

RUBY LAKE NATIONAL WILDLIFE REFUGE

NARRATIVE REPORT

1972

CO. copy sent 2/22/73

R. O.

UNITED STATES DEPARTMENT OF THE INTERIOR

FISH AND WILDLIFE SERVICE

BUREAU OF SPORT FISHERIES AND WILDLIFE

RUBY VALLEY, NEVADA

X

BSF&W, WASH., D.C. (RF)

Refuges

Portland

2/22/73

Attached is approved 1972 Narrative Report for Ruby Lake NWR, Ruby Valley, Nevada.

Handwritten signature

R- Reports
NR

Refuge Manager, Ruby Lake NWR
Ruby Valley, Nevada

February 21, 1973

Acting Regional Refuge Supervisor
Portland, Oregon

Annual Narrative Report - 1972

We have just completed review of subject report and wish to compliment you and your staff for your efforts in its preparation. The report depicts well a very active and diverse program. We were particularly impressed with the comparative waterfowl use and production graphs in Section 2. This information is more valuable today as the Bureau re-emphasizes the important role the National Wildlife Refuge System plays in the management of migratory birds.

/s/ Lawrence W. De Bates

Glahn:ph

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RUBY VALLEY, NEVADA

REFUGE PERSONNEL

Permanent

Lynn C. Howard
Lowell L. Napier
Katie L. Hotchkiss
Ray A. Hotchkiss

Refuge Manager
Assistant Refuge Manager
Clerk-typist
Engineering Equipment Mechanic

Temporary

Charles J. Mack
Gordon L. Speltz

Student Trainee 6/14-8/25
Biological Aid 6/12-8/25

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I GENERALA. Weather

The following data was recorded from weather bureau instruments located at refuge headquarters.

Month	<u>Snowfall</u>	<u>Moisture</u>		<u>Temperatures</u>		<u>Evaporation</u>	<u>Wind</u>
	Inches	1972	Normal	Max.	Min.	Inches *	Miles
Jan.	4.5	.35	1.03	49	-15		1,930
Feb.	3.8	.43	1.06	60	- 6		1,151
Mar.	T	1.42	1.61	70	10		1,513
April	.6	.88	1.15	71	20		1,890
May	T	.16	1.14	86	26	4.369	1,044
June		.64	1.06	94	41	8.794	967
July		.04	.53	95	41	12.078	1,081
Aug.		1.00	.49	96	38	8.957	620
Sept.		1.14	.72	80	24	3.937	821
Oct.		1.24	1.20	78	9		971
Nov.	11.5	1.29	1.40	59	- 1		877
Dec.	13.9	1.30	1.58	55	-21		1,156
Totals							
&	34.3	9.89	12.97	95	-21	38.135	14,021

Extremes

* Evaporation station in operation from May 15 through September 22.

There was approximately 43 inches less snowfall than reported in 1971. However, winds that are commonly associated with snowstorms create drifts which make accurate measurement difficult. Precipitation received during the year was a little over three inches below normal which resulted in 23% less than average moisture. The drier condition was most noticeable during April and May which are the critical months for plant growth. Temperature and winds were similar to the previous year. There were 5.733 more inches of evaporation than in 1971 but the station was in operation 23 additional days.

B. Habitat Conditions1. Water

During the winter months all units were at optimum levels with an excess available for flooding of the north sump. This unit usually receives water only from spring runoff and rain.

By late winter the spring flows had increased and there was some concern that there might be an over abundance of water on parts of the refuge. The six mile-long collection ditch picks up water from spring heads for distribution to diversion points, and terminates at the north end of the south sump.

By early spring there were only a few inches of freeboard between the ditch water-line and the south sump. During this period the south sump was probably at, or near, an all time high. Refuge water levels are dependent on spring flows which originate from the winter snowpack in the Ruby Mountains.

During late spring and summer months Ruby Valley was plagued by continual warm, dry winds which resulted in higher than usual evaporation rates. Up to one-half inch of moisture loss per 24 hour period was recorded at the weather station.

By fall the south sump water level had dropped considerably and there was some apprehension that a poor snowpack during the coming winter in the Ruby Mountains would result in lower than desirable water levels for 1973.

At present the snowpack is building up and next year's outlook is favorable.

2. Food and Cover

The less than normal moisture received during the critical spring months resulted in poor growth of upland plant species. Aquatic species were well represented as evidenced by the dense tule growths in the south sump. However, there is a good interspersation of open water and islands in the unit which makes it very good for canvasback and redhead production.

The four fields, comprising 80 acres, that had been planted to common rye were plowed and reseeded. The planting mixture consisted of alfalfa, sweet clover, and tall wheatgrass. Germination was poor during the spring due to lack of adequate moisture. By early fall there were signs of young plants emerging which may or may not survive the winter. The intent of the seeding is to produce cover for producing waterfowl and other upland nesters. Cereal crops are not well suited to Ruby Valley due to inclement weather, and seed production has been erratic.

There were good stands of sago pondweed in the south and east portions of the south sump.

II WILDLIFE

A. Migratory Birds

1. Waterfowl

1972 was an exceptionally good year for total waterfowl maintenance and production at Ruby Lake. A total of 7,136,000 waterfowl and coot use days was recorded which is an increase of 59% from 1971 and 46% above the past 10 year average. This increase can be attributed to several factors: 1) production was excellent and many locally produced birds remained on the refuge after flight was achieved, 2) populations of ducks and coots were unusually high during the fall migration, 3) and mild fall weather allowed large numbers of waterfowl to remain at Ruby Lake through November.

An estimated 18,000 waterfowl and coots were produced during 1972. This is an increase of 107% over 1971 and 43% higher than the past five year average. Most of this increase came from duck production although goose and coot production was also greater than in 1971. The excellent production was probably due to favorable weather and good cover during the nesting period.

a. Trumpeter Swan

The peak population of trumpeters occurred in early February when 41 were present. Swans began leaving the refuge in March, and only three pair remained by June. Only one pair nested on the refuge, and three cygnets were successfully raised to flight stage in diked Unit 10. Other trumpeters started returning to the refuge in October, and at year's end the population reached 32 swans. A total of 5,116 use days were recorded which compares closely with 5,061 in 1971.

In November, a report was received from Fish Springs National Wildlife Refuge that trumpeter swans have been observed feeding there in warm springs for the past few years, and that they usually arrived in January. Past records at Ruby Lake indicate a corresponding decline in the trumpeter population in January. Fish Springs is 120 air miles to the east of Ruby Lake, and it seems possible that the swans would fly that distance to obtain more winter feeding areas.

b. Whistling Swans

The fall migration brought the first flock of 66 whistling

swans to Ruby Lake on October 30. This arrival was 36 days earlier than the first observation in 1971. Varying numbers of whistlers were present for the remainder of the year, and the peak population of 160 swans occurred on December 12. A large migration passed through Ruby Valley on the afternoon and night of December 5. Several flocks of approximately 100 swans were observed and heard flying over the valley at high altitude. A total of 7,635 use days were recorded during the year compared to 742 in 1971.

c. Canada Geese

A single Canada goose was observed on the refuge on January 23. The population gradually increased until a large flock of 225 was observed on February 22.

An estimated 110 breeding pairs utilized the refuge and raised 270 goslings to flight stage. Production was up 25% from 1971 and 2% higher than the past five year average.

The peak population of 490 geese occurred in July when the young attained flight. For the months of August through November, 220 to 250 geese were present. All but a few left in early December due to very cold weather, and only two geese were known to be present at year's end.

Goose use totaled 54,300 days for the year, which is a 13% decrease from 1971 and a 10% decrease from the past five year average.

One snow goose spent most of November on the refuge in the company of Canada geese.

d. Ducks

The lowest duck population of the year was recorded in January when 325 were present. The population gradually increased from February through May.

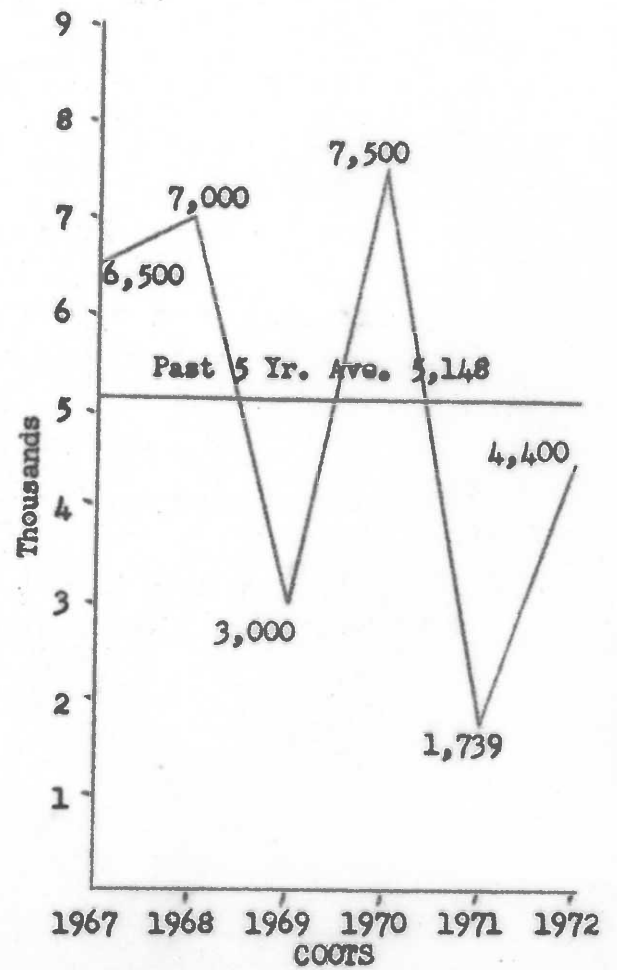
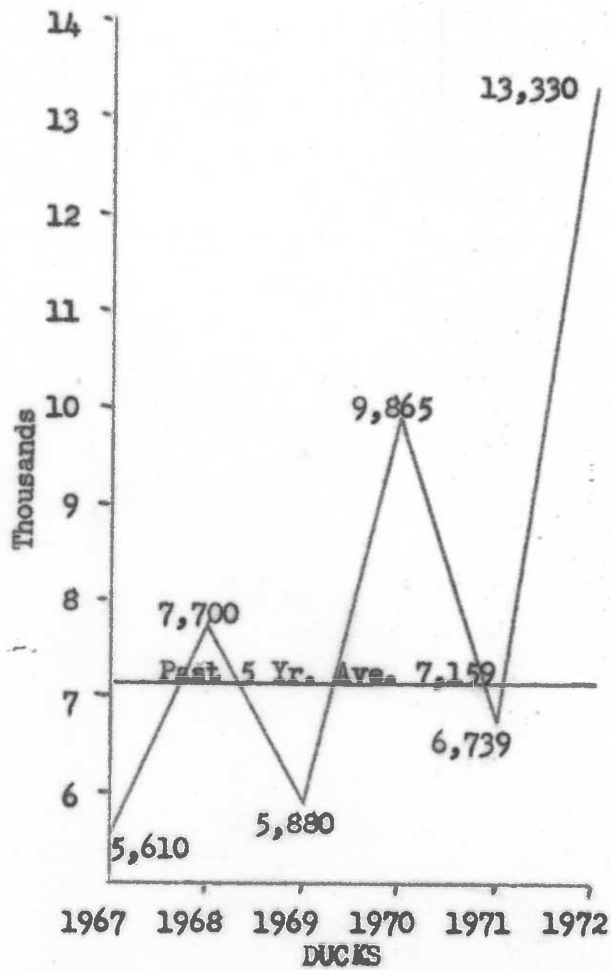
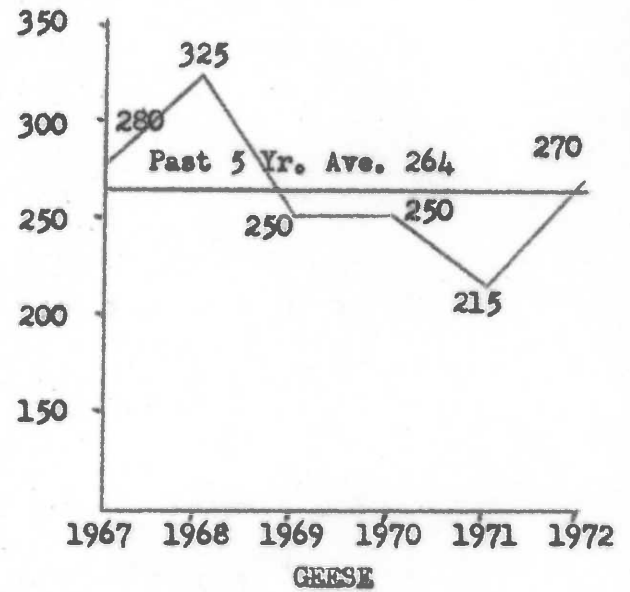
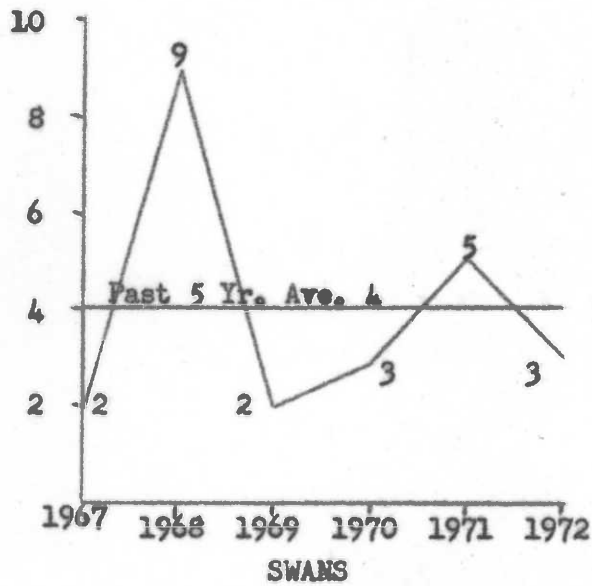
An estimated 3,900 breeding pairs utilized the refuge and produced 13,330 ducklings. Top producers were redheads (3,870), cinnamon teal (2,380), canvasback (2,350), gadwall (1,200), and lesser scaup (1,170). Production was up 98% from 1971 and up 86% from the past five year average. In searching through past narrative reports, it was found that duck production was the highest since 1943 when 13,500 were produced.

The peak population of 21,100 ducks occurred in August

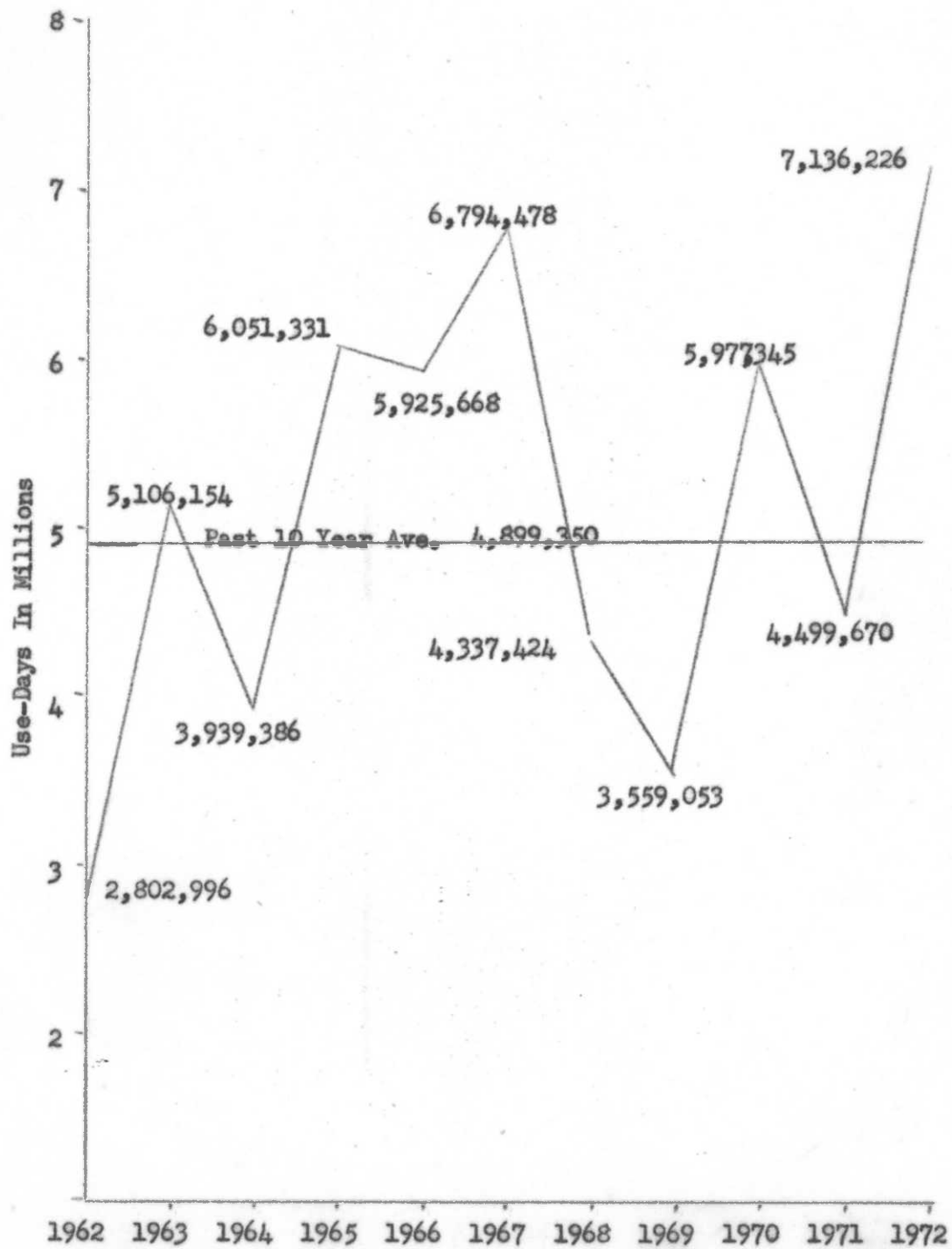
WATERFOWL PRODUCTION SUMMARY * 1972

Species	Diked Units					South Sump					Total Refuge		
	Breeding Pairs	Productivity	Successful Pair Pairs	Ave. Brood Size	Young Produced	Breeding Pairs	Productivity	Successful Pairs	Ave. Brood Size	Young Produced	Breeding Pairs	Successful Pairs	Young Produced
T. Swan	3	-	1	3	3	0	-	-	-	0	3	1	3
C. Goose	60	.50	30	4.8	145	50	.50	25	5.0	125	110	55	270
Mallard	120	.45	54	6.7	360	120	.45	54	6.7	360	240	108	720
Gadwall	135	.45	61	6.9	420	250	.45	113	6.9	780	385	174	1,200
Pintail	45	.45	20	6.0	120	35	.45	16	6.0	95	80	36	215
G.W. Teal	5	.40	2	-	10	0	.40	0	-	0	5	2	10
B.W. Teal	10	.40	4	6.4	25	10	.40	4	6.4	25	20	8	50
Cin. Teal	500	.40	200	5.8	1,160	525	.40	210	5.8	1,220	1,025	410	2,380
Shoveler	55	.45	25	6.5	165	75	.45	34	6.5	220	135	59	385
Widgeon	5	.45	2	4.5	10	5	.45	2	4.5	10	10	4	20
Redhead	150	.80	120	5.8	695	685	.80	548	5.8	3,175	835	668	3,870
Ring-necked	35	.60	21	6.5	135	10	.60	6	6.5	40	45	27	175
Canvasback	85	.80	68	5.7	390	490	.80	392	5.0	1,960	575	460	2,350
L. Scaup	190	.60	114	6.0	685	135	.60	81	6.0	485	325	195	1,170
Ruddy Duck	165	.60	99	5.8	575	60	.60	36	5.8	210	225	135	785
Total Ducks	1,500	-	790	-	4,750	2,400	-	1,496	-	8,580	3,900	2,286	13,330
Coots	770	.60	462	3.4	1,570	1,680	.60	1,010	2.8	2,830	2,450	1,472	4,400

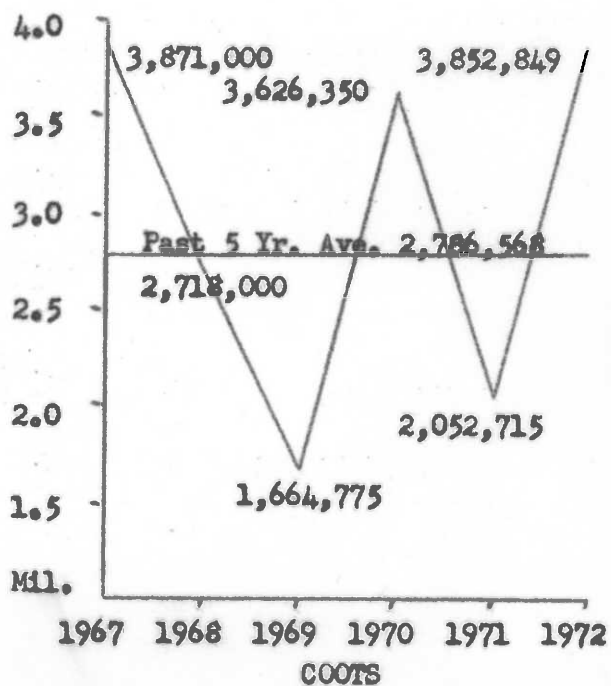
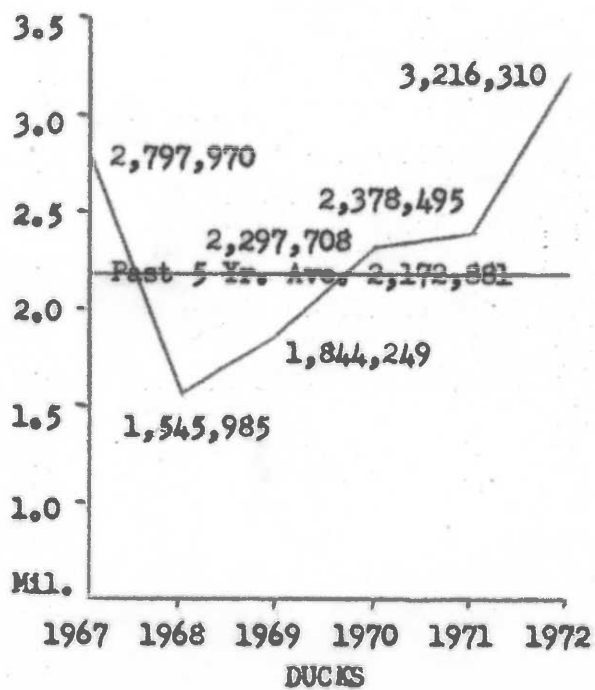
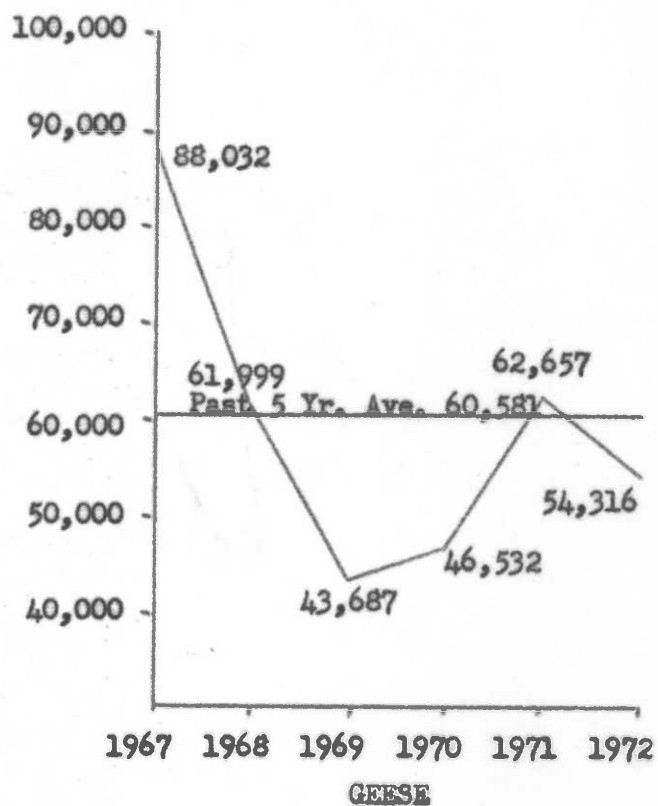
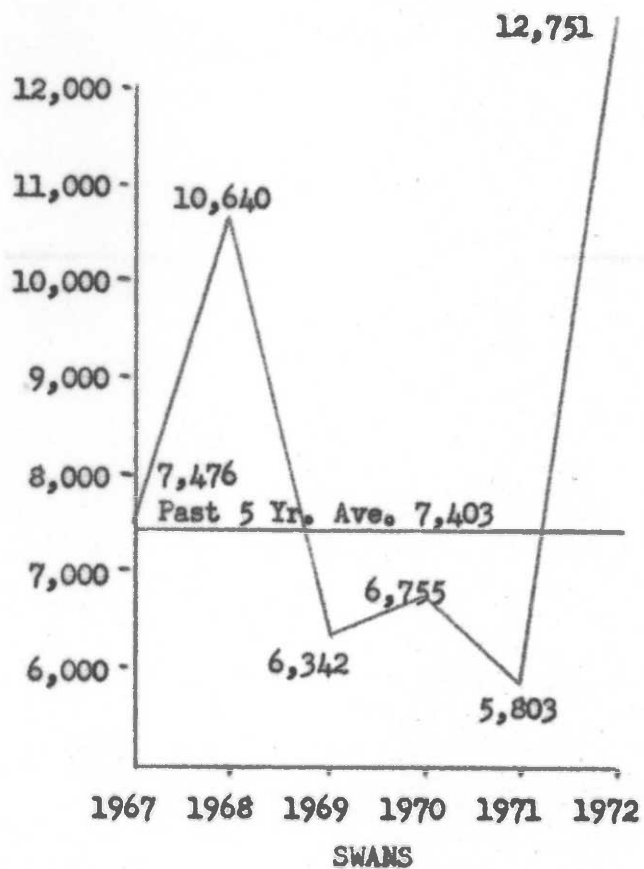
COMPARATIVE WATERFOWL PRODUCTION



COMPARATIVE TOTAL WATERFOWL USE



COMPARATIVE USE-DAYS FOR SWANS, GEESE, DUCKS, AND COOTS



after most of the local production reached flight stage. Probably, birds produced on Franklin Lake moved to Ruby Lake at that time. The population remained unusually high through November; however, there was a sharp drop in numbers in early December due to temperatures of -20 degrees. By the end of the year only 675 ducks remained on the refuge. A total of 3,216,000 use days was recorded for 1972. This is a 35% increase from 1971 and 48% above the past five year average.

e. American Coot

About 50 coots were present on the refuge at the beginning of the year. For the past several years, the population gradually increased until the breeding population was reached in spring. In 1972 however, there was an unusually large spring migration on through. Peak populations in March and April were 13,700 and 15,500 respectively. By May, the population declined to 2,450 breeding pairs. An estimated 4,400 coots were produced for a 115% increase over 1971 and a 14.5% decrease from the past five year average.

Population numbers were unusually high during the fall migration. The peak of 55,700 coots was recorded during the last week of October, which is the highest since October of 1958. Coots were present in large numbers until the cold December weather forced all but 50 to leave the area. Coot use totaled 3,853,000 days for the year. This is an 88% increase over 1971 and 38% higher than the past five year average.

2. Water and Marsh Birds

Great blue herons and American bitterns were commonly observed on the refuge throughout the year. The great blue heron rookery in the south sump, discovered in 1970, was utilized for the third consecutive year. From a visual check of the rookery with a spotting scope, an estimated 25 adult herons were present, some on nests. However, the number of young produced is unknown.

The rookery in Unit 14 was used by black-crowned night herons, snowy egrets and white-faced ibis even though the unit was dry this year. A check was not made and the number of young produced is unknown.

Greater sandhill cranes first arrived at the refuge on February 27, and the peak spring population of 42 was recorded on April 11. An estimated 15 pairs nested on the refuge, and the first chicks were observed on May 16. A total of four chicks from

three broods were seen, but only one survived to flight stage. The cause of the poor production is unknown, and the population did not increase during the fall migration. The cranes gradually left the area until the last ones were observed on October 4.

Eared and pied-billed grebes were present and were known to have reproduced on the refuge.

Only three adult western grebes were known to be present this year. On June 22, a downy young western grebe was observed in the south sump, which confirms that there is very limited production of this species at Ruby Lake.

A common loon in winter plumage was observed in Unit 21 on May 11 and 16. This species is rarely seen at Ruby Lake.

On April 17 a flock of approximately 40 white pelicans was observed soaring above the south sump.

3. Shorebirds, Gulls and Terns

Ruby Lake is not attractive to shorebirds due to deep water and lack of mud flats. Most shorebirds migrate through this area and only stop for a short time during spring and fall.

Species that do stay on the refuge to breed include killdeer, long-billed curlews, willets, Forster's and black terns.

The following observations were recorded throughout the year, and they are mostly the first sightings of the year:

<u>Species</u>	<u>Number</u>	<u>Date</u>
Killdeer	1	03/06/72
Common Snipe	1	04/13/72
Spotted Sandpiper	1	05/04/72
American Avocet	11	03/30/72
American Avocet	10	08/31/72
Black-necked Stilt	1	07/18/72
Black-necked Stilt	5	08/31/72
Wilson's Phalarope	10	08/31/72
California Gull	4	07/18/72
Unidentified Gull	40	07/20/72
Ring-billed Gull	3	10/04/72
Forster's Tern	1	05/09/72
Black Tern	2	05/12/72
Long-billed Curlew	5	04/11/72

4. Doves and Pigeons

The first mourning dove was noted on March 15; however, no

other doves were sighted until April 8. Surveys are not made to determine the population of doves, but in terms of relativity, numbers were much higher in the spring and summer of 1972 than in 1971. The number of doves in the fall migration was very low in comparison with last year.

No band-tailed pigeons were observed this year.

B. Upland Game Birds

Four species of upland game birds are present, and all of them use the refuge on an on/off basis. The sage grouse is the only species native to the refuge. California quail, chukar and gray partridge have been introduced to this area by the Nevada Department of Fish and Game.

Censuses are not conducted for upland game birds, and population estimates are based on casual observations.

An estimated 100 sage grouse used the refuge during the year. Three broods were observed, and the average brood size was 6.0. California quail were present around the headquarters and Cave Creek areas. An estimated 40 quail were present, and only one brood of unknown size was observed. One observation of chukars was made during the year, and a covey was heard in the rocks above Cave Creek Spring on November 19. No gray partridge were seen during the year.

C. Big Game

Mule deer utilized the refuge during the spring and fall migrations on their way to and from the wintering area in the south end of Ruby Valley. A few does used refuge islands as places to drop their fawns in the spring. The late summer deer population of 15 was larger than in past years. Apparently the long dry summer forced deer out of the Ruby Mountains down to the refuge for water.

No other species of big game were observed during the year.

D. Fur Animals, Predators, Rodents, and Other Mammals

1. Muskrats

The present muskrat population is estimated at 10,000-15,000 which is approximately 25% below that of 1971. The reason for this population decrease is unknown. No large die-off or disease were observed during the year. If a disease becomes evident, muskrat specimens will be collected and sent to the microbiologist at Bear River Research Station for analysis.

2. Predators and Rodents

Very little information is known about the population levels of predators and rodents on the refuge. Formal surveys are not made for this group of animals, and all information is based on casual observations. Coyotes were much more abundant both on the refuge and on adjacent lands than they were in 1971, and the evening "coyote serenades" were very enjoyable. Several sightings of bobcats indicated that the population had probably increased from last year. Sightings of mice, black-tailed jackrabbits and cottontails were common. The family of yellow-bellied marmots was present at the refuge dump site again this year. Porcupines were seen on several occasions, but only one badger was observed.

No predator complaints were received during the year, and no predators were removed from the refuge.

3. Other Mammals

No unusual observations were made during the year.

E. Hawks, Eagles, Owls, Vultures, Crows, Ravens, and Magpies

Marsh hawks were the most commonly observed hawk species on the refuge, and they were present during the entire year. Red-tailed and sparrow hawks were often observed during the summer months, and rough-legged hawks were common during the fall and winter months. Two Swainson's hawks were seen on the refuge, and both were of the dark phase. Eight separate observations of peregrine falcons were recorded during the year, and one prairie falcon was seen at headquarters on May 13.

Twelve adult and eight immature golden eagles were observed on eighteen separate sightings.

One adult bald eagle was observed near the White Pine County line on January 11.

Two sightings of ospreys were made during the year.

Great horned owls are permanent residents and are often heard around headquarters. Short-eared owls were common during spring, summer, and fall.

Turkey vultures first arrived at the refuge on March 14 compared to March 9 in 1971. Approximately 100 vultures used the roosts in the trees and on rocks in the vicinity of Cave Creek. All vultures left by the end of September.

Ravens and magpies were commonly observed through the year. Crows normally migrate through the refuge but do not stay for the winter. However, this year crows were present from January through April. One flock of 300 was recorded on January 19, but the population averaged about 50 for the four month period.

F. Other Birds

Many species of passerine birds migrate through the refuge during the spring months. Some species spend the summer in habitat along Cave Creek and in the trees around refuge headquarters.

The following is a list of first of the year sightings:

<u>Species</u>	<u>Date</u>
Robin	01/02
Dipper	01/18
Red-winged Blackbird	02/08
Long-billed Marsh Wren	02/09
Pinyon Jay	02/11
Oregon Junco	02/25
Mountain Bluebird	02/28
Say's Phoebe	03/01
Barn Swallow	03/03
Violet Green Swallow	03/04
Red-shafted Flicker	03/04
Western Meadowlark	03/09
Yellow-headed Blackbird	03/26
Belted Kingfisher	03/29
White-crowned Sparrow	04/25
Lazuli Bunting	05/03
Audubon's Warbler	05/04
Yellow Warbler	05/04
Lark Sparrow	05/05
American Goldfinch	05/07
Lesser Goldfinch	05/08
Bullock's Oriole	05/13
Western Tanager	05/13
Green-tailed Towhee	05/13
Wilson's Warbler	05/21
Savannah Sparrow	05/24
Yellow-bellied Sapsucker	08/13
Evening Grosbeak	10/20

There were three new additions to the refuge bird list during the year:

A flock of 14 Bohemian waxwings was observed on January 17 by the refuge mechanic and clerk, Ray and Katie Hotchkiss. The birds were using a bird feeder at refuge headquarters.

One male and one female blue grosbeak was observed at headquarters by manager Howard on May 8. The pair was observed again on May 9 by Howard and Napier.

On May 17, manager Howard observed an eastern kingbird perched on the refuge boundary fence near the boat landing.

These three new bird records bring the total number of species found on the refuge up to 195 plus an additional 10 accidentals.

G. Fish

The fishing season was open year-around in the collection ditch and diked units. Boats were not permitted, and wading was allowed only in the north east corner of Unit 10. The south sump was open to year-around fishing and boating without motors. Boating with motors was allowed all year in a 1,000 acre area. In the remainder of the south sump motors were permitted from July 1 through December 31.

A daily take of 30 bass and 10 trout was permitted, and limits of either species were not uncommon. Bass are not native but do reproduce naturally. Trout are stocked annually by the Nevada Department of Fish and Game hatchery located on refuge lands.

The following is a summary of trout planted during the year:

Month	<u>Rainbow</u>		<u>Brook</u>	
	No.	Pounds	No.	Pounds
March	11,623	2,750		
April	3,781	750	3,039	500
May	2,700	750	2,600	500
June	3,450	750	2,050	500
July	1,950	500		
Sept.	3,150	900	913	507
Oct.	5,802	2,001		
Totals	32,456	8,401	8,602	2,007

Grand Total: Numbers - 41,058, Pounds - 10,408

During the year Nevada Department of Fish and Game personnel conducted creel censuses of refuge fishermen. They checked 1,955 anglers with 6,229 bass, and 1,294 trout. Success was estimated at 1.16 fish per angler hour and 3.85 fish per angler day for 6,475 hours of effort. For the south sump only, bass averaged 10.31 inches, rainbow 14.43 inches and browns 17.75 inches. The data for the diked units has not been computed. Anglers were also asked if they were fishing for bass or trout. Their replies indicated that 18% fished for trout, 43% for bass, 39% were not particular what they caught.

There were no bass seined for transplanting or caught for tagging during the year.

The only other fish inhabiting refuge waters are dace.

H. Reptiles

Non-poisonous snakes and lizards are often observed during the warmer months of the year. Rattlesnakes are occasionally seen.

I. Disease

The eleven earth ponds that are used for rearing trout by Nevada Department of Fish and Game were treated for whirling disease (Myxosoma cerebralis) for the third year in a row. The treating solution was composed of calcium hypochlorite, HTH, mixed with water which was pumped into the mud to kill the disease-producing organism. The trout were removed and planted prior to treatment. Discharge waters were neutralized with sodium hyosulfite.

The following is a summary of the treating project:

<u>Pond Number</u>	<u>Pounds HTH</u>	<u>Date of Treatment</u>
X-1	75	9/28/72
35	45	9/28/72
36	5	9/28/72
37	75	9/28/72
38	70	9/27/72
39		9/27/72
40		9/27/72
41	84 *	9/27/72
42		2/27/72
43		2/27/72
44	<u>115</u>	9/28/72
Total Pounds		<u>469</u>

* Nevada Department of Fish and Game provided the total poundage only for ponds 39, 40, 41, 42, and 43.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

The muskrat skinning shed destroyed by fire on 02/13/72 was reconstructed.

A 24-inch culvert and screw gate were installed in the west end of the CCC dike.

Guard rails were installed where road crosses a culvert below the stackyard pond.

Suction pipe was installed in three stockwater wells and one windmill was erected.

Boat docking facilities were enlarged to double previous capacity.

The roadbed was raised at stackyard pond.

Seven water control structures were surveyed for elevation and five benchmarks were installed.

B. Maintenance

Two miles of collection ditch were cleaned with a dragline.

The Brown dike road was regavelled.

Brake bands were replaced on the TD-18 dozer unit.

Heads were replaced on TD-18.

The borrow ditch was cleaned at east end of CCC dike.

New electric ranges were installed in quarters 8, 17, and 46.

Front porch of quarters 8 was sanded and refinished.

Weathered paint was removed from quarters 8 and 17 and both were refinished.

Boat docking area was regavelled.

Fence repairs were made as needed.

Three directional signs were refinished.

All garbage cans in recreational area were brought in and steam cleaned.

All automotive and heavy duty equipment was serviced and repaired as needed.

C. Plantings

1. Aquatic and Marsh

None.

2. Trees and Shrubs

None.

3. Upland Herbaceous

None.

4. Cultivated Crops

See Section I-B-2 (Food and Cover).

D. Collections and Receipts

1. Seeds and Other Propagules

During late winter 200 lbs. of Globe 440 alfalfa, 200 lbs. of yellow sweet clover, and 500 lbs. of tall wheatgrass were purchased. The seed was planted as a mix for waterfowl nesting cover. See I-B-2 for results.

2. Specimens

Two dead Golden Eagles were received from Nevada Department of Fish and Game. The wings, feet, and tails were removed and sent to the Law Enforcement Division.

One crippled Golden Eagle reported by a local rancher was brought to headquarters and caged. It later escaped and is thought to have survived.

A dead yellow-billed cuckoo found on the headquarters lawn was sent to the U.S. National Museum for identification. It was a new record for northeast Nevada.

Five canvasback eggs were collected for Patuxent. See Section V-C.

E. Control of Vegetation

None other than mechanical around buildings.

F. Planned Burning

None.

G. Fires

On February 13 the one-stall garage, that was being used for a muskrat skinning shed, was destroyed by fire. It is suspected that an overheated oil stove was at fault. In addition to loss of the building, 1,431 muskrat pelts belonging to refuge trappers were destroyed.

A TD-18 tractor belonging to the refuge was damaged by fire on September 13. The unit was being used to pull a Davis Disc plow, but had not been operated for 24 hours. The plow was parked with the large, bright, concave blades facing the afternoon sun. The reflected, concentrated light beam may have ignited dead, matted tules, but the exact cause is not known.

During the evening of August 29 fuel on an outboard boat ignited burning both hands and singeing the beard of a refuge visitor. Investigation revealed that the fire was caused when a match was being used for illumination near a fuel line to connect a starter cable to the battery. Total damages to the boat are unknown.

Refuge personnel were called out twice to check fires on Forest Service lands and once on Bureau of Land Management lands.

There were no range or timber fires on the refuge.

IV RESOURCE MANAGEMENTA. Grazing

There were ten grazing permits issued in 1972. Permittees, AUM's, and revenue are listed below:

<u>Permittee</u>	<u>AUM's</u>	<u>Revenue</u>
7H Land & Cattle Co.	1,100.50	\$ 1,650.74
W-C Cattle Co.	1,123.64	1,685.44
A. C. Anderson	512.03	768.04
Duval Ranching Co.	3,708.86	5,633.69
Orleal Saxton	123.37	246.74
Dave Buck	7.03	14.06
Ray Hotchkiss	18.89	37.78
Lynn Howard	1.00	2.00
Gary Herron	5.23	10.46
Dan Fulton	7.36	14.72
Totals	6,607.91	\$10,063.67

A grazing fee of \$1.50 for cattle and \$2.00 for horses was charged.

Poor moisture conditions during April and May were not conducive to good growth of upland plants. Marsh edges provided adequate forage during the grazing season.

During May of 1968 about 700 acres of grazing lands near the north refuge boundary were sprayed with 2,4-D for sagebrush control. Grazing was not permitted for the next two years and has been very light since then. The growth response by native grasses was very good and seeding was not necessary.

During the summer a two-acre exclosure was constructed in a control area that can be used as a check on future grazing practices.

B. Haying

Wild hay from about 300 acres was mowed, rake-bunched, and fed out by the end of the year.

C. Fur Harvest

The 1971 muskrat population was estimated at 15-20,000 animals and a trapping quota of 7,500 pelts was recommended. The 1972 population approximated 10-15,000 muskrats and a catch of 5,500 animals is being permitted. The refuge trapping season extends from November 1, 1972 through April 10, 1973.

There are three trapping units on the refuge with one trapper assigned to each unit. Each permittee is being allowed to keep all of the catch. Below is summarized the 1972 muskrat harvest which includes the latter part of 1971-72 season and the 1972-73 season through December 31 of 1972.

<u>Trapper</u>	<u>Harvest</u>
Jack Lamback	1,062
Slim Saxton	2,161
John Saxton	<u>1,978</u>
Total	5,201

Large and medium pelts taken during the 1971-72 season averaged \$1.45 with kits and damaged bringing \$00.40. The same size pelts caught and sold prior to December 31, 1972 brought \$2.00 and \$00.60.

D. Timber Removal

None.

E. Commercial Fishing

None.

F. Other Uses

None.

V FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Hydrologic Investigation

The Desert Research Institute, University of Nevada, conducted a study of refuge springs from 1968 through 1971. Refuge personnel assisted in the study by servicing spring flow recorders and by collecting water samples. The study was terminated in 1971, but the final report has not been received. Dr. John Sharp, Research Associate, has been very negligent in responding to our inquiries on the status of the final report.

B. Remote Sensing Techniques Study

The Nevada Agricultural Experiment Station, University of Nevada, completed a remote sensing techniques study in 1971. Two study plots were established in the diked portion of the refuge, and aquatic vegetation in each plot was classified and mapped from the ground. Aerial infra-red photographs of the plots were taken during two growing seasons. Interpretive keys were prepared so that different types of aquatic vegetation could be determined from the photographs.

Copies of the final report have been received and submitted.

C. Canvasback Egg Pesticides Research

At the request of Patuxent Research Center, one canvasback egg was collected from five different nests. The eggs were sent to Patuxent for pesticides residue research. To date, results of the research have not been received.

D. Sandhill Crane Color Marking

The Idaho Cooperative Wildlife Research Unit, University of Idaho, has been banding and color marking Greater Sandhill Cranes on their breeding grounds from 1969 through 1972. Over 400 cranes have been marked in Idaho, Montana, Nevada, Utah and Wyoming. Two personnel from the research unit, Rod Drewien and Bill Mullins, spent July 6 and 7 at Ruby Lake Refuge. Refuge personnel assisted them in capturing young cranes; however, none were caught on the refuge. Four cranes were color marked on the 7H Ranch which is adjacent to the north refuge boundary.

Only one of the marked cranes was later observed on the refuge. It was originally marked with an orange leg tag and a color coded neck collar. It was observed on 8/14, 8/15, and 9/29. It still retained the orange leg tag but had lost the neck collar.

E. Core Sampling

During the year, a study was initiated to determine past vegetative changes by identification of pollen imbedded in marsh soils. Collection was made with a coring device which extracted a sample approximately one inch in diameter. Five samples will be analyzed for pollen, and hopefully, a vegetative history can be established for the marsh.

Mr. Wallace Woolfenden of the University of Arizona collected the samples; however, the project is under the supervision of Dr. Pete Mehringer of Washington State University. Mr. Woolfenden has agreed to furnish copies of the progress and final reports.

F. Archaeological Investigation

During the summer, an archaeological research project was conducted on U. S. Forest Service and private lands adjacent to the refuge. The project was headed by Mr. Don Tuohy from the Nevada State Museum and Laurel Casjens, a graduate student from Harvard University. The objective of the project was to obtain information about the culture of early Indians that inhabited this area. A cursory examination was made of the ground surface around some refuge springs. Laurel Casjens has expressed an interest in doing research on the refuge in the summer of 1973 if proper funding and permits can be obtained. Laurel's married name is Detar but writes under her maiden name of Casjens.

G. Banding

1. Mourning Doves

Mourning dove pre-season banding was accomplished to help fill the banding quota for Nevada. Trapping started on April 27 and continued through May 25. Success was poor, and only 34 adult doves were banded.

2. Waterfowl

No waterfowl were banded during the year.

3. Band Recoveries

Although the number of ducks banded in 1971 was small, a high percentage of recovery was obtained from the 1971-72 hunting season. Of 43 canvasbacks banded, ten or 23.3% were recovered. Four of these recoveries were from Nevada, three from California, two from Oregon, and one from Utah. Of five redheads banded, one was recovered from Utah.

VI PUBLIC RELATIONSA. Recreational Use

During 1972 recreational use exceeded 1971 by 5,794 visits. Cold and warm water fishing accounted for 94% of total use and approximately 83% of the refuge visits occurred during the four month period of June through September. There is very little interest in other refuge outputs such as wildlife observation, photography or waterfowl hunting.

Below is a summary of public use as submitted on the monthly reports:

Hunting, waterfowl -	147	Wildlife observations -	22
Fishing, coldwater -	21,850	Water skiing -	2,750
Fishing, warmwater -	22,850	Actual visits -	39,562
Total Visits -		47,619	

B. Refuge Visitors

The following is a list of official visitors:

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
2/10	D. Ashman	NDFG-Elko	Goose nesting platforms
2/10	D. Seibert	BLM-Elko	Goose nesting platforms
3/8	V. Gibbs	USFS-Wells	Fire Control Agreement
3/18	T. Snyder	USGS-Menlo Park	Hydrology Study
3/18	R. Miller	USGS-Denver	Hydrology Study
4/13	H. Fast	BSFW-R.O.	Elevation Survey
4/26	J. Lewis	BSFW-R.O.	Safety Inspection
4/26	H. Stiles	BSFW-C.O.	Safety Inspection
4/26	J. Jones	BSFW-C.O.	Safety Inspection
5/8	D. Littledyke	USFS-Wells	Fire Report
5/8	E. Robinson	USFS-Wells	Fire Report
5/23	H. Gibson	SCS-Wells	Visit
5/23	L. Campsey	SCS-Elko	Visit
5/23	R. Schultz	BLM-Ely	Visit
5/2	N. VanZantz	BLM-Ely	Visit
6/14	T. Snyder	USGS-Menlo Park	Hydrology Study
6/14	D. Tuohy	Nevada Museum	Archaeological Investigation
7/1	D. Koss & wife	BSFW-Sheldon NAR	Visit
7/1	M. Thornton	BSFW-Retired	Visit
7/6	R. Drewien	Univ. of Idaho	Sandhill crane banding
7/6	W. Mullins	Univ. of Idaho	Sandhill crane banding
7/26	K. Osugi	BSFW-Stillwater WMA	Visit
7/26	L. Napier & wife	BSFW-Stillwater WMA	Visit
7/26	J. Goode	BSFW-Hart Mtn. NAR	Visit
7/28	E. Moore	BLM-Elko	Visit
7/28	M. Goicoechea	BLM-Elko	Visit
8/21	J. Paige	BSFW-Elko	Hatchery kill permit
10/25	R. Kraft	BSFW-Fish Springs	Visit

NWR

In addition there were many visits by Nevada Department of Fish and Game personnel for law enforcement, fisheries management, and other purposes.

C. Refuge Participation

- 2/15 Howard met with Carl Young, Nevada Department of Fish and Game to inspect Secret Pass area of Ruby Mountains for reported large die-off of eagles.
- 2/17 Howard met with BLM personnel in Elko to discuss recreational management and litter problems.
- 3/3 Howard attended annual Soil Conservation District meeting at Ruby Valley Community Hall.
- 3/18-19 Hotchkiss and Howard families participated in a First Aid course with Nevada Department of Fish and Game personnel at Gallagher Fish Hatchery.
- 3/20-24 Napier participated in a Civil Service Commission Supervisory course at Las Vegas, Nevada.
- 3/27 Howard, Napier, R. Hotchkiss participated in Defensive Driver Training at Elko.
- 4/24-25 Howard met with BSWF, and Nevada Department of Fish and Game personnel in Reno to discuss refuge programs and recreational use.
- 5/18 Napier conducted tour of refuge for two photographers.
- 6/3 Howard and wife attended annual Nevada Wildlife Federation meeting and barbecue in Elko.
- 6/3 Napier toured refuge with 18 wildlife and range students from University of Nevada.
- 6/4 Howard conducted 35 Nevada Wildlife Federation members on tour of refuge.
- 6/5 Howard met with Wells Rod and Gun Club members to discuss acquisition of Franklin Lake for refuge purposes.
- 6/14 Howard met with Ted Snyder, USGS; Don Touhy, Nevada State Museum; Carl and Laurel Detar, Harvard University to discuss possible archaeological sites on refuge.
- 6/15 Napier on tour of refuge with Dean Doell, USFS and Merlin McColm, Nevada Department of Fish and Game.

- 6/15 Howard met with Ted Snyder, USGS and Wally Woolfenden Washington State University, to discuss possible core sampling sites for paleontological study.
- 6/18 Howard with archaeological team from Nevada State Museum and Harvard University inspecting possible investigation sites in Maverick Range and Ruby Mountains.
- 8/12 Howard met with development committee of Elko County Chamber of Commerce to discuss recreational use policies.
- 9/27 Howard attended annual fall BLM Wildlife meeting in Elko.
- 11/30 Howard met with BLM, USFS, and Elko County personnel in Elko to discuss recreational cleanup in South Ruby Valley.
- 12/15 Howard and Napier families attended Nevada Department of Fish and Game Christmas party in Elko.

D. Hunting

The duck hunting season opened on October 7, closed January 7, and goose hunting was permitted from October 21 through January 20.

There are about 4,200 acres of waterfowl habitat open to hunters, and there were no more than 60 gunners present on opening weekend. Hunter success for ducks probably averaged a little over two birds during the season. There were no known geese taken.

No other type of hunting is allowed on the refuge.

E. Violations

Enforcement patrol is performed by both refuge and state personnel. Known violations are listed below:

<u>Name</u>	<u>Violation</u>	<u>Disposition</u>	<u>Officer</u>
Dale Behymer	Unregistered boat	\$20.00	Young
Thomas Hutton	No Fish. license	50.00	Young
Victoria Hutton	No Fish. license	50.00	Young
Tom Johnson	No Fish. license	50.00	Dodge
Dale Lundahl	No Fish. license	P.L.I.C. *	Dodge
Frank Ryan	Fish. closed area	50.00	Atkinson
Scott Samuelson	Unregistered boat	10.00	Dodge
Geo. Mendiburu	Illegal use aircraft	25.00	Howard
Robert Sevon	Unregistered boat	10.00	Poling
Richard Hanson	Illegal hunting	Pending	Hotchkiss
Joanne Zele	No Fish. license	P.L.I.C. *	Dodge

<u>Name</u>	<u>Violation</u>	<u>Disposition</u>	<u>Officer</u>
Gerald Durrett	Insuff. life saving devices	Warning	Young
Garry Affonso	Shooting across road	Warning	Buck
	Total	\$ 265.00	

* Produced license in court.

F. SAFETY

1. SAFETY Meetings

Attendance by all personnel is mandatory.

2. Accident Record

There were no reportable accidents during the year.

3. Measures Taken To Prevent Accidents

- All personnel with a MVOIC have participated in a Defensive Driving Course.
- Building inspections and fire drills are conducted.
- Three of permanent staff of four participated in a First Aid Class during the year.
- On the job SAFETY is continually stressed.

4. Accident Free Days

As of December 31, 1972 this station has accrued 6,893 accident free days.

5. Acquistion of SAFETY Equipment

Acquired as needed.

6. Future SAFETY Plans

All SAFETY programs will continue, and SAFETY on the job and at home will be given top priority.

VII OTHER ITEMSA. Items of Interest

Under the Revenue Sharing Act, payment of \$4,900.52 was made to Elko County, and \$2,002.28 to White Pine County for a total of \$6,902.80.

B. Credits

Lynn Howard - IA, B; II G, A, I; III; IV; VII.

Lowell Napier - II A, B, C, D, E, F; V.

Katie Hotchkiss - Typing.

Photography - As indicated on each photo.

SIGNATURE PAGE

Submitted by:

James E. Howard
(Signature)

Refuge Manager
(title)

Date: February 1, 1973

Approved, Regional Office:

Date: 2/21/73

Laurence W. DeBates
(Signature)

Acting Regional Supervisor
(Title)

On February 13 the muskrat skinning shed caught fire and was completely destroyed along with 1,431 pelts. Not a very good way to start the year.

Howard

Both the engineering and refuge division agreed to let us rebuild the structure by force account, and the project was completed during the summer. Mechanic Hotchkiss and Biological Aid Speltz on top with Student Trainee Mack supervising.

Howard





His starting must have considered that our life
extinguisher box was a safe place to set up
housekeeping.

Howard

Our first impression was that someone had hit
a deer with a car and removed the carcass from
the road. Investigation revealed just the
opposite. A deer had been shot about 200 feet
above the road, lower, photo, pulled down and
loaded into a vehicle. Somebody must have
needed some February venison.

Howard

A California pilot thought that driving was too
much bother. In addition to the cost of an out-
of-state flying license he had to pay \$25.00 in
Federal Court for illegal use of aircraft.

Howard

Ma Starling must have considered that our fire
extinguisher box was a safe place to set up
housekeeping.

Howard

Our first impression was that someone had hit
a deer with a car and removed the carcass from
the road. Investigation revealed just the
opposite. A deer had been shot about 200 feet
above the road, lower, photo, pulled down and
loaded into a vehicle. Somebody must have
needed some February ventilation.

Howard

A California pilot thought that driving was too
much bother. In addition to the cost of an out-
of-state fishing license he had to pay \$25.00 in
Federal Court for illegal use of aircraft.

Howard





During January the dragline slipped off the dike while cleaning the collection ditch. The surface was icy and tracks would not hold, but we were lucky that there were no injuries.

Brownell

Howard

The same machine back on it's feet and enlarging the docking facilities at the boat landing.

at 11:30 of January 1941 the dragline was over with.

Howard

Brownell

Filmline Productions Incorporated filming a sequence during the early morning hours. When finished it will be part of an outdoor television series with a proposed title of "Let's Go".

Byrnes

Howard

Edna Skinner who is considered by some to be an expert in the fishing world still needed a few pointers from the director who managed to fall in before it was over with.

Howard





On September 13 a fire damaged our M-18 tractor.
Two types of cactus that are native to north-
east Nevada. that grow blades which had been very
have reflected enough heat to ignite melted tires.

Howard

Chapter

On September 13 a fire damaged our TD-18 tractor.
Exact cause is not known, but it is suspected
that plow blades which had been very bright may
have reflected enough heat to ignite matted tules.

D. C. W. H.

Napier





Wally Woolfenden, University of Arizona graduate
student, taking a core sample from the refuge
marsh edge. Wally is doing a study to determine
past vegetative changes through identification
of pollen imbedded in the soil.

Howard

Rod Drewien and Bill Mullins from the University
of Idaho made a trip to the refuge for purposes
of capturing young sandhills. Flapper cranes were
run down, weighed, banded, and fitted with a neck
collar and leg marker. Only four were caught, and
these north of the refuge. Bill in upper photo.
Rod and Bill in lower.

Howard

A core sample laid out on a plastic sheet.

Howard

Wally Woolfenden, University of Arizona graduate student, taking a core sample from the refuge marsh edge. Wally is doing a study to determine past vegetative changes through identification of pollen imbedded in the soils.

Howard

Red Dwyer and Bill Mullins from the University of Idaho made a trip to the refuge for purposes of capturing young sandhill cranes. Flapper cranes were run down, weighed, banded, and fitted with a neck collar and leg marker. Only four were caught, and these north of the refuge. Bill in upper photo. Red and Bill in lower.

Howard

A core sample laid out on a plastic sheet.

Howard





One young boating enthusiast attempted to connect a starter cable to a battery after dark by using a match for illumination. A nearby fuel line ignited and the boat was scuttled to put out the fire. The individual suffered burns to both hands and a singed beard. As stated by our regional SAFETY officer---that's adding insult to injury.

Howard

Howard

A young mallard became so hopelessly entangled in monofilament line at the stackyard pond that it died.

Howard

Howard

Several years ago, 59 goose nesting platforms had been placed at various locations in the diked units. There was no known use of the devices and all were removed during the year. They were made available to other federal and state agencies. A load of 24 being hauled by Nevada Department of Fish and Game and Bureau of Land Management personnel.

brswol

Napier

A portion of a two-acre enclosure installed in the north fields. By excluding cattle completely from this part of the grazing unit we will be able to determine the effects of grazing on the remainder of field.

brswol

Howard





A California convoy lined up in front of the refuge office. Occupants of vehicles were inquiring as to best fishing spots, types of lures or bait to use, camping facilities, limits of fish allowed, and etc.

Howard