

Pathfinder NWR - Narrative Report -  
1969



3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

W A T E R F O W L  
 (Continuation Sheet)

REFUGE Pathfinder

MONTHS OF September TO December, 1969

(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production
	11/9-15 11	11/16-22 12	11/23-29 13	11/30-12/6 14	12/7-13 15	12/14-20 16	12/21-27 17	12/28-31 18	waterfowl days use	Broods:Estimat: seen : total
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada	150	50	50	40	40	20	20	20	17,090	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard	175	175	200	250	250	250	225	225	22,115	
Black										
Gadwall	5								1,120	
Baldpate	10								4,130	
Pintail	20	10							9,695	
Green-winged teal									9,205	
Blue-winged teal									2,170	
Cinnamon teal									1,225	
Shoveler									735	
Wood										
Redhead										
Ring-necked										
Canvasback									110	
Scaup									501	
Goldeneye	10	15	20	20	25	25	25	25	1,116	
Bufflehead										
Ruddy										
Other Com. Merg.	10	15	15	15	20		20	25	1,115	
Total Ducks	230	215	235	285	295	275	270	275	53,600	
				(over)						

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	0	0	--
Geese	17,090	475	--
Ducks	53,600	805	--
Coots	0	0	--

SUMMARY

Principal feeding areas Sweetwater River, Soda Lakes,

Goose Bay, DeWeese Creek, North Platte River

Principal nesting areas \_\_\_\_\_

Reported by V. Carrol Donner

Observed by David E. Heffernan

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  
(Aug. 1952)

MIGRATORY BIRDS  
(Other than Waterfowl)

Refuge Pathfinder

Months of September

to December

, 19 69

(1) Species  Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total Estimated Use
	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	
<b>I. <u>Water and Marsh Birds:</u></b>										
Eared grebe	9	9/1	9	9/1-9/10	1	10/22				175
Western grebe	4	9/1	4	9/1-10/1	2	10/22				150
White pelican	2	9/1	10	10/1-10/31	3	10/23				500
Great blue heron	6	9/1	6	9/1-10/31	1	12/4				400
<b>II. <u>Shorebirds, Gulls and Terns:</u></b>										
Killdeer	11	9/1	25	9/10-10/10	4	10/23				1,200
Long-billed curlew	8	9/1	8	9/1-9/10	1	10/23				200
Willet	4	9/1	4	9/1-9/10	2	9/30				100
American avocet	80	9/1	80	9/1-10/1	10	10/23				3,000
Wilson's phalarope	275	9/1	275	9/1-9/10	6	10/23				4,000
California gull	12	9/1	12	9/1-10/1	3	10/23				500
(over)										

(1)	(2)		(3)		(4)		(5)		(6)
<b>III. Doves and Pigeons:</b>									
Mourning dove	60	9/1	75	9/15-10/1	1	10/22			2,000
White-winged dove									
<b>IV. Predaceous Birds:</b>									
Golden eagle	5	9/1	6	9/15-10/15	4	12/4			450
Duck hawk									
Horned owl	6	9/1	6	9/1-10/1	3	12/31			500
Magpie	30	9/1	30	9/1-12/1	25	12/31			3,000
Raven									
Crow	10	9/1	10	9/1-9/15	10	9/15			150
Bald Eagle	2	9/1	2	9/1-12/31	2	12/31			240
Burrowing owl	1	9/1	1	9/1-9/10	1	9/10			10
Turkey vulture	4	9/1	5	10/1-11/1	3	12/31			450
Ferruginous hawk	2	10/22	2	10/22-11/1	2	11/1			25
						Observed by David E. Heffernan			
						Reported by V. Carrol Donner			

**INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)**

- (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 migration record for the species for the reporting period.
- (3) **Peak Numbers:** Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

WATERFOWL HUNTER KILL SURVEY

Refuge Pathfinder

Year 1969

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
14	0	500	Canada goose  Mallard* Common goldeneye* Green-winged teal*  * This is an estimate of the decreasing order in which ducks were part of the bag.				75	25 geese 50 ducks

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}$ .

3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Pathfinder Months of September to December, 1969

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres per Bird	Number broods obs 'v' d. Estimated Total		Hunting	For Re-stocking	For Research		
Common Name	Cover types, total acreage of habitat			Percentage					
Sage grouse	Sagebrush flats, draws, and meadows 750 acres	4.25		100:100				175	Hunting season: August 30-September 30. 3/ day, 6 in possession.  Some utilization by hunters when birds move from refuge.

## 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 Pathfinder

Calendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio	
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		Number	Source		At period of Greatest use
Common Name	Cover types, total Acreage of Habitat	Number												
Pronghorn (Antelope)	Sagebrush flats and draws, hillsides, meadows, and shoreline of reservoir and rivers - 12,000 acres	150	200									1,500	1,000	20:100
Mule deer	Rocky hillsides, sagebrush draws, meadows, river bottoms - 2,000 acres	5	10									100	75	50:100

Remarks:

Pronghorn numbers up slightly.  
Light hunting pressure on deer, but good success.

Observed by David E. Heffernan  
Reported by V. Carrol Donner

## 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.

DISEASE

Refuge Pathfinder Year 19 69

Botulism None noted.

Lead Poisoning or other Disease None noted.

Period of outbreak \_\_\_\_\_

Period of heaviest losses \_\_\_\_\_

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Number Hospitalized      No. Recovered      % Recovered

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease \_\_\_\_\_

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

(1)

NONAGRICULTURAL COLLECTIONS, RECEIPTS, AND PLANTINGS

Refuge Pathfinder Year 1969

Species	Collections and Receipts (Seeds, rootstocks, trees, shrubs)						Plantings (Marsh - Aquatic - Upland)						
	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
	Nothing to report.												

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

Remarks: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Total acreage planted:  
 Marsh and aquatic \_\_\_\_\_  
 Hedgerows, cover patches \_\_\_\_\_  
 Food strips, food patches \_\_\_\_\_  
 Forest plantings \_\_\_\_\_

Fish and Wildlife Service Branch of Wildlife Refuges

CULTIVATED CROPS - HAYING - GRAZING

Refuge Pathfinder

County Carbon-Natrona

State Wyoming

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
	Acres	Bu./Tons	Acres	Bu./Tons	Acres	Bu./Tons			
None									
								Fallow Ag. Land	None

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

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	* Grazing administered by Bureau of Land Management			
				2. Other				
				1. Total Refuge Acreage Under Cultivation				None
Hay - Wild	None			2. Acreage Cultivated as Service Operation				None

\* Based on recommendations made by BSF&W

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 Pathfinder

Months of September through December, 1969

(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
Nothing to report. Refer to Hutton Lake Refuge report.											

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at \_\_\_\_\_

(10) Remarks \_\_\_\_\_

\*See instructions on back.

NR-8a

### REFUGE GRAIN REPORT

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

Variety	On Hand at Beginning of Month	On Hand at End of Month	Total	Disposition		Total	On Hand at End of Month	Disposition		Total
				Shipped	Received			Shipped	Received	
(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)		(9)

Period: September through December, 1942

REFUGE GRAIN REPORT

ANNUAL REPORT OF PESTICIDE APPLICATION

1969

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)
None								

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

N A R R A T I V E R E P O R T

Pathfinder National Wildlife Refuge

January through December  
1969

Administered from Arapaho National Wildlife Refuge  
Walden, Colorado

NO ASSIGNED PERSONNEL AT PATHFINDER REFUGE

REFUGE PERSONNEL - ARAPAHO

Refuge Manager . . . . . V. Carrol Donner  
Refuge Manager . . . . . David E. Heffernan  
(EOD May 5, 1969)  
Clerk-Typist . . . . . Barbara J. Smith  
(EOD March 20, 1969)  
Farm Laborer (Temporary) . . . . . Rodney F. Krey  
(June 30 - September 30)

UNITED STATES DEPARTMENT OF THE INTERIOR  
Fish and Wildlife Service  
Bureau of Sport Fisheries and Wildlife  
Walden, Colorado

NARRATIVE REPORT  
1969

Pathfinder National Wildlife Refuge

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NARRATIVE REPORT  
January through December  
1969

Pathfinder National Wildlife Refuge

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I. GENERAL

A. Weather Conditions

The following table presents a brief summary of weather conditions recorded at a weather station located at Pathfinder Dam. This station is operated by the Bureau of Reclamation and data was obtained from the state monthly climatological records issued by the U.S. Department of Commerce.

<u>Month</u>	<u>Snowfall</u>	<u>Precipitation</u>		<u>Temperature</u>	
		<u>This Month</u>	<u>Normal</u>	<u>Max.</u>	<u>Min.</u>
January		.10	.29	51	- 6
February	11	.80	.38	51	3
March		.49	.63	64	-6
April		1.28	1.11	78	24
May		.02	1.59	87	28
June		2.14	1.19	90	28
July		1.18	1.03	95	41
August		.47	.88	97	47
September		.26	.83	89	39
October	4	.92	.86	72	10
November	5	.63	.49	59	3
December	9	.38	.30	52	- 3
Totals	<u>29</u>	<u>8.67</u>	<u>9.58</u>		
Extremes				97	- 6

In summary, 1969 was drier than normal. This fact, coupled with a rapid lowering of the reservoir, was quite detrimental to waterfowl usage and production.

The May total of .02" precipitation compared to a normal rainfall of 1.59 inches. Spring migrants numbers and production reflected this droughty condition.

A wet June produced favorable conditions on the smaller upland units of the refuge, particularly the DeWeese Creek Unit. Upland conditions elsewhere on the refuge responded favorably to the

June moisture, but dry conditions in August and September left only limited food and cover for fall migrants.

Snowfall for the year, at 29 inches, was about normal as were temperatures.

B. Habitat Conditions

1. Water

Heavy drawdown of the reservoir during most of the growing season greatly reduced waterfowl usage on the refuge as a whole. In Table 1, the surface elevations for the reservoir are given as of the first day of each month. Comparisons between the level the previous month, as well as with the same date the previous year have been included in order to illustrate the drop during the year. All figures are presented in feet.

Table 1: Comparison of Pathfinder Reservoir surface elevations.  
1968 - 1969

	1969	Change from previous month	Change from 1968
January 1	5,802.71	+5.39	+.77
February 1	5,804.60	+1.89	-.34
March 1	5,806.50	+1.90	-2.46
April 1	5,810.36	+3.86	+1.08
May 1	5,809.10	-1.26	+1.26
June 1	5,804.62	-4.48	-5.52
July 1	5,797.58	-7.04	-12.42
August 1	5,786.42	-11.16	-12.68
September 1	5,773.70	-12.72	-11.46
October 1	5,755.70	-18.00	-23.30
November 1	5,766.92	+11.22	-17.32
December 1	5,772.32	+5.40	-20.02
December 31	5,778.70	+6.38	-24.01

The drop from May 1 to July 1 was the main factor influencing waterfowl usage during the spring migration. During this period, an 11.5 foot drop in surface elevation was noted, putting the reservoir 12.42 feet below the level of the previous year. This decline also had a detrimental effect on the waterfowl production for the refuge. The Sweetwater Arm of the reservoir, which is entirely within the refuge, normally provides good habitat for nesting dabblers, as it contains large areas of flooded sedges and bulrushes near good upland cover. However,

during the 1969 nesting season, the area consisted mainly of dry reservoir bed, which contained only sparse vegetation.

Fall migrants were met by a reservoir 23.30 feet lower than the previous year, as of October 1, and 30.72 feet lower than August 1, 1969. The total drop from April 1 to October 1 totaled 54.66 feet, compared to a drop of approximately 30 feet during the same period in 1968, which was considered a year of a larger than usual drop. The rise in elevation during the late fall had little effect on the waterfowl population on the reservoir as freeze-up occurs early in the area.

In contrast, the smaller units of the refuge, which contain mainly small ponds along creeks leading into the reservoir, contained good amounts of water during the late spring and early summer and provided areas of good nesting habitat. By late summer most of these units contained only small amounts of water, but did furnish some habitat for fall migrants.

In summary, conditions were quite dry on the refuge during 1969. The reservoir areas included in the refuge consisted primarily of a river flowing through its' old channel. Other areas of the refuge were showing dry conditions by fall. At years' end the reservoir was 24 feet below December 31, 1968. Unless heavy snow-pack conditions occur along the headwaters of the North Platte and Sweetwater Rivers, the spring of 1970 may see even fewer ducks and less production than in 1969.

## 2. Food and Cover

Upland conditions as a whole were adversely affected by the rapid lowering of the reservoir and the dry weather conditions over the area during the growing season. The one area which did provide some good upland food production was around the fringes of Goose Bay. By mid-August, the bay was non-existent, but in its' sandy bed, dense stands of sedges and three-square bulrush were evident. These were utilized somewhat by ducks, and Canada geese could often be seen feeding on the young shoots and seeds of mature plants. Upland food production elsewhere on the refuge was slight.

Aquatic plants in the impoundments along the DeWeese and Horse Creeks produced well, particularly DeWeese Creek. In the ponds of this unit, dense stands of widgeongrass, Ruppia maritima, and lesser amounts of musk-grass, Chara spp., were evident

throughout the summer months. These provided ample food for the broods present and furnished some food for fall migrants.

Little aquatic vegetation was noted in either of the two main rivers. As usual, the Soda Lakes unit produced virtually no aquatic plants, as the dissolved salts in the lakes reach concentrations far too strong for plant life. The main food produced on this area is in the form of insects and crustaceans.

Cover on the Sweetwater Arm of the refuge was poor this year due to the dry conditions. Some sparse stands of bulrush and sedges were present and provided ample cover for the few birds on the unit. After two years of a dense growth of yellow sweetclover along the Sweetwater River, 1968 and 1969 have shown no evidence of this occurrence. Upland cover on this unit was sparse and the soil moisture remained low. Pronghorn antelope used much of the current annual growth of forbs along the river channel.

Cover on the North Platte - Sage Creek unit was again sparse this year. This unit seldom produces many broods due to a lack of suitable nesting habitat.

The DeWeese Creek Unit and impoundments along Horse Creek provided good cover for nesting ducks. Cover at Soda Lakes was ample for the ducks present, and it appears grazing on this unit last winter, following a three year period of non-use, has not been detrimental to nesting in the area. The excavated springs on this unit will remain protected from grazing to keep trampling from filling in the spring holes. Each of the two excavated areas is fenced.

## II. WILDLIFE

### A. Migratory Birds

#### 1. Ducks

Waterfowl inventories for the Pathfinder Refuge are based on infrequent visits from the Arapaho Refuge in Colorado, which is nearly 200 miles distant. However, it is felt the information presented is basically accurate and provides a means for establishing a trend on the area. Currently, wildlife censuses are conducted approximately once a month. One intensive brood count was made on July 16 - 17.

The following table (Table 2) provides a summary of duck use of the refuge for 1969, compared with that for 1968.

Table 2: Comparison of Duck-Use and Production on Pathfinder Refuge, 1968-1969 (Figures approximate)

Species	1968		1969		Decrease from 1968 use-days
	Use-days	Prod.	Use-days	Prod.	
Mallard	80,000	140	41,500	150	48%
Gadwall	18,250	20	10,000	20	46%
American widgeon	24,500	50	14,000	20	43%
Pintail	122,500	250	40,000	80	70%
Green-winged teal	35,500	70	22,500	50	37%
Blue-winged teal	14,000	40	3,000	10	80%
Cinnamon teal	5,500	20	1,500	10	73%
Shoveler	19,750	40	6,500	30	67%
Redhead	31,000		3,000		90%
Ring-necked duck	1,000		0		100%
Canvasback	4,500		1,000		78%
Lesser scaup	6,000		1,250		80%
Common goldeneye	4,000		1,500		63%
Bufflehead	375		0		100%
Ruddy duck	4,500		375		92%
Common merganser	4,500	10	4,000	40	11%
	<u>375,875</u>	<u>640</u>	<u>150,125</u>	<u>410</u>	

All species exhibited a decline in use-days during 1969. Among the dabblers, pintails, blue-winged and cinnamon teal, and shovelers had the greatest drop, all being around 75% fewer in use-days than in 1968. Nearly all divers showed a drastic decline in use-days, with redheads leading the list with a drop of over 90% from 1968. Ring-necked ducks and buffleheads, never abundant on the refuge, were completely lacking this year. The large decline in diver use was a result of the fact that there were no large open bodies of water on the refuge during the entire year. The common merganser was the only species whose numbers remained fairly stable when compared to 1968. This species is found mainly along the North Platte River in the Sage Creek - Platte Unit and is little affected by drops in the water level of the reservoir.

The mallard was the main nester in 1969, with a total of 150 ducklings produced. After leading in production for the past two years, the pintail dropped to second place with a total of 80 young, compared to 250 in 1968 and 230 in 1967. Production by all other species dropped, with the exception of the common merganser, which produced 40 young in 1969 and 10 in 1968.

## 2. Geese

Canada goose use on the refuge was disappointing during the winter and early spring months, but as summer approached, near-normal numbers began using the refuge and this continued on into the fall. A total of 21,941 use-days were recorded, 17,000 on these occurring in the period from September 1 to December 31. During this period, as many as 400 geese could be seen feeding along the exposed mud flats on the Sweetwater Arm of the reservoir. Large numbers also were noted on the Goose Bay Unit, as birds fed in the sedges and rushes on the dry bed of the bay. A lone lesser snow goose was seen on the Sweetwater Arm in the company of a flock of Canada geese the week of May 11.

Production reflected the shortage of birds present on the refuge during the spring months. Only 25 goslings were recorded, compared with 45 in 1968. Most of these were produced on the Soda Lakes area, where nesting structures have been installed. None of the structures was used this year, although one pair of geese nested immediately under one of the platform nests. Once the young are able to walk well, the parents take their broods one-half mile over dry land to the Sweetwater River. After this period, family groups may be seen on the river or on the reservoir itself for the remainder of the summer.

No moulting geese were recorded using the Goose Bay area this summer. During past years, large numbers of Canada geese congregated on this unit, as it offered isolation during their flightless stage. However, in recent years, due to increased public use and low reservoir levels, very few geese have been seen on the unit during the summer months. Since Goose Bay was nearly non-existent during this moulting season, no attempt was made to limit public use on the area.

## 3. Swans

No swans were seen on the refuge during 1969.

## 4. Coots

Pathfinder Refuge seldom attracts large numbers of coot, the average being about 5,000 use-days per year. However, they seemed to completely shun the area this year, as only 391 use-days were recorded. The peak population, which occurred throughout most of May, was only 20 birds. The decline in use-days and in actual numbers of birds is again attributed to the low level of the reservoir.

## 5. Other Water Birds

The Wilson's phalarope and the American avocet again produced the most use-days in this category during 1969, although numbers of each were down somewhat from recent years. The peak population of phalaropes this year was only 500, compared to 2,000 in 1967. Avocets peaked at 200, about one-fourth that in 1967. Use-days did not greatly exceed those of last year, but fell far short of the 120,000 days recorded in 1967. The main area of use was again the Soda Lakes, where a total of 52,000 days was recorded.

Two species of grebes, the western grebe and the eared grebe, accounted for a limited amount of use on the refuge. The combined use-days for 1969 were 5,765, with the western grebe making up two-thirds of the total. Last years total was nearly 12,000 use-days.

White pelicans and double-crested cormorants occurred on the refuge, both during the summer months and the spring and fall migrations. However, the numbers of each were generally quite low, and numbers varied as these birds spent most of their days on the larger areas of the reservoir, which are not included in the refuge.

The long-billed curlew exhibited a decline in use-days and in production. A total of 1,000 use-days was recorded, with a peak population of eight birds and production of four young. The main area of use again occurred along the Sweetwater River.

Usage by other water birds is recorded on the appropriate NR form.

## 6. Mourning Doves

A peak population of 75 mourning doves occurred during the latter part of September, in comparison to a peak of 50 birds during recent years.

## B. Upland Game Birds

The sage grouse is the only upland game bird present on the refuge, and it showed signs of slowly increasing numbers this year. Estimated young produced this year was 100, compared with 90 in 1968, and 45 in 1967. Adultsbirds are also becoming more numerous, as 175 were estimated using the refuge as of December 31. The 1969 Wyoming hunting season for the area surrounding the refuge reflected the increase, as a 5-day season was set with a three bird daily limit, and a possession limit of six. This is in contrast to 1967,

when the season length was only three days, with a bag and possession limit of three birds. The 1968 season was similar to that of 1967.

#### C. Big Game Animals

The number of pronghorn antelope using the refuge on an on-and-off basis during 1969 showed a sizable increase, from a peak population in 1967 and 1968 of 1,000 animals, to this years peak of 1,500. As of December 31, approximately 1,000 animals were using the refuge. The increase in numbers is attributed to good reproduction during the past two seasons, and mild winters in 1968 and 1969. The largest number of animals occurs along the Sweetwater River, with lesser numbers on all other units.

Mule deer numbers increased slightly, with a peak of 100, compared to 75 in each of the past four years. This is still 50 below the figure reported in 1964. Several trophy-sized bucks were seen during various times during the year, particularly along Horse Creek on the Sweetwater Arm of the refuge. Hunting is allowed on this unit, but little pressure is exerted on the animals. From visual observations, the buck/doe ratio has increased to 1 buck for every 2 does, indicating the surplus of bucks in not being taken.

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

There were no large changes in this category. There is a variety of predatory animals on the refuge, but none occur in large numbers. In addition to the species listed on NR-4, it is possible an occasional red fox wanders onto the refuge. No foxes have been reported on the refuge in recent years, but occasionally a road-kill is seen along the state highway near the refuge.

Rabbit and hare numbers have held constant, also reflecting the fact that predator numbers are about normal.

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

There were no large changes in composition or individual numbers in this category during 1969. The area provides feeding areas, nesting sites, and roosts for many types of predaceous birds.

A maximum of eight eagles was recorded using the refuge during August. This group included four mature and two immature golden eagles and two mature bald eagles. A few of these usually winter in the area.

Only one burrowing owl, a rare species, was observed this summer,

and no nesting areas were established in or around the refuge prairie dog towns. A high of eight birds was observed in 1967.

#### F. Other Birds

A bird list for the Pathfinder Refuge is being compiled and should provide information as to the extent of the presence of the birds in this category. Many species of the smaller perching birds are present, and a variety of species nest on the refuge.

#### G. Fish

The Pathfinder Reservoir is an important fishery in central Wyoming. Rainbow and brown trout are taken in good numbers throughout the year, and methods of taking range from the wader-fishermen in August to the ice-fishermen in January. Each year the Wyoming Game and Fish Department stocks the reservoir with both species of trout.

The refuge areas of the reservoir also provide some good fishing, but these are stream fishing areas, compared to the open-lake angling on the reservoir.

The DeWeese Creek Unit and the Sage Creek - Platte Unit again produced the most recreation use for the refuge, due primarily to fishermen.

Typical of trout lakes in the area, the Pathfinder contains large numbers of carp and suckers. For the present, these are a necessary evil, as no control measures have been devised. The Sweetwater River appears to be infested with these rough fish and provides a constant source to the reservoir.

#### H. Reptiles

No prairie rattlers were seen during the year, but the species is a regular inhabitant over the entire area. An occasional bull snake is seen in the sandier areas.

#### I. Disease

None noted.

### III. REFUGE DEVELOPMENT AND MAINTENANCE

#### A. Physical Development and Maintenance

No actual development work was carried on during 1969 by personnel of the refuge.

The areas of heavy fishing pressure and the hunter camping areas were periodically checked and maintained. This consists primarily of dumping trash cans and cleaning up loose litter.

A new recreation area was constructed on Bishop Point by the Casper Civilian Conservation Center. This area consists of approximately 30 picnic sites, each of which includes a cement foundation with one picnic table, and two barbecue pits. One large, two-unit outdoor toilet is included on the area. This area is popular with fishermen as well as picnickers and a boat-launching site is nearby.

#### B. Other Work

The re-routing of State Highway 220 through the refuge was completed. Only about 1.3 acres of refuge land were affected by the construction which cut through the northwest corner of the Soda Lakes area. Appropriate access was provided and boundary fence in the area of construction was realigned.

#### C. Plantings

None

#### D. Collections and Receipts

None

#### E. Control of Vegetation

None

#### F. Planned Burning

None

#### G. Fires

None

#### IV. RESOURCE MANAGEMENT

##### A. Grazing

Administration of grazing on the refuge is carried out primarily by the Bureau of Land Management, Casper Office. The BLM issues permits and collects the grazing fees. The determination of amounts of use and the period of use is the responsibility of our Bureau, and the Bureau of Reclamation.

For the first time since the Soda Lakes unit was fenced in 1966, grazing was allowed on this area during the months of January and February 1969. Following the three year deferment, it appeared the area had responded well and was capable of moderate use. A total of 400 AUM's was allowed, and this amount did not adversely effect cover on the area. A similar permit has been issued for the winter months of 1970.

Control of grazing on other units is impractical with present fencing and ownership boundaries.

##### B. Haying

None

##### C. Fur Harvest

None

##### D. Timber Removal

None

##### E. Commercial Fishing

None

##### F. Other Uses

A special use permit was issued to the Russell Forgey Construction Company of Casper, allowing the company to pump water from Steamboat Lake on the Soda Lakes area. This water was used for construction during the re-routing of Highway 220. The permit covered the period from April 10 to May 10. Actual pumping did not begin until April 23 and was completed by May 10. Income from the permit totaled \$1,060.20, for a total of 7,068,000 gallons of water.

No adverse effects were noted on the unit as a result of the pumping.

## V. FIELD INVESTIGATION OR APPLIED RESEARCH

No activity in this area.

## VI. PUBLIC RELATIONS

### A. Recreational Uses

Recreational use of the refuge is coincidental with use on adjoining public and private lands. Fishing, camping, picnicking, boating and other activities common to recreation areas around reservoirs are carried out.

Antelope and deer hunters again camped along the Sweetwater River.

No large change was noted in the amount of use on the area as a whole.

### B. Refuge Visitors

Please refer to the Arapaho Refuge, Colorado, report.

### C. Refuge Participation

Public relations in this area is largely limited to incidental contact with hunters and fishermen in the field. Handouts concerning federal migratory bird regulations and areas of the refuge open to hunting and fishing are distributed by the general store in Alcova, 10 miles from Pathfinder. The refuge trailerhouse is located at Alcova, and inquiries concerning the refuge are frequent when refuge personnel occupy these quarters.

### D. Hunting

#### 1. Big Game

The entire refuge was again open for the taking of deer and antelope, in accordance with state regulations.

As noted earlier, pronghorn antelope showed a slight increase in numbers to approximately 1,350 animals as the hunting season opened. The principle refuge hunting area had an 11-day season, from September 15-25. It is estimated that approximately 15%, or 200, of the animals using the refuge were taken, with approximately 75 of these being taken on the refuge itself, principally along the Sweetwater River. These figures are based upon information obtained from state wardens in the area, as well as from

refuge personnel patrols during the hunting season, and evidence of the remains of field-dressed animals at camping areas along the Sweetwater River. Hunter success is generally quite high on antelope, and the 1969 season on the refuge bore this fact out.

Mule deer also exhibited a slight increase in numbers on the refuge. Approximately 75 animals were using the refuge lands as of the opening of deer season, which occurred on October 15 for the main deer areas. The season lasted until October 25, and each hunter was allowed one deer of either sex.

Despite the accessibility of good hunting areas and adequate numbers of deer in the area, little hunting pressure was exerted on the animals. During refuge patrols during open deer season, several mature bucks with large racks and healthy bodies were observed along Horse Creek on the Sweetwater Arm Unit. Despite this fact, few hunters were seen in the area. Hunter success in this area is usually high, but the number of animals taken is low. Based on information collected, approximately 10 animals were taken from the refuge during the 11 day season.

## 2. Waterfowl

Reflecting the increase in waterfowl numbers in the Central Flyway, duck hunters in the Pathfinder area were greeted with generous open seasons. Waterfowl hunting season opened with the special early Teal Season, which ran from September 6-14. A bag and possession limit of four and eight existed.

On October 11, the regular duck season opened, as did the goose hunting season. The duck season, which allowed four ducks a day and eight in possession, continued through November 12, while the goose season, with a 2 - 4 limit, ran through January 4.

The final duck season, referred to as the Special Point System Duck Season, opened on December 13 and closed on January 4. Under this system, mallard drakes counted 10 points, all other ducks, including mallard hens, and coots and mergansers counted 40 points. The daily bag limit was reached when the final bird taken equalled or exceeded the daily limit of 40 points, with a possession limit of two day's bag.

Despite the long and relatively generous season, little waterfowl hunting actually occurred. For the fifth consecutive year, a large part of the refuge was open to hunting, including the Sage Creek-Platte, DeWeese Creek and Goose Bay Units.

The Goose Bay Unit offered some fair goose hunting, as birds loafed and fed on the reservoir bed. Also, along the North Platte River, Canada geese could be found in small flocks late in the season.

The DeWeese Creek Unit provided a few hunters with good teal hunting in September. The unit received practically no hunting use during the regular season.

The Sage Creek-Platte Unit provided limited hunting to duck hunters during the regular season, but received some pressure during the point system season, as late migrating mallards were present in good numbers along the Platte.

It is estimated only about 50 ducks were harvested during the three seasons. This is a decline from past years and reflects the low number of ducks using the area due to the dry condition of the habitat.

An estimated 25 Canada geese were taken during the season. This is about average for the area.

These harvest figures are estimates, based on information obtained from local state game officers and on refuge patrols during the waterfowl seasons.

#### E. Violations

No game violations were noted this year.

#### F. Safety

No assigned personnel. See Arapaho Narrative Report.

### VII. OTHER ITEMS

#### A. Items of Interest

On November 18, the refuge manager delivered a check for \$114.23 to the Treasurer of Carbon County, Rawlins, Wyoming. This was in compliance with the Refuge Revenue Sharing Act.

Mr. David Heffernan began career-conditional employment at Arapaho Refuge on May 5, 1969 as Refuge Manager Trainee. David is no stranger to the Hutton Lake and Pathfinder Refuges, since he was employed at Hutton Lake on a temporary basis in 1967 and again in 1968. Because of this background, his help on these refuges has been invaluable.

This report was written in its entirety by Refuge Manager Heffernan, with the exception of this section (VII-A). Virtually all work on the NR forms was also by Mr. Heffernan. Typing was by Clerk-typist Mrs. Smith, editing by Refuge Manager Donner. All other parts and details were accomplished by joint effort of the staff.

B. Photographs

All photos appearing in the photograph section were taken by Refuge Manager Heffernan. The prints are from slides taken with a 35mm Mamiya-Sekor 500 DTL camera, property of Mr. Heffernan.

The photos of the Bishop Point area were taken with the government-owned 35mm Pentax camera, using color negative film.


Developing and printing was at government expense.

Submitted by:

  
V. Carrol Donner  
Refuge Manager

January 30, 1970

Reviewed by:

  
J.B. Schmidt  
2-14-70

Sage grouse chick



Heffernan

6/15/69

Some of the young wildlife that was in abundance during one visit to Pathfinder.



Heffernan

6/15/69

Antelope kid



Heffernan

10/22/69

Canada geese on mudflat along Sweetwater River. Note high-water mark indicating a more normal level of Pathfinder Reservoir.



Heffernan

8/21/69

A common sight on and in the vicinity of Pathfinder Refuge.



Heffernan

12/4/69

The Casper Civilian Conservation Center developed a Recreation Area on Bishop Point. This development had the approval of Bureau of Reclamation and our Bureau.



Heffernan

12/4/69

A modern toilet facility is part of the development.



Heffernan

12/4/69

More distant view of Bishop Point Recreation Area. A number of sites, with outdoor cooking fireplace and concrete slab were set up. Tables were removed for winter.



Heffernan

12/4/69

View of 'Reservoir' from Bishop Point. The low condition of Pathfinder Reservoir is shown here.



Krey

7/17/69

Refuge Manager Heffernan making brood count along Sweetwater River, just below high-water level of Reservoir. Note bulrush in background.

Jan.-April



3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

WATERFOWL  
 (Continuation Sheet)

REFUGE Pathfinder

MONTHS OF January TO April, 1969

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods:Estimat seen : total
	3/9-15 11	3/16-22 12	3/23-29 13	3/30-4/5 14	4/6-12 15	4/13-19 16	4/20-26 17	4/27-5/3 18		
Swans:										
Whistling										
Trumpeter										
Geese:										
Canada					15	15	17	30	539	
Cackling										
Brant										
White-fronted										
Snow										
Blue										
Other										
Ducks:										
Mallard					60	100	143	150	3,171	
Black										
Gadwall					40	95	138	145	2,926	
Baldpate					10	20	30	35	665	
Pintail					80	155	197	210	4,494	
Green-winged teal					6	10	11	15	294	
Blue-winged teal										
Cinnamon teal										
Shoveler					4	20	23	26	511	
Wood										
Redhead					15	35	60	50	1,120	
Ring-necked										
Canvasback					3	5	10	10	196	
Scaup					10	11	20	23	448	
Goldeneye										
Bufflehead										
Ruddy					3	10	18	20	357	
<del>Other</del> Con. Merg.					2	2	2	15	147	
<b>TOTAL DUCKS:</b>					233	463	652	699	14,329	
Coot:										

(over)

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas <u>Upper limits of reservoir on</u>
Geese	<u>539</u>	<u>30</u>		<u>North Platte and Sweetwater Rivers and on shallow ponds</u>
Ducks	<u>14,329</u>	<u>699</u>		Principal nesting areas <u>Along reservoir, rivers and</u>
Coots				<u>small ponds, Geese primarily on Soda Lakes.</u>
				Reported by <u>V. Carrol Donner</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).

3-1751  
Form NR-1A  
(Aug. 1952)

MIGRATORY BIRDS  
(Other than Waterfowl)

Refuge Pathfinder

Months of January to April, 19 69

(1) Species  Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total Estimated Use
	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	
I. <u>Water and Marsh Birds:</u>										
Western grebe	5	4/23	5	4/23-30	5	4/30				40
White pelican	6	4/23	6	4/23	6	4/23				6
Double-crested cormorant	2	4/23	2	4/23-30	2	4/30				16
Great blue heron	8	4/23	8	4/23-30	8	4/30				64
Black-crowned night heron	1	4/23	1	4/23-30	1	4/30				8
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	10	4/23	10	4/23-30	10	4/30				80
American avocet	14	4/23	14	4/23-30	14	4/30				112
California gull	37	4/23	37	4/23-30	37	4/30				296
						(over)				

(1)	(2)	(3)	(4)	(5)	(6)		
III. <u>Doves and Pigeons:</u> Mourning dove White-winged dove							
IV. <u>Predaceous Birds:</u> Golden eagle	1	4/22	1	4/22-30	1	4/30	9
Duck hawk							
Horned owl							
Magpie	5	4/22	5	4/22-30	5	4/30	45
Raven							
Crow							
Red-tailed hawk	2	4/22	2	4/22-30	2	4/30	18
Marsh hawk	4	4/22	4	4/22-30	4	4/30	36
Reported by <u>V. Carroll Donner</u>							

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (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 migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Pathfinder Months of January to April, 1969

(1) Species	(2) Density	(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres per Bird	Number broods obs 'v'd. Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat			Percentage				Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
<b>Sage grouse</b>	<b>Sagebrush flats and draws, meadows 11,500 Acres</b>	<b>96</b>		<b>100:100</b>				<b>150</b>	

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.

3-1754  
Form NR-4  
(June 1945)

SMALL MAMMALS

Refuge Pathfinder

Year ending April 30, 1969

(1) Species  Common Name	(2) Density  Cover Types & Total Acres Per Acreage of Habitat Animal		(3) Removals					(4) Disposition of Furs					(5) Total  Popula- tion	
			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				
Coyote	All refuge uplands 14,500 A	725												20
Bobcat	Rocky foothills, sagebrush hills and draws. 2,000 A	200												10
Striped skunk	Sagebrush flats and draws, marshes 2,000 A	200												10
White-tailed jackrabbit	All refuge uplands 14,500 A	362												40
Desert cottontail	Sagebrush flats and draws, meadows, rocky foothills. 2,000 A	20												100
White-tailed prairie dog	Grasslands 4,000 A	40												100
Muskrat	Rivers, creeks, ponds. 1,300 A	26												50
Beaver	Rivers, creeks, ponds. 1,300 A	325												4

\*List removals by Predator Animal Hunter

REMARKS:

Reported by V. Carrol Donner

## 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.

May-Aug.

WATERFOWL

REFUGE Pathfinder

MONTHS OF May TO August, 19 69

(1) Species	(2) Weeks of reporting period									
	5/4-10 1	5/11-17 2	5/18-24 3	5/25-31 4	6/1-7 5	6/8-14 6	6/15-21 7	6/22-28 8	6/29-7/5 9	7/6-12 10
<b>Swans:</b>										
Whistling Trumpeter										
<b>Geese:</b>										
Canada	35	45	45	45	45	40	35	35	30	30
Cackling Brant										
White-fronted Snow		1								
Blue Other										
<b>Ducks:</b>										
Mallard	165	190	160	165	150	175	250	200	150	100
Black Gadwall	110	82	75	100	75	75	75	75	50	25
Baldpate	35	43	45	50	60	100	125	100	100	75
Pintail	215	228	210	210	225	225	250	250	225	225
Green-winged teal	60	55	45	50	60	65	75	75	75	100
Blue-winged teal	10	12	6	5	5	5	5			
Cinnamon teal					5	5	5	5		
Shoveler	75	100	110	75	60	50	10	30	30	25
Wood Redhead	45	20	20	25	25	40	50	30		
Ring-necked Canvasback	10	11	10	10	10	10	15	5		
Scaup Goldeneye	20	6	5	5	5					
Bufflehead	1	1					5			
Ruddy Other <i>Com. Merg.</i>	20	22	20	20	20	25	25	25	35	35
<b>Total Ducks:</b>	746	770	706	715	700	775	920	795	665	585
<b>Coots:</b>	10	13	15	15	15	20	20			

3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

WATERFOWL  
 (Continuation Sheet)

REFUGE Pathfinder

MONTHS OF May TO August, 1969

(1) Species	(2) Weeks of reporting period								(3) Estimated waterfowl days use	(4) Production Broods: Esti seen : to	
	7/13-19 11	7/20-26 12	7/27-8/2 13	8/3-9 14	8/10-16 15	8/17-23 16	8/24-30 17	18			
Swans:											
Whistling Trumpeter											
Geese:											
Canada	30	30	30	30	35	35	40		4,305	3	25
Cackling Brant											
White-fronted Snow									7		
Blue Other											
Ducks:											
Mallard	50	50	60	75	100	115	140		16,065	15	150
Black Gadwall	25	25	20	20	15	10	10		6,069	1	20
Baldpate	75	75	80	80	85	90	100		9,226	1	20
Pintail	200	200	200	200	200	200	225		25,816	8	50
Green-winged teal	100	125	150	175	200	220	250		13,020	5	50
Blue-winged teal				10	25	20	40		931		10
Cinnamon teal	10						15		315		10
Shoveler	25	25	25	25	20	20	30		5,355	2	30
Wood Redhead							10		1,855		
Ring-necked Canvasback									567		
Scaup						2	5		336		
Goldeneye						3	5		105		
Bufflehead Ruddy											
Other <u>Com. Merg.</u>	35	35	35	20	10	5	5		2,714	5	40
<b>Total Ducks:</b>	520	535	570	605	645	685	835		82,401	37	410
Coot:						10	15		931	2	20

(over)

	(5)	(6)	(7)	SUMMARY
	Total Days Use	Peak Number	Total Production	
Swans				Principal feeding areas <u>Sweetwater Arm, Soda Lakes, Goose</u>
Geese	<u>4,305</u>	<u>45</u>	<u>25</u>	<u>Bay, Belleose Creek, North Platte River.</u>
Ducks	<u>82,104</u>	<u>920</u>	<u>410</u>	Principal nesting areas <u>Soda Lakes, Sweetwater Arm, lesser</u>
Coots	<u>931</u>	<u>20</u>	<u>20</u>	<u>extent at Belleose Creek, Sage Creek.</u>
				Reported by <u>V. Carrol Donner</u>
				Observed by <u>David Haffernan</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).

3-1751  
Form NR-1A  
(Aug. 1952)

MIGRATORY BIRDS  
(Other than Waterfowl)

Refuge Pathfinder Months of May to August, 19 69

(1) Species  Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total
	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	Estimated Use
I. <u>Water and Marsh Birds:</u>										
Eared grebe	20	5/13	20	5/13-5/31	9	8/30			10	1,400
Western grebe	75	5/13	75	5/13-5/31	6	8/30			10	4,000
White pelican	10	5/13	35	7/16-7/22	2	8/30				375
Double-crested cormorant	3	8/21	3	8/22-8/30	3	8/30				30
Great blue heron	6	5/13	16	7/16-8/15	6	8/30				1,000
II. <u>Shorebirds, Gulls and Terns:</u>										
Killdeer	5	5/13	50	6/16-7/15	11	8/30			50	3,000
Long-billed curlew	2	5/14	8	6/16-8/30	8	8/30			4	800
Spotted sandpiper	20	5/14	75	7/16-8/30	75	8/30			10	5,000
Willet	4	7/16	4	7/16-8/30	4	8/30			2	200
Long-billed dowitcher	10	7/16	15	8/1-8/30	15	8/30				600
American avocet	60	5/14	200	7/16-8/1	80	8/30			25	12,000
Wilson's phalarope	100	5/14	500	7/16-8/15	275	8/30			100	33,000
California gull	50	5/14	50	5/14-6/1	12	8/30				3,200
					(over)					

(1)	(2)		(3)		(4)		(5)		(6)
III. <u>Doves and Pigeons:</u>									
Mourning dove	20	5/14	60	8/1 -8/30	60	8/30		20	4,000
White-winged dove									
IV. <u>Predaceous Birds:</u>									
Golden eagle	2	5/14	5	7/16-8/30	5	8/30			360
Duck hawk									
Horned owl	5	5/14	6	8/1 -8/30	6	8/30			540
Magpie	20	5/14	30	7/16-8/30	30	8/30	15		2,700
Raven									
Crow	5	5/14	10	7/16-8/30	10	8/30	5		800
Bald eagle	1	6/15	2	7/16-8/30	2	8/30			160
Burrowing owl	2	7/16	2	7/16-7/30	1	8/30			60
Turkey vulture	2	5/13	11	7/16-7/30	4	8/30			360
Swinson's hawk	4	6/16	4	6/16-7/16	2	8/30	2		300
Marsh hawk	1	5/13	5	6/16-7/16	3	8/30	2		420
Sparrow hawk	1	5/13	10	7/16-8/15	5	8/30	4		750
Prairie falcon	1	6/16	4	7/16-8/15	2	8/30			200
							Observed by David E. Heffernan		
							Reported by V. Carroll Sawyer		

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (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 migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

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

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

WATERFOWL UTILIZATION OF REFUGE HABITAT

Refuge Pathfinder For 12-month period ending August 31, 1969

Reported by V. Carrol Donner Title Refuge Manager

Observed by David E. Heffernan

(1) Area or Unit Designation	(2) Habitat			(3)	(4)	(5)
	Type	Acreage		Use-days	Breeding Population	Production
<b>Sweetwater Unit</b>	Crops		Ducks	50,000	80	175
	Upland	9,947	Geese	3,000	6	15
	Marsh	540	Swans			
	Water	1,260	Coots	3,000	5	10
	Total	11,747	Total	56,000	91	200
<b>Soda Lakes Unit</b>	Crops		Ducks	46,500	50	125
	Upland	380	Geese	1,000	4	10
	Marsh	420	Swans			
	Water	420	Coots	321	5	10
	Total	1,220	Total	47,821	59	145
<b>Goose Bay Unit</b>	Crops		Ducks	18,058	10	25
	Upland	940	Geese	2,000		
	Marsh	40	Swans			
	Water	160	Coots	500		
	Total	1,140	Total	20,558	10	25
<b>DeWeese Creek Unit</b>	Crops		Ducks	25,100	30	75
	Upland	1,000	Geese	282		
	Marsh	40	Swans			
	Water	100	Coots	50		
	Total	1,140	Total	25,432	30	75
<b>Sage Creek Unit</b>	Crops		Ducks	15,000	4	10
	Upland	1,380	Geese	200		
	Marsh	20	Swans			
	Water	160	Coots			
	Total	1,560	Total	15,200	4	10
<b>Refuge Totals</b>	Crops		Ducks	154,658	174	410
	Upland	13,647	Geese	6,482	10	25
	Marsh	1,060	Swans			
	Water	2,100	Coots	3,871	10	20
	Total	16,807	Total	165,011	194	455
	Crops		Ducks			
	Upland		Geese			
	Marsh		Swans			
	Water		Coots			
	Total		Total			

(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.

3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Pathfinder Months of May to August, 19 69

(1) Species	(2) Density		(3) Young Produced		(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
Common Name	Cover types, total acreage of habitat	Acres per Bird	Number broods obs 'v'd.	Estimated Total	Percentage	Hunting	For Re- stocking	For Research	Estimated number using Refuge	Pertinent information not specifically requested. List introductions here.
Sage grouse	Sage brush flats, draws and meadows 750 Acres.	3.75	9	100	100:100				200	

## 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.

Sept.-Dec.



3-1750a  
 Cont. NR-1  
 (Rev. March 1953)

WATERFOWL  
 (Continuation Sheet)

REFUGE Pathfinder

MONTHS OF September TO December, 19 69

(1) Species	(2) Weeks of reporting period								(3) Estimated	(4) Production
	11/9-15	11/16-22	11/23-29	11/30-12/6	12/7-13	12/14-20	12/21-27	12/28-31	waterfowl days use	Broods:Esti seen : to
<b>Swans:</b>										
Whistling Trumpeter										
<b>Geese:</b>										
Canada	150	50	50	40	40	20	20	20	17,090	
Cackling Brant										
White-fronted Snow										
Blue Other										
<b>Ducks:</b>										
Mallard	175	175	200	250	250	250	225	225	22,145	
Black										
Gadwall	5								1,120	
Baldpate	10								4,130	
Pintail	25	10							9,695	
Green-winged teal									9,205	
Blue-winged teal									2,170	
Cinnamon teal									1,225	
Shoveler									735	
Wood										
Redhead										
Ring-necked										
Canvasback									140	
Scaup									504	
Goldeneye	10	15	20	20	25	25	25	25	1,416	
Bufflehead										
Ruddy <i>Can. Merg.</i>	10	15	15	15	20		20	25	1,115	
Other										
<b>Total Ducks</b>	230	215	235	285	295	275	270	275	53,600	
<b>Coot:</b>										

(over)

	(5)	(6)	(7)
	Total Days Use	Peak Number	Total Production
Swans	0	0	--
Geese	17,090	475	--
Ducks	53,600	805	--
Coots	0	0	--

SUMMARY

Principal feeding areas Sweetwater River, Soda Lakes,

Goose Bay, Delaware Creek, North Platte River

Principal nesting areas \_\_\_\_\_

Reported by V. Carrol Donner  
Observed by David E. McFarnan

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  
(Aug. 1952)

MIGRATORY BIRDS  
(Other than Waterfowl)

Refuge Pathfinder

Months of September

to December

, 19 69

(1) Species  Common Name	(2) First Seen		(3) Peak Concentration		(4) Last Seen		(5) Production			(6) Total Estimated Use
	Number	Date	Number	Inclusive Dates	Number	Date	Number Colonies	Total # Nests	Total Young	
<b>I. <u>Water and Marsh Birds:</u></b>										
Eared grebe	9	9/1	9	9/1-9/10	1	10/22				175
Western grebe	4	9/1	4	9/1-10/1	2	10/22				150
White pelican	2	9/1	10	10/1-10/31	3	10/23				500
Great blue heron	6	9/1	6	9/1-10/31	1	12/4				400
<b>II. <u>Shorebirds, Gulls and Terns:</u></b>										
Killdeer	11	9/1	25	9/10-10/10	4	10/23				1,200
Long-billed curlew	8	9/1	8	9/1-9/10	1	10/23				200
Willet	4	9/1	4	9/1-9/10	2	9/30				100
American avocet	80	9/1	80	9/1-10/1	10	10/23				3,000
Wilson's phalarope	275	9/1	275	9/1-9/10	6	10/23				4,000
California gull	12	9/1	12	9/1-10/1	3	10/23				500
(over)										

(1)	(2)		(3)		(4)		(5)		(6)
<b>III. Doves and Pigeons:</b>									
Mourning dove	60	9/1	75	9/15-10/1	1	10/22			2,000
White-winged dove									
<b>IV. Predaceous Birds:</b>									
Golden eagle	5	9/1	6	9/15-10/15	4	12/4			450
Duck hawk									
Horned owl	6	9/1	6	9/1-10/1	3	12/31			500
Magpie	30	9/1	30	9/1-12/1	25	12/31			3,000
Raven									
Crow	10	9/1	10	9/1-9/15	10	9/15			150
Bald Eagle	2	9/1	2	9/1-12/31	2	12/31			240
Harrowing owl	1	9/1	1	9/1-9/10	1	9/10			10
Turkey vulture	4	9/1	5	10/1-11/1	3	12/31			450
Rufous hawk	2	10/22	2	10/22-11/1	2	11/1			25
							Observed by David E. Hefferman		
							Reported by V. Carroll Donner		

INSTRUCTIONS (See Sec. 7532, Wildlife Refuges Field Manual)

- (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 migration record for the species for the reporting period.
- (3) Peak Numbers: Estimated number and inclusive dates when peak population of the species occurred.
- (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 species days use (average population X no. days present) of refuge during the reporting period.

3-1750c  
 Form NR-1C  
 (Sept. 1960)

WATERFOWL HUNTER KILL SURVEY

Refuge Pathfinder

Year 1969

(1) Weeks of Hunting	(2) No. Hunters Checked	(3) Hunter Hours	(4) Waterfowl Species and Nos. of Each Bagged	(5) Total Bagged	(6) Crippling Loss	(7) Total Kill	(8) Est. No. of Hunters	(9) Est. Total Kill
14	0	500	Canada geese  Mallard* Common goldeneye* Green-winged teal*  * This is an estimate of the decreasing order in which ducks were part of the bag.				75	25 geese 50 ducks

(over)

INSTRUCTIONS

- (1) The first week of hunting begins with opening day and ends at the close of hunting 6 days later. Successive weeks follow the same pattern.
- (2) The goal is to survey a minimum of 25 percent of refuge hunters each week and to record data only from those who have completed their day's hunting. This information should be collected during each day of the week and in each area hunted in relative proportion to the hunter effort expended. When the 25 percent goal cannot be achieved, particular care should be taken to collect representative data.
- (3) Record the total number of hours the hunters spent hunting on the refuge.
- (4) List waterfowl species in decreasing order of numbers bagged. Sample entry: Mallard (61), Pintail (36), Redhead (16), Gadwall (11), Widgeon (6), Coot (4), Canada Goose (3), Green-winged Teal (1).
- (5) Record total numbers of waterfowl bagged.
- (6) Record total numbers of waterfowl reported knocked down but not recovered.
- (7) Total of Columns 5 and 6.
- (8) Estimate the total number of hunters who hunted on the refuge during the week, including hunters checked (Column 2).
- (9) Kill sample projected to 100 percent.  $\text{Column 9} = \frac{\text{Column 8}}{\text{Column 2}} \times \text{Column 7}$ .

3-1752  
Form NR-2  
(April 1946)

UPLAND GAME BIRDS

Refuge Pathfinder

Months of September to December, 1969

(1) Species	(2) Density	(3) Young Produced			(4) Sex Ratio	(5) Removals			(6) Total	(7) Remarks
		Acres per Bird	Number broods obs 'v' d.	Estimated Total		Hunting	For Re- stocking	For Research		
Common Name	Cover types, total acreage of habitat				Percentage					Pertinent information not specifically requested. List introductions here.
Sage grouse	Sagebrush flats, draws, and meadows 750 acres	1.25			100:100				175	Hunting seasons August 30- September 3. 3/ day, 6 in possession.  Some utilization by hunters when birds move from refuge.

## 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 Pathfinder

Calendar Year 1969

(1) Species	(2) Density	(3) Young Produced	(4) Removals				(5) Losses			(6) Introductions	(7) Estimated Total Refuge Population		(8) Sex Ratio	
			Hunting	For Re- stocking	Sold	For Research	Predation	Disease	Winter Loss		Number	Source		At period of Greatest use
Common Name	Cover types, total Acreage of Habitat	Number												
Pronghorn (Antelope)	Sagebrush flats and draws, hillsides, meadows, and shoreline of reservoir and rivers - 12,000 acres	150	200									1,500	1,000	20:100
Mule deer	Rocky hillsides, sagebrush draws, meadows, river bottoms - 2,000 acres	5	10									100	75	50:100

Remarks:

Pronghorn numbers up slightly.  
Light hunting pressure on deer, but good success.

Observed by David E. Heffernan  
Reported by V. Carrol Donner

## 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.

Refuge Pathfinder

Year 19 69

Botulism **None noted.**

Lead Poisoning or other Disease **None noted.**

Period of outbreak \_\_\_\_\_

Period of heaviest losses \_\_\_\_\_

Losses:

	Actual Count	Estimated
(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

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

(a) Waterfowl	_____	_____
(b) Shorebirds	_____	_____
(c) Other	_____	_____

Areas affected (location and approximate acreage) \_\_\_\_\_

Water conditions (average depth of water in sickness areas, reflooding of exposed flats, etc.) \_\_\_\_\_

Condition of vegetation and invertebrate life \_\_\_\_\_

Remarks \_\_\_\_\_

Kind of disease \_\_\_\_\_

Species affected \_\_\_\_\_

Number Affected Species	Actual Count	Estimated
_____	_____	_____
_____	_____	_____
_____	_____	_____

Number Recovered \_\_\_\_\_

Number lost \_\_\_\_\_

Source of infection \_\_\_\_\_

Water conditions \_\_\_\_\_

Food conditions \_\_\_\_\_

Remarks \_\_\_\_\_

Refuge Pathfinder Year 1969

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
Nothing to report.													

- (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: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

CULTIVATED CROPS - HAYING - GRAZING

Refuge Pathfinder County Carbon-Natrona State Wyoming

Cultivated Crops Grown	Permittee's Share Harvested		Government's Share or Return				Total Acreage	Green Manure, Cover and Water-fowl Browsing Crops Type and Kind	Total Acreage
	Acres	Bu./Tons	Harvested		Unharvested				
			Acres	Bu./Tons	Acres	Bu./Tons			
None									
							Fallow Ag. Land	None	

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

Hay - Improved (Specify Kind)	Tons Harvested	Acres	Cash Revenue	GRAZING	Number Animals	AUM'S	Cash Revenue	ACREAGE
				1. Cattle	* Grazing administered by Bureau of Land Management			
				2. Other				
				1. Total Refuge Acreage Under Cultivation				None
Hay - Wild	None			2. Acreage Cultivated as Service Operation				None

\* Based on recommendations made by BSWW

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 Pathfinder

Months of September through December, 1949

(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
<p><b>Nothing to report. Refer to Hutton Lake Refuge report.</b></p>											

(8) Indicate shipping or collection points \_\_\_\_\_

(9) Grain is stored at \_\_\_\_\_

(10) Remarks \_\_\_\_\_

\*See instructions on back.

### REFUGE GRAIN REPORT

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.

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DATE	ON HAND OR ON ORDER	RECEIVED	TOTAL	DISPOSED	NET	STOCK	RESERVE	TOTAL	TOTAL	TOTAL	TOTAL
(1)	(5)	(3)	(4)	GRAIN DISPOSED OF			BY NAME	LOCATION OF GRAIN			

REFUGE GRAIN REPORT

ANNUAL REPORT OF PESTICIDE APPLICATION

**Pathfinder**

Proposal Number

Reporting Year

1969

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)
None								

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