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Refuge VALENTINE

Period May - August 1960

NARRATIVE REPORT
VALENTINE NATIONAL WILDLIFE REFUGE
VALENTINE, NEBRASKA

MAY, JUNE, JULY AND AUGUST, 19 60

P-E-R-S-O-N-N-E-L

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Vacant (Since September, 1957)	Manager Trainee
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NARRATIVE REPORT

VALENTINE NATIONAL WILDLIFE REFUGE VALENTINE, NEBRASKA

MAY, JUNE, JULY AND AUGUST 1960

I. GENERAL

A. Weather Conditions.

	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
	<u>This Month</u>	<u>Normal</u>	<u>Temp.</u>	<u>Temp.</u>
May	<u>4.38</u>	<u>2.82</u>	<u>93</u>	<u>21</u>
June	<u>2.88</u>	<u>2.87</u>	<u>88</u>	<u>45</u>
July	<u>2.74</u>	<u>3.01</u>	<u>99</u>	<u>52</u>
August	<u>2.63</u>	<u>2.17</u>	<u>100</u>	<u>45</u>
Total	<u>12.63</u>	<u>10.87</u>	<u>Extremes 100</u>	<u>21</u>

Heavy rains in May and June created extensive potholes and lake fringe areas on the refuge. Some of the smaller lakes and potholes reached a high water mark while some larger lakes did not reach maximum water levels. The past two dry seasons may account for some of this. The rainfall during July and August was nearly normal at refuge headquarters. On some parts of the refuge the rainfall was below normal and thus some of the pastures became quite dry during the last of July. It became necessary to move some cattle out earlier than usual in these areas where the rainfall had been deficient.

The cool rainy spring brought the rangelands back to life and cool season grasses responded well. Warm season grasses were slightly retarded by the cool weather and slightly below normal rainfall conditions through July. Generally speaking, the past period has been favorable to both rangelands and waterfowl nesting habitats. A heavy hailstorm made a narrow strip through the middle of the refuge on July 29 which may have had some effect on late nesting of waterfowl and upland game birds.

B. Habitat Conditions.

1. water. Conditions this period were considerably better than a year ago. The smaller potholes held up through most of July. The waterlevels in all the larger lakes except Clear and Willow remained near normal throughout the four months. During the middle of July one stoplog was removed from the Dewey Lake water control structure to begin slowly lowering the water level in Dewey Lake since it had been proposed earlier this summer that Dewey Lake will be drained as low as possible prior to the eradicating of the carp.

Little or no repair work was necessary on water control structures this summer. Only the dike between North and Middle Marsh needed some additional fill where some washing had occurred during the early part of the summer. The repair work completed last summer on the dams below Pony, "21" and Center Lakes sodded well and should not cause any further trouble for several years.

The following table shows high and low gage readings recorded during the period:

<u>Lake</u>	<u>High Reading</u>	<u>Date</u>	<u>Low Reading</u>	<u>Date</u>
Clear	.00	5/1	Below .00 remainder of period	
Dewey	4.52	5/31	2.50	8/31
E. Twin		Gage out during period		
Hackberry	3.26	5/8	2.06	8/30
Pelican	1.00	6/1	.15	8/31
Pony		Gage out during period		
S. Marsh	8.26	5/29	7.22	8/19
Watts	1.10	5/23	.07	8/31

2. Food and Cover. Throughout this period food was plentiful for all wildlife on the refuge. Aquatics were as abundant as a year ago on most of the lakes except the lakes infested with carp. The submerged aquatics in Pelican and Hackberry Lakes continued to improve since the carp have now been eradicated. Whitewater lake which was eradicated a year ago last fall has again been taken over by carp. As a result the submerged aquatics in Whitewater were very scarce. In Dewey Lake it was difficult during the aquatic survey conducted to find any submerged aquatics. Clear and Willow Lakes continued to be nearly void of all submerged plants.

Aquatic transects were run this period on Watts, Hackberry, White-water, Dewey, Pelican and Rice Lakes. In Watts Lake the submerged aquatics were not as abundant as in Hackberry Lake. Potamogeton (Richardsonii) was among the most common plants found. The next most common plant especially near the west end was coontail; other species recorded are as follows: Lemna trisulca, P. pectinatus,

P. pusillus, *P. natans*, and a few scattered patches of *najas*. In Hackberry Lake the submerged aquatics as a whole increased about 20% over last year. Prior to the eradication of the carp this lake was almost barren of submerged plants. The beds of aquatic plants are now so dense that it is difficult to travel by boat with an outboard motor over most of the lake. The two most common plants recorded were *Potamogeton pectinatus* and *P. pusillus*; both submerged aquatics produced an abundance of seed. Two species of claspingleaf pondweed were recorded--*Potamogeton Richardsonii* and *P.* (still not positively identified). There was a considerable increase in the *najas* plants over most of the lake. Several beds of flatstem pondweed, *Potamogeton zosteriformis* were recorded in mostly the east half of the lake. The marsh plants consisted of a few cattails and a considerable amount of hardstem and a few small patches of softstem, some phragmites, some *sagittaria latifolia* and *S. cuneata* and several beds of smartweed (*Polygonum muhlenbergii*) and *P. amphibium*. The submerged aquatics in Pelican Lake are similar to those in Hackberry Lake. This summer the aquatics were nearly as dense as in Hackberry Lake. However, sago pondweed was more common than *P. pusillus*. A narrowleaved pondweed was found in numerous areas in Pelican Lake; thusfar we have not been able to key the plant out. Flatstem pondweed was less common in Pelican Lake as compared to Hackberry Lake. In the hardstem patches a considerable amount of duckmeal, *Lemna minor*, *L. trisulca*, and *L. major* were recorded. The marsh plants were similar to those of Hackberry Lake. It was interesting to note that on Rice Lake that in spite of the fair carp population the pondweeds are holding their own. Sago pondweed was common to abundant across the entire transect. Flatstem pondweed (*P. zosteriformis*) was recorded across the entire transect from scarce to solid stands. Other submerged aquatics consisted of coontail, *Potamogeton natans*, *Lemna minor* and *L. trisulca*. The submerged aquatic plants on all the other water areas except those infested with carp were plentiful. Throughout the summer months not enough waterfowl were present to even make a dent in the abundance of aquatic foods.

Cover was plentiful over the entire refuge for all wildlife; upland game birds as well as waterfowl found adequate cover for nesting. Several lowland areas which are normally grazed during the summer were deferred to fall and winter use.

II WILDLIFE

- A. Migratory Birds. The waterfowl production on the refuge was slightly lower than last year. Nearly three times as many pairs of ducks were observed during the breeding pair counts last spring as compared to last year. Therefore, a considerable increase had been expected in the number of duck broods. It is believed that many of the pairs recorded moved out to smaller water areas or potholes outside of the refuge as they began to improve during the month of May.

Naturally they would be more attractive than our large bodies of water. During the middle of July the small potholes began to dry up and gradually more birds were observed on the larger bodies of water on the refuge. Nesting conditions were very good on most of the refuge. Most predators are in their low cycle and are not effecting the overall duck production to amount to anything. The early hatched broods were small; when the second hatch began coming off it was noted that the broods were consistently larger, many of them running up to ten and eleven ducklings per brood. During May and June and the first week in July a commercial turtle trapper removed four hundred and seventy (470) snapping turtles averaging 21 pounds each. Over three hundred of these came from Pelican Lake. As soon as the ducklings began showing up in Hackberry Lake, Pelican, and Watts Lakes two snapping turtles were collected and dissected each week to determine the type of food that they were feeding on. The results of the stomach analysis from all turtles collected during the summer will be given later under Research and Investigation.

Turtles

The favorite lakes for molting during the summer were Hackberry, the three Marsh Lakes, "21", Center and Pelican Lakes. Besides the local ducks moving into the larger lakes on the refuge during the latter part of July a slow movement of pintails, bluewing teals and a few mallards began dribbling in after the middle of August. Coot numbers picked up considerably on several of the lakes during the third week in August.

Bluewing teal were again the most common throughout the summer. A total of 144 broods were seen as compared to 112 a year ago. Most of the bluewing teal came off during the month of June and the first two weeks of July; late broods were rare. A comparison is again made on Tom's Lake where over a hundred were banded in 1957; thirty-two pairs of ducks were counted during the pair count but only one brood of ducklings was observed. This one brood observed was a brood of gadwalls. It is difficult to believe that there could be so much change in three years. Another example is West Twin. In 1957 there were 26 broods observed; 15 of these broods were bluewinged teal. This year five blue-winged teal broods, 2 mallard broods and one gadwall brood were observed. Bluewinged teals were among the most common ducks moving in during August.

Mallards were as numerous as a year ago and produced approximately the same number of broods. Sixty broods were observed this summer as compared to 62 a year ago. The first brood was observed on May 16.

Gadwalls were more abundant than last summer; forty-seven broods were observed as compared to 19 last year. The gadwalls were the most common apparently in the marsh areas of the larger lakes.

WATERFOWL PRODUCTION SUMMARY

Valentine National Wildlife Refuge

May--August, 1960

(Pairs)

Pairs Ground Counted	B. W. Teal 728	Mallard 282	Gadwall 136	Pintail 40	Redhead 91	Ruddy 88	Shoveler 72	Baldpate 10	Can. 0	Scaup 81	Totals 1,528
Est. Pairs	1,113	455	163	64	109	72	10	14	1	96	2,097
//// (Broods) ///											
Broods Seen	144	60	47	13	8	17	4	1	1	0	295
Est. Broods	265	160	125	35	21	45	11	2	2	0	666
Est. Production	1,592	960	752	208	128	272	64	16	16	0	4,008

Data on aerial inventory are not included since not all units were counted--those counted were for species and sex composition.

Method of counting was mostly on horseback (some canoe, Jeep and Aerial counts). Pair count data from counts taken 5/31--6/3/60; brood count data--7/15--8/5/60. All units with the exception of Whitewater and Coleman Lakes were inventoried by both pair and brood counts. Some units were counted several times.

Pintails were not as common as a year ago. Only thirteen broods were observed as compared to 44 during the pair counts. Many pairs were observed however, many of these pairs apparently moved to smaller potholes outside of the refuge in late May. Nearly all the pintail broods observed were large--another indication of the fact that many of the pintails nested locally outside of the refuge is the fact that many began moving in to the refuge during the middle part of July. During August additional pintails began moving in. This was apparent in the lakes having an abundance of submerged aquatics such as sago pondweed.

Shovelers are poor nestors on the refuge. In spite of the heavy population that stops on the refuge during the spring migration very few remain to do any nesting. No noticeable increase was noted during July and August.

Redheads are missing a good bet by not remaining on this refuge to nest; there is an abundance of marshy areas which are ideal for redheads. Only eight (8) broods were observed as compared to six (6) broods a year ago. No banding was done since the number of broods were too few.

The behavior of other species of ducks were similar to a year ago; only 17 broods of ruddies, one canvasback brood, one baldpate brood and no lesser scaup broods were observed. Many ideal small marsh ponds checked on the refuge during the summer did not have a single brood of ducklings; most of these ponds had an abundance of attractive food and marsh cover.

The captive Canada goose project produced at least one brood of goslings. There may have been a second brood of one gosling. The nesting was all on the Marsh Lakes. No use was made of the ideal nesting sites constructed on Middle and South Marshes last winter. Some of the flyers may have nested on lakes outside of the refuge; several pairs were observed on Alkali Lake, Red Deer, and Trout Lakes. No broods have been reported as observed. In late August flocks of eight, six, and sometimes only a pair could be observed on Pony, "21" or Center Lakes. Thirty-six birds remain of the '59 flock held at the Pony Lake goose pens. Predator trapping was continued throughout the summer months around the pens. As a result no birds were lost to predators. In addition to mowing down the grasses when they became too tall for the geese to browse on, some grain was provided. The wing clipping had to be done several times before the regrowth stopped.

Fewer white pelicans stayed on the refuge lakes during the summer; they were most frequently observed on Clear and Willow Lakes. Rarely were their numbers over 300. Again cormorants nested in the trees on North Marsh and were present in about the same numbers as a year ago. The great blue herons nested on the east end of West Twin Lake in the cottonwoods the same as in previous years.

During July and August they were common on Willow Lake along the north shore. Very few grebes nest on this refuge. The most common one is the pied-billed grebe; western grebes are frequently observed during the summer months but very few young are produced. There was a slight increase in the number of long-billed curlews nesting in this area; by the middle of July most of the long-billed curlews had already left. Other shorebirds occasionally observed are godwits, yellowlegs, avocets and willets.

- B. Upland Game Birds. The nesting season for upland game birds was ideal; this showed up in the number of broods observed as well as the size of the broods. Only a narrow strip through the refuge was effected by severe hail which could have resulted in the loss of some of the broods. Since rainfall was near normal during the months of July and August there was a considerable amount of regrowth in the hay meadows. The regrowth of the red clovers is the favorite food of the upland game birds. The upland in many areas produced an abundance of rose hips and will provide good winter food for upland game birds. There are no cultivated grains on the refuge, therefore, birds have to rely on the natural production of foods.

The sharptailed grouse hatch was very good. To this may be added the fact that no serious disasters occurred during the summer months. A year ago even though the hatch was very good, and the broods seen were running from seven to eight the final number of birds to reach maturity by the first of October was much less than what had been expected. The hunters found very few birds to hunt during October. However, it was not as bad as the hunter thought it was. Since the summer months were rather dry last year there was very little regrowth in the hay meadows. This caused many of the birds to move up into the hills to feed on weed seeds, insects, etc. The hunters in this area hunt mainly on the mowed meadows or heavily grazed meadows where traveling is not too difficult. Very few hunters have enough ambition nowadays to walk up into the hills to try to find birds.

The prairie chicken outlook is still very favorable on the refuge. Six broods have been observed during July and August while patrolling. All of these broods have been east of U.S. Highway 83. Fall and winter feeding will again be attempted to hold the birds as much as possible on the refuge during the winter months.

The Chinese ring-necked pheasants are as common on the refuge as they were a year ago. The hatch was very good. There will be more natural food available to carry the pheasant population through the winter. Wild sunflowers are abundant in many areas and this year greens consisting of clovers, etc., will be plentiful.

GROUSE INVENTORY--VALENTINE REFUGE

Prairie Chicken

(Identified males on ground)

<u>East</u>						<u>West</u>					
<u>Ground</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>Ground</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
5	4	3	6	0	0	45	5	0	0	0	0
7	5	6	6	7	4	54					
11	4	3	0	16	10	33	0	0	0	1	0
12	4	2	2	0	3						
14	6	4	3	0	0	8	0	1	0	0	0
21	11	5	0	2	1						
15	5	2	5	0	0	56		0	0	0	1
2			1	0	0						
6	0	1	0	0	0	47		0			1
58	0	0	0	7	0						
63			0	0	0						
65	0	0	0	1	0						
16	0	1	0	1	0						
10	4	1	0	5	0						
<u>14</u>	<u>43</u>	<u>28</u>	<u>23</u>	<u>39</u>	<u>18</u>	<u>TOTALS... 5</u>	<u>5</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>

Sharptails

1	10	13	35	(19)*	0	8	10	21	22	19	11
2	9	13	27	(16)	15	9	10	12	23	9	4
3	7	(4)	5	0	0	25	7	9	19	0	-
4	8	9	11	19	8	26	(1)	3	(1)	0	0
6	16	19	25	29	16	27	9	7	(10)	14	7
13	5	5	14	14	10	28	6	5	2	0	0
12			6	0	0	29	12	15	10	8	5
14	0	0	0	0	7	31	(7)	11	4	0	8
15	0	10	12	2	8	32	8	6	(7)	(7)	4
16	7	7	10	5	2	33	6	11	(9)	9	8
17	11	12	13	12	0	36	(1)	3	(1)	0	-
18	5	(8)	0	20	0	37	12	16	23	(17)	5
19	9	10	24	(8)	21	38	14	12	(13)	14	6
20	2	(0)	0	0	7	39	6	9	(8)	9	5
21	0	0	0	9	0	40	(16)	6	(16)	26	14
58	0	10	17	12	7	41	7	6	(6)	4	0
60	0	0	21	15	-	42	16	12	(21)	36	18
61	0	0	12	15	13	43	10	12	(11)	(11)	8
63			4	0	0	44	10	16	11	(12)	4
65				15	5	47	(5)	5	(5)	(5)	11
67	0	0	0	12	0	45	0	0	0	13	0
69				15	11	48	(14)	14	(14)	(14)	10
70				12	0	49	(12)	15	(12)	11	10
71				18	11	50	10	9	(9)	(8)	0
						51	(6)	6	(6)	6	-
						54	0	0	0	3	12
						55	1	2	(2)	(2)	0
						56	(17)	16	17	18	6
						57	(11)	1	(11)	22	9
						59	0	0	5	18	9
						64	0	0	8	12	7
<u>24</u>	<u>82</u>	<u>120</u>	<u>236</u>	<u>267</u>	<u>134</u>	<u>31</u>	<u>244</u>	<u>260</u>	<u>306</u>	<u>327</u>	<u>181</u>

* Parenthetical notes indicate assumed based upon average of other counts.

- C. Big Game Animals. Mule deer are frequently observed in numerous areas on the refuge. As high as five mule deer bucks have been seen in one group this summer. Nearly every mule deer doe appears to have at least one and sometimes two fawns. The white-tailed deer population continues to show a greater percentage increase than the mule deer on the refuge. Several sets of twin fawns have been noted. The white-tailed deer are the most common on the west side of U.S. Highway 83 although this summer a few have been noted on the east side.

Apparently, the antelope do not care much about our soft sands; occasionally antelope are noted on the refuge. A herd of approximately 40 were reported on the refuge during the month of August. By late August only a few strays were noted. It is believed that the antelope will not take to the refuge too well since they prefer harder ground.

- D. Fur Animals, Predators and other Animals. There have been no particular changes in the fur animal population. Local ranchers report that a few more coyotes are now observed on the outside of the refuge, however, only a few stray coyotes have been observed by refuge personnel while travelling over the refuge throughout the past period. During the fall calving during the month of August, a few ranchers reported coyotes biting the tails off of calves. Actual calf loss has been very light. Our coyotes are playing a big part in controlling the rabbits, cottontails and mice on the refuge as well as in other parts of the Sandhills. Fortunately, the ranchers are aware of this. One rancher has gone as far as to say that coyotes save calves. He stated that the cows take better care of their calves when there are coyotes around.

Throughout the summer it was noted that apparently there is a decrease in field mice and kangaroo rats on the refuge. Fewer kangaroo rats were observed on the roads at night. Moles as well as a few pocket gophers are still causing considerable damage in hay meadows.

On August 8 and 9, K. Knox Jones, Jr., and Robert Patterson of the Museum of Natural History at Lawrence, Kansas collected 4 harvest mice, 1 meadow mole, 2 jumping mice and 2 masked shrews. Two hundred and forty traps were baited with rolled oats. Jones estimated the rodent population to be down 75% below normal due to the prolonged cold weather. The muskrat population throughout the summer months was so low that a muskrat was rarely observed. The disease that struck the muskrat population last fall reduced their numbers so drastically that it will take a number of years for them to recover to a population of two years ago. It is doubtful that any muskrats will be available for trapping this coming fall.

The mink appear to be more common this summer. Mink have been observed on Watts, Dewey, Pelican, Willow, Little Hay and the

Marsh Lakes. Skunks, badgers and raccoon are occasionally observed but their numbers are not causing any appreciable damage to other wildlife on the refuge.

- E. Hawks, Eagles, Owls, Crows, Ravens and Magpies. Throughout the summer months the hawk population on this refuge is small; marsh hawks are the most common. Occasionally a few red-tailed hawks are observed. During the summer a few golden eagles were noted but no bald eagles. Again a number of great horned owls nested in several places on the refuge; due to the lack of sufficient personnel no owl pellets were collected this summer.
- F. Other Birds. Lark sparrows were abundant on the refuge during the summer months. A few lark buntings were also noted. The lazuli bunting which usually visits refuge headquarters every year failed to stop in this summer. Frequently during the summer months the Townsend's solitaires stay for a few days and then disappear again. Mourning doves appeared to be more numerous not only on the refuge during the summer months but in the surrounding area. As requested by the local Game Management Agent a dove counting route was set up this summer. This twenty mile route was set up so that comparative data can be obtained each year. On the twenty mile route beginning at the junction of U. S. Highway 83 and State Spur 483 west on 483 to Kennedy a total of 64 doves were counted. Many of the coos recorded along the route came from grassland areas where no trees were present.
- G. Fish. During the period several of the refuge lakes were tested by State Fishery Biologists and Federal Fishery Biologists to collect data on the species of fish present, the rate of growth, etc. Testing operations revealed that Whitewater and Dewey Lakes were again infested with carp as bad as ever. Several tests made in Pelican Lake revealed that very few carp remained. It appears now that the heavy stocking of predator fish such as northern pike and black bass will play a big part in controlling the reproduction of carp from the remnant population. In testing Hackberry Lake it was found that some of the rock bass that were put in the lake a year ago last fall had survived. The northern pike stocked in Hackberry Lake last year were found to be running from 18"--22". There was apparently a good reproduction of largemouth bass during the summer; numerous small bass were turned up, by using rotenone samples.

The treating of Rice Lake with .5 ppm. toxaphene during the month of February through the ice was unsuccessful. Although thousands of bluegills, bullheads and bass were found on the shoreline after the ice went out only a few carp died. During the months of May and June an occasional dead carp could be found on the shoreline. Numerous carp in the three

to five pound class size were noted in the lake when the aquatic surveys were conducted. The experiment will be continued next winter in very much the same manner as last winter except that a different brand of toxaphene will be used.

Watts Lake furnished the major fishing in this area during the period. A few would try Duck Lake occasionally but because of the overpopulation the bluegills and the bass are now stunted and small. Yellow perch provided the best fishing in Watts Lake; occasionally northern pike were caught especially after the first of August. A few largemouth bass were also caught. Seldom did a day go by throughout the summer without someone fishing on Watts Lake. It is beginning to look like the refuge will have to furnish all the sport fishing in this general area. During the summer a lake west of Valentine which had been providing a great deal of public fishing was closed to any further fishing by the landowners. During the summer months pressure was being brought on the Service by the local people of Valentine and Ainsworth, and by the Nebraska Game Department, to continue eradicating carp out of the refuge lakes as soon as possible. Some of the pressure was being brought to the Service's attention through the Nebraska U. S. Senators and Representatives. A joint-meeting of the Service personnel, local sportsmen, State Fisheries Personnel and Congressmen was scheduled to be held in September to discuss carp control plans on the Valentine Refuge.

- H. Reptiles. No rattlesnakes were observed by refuge personnel on the refuge during the summer months but several were noted nearby. One rancher reported killing one rattlesnake near Watts Lake while haying. The bullsnake population continued to remain low. Garter snakes were very common. Snapping turtle trapping by a commercial trapper removed 470. In addition to these refuge personnel operated traps for research purposes during the summer and removed an additional 28 snapping turtles. Since the snapping turtle population consists of so many large turtles it is believed that they are preying heavily on our waterfowl population. The writer and a witness observed two phalarope disappear only a few seconds apart on Hackberry Lake; it was definitely not the work of predator fish. The following is a tabulation of the snapping turtles removed by lakes:

Chart on next page.

SUMMARY OF SNAPPING TURTLE REMOVALS

Valentine Refuge

<u>Lake</u>	<u>Number of Turtles</u>	<u>Pounds Weight</u>
Dad's	2	40
Dewey	45	863
Duck	10	195
Middle Marsh	21	525
Mule	7	140
Hackberry	139	2,630
North Marsh	27	520
Pelican	198	3,946
Punch Bowl	1	5
Rice	10	170
Twenty-One	1	18
Watts	30	558
Whitewater	2	94 *
	<u>493</u>	<u>9,704</u>

* Largest turtle taken--64 pounds from Whitewater Lake

Not included in chart are 70 turtles--2,000 pounds taken from Pelican Lake during August, 1959.

III REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development.

Office. Installed additional shelves and constructed four sliding plywood doors on office cupboards.

Quarters No. 1. Replaced ceiling lighting fixture. Painted window screens.

Quarters No. 2. Removed chimney from west end. Repaired chimney flashing.

Pelican L. Subheadquarters. Painted garage roof. Repaired residence chimney. Area and building maintenance.

Pony L. Subheadquarters. Painted shop roof and gasoline pump. Fence repair. Cleaned sewer. Area and building maintenance.

Headquarters Shop. Overhauled Gorman-Rupp pump. Repaired Ford tractor and mower. Constructed trailer hitch on Chevrolet pickup. Repaired D-4 tractor clutch and loader. Routine vehicle maintenance and inspections.

General. Painted shop and garage doors at Headquarters. Painted 3 picnic tables. Painted masonry paint and green trim on Hqtrs. barn. Repaired windmill water line for watering lawns. Installed louver-vent in paint shed. Hauled out trash from barrels at Dewey Campground and Watts Lake area. Installed public drinking fountain at Headquarters. Repaired refuge telephone line. Road maintenance and dragging--Pony L. to Hwy 83. Mowed trails, air-strip, and Dewey Lake Campground. Repaired and cleaned out two auto gates. Removed boundary signs and Geological wells for Right-of-Way near Highway 83. Tore down loading chute at Headquarters barn. Constructed 8 woven-wire turtle traps. Sprayed Headquarters cedar trees with malithion for red spiders. Periodic sewer pumping at Headquarters. Hauled in winter supply of hay for horses. Hauled several loads of cinder "fill" to roadside picnic area. Hauled 3 loads of manure from Valentine stockyards for Headquarters lawns. Hauled 4 loads of black dirt from Fort Niobrara for refuge lawns. Hauled several loads of hay to sandy spots in the Dewey Lake trail and Pelican Lake road shoulders. Lawn and area maintenance.

B. Plantings.

1. Aquatics and Marsh Plants. None.
2. Trees and Shrubs. Because of the lack of funds and personnel, no additional trees were secured for replanting in the belt along the paved road to Pelican Lake. The survival on the red cedar planted a year ago was very poor. This poor survival was due to the dry conditions that existed last summer.
3. Upland Herbaceous Plants. A grassland drill was used to seed 100 pounds of medium red clover, 200 pounds of alsike clover and 350 pounds of crested wheatgrass in areas G-31A, G-32B, G-33, G-34A and G-34C. Seeding was done to improve grouse study areas and improve lowland vegetation.
4. Cultivated Crops. None.

C. Collections and Receipts.

1. Seed or other Propagules. None.
2. Specimens. Collected 28 snapping turtles for stomach analysis.

D. Control of Vegetation. The Pony Lake patch of leafy spurge was given a treatment of 2-4-D Ester which killed all the tops. No regrowth was noticed in late August. The two new patches located last year in the Beel winter feeding camp were again treated with 2-4-D Ester. In checking the two patches during the middle of August no new plants could be located. The success of the control work can better be determined next spring.

E. Planned Burning. None.

F. Fires. The increase in moisture conditions throughout the summer months cut down on the fire hazard considerably. The only fires that occurred were very small consisting mainly of a haystack or two hit by lightning.

IV. RESOURCE MANAGEMENT

A. Grazing. Near normal precipitation through the summer months aided a great deal in improving the ranges over last year. It still became necessary during the month of August to move cattle out of several units which were falling below condition. A careful study of several units was made during the month of July and August because we were becoming aware of the fact that the stocking rates set up in 1957 were too high. This has been a gradual condition since that time and became very noticeable last year, when rainfall was below normal.

The big error was found to be in the stocking rate for lowlands used for summer grazing. In many areas the lowland is made up of grasses not too desirable to livestock and as a result the sloughgrass or coarse grass is barely touched and the grazing pressure increased on higher meadow ground and in the hills, sandy areas and "choppy sands". Undesirable annuals have taken over and little bluestem has become more abundant than what is considered desirable. The present economic use plan was set up during the years when moisture conditions had been good for several years and ranges had recovered unusually well since the dry years. Most of the AUM's set up for each unit were based on a rainfall of 20"--24", while our average rainfall runs only about 18 inches and less.

Several units were deferred from summer grazing this year to fall and winter grazing with no hay cutting. In many of these units the AUM's were also reduced; sound range management will mean more to waterfowl than the dollars and cents obtained by grazing as extensively as possible.

Due to the cool weather early in the season the tall summer grasses were slow in getting started. Although they did not do as well as in 1958 they were considerably better than last year. Grazing Unit G-34C which was taken out of use completely was grazed lightly throughout the summer. This unit will have to be watched very closely to prevent the weedy annuals from taking over. The lighter grazing is also going to provide more cover for the grouse, both sharp-tailed and pinnated, that are found in this general area.

- B. Haying. Since there was little or no hay carryover on the refuge last winter, the permittees were out to cut as much hay as they could possibly get. It was necessary for refuge personnel to closely check on the hay cutting to prevent cutting areas which should not be cut. The waterlevels began dropping considerably after the middle of July making it possible for the ranchers to cut much closer to the water areas. We have been requesting the permittees to cut as close as possible to the water areas so that in the spring when the water levels return to higher levels much desirable breeding pair fringe will be available on many areas.

On many parts of the refuge where the hay cutting occurred after August 1st there has been very little regrowth because of the small amount of rainfall since that time. Hay meadows that were cut shortly after the 15th of July have produced grasses to the point where they have been able to produce seed. Even some of the red clover has recovered enough to produce some seed. The red clover furnishes an abundance of food for both the grouse and pheasants on the refuge.

Fur Harvest. None.

Timber Removal. None.

Commercial Fishing. None.

Other Uses. Income from cabins rented to turtle trappers amounted to \$18.00

V. FIELD INVESTIGATION OR APPLIED RESEARCH

- A. Aquatic Transects. Transects were completed on the four lakes that were set up last year, namely, Hackberry, Dewey, Pelican and Whitewater. In addition aquatic transects were set up on Watts and Rice Lakes. Much of this work was carried on with the assistance of Wildlife Biologist Harvey Miller from Lake Andes. The aquatics in Hackberry Lake showed still further improvement over a year ago; our best producer and the most attractive to waterfowl is the old reliable sago pondweed. It is not difficult to determine where the best food is located on the lake; the west half of the lake contains the largest amount of sago while the east half has large beds of *Potamogeton pusillus*. The *pusillus* produced an abundance of seed but of course is not the food that the sago seeds are. The aquatic transects on Dewey and Whitewater were simple to run; submerged aquatics were rare. Pelican Lake continued to show a great deal of improvement over a year ago in the submerged aquatics. It is now becoming difficult to travel with an outboard motor on a boat on Pelican Lake the same as on Hackberry. The improvement in the submerged aquatics attracted additional ducks throughout the month of August. Transects were set up on Rice Lake since it is now infested with carp although the population is not too great. Flatstem pondweed (*P. zosteriformis*), claspingleaf pondweed (*P. Richardsonii*) and sago pondweed (*P. pectinatus*) were found to be quite common yet in Rice Lake. Only one transect line was set up on Rice Lake because it contains only about 26 acres. On Watts Lake three transect lines were set up in order to get a good cross-section of the lake. Watts Lake has a considerable amount of open water which the fishermen are thankful for. In the shallower water towards the west end and along the north shore there were extensive beds of coontail (*Ceratophyllum demersum*), claspingleaf pondweed, and bushy pondweed (*Najas flexilis*), and sago pondweed, (*P. pectinatus*). The wild rice bed on the west end is slowly increasing in size.
- B. Grouse Study Areas. As time permitted additional data was collected on the grouse study areas.

In our last narrative report all the data on the grouse inventory were not available at the time the report was completed. The summary data for 1956, '57, '58 and '59 are herewith again repeated and 1960 summary has been added:

Throughout July and August numerous broods of sharp-tailed grouse were observed; many of the broods were large running from six to eleven. In the eastern part of the refuge five broods of prairie chickens were also noted. By the end of August the grouse outlook as far as production was concerned looked very good.

During the month of August a new system of censusing grouse was set up by the Nebraska Upland Game Bird Biologist. Part of this censusing was on this refuge along Highway 83. The censusing on the refuge was carried on by Wildlife Biologist Harvey Miller and the student assistant from Lacreek Refuge. As yet this data had not been made available to permit reporting the results in this report.

- C. Upland Game Bird Habitat Studies. The collecting of data on the amount of sunshine and period of sunshine each day was continued throughout the summer months. Some of this data is being obtained from the local weather bureau which now records automatically when the sun is shining each day. However, it takes considerable time to compile the data from the weather chart as no additional copies are available for the refuge. Several study areas were seeded with various legumes and other grass seeds. Several of the study areas were lacking food for upland game birds throughout the year. G-33 received the heaviest seeding. A grassland drill borrowed from the Lacreek Refuge was used to drill in the seed. The results were favorable, especially the growth of the legumes.

A conference was held with Wildlife Biologist, Harvey Miller from Lake Andes and it was decided that several areas on G-33 should be mowed to provide dancing grounds for the prairie chickens. A few small patches were mowed a year ago to provide a place to provide feed such as wheat, corn, and barley scattered. This was in addition to the elevated platforms constructed to hold grain. The purpose of this grain feeding program was to try to hold the prairie chickens on the refuge during the winter months. It is apparent that the prairie chickens on the Valentine Refuge migrate late in the fall south to areas where some cultivated grain is being produced.

- D. Redhead banding studies were continued but only a few adults could be trapped. So few redhead broods were observed during the summer that no attempt was made to band any. Listed below are the number of ducks banded last spring by species:
- Redheads--4, mallards--7, lesser scaup--5 (3 coots).

E. Snapping Turtle Data. As previously indicated nearly 10,000 pounds of snapping turtles were removed from refuge lakes this summer. Just a brief summary of some of the information collected by posting several snapping turtles every week when they were available this summer is being mentioned; the data collected are far from complete.

1. Learned that none of the female turtles collected during the egg laying period contained any food of any kind. Females picked up by personnel during the later part of the egg laying period were traded off for male turtles being caught in traps by the commercial trappers.
2. Most of the turtles posted came off of Hackberry Lake as after the first week in July the trappers discontinued trapping making it necessary for the writer to do most of the trapping with eight refuge turtle traps constructed by refuge personnel. A few of the turtles were hooked and thus spent no time in the traps.
3. The posting of 28 snapping turtles resulted in finding a great deal of vegetative material such as submerged aquatics, algae, and pieces of hardstem; remains of fish identified as bass, bluegills and northern pike were found in a few; one yellow-headed blackbird plus a few small quills were the only bird parts found. Fresh water snails were present in nearly every turtle examined except some of the egg laying females.

At this time it may be important to mention that the waterfowl population on Hackberry was low for the size of the area besides having a light production; this apparently is a factor to keep in mind when evaluating the findings. In Malcolm W. Coulter's report on "Predation by Snapping Turtles Upon Aquatic Birds in Maine Marshes", the results were shocking but the waterfowl population was much greater per acre; in 31 turtles trapped in a 9-day period during the hatching season, 42 per cent contained birds. In another pond he reports 25 turtles taken in 13 days and found evidence of 10 ducks and 2 grebes. In his summary he had evidence that up to 13 per cent of the estimated duckling population was taken by turtles during sampling periods of 25 days or less.

In examining gastrointestinal tracts, there is always a question of how much of the material represents carrion; remains of carp were found in many of the turtles collected out of the traps used--this material was disregarded as parts of carp bait were used for bait in most of the trapping. The colon was the most valuable portion of the tract for studying foods eaten. Almost all the colons contained food, whereas many of the stomachs were empty. The material collected from the colon was washed and collected on a fine screen.

4. Traps used were made from poultry netting measuring 2" x 4" mesh--12½ gauge weight. The traps measured 2' 4" wide, 3' long and 1' 8" high. They were operated in water no deeper than about three inches deeper than the height of the trap. Two of the 2" x 4" mesh openings were made 4" x 4" so that the larger turtles would not drown. The traps were rebaited with fresh bait every other day as it was found that as soon as the bait became stale the turtles were not attracted to the traps. The type of trap used is believed to be as successful as any, easy to construct, light to handle and not costly.
5. Two actual observations were made on August 17th of turtles pulling two Wilson's phalarope down that never came back up; a pike or a bass would have made more of a pass at the birds; these dropped out of sight without hardly a whirl in the presence of the writer and one other observers.

VI. PUBLIC RELATIONS

- A. Recreational Uses. The most important recreational use on the refuge was sport fishing; very few days went by throughout the period without at least one fisherman on Watts Lake. No heavy fishing pressure occurred even on week-ends but Watts Lake usually would have a half-dozen boats plus many using waders. Watts Lake offered the only fishing worthwhile although several other lakes were open.

A great deal of use was made of our roadside picnic area set up along the north side of Hackberry Lake just west of headquarters. Our great demand now from the public is a place to camp overnight as so many come such great distances to fish. Many bring small trailer houses or the new popular trailer houses on pickup trucks.

- B. Refuge Visitors. List attached.
- C. Refuge Participation.

June 19: Refuge Manager, Clerk, and Wildlife Aid assisted with tearing down and salvaging materials from the old service building at Lacreek Refuge.

September 9: Carp Control Conference held at the Valentine Refuge with the following in attendance; Refuge Manager, Clerk, Wildlife Aid; Messrs. Carpenter and Sharp from the Regional Office; Mr. Jack Dean, Field Fishery Biologist; Executive Secretary, Mel Steen from the Nebraska Game Commission; State Fishery Biologist, Bruce McCarragher; Keith Kreycik, of Valentine, member of the Nebraska Game Commission; Jack Coupland, a lawyer for Valentine representing one of the Nebraska U. S. Senators; Cherry County Judge Elliot;

Jordan Hotel operator, Mr. H. Jordan plus several other interested sportsmen.

D. Hunting. None. (Prospects good).

E. Violations. None.

VII. OTHER ITEMS

- A. Items of Interest. The Merritt Dam construction funds have been allotted the Bureau of Reclamation. Core testing bids have been let. The main first job is to construct a paved (asphalt) road to the dam site. Apparently, the new road will go south to the site out of Valentine rather than around on the local Spur 483 by refuge headquarters.
- B. Safety Meetings. Refuge personnel held regular safety meetings at which films were shown by the Refuge Manager. The surplus 16 mm Bell & Howell secured has been very beneficial in bringing out various safety items. Safety while on the job has been frequently discussed. All safety bulletins received have been reviewed by the personnel.

Photographs. Attached.

Omitted from the last narrative--

In last narrative for the period January to April, the Radiological Monitor Training program information was in error omitted. One training session was held at Valentine on February 29 and March 1st at which members from the following stations attended: Crescent Lake refuge; Crawford Hatchery, McNenny Hatchery and Valentine Refuge; the second one at Aberdeen, South Dakota on March 3 and 4th for representatives from Mud Lake, Sand Lake, Snake Creek, Lower Souris, Waubay and Tamarac Refuges and from the Valley City and New London Hatcheries; the third school was held at Winona, Minnesota on March 7th and 8th for representatives from the Upper Mississippi, Rice Lake, Necedah, and Horicon Refuges and the Manchester, Fairport, Guttenberg and Genoa Hatcheries. The schools were conducted by Wildlife Biologist Wm. French of the Seney Refuge and Assisted by Refuge Manager Nelius B. Nelson of the Valentine Refuge.

Submitted by:

Nelson B. Nelson
(Signature)

Date: Nov. 4, 1960

Refuge Manager
(Title)

Approved, Regional Office:

Date: 10-9-69

James H. [unclear]
(Signature)

Regional Refuge Supervisor

~~Chief of Division of Wildlife~~

VALENTINE REFUGE VISITORS MAY - AUGUST, 1960

Harvey Nelson	Minneapolis, Minn.	Ass't RegSup., FWS	Inspection	5/9
Name	Address	Affiliation	Purpose of Visit	Date
Jim Gray	Valentine, Nebr.	State Hatchery--Valentine	Bass, bluegill spawner removal	5/12/60
Bill Rhodes	" "	" " "	"	5/12
Joe Gray	Norfolk, Nebraska	State Game Commission	"	5/12
Keith Donoho	Alliance, Nebraska	" " "	Courtesy call	5/14
Frank Marsh	Lincoln, Nebraska	Secretary of State	"	5/17
Orty Orr	Lincoln, Nebraska	Proj. Leader State Game Comm.	"	5/17
Aden A. Gibson	St. Paul, Nebraska	State Game Commission	Spawner bass removal	5/17
LeRoy Bahendy	"	"	"	5/17
Harvey Miller	Lake Andes, S.D.	Wildlife Biologist, FWS	Waterfowl resident pair count	5/23
Jim Vaughn	Ft. Niobrara	Ft. Niobrara, FWS	Borrow Ford tractor	5/24
Walt Zich	Lincoln, Nebraska	Department of Roads	Right-of-Way information	6/8
Bill Rhodes	Valentine, Nebraska	State Hatchery--Valentine	Obtain spawner bass	6/27
Jim Gray	Valentine, Nebraska	"	"	6/27
"Pete" Carter, et.al.	Carterville, Illinois	Refuge Manager, Crab Orchard	Courtesy Call	7/5
Del Whiteley	Lincoln, Nebraska	Ass't Proj. Leader Game Comm.	"	7/6
Gerald Chafin	Bassett, Nebraska	Dist. Land Mgr. Game Comm.	"	7/6
Liven Peterson	Grand Island, Nebr.	Area Supervisor, RB, FWS	"	7/7
Harvey Miller	Lake Andes, S.D.	Wildlife Biologist, FWS	Waterfowl brood counts	7/7--9
Charles Gernes	Crawford, Nebraska	Hatchery Mgr, FWS	Deliver bass fingerlings	7/13

VALENTINE REFUGE VISITORS -- MAY AUGUST, 1960

Name	Address	Affiliation	Purpose of Visit	Date
John Sweet	Stuart, Nebraska	Waterfowl Biol. State Game	Discuss waterfowl production	7/22/60
"Hank" Dawson	Norfolk, Nebraska	Fisheries Biol. State Game	Fisheries matters	7/22
Dr. Roy Erickson	Washington, D.C.	FWS, Research	Waterfowl Habitat Study	7/27
Winston Banko	"	"	"	7/27
Harvey Miller	Lake Andes, S.D.	Wildlife Biologist, FWS	"	7/27
Harvey Nelson	Minneapolis, Minn.	Ass't RegSup., FWS	"	7/27
Jack Dean	Yankton, S.D.	Fisheries Biologist, FWS	Carp control study	7/28
Bruce McCarraher	Bassett, Nebraska	Fisheries Biologist, State	Fisheries matters--numerous visits	
Dr. "Bill" Green	Winona, Minnesota	Wildlife Biologist, FWS	Waterfowl Habitat Study	7/28
Howard Woon	Valentine, Nebraska	Refuge Manager, Ft. Niobrara	Resident waterfowl pair count	6/13
"Pete" Momsen	Martin, S.D.	Student Ass't Lacreek Refuge	Grouse survey	8/1--5
Art Brazda	Minneapolis, Minn.	Pilot-Biologist, FWS	Resident waterfowl pair count	6/13
J. Knox Jones, Jr.	Lawrence, Kansas	University of Kansas	Mammal collecting	8/8-9
Robert R. Patterson	"	"	"	8/8-9
Merle Burge	Toledo, Ohio	Willys Comp any	Willys sales & service	8/15
Harvey Miller	Lake Andes, S.D.	Wildlife Biologist, FWS	Leave cannon net	8/14
Jim Gray & J. Rhodes	Valentine, Nebr.	Valentine State Hatchery	State Fair. Obtain fish & turtles for	8/17
Harvey Miller	Lake Andes, S.D.	Wildlife Biologist, FWS	Grouse study	8/18
George L. Wiseman	Fallon, Nevada	Refuge Manager Stillwater	Visit	8/18

W A T E R F O W L

REFUGE VALENTINE

MONTHS OF MAY TO AUGUST, 1960

(1) Species	(2) Weeks of reporting period									
	5/1 - 7	8 - 14	15 - 21	22 - 28	29 - 6/4	5 - 11	12 - 18	19 - 25	26 - 7/2	7/3 - 7/9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	38	38	38	38	39	39	39	39	39	39
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	3,800	3,800	3,800	3,800	3,800	3,800	1,600	1,200	1,200	1,300
Mallard										
Gadwall	6,700	6,700	2,200	2,000	2,000	2,000	1,100	900	900	900
Baldpate	1,100	1,100	1,100	900	900	900	600	300	300	300
Pintail	2,100	2,100	2,100	2,100	2,100	2,100	1,200	800	800	800
Green-winged teal	50	20	20	20	20	10	10	10	10	10
Blue-winged teal	7,000	7,800	7,800	7,600	7,600	7,600	3,400	2,800	2,800	3,000
Cinnamon teal			0	4	4	4	4	4	4	4
Shoveler	2,700	2,500	2,100	1,800	1,800	1,800	800	400	400	400
Shoveler										
Redhead	480	480	480	450	450	450	120	90	90	90
Ring-necked	110	25	25	25	25	0				
Canvasback	310	300	300	250	250	250	90	60	60	60
Scaup	9,000	7,000	6,000	3,000	2,000	1,900	800	450	450	300
Goldeneye	10	0								
Bufflehead	175	0	20	20	0					
Ruddy	170	220	220	200	200	250	200	200	200	200
Other										
Common merganser	130	0								
Coot:	12,500	10,000	9,000	9,000	9,000	4,000	7,000	3,800	3,800	3,800

3 -1750a

Cont. NR-1

(Rev. March 1953)

WATERFOWL
(Continuation Sheet)

REFUGE	VALENTINE								MONTHS OF	MAY	TO	AUGUST	1960
(1)	(2)								(3)	(4)			
Species	Weeks of reporting period								Estimated	Production			
	7/10-16	17-23	24-30	7/31-8/6	7-13	14-20	21-27	7/28-8/31	waterfowl	Broods:Estimated			
	11	12	13	14	15	16	17	18	days use	seen	total		
Swans:													
Whistling													
Trumpeter													
Geese:													
Canada	39	39	39	44	44	44	44	44	5,061	1	6		
Cackling													
Brant													
White-fronted													
Snow													
Blue													
Other													
Ducks:													
Mallard	1,400	1,400	1,500	1,600	1,600	1,600	1,600	1,800	284,200	60	960		
Black													
Gadwall	900	900	900	950	950	950	950	950	229,950	47	752		
Baldpate	300	330	350	350	350	350	350	350	71,610	1	16		
Pintail	800	850	850	870	870	1,000	1,200	1,500	168,980	13	208		
Green-winged teal	10	0							1,330	0	0		
Blue-winged teal	3,500	4,200	4,800	5,500	5,500	6,000	6,400	7,000	702,100	144	1,592		
Cinnamon teal	4	0							224	0	0		
Shoveler	400	450	500	550	550	550	550	550	131,600	4	64		
Wood													
Redhead	90	120	120	120	120	120	120	120	28,770	8	128		
Ring-necked									1,470	0	0		
Canvasback	60	70	70	70	70	70	70	70	17,360	1	16		
Scaup (Lesser)	300	325	325	325	325	325	325	325	234,325	0	0		
Goldeneye									70	0	0		
Bufflehead									1,505	0	0		
Ruddy	200	250	275	275	275	300	300	425	30,520	17	272		
Other													
Common Merganser									910	0	0		
									1,904,933				
Coot:	3,800	3,900	3,900	3,900	3,900	4,200	4,200	4,600	716,100	38*	1,754		
				(over)					*Estimated				

	(5) Total Days Use	(6) Peak Number	(7) Total Production
Swans	0	0	0
Geese	5,061	44	6
Ducks	1,904,933	33,835	4,008
Coots	716,100	12,500	1,754

SUMMARY

Principal feeding areas Pelican, Hackberry, Marsh Lakes,
Center and Twenty-One Lakes.

Principal nesting areas General except t lighter on carp
infested areas.

Reported by NELIUS B. NELSON

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.....**VALENTINE**.....Months of.....**MAY**.....to.....**AUGUST**.....195**60**

(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>										
Eared grebe	Summer	resident	180	7/22	Still	present			90	280
Western grebe	"	"	350	7/10	22	8/27			180	460
Pied-billed grebe	"	"	540	7/30	Still	present			360	890
White pelican	"	"	1,600	7/10	Still	present			0	3,100
Double-crested cormorant	"	"	1,400	8/3	Still	present		300	500	3,100
Great blue heron	"	"	120	7/28	Still	present			40	180
Black-crowned night heron	"	"	900	8/2	"	"			380	1,800
American bittern	"	"	240	7/30	"	"			60	340
Sandhill crane	70	4/12								none
Virginia rail	Summer	resident	common	7/30						260
Sora rail			uncommon							18
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer									180	670
Wilson's snipe										630
Long-billed curlew										60
Upland plover										390
Spotted sandpiper										120
Western willet										30
Greater yellow-legs										none
Lesser yellow-legs										380
Pectoral sandpiper										90
Baird's sandpiper										170
Least sandpiper										270
Long-billed dowitcher										700
Western sandpiper										15
Avocet										60
Wilson's phalarope										12,000
Northern phalarope										140

(over)

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	Summer	resident			Still	present		700	2,200
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle									15
Duck hawk									0
Horned owl	Permanent	resident						20	60
Magpie	"	"						80	210
Raven	"	"							4
Crow	"	"						90	380
Herring gull	Summer	"					non-nesting		24
Ring-billed gull	"	"					"		4,800
Franklin's gull	"	"					"		1,200
Forster's tern	"	"							350
Black tern	"	"						340	2,100
Bald eagle									none
Reported by <u>NELIUS B. NELSON, Refuge Manager</u>									

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.

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITATPage 1 of 5

Refuge VALENTINE For 12-month period ending August 31, 1960

Reported by Nelius B. Nelson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat		(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage			
I WATTS LAKE	Crops		Ducks	120,000	168
	Upland	1,667	Geese		126
	Marsh	183	Swans		
	Water	230	Coots	20,000	8
	Total	2,080	Total	140,000	176
<hr/>					
II HACKBERRY LAKE	Crops		Ducks	1,330,000	370
	Upland	1,397	Geese		572
	Marsh	53	Swans		
	Water	710	Coots	150,000	85
	Total	2,160	Total	1,480,000	455
<hr/>					
III DUCK & RICE LAKES	Crops		Ducks	90,000	32
	Upland	1,395	Geese		48
	Marsh		Swans		
	Water	125	Coots	8,000	6
	Total	1,520	Total	98,000	38
<hr/>					
IV DENEY LAKE	Crops		Ducks	80,000	252
	Upland	1,495	Geese		118
	Marsh	573	Swans		
	Water	572	Coots	30,000	18
	Total	2,640	Total	110,000	270
<hr/>					
V CLEAR LAKE	Crops		Ducks	50,000	112
	Upland	727	Geese		84
	Marsh	129	Swans		
	Water	424	Coots	12,000	6
	Total	1,280	Total	62,000	118
<hr/>					
VI WILLOW LAKE	Crops		Ducks	43,000	102
	Upland	1,255	Geese		60
	Marsh	0	Swans		
	Water	345	Coots	13,000	8
	Total	1,600	Total	56,000	110
<hr/>					
VII SCHOOL and MC KEEL Lakes	Crops		Ducks	70,000	124
	Upland	1,120	Geese		90
	Marsh	25	Swans		
	Water	135	Coots	1,400	12
	Total	1,280	Total	71,400	136

(over)

INSTRUCTIONS

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- (2) **Habitat:** Crops include all cultivated croplands such as cereals and green forage, planted food patches and agricultural row crops; upland is all uncultivated terrain lying above the plant communities requiring seasonal submergence or a completely saturated soil condition a part of each year, and includes lands whose temporary flooding facilitates use of non-aquatic type foods; marsh extends from the upland community to, but not including, the water type and consists of the relatively stable marginal or shallow-growing emergent vegetation type, including wet meadow and deep marsh; and in the water category are all other water areas inundated most or all of the growing season and extending from the deeper edge of the marsh zone to strictly open-water, embracing such habitat as shallow playa lakes, deep lakes and reservoirs, true shrub and tree swamps, open flowing water and maritime bays, sounds and estuaries. Acreage estimates for all four types should be computed and kept as accurate as possible through reference to available maps supplemented by periodic field observations. The sum of these estimates should equal the area of the entire unit.
- (3) **Use-days:** Use-days is computed by multiplying weekly waterfowl population figures by seven, and should agree with information reported on Form NR-1.
- (4) **Breeding Population:** An estimate of the total breeding population of each category of birds for each area or unit.
- (5) **Production:** Estimated total number of young raised to flight age.

3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITATPage 2 of 5

Refuge VALENTINE For 12-month period ending August 31, 1960

Reported by Nellius B. Nelson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat			(3)	(4)	(5)
	Type	Acreage		Use-days	Breeding Population	Production
VIII WHITEWATER LAKE	Crops		Ducks	70,000	166	120
	Upland	770	Geese			
	Marsh	14	Swans			
	Water	576	Coots	11,000	16	24
	Total	1,360	Total	81,000	182	144
IX PELICAN LAKE & POTHOLES	Crops		Ducks	790,000	416	624
	Upland	3,603	Geese			
	Marsh	137	Swans			
	Water	900	Coots	80,000	80	120
	Total	4,640	Total	870,000	496	744
X WEST LONG LAKE	Crops		Ducks	30,722	108	78
	Upland	1,923	Geese			
	Marsh	0	Swans			
	Water	77	Coots	12,000	6	9
	Total	2,000	Total	42,722	114	87
XI DADS LAKE, BAKERS LAKE & ROGERS POTHOLES	Crops		Ducks	130,000	316	240
	Upland	3,550	Geese			
	Marsh	0	Swans			
	Water	1,090	Coots	30,000	10	16
	Total	4,640	Total	160,000	326	256
XII DEVILS PUNCHBOWL LAKE	Crops		Ducks	60,000	22	56
	Upland	850	Geese			
	Marsh	0	Swans			
	Water	30	Coots	11,000	6	6
	Total	880	Total	71,000	28	62
XIII MULE LAKE	Crops		Ducks	75,000	44	66
	Upland	2,132	Geese			
	Marsh	10	Swans			
	Water	338	Coots	5,000	6	14
	Total	2,480	Total	80,000	50	80
XIV COLEMAN LAKE	Crops		Ducks	28,000	48	36
	Upland	1,730	Geese			
	Marsh		Swans			
	Water	30	Coots	2,000	4	6
	Total	1,760	Total	30,000	52	42

(over)

INSTRUCTIONS

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WATERFOWL UTILIZATION OF REFUGE HABITATPage 3 of 5

Refuge VALENTINE For 12-month period ending August 31, 1960

Reported by Nellius B. Nelson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type Acreage	(3) Use-days	(4) Breeding Population	(5) Production
XV LOST LAKE	Crops	Ducks	40,000	170
	Upland	Geese		132
	Marsh	Swans		
	Water	Coots	10,000	8
	Total	Total	50,000	178
XVI LITTLE HAY LAKE	Crops	Ducks	18,000	42
	Upland	Geese		20
	Marsh	Swans		
	Water	Coots	6,000	18
	Total	Total	24,000	60
XVII NORTH MARSH LAKE	Crops	Ducks	461,000	190
	Upland	Geese	200	2
	Marsh	Swans		
	Water	Coots	389,000	60
	Total	Total	850,280	252
XVIII MIDDLE MARSH LAKE	Crops	Ducks	380,000	140
	Upland	Geese	1,000	4
	Marsh	Swans		
	Water	Coots	280,000	100
	Total	Total	661,000	244
XIX SOUTH MARSH LAKE	Crops	Ducks	290,000	168
	Upland	Geese	1,400	6
	Marsh	Swans		6
	Water	Coots	170,000	60
	Total	Total	461,400	234
XX CALF CAMP MARSH	Crops	Ducks	25,000	122
	Upland	Geese		30
	Marsh	Swans		
	Water	Coots	15,000	2
	Total	Total	40,000	124
XXI WEST TWIN LAKE	Crops	Ducks	65,900	148
	Upland	Geese		60
	Marsh	Swans		
	Water	Coots	6,000	30
	Total	Total	71,900	178

(over)

INSTRUCTIONS

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WATERFOWL UTILIZATION OF REFUGE HABITAT....Page 4 of 5

Refuge VALENTINE For 12-month period ending August 31, 1960

Reported by Nellius B. Nelson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat			(3) Use-days	(4) Breeding Population	(5) Production
	Type	Acreage				
XXII EAST TWIN LAKE	Crops		Ducks	66,000	60	24
	Upland	573	Geese			
	Marsh		Swans			
	Water	67	Coots	2,000	4	0
	Total	640	Total	68,000	64	24

XXIII TOMS LAKE	Crops		Ducks	16,000	62	12
	Upland	1,857	Geese			
	Marsh	40	Swans			
	Water	23	Coots	10,000	2	0
	Total	1,920	Total			

XXIV WEST SWEETWATER MARSH	Crops		Ducks	48,000	124	96
	Upland	1,929	Geese			
	Marsh	10	Swans			
	Water	61	Coots	11,000	22	52
	Total	2,000	Total	59,000	144	148

XV COW LAKE & KING FLAT POTHOLES	Crops		Ducks	30,000	50	126
	Upland	3,730	Geese			
	Marsh	20	Swans			
	Water	70	Coots	9,000	18	26
	Total	3,820	Total	39,000	68	152

XXVI E. SWEETWATER MARSH	Crops		Ducks	75,000	154	48
	Upland	3,462	Geese			
	Marsh	83	Swans			
	Water	215	Coots	40,000	10	18
	Total	3,760	Total	115,000	164	66

XXVII LEE LAKE	Crops		Ducks	16,000	126	12
	Upland	1,575	Geese			
	Marsh	10	Swans			
	Water	35	Coots	3,200	2	0
	Total	1,620	Total	19,200	128	12

XXVIII PONY LAKE	Crops		Ducks	150,000	82	60
	Upland	1,116	Geese	14,600	4	
	Marsh	11	Swans			
	Water	153	Coots	17,000	18	24
	Total	1,280	Total	181,600	104	84

(over)

INSTRUCTIONS

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3-1750b
Form NR-1B
(Rev. Nov. 1957)

UNITED STATES
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BUREAU OF SPORT FISHERIES AND WILDLIFE

WATERFOWL UTILIZATION OF REFUGE HABITAT.....Page 5 of 5

Refuge VALENTINE For 12-month period ending August 31, 1960

Reported by Nelius B. Nelson Title Refuge Manager

(1) Area or Unit Designation	(2) Habitat Type Acreage		(3) Use-days	(4) Breeding Population	(5) Production	
XXII CENTER LAKE	Crops		Ducks	210,000	86	132
	Upland	799	Geese	600	2	
	Marsh	40	Swans			
	Water	161	Coots	17,000	160	180
	Total	1,000	Total	227,600	248	312

XXX TWENTY-ONE LAKE	Crops		Ducks	170,000	102	150
	Upland	1,340	Geese	300	2	
	Marsh	50	Swans			
	Water	250	Coots	12,000	150	240
	Total	1,640	Total	182,300	254	390

XXXI CROOKED LAKE	Crops		Ducks	40,000	64	48
	Upland	5,435	Geese			
	Marsh	40	Swans			
	Water	45	Coots	5,000	4	8
	Total	5,520	Total	45,000	68	56

XXXII EAST LONG LAKE	Crops		Ducks	55,000	160	350
	Upland	1,553	Geese			
	Marsh		Swans			
	Water	247	Coots	5,000	6	6
	Total	1,800	Total	60,000	166	356

T-O-T-A-L-S: Period ending August 31, 1960	Crops		Ducks	5,122,622	4,232	4,008
	Upland		Geese	18,100 *	20	6
	Marsh		Swans			
	Water		Coots	1,386,280	945	1,754
	Total		Total	6,527,000	5,197	5,768

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

* Includes captive geese which were not recorded on the NR-1 Form two quarters.

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- (5) **Production:** Estimated total number of young raised to flight age.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge VALENTINE Months of MAY to AUGUST, 19 60

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specificioally requested. List introductions here.
Sharptailed grouse	59,000								2,300	
Prairie Chicken	59,000								68	
Ring-necked pheasant	59,000								2,900	

INSTRUCTIONS

Form NR-2 - UPLAND GAME BIRDS.*

- (1) SPECIES: Use correct common name.
- (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.

SEP • 60



Valentine Refuge, March 1, 1960. Radiological Monitoring School (Easter Egg Hunt) R-25-1.

SEP • 60



Valentine Refuge, March 1, 1960. Radiological Monitoring School; part of equipment used. R-25-3.



Valentine Refuge, June 23, 1960. Cover in G-33; Special Grouse Study Area. Food plants added with grassland drill last spring. Plenty of cover was present but very little good. R-24-2.



Valentine Refuge, June 23, 1960. Shoreline cover on south side of Center Lake. Numerous small openings made by controlled grazing. R-24-3.



Valentine Refuge, June 23, 1960. Nest dragging operation on C-33.
Used 50 foot rope w/cans filled with a few stones. R-24-1.



Valentine Refuge, June 29, 1960. Dragging 110' rope to locate
both grouse and duck nests on north side of Whitewater Lake.
R-24-5.



09 • 130 •

Valentine Refuge, June 30, 1960. Close-up view of snapping turtle and trap used. R-26-4.



09 • 130 •

Valentine Refuge, June 30, 1960. Rebaiting trap with frozen carp pieces. Rebaited every two days. R-26-15.



09 • 130 •

Valentine Refuge, June 30, 1960. Sacking one snapper from Hackberry Lake. R-26-14.

• OCT • 60



Valentine Refuge, June 30, 1960. Rebaiting turtle trap. Roland spots a head above the water. Three minutes later they had hooked another 26 pounder. R-26-16.

SEP • 60



Valentine Refuge, June 30, 1960. This snapper trying hard to break out. Caught in Hackberry Lake. R-27-4.



SEP • 60

Valentine Refuge, June 30, 1960. Close-up of apparently-- "Smiley" the 26 pound turtle. R-27-6.

• OCT • 60



Valentine Refuge, July 13, 1960. State Biologist McCarraher assisting with tempering of bass before releasing the fingerlings. Fish from Federal Crawford Hatchery. R-26-20.

• OCT • 60



Valentine Refuge, August 17, 1960. View of new safety stairway to storage room above the shop in the service building. R-26-3.



Valentine Refuge, June 23, 1960. Center Lake--heavy beds of Nuphar or yellow water lilies. R-24-4.