seen this year in the area of Harrison Pass and Ruby Wash Road - an adult and an immature. During December, several sightings of a peregrine falcon occurred approximately 24 miles north of refuge headquarters.

Two to three bald eagles regularly used the refuge from November 1986 to February 1987 with as many as six sighted early in January. The first bald eagle for the 1987-88 winter was sighted 27 November. Since then, five bald eagles have been sighted in Ruby Valley of which four were using the refuge.

3. Waterfowl

Ruby Lake is considered a production area for waterfowl, but also attracts a number of migrating waterfowl. Spring migration usually brings a large number of birds into the valley during March. Duck numbers increased from 1498 at the beginning of March to 4578 by the end, continuing to increase through the spring. Peak duck populations generally occur in October, but have also occurred in August and September. This year the duck population was greatest in July (16430 on 1 July) with the greatest fall numbers occurring in October (10475 on 1 October). Duck numbers remained above 4000 through November and rapidly dropped in December. Fall migration numbers were low compared to the numbers observed in the past five years. Birds tended to concentrate early to molt using the open water on the east side of the North Sump and South Sump. Soon after, they moved out of the valley; perhaps in response to the dropping water levels which exposed large mud flats that had been covered during the last few years of high water.

Besides the usual waterfowl species, a rare sighting of a male oldsquaw occurred on 16 November after a cold snap the previous two days (Figure 18). It remained on a springhead for nearly two weeks.

Figure 18. Taking advantage of the last open water, an oldsquaw visited Ruby Lake the last weeks of November.
SMB 11/87

a. Swans

Trumpeter swans were transferred to the refuge between 1947 and 1958 from Red Rock Lakes NWR, Montana. Six pairs nested on the refuge in 1987: two in the North Sump, two in the South Sump, one in Unit 14 and one in the East Sump. From these six pairs, five cygnets fledged. Over the past 10 years, an average of seven pairs have produced five cygnets each year. The high water levels of the past five years did not significantly change production (Table 6). Each nesting pair produced 0.8 cygnets during the five years prior to 1983 compared to 0.6 cygnets produced per nesting pair since 1983. It is believed several trumpeter swans move off the refuge to nest on nearby lakes and rivers up to 100 miles away, then move back onto the refuge in September and October. Numbers on the refuge begin to increase at this time. An average of 31 trumpeter swans used the refuge during the past five winters.

Besides trumpeter swans, tundra swans arrive at the refuge in October or November. This year, 220 were using the refuge early in November. The majority left by the end of November due to very little open water available after 15 November when the marsh first froze over.

b. Geese

Canada goose production was down to 119 pairs producing 160 goslings during 1987. This compares with a five year average of 187 pairs producing 504 goslings (Table 6). Geese move regularly back and forth between the refuge and Franklin Lake to the north. However, the normal movement onto the refuge in February did not occur. Numbers on the refuge increased in April, reaching peak use around 1 May with an estimated 300 geese present.

c. Ducks

Water levels during the spring were close to a foot above objective levels in the South Sump where the majority of diving ducks nest. Although it was high, it was much lower than the level recorded in the past few years. Nesting was later than normal with few nests found in May. Canvasbacks and redheads again nested over water in hardstem bulrush rather than on more upland, baltic rush sites chosen the past two years. Productivity of canvasbacks and redheads in 1987 increased over 1986's figure, but was low compared to the 10-year average even though more breeding pairs were counted (Table 7). Canvasbacks began gathering on the North Sump and South Sump in July. Numbers reached a peak of 2820 at the beginning of October.

Upland duck nesting was also initiated later than normal with low production following. With the help of volunteers Peter and Susan Bradley, a greater number of upland units were nest searched. Portions of Units I-C, I-D, I-GH, I-I, II-G, V-A and V-B were searched. All upland nesting species produced less than the 10-year average with only cinnamon teal production increasing over 1986's figure (Table 7).

Table 6. Production and use day figures for waterfowl from 1982 through 1987.

	1982	1983	1984	1985	1986	1987
Trumpeter Swans						
Breeding Pairs	9	6	7	8	3	6
Production	2	9	3	3	2	5
Use Days	8243	8389	7263	7782	5737	6232
Canada Geese						
Breeding Pairs	100	280	130	270	155	119
Production	270	840	450	730	230	160
Use Days	73600	105330	54035	56615	44912	31680
Ducks						
Breeding Pairs	5685	7220	8268	4894	4272	4594
Production	6557	11035	6720	8903	4440	4289
Use Days	1689097	2398725	2144566	3588094	2222197	2245652
Coots						
Breeding Pairs	7000	4600	4500	5000	5730	4000
Production	8400	4300	6500	9000	5800	4500
Use Days	1681700	2149515	2706900	3075575	2417450	1991800

Table 7. Breeding pairs and production for the primary duck species nesting at Ruby Lake NWR.

	1987		1986		10-year average (1977-1986)	
	Pairs	Young	Pairs	Young	Pairs	Young
Canvasback	611	660	330	270	550	1447
Redhead	933	840	800	740	629	1456
Mallard	335	415	220	600	201	499
Northern Pintail	22	18	60	100	111	264
Gadwall	1204	1084	1080	1040	564	1205
Cinnamon Teal	720	558	770	460	669	1241
Northern Shoveler	225	181	270	240	166	311
Lesser Scaup	175	245	180	230	232	602
Ruddy Duck	287	230	520	720	374	903
American Wigeon	30	23	12	20	14	29

4. Marsh and Water Birds

Great blue herons are year-round residents. Concentrated around the Gallagher Fish Hatchery, approximately 100 wintered in the area. During the week of 22 March, 29 great blue herons were sitting on the traditional colony site in the South Sump. Later, an estimated 40 breeding pairs nested at this site.

White-faced ibis were present on the refuge from mid-April to early October. One hundred breeding pairs used the site in the North Sump that consisted of 85 nests last year. Five young (approximately one week old) were found dead in the approximately 25 nests checked. All were too deteriorated for examination. Large numbers of white-faced ibis fed in Unit I-C during late May and early June when it was being irrigated (Figure 19). They were joined by four cattle egrets which remained in the area through August. Because Unit I-C is highly visible to people passing by on the county road, the birds caused many travelers to stop and scope out the unit.

Figure 19. White-faced ibis utilizing Unit I-C while it was being irrigated. Cattle egrets also used the unit.
SMB 06/87

The traditional colony in Unit 14 was dominated by black-crowned night-herons (55 pairs) and snowy egrets (35 pairs) during 1987 (Figure 20). The previous year, an estimated 120 white-faced ibis nests, 15 snowy egrets, and 10 black-crowned night-heron nests were present at this same site.

White pelicans used the refuge earlier than past years. On 1 July, the greatest number of pelicans (265) were observed. These birds left the refuge shortly after, spending the majority of their time on Franklin Lake before returning to the refuge in October. A total of 500 were observed on Franklin Lake on 1 September with 200 still present on 1 November.

Sandhill cranes returned to the refuge 3 March. Large flocks migrated through the valley on 5 March. Throughout the spring, 15 pairs were periodically surveyed. The first chick was observed on 12 May. One additional chick was observed, but neither are believed to have made it to fledging stage. From mid-August to mid-September, 80-150 cranes could be seen staging in hay fields in Ruby Valley, north of the refuge.

Great egrets were also regular summer residents, increasing in numbers from previous years. Seven stayed as late as 4 November. A least bittern, a rare sight for this area, was observed on 26 May.

Figure 20. Black-crowned night-herons dominated a colony in Unit 14. This same colony was dominated in 1986 by white-faced ibis. SMB 06/87

5. Shorebirds, Gulls, Terns and Allied Species

The extensive shallows on the east side of the refuge that have attracted shore birds diminished during 1987 as water levels dropped. American avocets and black-necked stilts were seen on the refuge in April. The largest concentrations were seen in September on Franklin Lake.

Lowering water levels in Unit 10 for dredging purposes created a mudflat in the northwest corner. Shorebirds using this area gave the public an opportunity to see these birds that normally remain on the relatively inaccessible east side of the refuge.

6. Raptors

A variety of raptor species are present on or near Ruby Lake in both the summer and winter months. Red-tailed hawks, northern harriers and American kestrels are frequently seen during the summer months, while rough-legged hawks are commonly seen from late fall through early spring. Golden eagles, prairie falcons and great-horned owls are present throughout the year. In addition to these regular sightings, a sharp-shinned hawk was observed at the hatchery in January and a ferruginous hawk at Narciss access road in March. Peregrines were reported periodically on Harrison Pass, Ruby Wash Road and by the Sharp Ranch north of the refuge. Nevada Department of Wildlife continued the peregrine falcon re-introduction program in Ruby Valley for the fourth year (Section G-2).

7. Other Migratory Birds

Standardized surveys, along with incidental observations, provided information on 200+ bird species that occur in the area. The refuge regularly submits reports to American Birds containing information on spring arrival dates, population and production estimates and unusual sightings. Each year, the refuge also conducts a breeding bird survey in Huntington and Newark Valleys on the west side of the Ruby Mountains for the Migratory Bird and Habitat Research Laboratory. To gather information on birds wintering in the area, the refuge has hosted an Audubon Christmas Bird Count since 1978. This year's count was scheduled for Sunday, 3 January 1988. Sixteen individuals participated resulting in the sighting of 50 species and 1120 individual birds. The most noteworthy sightings for this time of year were American tree sparrows, a canyon wren, a dipper, a yellow-rumped warbler and a Clark's nutcracker. Regularly throughout 1987, great-tailed grackles have been observed on the refuge and have been reported appearing also more frequently in the Elko area. A year ago, this bird was considered a rare sighting.

8. Game Mammals

Mule deer, frequently seen during the winter, are the most common big game species on the refuge. During February and March, they concentrated heavily along the base of the Ruby Mountains.

Pronghorn antelope were occasionally seen at the north and south ends of the refuge and along Ruby Wash Road. The boundary fence along the east side that needed re-stapling was adjusted for antelope passage.

10. Other Resident Wildlife

One sage grouse lek on the refuge was surveyed during spring 1987. Seven sage grouse were present on the lek by 21 March. Seven was the greatest number of sage grouse observed throughout the strutting season. Periodically through the summer, two sage grouse were observed using the upland area southeast of Unit 21.

A blue grouse, normally staying higher on the slopes, took up residence around Cave Creek and refuge headquarter's lawns through the fall.

Mark Ports, an instructor at Northern Nevada Community College, continued his small mammal survey through 1987 (Section D-5).

11. Fisheries Resources

Nevada Department of Wildlife monitors and manages the fisheries resources at Ruby Lake NWR. Largemouth bass were introduced to Ruby Lake in 1932 or 1933 and have since become established. Originally, a small, endemic relict dace was native to Ruby Lake and abundant until the bass were introduced. The majority of refuge visits is for fishing largemouth bass (Section H-9). With visitation exceeding objective levels, the compatibility between the fisheries resource and other refuge objectives is of greater concern.

Dredging of 82 "fish holes" along the dikes (Section F-2) occurred during 1987 under an appropriated Special Congressional fund designated for fish habitat improvement and associated projects. These "fish holes" provide habitat to minimize fish loss related to low oxygen levels in winter and also the loss related to drawdowns of diked units. In addition, three channels were dredged and three water control structures were installed to improve water circulation.

12. Wildlife Propagation and Stocking

The trout fishery at Ruby Lake NWR is dependent on annual stocking for its survival. All trout are produced at the State's Gallagher Fish Hatchery and released at scattered locations throughout the year to prevent put and take situations. During 1987, 36727 trout were released into Ruby Lake's waters (Table 8).

Table 8. Trout released by Nevada Department of Wildlife into Ruby Lake's waters during 1987.

	Rainbow	Brown	Brook	Tiger
North Sump	250	750		
Collection Ditch	5497	3114	5154	3712
Unit 10	450			
Unit 21	1350	1750		
South Springheads	1950	750		
South Sump	12000			
Totals	21497	6364	5154	3712

14. Scientific Collection

Seven birds were collected for examination (Section G-17).

The refuge collected sago pondweed tubers in November from Dace Bay at the extreme south end of the refuge. They were sent to Patuxent Wildlife Research Center for Dr. Fleming's search for ecotypes resistant to pollution.

15. Animal Control

Attempts to dispose of two beavers located along the Collection Ditch behind Gallagher Fish Hatchery has been unsuccessful to date. The beaver continuously placed willows and other vegetation in the water control structure leading into Unit 20 as the biologist kept pulling the vegetation out to keep water flowing. If only the beaver and the visitors that take it upon themselves to manipulate water levels were brought together, the refuge would solve two problems.

17. Disease Prevention and Control

No disease outbreaks occurred during 1987. Seven birds (trumpeter swan, cinnamon teal, coot, redhead, white-faced ibis, pied-billed grebe and yellow-headed blackbird) were collected to submit to the National Wildlife Health Lab. The only report of ulcerative proventriculitus this year pending two necropsies was diagnosed in the cinnamon teal. The coot died of pneumonia. The unusual appearance of a young yellow-headed blackbird with a large air pocket at the nap of its neck was diagnosed as having pneumothorax and subcutaneous emphysema caused by a ruptured lung (Figure 21). The one-week old white-faced ibis found dead in nests were all too deteriorated to determine the cause of death. The cause of the trumpeter swan's death is still pending a histopathic exam.

Figure 21. A young yellow-headed blackbird with a large air pocket at the nap of its neck was diagnosed as having pneumothorax and subcutaneous emphysema caused by a ruptured lung. SMB 07/87

H. PUBLIC USE

1. General

Visitor use figures at Ruby Lake NWR are derived through interpretation of traffic counter readings. The traffic counters are located at each of the six major access roads. In 1984, the formula used to estimate numbers of visitors was revised.

Despite many road closures due to construction projects in 1987, refuge use increased to an estimated 70547 visits; a 19 percent increase over 1986's figure (Table 9). The refuge's greatest public use occurred during June, July and August. Generally, attitudes toward the construction on the refuge were favorable. The inconveniences were tolerated once they understood the end result. The improvements at the Main and Narciss boat landings, including new boat ramps, a dock and newly graveled parking areas (Section I-2), received favorable comments from the majority of the people. Of course, there will always be the few that make it known they liked it the old, less-orderly way.

Table 9. Estimates of visitor use by activity at Ruby Lake NWR from 1982 to 1987.

Year[a]	Fishing	Wildlife Observation	Migratory Bird[b] Hunting	Photography	Other[c]	Total
1982	69644	5591	1025	94	120	76474
1983	74961	7798	623	722	520	84624
1984	41988	1916	508	130	143	44685
1985	42762	831	596	117	373	44679
1986	55756	1946	534	241	712	59189
1987	66495	2875	239	146	792	70547

[a]For 1982 and 1983, figures were derived using the old traffic counter formula. Figures from 1984 through 1987 were obtained using the new formula.
[b]Figures for migratory bird hunting are on a calendar year basis; therefore, portions of two seasons are represented.
[c]Other includes trapping, interpretation, tours and ice skating.

There were five parties needing assistance during the motorless and electric motor boat season who became disoriented in the marsh or could not maneuver their boat in strong winds (Section E-6). Four of these rescues involving 10 individuals occurred during the first week of boating. The fifth party, after an unsuccessful search, spent the night on the marsh.

Changes in refuge personnel and the major construction projects gave the refuge more exposure in the local Elko newspapers this year. Through the articles, the public was informed on current road closures and the progress of the work. Also, a short review of refuge activities continues to be placed each month in the Ruby Valley News. Although a small home publication, it has a wide distribution and is read not only by Ruby Valley residents, but also Elko residents and many people that vacation here.

On 1 December, an audit was conducted of the user charges and collection procedures at Ruby Lake NWR by John Kerrins and Joyce Varvil from the Office of Inspector General in Denver.

6. Interpretive Exhibits/Demonstrations

A refuge display was set up at the Elko County Library for National Wildlife Week (Figure 22). It remained on display for a month - introducing the public to the variety of wildlife that can be seen throughout the year at Ruby Lake NWR and some of the biological and habitat management activities that are conducted.

Figure 22. Refuge display in Elko County Library.
SMB 03/87

7. Other Interpretive Programs

An evening program was given by Sara Brown, Wildlife Biologist, on 18 July, orienting wildlife observers to the refuge. This program was scheduled as the monthly meeting of the Northeastern Nevada Naturalists. The following morning, individuals were taken on a bird watching tour.

On 21 November, Dan Pennington, Refuge Manager, gave a refuge tour to eight Boy Scouts and two leaders from Ruby Valley. He discussed general refuge operations along with pointing out the various habitats wildlife use.

8. Hunting

Only migratory bird hunting is permitted at Ruby Lake NWR with open seasons on ducks, dark geese (primarily Canada geese), coots, common moorhens and snipe. The hunting area is approximately 8600 acres in size and includes permanent marsh, flooded alkali flats and springheads. A newly revised refuge hunting leaflet was used during the 1987-88 hunting season.

The 1987-88 hunting season was the second year non-toxic steel shot was required for hunting ducks, geese and coots on the refuge. The season opened on 17 October and closed 3 January 1988 for all but geese. Geese were allowed to be taken until 17 January 1988. Daily and possession limits remained the same as last year with species restrictions on mallards, pintails, redheads and canvasbacks.

An estimated 130 parties resulting in 236 hunter visits occurred during the 1987-88 hunting season providing 873 activity hours (Table 10). Seventeen percent of the hunters were contacted. Hunters averaged 2.4 birds per visit compared to 1.8 birds per visit during the 1986-87 season. An estimated 555 birds were retrieved. Gadwall (41.2%), green-winged teal (13.4%), northern pintails (7.2%), lesser scaup (7.2%) and bufflehead (7.2%) were the top five species in the bag. Only 4.1 percent and 1 percent of the birds retrieved were canvasbacks and redheads.

Currently, one licensed guide receives a Special Use Permit to guide waterfowl hunters on the refuge.

No snipe hunters were contacted during the 1987-88 hunting season.

Table 10. Waterfowl hunter success at Ruby Lake NWR during the 1983-84 through 1987-88 hunting seasons.

Hunting Season	Number of Hunter Visits	Hours Hunted	Number of Retrieved Birds[a]	Birds/Hunter Average
1983-84	618	2184	2176	3.5
1984-85	500	1378	824	1.6
1985-86	577	1558	952	1.6
1986-87	529	1719	930	1.8
1987-88	236	873	555	2.4

[a]Includes ducks, Canada geese and coots.

9. Fishing

Anglers visit Ruby Lake NWR in pursuit of largemouth bass and rainbow, brook, brown, cutthroat and "tiger" (brown x brook) trout. Bass are small because of a short growth period (3-4 months) and a forage base that is limited almost entirely to invertebrates. As a result, it takes bass about five years to reach ten inches in length and become sexually mature. All trout are stocked from fish raised at the Gallagher Fish Hatchery, which is located on the refuge and operated by the Nevada Department of Wildlife.

The revised refuge fishing and boating leaflet arrived in July. No changes in fishing/boating regulations occurred during 1987. Although no legal size limit has been established for any species on the refuge, anglers are asked to release the bass they catch under ten inches. This allows the bass to reach spawning size before being subjected to angler harvest.

Anglers accounted for an estimated 66495 visits in 1987, 94 percent of the total visits (Table 9). The number of fishing visits increased 19.3 percent over last year's 55756 fishing visits. The jump from 1985 to 1986 was 30.4 percent. June, July and August were the busiest months with an estimated 40391 visits. Construction closed many of the dike roads periodically, but the public could still walk into most areas to fish.

10. Trapping

Only muskrat trapping is permitted at Ruby Lake NWR. The 1986-87 refuge trapping season ran from 1 November 1986 through 15 March 1987. There were five trapping units with one trapper assigned to each through a public drawing. A total of six individuals applied. Selected trappers were charged an administrative fee of $165, which was paid at the time the trapping permit was issued. A quota of 750 muskrats was set for each unit. All five units were trapped varying lengths of time with a total of 3116 muskrats taken (Table 11). Generally, pelts sold between $2.25 and $4.00.

The 1987-88 refuge muskrat trapping season began 1 November 1987 and is scheduled to close on 15 March 1988. The refuge was divided into six units this year to increase trapping around the diked units. The administrative fee was set at $135 for each trapper. There were 13 applicants that were entered into the drawing with three others eliminated for lack of experience and a fourth for an outstanding debt to the refuge on record. Quotas were increased to 2000 muskrats per unit. All but one trapper had begun trapping prior to 1 January 1988. By the end of the year, a total of 3286 muskrats had been taken.

Table 11. Harvest information by unit for the 1986-87 muskrat trapping program at Ruby Lake NWR.

Unit	Dates Trapped	Number of Days Trapped	Hours[a] Trapped	Number of Muskrats Trapped
I	11/01 - 03/04	66	538	755
II	11/22 - 02/16	59	509	762
III	01/14 - 03/16	33	324	764
IV	02/10 - 02/23	14	112	98
V	03/02 - 03/16	15	82	737
TOTAL			1565	3116

[a]Includes helper's time.

11. Wildlife Observation

Wildlife observation visits were up to 2875 during 1987 compared with an average of 1564 visits over the past three years. The refuge bird list was replaced this year with a wildlife checklist that includes birds, mammals, fish, reptiles and amphibians (Information packet).

16. Other Non-Wildlife Oriented Recreation

On 9 June, approximately 50 school children from Ruby Valley School and their parents held their annual Play Day marking the end of the school year on the refuge headquarter's lawn under the large shade trees. Along with games and a potluck lunch planned by the teachers and parents, Sharon Storm, Refuge Assistant, took everyone to the cave behind headquarters and told about some of the early cave explorers and what they found.

17. Law Enforcement

Refuge law enforcement personnel concentrated mainly on enforcing hunting and boating regulations and preventative law enforcement. Law enforcement efforts were hampered by the transfer of the Assistant Manager in January without replacement the entire year and the change in refuge managers in June and again in August. The State law enforcement officers expended most of their efforts to enforce fishing regulations.

Jerry Smith and Mike Green are the primary law enforcement officers with the Nevada Department of Wildlife assigned to the Ruby Lake area. Jerry is a conservation officer and Mike is a fishery biologist with law enforcement authority. Mike contacts a large number of anglers during the four days of creel surveys he conducts each month from March to October. In 1987, Mike and Jerry wrote 30 citations for violating fishing and boating safety regulations. Exceeding the possession limit of fish was the most common violation; twelve citations were issued.

I. EQUIPMENT AND FACILITIES

1. New Construction

Several new construction projects were completed with 8610 dollars and regular O & M funds in 1987. These include:

- A rear porch enclosure was constructed on Quarters 101 (Figure 23). The rear entry on this house faces the prevailing winter winds and are almost useless during the winter months. This project was completed at a cost of approximately $2500 for materials and supplies.

- Large boulders were placed around the periphery of the parking areas at the Main and Narciss boat landings. Rings to tie boats to were attached to the boulders near the water's edge eliminating the previous haphazard method of anchoring boats (Figure 24). Boulders were chosen over wooden posts to eliminate yearly maintenance required from frost heaving.

- Three inch diameter pipes with end covers were installed along the irrigation ditch of Unit I-C to improve water distribution (Section F-5).

- Two pole gates were constructed by force account and installed on the cross dikes separating Units 13, 14 and 20. These dead end dike roads will be maintained for maintenance travel. By restricting travel, this area will provide the refuge visitor a place to fish or bird watch away from vehicle traffic.

Work continued in late April on the construction projects under the $398K Special Congressional Fund appropriated in 1984. These projects were completed this year and included:

- The dredging of 82 "fish holes" (100 ft x 50 ft x 10-14 ft deep) and three channels (5100 ft total length) were completed by Art Lacey Construction from Cascade, Idaho (Section F-2). Parts of two channels could not be dug with the draglines due to a hard pan about 18 inches thick. These two areas were completed by Ruby Dome Construction of Elko with a track-mounted extenda-backhoe. The shoulders of the dike roads did not hold the quantity of material that was removed and hence, many road closures occurred until a path could be dozed through (Figure 25). On one 1/4 mile stretch of road, material from the dredged channels covered the width of the dike with up to six feet of "mud". After the spoil piles dried sufficiently, Art Lacey Construction returned in August to spread the material and contour the dike shoulders. The creation of these "fish holes" will improve fish survival during hard winters and during unit drawdowns while the channels will improve water manipulation (Information Packet - newspaper article).

- Art Lacey Construction also installed three stop log risers and pipe between Units 14 and 20, Units 13 and 14 and Unit 10 and North Sump. These water control structures will allow greater flexibility in managing water levels on the refuge.

Figure 23. Newly built rear entranceway on Quarters 101.
SMB 02/88

Figure 24. Large boulders were placed around the periphery of the parking areas at Narciss and Main Boat Landings. Rings attached to the boulders provide places to tie a boat to.
SMB 08/87

Figure 25. Dredged material blocked dike access periodically throughout the summer. (See Figure 28 for end product.) SMB 06/87

2. Rehabilitation

Rehabilitation projects completed this year with 8610 and regular O & M funds included the following:

- Electric baseboard heat was installed in Quarters 46 and the old fuel oil furnace was disconnected.

- Under direction from the Environmental Protection Agency, three new 500 gallon fuel tanks were installed above ground for Quarters 8, Quarters 17 and the office. These replaced the buried tanks that did not meet recent E.P.A. standards. At this writing, two underground tanks have been removed with two to be removed during the coming year.

- A prison crew removed approximately 1.6 miles of interior fence between Units II-E and II-F because of damage sustained from past flooded conditions. Refuge staff replaced this fence with a newly purchased temporary electric fence. The fenceline between Units II-A and II-D was re-built this year (Section F-7). In order to ensure a water source for cattle grazing Unit II-A, the long neglected windmill located in this unit was repaired and the water holding tanks reset.

- Riprap was placed on Brushpile Pond dam to prevent additional damage from wind action and cattle trampling.

- The east side access road from Brown Dike was upgraded this year by spreading a layer of gravel over a portion of the road that was so deeply rutted that refuge vehicles were dragging bottom.

- The cleaning of four cattle guards and the repair of the wings of seven cattle guards were completed. Damage to the wings of the cattle guards was caused by driver error on the part of some refuge visitors, especially those with wide vehicles such as motorhomes.

Rehabilitation projects accomplished under the Special Congressional package were:

- Construction of three new boat ramps, located at the Main and Narciss boat launching areas were completed in 1987 by Circle C Construction of Twin Falls, Idaho. These ramps were 80 percent complete in 1986. A boat dock built in 1986 by Refuge Carpenter Hal Marsh was installed between the two boat ramps at the Main Boat Landing in early June, putting everything in its place for the 15 June boat opening (Figure 26). The majority of the public was pleased with the improvements. As the season progressed, more floats were added to the dock to stabilize it and lessen the stress on the hinges. The first section sustained some damage from vehicles not lined up properly with the ramps. Modifications to improve the facility were discussed throughout the season and are planned to be accomplished in the coming year.

Figure 26. The public was generally pleased with the new boat dock and two boat ramps at the Main Boat Landing. SMB 06/87

- Circle C Construction spread gravel over the CCC dike during June to enable a dragline access for dredging along the northern portion of the East Sump. Besides improvements to the road surface, material was packed along the badly eroded edges of the CCC dike's west end as the dragline passed by.

- After all dredging was completed and the material dried and spread (Section I-1), the final contract of the Special Congressional Package was awarded to Ruby Dome Construction from Elko for rock crushing and graveling of approximately 11.0 miles of roads and three acres of parking areas (Figures 27 and 28). Ruby Dome sub-contracted this project to Warhawk Enterprises of Vernal, Utah. Since this was the final contract, money ran out with approximately 500 cubic yards of gravel out of 18000 cubic yards left to spread on a small section of dike and at the boat landings, and a crushed rock stock pile of 380 cubic yards instead of 2000 cubic yards.

Figure 27. Rock crushing operation at CCC gravel pit provided enough gravel for all the major dike roads.
SMB 11/87

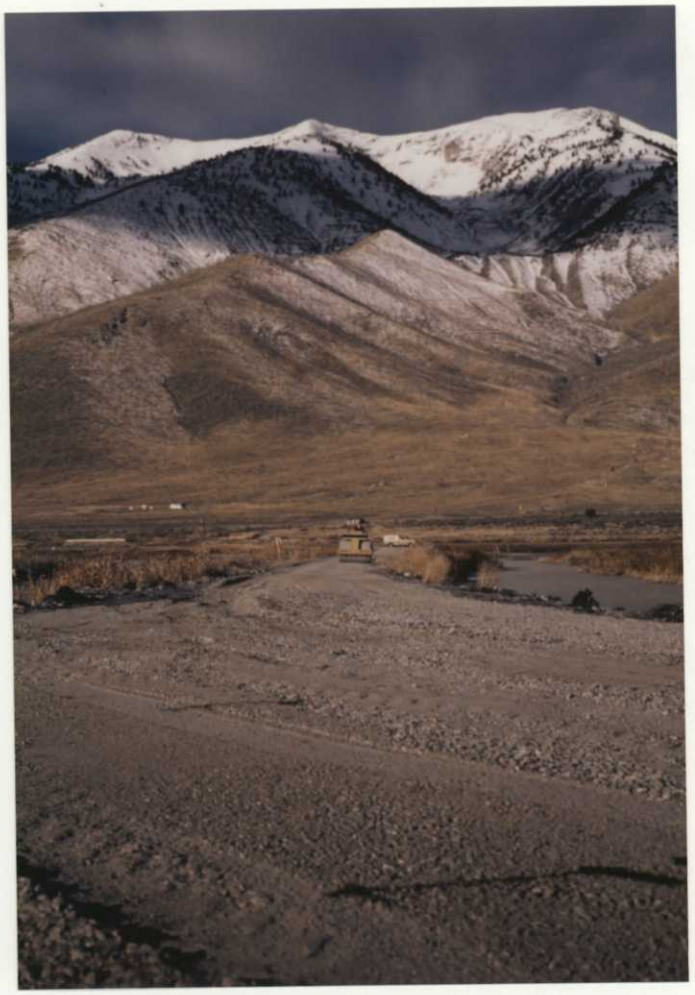


Figure 28. Final compaction of the crushed rock greatly improved the roads. This picture was taken at approximately the same location as Figure 25. SMB 12/87

3. Major Maintenance

Routine maintenance was performed on all facilities and equipment as needed. The majority of work was performed on upgrading refuge residences.

The siding on Quarters 8, Quarters 17 and the four car garage assigned to these quarters was re-stained. The stain on the south exposure of these buildings does not last more than two or three years despite attempts to find a stain that will stand up to the local weather conditions. The interiors of Quarters 8 and Quarters 100 were also painted between personnel changes.

Approximately 15 miles of boundary fence were repaired with a portion of it adjusted to allow antelope to pass underneath.

4. Equipment Utilization and Replacement

The following items were disposed of through excess or sale:

- International 2706 wheeled tractor was excessed to the Clearwater Timber Protection Association in Orofino, Idaho because of repair costs and no ROPS was available for it.

- An International TD-14 double drum winch, oil burning heaters, water heater and 200+ wooden muskrat stretchers were sold in a small lot sale covering the local community.

The following new pieces of equipment were acquired:

- A new John Deere 210-C 4x4 extenda-backhoe was purchased for $34527.65 (Figure 29). The old backhoe is an agriculture tractor with a backhoe attachment. This tractor, with the attachment removed, will be used primarily for mowing operations.

- A new sickle bar mower was purchased this year to replace the relic which was more than 20 years old and parts were almost impossible to obtain.

- A 200 gallon 3-point hitch tractor-mounted sprayer was acquired to treat noxious weeds (Figure 30). In the past, someone locally was hired to do the spraying. With this sprayer, refuge staff can do more for the money; but more important, we can treat the weeds on time rather than try to work out a schedule with a contractor.

- Out of the Special Congressional Appropriation funds, a new, trailer-mounted Crisafulli pump, 16" humpback 10000 gpm at 540 rpm was purchased along with a trailer-mounted, air-cooled Deutz Diesel engine (Figure 31 and 32). This outfit will be an asset when it comes to unit drawdowns.

- Snell electric fence material was purchased to cover a distance of approximately two miles. A solar-powered charging unit was also purchased to minimize the amount of time spent changing batteries, especially when used in remote places. This fence was used this year as a temporary interior fence where a permanent fence was nonfunctional (Section F-7).

- A fifteen foot square stern canoe and electric motor were purchased after the canoe previously used was returned to Oregon State University (Figure 33).

- A pair of Leitz binoculars (7x42) was purchased to replace an old pair of Bushnell's that were destroyed due to the high cost of repairs.

Figure 29. Our new John Deere 210-C 4x4 extenda-backhoe purchased this year. SMB 12/87

Figure 30. A new 200 gallon sprayer that will be used to treat noxious weeds in the future. SMB 01/88

Figure 31. The Crisafulli 16 inch humpback pump and...
SMB 12/87

Figure 32. the air cooled Deutz diesel engine purchased with Special Congressional Appropriated Funds. SMB 12/87

Figure 33. A Smoker Craft fifteen foot square stern canoe and electric motor were purchased to replace a canoe that was returned to Oregon State University. SMB 02/88

- The office equipment was upgraded this year with several purchases. A Mita DC-152Z copier was purchased to replace an old Xerox model. The station also acquired a Mitac computer and Fujitsu printer - a very welcome addition for everyone (Section I-6). To keep up with the changing times, a TV and VCR were purchased since most of the visual aids now come in the form of video tapes.

Hydraulic remotes were installed on the John Deere 401-C tractor by Elliott Industrial of Twin Falls, Idaho. The hydraulic remotes will allow this tractor to be used with the mowing equipment.

5. Communications

This year, the refuge received four battery chargers and eight rechargeable batteries for the King hand held sets that were received in 1986.

The Bureau of Land Management radio technician located in Ely, Nevada continues to complete repairs on refuge radios. A very informal agreement exists with the Service providing the necessary materials and parts and he completes the work for us. This agreement continues to save the refuge considerable dollars each year. Presently, all refuge radios are on the local BLM frequency.

6. Computer Systems

A new Mitac disc drive computer, Thompson color monitor and Fujitsu printer was purchased by the Regional Office (Figure 34). "Word Perfect", "Lotus 1,2,3" and "R-Base System V" were the principle software packages received. This new piece of equipment will be a great asset to the station.

Figure 34. Dan Pennington using the new computer system received in October. SMB 01/88

7. Energy Conservation

- An entrance way on the west side of Quarters 101 was built. This addition protects the building from the severe winds from the west, reducing heating costs during the winter and acts as a shade from the afternoon sun in the summer (Section I-1).

- Three outside wall closets in Quarters 8 were insulated, sheetrocked and painted.

- Curtains were purchased for Quarters 8 and Quarters 17.

- All vehicles were properly tuned and serviced at scheduled intervals to minimize fuel consumption.

J. OTHER ITEMS

1. Cooperative Programs

Several cooperative agreements exist between the refuge and the Nevada Department of Wildlife. Nevada Department of Wildlife manages the fisheries resources on the refuge. They maintain the Gallagher Fish Hatchery on refuge lands through a Memorandum of Understanding written in the 1940's. Mike Green, fisheries biologist, monitors the fish population in refuge waters. Water levels are critical to both agencies and thus, coordination is essential. Law enforcement has also been a joint effort.

A Memorandum of Understanding exists with the U.S. Forest Service for the administration of 2907 acres of refuge lands located primarily west of the County Road. This land is included in their Cave Creek Allotment. Reducing the allotted number of AUMs on the allotment began this year and will continue over the next four years. The refuge has been consulted on this subject and the upcoming changes planned for managing campers in the area.

The Bureau of Land Management in Ely, Nevada continues to service our radio system under an informal agreement (Section I-5). A Memorandum of Understanding between the refuge and BLM, Elko District was updated during 1987 covering mutual assistance on fires across agency boundaries, fire management and necessary investigations.

Refuge personnel are also involved with the following cooperative programs:

- Weather Station for the National Weather Service
- Colonial Bird Registry through Cornell University
- Breeding Bird Survey through the Migratory Bird and Habitat Research Lab
- Audubon's Christmas Bird Count
- American Birds' Quarterly Reports
- Peregrine Fund's Re-introduction Program
- Ruby Valley Volunteer Fire Department

3. Items of Interest

On 4 September, Chic Hecht's Legislative Assistant, Scott Cameron spent the day touring the refuge with the Refuge Manager and Wildlife Biologist. General issues and current public attitudes were discussed (Figure 35).

Figure 35. Scott Cameron, Chic Hecht's Legislative Assistant, discussing refuge issues with Refuge Manager Dan Pennington.
SMB 09/87

Throughout the Wildlife Section of this report, reference was made to Franklin Lake, a privately-owned seasonal wetland located in Ruby Valley just north of Ruby Lake (Figure 36). Franklin Lake and refuge lands work together in providing habitat for a variety of species. Depending on water conditions, birds pass back and forth regularly. With one ranch foreclosed to Travelers' Life Insurance Company and another one about to foreclose, the Nature Conservancy has taken the opportunity to try to protect the wetlands of Franklin Lake and discourage development on the surrounding land. In December, after persistent efforts by Dave Livermore of the Conservancy, a deal was reached (Information packet - newspaper article). One ranch was sold with 3000 acres of wetlands bought by the Nevada Department of Wildlife. The second ranch was bought by the Conservancy and the American Farmland Trust. After four years, this land could be repurchased by the previous owner with conservation easements on the wetland portion.

Dan Boone, upon his return in the fall to review refuge issues with Dan Pennington, presented Wildlife Biologist Sara Brown with a Special Achievement Award for her extra effort put forth during personnel changes and the major construction projects of the previous summer (Figure 37).

Figure 36. Resulting from efforts by the Nature Conservancy, a large portion of Franklin Lake will be protected in the future. DLP 09/87

Figure 37. Dan Boone presenting Sara Brown with a Special Achievement Award. DLP 09/87

Through the initiative of a housewife, an instructor at the local college and the Refuge Biologist, an organization known as Northeastern Nevada Naturalists was formed in Elko in March. This organization is similar to an Audubon chapter in other places; however, the group does not take a political stand on issues. Its goals are to bring educational and factual programs to the public so they can understand and enjoy their surroundings. Monthly presentations and field trips are arranged along with the printing of a monthly newsletter. Despite skepticism at the beginning, the organization has come to be accepted by a wide spectrum of people drawing 15-30 individuals each program and approximately 60 individuals receive the monthly newsletter. This organization will benefit the refuge both directly and indirectly.

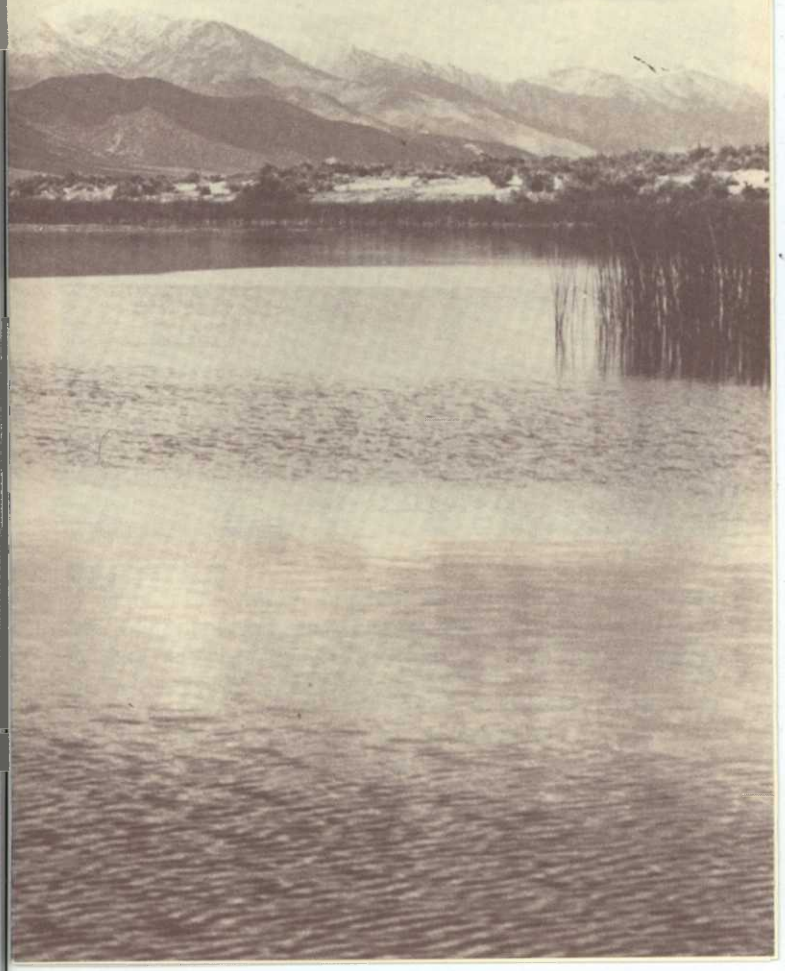
4. Credits

Daniel L. Pennington:	E-1,5,6; H-17, editing
Sara M. Brown:	A; D; E-3,4,7; F; G; H-1,6-11,16; J, editing
Bradley M. Storm:	Section I
Sharon L. Storm:	Section B, typing, assembly

Ruby Lake

NATIONAL WILDLIFE REFUGE

NEVADA



Ruby Lake

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

The 37,632-acre refuge consists of marshes, open ponds and islands, bordered by wet meadows and grass and sagebrush-covered uplands. Ruby Lake National Wildlife 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 traveling several routes - west along the Humboldt River and to Owens Valley, east to the Great Salt Lake, northwest to the Klamath Basin, and south to the Colorado River.

HISTORY

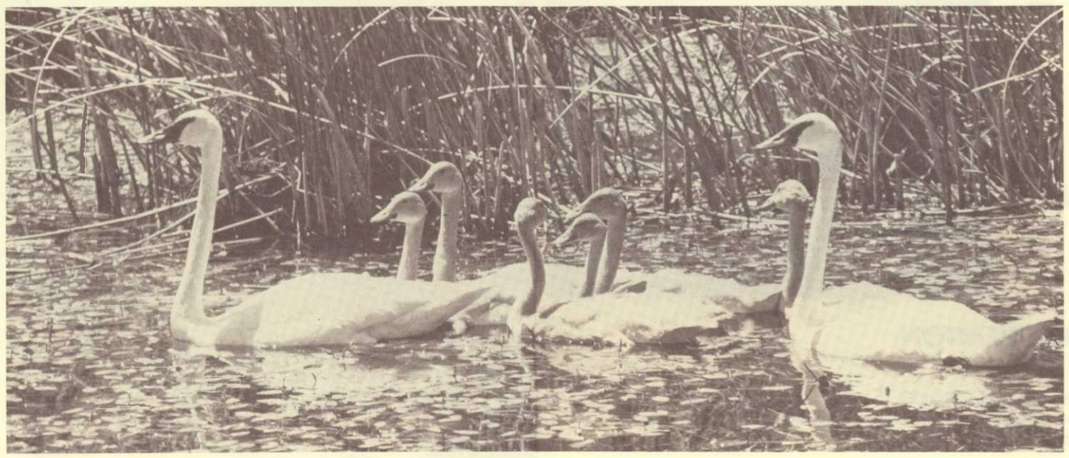
During the Pleistocene Epoch, the Ruby Marshes were part of a much larger body of water known as Franklin Lake. This ancient lake covered about 470 square miles and was over 200 feet deep. As conditions became drier, the lake level began to drop. Today, a balance has been reached and only the Ruby and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

In 1938, the importance of the Ruby Marshes to nesting and migratory waterfowl and water birds was recognized, and the Ruby Lake National Wildlife 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 over 200 springs along the base of the Ruby Mountains. Water reaching the end of the collection ditch flows 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.



Trumpeter Swan Family

BIRDS

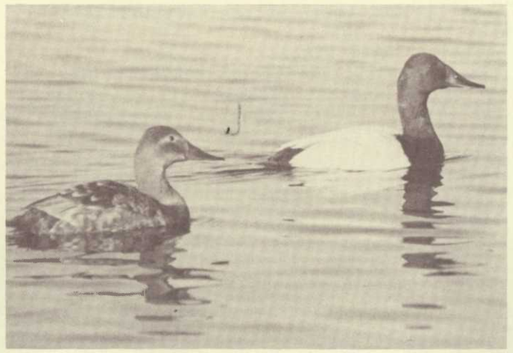
Over 200 species of birds regularly use the refuge.

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 in Western America for these species. In good years the refuge has produced 3,500 canvasbacks and 2,500 redheads.

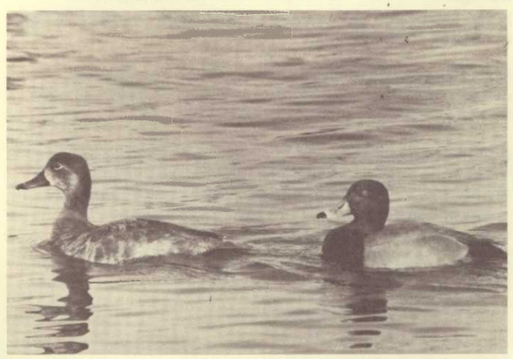
The trumpeter swan, originally a transplant from the Red Rock Lakes National Wildlife Refuge in Montana, is also found on the refuge. Several pairs nest each year.

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.



Canvasbacks

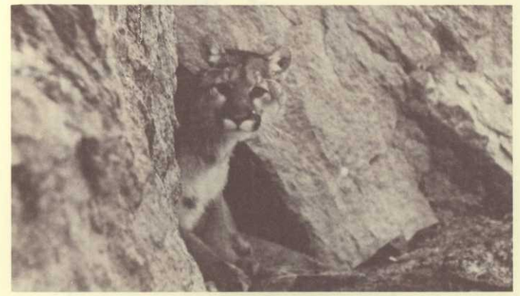


Redhead Ducks

MAMMALS

Mountain lions and bobcats are regularly found in the foothills and mountains bordering the refuge on the west. Although present throughout the year, mule deer are most frequently observed in winter as they move from the foothills to feed and water on the refuge. Coyotes are common residents throughout the year. In the marsh, muskrats are abundant and they help keep dense stands of bulrush open and more attractive to waterfowl. Also, their houses and feeding platforms provide resting and nesting platforms for waterfowl and other marsh-dwelling birds.

Mule Deer



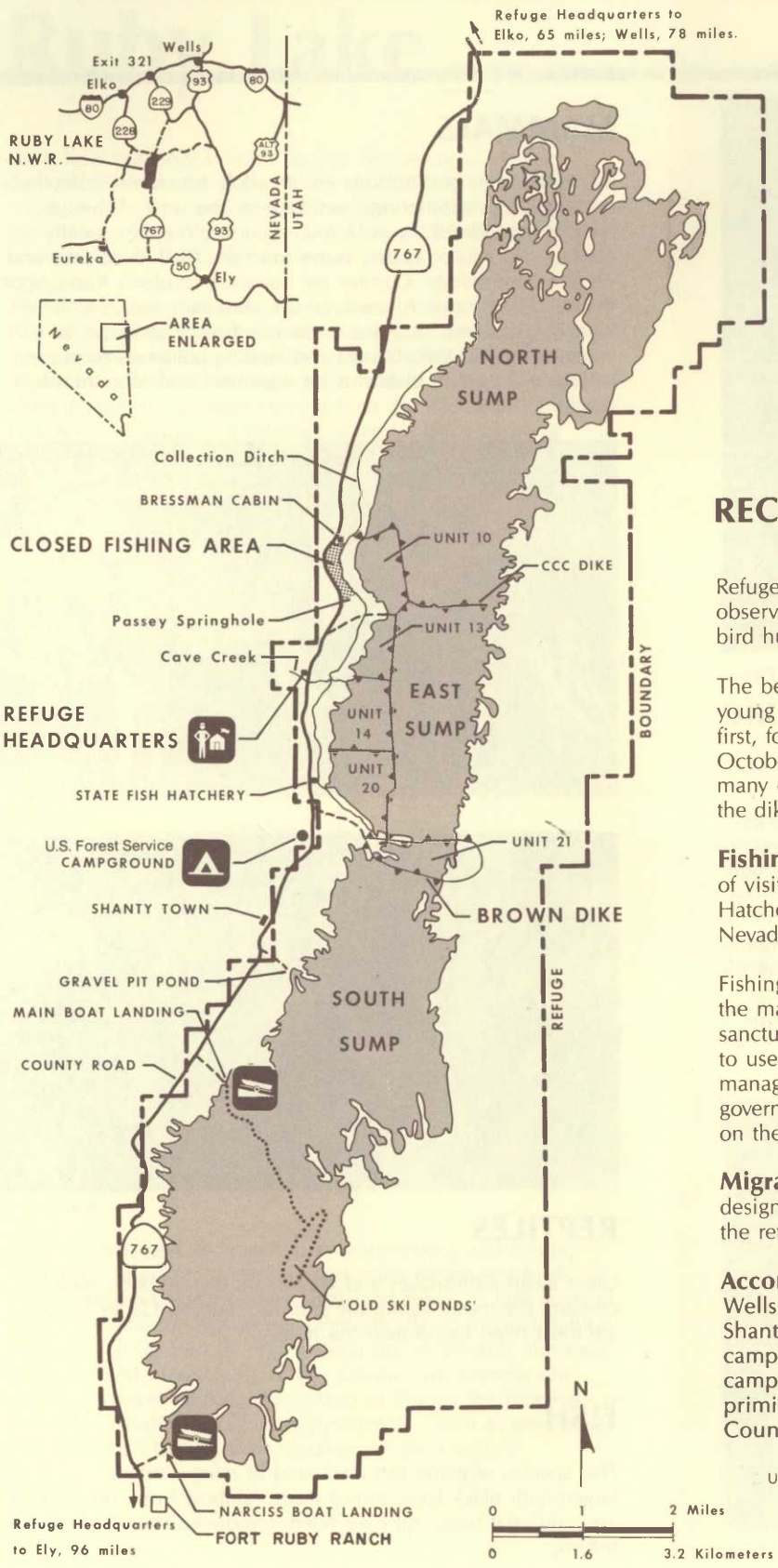
Mountain Lion

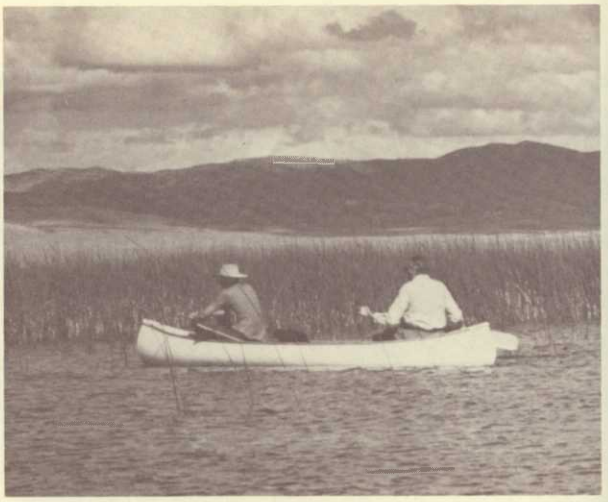
REPTILES

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

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





RECREATION

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

The best time to observe and photograph waterfowl and their young occurs from late May through 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.

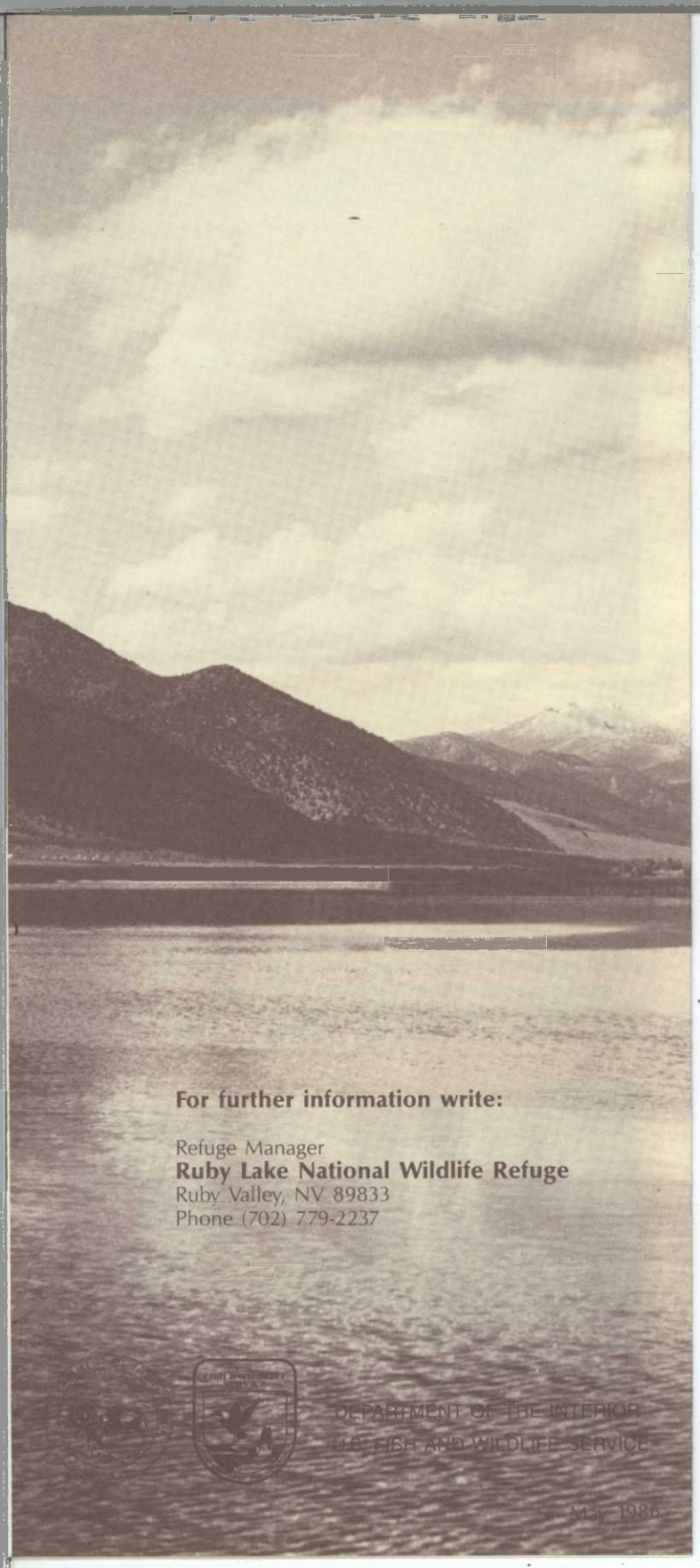
Fishing for largemouth black bass and trout attracts thousands of visitors each year. The trout are raised at the Gallagher Fish Hatchery, which is located on the refuge and operated by the Nevada Department of Wildlife.

Fishing is allowed year-round on the refuge; however, access to the marsh must be restricted to provide protection and sanctuary to nesting and migrating waterfowl. 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.

Migratory bird hunting is permitted on the refuge in designated areas on and adjacent to the South Sump. Contact the refuge manager for current regulations.

Accommodations for refuge visitors are available in Elko, Wells and Ely. Gas and limited supplies are available at Shanty Town. Camping is not permitted on the refuge but camp sites are available at the U.S. Forest Service campground near Gallagher State Fish Hatchery. Also, primitive camping is allowed on all public land west of County road 767 unless otherwise posted.

U.S. GOVERNMENT PRINTING OFFICE: 1987—791-032 60,006 REGION NO 10



For further information write:

Refuge Manager
Ruby Lake National Wildlife Refuge
Ruby Valley, NV 89833
Phone (702) 779-2237

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

May 1986

Wildlife

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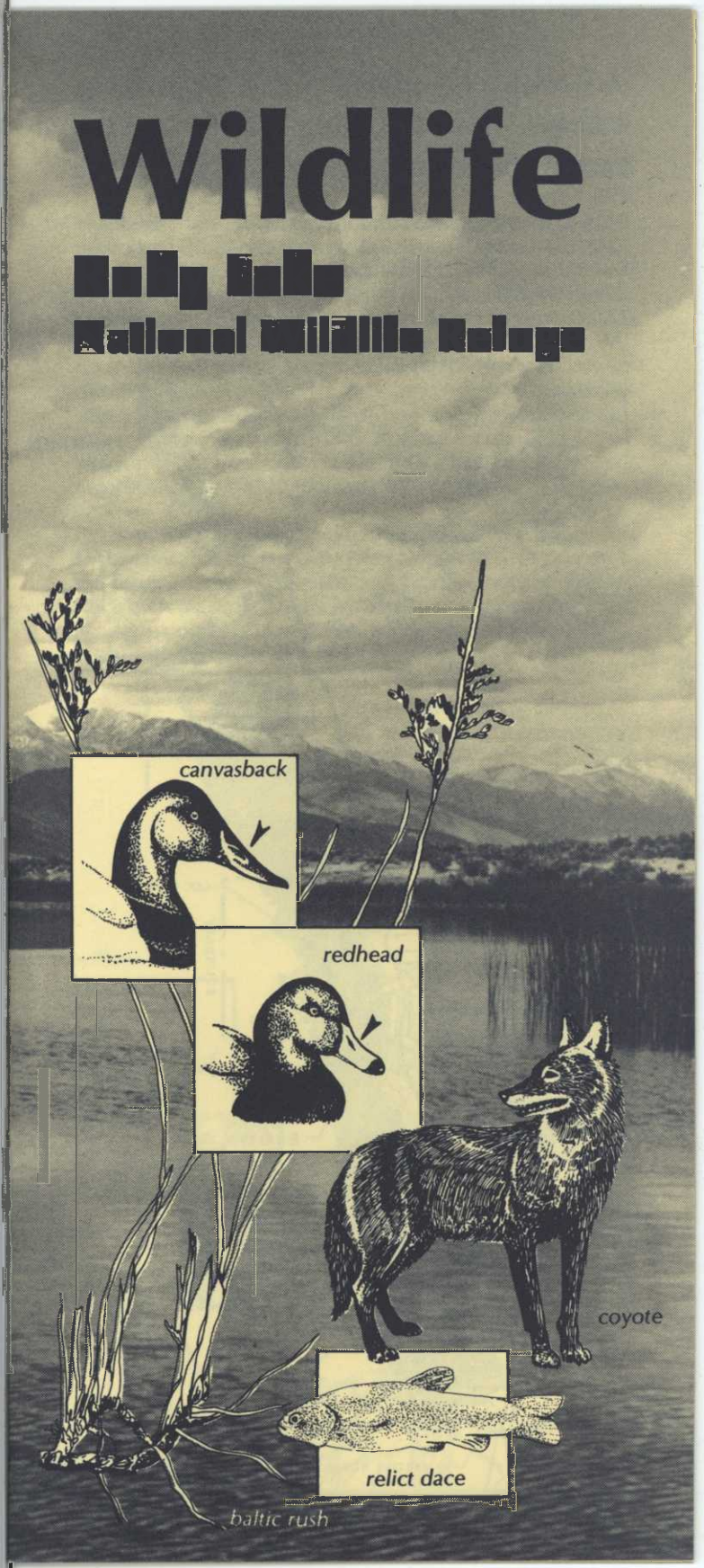
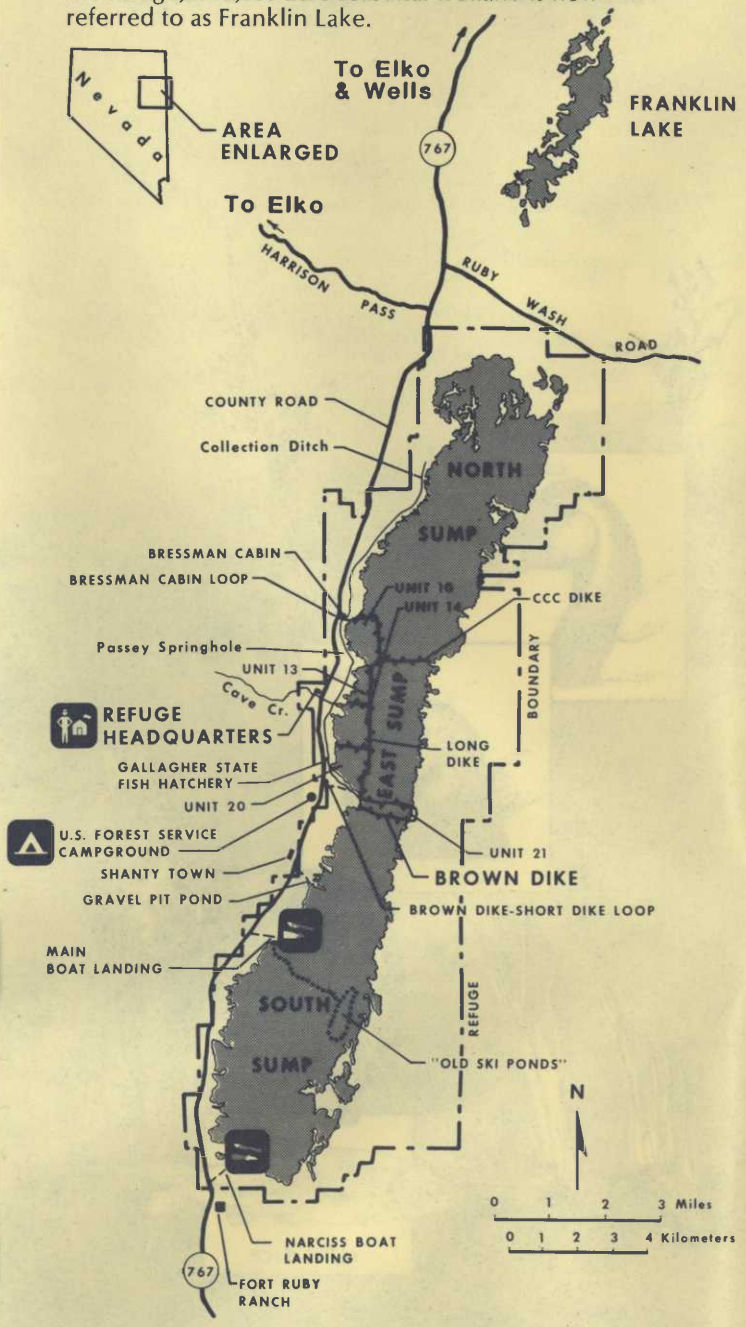


A Refuge for Nesting and Migrating Waterfowl and Other Wildlife

Ruby Lake National Wildlife Refuge was established in 1938. It encompasses 37,632 acres at the south end of Ruby Valley. This land was once covered by a 200 foot deep, 300,800 acre lake known as Franklin Lake. Today 12,000 acres of marsh remain on the refuge. Just north of the refuge, a 15,000 acre seasonal wetland is now referred to as Franklin Lake.



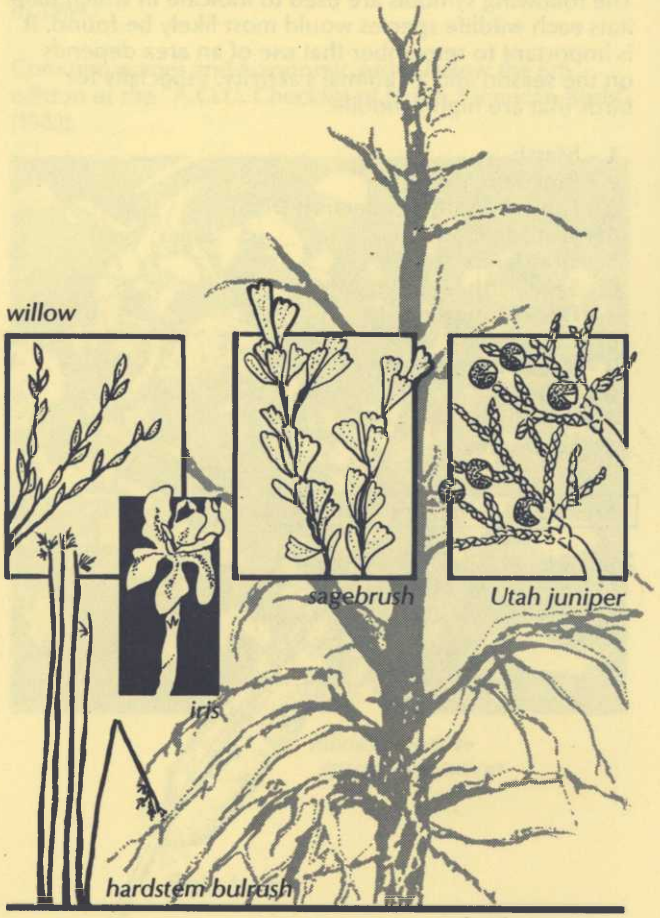
The Habitat

Red-tailed Hawk

The refuge, at an elevation of 6,000 feet, consists of an extensive bulrush marsh interspersed with pockets of open water. Fish are abundant. Islands scattered throughout provide good nesting habitat for many bird species.

Over 200 springs flow into the marsh along its west border creating riparian habitat which is used by many songbirds, snipe, rail and small mammals. They also provide a water source for larger mammals. With slight increases in elevation, wet meadows gradate into grasslands and sagebrush-rabbitbrush habitat.

Pinon pines and juniper cover the slopes of the Ruby Mountains that rise to 11,000 feet along the west side of the refuge. Canyons provide cover for a variety of wildlife. Rock cliffs provide raptors with nesting and perching sites. A mountainside of dead trees, home for cavity dwelling birds, was the result of a 1979 fire.



General Key

Season

Sp - Spring (March through May)
S - Summer (June through August)
F - Fall (September through November)
W - Winter (December through February)

Abundance

a - abundant (likely to be seen in large numbers)
c - common (usually seen in proper habitat)
u - uncommon (seen regularly in small numbers)
o - occasional (irregular occurrence)
r - rare (rarely seen)
? - mammal species speculated to exist in area
h - mammal species historically reported (prior to 1940)

Habitat

The following symbols are used to indicate in which habitats each wildlife species would most likely be found. It is important to remember that use of an area depends on the season and an animal's activity, especially for birds that are highly mobile.

1 - Marsh
2 - Riparian
3 - Flowing Water/Collection Ditch
4 - Wet Meadows
5 - Grasslands
6 - Sagebrush/Rabbitbrush
7 - Pinon/Juniper
8 - Canyons
9 - Rocky Areas/Cliffs
10 - Caves
11 - Buildings
12 - Widespread

Threatened/Endangered Species

> Introduced Species

*Bird species known to nest locally

BIRDS

barn swallow

The following bird list includes 202 species observed on or near the refuge. In addition, 23 species are listed as accidentals because they have only been observed once or twice in the area. Species known to nest locally (*) are identified.

Bird life can be seen through all the habitat gradients from the valley floor to the mountain peaks. The refuge is a significant waterfowl area in Nevada providing an important feeding and resting stop in the Pacific Flyway.

During the summer, the marshes provide excellent habitat for nesting canvasbacks and redheads along with several colonial nesters — the white-faced ibis, the great blue heron and the black-crowned night heron. Greater sandhill cranes nest along the marsh's edge. Trumpeter swans were introduced into the valley from Montana resulting in several pairs nesting on the refuge each year. A peregrine falcon reintroduction program was initiated in 1984.

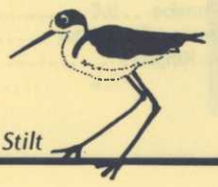
Common names and taxonomic order follow the 6th edition of the "A.O.U. Checklist of North American Birds" (1983).

killdeer nest in sparse vegetation

flight feather

COMMON NAME	HABITAT	Sp	S	F	W
LOONS					
Common Loon	1	r		r	
GREBES					
* Pied-billed Grebe	1	c	c	c	u
Horned Grebe	1	o		o	
* Eared Grebe	1	c	c	c	u
* Western Grebe	1	r	r	u	
PELICANS AND CORMORANTS					
American White Pelican	1	o	u	u	
Double-crested Cormorant	1	o	u	o	
BITTERNS, HERONS AND EGRETS					
* American Bittern	1	c	c	c	
* Great Blue Heron	1	c	c	c	c
Great Egret	1	r	o	r	
* Snowy Egret	1	c	c	u	
Cattle Egret	5	r	r		
* Black-crowned Night-Heron	1	c	c	c	o
IBIS AND SPOONBILLS					
* White-faced Ibis	1,4	c	a	c	
WATERFOWL					
Tundra Swan	1	u		c	c
* Trumpeter Swan	1	u	u	u	u
Lesser White-fronted Goose	1	o			o
Snow Goose	1				o
* Canada Goose	1,4	c	c	c	c
Wood Duck	3,2			u	
Green-winged Teal	1	c	r	a	c
* Mallard	1	a	a	a	c
* Northern Pintail	1	c	u	a	c
* Blue-winged Teal	1	u	u	u	
* Cinnamon Teal	1	a	a	c	u
* Northern Shoveler	1	c	c	c	u
* Gadwall	1	a	a	a	c
* American Wigeon	1	c	u	c	c
* Canvasback	1	a	a	a	u
* Redhead	1	a	a	a	u
* Ring-necked Duck	1	c	u	u	c
* Lesser Scaup	1	c	c	c	c
Common Goldeneye	1	u		u	c
Barrow's Goldeneye	1			r	r
Bufflehead	1	u		c	c
Hooded Merganser	1	o		o	o
Common Merganser	1	u		u	u
Red-breasted Merganser	1	r		r	r
* Ruddy Duck	1	c	c	c	u
VULTURES					
* Turkey Vulture	5	c	c	u	

COMMON NAME	HABITAT	Sp	S	F	W
OSPREY, KITES, EAGLES AND HAWKS					
Osprey	1	r		r	
Bald Eagle	12			o	o
* Northern Harrier	12	c	c	c	c
* Sharp-shinned Hawk	2	o	o	o	
* Cooper's Hawk	2	o	o	o	
Northern Goshawk	2	o			
* Swainson's Hawk	5,6	o	o	o	o
* Red-tailed Hawk	12	c	c	c	o
* Ferruginous Hawk	5,6	o	o	o	o
Rough-legged Hawk	5,6	c	o	c	c
* Golden Eagle	5,9	u	u	u	o
FALCONS					
* American Kestrel	5	c	c	c	
Peregrine Falcon	8,9	r		r	r
* Prairie Falcon	5,9	u	u	r	r
GALLINACEOUS BIRDS					
* Gray Partridge	5	r	r	r	r
* Chukar	8	r	r	r	r
* Blue Grouse	7		r	u	u
* Sage Grouse	5,6	c	c	c	c
* California Quail	8	r	r	r	r
RAILS					
* Virginia Rail	1	u	u	u	r
* Sora	1	u	u	r	
* Common Moorhen	1	r	r		
* American Coot	1	a	a	a	c
CRANES					
* Sandhill Crane	4,5	c	c	u	
PLOVERS					
Black-bellied Plover	1	r			
* Killdeer	4,5	c	c	c	r
STILTS AND AVOCETS					
* Black-necked Stilt	1	o	c	u	
* American Avocet	1	o	c	u	
SHOREBIRDS					
Greater Yellowlegs	1	o		o	
Lesser Yellowlegs	1		u	u	
Solitary Sandpiper	1	c		c	
* Willet	4,5	c	c	u	
* Spotted Sandpiper	1	c	c	c	
* Long-billed Curlew	4,5	c	c		
Least Sandpiper	1	c	c	c	
Long-billed Dowitcher	1	o	u	o	



Black-necked Stilt

COMMON NAME	HABITAT	Sp	S	F	W
SNIPE					
* Common Snipe	1,2	u	c	u	u
PHALAROPES					
* Wilson's Phalarope	1	o	o	o	
Red-necked Phalarope	1	o		o	
GULLS AND TERNS					
Franklin's Gull	1	o	o	o	
Ring-billed Gull	1	o	o	u	
California Gull	1	o	o	o	
Caspian Tern	1	o	u	o	
* Forster's Tern	1	c	c	u	
* Black Tern	1	c	c	u	
DOVES					
Rock Dove	11	o			
* Mourning Dove	7,5	a	c	a	o
OWLS					
* Great Horned Owl	2	c	c	c	c
* Burrowing Owl	5,6	u	u	u	
* Long-eared Owl	7,2	u	u	u	u
* Short-eared Owl	5,6	c	c	c	u
* Northern Saw-whet Owl	7	u	u	u	u
GOATSUCKERS					
* Common Nighthawk	12	c	c	u	
* Common Poorwill	7,6	u	u	u	
SWIFTS					
* White-throated Swift	8,9	u	u	u	
HUMMINGBIRDS					
* Black-chinned Hummingbird	8,5	u	u	u	
* Calliope Hummingbird	2,8	u	u	u	
* Broad-tailed Hummingbird	2,5	u	u	u	
Rufous Hummingbird	2,5	u	c	c	
KINGFISHERS					
* Belted Kingfisher	2	u	u	u	u
WOODPECKERS					
* Lewis' Woodpecker	7,8	u	c	u	
Yellow-bellied Sapsucker	2	o	o	o	
* Downy Woodpecker	2,7	u	u	u	u
* Hairy Woodpecker	2,7	u	u	u	u
* Northern Flicker	5,7	c	c	c	u
FLYCATCHERS					
* Olive-sided Flycatcher	2,7		u		
* Western Wood-Pewee	2	u	u		
* Willow Flycatcher	2,8		c		
* Hammond's Flycatcher	7	u			
* Dusky Flycatcher	6,2	c	c	c	
* Gray Flycatcher	7,6	u	u	u	
* Western Flycatcher	2,8	u	u		
Say's Phoebe	8,9	c	c	c	
* Ash-throated Flycatcher	5,6	u	u	u	
* Western Kingbird	5,6	c	c	c	

COMMON NAME	HABITAT	Sp	S	F	W
LARKS					
* Horned Lark	5	c	c	c	c
SWALLOWS					
* Tree Swallow	2,7	c	a	a	
* Violet-green Swallow	7,9	c	a	a	
* Northern Rough-winged Swallow	11,9	c	c	c	
Bank Swallow	11,6	c	c	c	
* Cliff Swallow	11,9	a	a	a	
* Barn Swallow	11	c	c	c	
JAYS, MAGPIES AND CROWS					
* Scrub Jay	7		u	u	u
* Pinyon Jay	7	u	u	u	c
* Clark's Nutcracker	7	o	o	o	o
* Black-billed Magpie	12	c	c	c	c
* American Crow	12	o	u	u	o
* Common Raven	12	c	c	c	c
CHICKADEES AND TITMICE					
Black-capped Chickadee	8,2				o
* Mountain Chickadee	2,8	u	u	u	c
* Plain Titmouse	7	c	c	c	c
BUSHTITS					
* Bushtit	7	c	c	c	c
NUTHATCHES					
* Red-breasted Nuthatch	7	c	c	c	
CREEPERS					
* Brown Creeper	7,2	u	u	u	
WRENS					
* Rock Wren	9	u	u	u	
* Canyon Wren	8,9	u	u	u	r
* House Wren	2,4	c	c	c	
* Marsh Wren	1	a	a	a	u
DIPPERS					
American Dipper	2,3	o	o	o	o
KINGLETS, BLUEBIRDS AND THRUSHES					
Golden-crowned Kinglet	7	u	u	u	
Ruby-crowned Kinglet	7,2	u	u	u	
* Mountain Bluebird	5	c	u	c	
* Townsend's Solitaire	7,3	u	u	u	u
Veery	8,2		c		
Swainson's Thrush	2,4	u	u	u	
Hermit Thrush	2,7	o	o	o	
* American Robin	12	c	c	c	o
MOCKINGBIRDS AND THRASHERS					
Gray Catbird	2	o	o	o	
Northern Mockingbird	11,2		u		
* Sage Thrasher	5,6	u	u	u	
WAGTAILS AND PIPITS					
Water Pipit	4,5		r	r	

COMMON NAME	HABITAT	Sp	S	F	W
WAXWINGS					
Cedar Waxwing	2	o	o	o	o
SHRIKES					
Northern Shrike	7				o
* Loggerhead Shrike	5,6	o	o	o	
STARLINGS AND MYNAS					
* European Starling	12	c	c	c	o
VIREOS					
Solitary Vireo	2	u	u	u	
Warbling Vireo	2	u	u	u	
Red-eyed Vireo	2		r		
WARBLERS					
Orange-crowned Warbler	2	u	u	u	
* Virginia's Warbler	8,7	u	u	u	
* Yellow Warbler	2	c	c	c	
* Yellow-rumped Warbler	2	c	c	c	
* Black-throated Gray Warbler	8,6	u	u	u	
Northern Waterthrush	4,2	r		r	
* MacGillivray's Warbler	2	u	u	u	
* Common Yellowthroat	1,2	u	c	u	
* Wilson's Warbler	2	u	u	u	
* Yellow-breasted Chat	2	o	o	o	
TANAGERS					
Western Tanager	7	u	u	u	
GROSBEAKS AND BUNTINGS					
Black-headed Grosbeak	2	u	u	u	
* Lazuli Bunting	2	u	u	u	
Indigo Bunting	5,2	r	r		
TOWHEES AND SPARROWS					
* Green-tailed Towhee	8,6	u	u	u	
* Rufous-sided Towhee	2	u	u	u	
American Tree Sparrow	5,4			o	o
* Chipping Sparrow	5,8	u	u	u	
* Brewer's Sparrow	6	c	c	c	
* Vesper Sparrow	5,6	c	c	c	
Lark Sparrow	5	c	c	u	
* Black-throated Sparrow	6,8	u	u	u	
* Sage Sparrow	6	c	c	c	
* Savannah Sparrow	5	a	a	a	
Grasshopper Sparrow	5	o	o	o	
Fox Sparrow	6,7		u		
* Song Sparrow	2,1	o	o	c	o
Lincoln's Sparrow	2			r	
White-throated Sparrow	2,6			r	
Golden-crowned Sparrow	2			r	
White-crowned Sparrow	2,6	c	c	c	
Harris' Sparrow	2,6	r			r
* Dark-eyed Junco	7	c	o	u	c
* Bobolink	5,4	o	o	o	

COMMON NAME	HABITAT	Sp	S	F	W
BLACKBIRDS, MEADOWLARKS AND ORIOLES					
* Red-winged Blackbird	1,4	u	a	a	u
* Western Meadowlark	5	c	a	a	u
* Yellow-headed Blackbird	1	a	a	c	
* Brewer's Blackbird	12	c	c	c	
Great-tailed Grackle	4,5	r	r		
* Brown-headed Cowbird	12	c	c	c	
* Northern Oriole	2	u	u	u	
FINCHES					
Rosy Finch	5,6				u
* Cassin's Finch	7	u	u	u	
* House Finch	5,6	c	c	c	
* Pine Siskin	7	c	c	u	
Lesser Goldfinch	5,2	o		o	
* American Goldfinch	5	u	u	u	
Evening Grosbeak	2,7	o	o	o	
WEAVERFINCHES					
* House Sparrow	11	o	u	o	

Accidentals

Least Bittern
Ross' Goose
Eurasian Wigeon
Greater Scaup
Oldsquaw
Surf Scoter
White-winged Scoter
Red-shouldered Hawk
Marbled Godwit
Bonaparte's Gull
Band-tailed Pigeon
Common Barn Owl
Flammulated Owl
Western Screech Owl
Eastern Kingbird
White-breasted Nuthatch
Blue-gray Gnatcatcher
Northern Mockingbird
Bohemian Waxwing
Blackpoll Warbler
American Redstart
Rose-breasted Grosbeak
Blue Grosbeak

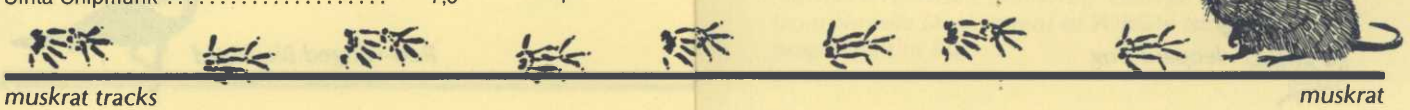
Red-winged Blackbird

Mammals

The following list of mammals includes those found on the refuge and adjacent lands. Species that are suspected of occurring in the area (?) and those that have been identified prior to 1940 with no recent observation (h) are also included. All are considered resident species except the bats that migrate. Visibility of mammals varies seasonally due to some species hibernating and others moving between summer and winter ranges. Small mammals may remain active throughout winter but out of view in tunnels under the snow.

The common names and order follow "A Field Guide to the Mammals of America North of Mexico" by Burt and Grossenheider (1976).

	Habitat	Abundance
Shrews		
Merriam Shrew	6	?
Vagrant Shrew	4	u
Bats		
Little Brown Myotis	11	?
Long-eared Myotis	10,11	c
Small-footed Myotis	10	c
Silver-haired Bat	7,11	r
Big Brown Bat	10	?
Mexican Freetail Bat	10	r
Weasels and Relatives		
Shorttail Weasel	2,4	r
Longtail Weasel	2	u
Mink	1,2	u
Badger	12	c
Spotted Skunk	7,8	u
Striped Skunk	12	?
Canids		
Coyote	12	c
Cats		
Mountain Lion	8	u
Bobcat	8	u
Squirrels		
Yellowbelly Marmot	9,8	u
Townsend Ground Squirrel	6	?
Richardson Ground Squirrel	4	?
Belding Ground Squirrel	5,6	c
Golden-mantled Squirrel	9	u
Least Chipmunk	6	c
Uinta Chipmunk	7,9	r
Pocket Gophers		
Pygmy Pocket Gopher	2,5	c
Northern Pocket Gopher	9	c
Pocket Mice and Kangaroo Rats		
Great Basin Pocket Mouse	6	c
Dark Kangaroo Mouse	6	u
Ord Kangaroo Rat	6	c
Great Basin Kangaroo Rat	6	c
Beavers		
Beaver	8	c
New World Rats and Mice		
Western Harvest Mouse	6,5	u
Canyon Mouse	8,9	h
Deer Mouse	12	c
Pinon Mouse	7,9	h
Northern Grasshopper Mouse	6	?
Bushytail Woodrat	9,10	u
Mountain Vole	4	c
Longtail Vole	2,8	u
Sagebrush Vole	6	?
Muskrat	1	c
Old World Rats and Mice		
House Mouse	11	c
New World Porcupines		
Porcupine	2,4	c
Hares and Rabbits		
Whitetail Jackrabbit	6	r
Blacktail Jackrabbit	6	c
Mountain Cottontail	6,2	c
Pygmy Rabbit	6	u
Deer		
Mule Deer	12	c
Pronghorn		
Pronghorn	6,5	u



muskrat tracks

muskrat

Fishes

largemouth bass

Eight species of fish are present in the refuge waters. The relict dace is the only species that is native to the marsh. This species is present in only a few other basins in northeastern Nevada. Largemouth black bass were stocked in 1932 or 1933 and have successfully reproduced. Rainbow, Eastern brook and brown trout are stocked annually with occasional stocking of cutthroat and tiger trout. A small population of Lahontan speckle dace has maintained itself from a 1950 stocking. The following names are in accordance with the checklist presented in "Fishes and Fisheries of Nevada" by LaRivers (1962).

	Habitat	Abundance
Trouts		
>Eastern Brook Trout	3	a
>Cutthroat Trout	3	u
>Rainbow Trout	1	c
>Brown Trout	3,1	u
>Tiger Trout (hybrid)	3	u
Minnows		
Relict Dace	1	u
>Lahontan Speckle Dace	1	r
Sunfishes		
>Largemouth Black Bass	1	a

Amphibians and Reptiles

Amphibians live both in water and on land. Reptiles usually occur on drier sites. Both amphibians and reptiles hibernate during the winter and therefore are only seen during the spring through the fall. Because they are small, secretive animals, they are not highly visible to the refuge visitor. The Great Basin rattlesnake *(Crotalus viridis)* and gopher snake *(Pituophis melanoleucus)* are most often seen crossing roads. Lizards are occasionally seen around the shrub uplands while frogs are seen along the marsh's edge. A species list has not yet been compiled for this area.

leopard frog

Viewing Wildlife

Viewing wildlife is best done during morning and evening hours. Binoculars or a spotting scope greatly assist in identifying wildlife and observing their behavior. Best wildlife viewing from a car can be done by taking the Bressman Cabin Loop passing Unit 10, the North and East Sumps, and Unit 13 and/or by taking the Brown Dike-Short Dike Loop around Unit 21. For a unique opportunity to see the marsh wildlife up-close, the South Sump is open during part of the year for canoeing and electric motors.

For further information contact:

Refuge Manager
Ruby Lake National Wildlife Refuge
Ruby Valley,NV 89833
Telephone (702) 779-2237

Notes

Important wildlife observations have been contributed throughout the years by you — the refuge visitor. Please continue to share your observations with us at refuge headquarters in order that we may all increase our understanding of our environment.

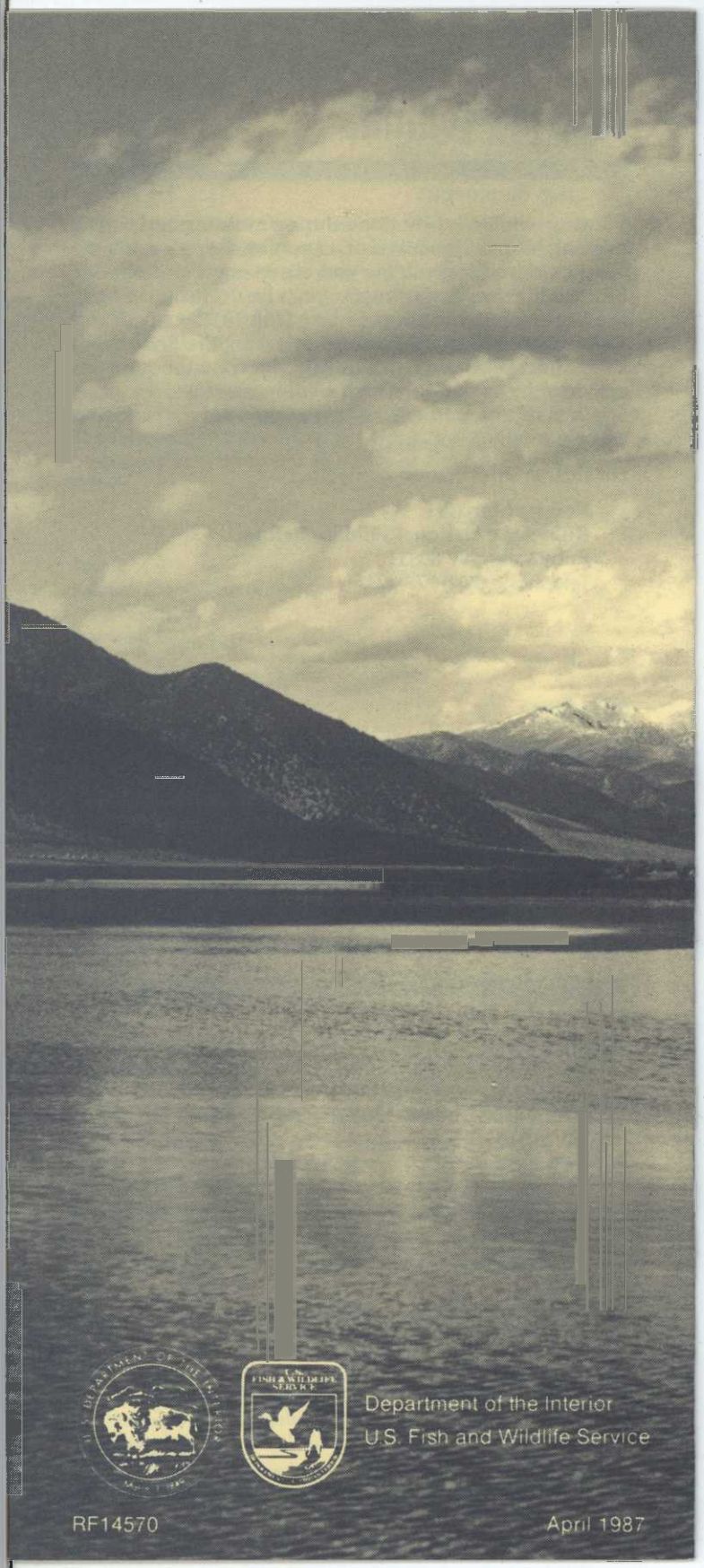
Date _____ Time Afield _____

Observers _____

Weather _____

Observation and Remarks _____

A special thank you to L. Ports and M. Ports from Northern Nevada Community College and M. Green from Nevada Department of Wildlife for their help in preparing this list.



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

RF14570

April 1987

Fishing & Boating

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 37,632-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.

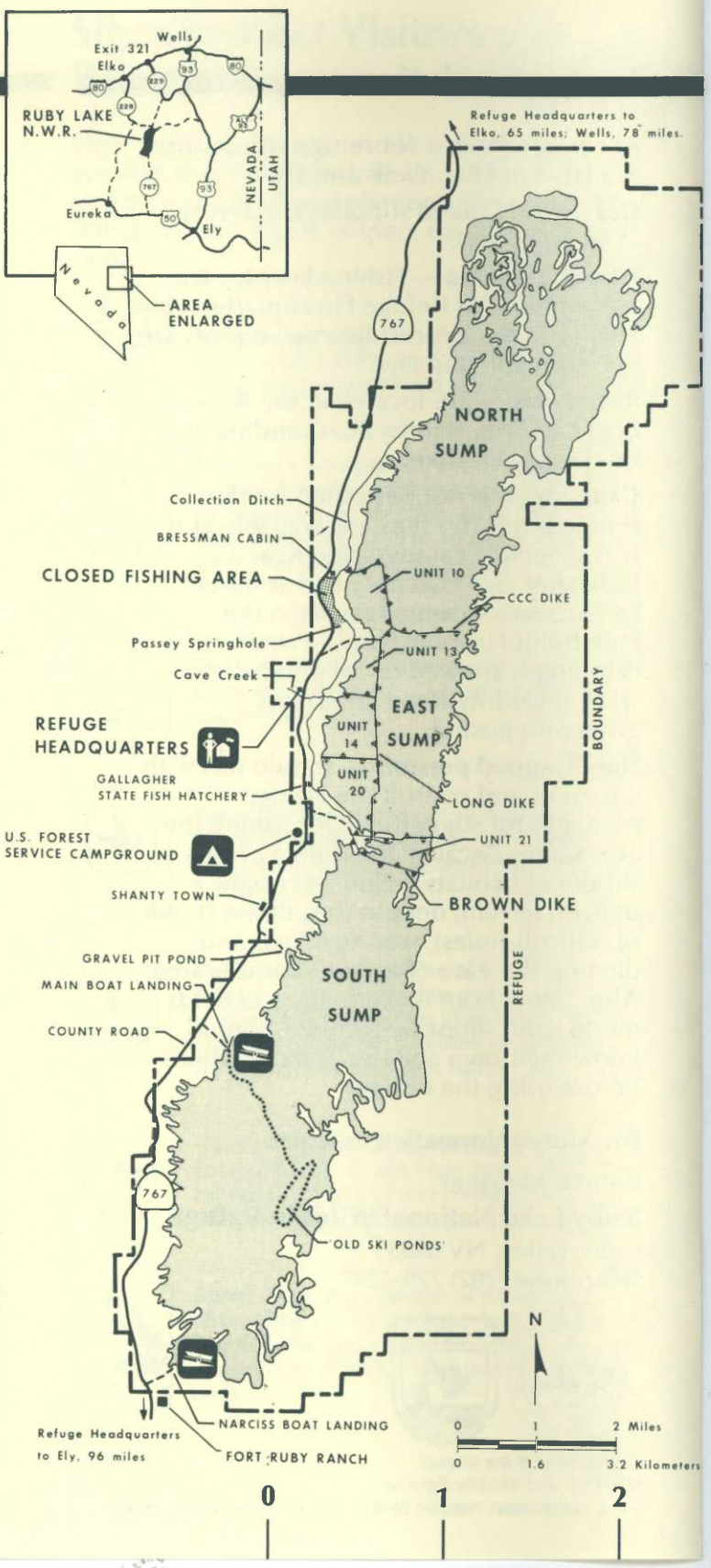
Fishing

Size, Season and Limits

The refuge is open year-round to fishing except in those areas posted as closed. Dike fishing ONLY is permitted in the area north of the Brown Dike, except in Unit 21 and a small portion of Unit 10, where wading and personal flotation devices (float tubes) are permitted.

Fishing is allowed from 1 hour before sunrise until 2 hours after sunset.

Although no legal size limit is established for any species on the refuge, the bass fishery would be improved if anglers kept only fish larger than 10 inches. This would allow bass to reach spawning size before they were subjected to angler harvest. Your cooperation will increase the quality of your future fishing.



The State of Nevada fishing limits apply to the refuge. They are:

Black (Largemouth) Bass — From January 1 through June 14, the daily and possession limits are 5 fish. From June 15 through December 31, after the bass nesting season concludes, the daily and possession limits are raised to 15 fish.

Trout — The daily and possession limits are 3 fish. Rainbow, brook and brown trout provide most of the angler harvest. Most trout are raised at Gallagher Fish Hatchery, which is located on the refuge and operated by the Nevada Department of Wildlife.

Closed Waters

Fishing is prohibited from the west bank of the Collection Ditch between 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 65 miles when the pass is open.

Boating

North of Brown Dike

Year-round — No boats permitted but use of float tubes is permitted in Unit 21 and a small portion of Unit 10.

South of Brown Dike (South Sump)

January 1 through June 14 — Boats and float tubes are not permitted.

June 15 through July 31 — ONLY motorless boats, float tubes and boats propelled with electric motors are permitted.

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

Year-round — Water skis, jet skis and all-terrain vehicles are not permitted at any time.

Boat Launching

Boats on trailers can be launched ONLY at the Main Boat Landing and Narciss Boat Landing. Canoes or cartop boats can be launched ONLY at Narciss, Main Boat Landing, Gravel Pit Pond and Brown Dike. When parking at these landings, please park so that your vehicle does not obstruct traffic or the launching site.

For Your Safety and Enjoyment

To help you have a safe and enjoyable visit, you may wish to consider these helpful hints in planning your fishing trip:

- Tell someone on land what area you plan to fish and the approximate time you plan to return.
- Weather can be very unpredictable on the marsh, especially in early summer. Sudden rain or snow storms are common. One hint is to watch the clouds in the west. If clouds begin to creep down the slopes of the Ruby Mountains rather than simply passing over horizontally, head for shore. Be prepared for strong gusty winds and rain or snow.
- The marsh is a maze of channels, islands, bulrush and open water and even the most experienced visitors can become lost. If you are new to the area, try to plan your first few trips with people familiar with navigating the marsh or do not get too adventurous. Markers are only on the main channel winding between the Main Boat Landing and "Old Ski Ponds." (See Map)
- If you plan an evening fishing trip, try to return to the landing or at least the main channel before dark. This may take a great deal of restraint since the day's best fishing is often between sundown and dark. Consider the weather, your clothing and physical condition in timing your return. Also, it is always wise to take a light blanket and warm clothes for everyone when you enter the marsh.
- If you become lost, try yelling for directions from nearby fishermen. Sound travels for a long distance in the marsh, especially at night. It may be a long night so stay dry and put on your warmest clothes. Beach on an island and wait for help. Use your overturned boat for shelter. Often brush is on the islands to start a small signal fire that can be seen easily from shore. If you know a party is in need of help in the marsh you are welcome to contact Refuge Headquarters for assistance.

Signs Protect Visitors and Resources

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, hunting 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.

Unit 21 and a small portion of Unit 10 are open year-round to wading and the use of personal flotation devices (float tubes). Float tubes may ONLY be used June 15 through December 31 in 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 on the refuge between January 1 and March 31.

Posted along the perimeter of the colonial bird nesting area in the South Sump. Entry into this area is prohibited from June 15 to August 15 to minimize disturbance to nesting birds.

Accommodations

Accommodations for refuge visitors are available in Elko, Wells and Ely.

Gas — and limited supplies are available at Shanty Town.

Fishing Licenses — Fishing licenses are not available at Refuge Headquarters or Shanty Town. Nearest license vendors are in Elko, Wells and Ely.

Restrooms — are located at the Main Boat Landing, Narciss Boat Landing and on the Brown Dike.

Camping — is not permitted on the refuge but camp sites are available at the Forest Service campground near Gallagher Fish Hatchery and at other Forest Service campgrounds in the Humboldt National Forest. Primitive camping is allowed on all public land west of County Road 767 unless otherwise posted.

Handicapped persons — should fish with a partner and consult the Refuge Manager for suggestions for fishing the area safely. Because the refuge covers a variety of habitats including rough, uneven terrain, deep water, dense stands of bulrush (tules), wet meadows and ditches, the ease of access varies by area. Also, rainfall can make roads and fields muddy and slippery. Everyone should know their own abilities and limitations before using the refuge.

For More Information contact:

Refuge Manager
Ruby Lake National Wildlife Refuge
Ruby Valley, NV 89833
Telephone (702) 779-2237

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

RF14570
April 1987

☆ U.S. GOVERNMENT PRINTING OFFICE: 1987—791-032/60,008 REGION NO. 10

Hunting

Ruby Lake
National Wildlife Refuge
Nevada

Welcome to Ruby Lake

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 37,632-acre refuge consists of marshes, open ponds and islands, bordered by wet meadows and grass and sagebrush-covered uplands.

An Important Nesting Area for Canvasbacks and Redheads

The refuge is strategically located along migration corridors serving both the Pacific and Central Flyways, and is an important waterfowl nesting area. The refuge is particularly important to nesting canvasbacks and redheads. Most of the nesting occurs on the South Sump, where the refuge supplies some of the finest nesting habitat in Western America for these species. In good years, 3,500 canvasbacks and 2,500 redheads have been produced.

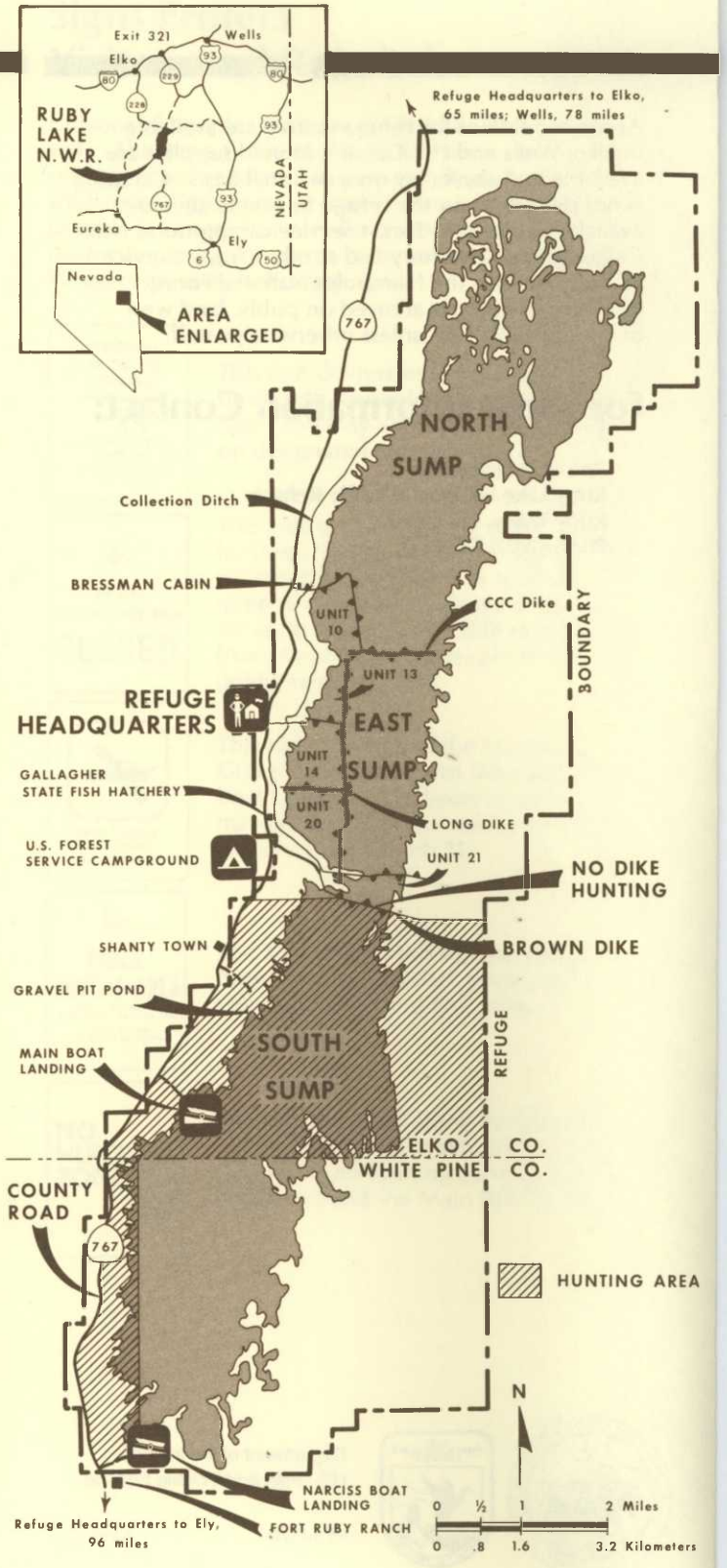
4,400 Acres of Marsh Open to Sport Hunting for Waterfowl

The 4,400 acre portion of the South Sump north of the White Pine County Line is open to limited waterfowl hunting. Because of the abundance of small, shallow bays in this area, dabbling ducks such as gadwalls, mallards, shovelers, pintails and teal are common.

Also, the springheads along the entire west side of the South Sump are open to waterfowl hunting. This area generally provides excellent late season jump shooting for dabblers.

The 4,300 acres of South Sump in White Pine County is closed to hunting. The closure protects the local nesting population of canvasbacks and redheads which concentrate on the south end of the South Sump in late summer and fall. It also protects the few hens and young which are still flightless at the beginning of the hunting season.

Please refer to the map in the leaflet for the location of the refuge hunting area.



Regulations You Should Know

Species — Ducks (including mergansers), dark geese (including white-fronted and Canada geese), coots, common moorhens and snipe ONLY may be hunted. ALL OTHER SPECIES OF WILDLIFE ARE PROTECTED.

Steel Shot Zone — The use of non-toxic (steel) shot is required when hunting waterfowl and coots on the refuge. Hunters may not have lead shot in their possession while hunting waterfowl and coots. We recommend that hunters practice on trap or skeet ranges to become familiar with ballistic differences between steel and lead shot.

Hunt Boundaries — No dike hunting is permitted. The open hunting area includes the area as posted from 50 feet south of the Brown Dike south to the White Pine County Line. In White Pine County, the springhead area from the County Road to the marsh edge is open as posted. For public safety, a no hunting zone is posted in the immediate vicinity of the Main Boat Landing. Refer to map.

Access — Boat access to the marsh hunting area is provided from the Brown Dike, Gravel Pit Pond and Main Boat Landings. The Main Boat Landing will accommodate trailered boats. The Brown Dike and Gravel Pit Pond Landings are suitable only for launching canoes and small cartop boats. The east side of the hunting area is accessible by boat from one of the three landings or by walking south from the Brown Dike. Walk-in access only is permitted to the springhead area in White Pine County.

Blinds and Personal Property — Hunters may use portable hunting blinds and temporary blinds constructed of natural vegetation. All decoys and other personal property must be removed from the refuge at the close of each day.

Season — Hunting on the refuge is open daily during the waterfowl season as established for the State of Nevada.

Licenses — All hunters 12 years of age or older must possess a valid Nevada hunting license. Children under 14 years of age must be accompanied by an adult licensed to hunt. Waterfowl hunters 12 to 65 years of age must possess a signed State Duck Stamp. Waterfowl hunters 16 years of age or older must also possess a signed Federal Migratory Bird Hunting and Conservation Stamp (Duck Stamp). Because these licenses and hunting stamps are not available in Ruby Valley, be sure to buy them in advance.

Reservations — No reservations or special refuge permits are needed. The refuge is open to hunting daily in accordance with all applicable State and Federal regulations.

Helpful Hunting Hints

The use of dogs is not mandatory, but highly encouraged. Successful hunters usually have a dog to retrieve downed birds that otherwise might not be found.

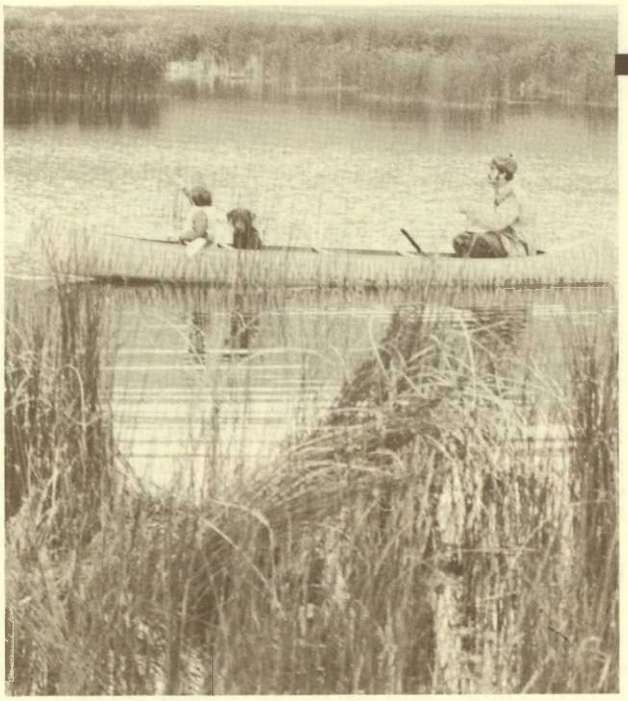
"Skybusting" or shooting at birds over 50 yards from you results in excessive crippling losses of waterfowl and reduced opportunity for good shots by you and other hunters.

Decoys and calls should be used to bring birds into ideal shooting range. When setting out decoys, place the outer decoy at 40 yards from the blind. This will help you judge when to shoot and result in fewer cripples and more birds in your bag.

Be a sportsman and respect the rights of other hunters afield. When entering or leaving the field try to avoid flaring birds which are working another hunter's set-up.

No hunting is allowed from the Brown Dike or the Brown Dike access road. The hunting zone begins on the south side of the borrow ditch 50 feet from the dike. This helps insure a safe visit for all refuge visitors traveling or fishing from the dike.

Handicapped persons should hunt with a partner and consult the Refuge Manager for suggestions for hunting the area safely. Because the refuge covers a variety of habitats including rough, uneven terrain, deep water, dense stands of bulrush (tules), wet meadows and ditches, the ease of access varies by area. Also, rainfall can make roads and fields muddy and slippery. Everyone should know their own abilities and limitations before using the refuge.



Swans Need Your Help

The once endangered trumpeter swan, originally a transplant from Red Rock Lakes National Wildlife Refuge in Montana, is found on the refuge. Several pairs nest each summer and 15 or more birds may winter here.

Tundra swans also use the marsh in fall and winter. These birds feed in the hunting area as well as in other areas of Ruby Valley. To protect swans from being shot by mistake, the entire valley is closed to the hunting of the much smaller snow and Ross' geese. Only Canada and whitefronted geese may be hunted.

As in all hunting, learn to identify your target. The popular waterfowl identification guide, "Ducks at a Distance" is available, free-of-charge from the refuge. Request a copy by writing to the refuge or stop by the office and pick one up.

Signs Protect Visitors and Resources

Millions of people visit National Wildlife Refuges every year. 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 hunting, fishing, boating or sightseeing is permitted. No roads or trails are open to the public. Closed areas are set aside to protect wildlife resources from disturbance by people or for public safety reasons.

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

The area behind this sign may be hunted for ducks, dark geese, coots, common moorhens and snipe.

This sign is posted along the boundary of the closed area in White Pine County. A no hunting zone is also posted around the Main Boat Landing.

Accommodations

Accommodations for refuge visitors are available in Elko, Wells and Ely. Gas and limited supplies are available in Ruby Valley on a seasonal basis. Camping is not permitted on the refuge but camp sites are available at the U.S. Forest Service campground near Gallagher Fish Hatchery and at other Forest Service campgrounds in the Humboldt National Forest. Primitive camping is allowed on public land west of County Road 767 unless otherwise posted.

For More Information Contact:

Refuge Manager
Ruby Lake National Wildlife Refuge
Ruby Valley, NV 89833
Phone (702) 779-2237

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

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Ruby Valley

From page 1C

The lower slopes are graced by flaming yellow aspen groves in the fall.

The 37,630-acre Ruby Lake National Wildlife Refuge has marshes, open ponds, islands, wet meadows and grass.

"It's a valley that people usually don't think occurs in Nevada," said Sara Brown, a biologist for the U.S. Fish and Wildlife Service, which operates the refuge. "It's a real moist valley, with lots of marshes."

Part of Brown's job is to study the more than 200 species of birds that use the marsh. Most migrate from northern nesting grounds to wintering areas to the south. Many species, however, nest at the refuge or at Franklin Lake. Some settle in the grasses, growing where ranch pastures and the shallow lake meet.

Birds that reproduce in the Ruby Valley include the Canada goose, canvasback, great blue heron, white-faced ibis and snowy egret. Ruby Lake is one of the few refuges with nesting of greater sandhill cranes and trumpeter swans, a rare species that was introduced from Montana.

Although there is about a mile between Franklin Lake and Ruby Lake, the birds don't recognize the distinction, Brown said.

"The two lakes work together," she said, "They're definitely part of the same ecosystem."

The Nature Conservancy became concerned that this rare environmental setting would be upset when financial woes began hitting some Franklin Lake ranchers and they were forced to consider selling out.

The Nature Conservancy recently announced it is joining with the American Farmland Trust to buy the UX Ranch, at the south end of Franklin Lake. The Nature Conservancy provided $200,000 and the American Farmland Trust paid the rest.

The McQueary family, operator of the UX Ranch for three generations, got a bailout that allows it to continue ranching. After four years, the family can buy the ranch back for the $300,000, although the conservation groups will hold easements that assure the ranch won't be subdivided or otherwise developed.

The 7-H Ranch is in the hands of Travelers Life Insurance, which picked up the ranch under foreclosure. But the Nature Conservancy acquired an option to purchase the property, probably for more than $1 million, Livermore said.

The Nature Conservancy then will re-sell the ranch to a private owner, who'll sign away development rights to the property. The Nevada Department of Wildlife will buy the wetlands portion of the 7-H Ranch.

William Molini, director of the wildlife department, said his agency plans to purchase the 3,160 acres of 7-H Ranch wetlands for about $340,000. John Metzker, an owner of Fitzgerald's Casino-Hotel in Reno, will buy the rest of the 7-H Ranch and graze cattle there, Molini said.

The wetlands purchase price, payable over four years, will come from duck hunting fees, donations from Ducks Unlimited, and the Nevada Trappers Association, which has provided $25,000, Molini said.

Plans include putting a parking area on Franklin Lake, giving hunters and birdwatchers their first access to the lake, Molini said. Fishing, however, isn't planned.

Franklin Lake has only one type of fish, the delict dace, a small prehistoric species, and introducing other fish into the lake would endanger the dace, he said.

The Nature Conservacy is monitoring the status of the five other ranches that surround the lake and will try to keep the ranches there, Livermore said.

By maintaining ranching as a means of protecting the Ruby Valley wetlands, the conservancy has gained support in the Elko area, a region often suspicious of moves by outside interests to save the environment.

The Elko Daily Free Press, in a Dec. 30 editorial, praised what it called the constructive conservation that the Nature Conservancy is practicing.

"The arrangements they describe would preserve the Ruby Valley wildlife values and agriculture values in harmony — and this is the feature that sets the innovative program apart from the clumsy attempts at 'protecting the environment' that American people have been forced to endure during recent decades," the editorial said.

Not only does the marriage of environmental and ranching interests save rangeland — and, in the process, make the Ruby Valley project more politically palatable — it saves money too, according to a Nature Conservancy report.

It would cost four times more to buy the ranches and make environmental preserves out of them, rather than keeping them in the hands of private ranchers who have signed away their rights to develop the land, the report says.

To save the two ranches and protect their wetlands, the Nature Conservancy needs to raise money from Nevada donors, said Livermore, the organization's Great Basin director.

"We are trying to raise $300,000 from Nevada sources to do this thing," he said.

The Nature Conservancy, with headquarters in Arlington, Va., oversees a 2.6 million-acre empire that covers more than 900 areas in the United States. It buys lands with endangered species or ecosystems, and then usually turns them over to state or federal agencies, although it sometimes manages them itself.

The conservancy gets its money from donors who range from environmentally concerned citizens to the Richard King Mellon Foundation of Pittsburgh, which has contributed more than $65 million, including $40,000 for the Ruby Valley project.

Unusual coalition forms to save Franklin Lake

By Steve Papinchak/Gazette-Journal

An effort to save pristine Ruby Valley wetlands is being launched by an unlikely coalition that includes environmentalists, ranchers and trappers.

Behind the political maneuvering and sophisticated financing being used to save the marsh is the Nature Conservancy, the real estate arm of the environmental movement.

Its goal: Keep development out of the Franklin Lake area, a treasure chest of birds and wildlife located about 60 miles southeast of Elko.

How it's going about protecting one of the Great Basin's most important wetlands, however, is unusual: The Nature Conservancy is paying to keep ranches around the lake because condominiums or fancy homes can't be built if alfalfa, steers and ranch homes are there.

Also playing an active role in this scenario is the Nevada Department of Wildlife, which plans to buy some of the wetlands and give the public its first access to Franklin Lake.

The Nature Conservancy has already purchased the 3,500-acre UX Ranch and is in the process of buying the 6,000-acre 7-H Ranch.

> "The time is ripe for protecting wetlands in Nevada."
>
> **Dave Livermore/**
> **The Nature Conservancy**

Together, the two financially strapped properties make up almost 45 percent of the 22,000-acre Franklin Lake ecosystem. Most important, they include the richest wetlands and the most dependable of the 25 streams that feed the lake.

"This is the largest unprotected wetland remaining in the Great Basin," said Dave Livermore, director of the Nature Conservancy's office in Salt Lake City.

"In light of the massive bird and fish kills in Stillwater, the time is ripe for protecting wetlands in Nevada," he said.

About 70 percent of Nevada's wetland habitat already has been lost in this century, Livermore added.

Franklin Lake is especially rare, Livermore said, because it's in a natural state — no dikes, water supply systems or other devices control the wetlands.

The streams that feed the lake go dry in arid years, when the water mass shrinks or completely evaporates. As the shallow lake shrinks, a maze of islands protrude and become nesting spots for birds. Also, plants and other materials decay when the lake dries up, creating nutrients that make the lake more productive after the water returns.

Some 10,000 years ago, Franklin Lake covered 470 square miles and was over 200 feet deep. Today, the finger-shaped lake is only 10 miles long during a year of average snowfall in the Rubies.

A mile south is Franklin Lake's twin: Ruby Lake, part of a National Wildlife Refuge created in 1938. Known for its duck hunting and the best bass fishing in Nevada, Ruby Lake attracted almost 70,000 visitors in 1987.

Both lakes are on the east side of the Ruby Mountains, whose spectacular craggy peaks rise more than 11,000 feet.

See RUBY, page 2C

Linda Brennan/Gazette-Journal

Reno-Gazette-Journal 11 Jan 88

Draglines recently completed the dredging phase of an extensive improvement project at the Ruby Lake National Wildlife Refuge. Lacey Construction Company of Cascade, Idaho, spent several weeks dredging 83 "fishholes" in diked units at the refuge and digging channels that will facilitate water mangement at the Ruby Marshes. Story and additional photos appear on *Page 4.*

Dredging project completed along dikes at Ruby refuge

Two draglines provided by Lacey Construction Company of Cascade, Idaho, have completed the dredging phase of a $398,000 improvement project at the Ruby Lake National Wildlife Refuge.

Sara Brown, biologist at the refuge, reported the draglines dredged 83 "fishholes" along dikes at the refuge and deepened channels along the border between the diked units and the East Sump to facilitate water management in the Ruby Marshes, which form the core of the refuge. She said the dredging started in late May and concluded on July 9.

The "fishholes" were dug generally at shallow spots along the dikes to improve fish habitat and to enhance the flow of water through the marsh, Brown explained. Each hole is approximately 100 feet long, 50 feet wide and from 10 to 12 feet deep.

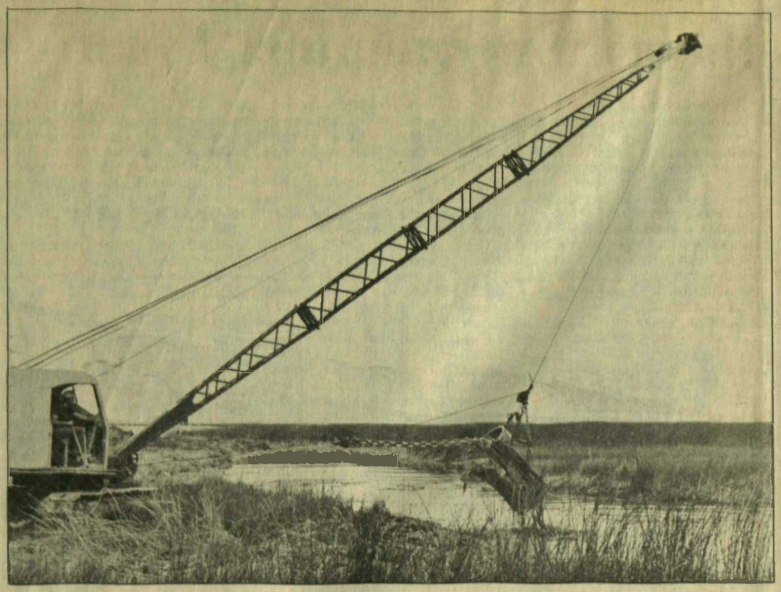
Muck dredged up to create the fisholes, mostly clay, has been piled along the dikes to dry and plans call for the material to be smoothed and spread this fall.

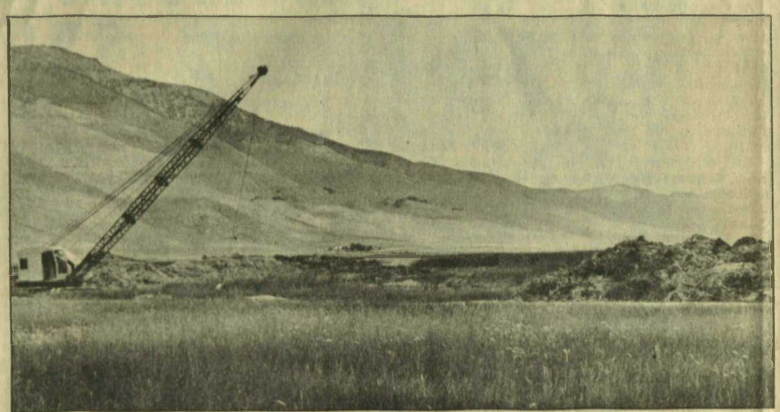
During the dredging operation, sections of dikes were closed to vehicle traffic for periods of time, but now all the dikes have been reopened with the exception of a segment that joins the Long Dike with the CCC Dike. Brown noted so much material was dredged up in that area, both to create "fishholes" and to deepen the channel adjacent to the East Sump, that the roadway has been closed. She said it will be reopened when the material has dried and can be worked — either spread out or hauled away.

Because of this closure, access to the CCC Dike now is exclusively by way of the Bressman Cabin entrance to the diked area.

Channel improvement also was accomplished along the CCC Dike, and a new topping of gravel was placed on this dike.

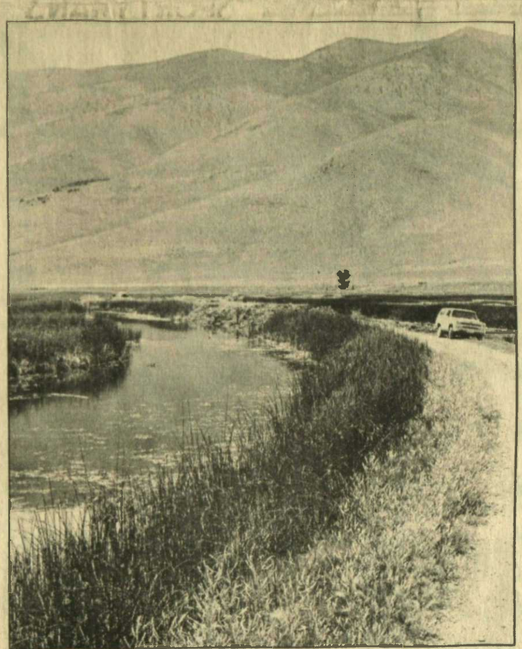
Brown reported the dredging was one phase of an overall project that has provided, or will provide, improvement of boat-launching facilities at two sites (main landing and Narciss), rehabilitation of access roads, graveling of parking areas, purchase of a large portable pump and installation of three additional water control structures. These new structures will control flows between Units 13 and 14, between Units 14 and 20 and between Unit 10 and the North Sump, Brown said.



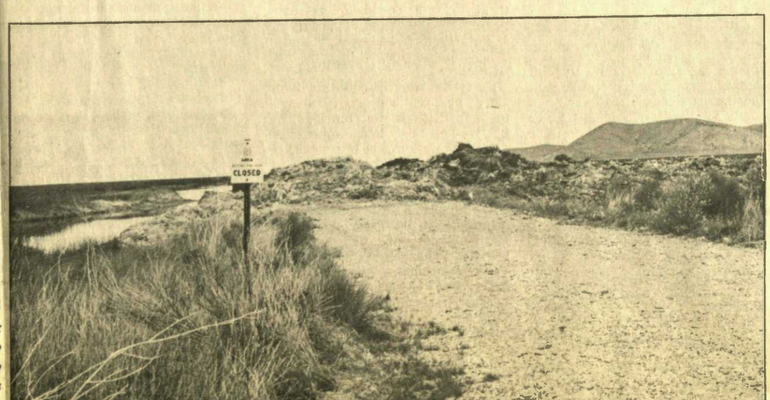


Lacey Construction Company dragline, operated by Les Milburn (in top photo), scoops a bucket of muck from a channel dug along the Short Dike, at the south end of the East Sump. Lower picture shows the mounds of material dredged out to create a channel that will facilitate water movement along the border of the East Sump and allow a flow from Unit 20 to Unit 21. Trees visible in center background are at refuge headquarters.

Photo at top right looks eastward along the Short Dike, with the new channel dug along the edge of East Sump on left, beyond the dragline, and Unit 21 on right. Immediately at right is a snowy egret, an example of the many waterbirds that frequent the diked units at the Ruby Marshes. This one was photographed along the CCC Dike.



View at right shows one of the 83 "fishholes" dug during the dredging phase of a $398,000 improvement project at the Ruby Marsh. This hole was dug in the North Sump, adjacent to the dike that terminates near the Bressman Cabin. View at left is in the same vicinity, looking back toward the large tree at the Bressman Pond and across a new "fishhole" dredged in Unit 10, on the left side of the dike.



Sara Brown (above), refuge biologist, stands beside the mountain of muck dredged out and piled upon a segment of the Long Dike near its junction with the CCC Dike. The volume of material removed at this point resulted in the closure of a segment of the Long Dike to vehicle traffic, as indicated by the sign in photo at right. Because of this closure, access to the CCC Dike now is exclusively by way of the Bressman Cabin route.