

BRANCH OF WILDLIFE REFUGES

Narrative Report Routing Slip

Date Oct. 13, 1953

~~Mr. Salyer~~ _____

Mr. DuMont DD

~~Mr. Krummes~~ _____

Miss Baum _____

Section of Operations

Mr. Bell _____

~~Mr. Morley~~ LM

Mr. Regan MR

Section of Habitat Improvement

Mr. Griffith _____

Mr. Kubichek _____

~~Dr. Boura~~ WSB

Mr. Stiles _____

Section of Land Management

~~Mr. Askerknecht~~ SEA

~~Mrs. Davis~~ CD

Carter

Stenographers

Refuge BURFORD LAKE

Period May-August 1953

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PERSONNEL

A. Permanent

Edgar R. Gomer Refuge Manager

B. On temporary assaignment from the Bosque Refuge (8 days each)

Eufrazio Lucero Dragline Operator

Florindo L. Baca Dragline Oiler

C. Laborers (8 days each)

George Begale

Bruce Puerto

BURFORD LAKE WILDLIFE MANAGEMENT AREA

Narrative Report

May, June, July, and August, 1953

I. GENERAL

A. Weather Conditions. Data in the following table, except as marked, were collected at the weather station operated by the Bureau of Indian Affairs at Dulce, which is about twenty straight line miles northwest of our headquarters.

		<u>Snowfall</u>	<u>Precipitation</u>			<u>Max. Temp.</u>	<u>Min. Temp.</u>
			<u>Dulce</u>	<u>Hdq.</u>	<u>Average</u>		
May	T		.59	.93	1.05	92	11
June			.37	.23	.90	92	22
July			2.80	3.33	2.99	94	42
August			<u>1.14</u>	<u>.46</u>	<u>2.29</u>	<u>90</u>	<u>32</u>
Totals	T		4.90	4.95	7.23	Extremes 94	11

Precipitation during the period at headquarters was 68.5% of a thirty-three year (prior to 1950) average. During the past twelve months we have had 12.46 inches of precipitation which is 68.9% of the 18.22 inches annual average. During the past three years we have had 39.35 inches of precipitation or 71.9% of what would have been average, and this percentage figure would be even smaller if data for the summer of 1950 had been included.

B. Water Conditions. This continued sub-normal precipitation (which began before the management area was established in 1950) has, of course, affected the water levels of the various lakes on the area but to varying degrees. Any of the lakes, some of which are natural, some man made or man modified, will overflow if sufficient runoff is received, and all of them have done so at one time or another. However, less precipitation is required to make some of them reach their spillway levels than is the case with others. Thus Enbom and Stone Lakes remain comparatively stable while the others, which evidently have greater maximum water contents in relation to their drainages, are affected much more severely by the drouth. Even with the light precipitation of the last three years, Enbom Lake, the most stable of them all, remains within one and one-half feet of its spillway.

Burford Lake, which is the largest and with favorable runoff the most important waterfowl lake on the area, has been stricken worse than any of the other large lakes. Its surface area at the end of August was approximately half what it would be at its maximum level. It is now about eight or nine feet below its high water mark, and, while the maximum depth is not known for sure, it probably is not much greater than two feet anywhere. On August 28 the maximum depth between the east water gap on the south shore of Redhead Ridge and Horse Island was fifteen inches; the maximum depth of the narrowest part of the strait between Horse Island and the southwest shore was two inches; the east shore and Upper Redhead Ridge were no longer separated by water and the lake was divided into two parts.

Hidden Lake went completely dry during August but for practical purposes it had been dry since the first part of June as the few inches of water it contained were clogged by a solid mass of algae and the ducks would not use it.

The upper Thompson Lake was dry at the beginning of the period and the lower one went dry about the first of July.

The maximum depth of La Jara Lake was still at least eleven feet. The upper part of this lake went dry during the first part of this period, but July rains restored a few inches of water to it. Nevertheless, it was still many feet below its high water mark as were Dulce and Horse Lakes.

Stone Lake was about three and one-half feet below its spillway level but this did not affect its surface area much.

Mr. Chamberlain, the agency's soil scientist, made tests of the water of several lakes and other water sources to determine their suitability for irrigation. His data and remarks are presented in the following table.

Water source	ph	ECx10 ³	salts PPM	Na me/L	Na%	Class
John Mill's Lake	8.9	17.8	14,830	200	99	unsuitable
Cordova Canyon Spring	7.3	.67	450	Tr.	10	excellent
Pound's Mill well	8.4	1.7	1,437	12	75	permissible
La Jara Lake	9.6	2.8	2,374	14	46	doubtful
Burford Lake	9.4	11.5	9,752	115	99	unsuitable
Stone Lake	9.5	7.4	6,275	45	60	unsuitable
Enbom Lake	9.9	1.1	932	Tr.	?	*
Horse Lake	10.4	1.5	1,332	Tr.	?	*
Navajo River	8.4	.025	21	Tr.	10	Excellent
Dulce Spring	7.8	.80	678	Tr.	10	excellent

* The abnormally high ph of these samples would indicate a high Na% and a more precise method of determining Na should be used before classifying the quality of these waters for irrigation.

These samples were taken during a period of very low water levels and are probably as bad as you would expect to find during such periods of low water levels.

Mr. Chamberlain explained that "ECx10³" is a measure of electrical conductance and is another method of measuring cation content; that "Na me/L" means millequivalents of sodium per liter and that the figures under "Na%" represent the per cent of the total cations that consists of sodium ions.

On the same day that he collected water samples from the above sources, July 13, Mr. Chamberlain made soil tests in Vigil Flat and

determined that

^this flat could be farmed by planting deep rooted crops as the area was subirrigated. He also determined that the soil was too impermeable to permit surface irrigation even if the water was satisfactory.

C. Fires. The Indian agency has responsibility for suppressing fires, and the writer was not called on to assist in fighting any. Only minor ones occurred although the hazard was great during most of the period.

II. WILDLIFE

A. Migratory Birds.

1. Populations and Behavior. The area as a whole supported about the same number of water birds as it did last year. However, because of water and food conditions there was a shift of the heaviest population from Burford to Stone Lake. The upper part of Burford Lake in particular was a pitiful sight as compared to last year. Whereas hundreds of ducks and eared grebes could be seen there most any time last summer (and many eared grebes nested there), not a single water bird was seen on this part of the lake after mid-June.

Because of the lack of a binocular after July 30, production studies were not completed, but estimates based on observations before that time and what would be expected after that time are presented.

<u>Lake</u>	<u>Species</u>	<u>No. Broods seen</u>	<u>No. Young seen</u>	<u>Production, Est. Total</u>
Burford	Mallard	2	17	35
	Gadwall			15
	Unidentified	3	7 $\frac{1}{2}$	
	Sub-totals	5	24 $\frac{1}{2}$	50
Stone	Mallard	1	2	25
	Gadwall			25
	C or BW Teal	1	12	20
	Sub-totals	2	14	70
Enbom	Mallard	1	4	15
	Ruddy	1	7	14
	Sub-totals	2	11	29
Horse	Unidentified	1	uncounted	
	Mallard			15
	Sub-totals	1		15
La Jara	Mallard	1	2	2
	C or BW Teal	1	11	11
	Sub-totals	2	13	13
Dulce	Mallard	4	23	27
	Sub-totals	4	23	27
	Totals	16	85	204

The total estimate is somewhat larger than that for last year, but the increase is due to the facts that more lakes are included in the estimate and that a greater allowance is made for broods not seen. Hidden Lake, being dry or nearly so during most of the period, produced no ducks or other water birds.

Coot young were seen only on Enbom Lake and Stone Lake and production data are given in the following table.

<u>Lake</u>	<u>No. Broods Seen</u>	<u>No. Young Seen</u>	<u>Est. Total Production</u>
Enbom	3	13	30
Stone	<u>2</u>	<u>10</u>	<u>35</u>
Totals	<u>3/4</u>	23	65

Last year many broods came off during late July and August and the above estimate may be vastly conservative. The last counts on these two lakes were made on July 11 and 14, and I was ready to make another when I sent off the binocular for trade-in.

No eared grebes nested on Burford Lake this year. Instead, they shifted their activities to Horse Lake where forty-two nests, mostly in one colony, were counted on July 14.

The July 19 census may be compared with the July 17-18 census of last year. The following birds were estimated for Burford Lake: Grebes 0; Mallard 100, gadwall 80, baldpate 50, pintail 70, cinnamon teal 60, green-winged teal 10, shoveller 20, redhead 125, canvasbacks 5, scaup 10, ruddy duck 40, American merganser 5, total ducks 575; coots 25; killdeer 35, spotted sandpiper 10, Wilson's phalarope 10, Baird's sandpiper 10, dowitcher 5.

The fall migration of pintails and teal was conspicuous by August 12, but it probably began a little earlier than this as it did last year. In fact, there was a small but steady increase in ducks on Burford Lake from about June 1 on. By the end of the period about 2,000 ducks were on this lake but no census could be made. The smallest population was present during the middle of May when only about three hundred used Burford Lake.

No black-crowned night herons were seen anywhere on the area this year. Last year they were common around Hidden Lake.

A few unusualities were noted. Nineteen willet were seen on John Mill's Lake on May 13. A snowy plover was seen on Burford Lake on May 14. One snow goose remained on the area until May 14. The nest of a spotted sandpiper was found on the east shore of Burford Lake opposite the south shore of Redhead Ridge on July 2, and the young of another was found on the point of Upper Redhead Ridge on July 27. Three glossy ibises were seen on La Jara Lake on August 20. They were probably the white-faced species although it was not possible to see for sure about this with the naked eye even though they flew within about thirty yards. These are the first records of the snowy plover and ibis that I know of for the area and the

second record of willet. According to Wetmore the spotted sandpiper did not nest at Burford Lake in 1918 although they nested along the Chama River at Parkview (a nest was also found there this year). Snow geese had not been recorded from the area until last fall.

The area supported its usual good mourning dove population during the summer months.

No band-tailed pigeons were seen.

2. Food and Cover. Food conditions during the period, and especially at the end of it, were extremely poor on Burford Lake. On the other lakes (with the exception of those that went dry) a rough estimate is that ninety per cent as much aquatic growth was produced this year as last, and there was no significant change in emergents.

The areas in Burford Lake that supported such excellent stands of pondweed last year were all dry by the end of this period. It is estimated that there was less than ten per cent as much pondweed on Burford Lake on August 31, 1953, as on the same date in 1952, and this is probably being generous; it would, in fact, be hard to find a single piece of pondweed in this lake.

In spite of extremely adverse water conditions there was a noticeable improvement in growths of hardstem bulrush (Scirpus acutus) around Burford Lake. There is now a thin margin of this plant around most of the shoreline at closer intervals than it would ordinarily be planted. However, by the end of the period these plants were from one and one-half feet to four feet from the water level vertically and up to several hundred yards from the water horizontally. The improvement in the hardstem growth was all that could be expected on dry land.

Even though Hidden Lake went dry, hardstem bulrush came up in about the same area and density as it did last year.

Three square (Cyperus fendlerianus and possibly others) growths were not as good around Burford Lake as they were last year because of the more zeric habitat. Some seed was produced anyhow and south of The Outlet there was a particularly good stand as that bed is somewhat lower than most.

As the water receded and the soil on which Scirpus and Cyperus grew became drier, there was an invasion of foxtail (Hordeum jubatum), red-scale (Atriplex rosea) and other plants of that particular stage of succession into these areas. In some places the emergent species were totally obscured. On the dry bed of Hidden Lake one species of Atriplex was growing inside the hardstem growth.

So far during the growing period this year, livestock entry into the exclosures around Hidden and Burford Lake has been very light and practically no damage at all was done to emergent species.

Of all the lakes that contained water this summer, Enbom Lake had the best growths of emergents, being mostly cattail (probably Typha latifolia) but with an appreciable amount of hardstem bulrush. This lake is open to unrestricted grazing but has the most stable water level of any of the lakes. This seems to indicate that a stable water level is at least as important as grazing control in producing a good margin of emergents. It is also interesting to note that this the only lake on which cattail grows. The growth of this plant may be restricted by the salt content of the water of the other lakes.

3. Botulism, Lead Poisoning, and other Diseases. The remains of a few ducks were found around Burford Lake, but no positive cause of death could be determined.

B. Upland Game Birds.

1. Populations and Behavior. Assistant District Agent Crook saw four sage grouse about halfway between Burford Lake and Stone Lake on June 10. The writer has seen no sage grouse, dusky grouse, or Merriam's turkey. Indians reported seeing some turkeys at the upper end of Burns Canyon, in Cordova Canyon, and lookouts have reported hearing them around Wirt Lookout. These localities are all within a few miles of each other, and apparently this is one of the best turkey areas on the reservation. Populations of all these species are apparently light.

2. Food and Cover. Acorn production has been spotty, fairly good in some localities such as around Wirt Lookout and no good in most other places. Grasshoppers have been especially abundant in the Hillcrest-Horse Lake vicinity, so much so that the Bureau of Entomology was called in by the agency for a control program. General range conditions for the period seemed to be slightly better than last year although the lack of rain toward the end of the period was showing its effect. Otherwise the remarks on this subject in last summer's report still hold.

3. Diseases. None known.

C. Big Game Animals.

1. Populations and Behavior. A total of 20 mule deer were seen during the period as follows.

<u>Date</u>	<u>No., Sex, Age</u>	<u>Locality</u>	<u>Remarks</u>
May 14	1 buck 7 unidentified	$\frac{1}{2}$ Mi. E. of N. end of Burford Lake in open sagebrush.	Buck with 2 Pt. antlers slightly longer than ears. 4:20 P. M.
May 3	2 unidentified	The Outlet	Two fawns with doe seen here last year several times. These may be the yearlings. 6:05 P. M.

Mule deer sight records continued.

<u>Date</u>	<u>No., Sex, Age</u>	<u>Locality</u>	<u>Remarks</u>
June 28	1 doe	Stock Driveway Canyon 1 Mi. N. of boundary.	6:05 P. M.
July 9	1 doe	windmill 5 Mi. S. of Hdq. on Mud Springs Rd.	Watering. Approached to within 8 Yds. of this animal. 8:00 P. M.
August 4	1 buck	Stk. Drvwy. Can. 4 Miles SW Hdq.	3 Pts. No velvet. 6:15 A. M.
	1 doe		Doe with yearlings?
	2 unidentified	Stk. Drvwy. Can. $\frac{1}{4}$ Mi. N. of boundary.	6:30 A. M.
August 8	1 unidentified	Stk. Drvwy. Can. 4 Mi. SW Hdq.	crossed road in headlights. 8:00 P. M.
August 9	1 doe	Along boundary $\frac{1}{4}$ Mi. W. of where Lindrith road crosses it.	At least one other deer with the one seen. Noon.
August 20	1 doe 2 fawns	5 Mi. W. of Hdq. along Pound's Mill road.	10:00 A. M.

One more area was noticed that seemed to have an above average population of deer. This area is along the reservation boundary where it joins the state refuge, south of Hdq.

Bears will be commented on under predators.

2. Food and Cover. No significant change from last year has been noticed.

3. Diseases. None known.

D. Fur Animals, Predators, Rodents, and other Mammals. In answer to complaints some trapping was done during the period and a total of eight predators, two coyotes and six bobcats, were caught. Of these, three bobcats were caught two miles north of the road intersection at Hillcrest where wild dogs were the object of the trapping; two coyotes and one bobcat were caught on the David Vicente range where the offender was reportedly bobcats; and two bobcats were caught on the Tim Chino range where it was a coyote that was causing the trouble. This coyote had already been shot by Mr. Chino but evidently was not killed.

Toward the end of the period a bear or bears were killing sheep in the Cordova Canyon-Wirt Lookout vicinity. Mr. Crook, Assistant District Agent, set a trap on the Jack Monise range on August 25, but this trap had

caught nothing by the end of the period. Indian stockman Leo Vicente set two bear traps on his range and caught one bear, evidently one of the two yearlings of the female believed to be causing the trouble there. Extension Agent Chapel called in a man from Chama who had some bear dogs, but they were also unsuccessful. The bears were causing excitement far out of proportion to the damage done..

The track of one other bear was seen at the little waterhole on top of the mesa behind Hidden Lake.

Most of the prairie dogs on the area were poisoned during the period under the supervision of Assistant District Agent Crook and Government Hunter Dalton.

D. Predacious Birds, Including Crows, Ravens and Magpies. The usual number of birds of this classification were seen during the period, but no damage to the interests of man resulted from their activities so far as is definitely known. The species concerned on this area are crows, ravens, magpies, red-tailed hawks, sparrow hawks, Cooper's hawks, duck hawks, and other hawks and owls in lesser numbers.

III. REFUGE DEVELOPMENT MAINTENANCE

A. Physical Development. Four more stock watering holes were dug around Burford Lake by the Bosque Refuge dragline and operator. Channels from these holes to the lake were dug with the exception of two which were particularly far from the lake. Water seeped into these two holes and afforded watering places for stock, and the case the one on the south side of Vigil Flat closest to the Vigil's residences (and which was a half-mile from the lake) runoff from July rains filled it completely and overflowed. This hole now contains more water than any of the others.

If it were not for these holes the great bulk of Burford Lake would now be useless as a watering place for stock as what little water remains is surrounded, except in the vicinity of the Redhead Ridges and The Outlet, by many yards of deep mud in which a cow or horse would flounder.

All watering places with the exception of the unfenced sections of the shore now have dug waterholes, and it was a good thing we got them dug when did. Two of these holes went dry, but one was continued as a watering place by extending the fences, and one of the new holes will substitute well for the other.

All the new water holes were completely fenced off and the fences around all the old water holes were overhauled and fences were built across their channels. This involved considerable rearrangement of the fence lines, and, although the mileage of new fence that was constructed was not great, the stretches were short and some forty braces had to be built.

The fences on both sides of Vigil Flat, south of The Outlet, and at the old gunclub house were extended several times each to keep stock from going around them into our exclosures as the lake went down. The ice damage done last winter to one gap fence on Hidden Lake was repaired. Numerous other repairs were made to the fences.

The Willys pickup demanded its full share of attention. The funnel of the new tank which was installed on it during the last period fell off and was reattached. The fuel pump was taken apart several times, cleaned, various parts from an old pump (it was on its second one) put in it, and finally a new pump was put on it. The speedometer cable broke and a new one with housing was purchased in Albuquerque (wrong size). The oil pressure impulse sender which went out during the last few days of the last period was replaced. The U-joint in the left front axle which was repaired twice during the last period and which has been repaired three times altogether started acting up again and a new left front axle was purchased in preparation. The tail gate was repaired. The fuel gage wire was reattached and now the gage is not accurate. The steering column was overhauled.

A year's supply of steel posts, barbed wire, and smooth wire was purchased in Albuquerque and stored at headquarters.

The jet pump was hooked up to the pressure tank, the whole system primed, but the pump would not work properly. A stuck foot valve was suspected and the pipe was pulled out of the well, the foot valve taken off, disassembled, cleaned, put back on the pipe, and the whole works put back into the well and reprimed. It still did not work.

B. Plantings. The shores of Horse Island, Little Island, and the southwest shore of Burford Lake were planted to Scirpus paludosus seed which was obtained last year from the Bowdoin Refuge. The shoreline planted extended from the southern tip of the lake to the water gap north of Horse Island.

The flat at the southeast end of Redhead Ridge was planted in a checkerboard pattern with Scirpus acutus stock obtained from Hidden Lake as was about one-quarter mile of the shore inside our fence north of the old gun club house.

C. Collections. Herbarium specimens only.

D. Receipts of Seed and Nursery Stock. None.

IV. ECONOMIC USE OF REFUGE

A., B., and D. Grazing, Haying, and Timber Removal. These uses are regulated by the Bureau of Indian Affairs.

C. Fur Harvest. None.

V. FIELD INVESTIGATION OR APPLIED RESEARCH

A. Plant Identification. Specimens of about twenty-five species of plants were collected. Most of them are still in the press.

VI. PUBLIC RELATIONS

A. Recreational Uses. Fishing is the principal recreational use of the area and this is done mostly by non-tribal members who live and work on the reservation. There is some miscellaneous use such as arrowhead hunting, picnicing, looking for buried gold, sight-seeing (for instance looking for Apache tepees, as futile an activity as the gold hunts), etc. In all there were about 400 days use for fishing and 200 days use for miscellaneous recreational purposes.

B. Refuge Visitors. The following officials visited headquarters.

<u>Name and Title</u>	<u>Date</u>	<u>Purpose</u>	<u>Time on Area</u>
Mr. Rols	May 21	Dropped by for lunch	one hour
Mr. Nations	do	do	do
Mr. Snyder	do	do	do
Mr. Vurland Crook Ass't. Dist. Agent	July 28	Inspection Prairie dog control work	two hours
Mr. Louis Laney District Agent	do	do	do
Mr. Presnell, Ass't. P and RC Branch Chief	do	do	do

Mr. Rols is the Adult Education Director for some state in India, I never did understand which one, who has been visiting the United States as part of the Point Four program for the purpose of studying American extension methods. Mr. Nations is the Area Supervisor of Extension for the Bureau of Indian Affairs. Mr. Snyder is a State wool specialist. These three men were accompanied by Mr. Chapel, the agency's Extension Agent.

In addition to those listed, Mr. Rennie, Mr. Chamberlain, Mr. Livesay, Mr. Galbraith, and Mr. Chapel, all agency officials, visited headquarters at least once.

C. Refuge Participation. A pot luck supper in Dulce for Mr. Bella, a teacher who was leaving the reservation for another job, was attended by the Refuge Manager and wife.

D. Hunting. None.

E. Fishing. Fishing for rainbow trout in La Jara Lake was good, and most people, at least those that fished from a boat, were fairly successful. The number of fish caught per fisherman day was smaller than it was last year, but the fish were about two inches longer on the average, the maximum length known by the end of the period being thirteen inches and the maximum weight known being one and one-quarter pounds according to a "Fisherman's De-liar".

In addition to the 5,000 rainbows planted in April, the State planted approximately 10,000 more in May. No indication was found that any trout lived through last winter.

F. Violations. None.

VII. OTHER ITEMS

A. Items of Interest. The U. S. Geological Survey plans to map a large part of the northern half of the reservation and during the summer months did considerable of the survey work and constructed many bench marks including several around Burford Lake and one near headquarters. One near The Outlet is 7120.3 feet above sea level which means that the elevation of Burford Lake is near 7100 feet.

B. Local Color. One of our Apache neighbors has the habit of beating his wife when he is drunk, which is more often than not, and three times during the summer she prevailed upon us to drive her to town stating that she was tired of his beating her and that she intended to leave him. However, as we did not care to get mixed up in their family affairs, we did not oblige, and she still has not left him.

C. Photographs. Attached.

September 30, 1953

Respectfully submitted,

Edgar R. Gomer

Approved by:

K. K. K. K.
Acting Regional Director

Edgar R. Gomer
Refuge Manager

3-1750
Form NR-1
(Rev. March 1953)

WATERFOWL

REFUGE Burford Lake Wildlife Management Area

MONTHS OF May TO August, 1953

(1) Species	(2) Weeks of reporting period									
	May 3	May 14								
	1	2	3	4	5	6	7	8	9	10
<u>Swans:</u>										
Whistling										
Trumpeter										
<u>Geese:</u>										
Canada										
Cackling										
Brant										
White-fronted										
Snow	3	1								
Blue										
Other										
<u>Ducks:</u>										
Mallard	125	75								
Black										
Gadwall	40	35								
Baldpate	5									
Pintail	25	25								
Green-winged teal	10	10								
Blue-winged teal	20	20								
Cinnamon teal	50	50								
Shoveler	200	150								
Wood										
Redhead	10	10								
Ring-necked	20									
Canvasback	125	15								
Scaup	75	75								
Goldeneye										
Bufflehead	50	50								
Ruddy	100	100								
Other										
Am. Merganser	25	25								
<u>Coot:</u>	60	60								

3-7150a
Cont. NR-1
(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE Burford Lake Wildlife Management Area

MONTHS OF May TO August, 1953

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	July 10	July 19	July 27	August 4	August 11	August 18	August 25	September 1			
Swans:											
Whistling	Because of the lack of a binocular, no census was made after July 27. Therefore the use days and peak populations as shown on this form are probably less than what actually occurred by half.										
Trumpeter											
Geese:											
Canada											
Cackling											
Brant											
White-fronted											
Snow									21		
Blue											
Other											
Ducks:											
Mallard	250	250	250						23,667	9	119
Black											
Gadwall	200	200	200						18,032	1 nest	40
Baldpate	80	100	100						7,735		
Pintail	50	200	400						20,447		
Green-winged teal	30	30	30						2,870		
Blue-winged teal	25	25	400						25,172	2	31
Cinnamon teal	40	100									
Shoveler	75	75	75						12,152		
Wood											
Redhead	400	400	400						33,950		
Ring-necked									140		
Canvasback	10	10	10						2,135		
Scaup	15	15	15						3,885		
Goldeneye											
Bufflehead									700		
Ruddy	100	125	150						14,175	1	14
Other											
Am. Merganser	25	25	25						2,975		
Coot:	(2) 60	(9) 80	(1) 100						9,975	3	65

(over)

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	:	:	:
Geese	21	3	:
Ducks	168,056	2,055	204
Coots	9,940	150	65

SUMMARY

Principal feeding areas Stone, Burford Lakes

Principal nesting areas Burford, Stone, Embom, Dulce Lakes

Reported by _____

INSTRUCTIONS (See Secs. 7531 through 7534, Wildlife Refuges Field Manual)

- (1) Species: In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and national significance.
- (2) Weeks of Reporting Period: Estimated average refuge populations.
- (3) Estimated Waterfowl Days Use: Average weekly populations x number of days present for each species.
- (4) Production: Estimated number of young produced based on observations and actual counts on representative breeding areas. Brood counts should be made on two or more areas aggregating 10% of the breeding habitat. Estimates having no basis in fact should be omitted.
- (5) Total Days Use: A summary of data recorded under (3).
- (6) Peak Number: Maximum number of waterfowl present on refuge during any census of reporting period.
- (7) Total Production: A summary of data recorded under (4).

3-1751

Form NR-1A

(Nov. 1945)

MIGRATORY BIRDS

(other than waterfowl)

Refuge Burford Lake WMAMonths of Mayto August 1945

(1) Species	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production			(6) Total
Common Name	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Number
I. <u>Water and Marsh Birds:</u>										
Rare grebes	Prev. Per.		200	Aug. 31	Still present		1	42	85	200
Pied-billed grebe	" "		25	Aug. 31	" "		3 broods		9	25
Great blue heron	" "		2	May 3	1	Aug. 28				5
Glossy ibise	3	Aug. 20	3	Aug. 20	3	Aug. 20				3
II. <u>Shorebirds, Gulls and Terns:</u>										
<u>Terns:</u>										
Snowy plover	1	May 14	1	May 14	1	May 14				1
Kildeer	Prev. Per.		200	Aug. 31	Still present					200
Spotted sandpiper	" "		75	" "	" "			1 seen	6	75
Willet	19	May 13	19	May 13	19	May 13				19
Baird's sandpiper	Prev. Per.		200	Aug. 31	Still present					200
Dowitcher	" "		14	May 3	14	May 3				20
Marbled godwit	" "		6	" "	2	May 14				10
Wilson's phalarope	" "		300	May 14	Still present					350
Ring-billed gull	" "		30	May 3	2	June 10				35
Franklin's gull	" "		30	May 3	4	May 14				35
Black tern	5	May 14	40	June 1	10	June 10				50

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons:					
Mourning dove	Prev. Per.	?	Still present		
White-winged dove					
Band-tailed pigeon	None seen				
IV. Predaceous Birds:					
Golden eagle	Prev. Per.	6	" "		
Duck hawk	" "	5	" "		
Horned owl	Present but none seen				
Magpie	Prev. Per.	common	" "		
Raven	" "	"	" "		
Crow	" "	"	" "		
Reported by.....					

INSTRUCTIONS

- (1) Species: Use the correct names as found in the A.O.U. Checklist, 1931 Edition, and list group in A.O.U. order. Avoid general terms as "seagull", "tern", etc. In addition to the birds listed on form, other species occurring on refuge during the reporting period should be added in appropriate spaces. Special attention should be given to those species of local and National significance. Groups: I. Water and Marsh Birds (Gaviiformes to Ciconiiformes and Gruiformes)
 II. Shorebirds, Gulls and Terns (Charadriiformes)
 III. Doves and Pigeons (Columbiformes)
 IV. Predaceous Birds (Falconiformes, Strigiformes and predaceous Passeriformes)
- (2) First Seen: The first refuge record for the species for the season concerned.
- (3) Peak Numbers: The greatest number of the species present in a limited interval of time.
- (4) Last Seen: The last refuge record for the species during the season concerned.
- (5) Production: Estimated number of young produced based on observations and actual counts.
- (6) Total: Estimated total number of the species using the refuge during the period concerned.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

1613

Refuge Burford Lake WMA Months of May to August, 1945

(1) Species	(2) Density	Acres per Bird	(3) Young Produced	(4) Sex Ratio	(5) Removals	(6) Total	(7) Remarks
Merriam's turkey Common Name	Cover types, total acreage of habitat		Number broods obs'd. Estimated Total	Percentage	Hunting For Re- stocking For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Merriam's turkey	300,000 acres pine, oak, juniper coverer areas	3,000	0 ?	?	? 0 0	100	Not based on census. No sight records during period.
Dusky grouse	40,000 acres pine, and fur covered slopes on high ridges.	200	0 ?	?	0 0 0	200	Not based on census. No sight records during period.
Scaled quail	100,000 acres sage- brush, pinon pine, juniper covered areas in southern unit	133	0 ?	?	0 0 0	750	Not based on census. None seen during period.
Sage grouse	20,000 acres open sagebrush area. (Stinking Lake trough only)	800	0 0	?	? 0 0	25	Not based on census. Only four seen during period.

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- | (1) SPECIES: | Use correct common name. | (2) DENSITY: | (3) YOUNG PRODUCED: | (4) SEX RATIO: | (5) REMOVALS: | (6) TOTAL: | (7) REMARKS: |
|---------------------|--|--------------|---------------------|----------------|---------------|------------|--------------|
| (1) SPECIES: | Use correct common name. | (2) DENSITY: | (3) YOUNG PRODUCED: | (4) SEX RATIO: | (5) REMOVALS: | (6) TOTAL: | (7) REMARKS: |
| (2) DENSITY: | Applies particularly to those species considered in removal programs (public hunts, etc.). Detailed data may be omitted for species occurring in limited numbers. Density to be expressed in acres per animal by cover types. This information is to be prefaced by a statement from the refuge manager as to the number of acres in each cover type found on the refuge; once submitted, this information need not be repeated except as significant changes occur in the area of cover types. Cover types should be detailed enough to furnish the desired information but not so much as to obscure the general picture. Examples: spruce swamp, upland hardwoods, reverting agriculture land, bottomland hardwoods, short grass prairie, etc. Standard type symbols listed in Wildlife Management Series No. 7 should be used where possible. Figures submitted should be based on actual observations and counts on representative sample areas. Survey method used and size of sample area or areas should be indicated under Remarks. | | | | | | |
| (3) YOUNG PRODUCED: | Estimated number of young produced, based upon observations and actual counts in representative breeding habitat. | | | | | | |
| (4) SEX RATIO: | This column applies primarily to wild turkey, pheasants, etc. Include data on other species if available. | | | | | | |
| (5) REMOVALS: | Indicate total number in each category removed during the report period. | | | | | | |
| (6) TOTAL: | Estimated total number using the refuge during the report period. This may include resident birds plus those migrating into the refuge during certain seasons. | | | | | | |
| (7) REMARKS: | Indicate method used to determine population and area covered in survey. Also include other pertinent information not specifically requested. | | | | | | |

* Only columns applicable to the period covered should be used.



Water gap fence south of The Outlet showing difference in three-square growths between protected and unprotected areas. August 24, 1953



Looking south from the fence in the above photograph over three-square bed. Note hardstem bulrush growth. August 24, 1953



Northeast waterhole showing method of fencing. August 24, 1953



The east shore of Burford Lake north of the old gun club house. The hardstem bulrush growth here is considerably above the water level and is obscured by other plants. August 24, 1953



The upper end of Enbom Lake. The emergent growth is mostly cattail with some hardstem bulrush. This lake is unfenced but has a fairly stable water level and a low salt content. August 24, 1953



The southwest bay of Stone Lake. Note remnant hardstem bulrush growths. August 24, 1953



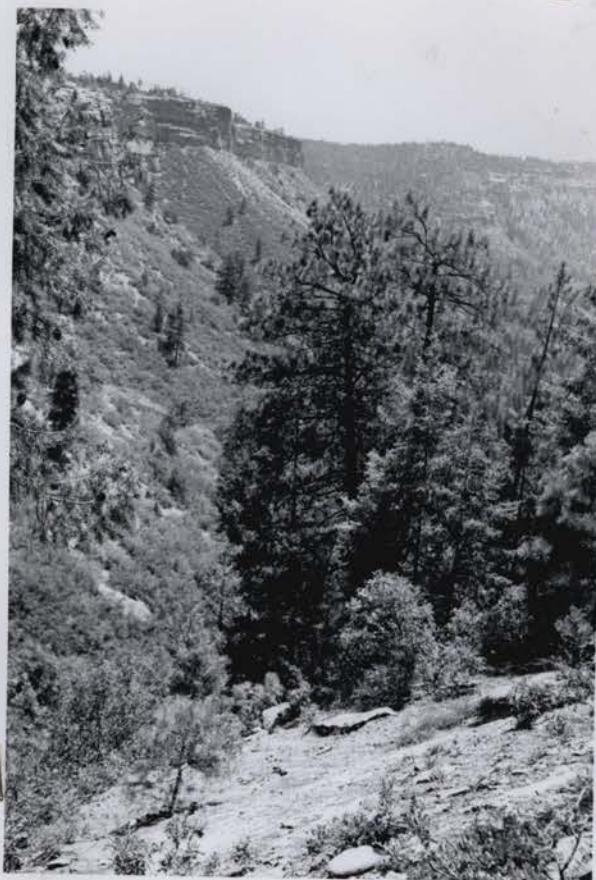
Panoramic view of most of Stone Lake. Looking east to southeast from a knoll west of the north end of the lake. August 24, 1953



The small waterhole on top of the mesa back of Hidden Lake. The grass is timothy (Phleum pratense) and the trees are aspens. Mule deer, black bears, turkeys, and dusky grouse water here. July 26, 1953



North side of the mesa looking west. The dominant tree on top is western yellow pine while on the north-facing slope the vegetation is mostly Gambel oak with Douglas fir and a little aspen. Yellow pine begins again at the base of the slope.



A canyon which breaks into this mesa from the southeast. The vegetation here is mostly yellow pine, Douglas fir, Gambel oak, and mountain mahogany. July 26, 1953