

J. CLARK SALYER NWR - NARRATIVE REPORT
1968

NARRATIVE REPORT

J. CLARK SALYER NATIONAL WILDLIFE REFUGE

- ✓ Lords Lake Easement Refuge
- ✓ Rabb Lake Easement Refuge
- ✓ School Section Lake Easement Refuge
- ✓ Willow Lake Easement Refuge

For

Calendar Year 1968

UNITED STATES DEPARTMENT OF THE INTERIOR

BUREAU OF SPORT FISHERIES AND WILDLIFE

FISH AND WILDLIFE SERVICE

UPHAM, NORTH DAKOTA 58789

REFUGE PERSONNEL

Robert C. Fields (EOD 07-14-68).....	Refuge Manager
Jerald J. Wilson (Trans. 06-02-68).....	Refuge Manager
Gerald H. Updike (EOD 11-17-68).....	Refuge Manager
Gerald E. Cummings(Trans. 10-06-68).....	Refuge Manager
Rodney J. King (EOD 09-08-68).....	Refuge Manager
Maurice B. Wright (Trans. 03-24-68).....	Refuge Manager
Roy W. Carlson (Died 03-14-68)	Mechanic, Heavy Duty
Alvin Brandt	Maintenanceman
Raymond F. Badke.....	Maintenanceman
Donald R. Goodman.....	Maintenanceman
Wilfred J. Hill.....	Administrative Assistant

TEMPORARY EMPLOYEES

Tommy J. Early (06-26 - 09-06-68).....	Refuge Manager
Richard J. Nehrling (06-10 - 09-06-68).....	Biological Aid
Leifur Benedicktson (04-01 - 10-05-68).....	Laborer
David G. Brandt (06-03 - 08-16-68).....	Laborer
Gregory Froseth (05-27 - 11-19-68).....	Truck Driver
Floyd J. Kitzman (08-19 - 11-29-68).....	Laborer
Leo J. Latendresse (06-03 - 11-19-68).....	Truck Driver
Edwin C. Zeretzke (04-01 - 11-19-68).....	Truck Driver



ROY W. CARLSON
1917 -- 1968

Roy W. Carlson, born June 16, 1917 at Comertown, Montana, passed away on March 14, 1968 at Minneapolis, Minnesota, after an apparent heart attack while in travel status on his way to attend a cargo handling workshop in Rochester, Minnesota. At the time of his death Roy was Heavy Equipment Mechanic at the J. Clark Salyer National Wildlife Refuge.

Roy's career with the Government started in the early 1940's when he worked for a time at the CCC Camp at Lower Souris Refuge. He was hired as a permanent refuge employee on October 22, 1942 at Patrolman, a position he held until entering military service in the Navy in March 1944. After his release from the military service in May of 1945 he was assigned as Mechanic at Des Lacs Refuge at Kenmare, North Dakota on May 25, 1945. He transferred to J. Clark Salyer Refuge (Lower Souris) on June 25, 1954 as Supervisory, Auto Mechanic, later changed to Mechanic, Heavy Duty.

Many innovations at the refuge were a result of Roy's mechanical ability. Included in the list of his ideas put to practical use were the small waterfowl observation towers in use on the refuge and a pickup mounted observation tower. His abilities were well known and respected by those who knew him in the Bureau.

He is survived by his wife Margaret, two sons and a daughter. Ted, his eldest son, is employed by the Bureau at Lake Andes National Wildlife Refuge, South Dakota.

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I. GENERAL

A. Weather Conditions

	<u>Month</u>	<u>Precipitation</u>		<u>Max.</u>	<u>Min.</u>
		<u>Normal</u>	<u>Snowfall</u>	<u>Temp.</u>	<u>Temp.</u>
January	<u>0.68"</u>	<u>0.46"</u>	<u>12.0"</u>	<u>46</u>	<u>-42</u>
February	<u>0.18</u>	<u>0.46</u>	<u>3.1</u>	<u>44</u>	<u>-25</u>
March	<u>0.09</u>	<u>0.78</u>	<u>0.7</u>	<u>69</u>	<u>-10</u>
April	<u>0.75</u>	<u>1.25</u>	<u>8.0</u>	<u>85</u>	<u>- 8</u>
May	<u>1.55</u>	<u>2.21</u>	<u>-</u>	<u>81</u>	<u>21</u>
June	<u>1.15</u>	<u>3.49</u>	<u>-</u>	<u>99</u>	<u>35</u>
July	<u>4.16</u>	<u>2.41</u>	<u>-</u>	<u>101</u>	<u>39</u>
August	<u>9.36</u>	<u>2.05</u>	<u>-</u>	<u>87</u>	<u>32</u>
September	<u>2.01</u>	<u>1.37</u>	<u>-</u>	<u>82</u>	<u>29</u>
October	<u>.66</u>	<u>0.91</u>	<u>-</u>	<u>75</u>	<u>22</u>
November	<u>.72</u>	<u>0.60</u>	<u>9.0</u>	<u>58</u>	<u>3</u>
December	<u>.54</u>	<u>0.45</u>	<u>11.0</u>	<u>40</u>	<u>-31</u>
Annual Totals	<u>21.85"</u>	<u>16.44"</u>	<u>43.8"</u>	Extremes <u>101</u>	<u>-42</u>

The above weather data were obtained from records of the official weather station located at refuge headquarters which is maintained by Administrative Assistant Hill.

January The coldest day of the year occurred on January 4 when the mercury dropped to -42°. High temperatures recorded from the 16th to the 26th were in the 30 to 40 degree range. Twelve inches of snow remained on the ground at the end of month.

February Temperatures were rather mild for the entire month. Snow cover, 7 inches.

March Only four days the high temperature dropped below the 30° mark, remainder of the month 40 to 60 degree temperatures were recorded. This is very abnormal for March. On March 19 only a trace of snow remained on the ground.

April Another month temperatures were above normal. April 2, 8" of snow fell between the hours of 5 a.m. and 9 p.m., moisture content being .52". By the 15th this snow had melted.

May Moisture shortage was alleviated by the 1.31" of rain received on May 6-8. By the end of the month topsoil was again powder dry and started to blow.

June Clouds of dust appeared on the horizon on June 3, along with a 99° temperature. Light rain showers, which were few and far between, and below normal temperatures the balance of month stalled crops from making too much growth.

July The year's high temperature of 101° was recorded on July 10. Thereafter temperatures were in the 70 to 80° range. A 2.52" downpour occurred during a 4-hour period on 7/19-20. Damaging hail was reported on this same period about 2 miles north and west of refuge headquarters.

August Below normal temperatures and above normal precipitation. Moisture was recorded on 16 days during the month. From 6 p.m. 7/23 to 5:30 a.m. 7/24, the rain gauge at headquarters collected 5.34" of moisture. Areas to the north and east of us received up to 9 inches of rain. On the 14th a damaging frost occurred two miles south of headquarters. Many corn-fields turned white after the freeze.

September Light rains still occurring, thus slowing up grain harvesting.

October First killing frost occurred when the temperature dipped to 25° on the 3rd. By the end of the month nearly all of the grain harvest operation had been completed. The August-September rains had delayed harvest about 30 to 45 days.

November Trace of snow fell on the 6th, the first of the season. First major snow of year on 11/16 with two inches.

December Temperatures were slightly below normal. At the end of the month approximately 12 inches of snow remains on the ground. A few blasts of northwesterly winds were also thrown in.

B. Habitat Conditions

1. Water

1968 began with pool storage at 16,815 acre feet. This figure is down 1,535 acre feet from the previous year, and 7,465 below recommended pool storage for winter. Inflow from all sources ceased during the winter months.

During the spring runoff period nearly all water was retained in refuge pools. Runoff was extremely light and insufficient to bring pools to normal summer levels. Releases to Canada commenced on June 1 under terms of the International Treaty where a flow of 20 c.f.s. must be maintained June 1 through October 31 in the Souris River into Canada (Manitoba).

In the surrounding area, early water conditions were extremely poor. Light or non-existent runoff combined with low levels in 1967 resulting in potholes being dry as a rule. This situation was improved somewhat by the excessive rains in late summer but even these were not sufficient to drastically change the water conditions over the north central portion of North Dakota.

In one short 12 hour period the night of August 23 our water picture literally "changed overnight." A record 5.34 inches of rain gave us more water than we could use in a hurry. Since pool storage was low we were able to absorb much of the runoff and retain it in storage. Unfortunately the rain came shortly after we received 2,400 acre feet of water from Lake Darling at Upper Souris Refuge to raise pool levels.

The excessive rain resulted in wide-spread flooding of grain and hay fields in Bottineau County. Several thousand acres of grain were destroyed by the flooding. These flooded areas acted as banquet tables for ducks and geese.

Water conditions by units are summarized as follows (see figures 1 and 2):

Rubble-Masonry Unit

Since this unit is dependent upon pool 320 in part and the Souris River levels, water control is not complete. Levels remained generally good throughout the summer and were excellent in the fall following the heavy rains. Heavy use was made of this unit by geese during the fall.

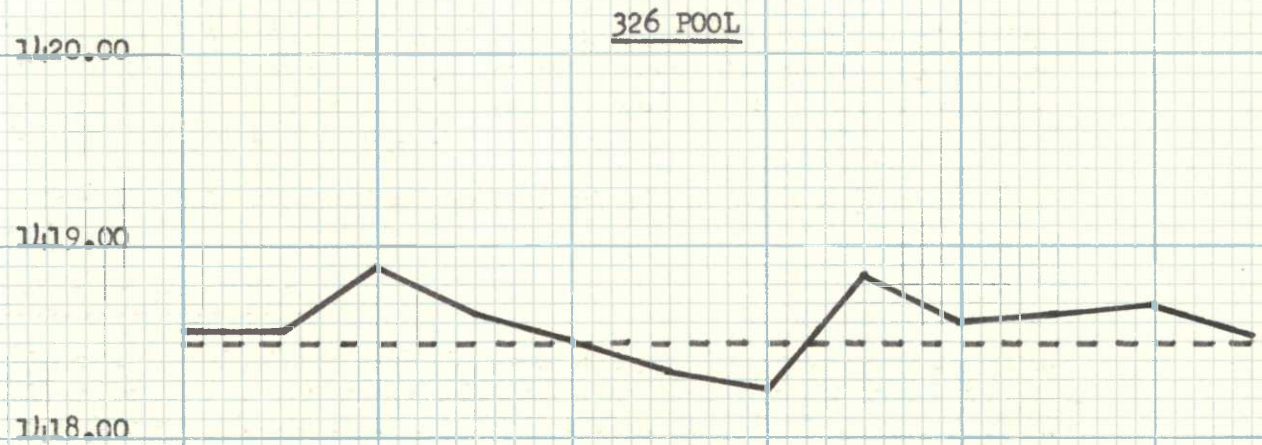
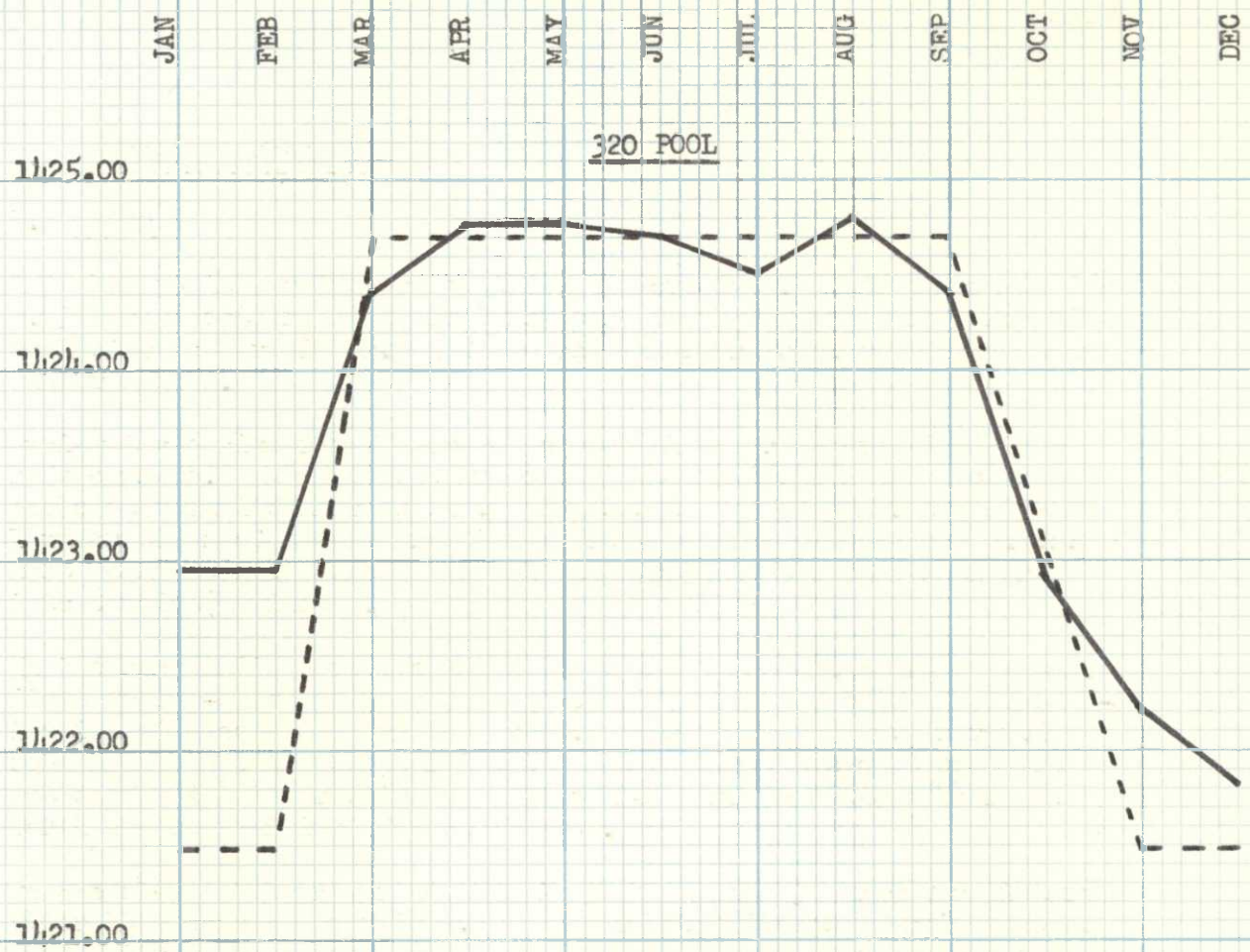


Figure No. 1
Water Levels, Pools 320 and 326

- - - Approved Level
— Average Level



320 Unit (Approved level: 1421.48 winter; 1424.70 summer)

This unit was not lowered to recommended level during the winter but was maintained at 1422.95, some 1.50 feet above approved levels. At this low elevation storage differences are not great, however.

Maintenance of high pool elevations during the summer again cut botulism losses. This year only 6 ducks and 9 coots were effected by the disease. Heavy recharge by rain and runoff undoubtedly helped the situation.

Maximum pool elevation was 1425.40 for two days following the deluge on August 23. This excess was quickly passed on to lower the pool and prevent banks, dikes and islands from excessive erosion. By the end of August water was down to the approved level. It remained only slightly below this level until pool lowering in October. The exposed mud flats proved to be extremely attractive to ducks and geese during this draw-down period.

Water continued to flow into 320 from the Souris River at the end of the year. Willow Creek flowed until mid-December. At the end of the year a flow of 14 c.f.s. was being passed through the gates at 320.

326 Unit (Approved level: 1418.50)

Throughout the year this unit stayed close to the recommended level. Maximum spring elevation attained was 1419.30 on April 10 when releases were initiated. Minimum level was 1418.12 on July 19. In August the level went to 1419.32 for a short period during heavy runoff. Freeze-up was at approved level with water being passed through the gates the remainder of the year.

332 Unit (Approved level: 1417.00)

Water levels were slightly below approved levels throughout the winter but the unit filled with spring runoff. Levels declined in early summer until a low of 1415.86 on July 1 when the gates were closed and water not passed on to pool 341. During the August rains Stoney Creek added an approximate 5,000 acre feet of water to this pool. Maximum elevation reached was 1418.13.

For the winter months the water was allowed to raise and flow over the tops of the gates. This kept them ice-free, eliminating the necessity to cut ice and install an insulation strip of hay and styrofoam.

341 Unit (Approved level: 1415.70)

Early summer readings were generally below approved levels as water was passed into unit 357 to bring it up and to meet our commitment to Canada. It was hoped the pool could be lowered to about 1414.00 to allow sand bars to be exposed for goose banding. Increased levels in September prevented this, however. Water was allowed to top the radial gates on the structure to keep them free of ice as winter set in.

357 Unit (Approved level: 1412.75)

After a winter level of 1409.00 this pool was raised to over 1411.00 in May but dropped down again as our commitment to Canada was met. As the excess water was passed north in August the level raised rapidly to a high of 1413.85 on September 11. Our maximum release through the radial gates to Canada reached 400 c.f.s. The pool was leveled to a freeze-up reading of 1412.50 with 20 c.f.s. continuing to be released at the end of the year through the lo-flow structure.

2. Food and Cover

Food conditions were excellent throughout the year. Heavy August rains delayed grain harvest and ducks congregated in this vicinity in record numbers. Geese and ducks moved into flooded hay units, especially H-9 and H-16. Approximately 45,000 mallards were observed in Ag Unit A-2 just after the close of the waterfowl season in early November.

Excellent food was available in pool 357 when raising water levels flooded wide areas of vegetation, especially red goosefoot. This food was extensively used by ducks. Blue and snow geese congregated primarily in pool 357 but feeding activity was largely to the north in grain fields in Manitoba.

The following food patches were left in 24 locations on refuge crop units for wildlife feed:

Barley	68 acres
Oats	59
Wheat	19
Millet	8
Corn	9
Peas and Beans	2

In addition there were 93 acres of alfalfa with nurse crop and 226 acres of sweet clover either planted or left standing.

With the increased moisture, cover conditions for all wildlife were improved.

II. WILDLIFE

A. Migratory Birds

Whistling Swans

By the first week in April swans were seen on refuge pools. Only about 50 were present on the refuge during the spring migration. Nearly all were gone north by the first of May but two were still here on May 25.

The fall migration was started early with nearly 100 here by the first week of September. They continued to build up to a peak of 1,500 birds for a two-week period from October 20 to November 2. Some were present until November 26 when 60 were seen near a hole in the ice on 320 pool.

During the hunting season swans were repeatedly mistaken for snow geese, according to the hunters who shot them. Seven birds were known killed on or near the refuge. To those of us close to waterfowl it seems nearly impossible that these magnificent birds can be mistaken for snow geese. It seems that way to the Federal Commissioner in Minot, also, who prosecutes these cases. Evidently some form of educational program is needed on a wide-spread basis for education of waterfowl hunters in this area, particularly at Minot Air Force Base.

An immature swan killed opening day of goose season was banded. This bird had been banded near Grasonville, Maryland on March 3, 1968 by Dr. W. J. Sladen of John Hopkins University. This indicates an eastward migration from North Dakota to the winter areas on the east coast.

Geese

Canada geese arrived at the Refuge on March 6, one week later than last year. Arrival dates for past years are listed below:

1939 - 4/4	1949 - 3/22	1959 - 3/9
1940 - 4/6	1950 - 3/30	1960 - 3/21
1941 - 4/10	1951 - 3/26	1961 - 3/15
1942 - ---	1952 - 3/28	1962 - 3/20
1943 - ---	1953 - 3/10	1963 - 3/3
1944 - ---	1954 - 2/18	1964 - 3/8
1945 - ---	1955 - 3/12	1965 - 3/8
1946 - ---	1956 - 3/19	1966 - 3/9
1947 - 3/21	1957 - 3/2	1967 - 2/26
1948 - 3/21	1958 - 2/25*	1968 - 3/6

* All but six moved south again due to severe weather.

Our spring peak was 2,500 canada-type geese. When the migrants pulled out there remained our 250 birds of the local breeding flock.

Production this year was 300 young. Good use was made of artificial nesting platforms in pools 320 and 326. Of the 26 structures available for nesting, 10 were used by geese with 9 of these nests being successful or still active on the date of check, May 20. Another 4 were used by ducks and 12 were not used. An additional 13 structures were not in condition for use and have been picked up and are being repaired.

When many of the cut hay meadows in the south portion of the refuge were flooded from the heavy August rains, geese readily took to them. They particularly like the field just east of the Hillman Grade along the Scenic Trail. Heavy use was made of the marsh areas in the Rubble-Masonry Unit also.

White-fronts showed up right on schedule in their usual numbers. First migrants of the fall were seen on September 6 in the area of Gardena but the first noted on the refuge were September 9. They continued to build up to a peak of 21,000 by the opening of the hunting season on October 1. Approximately half of them left the first week of the season but 4,000 remained here on November 1. They stayed until driven south by heavy snow, cold temperatures and strong north winds on November 17. This is quite late for them to stay around but feeding conditions were excellent here this year, undoubtedly acting as an incentive to withstand some cold weather for a while longer.

For the opening of the goose season there were 11,000 white-fronts in pool 326 alone with the majority of them flying out to the northeast over the "firing line." Some interesting observations on hunter behavior and performance on this type of shooting is contained in VI-D of this report.

Blues and snows showed up in good numbers this spring with our peak on the refuge being 25,000. This is the highest number in several years. First migrants were noted on March 26 flying over headquarters at 10 p.m. Peak of migration was the week of April 15.

First fall arrivals were noted on September 25, with the peak concentration of 8,000 being the week of November 9. Heaviest use was made of pools 341 and 357. Nearly all of the birds from 357 and some from 341 flew north into Canada to feed, frustrating the local hunters. The birds were here long enough and in large enough numbers to provide quite good hunting this fall. The Lords Lake Easement Refuge again served as a resting place for blues and snows with a peak of 6,000 using the area the first part of October.

All types of geese were generally gone from the refuge by November 17 on the heels of strong north winds, snow and cold temperatures. Several hundred white-fronts and snows and blues did stay on for one more week, however. The last of the Canadas pulled out the 30th of November.

Ducks

As usual, the first arrivals were mallards, noted on March 7. Shortly after a few pintails showed up. Major increases did not occur until the first week of April when ice went out of the pools. Spring migration peaked near the last of April with about 25,000 ducks. The population fell off rapidly as the birds moved north, down to a level of 6,000 on the aerial count of May 22.

Water conditions surrounding the refuge were poor during the nesting season making the attractive marshes and uplands of the refuge additionally important this year. Our production was up from 1967 with a total of 23,400 ducks produced to flight stage. Breeding pair counts were dispensed with this year under our new approved Wildlife Inventory Plan. Production is based on brood counts, with two counts being made on or within + or - three or four days of July 12 and August 15. Routes have been established in all pool units. Average refuge broods and pair counts from the past 11 years were used to determine figures for the following formula for figuring production:

$$\frac{251 \text{ (ave. broods in sample)}}{3800 \text{ (ave. refuge broods)}} = \frac{\text{(no. broods in sample)}}{X \text{ (no. refuge broods)}}$$

Average brood size used for our calculations is 6.

Summer waterfowl concentrations did not present a major problem with feeding in fields at the start of small grain harvest. Eight feeding stations were put into operation and the ducks used them extensively until the rain in mid-August flooded so much grain in surrounding areas. When the ducks found these flooded areas the feeding stations were essentially ineffective.

By the first week in October our refuge population had built up to 135,000 ducks. Many of these birds used the refuge only at night as they spent much of the day in the large flooded grain areas north and east of the refuge. When the hunting season opened the feeding pattern shifted to one of early and late feedings. Some feeding was carried on all night in the large areas. The birds did not leave the refuge until after sundown and would fly back about sunup in the morning. Adverse weather altered this feeding pattern and ducks would fly most of the day, seeking the relative quiet waters of the flooded fields.

Our peak population did not occur until after the hunting season was over. North of us in Manitoba and Saskatchewan there were also large areas of flooded grain as a result of late summer and fall moisture. Our largest flights of mallards did not move into this area until those northern areas froze. A peak of 175,000 ducks occurred the second week of November. This caused much grumbling and growling among the local duck hunters. Little did those who delayed hunting because they figured "northerns" were not in realize they had by-passed one of the exceptional duck hunting seasons in this area for many years, even though there were more ducks to come.

Natives who are used to looking at waterfowl concentrations on the Lords Lake Easement refuge reported to us a tremendous concentration of mallards in that area in mid-November. A check of the lake on November 14 showed over 70,000 mallards and approximately 4,000 pin-tails. Most of the lake was frozen by this time but the ducks were keeping a large hole on the north shore open.

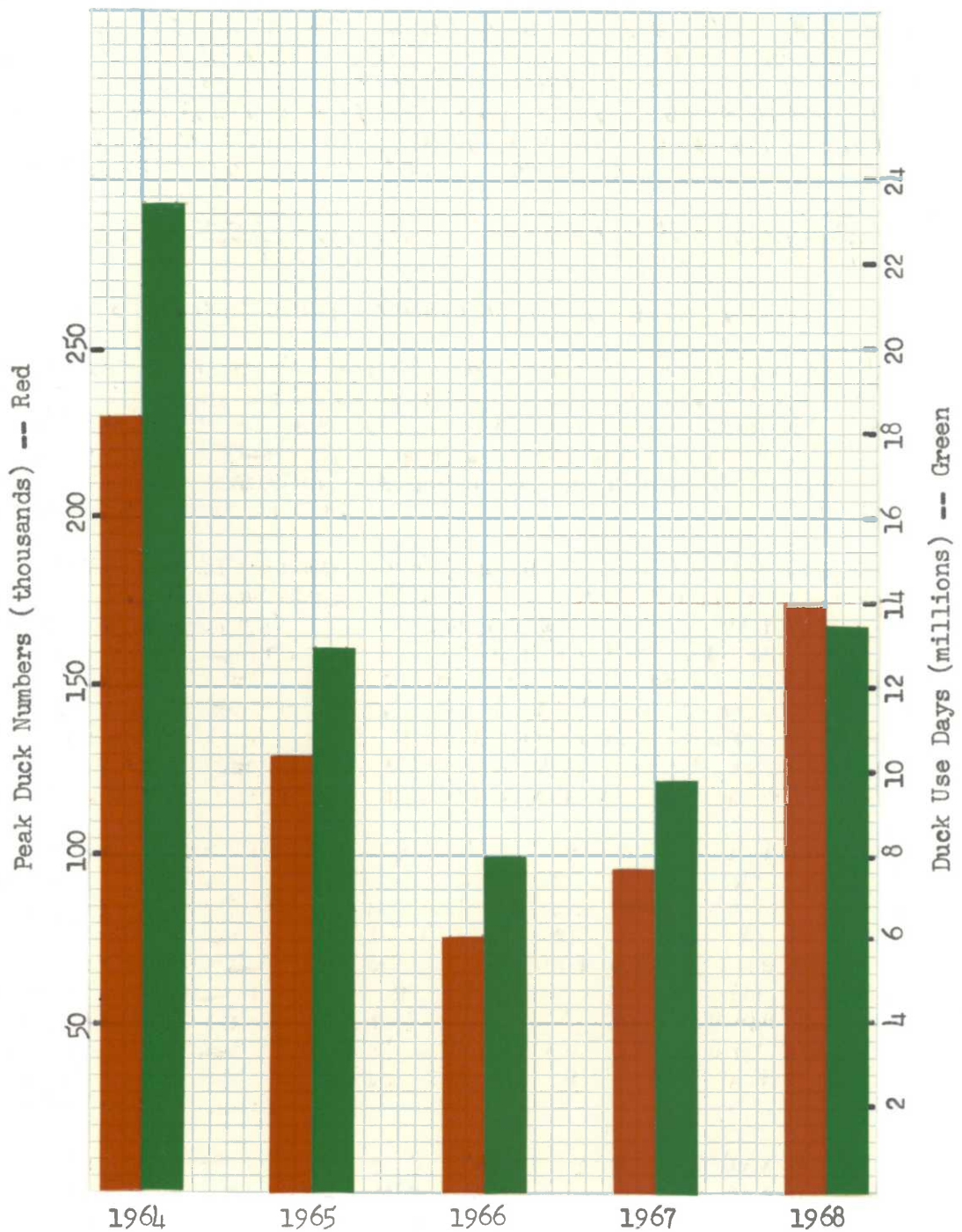


FIGURE 3

Comparison of duck peak numbers and duck use days -- 1964 through 1968

There was considerable movement of these birds in the general area at this time. A count the following day revealed only about 8,000 birds at approximately the same time of day. Large concentrations were, however, noted further south in the Gardena area in some large flooded areas. The birds had so many good feeding sites to choose from they merely went from one to another. These birds stayed until the 17th when cold weather, snow and strong north winds moved most of them out.

All-in-all it was quite a fall for ducks in this area. Populations in other parts of the state were reported light particularly to the south and west. There is some speculation that mallards moved from the south of us into our general area in mid-September, drawn here by the abundance of feeding areas. Several hunters from the eastern part of the state stated this was the first year in many that they had to leave their general area to find duck hunting. Our area was the only place they found with any birds in sufficient numbers to make for good hunting.

Other Water and Marsh Birds

White pelicans again numbered approximately 500 through the summer months including the annual increase. They were present until mid-September, ranging all the way from pool 320 to 357. First sightings for the spring were on April 3.

Ring-billed gulls arrived on March 25 with Franklin's gulls putting in their first appearance on April 1. Both species were present throughout the summer.

B. Upland Game Birds

Winter survival for upland birds appeared to be good with no severe weather to speak of. General impressions of birds seen indicated a high population of pheasants and fair to good for sharp-tailed grouse.

Pheasant crow-count routes were run on May 17, a cool, overcast morning with no wind. On Route "A" a total of 17 calls were recorded from 11 birds; Route "B" showed 13 calls from 12 birds. Those conducting the runs felt the cool weather may have reduced crowing activity significantly. These counts are approximately 1/2 those counts recorded in 1967.

Sample dancing ground counts were made on the refuge this spring with 13 of the 21 grounds counted having birds on them. A total of 226 male grouse was the projected refuge population. This is nearly double the 124 males for the years 1966 and 1967. Males ground-counted were 13.9 compared with 7.1 last year.

Again this year a special late season was opened on the refuge for upland game birds. Populations of pheasants and grouse were good with huns being only fair. Hunting pressure was light and practically non-existent on sharp-tails and huns. Generally mild weather and unfrozen marsh areas early in the season were responsible for a light kill.

Winter survival of birds this winter will be dependent upon snow conditions and frequency and severity of storms. As of the end of the year no major storms had been experienced and snow cover was moderate. Food was plentiful especially in grain fields surrounding the refuge where much waste grain is present. Small patches of grain were left standing in wet areas when combining was done. In one refuge field, some swathed grain was left because of wet ground and deterioration of quality. These swaths proved to be favorite feeding places for pheasants in the early winter. They would burrow under the swaths making it necessary to practically step on them to flush.

No measure of upland game bird production is carried out on the refuge.

C. Big Game

No aerial count was made on the refuge in 1968 by the North Dakota State Game and Fish Department because of poor snow conditions for counting. This is the only annual index of refuge populations that we use for census purposes.

Of special interest in the headquarters area this past summer was a doe white-tailed deer with triplet fawns. She and her young were observed from late June throughout the remainder of the summer.

Generally, deer populations were down in North Dakota this year with the resulting restricted deer season. Bucks only were allowed to be taken for the first time since 1963. Deer hunting is further discussed in Section VI-D of this report.

With the elimination of over 400,000 acres of Soil Bank lands in Bottineau County alone, areas of deer habitat are becoming more scarce. These soil bank lands provided many acres of good deer habitat that is no longer available. Consequently areas such as refuge lands will become more important for this species. Another threat to habitat in this area is unrestricted clearing of native woodlands in the Turtle Mountains to the north and east of the refuge. Legislation is being considered to abate this clearing in some manner.

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

Mink

Maintenanceman Goodman killed a mink that appeared to be sick the first week in April. The animal was sent to the University of North Dakota for examination, proving positive for rabies. At the same time a porcupine skull was also sent in for examination but proved negative. Poison eggs were then placed in the area of the refuge airstrip in hopes of lessening the chances of another rabid animal existing in the area.

Mink populations were adequate this year with trappers having fair success on the refuge. Ninety-five were taken, 48 males and 47 females. One was taken in a "Conibear" with a male pheasant in his grasp.

Muskrat

No spring trapping of muskrats was allowed this year. Populations appeared to be on the increase. The fall muskrat house count was not taken this year because of conflicting work and lack of suitable weather. This count is usually taken after our trapping regulations and recommended fur harvest has been submitted and approved, reducing the meaningfulness of this census activity. The early starting of trapping would necessitate an earlier count which would be difficult without some snow cover. It is planned to continue the house count as an index of populations in future years.

No limit was set on the number of muskrats that could be trapped this year. With the lowered fur price it was felt that trappers would not concentrate on this species. Only one trapper attempted to take them, netting 581, mostly from pool 326. He took 6 white ones this year.

Beaver

On October 31 a canoe census of beaver houses and food caches along the Souris River in the refuge was done. Between the Nelson bridge at the south end of the refuge, and the Johnson bridge approximately 1/2 the distance from the south end to pool 320, a total of 16 caches and houses was counted. From this it was determined that approximately 40 beaver could be removed from the refuge.

Beaver have been working on trees along the Upham-Willow City road just west of the Freeman bridge. This is a good location to show visiting school groups what beaver workings look like. It is, however, endangering the tree grove along the road and river bank. Consequently, some of these beaver are to be removed.

Lodges have been noted at 341 dam and in the marsh at 326 unit just east of headquarters. During the fall trapping season only one beaver was taken.

Raccoon

Our population of raccoons is adequate, to say the least, especially along the Souris River in the south portion of the refuge. Twenty-seven were trapped from the Hillman Bridge site south along the river. All but 4 were adults.

Skunk

No measure of relative populations exists. This animal is becoming increasingly important as a carrier of rabies in many portions of North Dakota. To date this portion of the state has not had a high incidence of the disease in skunks or any other wild animals.

Coyote

Only a few of these remain on the refuge, almost exclusively in the sandhills portion. They are continually sought outside our boundaries, both by private individuals and by Bureau agents exercising mammal control activities. Their reduction is sought on the basis of the occasional report that they are destroying domestic livestock and fowl.

Timber Wolf

A report of a timber wolf on the refuge was received from a reliable source this fall. He was seen near the Johnson Bridge in scattered brush. There have been such reports in past years. The likelihood of one being on the area is improved by the fact that two were seen, and a female killed, near York, North Dakota on April 28. York is approximately 50 miles southeast of the refuge.

Red Fox

Numbers of red fox in this area continue to decline as a result of the relentless efforts of the aerial gunners. Now added to the problems of the fox is the hunter on the snowmobile. The trapper is finding it increasingly difficult to find a fox. Only two were trapped by refuge trappers this year and very few sightings were recorded throughout the year. One aerial gunner from Newburg was reported to have taken 140 by January 1, 1969, with the good snow cover just beginning to form. With the price of fox over \$11 a pelt this year it is doubtful that the pressure on them will decrease.

Legislation is being introduced in the North Dakota Senate and House of Representatives to place the fox under control of the Game and Fish Department. The measure is receiving surprisingly strong support from many sections of the state. Many who oppose the aerial gunning merely want them around so they can be run down with snowmobiles. The legislation would, however, control the means by which they can be taken and effectively control both aerial gunning and snowmobile hunting.

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

Significant sightings of these birds this year include the influx of short-eared owls during the fall and early winter. This was probably influenced by the high population of rodents, primarily Microtus, in the marsh areas.

Snowy Owls made their appearance this winter in fair numbers.

First fall sighting of a bald eagle was on November 1 when one was seen over 332 pool. Several sightings were made throughout the remainder of the period with two adults noted west of 320 pool in late November. Golden eagles were also present this fall, the first seen on November 4 at headquarters. One was still present at the end of the year near 320 dike.

F. Other Birds

Minimal records were maintained by refuge personnel on migration of small birds. Some spring arrival dates were recorded as follows:

April 13	Mourning Dove
May 2	Myrtle Warbler
	Black-and-white Warbler
May 7	Yellow Warbler
	House Wren

Again this past year, Dr. and Mrs. Robert Gammell of Kenmare, N. D. set up mist nets in August and conducted banding work on small birds. They go about it in a thoroughly professional manner, operating a total of 52 nets from dawn to dark when weather conditions permit. During the period August 7 to August 25 they netted and banded a total of 65 species totaling 4,031 individuals. This number included the fantastic figure of 1,112 yellow warblers. Following are some notes by Mrs. Gammell concerning their activities here this summer: "The only new species was the Connecticut Warbler - our first one at Lower Souris in the fall (they follow a different route in fall migrations). Of special interest were the two Violet-green swallows on August 20. Yellowthroats and Wilson's Warblers were down in numbers and Tennessee Warblers were up. Sixty Red-breasted Nuthatches instead of one or two. All blackbird species were down. We saw a few large flocks but nothing comparable to other years. Yellow Warblers, as in previous years, were the most abundant migrants netted - we banded 1,112 during the period. (Swallows and blackbird species, of course, are present in greater numbers but not as easily caught)."

G. Fish

Fishing is the forgotten sport on the refuge. There was a complete winter kill in 1967 and the pools have not become restocked since then. Some fish did come down the Souris River when we received a release of water from Lake Darling in July and August, but only limited numbers. Gill net sets by Division of Fisheries Services personnel revealed some pike. A few were actually taken by fishermen for a few days in the river but it was short-lived.

Pollution of the Souris River between Minot and the refuge is the chief deterrent to keeping fish over-winter in refuge pools. Water levels are adequate in several pools this year but the organic content of these pools is so excessive that consumption of oxygen by decomposition of this matter is nearly complete. Velva and Towner are constructing sewage lagoons that should help our water quality.

Winter ice fishing opened on the Refuge December 15. Only a few fishermen tried their luck. Their efforts were to no avail.

H. Reptiles

On November 26 a garter snake was seen on the road near the airstrip by Rod King; air temperature 35°.

No turtle trapping was done this year. Nothing significant to report.

I. Disease

Again this year water levels in pool 320 were kept high during the summer to reduce botulism losses. The high levels, combined with cool temperatures and a large influx of fresh water in August, resulted in a low loss of waterfowl. Wildlife Aid Nehrling made periodic checks with the airboat on 320 over a systematic sampling route. Losses this year were practically nil. For the past several years, losses are as noted below:

	<u>1963</u>	<u>1964</u>	<u>1965</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
Ducks and Coots	4,000	1,300	1,200	70	198	15

In April rabies was detected in a mink as mentioned under Section II-D. On the Orville Latendresse farm adjacent to the refuge, one of their cats became ill. It attacked and bit the family dog. The cat was destroyed and sent in for examination and found to be positive for rabies. Subsequently the dog bit one of the young Latendresse boys, and was destroyed. The boy underwent the series of shots for prevention of rabies. No other instances of rabies were noted in the immediate area this year.

III. REFUGE DEVELOPMENT AND MAINTENANCE

A. Physical Development

Buildings

- Quarters 29 : Roof ventilator
Painted all rooms
Refinished woodwork
Tiled living room and N.E. bedroom floor
Installed new kitchen sink
- Quarters 31 : Installed roof ventilator
- Quarters 32 : Painted exterior and interior, both units
Refinished hardwood floors in living room, both units
- Quarters 40 : Replaced metal frame windows in bedrooms with thermo-pane wood frame windows
Paneled and insulated bedrooms - 2½" roll material held in with wood stripping.
Painted kitchen, dining room, hallway and 2 bedrooms
Built closet in bedroom
- Quarters 61 : Painted kitchen, living room, basement and porch

Constructed 16 x 24 ft. wood frame garage for Quarters 61.

Poured footings and floor for cement block garage at Quarters 40.

Fencing and Posting

Routine fence repair and posting of refuge boundary and 3 easement refuge boundaries. Built frames for and erected 12 recognition signs. Installed new headquarters entrance sign.

Roads and Dikes

Routine blading and mowing of refuge trails; installed new cattle guard wing gates; repaired scenic trail cattle guards; repaired grade and gravelled 4 miles of scenic trail from Johnson bridge S. and E.; repaired road into Willow Lake easement refuge; rebuilt bridge at Dam II - new beams and decking; hauled clay material on 320 dike for washout repairs. Erected screen at 357 Lo-Flo structure to keep out floating aquatic vegetation; cut ice and installed straw and styrofoam insulation plugs at 3 water control structures.

Public Use

Constructed and placed outdoor toilets at sandhills tower, Freeman bridge and 326 dike; built 5 parking lots adjacent to public hunting areas; repaired and maintained water wells at sandhills tower and Westhope golf course; constructed walk-in gates at the two public hunting areas.

Miscellaneous

Overhauled motor on truck I-53626; repainted Garwood dragline; installed rebuilt engine in truck I-50502; replaced wood decking on semi-trailer; put out 12 fiberglass goose nesting structures and 3 styrofoam structures; constructed and placed cement parking and driveway blocks at headquarters; rolled up 32 rolls woven wire at Lostwood Refuge and transported to station; planted 100 pine seedlings in headquarters area; constructed land fill and covered old dump; picked up 119 telephone poles from abandoned phone lines; conducted depredations feeding program - fed 12,000 bushels of grain; constructed top for IHC-300 tractor; constructed 1 stock and wildlife water pond.

B. Plantings

1. Aquatic and Marsh Plants

None.

2. Trees and Shrubs

One shelterbelt area was planted in Ag Unit 29a. The three 10.5 acre east-west strips were summer fallowed in 1967 and planted to 16 species of trees and shrubs (NR-7) by the North McHenry County SCD during

April and May. A total of 83,600 linear feet were planted with 15,835 trees and shrubs at a cost of \$1,672 (\$2/100 linear feet).

In conjunction with the 12 year shelterbelt plan approved in 1967, 55 acres in two units (D-11 and D-9) were broken at a cost of \$275. These units, referred to as shelterbelt plantings numbered 1 and 2, are to be planted in 1969. A map (page 17) shows location of the 1968 planting and 12 future wildlife shelterbelt plantings.

3. Upland Herbaceous Plants

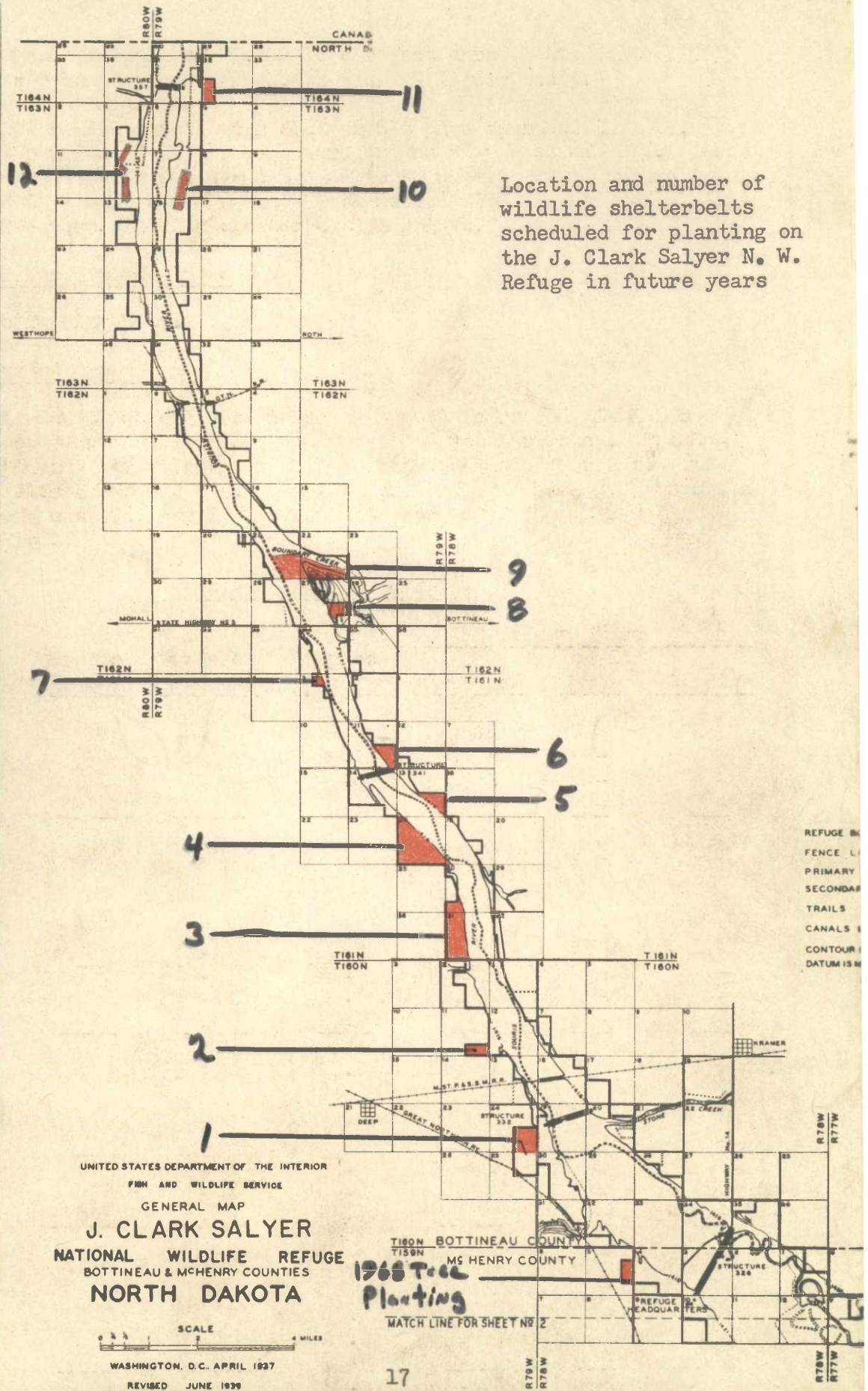
See refuge farming data.

4. Cultivated Crops

Acreage planted this year was higher than past years and yield was good, although much grain was flooded out and not harvested. Twenty-six agricultural permittees farmed 1,762 acres of small grains. Total yield was 35,465 bushels (20.1 bushels per acre) of which 8,640 bushels was the refuge share. Grain harvest data for years 1965 through 1968 are as follows:

Refuge Grain Harvest

<u>1965</u> <u>Crop</u>	<u>Acreage Planted</u>	<u>Bushels Produced</u>	<u>Average Yield</u>	<u>Refuge Share</u>		
				<u>Harvested</u>	<u>Fed in Swath</u>	<u>Standing</u>
Wheat	496	12,890	26.0	1,475	994	219
Barley	391	15,547	39.8	4,592	-	-
Oats	262	12,666	48.5	5,303	-	-
Rye	74	2,567	34.7	0	-	-
Totals	1,223	43,670	35.7	11,370	994	219 ac.
<u>1966</u>						
Wheat	407	9,442	23.2	1,123	70	171
Barley	727	18,871	26.0	6,706	-	-
Oats	264	10,487	39.7	5,082	-	-
Rye	21	524	25.0	0	-	-
Totals	1,419	39,324	27.7	12,911	70	171 ac.
<u>1967</u>						
Wheat	488	5,690	11.6	463	15	17.5
Barley	625	9,445	15.1	2,606	42	82
Oats	265	5,760	21.7	1,990	-	-
Totals	1,378	20,895	16.1	5,059	57	99.5 ac.
<u>1968</u>						
Wheat	503	8,790	17.5	1,560	-	380
Barley	933	19,795	21.2	3,940	50	880
Oats	326	6,880	21.1	1,370	-	460
Totals	1,762	35,465	20.1	6,870	50	1,720 bu.



C. Collections and Receipts

1. Seed or Other Propagules

Forty bushels of Red River 68 wheat was harvested for seed from Raymond Natwick's Ag. No. 36. The seed is stored at refuge headquarters and is to be cleaned and planted next spring.

2. Specimens

Six illegally killed swans were seized, with three being turned over to the Northern Prairie Wildlife Research Center, Jamestown, and three remaining in the station locker at Upham.

D. Control of Vegetation

Leafy spurge was the main noxious weed. During June 80 acres of spurge in small patches were treated with Tordon 22K and approximately 500 acres in scattered patches were treated with 2,4-D L.V. ester. Both applications were at the rate of 2 pounds/acre with a common carrier of water. This year 580 acres were treated as compared to 620 in 1967, 410 in 1966, 571 in 1965 and 800 in 1964. A similar program is planned for 1969.

Shelterbelt plantings (35 acres) were treated with Simazine 80W and 4G for control of quack and brome grass by the Soil Conservation District. Further details are in NR-12.

E. Planned Burning

None this period.

F. Fires

No fires occurred on the refuge this year as conditions were cool and wet throughout most of the period.

Refuge personnel did help extinguish a fire southwest of Bantry. Also, a fire did slight damage to timbers in a bridge just east of the refuge (near Latendresse farm).

IV. RESOURCE MANAGEMENT

A. Grazing

Thirty-eight grazing permits were issued to run 1,542 head of cattle and two head of horses on 16,588 acres for a total of 4,161.90 AUMs. Charge per AUM was increased from the 1967 rate of \$2.07 to \$2.45 in 1968. Total revenue received was \$10,196.45. An additional 2,477 acres are rotation grazing units not grazed this year. The stocking rate averages 11.7 acres per head or 4.1 acres per AUM on grazed land.

Total managed grazing units consist of 19,065 acres, a decrease of 732 acres as grazing units G-21, G-22 and G-23 were placed in "D" or wildlife demonstration unit status. Units G-48 and G-49 were changed to reserve grazing status (RG-48 and RG-49) and will be worked into a rest-rotation program.

No major problems were encountered. The low stocking rates and improved moisture conditions in 1968 helped to improve most pastures. As more ranchers go out of business, a rotation program can be carried out whereby heavily utilized pastures may be rested for one or two years.

B. Haying

Forty haying permits were issued for 44 persons to cut 1,282.65 tons of marsh hay (2,214 tons in 1967) in the McHenry County portion of the refuge. Total revenue at \$3 per ton was \$3,847.95. No emergency haying permits were issued, as compared to 63 emergency permits during the drought year of 1967. Considerable pressure did exist for emergency hay early in the summer as a result of locally poor moisture conditions.

The decrease in hay removed was due to heavy rains in August. Much of the area was too wet and some cut hay was flooded and could not be removed.

The age old problem of haying dates came up again this year. A meeting was held on September 4 between regional office and station personnel, the area biologist and a few refuge permittees to discuss haying dates. From this meeting it was agreed that: (1) Area Biologist Hammond would present data concerning haying dates along with the refuge manager's recommendations to the regional office for review. Data indicates that earlier haying dates could be permitted in years of warm spring temperatures without significant losses to nesting ducks. Earlier haying dates, increased haying prices and hayland fertilization are presently under consideration.

C. Fur Harvest

Trapping season for mink, weasel, muskrat, beaver opened statewide on November 18 and continued through December 15. The refuge trapping season coincided with the State season. The trapping of beaver was allowed for the first time since 1964. That area open for beaver was the southeast end of the refuge which was found to have a number of beaver in a fall census of houses. One beaver was trapped during the fall season so the season will be reopened in the spring of 1969 to meet the recommended harvest of 40 animals.

There were five trapping permits issued this year with three of the five trappers having assistants. Interest in trapping was low again this year. Probably because of poor trapping conditions and prospects of a poor price for furs. There are 10 trapping units set up on the refuge so each trapper was assigned two units. Refuge share of the furs was 50% on mink, weasel and beaver, and 25% on muskrats. Trappers kept 100% of the long furs.

Trapping conditions were poor at the start of the season because of the high water and lack of solid ice to enable the trappers to get into the marsh. The third week of the four week season found conditions much improved with colder temperatures.

The annual fur sale was held on December 17. Four of the local fur buyers were invited to make sealed bids on five lots of furs trapped on the refuge and four lots of furs trapped off the refuge by local trappers. Prices were a good deal higher than expected and trappers were very pleased with the results of this type of a sale. Total revenue for the refuge amounted to \$1,173.33. Average prices (bid by highest bidder) were as follows:

Mink, male	\$31.88	Red Fox	\$10.87
Mink, female	12.20	Badger	4.10
Muskrat	0.75	Raccoon	5.05
Weasel	0.70	Skunk	0.50
Beaver (blanket pelt)	20.75		

Prices did not differ whether animal was skinned or left in-the-round.

The number and composition of animals trapped is as follows:

<u>Trapper</u>	<u>'Rat</u>	<u>Mink</u>	<u>Weasel</u>	<u>Beaver</u>	<u>Fox</u>	<u>'Coon</u>	<u>Skunk</u>	<u>Badger</u>
T. Larson & ass't.		2			1	4	6	3
R. Larson								
H. Teske	4	23	2			4	6	
R. Nelson		24				1		
L. Benedicktson & Ass't. B. Bertsch	581*	37	3		1	6	6	1
J. Cook & Ass't.	6	9		1		27	2	
C. Kubler								
Total	591	95	5	1	2**	42	20	4

* Six of the muskrats were albino. They were trapped in the 326 unit.

** Although the red fox population seemed to be down in 1968 this number probably represents the little effort by trappers to trap fox and to concentrate on other species.

D. Timber Removal

One permit was issued to Leland Goodman to cut ash poles. He cut one cord in December for a return of \$5.00 to the refuge.

oil - 103,540
25,000

E. Commercial Fishing

None.

F. Other Uses

1. Oil Operations

Seventeen parcels of refuge land (2,799 acres) are set aside for oil and gas operations. Ten wells are in production on refuge lands and two wells outside the refuge share returns with us under terms of the lease. An additional well was drilled in January south of the Newburg Road but it turned out to be a dry hole. A Ward-Williston Company oil truck overturned on the 357 pool road. The company agreed to remove the oil and repair the road.

Parcels of land were bid out for oil exploration in 1965, 1966 and 1967 with none being bid out in 1968. Revenue for 1967 was \$25,000 but figures for 1968 are not yet available.

2. Bee Colony

One permit was issued to Gunter Honey Inc., Towner, for operating 90 bee hives at the rate of 10¢ per hive. Total revenue \$9.00.

G. Revenue Summary

Listed below is a summary of refuge income for the past four years:

Source	Total Receipts			
	1965	1966	1967	1968
Hay	6,537.63	8,732.94	8,313.71	3,847.95
Grazing	7,382.30	7,144.53	8,628.97	10,196.45
Wood	39.05	0.00	39.90	5.00
Bee's <i>apiary</i>	0.00	15.20	10.80	9.00
Fur	984.60	1,546.27	1,034.52	1,173.33
Oil Wells	103,540.27	73,500.00	25,000.00	
Transient Qtrs.	245.69	167.55	68.13	65.05
Totals	\$118,729.54	\$91,106.49	\$43,096.03	

V. FIELD INVESTIGATIONS OR APPLIED RESEARCH

A. Banding

Teal Banding

Our station quota was 500 blue-winged teal for 1968. Of this total, 271 were banded. Birds were in the area but rising water levels and subsequent high water, flooded banding and feeding sites, changes in personnel all added up to our not getting the birds. Several attempts were made

at night-lighting with the airboat but with little success. Bad weather was a chief factor in this low success. Also the equipment with which we operate is not maneuverable and functional for this type work.

Goose Banding

On July 18 an attempt was made to drive-trap the Canada geese. The drive was not successful, probably owing to the late date more than anything.

Other efforts to trap and band geese met with little success. Night-lighting was unsuccessful because the birds could not be located or reached in the marsh at night. Cannon netting met with limited success. Our best net site was flooded during the heavy August rains after only four shots were made in which 21 geese were netted and banded.

No attempts were made to band white-fronts as a good location could not be prepared before they arrived. With the abundance of feeding sites off the refuge it was difficult to locate the areas they favored with the thought of setting up a banding site. Two or three locations off the refuge were looked at but the birds did not use them for extended periods or the hunting season opened before any effort could be made to trap them. Work on this species is still badly needed.

Dove Banding

Wildlife Aid Richard Nehrling undertook the dove banding as a part of his summer work. The assigned quota was 100 doves. He was able to band a total of 118 birds, trapping 50 and banding 68 as nestlings.

B. Mourning Dove Nesting Study (or project?) what was studied? JW's

For the main portion of his summer biological work program, Wildlife Aid Nehrling worked on dove nesting in the refuge headquarters vicinity. His work is briefly summarized as follows:

"---A total of 71 nests were found of which 51 were successful (72%). The doves brought off 100 young or 1.96 young per successful nest. It was found that in selecting a nest site the doves preferred Russian Olive (27%) to any other tree species. Also, the doves were not using any of the wire nesting baskets placed out for them in 1966 but instead were nesting in mallard nesting baskets."

C. Depredations

First complaints about duck depredations came into the refuge office on August 12. As usual, they were received from the Landa area which has a history of duck depredations. Weather conditions were not favorable for harvest and the potential for a bad depredations year was

developing. Between the dates of August 4 and September 7, there was measurable moisture recorded on 18 days with a total of 10.73 inches of rain. The big deluge was on August 24 when 5.34 inches of rain fell at refuge headquarters. To the north and east the amounts were larger, ranging up to 9" in the Gardena area.

This heavy rainfall so extensively flooded grain crops that feeding areas for ducks were everywhere. Many complaints were received at headquarters complaining of ducks in fields. When investigated fully nearly all of these instances proved to be ducks on large flooded areas eating grain that could never be harvested anyway. We encouraged the farmers to leave these birds alone lest they be driven into the fields where grain was swathed and waiting to dry out for harvest. This was not easy to do since farmers do not like to see ducks anywhere near their grain during harvest. Many of them soon found out that the concentration of birds was so great on many of these areas that they could not be driven away.

There were a total of 34 complaints received in the refuge office. Most of them were handled by offering pyrotechnics to the farmer and instruction on how to use the scaring devices. Most of the farmers were cooperative and accepted our help. There are others, however, that gave us "the word" about "our ducks." This amounted to telling us to get the ducks out or they would shoot them.

Seven refuge acetylene exploder guns were put into operation and loaned out to farmers for demonstration purposes. It was our intent to show the farmer how successful these devices were in scaring ducks, when properly used and maintained. This effort was largely disappointing in that the farmer would not return the unit when his specific need was met, thereby not making it available to someone who wanted to try one out. Our loaning then seemed to be an easy way for the farmer to obtain one and a defacto admission that we had them available for use when needed, which was not our basic intent. Several farmers in the immediate area have purchased their own guns and use them successfully. One farmer borrowed a gun to place near his oats field. He set the gun up next to the field in his oil well site, tried to use it once, fouled it up and left it out in the open next to a county road for two weeks without telling us about its not working.

Feeding stations were put into operation starting August 9 and were operated until September 13. They were largely ineffective after the heavy rains of August 23 but were maintained to keep what ducks we could on the refuge. A total of 11,800 bushels of mixed wheat and barley was placed on the stations.

Operation of feeding stations is still only a partial answer to the overall problem of waterfowl depredations. So, too, are scaring devices used with only limited effectiveness. There must be a concerted effort on the part of several parties to make any type of control program effective. We cannot possibly take on the task of depredations

control in our area with our present staff and funds. There are still unresolved administrative problems about whose primary responsibility it is to effect a depredations control problem. When it gets bad we can easily say whose problem it is in this area---since we are the ones whose phone rings first. We are continually asked if the plane is coming in for depredations work. Many farmers do nothing to help themselves and wait for us to take action. We are hopeful of working through the county agents in offering workshop sessions on depredations control measures for the farmer. We recognize a certain involvement and responsibility in this problem but we need the farmers help. If he can be shown that we cannot possibly take care of the whole problem by ourselves and that he must take steps to protect his crops on his own, an improvement in the situation may result.

There is considerable talk in the Bottineau County area of developing some sort of program whereby farmers would receive payment for crop damage from depredating waterfowl and blackbirds. This usually takes the form of suggesting a raise in duck stamp fees to cover this loss or some form of crop insurance program through the Federal Government.

Blackbirds continue to be the most troublesome species in this area, even surpassing the field feeding ducks as the farmers mortal enemies. Research is still needed to work out repellants or other means of keeping blackbirds out of small grain crops. Most farmers agree that blackbirds are more abundant than in past years but this opinion is in deference to that of the Gammells who have been banding blackbirds for many years in this area. However abundant, they are here in sufficient numbers in the fall to cause considerable damage to small grain crops. Several acetylene exploder guns were lent out to local farmers in a effort to keep the birds out of their crops. These devices seemed to work quite well when operated correctly.

VI. PUBLIC RELATIONS

A. Recreational Uses

Total visitor use dropped from the 1967 high of 11,948 to 6,355. Since May we have been using the new Monthly Public Use Report Form 3-123. It is felt that this type of monthly report excentuates the need for a closer look at recreational visits and should lead to better records and estimates for public use on the refuge. Refuge visits did not appear to be down this year other than in the category of fishing. Poor fishing conditions over the past two years have not become any better and are not expected to improve until pollution from cities upstream ceases. A cool wet spring dampened refuge visits in the fore part of the year, but a mild fall with large numbers of waterfowl present seemed to stimulate use by duck and goose hunters. The scenic trail drew more visits to the south end of the refuge and by fall the road was in bad shape. During late September and the first week in October 4 miles of our scenic trail was graveled and graded

ac ?
JWZ
p. 13 range
poor/winter
kill

Bureau of Sport Fisheries and Wildlife
Division of Wildlife Refuges

ANNUAL
~~MONTHLY~~ PUBLIC USE REPORT

Refuge name

J. CLARK SALYER

State

NORTH DAKOTA

(This block completed by Washington Office)

State

Code 34
(1-2)

Congressional

District Code 02
(3-4)

Refuge

Code 339
(5-7)

Report

Period 68
(8-11)

Yr. Mo.

(Card Columns)		12-13	14-18	19-25
ACTIVITY		Code	VISITS FOR THE MONTH	
			Total Number	Total Hours
Hunting:	Big Game	01	1350	6900
	Upland Game	02	545	1635
	Waterfowl	03	2550	7650
	Other Migratory	04		
	Bow	05	34	126
Fishing:	Salt Water	06		
	Warm Water	07	107	421
	Cold Water	08		
	Bird and Animal Calling	09		
	Wildlife Photography	10	67	151
	Wildlife Observation	11	317	1176
	Dog Training	12		
	Field Trials	13		
	Wildlife Trails and Walks	14		
	Wildlife Tours	15	148	677
	Wildlife Scenic Veh. Rts.	16	137	286
	Camping (related to above)	17		
	Picnicking (related to above)	18		
	Wildlife Interpretive Center	19		
	*Miscellaneous Wildlife	20	326	1114

(Card Columns)		26-27	28-32	33-39
ACTIVITY		Code	VISITS FOR THE MONTH	
			Total Number	Total Hours
	Swimming	21		
	Boating	22		
	Water Skiing	23		
	Camping	24		
	Group Camping	25	100	1900
	Picnicking	26	223	1009
	Horseback Riding	27	79	316
	Bicycling	28		
	Skiing, Sledding, etc.	29		
	Ice Skating	30		
	Fruit, Nut & Veg. Collecting	31	40	110
	Non-Recreational Use (inspections, audits, etc.)	32	2	12
	Actual Visits	33	6355	
	Peak Load Day	34	450	
	* Miscellaneous Non-Wildlife	35	505	1875

where break-up had occurred. The road is in very good condition and ready for the 1969 visitor season. Estimated visits in 1968 were 6,355 with 25,358 hours use (this includes non-wildlife visits - 505 and 1,875 hours). Break down of this total into various categories is found in the annual Public Use Report immediately following this section.

B. Refuge Visitors

<u>Date</u>	<u>Name</u>	<u>Affiliation</u>	<u>Purpose</u>
01/25	F. Krege	FWS, Sand Lake Refuge	Property delivery & pickup
01/12	I. J. Wilhite	Bismarck, N. D.	Oil well operations
03/14	J. Nelson	FWS, Bismarck	River oxygen test
03/22	F. Tiddens	Fond du Lac, Wisc.	Oil well drilling
04/10	R. Hanson	FWS, Bismarck	Rabid animals & predator control
	E. Zahn	FWS, Velva	
04/17	B. Eagleson	Towner, N.D.	Law enforcement
04/25	H. Dill	FWS, R.O., Mpls.	Field trip
	M. Hammond	FWS, Towner	" "
	W. Bair	FWS, Towner	" "
04/30	W. McClure	FWS, Bismarck	Courtesy call
05/22	J. Winship	FWS, R.O., Mpls.	Aerial census & photo.
06/04	E. Doeling	FWS, R.O., Mpls.	Water management
07/21-23	J. Winship	FWS, R.O., Mpls.	W.fowl depredation check
07/26	R. Williams	Border Patrol, Bottn.	Visit
07/31	J. Dahl	FWS, Upper Souris Ref.	Water needs
08/07-25	Dr. & Mrs. Gammell	Kenmare, N. D.	Bird banding
08/09	W. Snyder	Fargo, N.D.	Photograph Gammell's banding
09/04	R. Burwell	FWS, R.O., Mpls.	Mtg. with local farmers and refuge personnel
	F. Carpenter	FWS, R.O., Mpls.	
09/04-6	J. Winship	FWS, R.O., Mpls.	Depredations check
09/06	J. Davis	FWS, Minot W.O.	Visit
09/	Dr. Ira Gabrielson	Nat'l. Wildlife Fed.	Courtesy visit
09/30	W. McClure	FWS, GMA, Bismarck	Law enforcement workshop
	L. Reynoldson	FWS, GMA, Minot	" " "
10/23	H. Mittelstedt	SCS, Westhope	Proposed fish dam - outside refuge boundary
	B. Baumann	SCS, Westhope	
10/29	C. Rollings	FWS, R.O., Mpls.	Land use inspection

Occasional:

L. Kreft	McHenry Co. Agent, Towner
B. Sieber	Bottineau Co. Agent, Bottineau
GMAgents	Bismarck and Minot
NDG&F personnel	Wardens and biologists
E. Zahn	W.S., Velva, N. Dak.
USGS personnel	Bismarck
D. Campbell	SCS, Towner
W. Bair	FWS, Towner
M. Hammond	FWS, Towner
Minot W.O. personnel	

C. Refuge Participation

- 01/19/68 Wilson and GMA McClure met with H. Vavra, State CAA, Bismarck, re low flying aircraft over refuges.
- 01/23 Cummings gave Seminar on Night Lighting at Northern Prairie Wildlife Research Center, Jamestown, N. Dak.
- 02/05 Cummings and Wright at Minot Wetlands meeting. Cummings showed movie on night lighting.
- 02/15 Cummings and Wright attended Northwest Crops Clinic, Mohall, N.D.
- 02/20 Wright presented a slide talk at Gardena PTA meeting.
- 02/28-3/2 Wilson attended American Association for Conservation Information meeting in Bismarck, N. Dak.
- 03/04 Wilson attended Minot W.O. Coordination meeting.
- 03/19-22 Cummings, Wilson and Wright showed films to public schools in Gardena, Kramer, Deering, Maxbass, Granville, Towner, Upham, Souris, Westhope, Willow City, Newburg, Bottineau and Landa during National Wildlife Week.
- 03/27 Wilson guest speaker at Towner Lions Club luncheon.
- 04/16-18 Wilson attended Public Relations Workshop, Fargo, N. Dak.
- 4/18 Cummings showed film to Upham Senior Citizens group at Legion Hall, Upham.
- 04/23 Wilson gave biat, spin and casting demonstration at Sports Fair held in the Town & Country Shopping Center Mall, Minot.
- 04/27 Wilson served as judge at Scout Ex position '68 in Minot City Auditorium.
- 04/26 Cummings showed slides and talked on conservation at Jim Hill Junior High School, Minot. 300 students in six one-hour sessions.
- 05/06 Cummings attended Minot W.O. coordination meeting.
- 05/11 Cummings and Wilson on tour of refuge w/ornithology class from Minot State College.
- 05/13 Wilson guest speaker at Town and Country Sportsmen Club meeting, Bismarck, N. Dak.
- 05/14-15 Brandt accompanied students from Dunseith grade school on scenic trail tour route.

- 05/15 Cummings and Wilson met with committee for pre-camp Scout Conservation Camp meeting, Bottineau, N. Dak.
- 06/05 Cummings gave talk to staff members at the Lake Metigoshe Bible Camp, Bottineau, N. Dak.
- 06/15 Cummings and Nehrling in charge of nature study tour at Lake Metigoshe 4-H Camp, 100 students in attendance.
- 06/17 Cummings gave lecture to Boy Scout group at Lake Metigoshe Scout Camp, Bottineau.
- 06/20 Cummings attended Range Management Workshop, Towner.
- 07/07 Refuge personnel attended B-U Trail Riders picnic at sand-hills tower picnic site. 48 riders and over 50 visitors present.
- 08/07 Fields attended Technical Action Panel (TAP) meeting in Bottineau.
- 09/16 Cummings, Fields and King attended monthly meeting of the Bottineau Wildlife Club.
- 09/28 King on tour of refuge with 35 students from Anamose High School.
- 10/29 King participated in Bottineau High School Career Day session. Explained Bureau employment program, etc.
- 10/30 Fields hosted McHenry County TAP meeting at refuge office.
- 11/16 Fields attended Bottineau County TAP meeting at Bottineau.
- 11/24 Fields attended dinner and meeting of Mouse River and Turtle Mountain SCD in Westhope.
- 12/13 Fields and Updike attended Bottineau Wildlife Club annual buffalo dinner in evening.

D. Hunting

1. Waterfowl

Geese

The 1968 goose season opened with a big "bang" on October 1, Approximately 300 goose hunters lined up on boundary fence and public hunting area firing lines. The big turnout was in response to about 22,000 geese that were using the refuge at that time. The geese were flying high because of mild weather and the hunters were trying to shoot higher. These factors resulted in a poor quality of hunt and a very low kill. The estimated kill was .3 goose/hunter.

To assist refuge personnel in law enforcement, USGMA's Lyman Reynoldson and William McClure were on hand for opening weekend. Also present at this time were Glen Sherwood and Alan Davenport, biologists from the Northern Prairie Wildlife Research Center. The biologists were present to observe the behavior and hunting techniques of the "firing line" type of hunter. Here is a summary of their results, obtained from recording shots on tape and adding needed narration. Observation was done on a firing line area north and east of headquarters.

	<u>October 1</u>	<u>October 2</u>
Number of hunters	80 (approx.)	40 (approx.)
Total number of shots	2,928	643
Shots/hunter	36.6	16.1
Geese bagged	24	10
Shots/goose bagged	122	64.3
Geese crippled and lost	25 (51%)	6 (37.5%)
Illegal kill	3 whistling swans killed and 1 crippled	none
Illegal shooting	133 shots at 55 whistling swans	7 shots at 2 flocks of whistling swans

Other illegal activity: Three hunters made retrievals beyond legal retrieving zone.

Five hunters fired shots from inside closed zone.

Two hunters shooting several volleys after 1 p.m. CDT (legal closing time).

On October 2 some calculation of shooting distances was done with the aid of specially designed rifle scopes mounted on transit heads. Working with known distances, from hunter to instrument, and between instruments, heights of geese were determined. Three volleys were measured and the geese found to be at heights of 92, 95 and 113 yards when fired at. No killing or crippling was done at this height.

From this information we find that with 34 geese bagged there were 31 (47.6%) that were obviously crippled. It is thought that from this information we may be contributing to the cripple loss by allowing hunters to "gang up" on firing lines where no restriction is made on the height of shooting, spacing of hunters, size of guns, number of shells and size of shot used by hunters. At the present time there are 2,810 acres of public hunting areas for waterfowl and 32 miles of public retrieving zone (average width: 200 ft.).

Ducks

Although there were large numbers of ducks present on the refuge very little pressure was received on the public hunting areas and boundary lines. The mild weather kept ducks very high when going to and from feeding areas. Most of the duck hunting was done on private lands outside the refuge which had been flooded by heavy rains late in August. These fields were a haven for the ducks and provided some excellent hunting for the patient hunter.

2. White-tailed Deer

A bucks-only season was held throughout North Dakota from noon November 8 through November 17. This was the first bucks-only season since 1963. All the refuge was open to hunting with the exception of 480 acres near headquarters. An estimated 60 bucks were taken during the season. About 450 hunters turned out for brisk opening day. Hunting pressure was heavy the opening weekend, but on closing weekend a heavy snow and cold temperatures kept hunters close to their cars.

Hunter success was between 10 and 15 percent. This low figure is expected during a bucks-only season in this type of habitat.

In addition to the rifle season, bow hunting was allowed on the refuge for the first time. A staggered season from August 30 to November 3, and November 18 through December 15 was in conjunction with the state-wide archery season on deer. Hunters were requested to obtain an entry permit before hunting on the refuge, mainly so we would have some measure of hunting pressure.

Although the kill was insignificant, about 34 visits to the refuge for this sport were recorded. Only one kill is known to have been made. The area open for bow hunting was that portion of the refuge south of the Upham-Willow City road consisting of about 30,000 acres of woods and marsh. Even though success was low hunters enjoyed the opportunity to hike into the woodlands of the refuge and try their skill with bow and arrow.

3. Upland Game Birds

Season for upland game birds on the refuge opened November 18 and continued through December 15. Pheasants, sharp-tailed grouse and Hungarian (Grey) partridge were legal game birds. About 545 visits to the refuge for bird hunting were estimated.

Pheasant kill was about 0.5 birds per hunter. Pheasants soon find that the thick marsh and phragmites are the safe place to be as it is tough going for hunters.

Sharp-tails and partridge received very little if any pressure. At this time of year coveys of partridge are still well scattered and difficult to flush while sharp-tails flush wildly and offer few "within range" shots for the hunter.

E. Violations

Opening of the 1968 goose season brought a flurry of violations. Either the large concentration of waterfowl in the area brought more violations or possibly more time was spent on law enforcement than in previous years. Excuses for violations ranged from, "I didn't know when the sun set" (on a clear night), "I didn't see the closed area signs", to "I thought they were snow geese". Thirty-seven percent (10) of the violators were from the nearby Minot Airforce Base. Most of these hunters are new to the area and unfamiliar with the laws, or just do not bother to learn the regulations. It is planned to arrange a waterfowl hunting and identification program at the Air Base before the waterfowl season of 1969. It is hoped this may help curb some of the violations.

On page 31 of this report is a summary of violations that occurred, both on and off the refuge. All cases appeared before the U.S. Commissioner in Minot, North Dakota, unless otherwise stated.

<u>Date</u>	<u>Name</u>	<u>Violation</u>	<u>Court Action</u>	<u>Apprehending Officer</u>
1968				
03-30	Helgie Davis	Trespass and poor conduct	\$50 and 18 mos. probation	J. Wilson
	Lawrence Davis (juv.)	Trespass and poor conduct	Referred to juv. court	J. Wilson
	Robert Hamel "	Trespass and poor conduct	Referred to juv. court	J. Wilson
	Laverne Latendresse "	Trespass and poor conduct	Referred to juv. court	J. Wilson
10-01	William Reed	Shooting protected species (1 swan)	Fined \$135	Fields & Sherwood
10-01	John Zeigler	Hunting in closed area	Fined \$35	Fields
10-01	Warren Runyan	Hunting in closed area	Fined \$50	Fields
10-01	Richard Helenske	Hunting in closed area	Fined \$50	Fields
10-01	Marlow Lindstrom (juv.)	Retrieved goose in closed area	\$50 fine(State court Bottn.)	King
10-02	Gary Murray	Hunting geese after legal hrs set by State	\$25 fine (State court Bottn.)	Fields & King
10-02	James Bennett, Jr.	Hunting geese after legal hrs set by State	\$25 fine(State court Bottn.)	Fields & King
10-04	Fred High, Jr.	Hunting in closed area& over poss. of geese	Fined \$70	C.Schroeder(NDG&F)
10-04	Leroy Leifson	Hunting in closed area& over poss. of geese	Fined \$70	C.Schroeder(NDG&F)
10-10	Charles Carr	Hunting after hours	Fined \$35	King & Cummings
10-10	John Grimsley	Hunting after hours	Fined \$35	King & Cummings
10-12	James Osgood, Jr.	Shooting at protected species (swans)	Fined \$50	King
10-22	Thomas Hanenberg	Hunting after hours	\$50 & 10 days (jail suspnd.)	King & Fields
10-22	Daniel Hanson	Hunting after hours	\$50 & 10 days (jail suspnd.)	King & Fields
10-25	Duwayne Moe (juv.)	Hunting after hours	Refer juv. court, Minot	King
10-25	Wayne Moe (juv.)	Hunting after hours	Refer. juv. court, Minot	King
10-26	Charles Holzer	Hunting in closed area	Fined \$35	King & Fields
10-26	Lynn Melling	Hunting in closed area	Fined \$35	King & Fields
11-01	Daniel Kilpatrick	Hunting in closed area	Fined \$50	Fields & Jensen
11-01	Douglas Heffinger, Jr.	Hunting in closed area	Fined \$50	Fields & Jensen
11-01	Alexander Davidson III	Shooting protected species (2 swans)	\$235 & 10 days (jail suspnd.)	Fields & King
11-06	Carroll Burtness	Hunting with unplugged gun	Fined \$35	King
11-08	Joseph Rice	Possession of untaged deer	\$50 & 20 days (jail suspnd.- State court Towner)	King

F. Safety

Monthly safety meetings were held throughout the year. Leadership of the meetings was rotated among refuge personnel. Each leader selected a message and presented it to the group. Frequently, safety films were used as an aid to promote safe practices. After the message presentation current safety hazards and "near misses" were discussed.

Refuge personnel received the Gold Award for the accident free year of 1967.

During 1968 there were three reportable accidents but no lost time accidents. One temporary laborer lacerated his right hand on a mower blade when the wrench he was using to tighten a bolt slipped. Another temporary laborer was removing brush from the scenic trail and developed a rash on his legs; possibly from contact with a weed or bush. During the regular deer season a hunter was grazed on the cheek and ear by a stray bullet.

It has been 202 days since our last accident and 1,583 days since the last lost time accident.

A summary of safety projects accomplished during 1968 follows:

1. Installed safety belts in Hough Payloader tractor.
2. Made safety blocks for hoist on 1½ ton Dodge truck.
3. Purchased four aluminum safety hard hats.
4. Safety chain eye-bolts were installed on the 4-WD Ford pickup truck for towing trailers.
5. Dirt-filled an abandoned well in public hunting area.
6. Dirt-filled two old basements: one at public hunting area and one west of Freeman Bridge picnic site.
7. Widened the bridge and road at dangerous corner on the scenic trail.

VII. OTHER ITEMS

A. Items of Interest

The untimely death from a heart attack of Heavy Duty Mechanic Roy Carlson left a void at the refuge that cannot personally be replaced for those who knew him. A summary of Roy's work with the Bureau is given in the front of this report.

On June 22, Refuge Manager Gerald Cummings presented Mrs. Carlson with Roy's Honor Award for Commendable Service in recognition of his fine, dedicated work for the Bureau over a period of 26 years.

Personnel Changes

This was the year for personnel changes at the refuge. Starting in March, Refuge Manager Trainee Maurice Wright transferred to Bear River Refuge in Utah as Assistant Manager. In May, Jerald Wilson transferred to the Regional Office in Albuquerque as coordinator of wilderness programs in the region, after serving as Refuge Manager at this station since 1962. The change in managers was completed when Gerald Cummings transferred to the position of Area Wildlife Biologist stationed at Chatauqua Refuge in Illinois.

Replacing Wright in the Trainee position was Tommy Early, a graduate of Ohio State University. Tommy had experience for two summers at Seney Refuge. He held the position from June to early September when he went with the Institute of Polar Studies from Ohio State University on an expedition to the Antarctic for 6 months.

Robert C. Fields transferred in as Refuge Manager to replace Wilson on July 17 from Fort Niobrara Refuge at Valentine, Nebraska. Gerald Updike transferred from Seney Refuge on November 24 to the Assistant Manager position vacated by Cummings. Rodney King filled the Refuge Manager Trainee position in early September, coming to the refuge after 5 months at the Woodworth Field Station of the Jamestown Research Center. He is a 1968 graduate of Utah State University.

B. Photographs


As appended. All black and white printing done in refuge darkroom. No file numbers are yet assigned as a filing system for negatives is currently being developed. Photo authors as indicated.

C. Credits

HILL : I-A, V-B,C and typing
KING : IV-C, VI-A,D,E,F, NR Forms
UPDIKE : I-B-2, III-B,C,D,E,F,; IV-A,B,D,E,F,; NR Forms
FIELDS : I-B-1; II; III-A; V; VII

SIGNATURE PAGE

Submitted by:


(Signature)

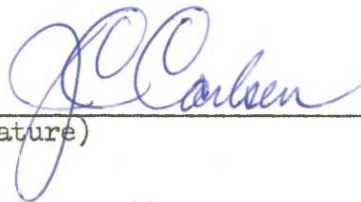
Robert C. Fields

Date: February 5, 1969

Refuge Manager
Title

Approved, Regional Office:

Date: FEB 7 1969


(Signature)

ASST

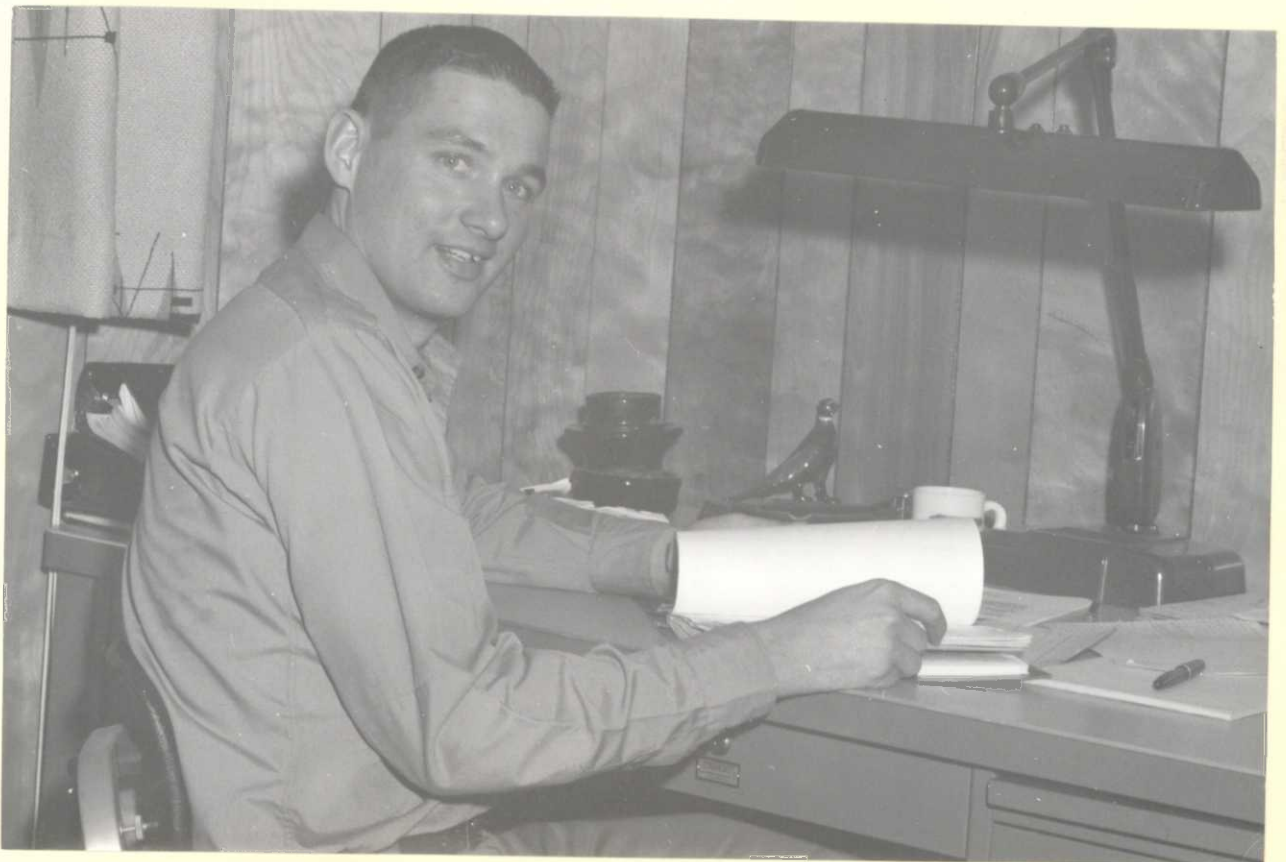
Regional Refuge Supervisor

Refuge Manager Robert C. Fields transferred from Fort Niobrara Refuge in July. He is in his tenth year with the Bureau, six years in Region 1.

Updike

Refuge Manager (Assistant) Gerald Updike transferred from Seney Refuge in November, where he had been stationed since coming with the Bureau in 1965. He is a graduate of Michigan State University.

Fields

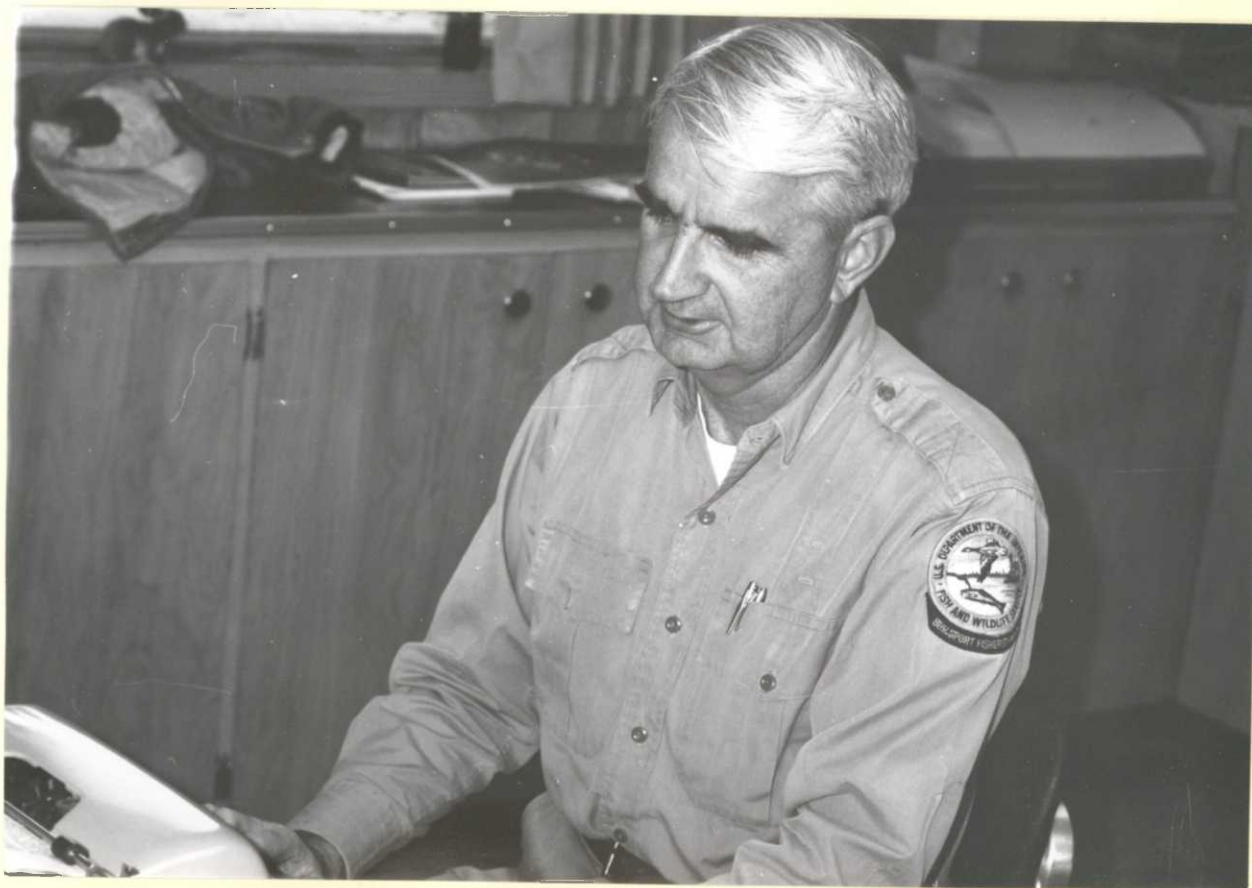


Rodney J. King, Refuge Manager (Trainee) is a 1968 graduate of Utah State University. He went to work at the Woodworth Station of Northern Prairies Wildlife Research Center in April and transferred to J. Clark Salyer Refuge in September.

Fields

Wilfred J. Hill, Administrative Assistant (a title that covers a wide variety of work including the first line of defense for refuge managers from farmers and hunters). "Bud" is a native North Dakotan who has been with the Bureau since 1946 when he began at Arrowwood Refuge. He came to this station in 1957.

Updike



Alvin Brandt, Maintenceman, the "old timer" on the staff. Al has been at the refuge since 1941. Prior to that time he was with the CCC Camp on the refuge. Al's knowledge of the refuge over a long period of time is invaluable to management personnel.

Fields

Donald K. Goodman, left and Raymond Badke, right, Maintenance-
men. Donny has been with the Bureau on a permanent basis since 1965 with temporary time since 1960. Ray has worked at the refuge since 1947, being on permanent appointment since 1953.

Updike

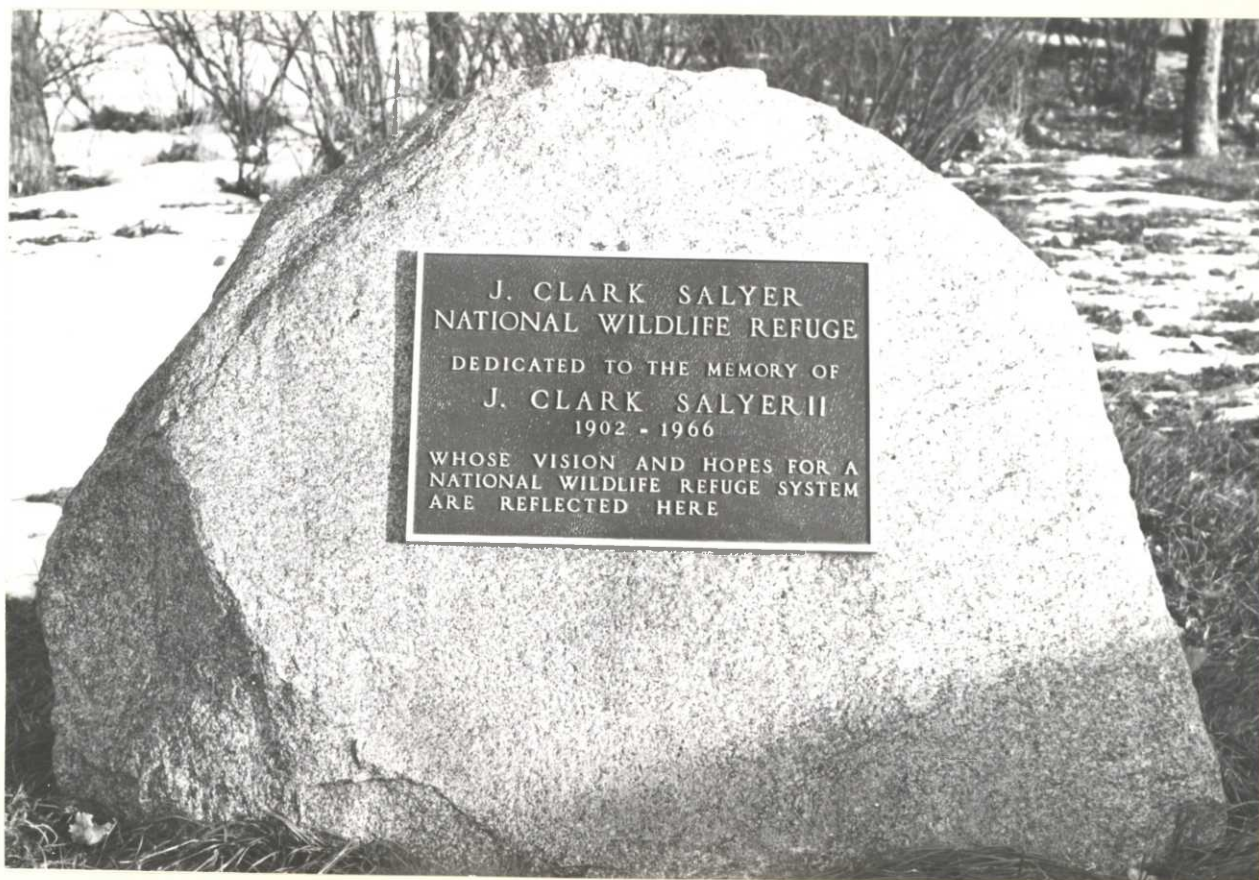
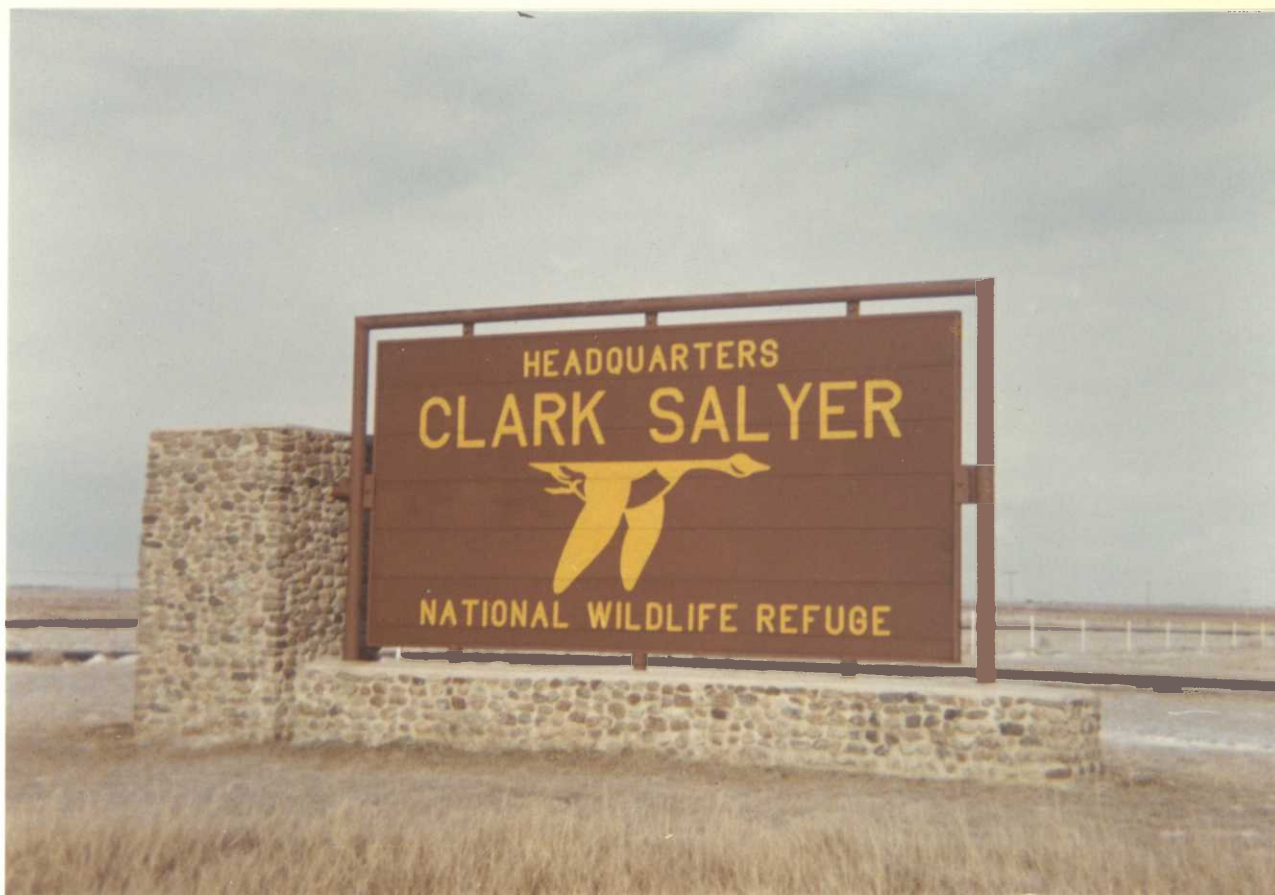


New entrance sign along State Highway 14. Left to be done is mounting of the Bureau emblem on the stone column. The sign was made at the Regional Sign Shop at Upper Mississippi Refuge, and measures 6' x 12'.

Updike

Plaque placed in front of refuge office at edge of parking area honoring J. Clark Salyer II, in who's memory our name was recently changed from Lower Souris Refuge.

Fields



Work progressing on installation of thermopane windows in Qtrs. 40, replacing the old metal frame, single pane windows. This change, plus addition of insullation next to cement blocks and a covering of wood panelling, greatly increased the comfort of the house and reduced fuel costs.

Wilson

Maintenanceman Goodman placing fiberglass nesting structure on the ice prior to break-up. According to plans the unit was to settle into the marsh in an upright position. Success was dismal as many of the structures tipped over or were damaged by ice and wave action.

Wright

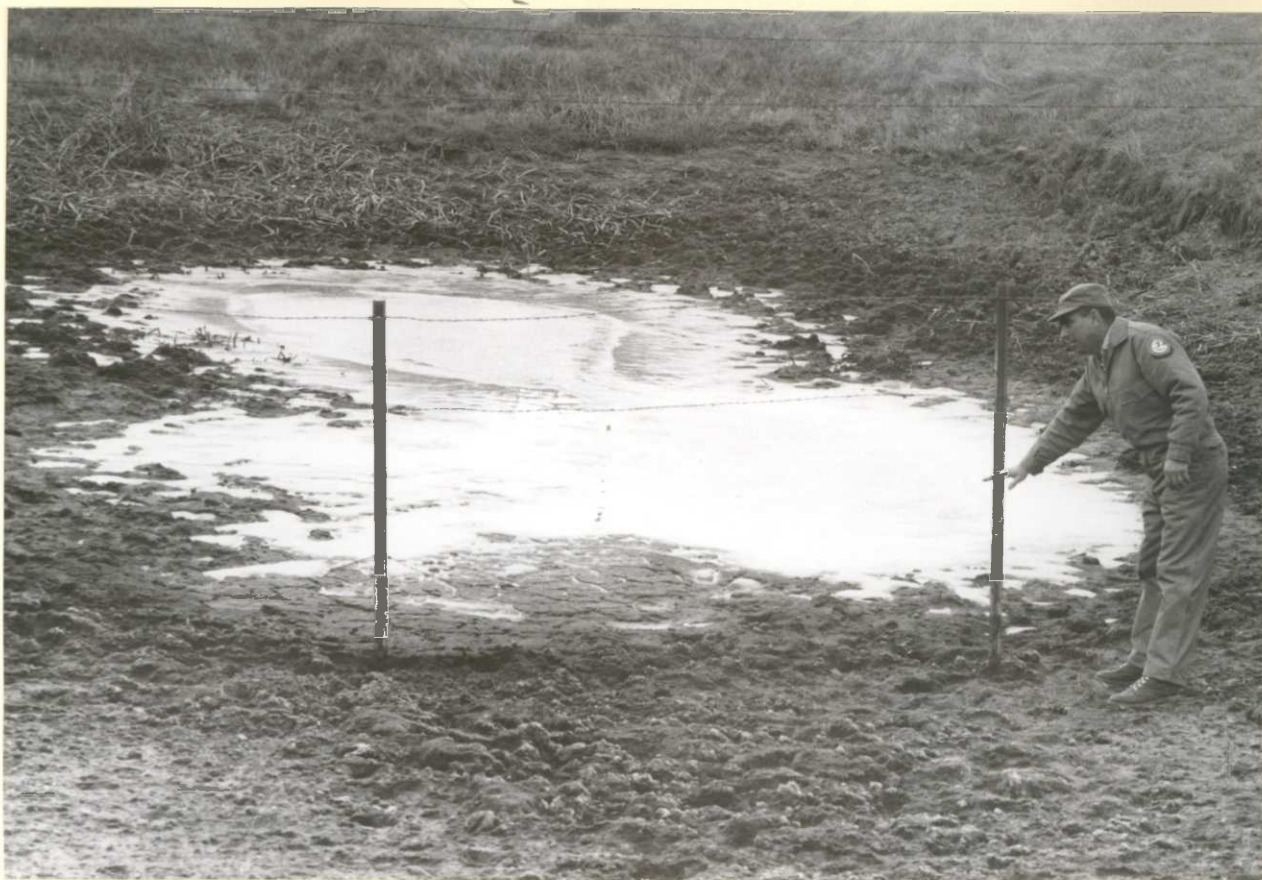


Cummings standing in one of the refuge stock water ponds, demonstrating the low water levels this spring. Heavy summer rains greatly releived this shortage with most ponds being full going into the winter.

Wilson

Results of a permittee attempting to move hay stacks this spring after frost had gone partially out of the ground.

Cummings



McHenry County Soil Conservation District personnel planting trees in a refuge shelterbelt planting this spring. A twelve year plan of such plantings is approved and underway.

Cummings

Local saddle club on summer outing in sandhills portion of the refuge. This group had a most enjoyable day of it with wagons, kids, horses and the whole gamut of western gear. We are pleased to be able to offer this type of recreational opportunity on the refuge.

Cummings



Mr. Bill Snyder, professional producer of motion pictures from Fargo, North Dakota filming banding of small birds by Mrs. Robert Gammell. This film is to be a part of a production depicting outdoor activities in North Dakota.

Fields

Acetylene gas exploder gun on location in farmers oil well site protecting 4 acres of oats from blackbird depredations. This unit was borrowed from the refuge; our hope being he would like the unit and buy one of his own. He liked ours.

Fields



Haystacks standing in water in unit H-16 after the August rains. Water finally receded in most areas so stacks could be removed this fall but a few remain firmly locked in ice.

Fields

Flooded hay bales in unit H-5 along Highway 14. It was amazing to see how quickly the ducks used the bales for loafing. In order to get a bale, a duck had to get up early in the morning! At times virtually every bale had one or more ducks resting on it. Maybe there is a lesson here.

Early



Three whistling swans and a white-front taken illegally on opening day of goose season. Seven swans were known to have been killed on or near the refuge, with shooting at them an every-day occurrence.

Fields

Eight Canada geese taken by two hunters who were hunting in a closed area. They "did not know where they were" after walking over an entrance cattle guard, past the refuge boundary sign. They also had a little trouble reading the regulation concerning the limit on geese.

Fields



Fox squirrel photographed in a tree outside the refuge office. This fellow was seen throughout the fall in the headquarters area. Several sightings of this species have been made on the refuge in recent years.

King

Wind-blown weeds stacked against a refuge fence, waiting for snow and dirt to drift in on them. This results in many miles of downed refuge boundary fence each year.

Cummings



Goodman cutting ice in front of 320 structure prior to placing straw and styrofoam insulation strip.

Fields

Urdike and Brandt breaking off ice chunks and sinking them in preparation for the insulation strip. Styrofoam was obtained from surplus in 4' x 8' x 2' blocks and works very well for this operation.

Fields



3-1750

Form NR-1

(Rev. March 1953)

WATERFOWL

REFUGE

MONTHS OF

TC

444

1968

[illegible]

WATERFOWL
 (Continuation Sheet)

REFUGE J. Clark Salyer MONTHS OF January TO April, 19 68

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Estimated seen : total	
	3/8	3/25	4/1	4/8	4/15	4/22	4/29	5/6			
Swans:	11	12	13	14	15	16	17	18			
Whistling				20	25	40	45	45	955		
Trumpeter											
Geese:											
Canada	150	500	2,500	2,000	1,400	500	500	500	53,770		
Cackling											
Brant											
White-fronted	20	1,000	2,500	1,500	300	250	50	50	39,390		
Snow)											
Blue)		3,000	15,000	20,000	25,000	20,000	10,000	10,000	661,000		
Other											
Ducks:											
Mallard	10	100	600	1,500	3,500	5,000	7,000	7,000	13,005		
Black											
Gadwall			75	375	550	1,000	1,200	1,200	23,600		
Baldpate			600	800	1200	2,500	2,800	2,800	58,100		
Pintail	15	75	800	1,000	1,800	1,800	2,000	2,000	50,800		
Green-winged teal			150	275	350	500	600	600	13,725		
Blue-winged teal			50	250	400	1,000	1,500	1,500	23,900		
Cinnamon teal											
Shoveler			250	300	750	800	900	900	21,300		
Wood				50	75	75	50	50	1,600		
Redhead			200	250	800	950	1,000	1,000	23,450		
Ring-necked			100	75	50	80	110	110	3,015		
Canvasback	5	20	50	100	150	200	250	250	5,675		
Scaup	100	200	1,000	1,500	3,000	5,500	7,000	7,000	148,100		
Goldeneye	10	15	100	100	250	275	300	300	7,650		
Bufflehead		10	25	15	10	40	50	50	1,100		
Ruddy					10	15	100	100	975		
Other											
Coot:		30	200	350	400	450	500	500	14,010		
				(over)							

	(5) Total Days Use	:	(6) Peak Number	:	(7) Total Production	SUMMARY
Swans	955	:	15	:		Principal feeding areas
Geese	72,160	:	26,700	:		
Ducks	512,015	:	24,860	:		Principal nesting areas
Coots	14,010	:	500	:		
						Reported by <u>Gerald E. Cummings</u>

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).

W A T E R F O W L

REFUGE J. Clark Salyer

MONTHS OF MAY TO AUGUST 31, 1968

(1) Species	(2) Weeks of reporting period									
	05-07 1	05-14 2	05-21 3	05-28 4	06-04 5	06-11 6	06-18 7	06-25 8	07-02 9	07-09 10
Swans:										
Whistling				2						
Trumpeter										
Geese:										
Canada	250	250	250	250	370	400	500	600	600	600
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	595	600	640	590	600	750	1,500	2,000	3,500	3,500
Black										
Gadwall	400	300	350	350	350	350	450	1,000	2,000	2,000
Baldpate	500	500	520	530	600	750	1,500	2,000	2,800	3,000
Pintail	900	950	900	940	1,000	1,500	3,000	3,500	4,500	4,600
Green-winged teal	600	620	620	650	1,000	1,200	1,500	2,000	3,000	3,000
Blue-winged teal	800	600	600	590	800	900	1,000	1,200	3,000	3,500
Cinnamon teal										
Shoveler	850	700	750	765	1,000	1,500	3,000	3,500	4,000	4,000
Wood										
Redhead	400	410	360	355	600	800	1,200	1,400	1,700	2,000
Ring-necked										
Canvasback	350	325	290	295	450	500	700	900	1,400	1,500
Scaup	250	275	240	235	300	600	650	800	1,300	1,400
Goldeneye										
Bufflehead										
Ruddy	500	450	400	415	500	500	1,500	1,600	2,000	2,000
Other										
Coot	1,500	2,000	2,000	2,000	2,000	2,500	3,000	3,000	4,000	4,000

WATERFOWL
 (Continuation Sheet)

REFUGE J. Clark Salyer MONTHS OF MAY TO AUGUST 31, 1968

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated, seen : total	
	07-16	07-23	07-30	08-06	08-13	08-20	08-27	08-31			
Swans:											
Whistling									14		
Trumpeter											
Geese:											
Canada	600	600	600	600	600	600	600	600	60,200		300
Cackling											
Brant											
White-fronted											
Snow											
Blue											
Other											
Ducks:											
Mallard	3,800	4,000	5,500	7,500	10,000	12,000	15,000	15,000	564,525		4,315
Black											
Gadwall	2,500	3,000	4,000	9,000	12,000	15,000	16,000	16,000	547,350		11,050
Baldpate	3,500	3,500	3,000	3,800	2,500	2,500	3,000	3,000	245,500		300
Pintail	4,700	3,000	2,500	1,500	2,000	2,000	4,000	4,000	207,530		300
Green-winged teal	3,500	3,500	3,000	2,800	2,600	2,500	3,000	3,000	257,630		190
Blue-winged teal	4,000	4,500	5,000	5,500	6,500	8,000	6,000	6,000	391,430		4,850
Cinnamon teal											
Shoveler	4,500	4,500	4,000	4,000	4,000	4,000	3,000	3,000	348,455		200
Wood											
Redhead	2,500	2,400	2,000	1,800	1,800	1,500	1,500	1,500	163,675		510
Ring-necked											
Canvasback	1,500	1,400	1,300	1,300	1,200	1,100	1,300	1,300	115,870		150
Scaup	1,400	1,300	1,250	1,250	1,200	1,200	1,200	1,200	108,750		200
Goldeneye											
Bufflehead											
Ruddy	2,000	2,000	1,900	1,900	1,850	1,800	1,800	1,800	167,005		1,220
Other											
Coot:	4,500	5,000	5,000	5,500	5,500	6,000	9,000	9,000	501,500		3,000
				(over)							

	(5) Total Days Use	:	(6) Peak Number	:	(7) Total Production	SUMMARY
Swans	14	:	2	:	0	Principal feeding areas _____
Geese	60,290	:	600	:	300	_____
Ducks	3,200,720	:	55,800	:	23,435	Principal nesting areas _____
Coots	501,500	:	9,000	:	3,000	_____
						Reported by <u>Tommy J. Early, Refuge Manager (trainee)</u>

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).

W A T E R F O W L

REFUGE J. Clark Salyer

MONTHS OF September 1 TO December 31, 19 68

(1) Species	Weeks of reporting period									
	9/7	9/14	9/21	9/28	10/5	10/12	10/19	10/26	11/2	11/9
	1	2	3	4	5	6	7	8	9	10
Swans:										
Whistling	100	100	170	300	700	900	1,200	1,500	1,500	1,100
Trumpeter										
Geese:										
Canada	600	600	600	600	800	1,200	1,900	2,400	2,000	1,500
Cackling										
Brant										
White-fronted	100	4,500	14,500	20,300	21,000	12,000	7,000	4,500	4,000	3,000
Snow)										
Blue)				130	100	1,500	3,500	5,000	8,000	8,500
Other										
Ducks:										
Mallard	21,000	35,000	48,500	55,500	55,500	58,000	60,000	65,000	55,000	72,000
Black										
Gadwall	12,500	21,900	22,500	23,000	25,000	25,500	22,000	21,300	16,000	13,000
Baldpate	5,400	6,000	7,000	8,000	8,000	8,000	7,500	7,500	7,000	8,000
Pintail	6,000	8,000	10,500	15,000	17,000	17,300	15,500	15,500	14,000	20,000
Green-winged teal	4,200	5,000	6,300	6,800	7,000	6,500	4,500	1,000	500	0
Blue-winged teal	6,000	6,500	8,500	8,000	4,500	3,000	2,500	500	0	0
Cinnamon teal										
Shoveler	5,000	6,000	6,500	7,000	7,000	6,500	4,500	3,000	2,500	2,000
Wood	100	100	100	0	0	0	0	0	0	0
Redhead	1,500	2,500	3,000	3,300	3,300	3,200	3,000	1,700	1,500	1,500
Ring-necked										
Canvasback	1,300	1,500	1,600	1,700	1,700	1,500	1,000	1,000	1,000	1,000
Scaup	1,500	1,000	2,000	2,200	2,500	2,500	2,500	2,500	2,500	2,500
Goldeneye										
Bufflehead										
Ruddy	2,000	2,500	3,500	3,500	3,500	3,000	2,000	1,000	0	0
Other										
Total Ducks.....	66,500	96,800	120,000	133,000	135,000	135,000	125,000	120,000	100,000	120,000
Coot:	11,000	11,000	12,000	12,000	10,000	10,000	5,000	5,000	3,000	2,500

WATERFOWL
 (Continuation Sheet)

REFUGE J. Clark Salyer MONTHS OF September TO December 31, 1968

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production : Broods: Estimated : seen : total	
	11/16	11/23	11/30	12/7	12/14	12/21	12/28	12/31		: seen :	: total
	11	12	13	14	15	16	17	18			
Swans:											
Whistling	600	100	50						58,240		
Trumpeter											
Geese:											
Canada	1,100	200	50						94,850		
Cackling											
Brant											
White-fronted	1,500	300	0						649,320		
Snow) -----											
Blue) -----	3,500	400							216,510		
Other											
Ducks:											
Mallard	110,000	25,000	8,000	1,500	200				4,691,400		
Black											
Gadwall	23,300	11,000	1,000	300	50				1,668,450		
Baldpate	9,500	4,000	500	100					598,500		
Pintail	26,000	5,000	1,000	200	50				1,197,350		
Green-winged teal									292,600		
Blue-winged teal									276,500		
Cinnamon teal											
Shoveler	1,500	500							364,000		
Wood									2,100		
Redhead	1,500	100	50						183,050		
Ring-necked	300	50							2,450		
Canvasback	600	50	50						98,000		
Scaup	2,500	100	50						176,050		
Goldeneye											
Bufflehead											
Ruddy											
Other											
Total Ducks	175,200	45,800	10,650	2,100	300						
Coot:	1,000	100							992,180		
				(over)							

	(5) Total Days Use	:	(6) Peak Number	:	(7) Total Production		SUMMARY
Swans	58,240	:	1,500	:		Principal feeding areas	Flooded grain fields 5 - 15 miles
Geese	960,680	:	38,400	:		east and 3 - 12 miles north of refuge headquarters	
Ducks	9,697,450	:	175,200	:		Principal nesting areas	
Coots	992,180	:	25,000	:			
Reported by							Rodney J. King, Refuge Manager (trainee)

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 J. Clark Salyer Months of January to April 195 63

(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 grebe	1	4/11/68	Common							
Pied-billed grebe	2	4/11	"							
Pelican	5	4/03	"							
Double-crested Cormorant	1	4/03	"							
Black-crowned heron	5	4/15	"							
Sandhill crane	6	4/05	"							
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	1	4/11	Common							
Harbled godwit	2	4/20	"							
Ring-billed gull	30	3/25	Abundant							
Franklin's gull	10	4/01	"							

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons: Mourning dove White-winged dove	1	06/13/68	Common		
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow Marsh hawk Short-eared owl Red-tailed hawk	1	03/15	Common Common Common Common		
Reported by <u>Gerald E. Cummings</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.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge J. Clark Salper Months of 5/1 to 5/1 1954

(1) Species Common Name	(2) First Seen		(3) Peak Numbers		(4) Last Seen		(5) Production		(6) Total Estimated Number
	Number	Date	Number	Date	Number	Date	Number Colonies	Total # Nests	Total Young
I. Water and Marsh Birds:									
Harlequin duck			abundant						
Pink-billed grebe	1	5/5	common						
White pelican			common						
Double-crested cormorant			common						
Smallmouth bass	2	7/22							
Western grebe	1	5/2	common						
American bittern			abundant						
Great blue heron			common						
Black-crowned night heron	8	5/5	abundant						
II. Shorebirds, Gulls and Terns:									
Common tern			abundant						
Black tern			common						
Upland plover			common						
Marbled godwit			common						
Avocet	1	5/1							
Pinkish gull			abundant						
Ring-billed gull			abundant						
Willet			common						
Wilson's snipe	1	5/1	common						
Widgeon	1	5/5	common						
III. Waterfowl:									

(1)	(2)	(3)	(4)	(5)	(6)
III. <u>Doves and Pigeons</u> : Mourning dove White-winged dove	1	abundant			
IV. <u>Predaceous Birds</u> : Golden eagle Duck hawk Horned owl Magpie Raven Crow		common			
Marsh hawk Red-tailed hawk Swainson's hawk Cooper's hawk Barn owl Short-eared owl		common			
Reported by <u>G. E. Cummings</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.

3-1751
Form NR-1A
(Nov. 1945)

MIGRATORY BIRDS
(other than waterfowl)

Refuge J. Clark Salyer

Months of September to December 195 68

(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>										
Sandhill crane			75	10-9						
Great Blue Heron					1	11-10				
Double-crested Cormorant					7	10-26				
II. <u>Shorebirds, Gulls and Terns:</u>										
Ring-billed Gull					6	11-26				

(over)

(1)	(2)	(3)	(4)	(5)	(6)
III. Doves and Pigeons: Mourning dove White-winged dove			1 11-17		
IV. Predaceous Birds: Golden eagle Duck hawk Horned owl Magpie Raven Crow Bald eagle Snowy owl	1 1	11-01 11-19			
Reported by <u>Rodney J. King</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 HABITAT

Refuge J. Clark Salyer For 12-month period ending August 31, 1968

Reported by G. E. Cummings Title Refuge Manager (Assistant)

(1)	(2)	(3)	(4)	(5)
Area or Unit	Habitat		Breeding	
Designation	Type Acreage	Use-days	Population	Production
357-Unit 1	Crops 1,013	Ducks 2,107,120	1,100	3,835
	Upland 4,070	Geese 330,030		
	Marsh 1,771	Swans 6,170		
	Water 3,705	Coots 150,015		
	Total 10,559	Total 2,636,135		
341-Unit 2	Crops 277	Ducks 1,095,700	1,200	4,300
	Upland 2,000	Geese 190,500		
	Marsh 1,709	Swans 3,795		
	Water 1,387	Coots 114,700		
	Total 5,433	Total 1,413,015		
332-Unit 3	Crops 556	Ducks 2,107,115	2,400	6,000
	Upland 1,733	Geese 330,030		
	Marsh 2,400	Swans 6,170		
	Water 731	Coots 100,015		
	Total 5,483	Total 2,636,125		
326-Unit 4	Crops 105	Ducks 1,132,350	1,200	4,300
	Upland 2,432	Geese 190,500		
	Marsh 2,700	Swans 3,795		
	Water 1,000	Coots 114,700		
	Total 7,437	Total 1,750,345		
Benson Unit-5	Crops 203	Ducks		
	Upland 47	Geese		
	Marsh 537	Swans		
	Water 120	Coots		
	Total 1,000	Total		
Rubble-harry Unit 6	Crops 10	Ducks		
	Upland 100	Geese		
	Marsh 400	Swans		
	Water 100	Coots		
	Total 1,010	Total		
320-Unit 7	Crops 327	Ducks 1,605,075	1,600	5,000
	Upland 2,100	Geese 150,000		
	Marsh 2,370	Swans 3,795		
	Water 2,000	Coots 114,700		
	Total 5,397	Total 2,262,670		

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) Area or Unit: A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (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.

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

(Continued)

Refuge J. Clark Salyer For 12-month period ending August 31, 1960

Reported by G. E. Cummings Title Range Manager (Assistant)

(1)	(2)	(3)	(4)	(5)
Area or Unit	Habitat		Breeding	
Designation	Type Acreage	Use-days	Population	Production
Sandhills	Crops <u>27</u>	Ducks <u>NOT</u>		
Unit 1	Upland <u>20,000</u>	Geese <u></u>		
	Marsh <u>0</u>	Swans <u>COUNTED</u>		
	Water <u>200</u>	Coots <u></u>		
	Total <u>20,200</u>	Total <u></u>		
Willow Potholes	Crops <u>0</u>	Ducks <u>NOT</u>		
Unit 2-A	Upland <u>707</u>	Geese <u></u>		
	Marsh <u>30</u>	Swans <u>COUNTED</u>		
	Water <u>3</u>	Coots <u></u>		
	Total <u>740</u>	Total <u></u>		
Thompson	Crops <u>0</u>	Ducks <u>NOT</u>		
Unit 3-B	Upland <u>200</u>	Geese <u></u>		
	Marsh <u>0</u>	Swans <u>COUNTED</u>		
	Water <u>0</u>	Coots <u></u>		
	Total <u>200</u>	Total <u></u>		
TOTAL	Crops <u>27</u>	Ducks <u>0,100,000</u>	<u>7,500</u>	<u>25,000</u>
	Upland <u>20,000</u>	Geese <u>2,500,000</u>		<u>300</u>
	Marsh <u>30</u>	Swans <u>20,000</u>		
	Water <u>200</u>	Coots <u>700,000</u>		<u>3,000</u>
	Total <u>20,200</u>	Total <u>22,800,000</u>		
	Crops <u></u>	Ducks <u></u>		
	Upland <u></u>	Geese <u></u>		
	Marsh <u></u>	Swans <u></u>		
	Water <u></u>	Coots <u></u>		
	Total <u></u>	Total <u></u>		
	Crops <u></u>	Ducks <u></u>		
	Upland <u></u>	Geese <u></u>		
	Marsh <u></u>	Swans <u></u>		
	Water <u></u>	Coots <u></u>		
	Total <u></u>	Total <u></u>		
	Crops <u></u>	Ducks <u></u>		
	Upland <u></u>	Geese <u></u>		
	Marsh <u></u>	Swans <u></u>		
	Water <u></u>	Coots <u></u>		
	Total <u></u>	Total <u></u>		

(over)

INSTRUCTIONS

All tabulated information should be based on the best available techniques for obtaining these data. Estimates having no foundation in fact must be omitted. Refuge grand totals for all categories should be provided in the spaces below the last unit tabulation. Additional forms should be used if the number of units reported upon exceeds the capacity of one page. This report embraces the preceding 12-month period, NOT the fiscal or calendar year, and is submitted annually with the May-August Narrative Report.

- (1) **Area or Unit:** A geographical unit which, because of size, terrain characteristics, habitat type and current or anticipated management practices, may be considered an entity apart from other areas in the refuge census pattern. The combined estimated acreages of all units should equal the total refuge area. A detailed map and accompanying verbal description of the habitat types of each unit should be forwarded with the initial report for each refuge, and thereafter need only be submitted to report changes in unit boundaries or their descriptions.
- (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.

[illegible]

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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge J. Clark Salyer

Months of MAY to AUGUST 31, 19 68

(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 observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant									1,800	All the species included had very favorable weather conditions during the winter and spring nesting season
Gray Partridge									350	
Sharp-tailed Grouse									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.

3-1752
Form NR-2
(April 1946)

UPLAND GAME BIRDS

Refuge J. Clark Salyer

Months of September to December 31, 1968

(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 observed	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Ring-necked Pheasant									1,100	All areas of the refuge were open to the hunting of these three species from November 18 to December 15. Hunter success was low.
Gray Partridge									600	
Sharp-tailed Grouse									500	

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.

3-1753
Form NR-3
(June 1945)

BIG GAME

Refuge Salyer National Wildlife Refuge Calendar Year 1968

(1) Species Common Name	(2) Density Cover types, total Acreage of Habitat	(3) Young Produced Number	(4) Removals				(5) Losses			(6) Introductions Source Number	(7) Estimated Total Refuge Population		(8) Sex Ratio
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		At period of Greatest use	As of Dec. 31	
White-tailed Deer	Cropland -	2,536	60	deer harvested in 9½ day season. (Bucks only)							No annual deer census due to insufficient snow.		
	Hayland -	6,153											
	Grassland	23,213											
	Marsh	11,003											
	Timberland	4,235											
	Brush	2,350											
	Total Habitat	49,490											

Remarks:

Reported by Rodney J. King (Refuge Manager Trainee)

INSTRUCTIONS

Form NR-3 - BIG GAME

- (1) SPECIES: Use correct common name; i.e., Mule deer, black-tailed deer, white-tailed deer. It is unnecessary to indicate sub-species such as northern or Louisiana white-tailed deer.
- (2) DENSITY: 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 total number of young produced on refuge.
- (4) REMOVALS: Indicate total number in each category removed during the year.
- (5) LOSSES: On the basis of known records or reliable estimates indicate total losses in each category during the year.
- (6) INTRODUCTIONS: Indicate the number and refuge or agency from which stock was secured.
- (7) TOTAL REFUGE POPULATION: Give the estimated population of each species on the refuge at period of its greatest abundance and also as of Dec. 31.
- (8) SEX RATIO: Indicate the percentage of males and females of each species as determined from field observations or through removals.

116000

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge J. Clark Salyer Refuge

Year ending April 30, 1968

(1) Species	(2) Density	(3) Removals					(4) Disposition of Furs					(5) Total Popula- tion		
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed	
								Permit Number	Trappers Share	Refuge share				
Muskrat				76				LoSo-11	15	5				5,000
Mink				22				12	30	10				
Mink				99				11	22	22				350
								12	15	14				
								12	12	13				
Weasel				8				11	4	4				200
								12	2	2				
								12	1	1				
Raccoon				32	30			11	4	0				250
								12	23	0				
								12	5	0				
Skunk				21	51			11	12	0				200
								12	3	0				
								12	6	0				

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Gerald E. Cummings

Reported by

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- (1) SPECIES: Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.)
 - (2) DENSITY: Applies particularly to those species considered in removal programs. 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, bottom land 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) REMOVALS: Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed.
 - (4) DISPOSITION OF FUR: On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprime-ness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided.
 - (5) TOTAL POPULATION: Estimated total population of each species reported on as of April 30.
- REMARKS: Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested.

3-1754
Form NR-4
(June 1945)

SMALL MAMMALS

Refuge J. Clark Salyer Refuge

Year ending April 30, 1968

(1) Species	(2) Density	(3) Removals					(4) Disposition of Furs						(5) Total Popula- tion
Common Name	Cover Types & Total Acreage of Habitat	Acres Per Animal	Hunting	Fur Harvest	Predator Control *	For Re- stocking	For Re- search	Share Trapping			Total Refuge Furs Shipped	Furs Donated	Furs Destroyed
								Permit Number	Trappers Share	Refuge share			
Badger				13	5			1-50-1	0	0			75
Fox				11	17			0	0	0			150

* List removals by Predator Animal Hunter

* List removals by Predator Animal Hunter

REMARKS:

Reported by Gerald E. Cummings

INSTRUCTIONS

Form NR-4 - SMALL MAMMALS (Include data on all species of importance in the management program; i. e., muskrats, beaver, coon, mink, coyote. Data on small rodents may be omitted except for estimated total population of each species considered in control operations.)

- | Cover Types | Density | Removals | Disposition of Fur | Total Population | Remarks |
|-------------|---------------------|----------|--------------------|------------------|--|
| (1) | SPECIES: | | | | Use correct common name. Example: Striped skunk, spotted skunk, short-tailed weasel, gray squirrel, fox squirrel, white-tailed jackrabbit, etc. (Accepted common names in current use are found in the "Field Book of North American Mammals" by H. E. Anthony and the "Manual of the Vertebrate Animals of the Northeastern United States" by David Starr Jordan.) |
| (2) | DENSITY: | | | | Applies particularly to those species considered in removal programs. 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, bottom land 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) | REMOVALS: | | | | Indicate the total number under each category removed since April 30 of the previous year, including any taken on the refuge by Service Predatory Animal Hunter. Also show any removals not falling under headings listed. |
| (4) | DISPOSITION OF FUR: | | | | On share-trapped furs list the permit number, trapper's share, and refuge share. Indicate the number of pelts shipped to market, including furs taken by Service personnel. Total number of pelts of each species destroyed because of unprimeness or damaged condition, and furs donated to institutions or other agencies should be shown in the column provided. |
| (5) | TOTAL POPULATION: | | | | Estimated total population of each species reported on as of April 30. |
| | REMARKS: | | | | Indicate inventory method(s) used, size of sample area(s), introductions, and any other pertinent information not specifically requested. |

DISEASE

Refuge J. Clark Salyer

Year 19. 68

Botulism

Period of outbreak August 2

Period of heaviest losses August 7 - 22

Losses:

	Actual Count	Estimated
(a) Waterfowl	<u>5</u>	<u>15</u>
(b) Shorebirds	<u>2</u>	<u>6</u>
(c) Other White Pelican	<u>1</u>	<u>4</u>

Number Hospitalized	No. Recovered	% Recovered
---------------------	---------------	-------------

(a) Waterfowl	<u> </u>	<u> </u>
(b) Shorebirds	<u> </u>	<u> </u>
(c) Other	<u> </u>	<u> </u>

Areas affected (location and approximate acreage) 825
South end of Pool 320

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.)
Water was high during the summer and a large influx of fresh water in August plus cool temperatures kept losses at a minimum.

Condition of vegetation and invertebrate life
Heavy growth of blue-green algae in the south end of 320 pool. Water movements forced algae onto 320 dike.
Remarks

Lead Poisoning or other Disease

Kind of disease Rabies

Species affected Mink

Number Affected

Species	Actual Count	Estimated
<u>1</u>	<u>1</u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

Number Recovered

Number lost

Source of infection Unknown

Water conditions Water conditions were high compared to last five years.

Food conditions Excellent

Remarks This mink was killed in the first week of April and sent to the University of North Dakota for examination. There was positive evidence for rabies.

3-1757
Form NR-7
(Rev. June 1960)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

(1)

Refuge J. Clark Salyer

Year 19 68

Collections and Receipts (Seeds, rootstocks, trees, shrubs)							Plantings (Marsh - Aquatic - Upland)						
Species	Amount (lbs., bus., etc.)	(2) C or R	Date	Method or Source	Cost	(3) Total Amount on Hand	Location of Area Planted	Rate of Seeding or Planting	Amount Planted (Acres or Yards of Shoreline)	Amount and Nature of Propagules	Date	Survival	Cause of Loss
Lilac villosa							Stripes a, d	3'	*	375	**		
Caragana							and g of Ag	3'		2,435			
Honey suckle							Unit 29a	3 - 4'		970			
Plum							(Sec. 5	4 - 5'		975			
Russian olive							T 1597	4 - 5'		1,550			
Siberian elm							R 700)	6 - 8'		1,190			
Ash								6 - 8'		605			
American elm								6 - 8'		795			
Green ash								6 - 8'		1,155			
Golden currant								4 - 5'		1,175			
Colo. blue spruce								6 - 8'		2,005			
Ponderosa pine								6 - 8'		1,155			
E. red cedar								4 - 5'		1,025			
Choke cherry								4 - 5'		660			
Black hills spruce								6 - 8'		185			
R.H. rose								3'		330			
										15,835			

- (1) Report agronomic farm crops on Form NR-8
(2) C = Collections and R = Receipts
(3) Use "S" to denote surplus

Total acreage planted:

Marsh and aquatic _____
Hedgerows, cover patches _____
Food strips, food patches _____
Forest plantings _____

Remarks: This shelterbelt planted in conjunction with agricultural farming for wildlife and is part of the refuge 12-year planting program.

~~= Total of 83,600 linear feet planted on three 10.5 acre (31.5) strips by S.C.B. at a cost of \$1,672. (\$2 per 100 linear feet).~~

~~** Planting took place April 23 and 24 and May 20, 1968.~~

CULTIVATED CROPS - HAYING - GRAZING

Refuge J. Clark Salyer County McHenry State North Dakota

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./ Tons	Acres	Bu. /Tons			
Wheat	170	2,500	28	510	11	150	209	Sweet clover	114
Barley	137	2,575	44	940	30	330	261	Alfalfa	46
Oats	81	1,150	16	220	21	160	118		
Millet					8	320	8		
Corn	111	150 tons			9	15 tons	120		
Field Peas*					1	0	1		
Soy Beans*					1	0	1		
* Experimental -- crop failure due to wet and cold conditions								Fallow Ag. Land.	195

No. of Permittees: Agricultural Operations 10 Haying Operations 40 Grazing Operations 25

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa	50 tons	84	00	1. Cattle	1,145	1,133.23	17,576.41	14,024
refuge average share taken in grain crop.				2. Other	1 horse	2.60	6.37	10
				1. Total Refuge Acreage Under Cultivation				1,157
Hay - Wild Marsh	1,282.65		\$3,847.95	2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR--8,
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

CULTIVATED CROPS - HAYING - GRAZING

Refuge J. Clark Salyer County Bottineau State North Dakota

Cultivated Crops Grown	Permittee's		Government's Share or Return				Total Acreage Planted	Green Manure, Cover and Water- fowl Browsing Crops Type and Kind	Total Acreage
	Share	Harvested	Harvested		Unharvested				
			Acres	Bu./ Tons	Acres	Bu. /Tons			
Wheat	226	4,350	60	1,050	8	230	294	Sweet clover	112
Barley	527	12,300	115	3,400	28	550	672	Alfalfa	47
Oats	153	3,900	43	1,150	12	300	208		

No. of Permittees: Agricultural Operations 16 Haying Operations 0 Grazing Operations 13

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	Grazing	Number Animals	AUM'S	Cash Revenue	ACREAGE
Alfalfa	5 tons	23	00	1. Cattle	377	1,018.74	\$2,495.91	2,544
				2. Other	1 horse	7.33	17.96	60
				1. Total Refuge Acreage Under Cultivation				1,747
Hay - Wild	0			2. Acreage Cultivated as Service Operation				0

DIRECTIONS FOR PREPARING FORM NR--8'
CULTIVATED CROPS - HAYING - GRAZING

Report Form NR-8 should be prepared on a calendar-year basis for all crops which were planted during the calendar year and for haying and grazing operations carried on during the same period.

Separate reports shall be furnished for Refuge lands in each county when a refuge is located in more than one county or State.

Cultivated Crops Grown - List all crops planted, grown and harvested on the refuge during the reporting period regardless of purpose. Crops in kind which have been planted by more than one permittee or this Service shall be combined for reporting purposes.

Permittee's Share - Only the number of acres utilized by the permittee for his own benefit should be shown under the Acres column, and only the number of bushels of farm crops harvested by the permittee for himself should be shown under the Bushels Harvested column. Report all crops harvested in bushels or fractions thereof except such crops as silage, watermelons, cotton, tobacco, and hay, which should be reported in tons or fractions thereof.

Government's Share or Return - Harvested Show the acreage and number of bushels harvested for the Government of crops produced by permittees or refuge personnel. Unharvested Show the exact acreage and the estimated number of bushels of grain available for wildlife. If grazing is made available to waterfowl through the planting of grain, cover, green manure, grazing or hay crops, estimate the tonnage of green food produced or utilized and report under Bushels Unharvested column.

Total Acreage Planted - Report all acreage planted, including crop failures.

Green Manure, Cover and Waterfowl Grazing Crops Specify the acreage kind and purpose of the crop. These crops and the acreage may be duplicated under cultivated crops if planted during the year, or a duplication may occur under hay if the crop results from a perennial planting.

Hay - Improved - List separately the kinds of improved hay grown. Annual plantings should also be reported under Cultivated Crops, and perennial hay should be listed in the same manner at time of planting

Total Refuge Acreage Under Cultivation Report total land area devoted to agricultural purposes during the year.

REFUGE GRAIN REPORT

Refuge J. Clark SalyerMonths of January through December, 19568

(1) VARIETY*	(2) ON HAND BEGINNING OF PERIOD	(3) RECEIVED DURING PERIOD	(4) TOTAL	(5) GRAIN DISPOSED OF				(6) ON HAND END OF PERIOD	(7) PROPOSED OR SUITABLE USE*		
				Transferred	Seeded	Fed	Total		Seed	Feed	Surplus
Mixed grain	18,174		18,174								
Barley		3,240	3,240								
Oats		1,370	1,370								
Wheat		1,560	1,560								
Wheat (Red River)		40	40								
Totals	18,174	6,910	25,084		11,830		14,230	10,854	40*	10,814	

(8) Indicate shipping or collection points

(9) Grain is stored at headquarters grain bins, 357 and Deep River

(10) Remarks

*See instructions on back.

* Suitable for seeding new crop (Red River wheat)

(10) Remarks

NR-8a

(2) Grain is stored at

REFUGE GRAIN REPORT

(8) Indicate shipping or collection points

This report should cover all grain on hand, received, or disposed of, during the period covered by this narrative report.

Report all grain in bushels. For the purpose of this report the following approximate weights of grain shall be considered equivalent to a bushel: Corn (shelled)—55 lb., corn (ear)—70 lb., wheat—60 lb., barley—50 lb., rye—55 lb., oats—30 lb., soy beans—60 lb., millet—50 lb., cowpeas—60 lb., and mixed—50 lb. In computing volume of granaries, multiply the cubic contents (cu. ft.) by 0.8 bushels.

- (1) List each type of grain separately and specifically, as flint corn, yellow dent corn, square deal hybrid corn, garnet wheat, red May wheat, durum wheat, spring wheat, proso millet, combine milo, new era cowpeas, mikado soy beans, etc. Mere listing as corn, wheat, and soybeans will not suffice, as specific details are necessary in considering transfer of seed supplies to other refuges. Include only domestic grains; aquatic and other seeds will be listed on NR-9.
- (3) Report all grain received during period from all sources, such as transfer, share cropping, or harvest from food patches.
- (4) A total of columns 2 and 3.
- (6) Column 4 less column 5.
- (7) This is a proposed break-down by varieties of grain listed in column 6. Indicate if grain is suitable for seeding new crops.
- (8) Nearest railroad station for shipping and receiving.
- (9) Where stored on refuge: "Headquarters granary," etc.
- (10) Indicate here the source of grain shipped in, destination of grain transferred, data on condition of grain, unusual uses proposed.

16-61482-1 U. S. GOVERNMENT PRINTING OFFICE

VARIETIES	OF PERIOD	PERIOD	TOTAL	TRANSFERRED	SEEDING	FEED	LOST	PERIOD	SEED	FEED	SHIPPING
	RECEIVING	DELIVERED		GRAIN DISPOSED OF				END OF	PROPOSED ON SUITABLE USE		
(1)	(2)	(3)	(4)	(5)				(6)	(7)		

Refuge

1. Clark County

Months of January

through December

1923

REFUGE GRAIN REPORT

TIMBER REMOVAL

Refuge Salyer National Wildlife Refuge Year 195 1968

Permittee	Permit No.	Unit or Location	Acreage	No. of Units Expressed in B. F., ties, etc.	Rate of Charge	Total Income	Reservations and/or Diameter Limits	Species Cut
Leland S. Goodman	622	2	1		\$5/cord	\$5.00		Ash

Total acreage cut over 1 Total income \$5.00

No. of units removed B. F. _____ Method of slash disposal scattered

Cords 1

Ties _____

J. Clark Salyer

ANNUAL REPORT OF PESTICIDE APPLICATION

Proposal Number

3-68
2-68

Reporting Year

1968

INSTRUCTIONS: Wildlife Refuges Manual, secs. 3252d, 3394b and 3395.

Date(s) of Application	List of Target Pest(s)	Location of Area Treated	Total Acres Treated	Chemical(s) Used	Total Amount of Chemical Applied	Application Rate	Carrier and Rate	Method of Application
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<u>3-68</u> 06-01-68 through 06-30-68	Leafy spurge	Patches over entire refuge as documented in December 1962 Narrative Report plus new areas	80 500	Tordon, 22-K 2,4D L.V. Ester	240 lbs.	2 lbs./acre 2 lbs./acre	water water	truck truck
<u>2-68</u> 04/68 * 10/68	Quack and broom grass	Wildlife Units: D-3 D-11 Westford Grove and Ag. Unit 29-a (tree planting)	35	Sinazine 80W and 40		4 lbs./acre	water	truck

10. Summary of results (continue on reverse side, if necessary)

*Carried out by Soil Conservation District and paid for by refuge.