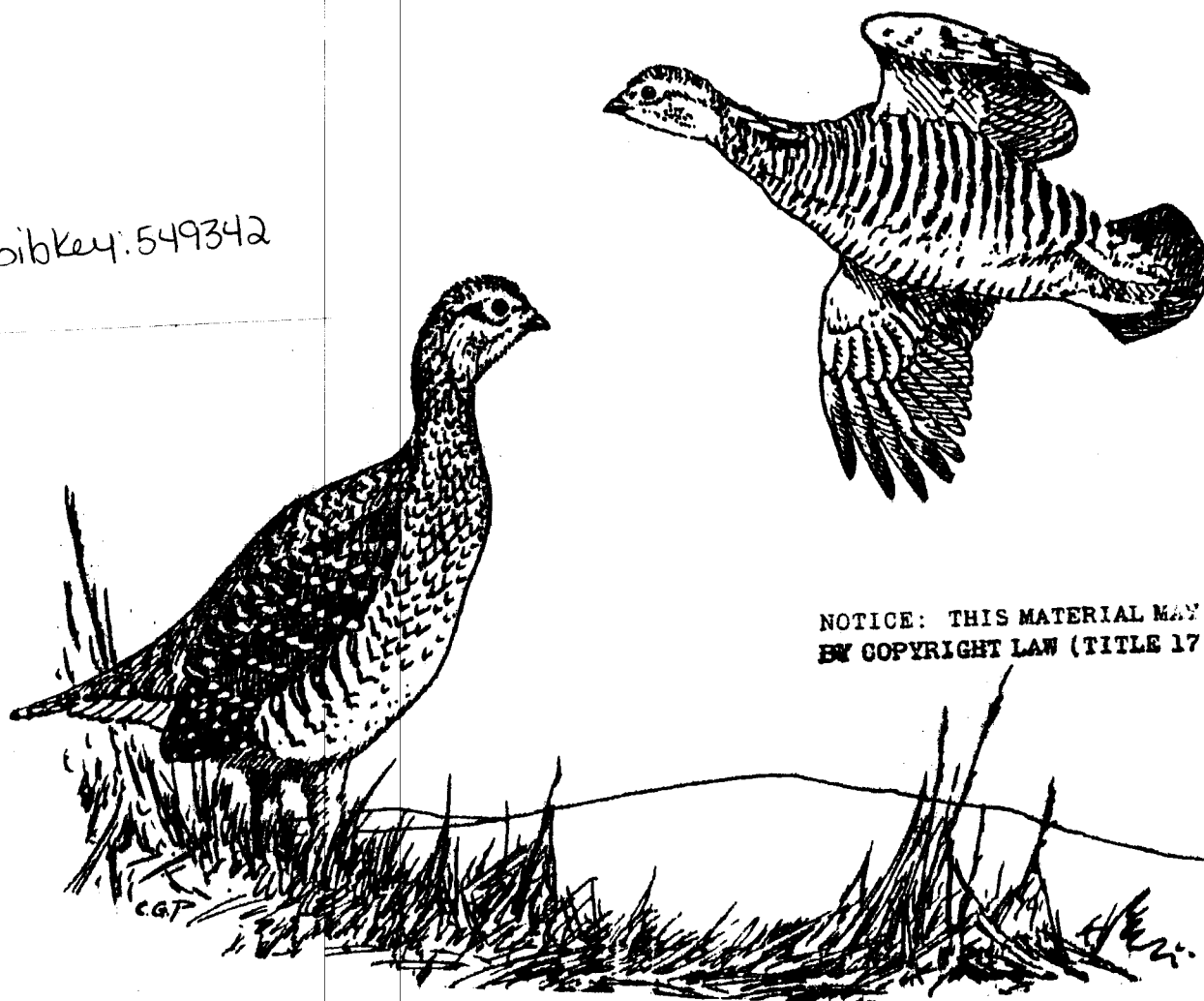


NEBRASKA

GAME, FORESTATION AND PARKS COMMISSION

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SURVEYS AND MANAGEMENT OF PRAIRIE GROUSE

WORK PLAN E-63

March 1963 through February 1964

PITTMAN-ROBERTSON PROJECT W-15-R-20

20PR

JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

As Required by
FEDERAL AID IN WILDLIFE RESTORATION ACT

~~CONFIDENTIAL~~

WORK PLAN E-63

SURVEYS AND MANAGEMENT OF PRAIRIE GROUSE

- Job No. E1 - Prairie Grouse Breeding Ground Survey
and Brood Studies
- Job No. E2 - Prairie Grouse Productivity and Hunting
Success Data
- Job No. E3 - Prairie Grouse Trapping and Banding

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Report for the period
March 1, 1963, to February 29, 1964

SURVEYS AND MANAGEMENT OF PRAIRIE GROUSE

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WORK PLAN E-63

SURVEYS AND MANAGEMENT OF PRAIRIE GROUSE

March 1, 1963, through February 29, 1964

by Robert Wood

Abstract

Spring counts showed prairie chicken numbers virtually unchanged from 1962 and 8.6 per cent above the average of the last five years. Sharptails were down seven per cent from 1962 but up six per cent from the last five year average.

Average sharptail brood size was 8.5 young per brood. Prairie chicken broods averaged 8.4 chicks per brood.

Hunter success data from check stations indicate 1.24 birds per day and 3.49 hours per bird. Of 977 grouse examined during the hunting season, approximately 27 per cent were prairie chickens. Age data showed 2.7 young per adult prairie chicken and 2.3 young per adult sharptail.

The hunter success survey indicated there were 20,700 grouse hunters and a total grouse kill of 56,000 birds.

Results of trapping and banding are presented.

Objectives

This study is designed to provide information for formulating management decisions on prairie grouse. Surveys are conducted to provide information concerning population levels, success of reproduction and harvest data.

Procedure

Display ground surveys: Each spring since 1955, surveys have been conducted along 20 mile routes located within the prairie grouse range. These surveys indicate trends in numbers of male birds on display grounds.

Brood observations: Personnel working within the grouse range were asked to record random brood observations. These records were used to ascertain average brood sizes for comparison with past years.

Brood transects: Transects, randomly selected on six areas, were walked or driven to provide estimates of summer populations.

Hunting season data: Roadside check stations were operated at nine locations during the first weekend of the grouse season and at two other locations for one day each during the first weekend. Information obtained includes biological data on the kill, location of kill, and statistics on hunter success.

Hunter success and total harvest estimates are obtained from the hunter success survey.

Findings

Spring Display Ground Data

In 1963, 19 transects throughout the major grouse range were surveyed. All routes were completed under satisfactory conditions and were considered usable.

A total of 264 grounds was calculated to be present on the 19 routes; of these, 148 were located. Average number of males per ground was 5.4 for prairie chickens and 8.0 for sharptails (Table 1). These figures indicate a decrease in the average ground size of 11.5 per cent for prairie chickens and a drop of 20.0 per cent for sharptails from the 1962 average.

By employing the standardized procedures described in the 1961 work plan report for tabulation of display ground data, the number of sharptails was down 7.2 per cent from 1962 but up 5.8 per cent from the average of the last five years. Prairie chicken data indicate an increase of 1.4 per cent from 1962 and an increase of 8.6 per cent from the average of the last five years. The 1963 combined index of sharptails and prairie chickens show the population to be down 3.1 per cent from 1962 but up 8.0 per cent from the average of the past five years. Population trends ascertained from display ground routes are shown in Figure 1.

Figure 1. Prairie grouse breeding population trends
(display ground survey), 1956-1963.

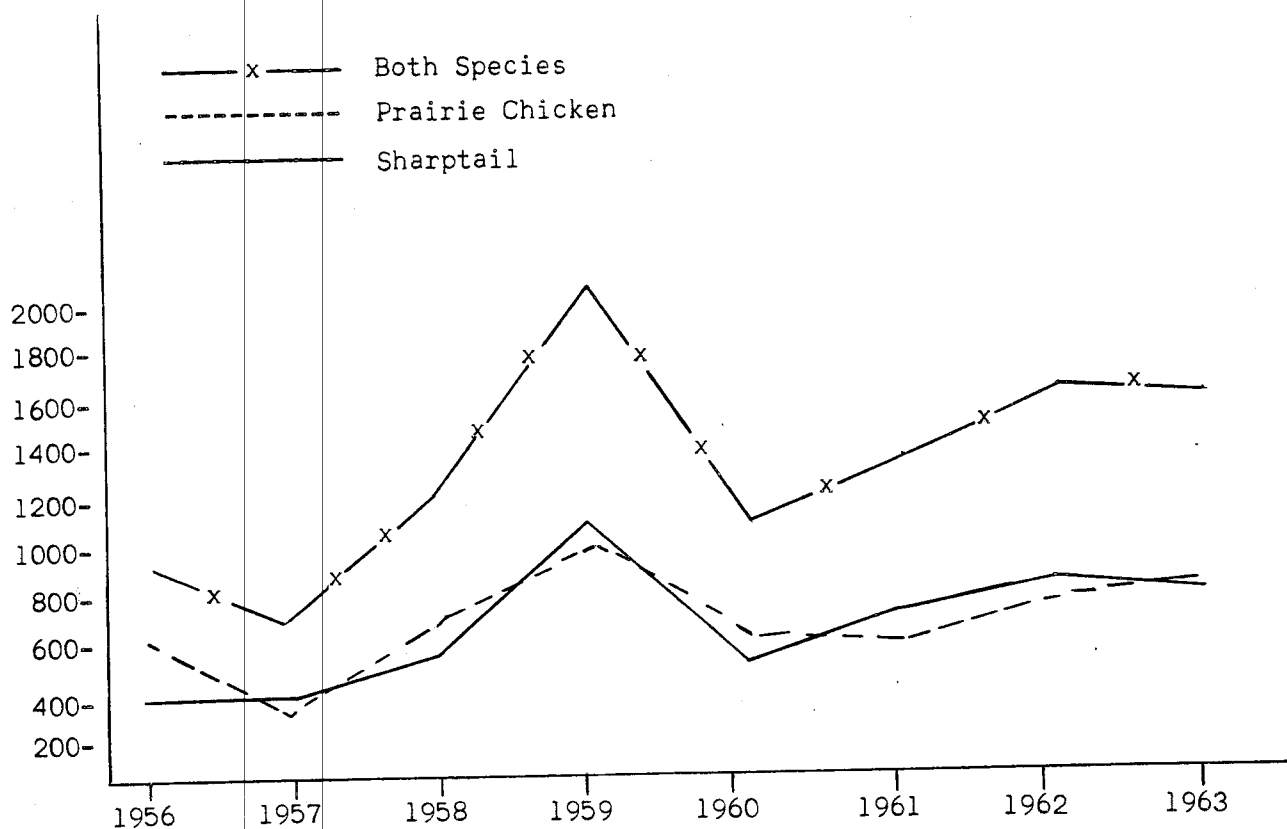


Table 1. Calculated numbers of male prairie grouse trend routes, 1958-1963.

Route No.	General Location	1958		1959		1960		1961		1962		1963	
		PC	ST	PC	ST	PC	ST	PC	ST	PC	ST	PC	ST
I-4	Ellsworth	0	24	0	22	0	23	6	47	0	58	0	53
5	Lakeside	0	38	0	70	0	19	0	41	0	32	0	36
6	Lisco	0	35	0	60	0	42	--	*	6	38	0	33
II-1	Nenzel	4	29	13	74	--	*	6	69	0	72	0	45
2	Valentine	--	*	0	35	0	70	0	48	7	55	5	100
3	Whitman	0	67	0	77	0	86	0	79	0	100	0	72
4	Arthur	15	47	10	58	3	24	--	*	11	40	3	74
5	Thedford	0	100	--	*	0	38	--	*	16	140	1	120
6	Halsey	75	75	104	222	36	85	--	*	78	113	101	48
7	Dunning	63	30	24	39	39	16	--	*	83	32	80	22
8	Swan Lake	96	5	122	26	112	23	93	23	118	19	57	32
9	Springview	9	36	0	84	13	38	4	49	2	127	0	119
10	Bassett	81	31	111	57	65	23	74	23	88	25	113	46
11	Atkinson	41	0	81	34	58	27	41	25	54	10	79	20
12	Chambers	49	0	69	1	27	0	--	*	29	10	63	8
13	Newport	48	38	75	21	46	4	38	7	54	0	72	10
III-1	O'Neill	100	0	146	0	85	0	76	6	130	0	116	11
2	Ewing	29	0	139	0	62	0	33	0	30	0	31	24
IV-1	North Platte	48	0	122	34	61	6	--	*	87	32	81	14
Totals		658	555	1,016	914	607	524	371	417	793	903	802	887
Index***		658	555	1,016	1,072	611	480	598	764	786	848	797	787
Index (both species)		1,213		2,066		1,091		1,328		1,634		1,584	

* Data unusable = sub-standard weather conditions, late seasons or inexperienced observer.
 ** Route not completed.
 *** Index obtained by comparing routes completed in given year to results of same routes in 1958, and relating figures to index for 1958.

Brood Observations

Game Commission personnel located within the prairie grouse range and members of the U. S. Bureau of Sport Fisheries and Wildlife at Valentine, Ft. Niobrara and Crescent Lake Refuge were asked to record all grouse broods observed from about July 1 to the first week in August. Random reports from these sources supplied 154 sharptail and 24 prairie chicken brood observations. Brood transects walked on the three study areas yielded an additional four sharptail and three prairie chicken broods.

Based on 158 broods, the average sharptail brood size was 8.5 while 27 prairie chicken broods averaged 8.4 young per brood. The figure used to indicate the least significant difference in sharptail brood size has been revised and now stands at 1.05 young per brood at the five per cent confidence level or 0.88 young per brood at the 10 per cent level. Using these figures, the 1963 sharptail broods were significantly larger than those of 1962. Although there is insufficient data to establish a least significant difference for prairie chickens, it appears that the average brood size was larger than for 1962 (Table 3). Tables 2 and 3 show comparative data on sharptail and prairie chicken broods and Table 4 shows the location of the brood observations.

Table 2. Comparison of sharptail brood sizes, 1957-1963.

	1957	1958	1959	1960	1961	1962	1963
Total Broods	27	136	150	83	127	99	158
Total Chicks	219	1,176	1,113	568	1,054	578	1,346
Average Chicks/Brood	8.11	8.65	7.42	6.84	8.30	5.84	8.52
Std. Dev.	3.90	4.18	2.94	3.33	4.10	3.63	3.79

Table 3. Comparison of prairie chicken brood sizes, 1957-1963.

	1957	1958	1959	1960	1961	1962	1963
Total Broods	19	12	50	18	49	21	27
Total Chicks	148	95	359	100	368	126	227
Average Chicks/Brood	7.79	7.92	7.18	5.56	7.51	5.85	8.41
Std. Dev.	3.82	3.06	3.76	3.39	3.78	2.67	3.58

The number of random brood observations is generally not used to reflect population levels because of varying time spent in the field, miles driven, and yearly variations in cover conditions affecting the visibility of the birds. Data from years of comparable conditions may prove useful, however.

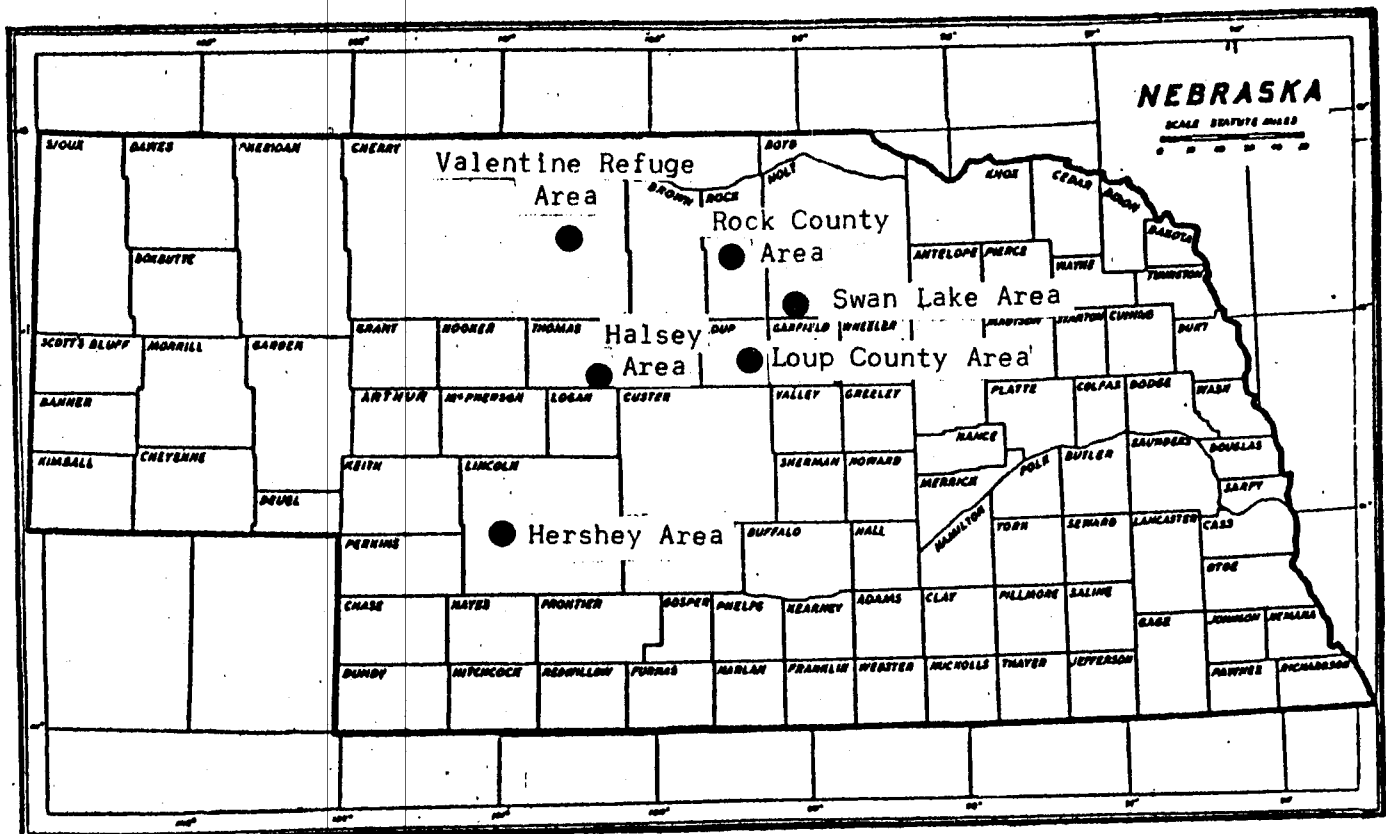
Brood Transects

Data regarding summer population levels were obtained on six study areas (Figure 2). Using a transect width of one rod on each side of the observer, biologists covered 2,244 acres by walking or driving 561 miles.

Table 4. 1963 brood observations.

County	Sharptails		Prairie Chickens	
	No. Broods	No. Chicks	No. Broods	No. Chicks
Blaine	1	5	0	0
Brown	0	0	1	1
Box Butte	1	10	0	0
Boyd	6	48	0	0
Cherry	94	787	1	8
Custer	1	6	0	0
Dawes	1	8	0	0
Garden	8	58	0	0
Garfield	1	4	3	22
Holt	9	109	12	127
Hooker	2	19	0	0
Keya Paha	1	11	0	0
Lincoln	0	0	2	16
Loup	4	35	1	2
McPherson	1	11	0	0
Morrill	1	9	0	0
Rock	9	85	5	35
Sheridan	4	47	1	11
Thomas	14	94	0	0
Wheeler	0	0	1	5
Total	158	1,346	27	227

Figure 2. Location of areas on which transects were walked for estimating grouse densities.



Estimates of grouse density ranged from 11 birds per section on the Rock County and Hershey areas to 60 birds per section on the Swan Lake area. Due to the small sample size, no conclusions can be made regarding summer population levels. An effort will be made in 1964 to sufficiently increase the area covered in order to produce reliable data. Table 5 shows the calculated grouse density and area sampled for the various areas. The Valentine Refuge Area was covered by Refuge personnel and the Loup County and Halsey Forest areas were surveyed by W-33-R biologists.

Table 5. Grouse density estimates on six areas.

Area	Grouse Density (Birds per Section)				Acres Sampled 1963
	1960	1961	1962	1963	
Loup County	25	75	18	29	288
Rock County	32	42	27	11	576
Swan Lake	30	55	13	60	288
Halsey Forest	--	118	97	22	576
Valentine Refuge	33	60	81	56	228
Hershey	--	--	--	11	288

Hunting Season Data

The 1963 grouse season in the Sandhills extended from October 5 through October 31. In addition, approximately 1,500 to 2,000 square miles of grouse habitat in the southwest corner of the state were opened from October 26 through October 31. Bag and possession limits for both areas were two birds per day, four in possession.

The weather for the opening weekend (Oct. 5-6) was unusually hot and dry with temperatures in the high 80's, and southerly winds of 10 to 20 miles per hour. Skies were mostly clear. High temperatures made hunting somewhat unpleasant and resulted in a very large number of dressed birds brought through the check stations.

Courtesy check stations were operated at 11 locations on the opening weekend of the grouse season. The Merriman station was operated only on October 5 and the Nenzel station only on October 6. Figure 3 shows the general location of each station. Appendix 1 gives the precise location of each station. By the end of the first weekend, sufficient data were available to preclude the need for check stations on the second weekend. A total of 1,083 hunters indicated they had hunted 6,327 hours in 1,458 days and had killed 1,815 birds (Table 6). Information from the Halsey check station includes only those data from hunting conducted off the forest. Success data by check station is shown in Table 7.

Hunter success: Three check stations have been operated during the opening weekend for the last four years. Comparative data from these stations are given in Table 8. The number of hunters was down 1.1 per cent from 1962 but the number of birds was up 74.7 per cent. Birds per day was up 54.4 per cent and birds per hour was up 56.8 per cent from 1962.

Using data from all stations, the average birds per hunter was 1.68, the birds per hunter day averaged 1.24 and the average hours per bird was 3.49.

Table 6. 1963 hunter success.

County	No. of Hunters	Days Hunted	Hours Hunted	Prize Bagged
Antelope	12	20	120	24
Arthur	2	4	14	8
Blaine	61	82	375	112
Brown	81	128	419	166
Boone	26	26	122	10
Boyd	5	5	11	1
Cherry	138	200	765	314
Custer	27	27	127	39
Garfield	136	181	877	206
Grant	6	12	76	19
Greeley	5	5	17	0
Holt	101	142	675	178
Hooker	18	28	136	40
Keya Paha	7	14	82	27
Lincoln	16	16	54	5
Logan	66	77	314	89
Loup	51	65	253	88
McPherson	46	46	200	34
Rock	71	119	495	175
Sheridan	3	6	30	8
Thomas	36	45	160	42
Wheeler	169	210	1,005	230
Total	1,083	1,458	6,327	1,815

Figure 3. 1963 prairie grouse check stations.

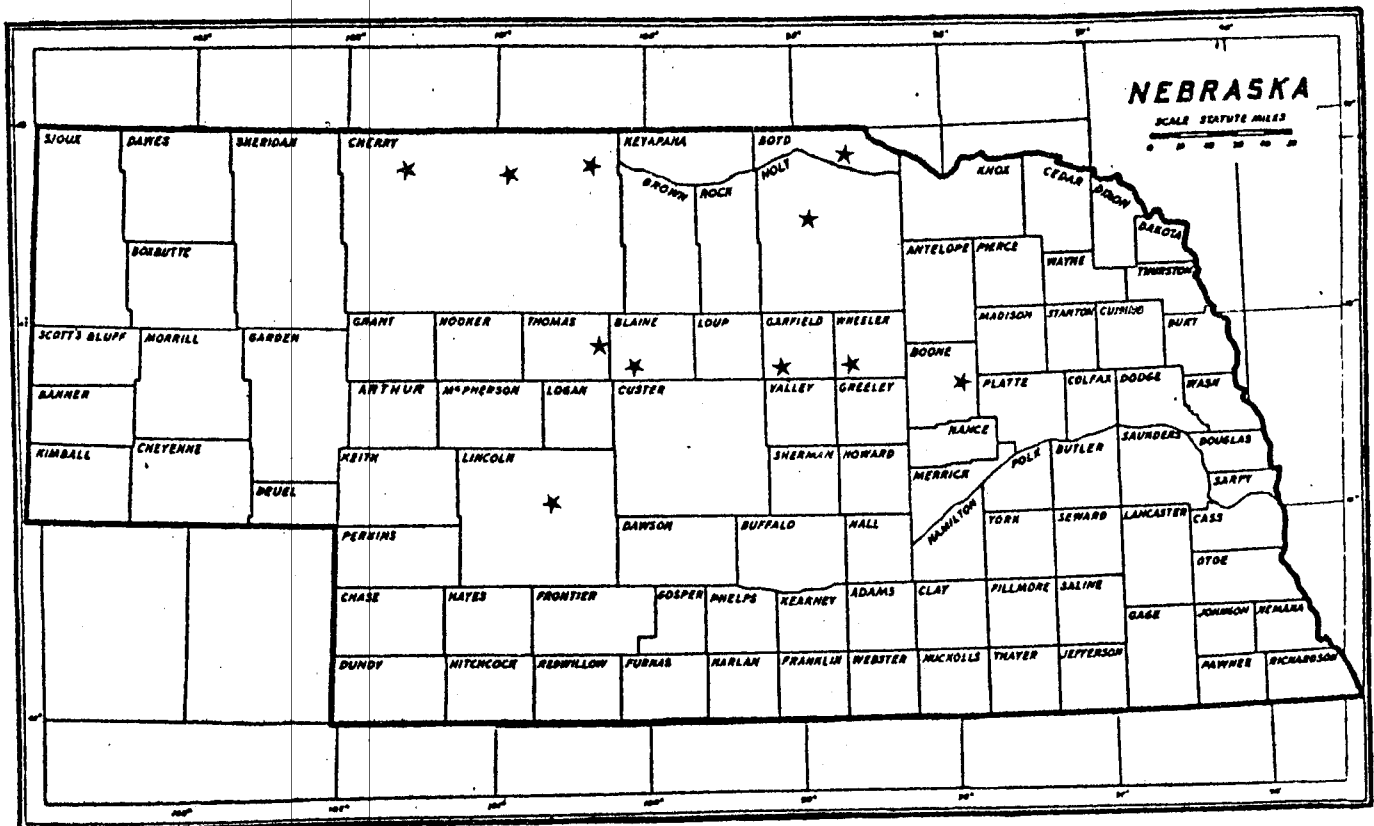


Table 7. Hunting data by check station, 1963.

Station	Date	Hunters	Days	Hours	Birds
Burwell	Oct. 5	67	67	295	70
	Oct. 6	169	279	1,301	360
	Total	236	346	1,596	430
Atkinson	Oct. 5	19	19	39	31
	Oct. 6	113	187	616	297
	Total	132	206	655	328
Ericson	Oct. 5	81	81	417	84
	Oct. 6	129	184	913	198
	Total	210	265	1,330	282
North Platte	Oct. 5	91	91	435	100
	Oct. 6	82	96	355	100
	Total	173	187	790	200
Dunning	Oct. 5	26	26	111	21
	Oct. 6	110	182	757	254
	Total	136	208	868	275
Spencer	Oct. 5	7	7	17	2
	Oct. 6	20	26	108	31
	Total	27	33	125	33
Valentine	Oct. 5	38	38	139	59
	Oct. 6	31	45	179	67
	Total	69	83	318	126
Albion	Oct. 5	22	22	93	13
	Oct. 6	47	67	379	71
	Total	69	89	472	84
Halsey	Oct. 5	4	4	14	8
	Oct. 6	20	24	122	33
	Total	24	28	136	41
Merriman	Oct. 5	1	1	1	1
Nenzel	Oct. 6	6	12	36	15
	Total	7	13	37	16
Totals		1,083	1,458	6,327	1,815

Table 8. Comparative check station data.

	Hunters	Days	Hours	Birds	Birds/Day	Hours/Bird
<u>1960</u>						
Burwell	488	640	3,275	831	1.30	3.94
North Platte	467	487	1,879	565	1.16	3.33
Dunning	329	465	2,171	618	1.33	3.51
Total	1,284	1,592	7,325	2,014	Ave. 1.26	Ave. 3.59
<u>1961</u>						
Burwell	313	439	2,218	448	1.02	4.95
North Platte	227	239	1,056	183	0.77	5.77
Dunning	134	198	1,034	257	1.30	4.02
Total	674	876	4,308	888	Ave. 1.03	Ave. 4.91
<u>1962</u>						
Burwell	286	376	1,851	268	.71	6.91
North Platte	160	172	786	109	.63	7.21
Dunning	105	137	638	141	1.03	4.52
Total	551	685	3,275	518	Ave. .79	Ave. 6.21
<u>1963</u>						
Burwell	236	336	1,596	430	1.28	3.71
North Platte	173	187	790	200	1.07	3.95
Dunning	136	208	868	275	1.32	3.16
Total	545	731	3,254	905	Ave. 1.22	Ave. 3.61
% change from 1962	- 1.1	+ 6.7	- 0.6	+ 74.7	+ 54.4	- 41.9

These figures compare with 0.85 birds per hunter, 0.68 birds per hunter day and 7.43 hours per bird for 1962 (obtained from five check stations). This is an increase of 83.8 per cent in birds per day and a decrease of 53.0 per cent in hours per bird from 1962.

Sex and age ratios: A total of 977 grouse examined at check stations and during miscellaneous field checks was usable for sex and age data. Of these, 258 or 26.5 per cent were prairie chickens. The total figure also includes two hybrids. Breakdown of data by county of kill is recorded in Tables 9 and 10.

Sex and/or age data was obtained for 208 prairie chickens. These included 150 juveniles and 56 adults for age ratios of 2.68 young per adult and 4.59 young per adult hen. Comparable young to adult figures in 1961 and 1962 were 2.56 and 1.97 respectively. Sex ratios in 1963 were 101 juvenile males to 100 juvenile females and 69 adult males to 100 adult females for a total of 92 males per 100 females.

Sex and/or age data were recorded for 551 sharptails. Age data from 380 young and 167 adult birds show 2.28 young per adult and 4.94 young per adult hen. Young to adult ratios in 1961 and 1962 were 1.66 and 1.29. Sex ratios

Table 9. Sex and age composition of sharptails, 1963 season.*

County	Juvenile			Adult			Sex & Age Unknown	Female Age?	Male Age?	Total
	Male	Female	Sex?	Male	Female	Sex?				
Arthur	0	1	0	1	1	0	0	0	0	3
Blaine	26	12	1	10	12	0	0	0	0	61
Boone	2	1	0	0	0	0	0	0	0	3
Box Butte	2	2	0	0	0	0	0	0	0	4
Brown	10	8	0	5	2	0	65	0	0	90
Cherry	55	23	0	12	13	0	14	0	0	117
Custer	13	10	1	6	5	1	0	0	0	36
Garfield	9	11	0	7	4	1	1	0	0	33
Garden	0	4	0	0	0	0	0	0	0	4
Holt	2	8	2	3	2	0	21	1	0	39
Hooker	5	1	0	0	2	0	1	0	0	9
Keya Paha	0	0	0	0	1	0	0	0	0	1
Lincoln	4	3	0	1	0	0	0	0	0	8
Logan	12	17	2	6	9	0	1	0	0	47
Loup ²	6	4	1	5	6	0	0	0	0	22
McPherson	3	2	1	0	1	0	1	0	0	8
Morrill	1	0	0	1	0	0	0	0	0	2
Rock	25	17	3	17	4	0	35	0	0	101
Thomas	6	11	0	5	2	0	7	2	1	34
Wheeler	21	19	4	7	10	1	20	0	0	82
Unknown	6	3	0	1	3	0	0	0	0	13
Total	208	157	15	87	77	3	166	3	1	717

* Data obtained from grouse check stations, pheasant check stations and miscellaneous field checks. Data from the Halsey Forest is not included.
 1/One juvenile female hybrid. 2/One juvenile male hybrid.

Table 10. Sex and age composition of prairie chickens, 1963 season.*

County	Juvenile			Adult			Sex & Age Unknown	Female Age?	Male Age?	Total
	Male	Female	Sex?	Male	Female	Sex?				
Arthur	1	1	0	0	0	0	0	0	0	2
Blaine	1	3	0	3	4	0	0	0	0	11
Brown	0	6	0	0	2	0	6	0	0	14
Boone	3	0	0	1	2	0	0	0	0	6
Cherry	0	1	0	1	0	0	0	0	0	2
Custer	2	2	0	0	1	0	0	0	0	5
Garfield	6	9	0	1	4	0	0	0	0	20
Garden	0	1	0	0	0	0	0	0	0	1
Holt	12	9	2	3	3	1	20	1	0	51
Lincoln	4	5	0	1	0	1	0	0	0	11
Logan	4	6	0	1	2	0	0	0	0	13
Loup	4	4	0	1	2	0	0	0	0	11
McPherson	3	5	0	1	0	0	0	0	0	9
Rock	21	13	0	5	8	0	19	0	0	66
Thomas	1	2	0	0	0	0	0	0	1	4
Wheeler	12	6	1	4	3	0	5	0	0	31
Unknown	0	0	0	0	1	0	0	0	0	1
Total	74	73	3	22	32	2	50	1	1	258

* Data obtained from grouse check stations, pheasant check stations and miscellaneous field checks. Data from the Halsey Forest is not included.

-11-

for sharptails in 1963 were 132 juvenile males per 100 juvenile females and 113 adult males per 100 adult females for a total of 125 males per 100 females.

Hatching dates: Using the aging technique described in 1961, 311 sharptails and 106 prairie chickens were aged. Table 11 shows the ages and approximate hatching dates for these birds. Tables 12 and 13 list the ages for all birds aged by this method over the past three years. In both species, there are less birds in the 14 week class than the 13 week group and the 15 week class does not appear as large as might be expected. This may be due to a small sample size or a possible error in the aging technique.

Table 11. Age in weeks and hatching dates for birds killed October 5 and 6, 1963.

	Age in Weeks							Total
	11	12	13	14	15	16	17+	
Sharptails	0	4	19	11	16	28	233	311
Prairie Chickens	1	2	10	7	9	15	62	106
Approx. Hatch Date	7/20	7/13	7/6	6/29	6/22	6/15	before 6/8	

Table 12. Age in weeks of sharptails.

		Age in Weeks						Total
	11	12	13	14	15	16	17+	
1961	2	5	2	10	17	27	57	120
1962	1	12	19	14	19	29	99	193
1963	0	4	19	11	16	28	233	311
Total	3	21	40	35	52	84	389	624

Table 13. Age in weeks of prairie chickens.

		Age in Weeks						Total
	11	12	13	14	15	16	17+	
1961	1	3	7	4	6	13	15	49
1962	4	4	5	4	9	14	14	54
1963	1	2	10	7	9	15	62	106
Total	6	9	22	15	24	42	91	209

Hunter Success Survey: The calculated number of grouse hunters in 1963 was 20,700 or 12.0 per cent of the permit buyers. Reported average daily bag was 0.7 birds per man. The average seasonal bag per hunter was 2.7 and the average days afield was 4.3.

The calculated harvest was 56,000, up 24 per cent from the 45,300 birds killed in 1962.

The preceding figures are based on the returns of hunters who responded to the hunter success survey. Table 14 gives the breakdown by county of the survey data.

Table 14. 1963 hunter success survey.

County	Hunters	Days	Bag	Bird/Hunter	Birds/Day	Days/Hunter
Antelope	1	4	2	2.00	0.50	4.00
Arthur	2	6	4	2.00	0.67	3.00
Blaine	8	35	23	2.88	0.66	4.38
Boone	3	6	6	2.00	1.00	2.00
Box Butte	5	17	10	2.00	.59	3.40
Boyd	7	36	36	5.14	1.00	5.14
Brown	16	92	56	3.50	.61	5.75
Cherry	26	166	89	3.42	.54	6.38
Custer	14	36	23	1.64	.64	2.57
Dawes	1	10	4	4.00	.40	10.00
Garden	7	25	14	2.00	.56	3.57
Garfield	7	20	13	1.86	.65	2.86
Grant	3	20	13	4.33	.65	6.67
Greeley	4	9	5	1.25	.56	2.25
Holt	26	106	75	2.88	.71	4.08
Keya Paha	2	4	3	1.50	.75	2.00
Knox	1	1	1	1.00	1.00	1.00
Lincoln	5	18	17	3.40	.94	3.60
Logan	4	9	13	3.25	1.44	2.25
Loup	6	18	9	1.50	.50	3.00
Madison	1	2	3	3.00	1.50	2.00
McPherson	1	3	3	3.00	1.00	3.00
Morrill	6	31	26	4.33	.84	5.17
Pierce	3	6	6	2.00	1.00	2.00
Platte	1	2	2	2.00	1.00	2.00
Rock	13	62	49	3.77	.79	4.77
Sheridan	12	51	42	3.50	.82	4.25
Thomas	2	8	4	2.00	.50	4.00
Valley	1	2	4	4.00	.50	2.00
Wheeler	11	62	33	3.00	.53	5.64
Unlisted	29	128	73	2.52	.57	4.41
Totals	228	995	651	2.86	.65	4.36

Trapping and Banding

In the Bassett area, 14 sharptails and 19 prairie chickens were trapped at the Seberger trap site. Of these, six sharptails were delivered to William Lemburg at Cairo, Nebraska, six prairie chickens and four sharptails went to Denver Wildlife Research Center, 13 prairie chickens and three sharptails were banded and released at the trap site and one sharptail died during transportation to Cairo.

Three male prairie chickens banded in 1964 were retrapped the same season at the Seberger location.

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Personnel at the Valentine Refuge trapped 23 sharptails and two prairie chickens in May and June of 1963. These birds were not included in the 1962-63 report and are therefore presented here. These birds were taken on five different dancing grounds. All 25 birds were banded and in addition, six were color-marked and eight were equipped with radio transmitters. All birds were released at the trapping sites with the exception of one transmitter equipped bird that was released 4.12 miles from the trap site on ground number 27.

Personnel of the Fort Niobrara Refuge had trapped 66 sharptails by March 26. All 66 were banded and released at the trap sites.

Table 15 lists the trap data for 1964.

Table 15. Grouse trapped during the spring and winter of 1963 and the winter of 1964.

Trap Location	No. Trapped	Sharptail		Prairie Chicken	
		Male	Female	Male	Female
<u>Sebergers</u>					
Sec. 36, T29N, R18W	33	8	6	15	4
Total	33	8	6	15	4
<u>Valentine Refuge</u>					
# 6 = Sec. 1, T28N, R28W	2	2	0	0	0
#11 = Sec. 26, T29N, R27W	3	1	0	2	0
#17 = Sec. 20, T29N, R27W	4	4	0	0	0
#27 = Sec. 28, T30N, R29W	8	5	3	0	0
#56 = Sec. 6, T29N, R28W	8	8	0	0	0
Total	25	20	3	2	0
<u>Niobrara Refuge</u>					
#1 = SE $\frac{1}{4}$ of Sec. 27, T34N, R27W (color-marked purple)	29	17	12	0	0
#1a= NE $\frac{1}{4}$ of Sec. 27, T34N, R27W (color-marked purple)	4	2	2	0	0
#2 = SE $\frac{1}{4}$ of Sec. 25, T34N, R27W (color-marked yellow)	31	22	9	0	0
#3 = NE $\frac{1}{4}$ of Sec. 8, T33N, R26W (color-marked brown)	2	2	0	0	0
Total	66	43	23	0	0

The Niobrara Refuge retrapped 16 sharptails banded the previous year in 1963 and one sharptail banded in 1962.

Hunting returns of grouse from the 1963 season are as follows:

Niobrara Refuge - A male sharptail banded February 21, 1963 was shot October 13, 1963 three miles east and one mile south of the trap site.

Valentine Refuge - A female sharptail banded February 20, 1963 was caught in a predator trap on January 6, 1964 within one mile of the trap site. A male sharptail banded March 19, 1963 was shot October 5, 1963 one mile south of the trap site.

Bassett Area - A sharptail male banded at Shears on February 24, 1963 was shot October 12, 1963 one mile west of the trap site. A sharptail male banded at Shears on February 25, 1963 was shot October 12, 1963 one-half mile east of the trap site.

Garfield County - A prairie chicken banded on the Westover ranch on March 13, 1961 was shot October 5, 1963 two and one-half miles northwest of the trap site.

Loup County - A sharptail banded February 15, 1960 in Sec. 5, T22N, R17W was shot on October 5, 1963 in Sec. 20, T23N, R17W. The bird had moved about three and one-half miles from the trap site.

Summary

Spring display ground counts indicate prairie chickens were up 1.4 per cent from 1962 and up 8.6 per cent from the average of the past five years. Sharptail numbers were down 7.2 per cent from 1962 but 5.8 per cent above the past five year average.

Random and transect observations of 158 sharptail and 27 prairie chicken broods indicate an average brood size of 8.5 for sharptails and 8.4 for prairie chickens. This is a significant increase in sharptail brood size from 1962. For prairie chickens, sufficient data are not available to show significance, but the indicated brood size is up from 1962.

Brood transects in Loup, Rock, Holt and Lincoln Counties indicate 29, 11, 60 and 11 birds per section, respectively and the Halsey Forest and Valentine Refuge indicated 22 and 56 birds per section. Indicated densities for the same areas with the exception of the Lincoln County area for 1962 were 18, 27, 13, 97 and 81 birds per section in the same order as above.

Hunter success data obtained at 11 check stations indicate 1.24 birds per hunter day and 3.49 hours per bird. Success was up 84 per cent (birds per day) and 47 per cent (birds per hours) from 1962.

Of 977 birds examined, 27 per cent were prairie chickens. Sex and age data indicate 2.68 young per adult and 92 males to 100 females for prairie chickens and 2.28 young per adult and 125 males to 100 females for sharptails.

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Hunter success survey figures indicate hunters killed 56,000 birds, up 24 per cent from the kill in 1962.

Trapping attempts resulted in the capture of 103 sharptails and 21 prairie chickens. Twenty-four recoveries from previous years were obtained from retrapped birds and hunter returns.

Prepared by Robert Wood
District Game Supervisor

Date March 30, 1964

Approved by Ken Johnson
Project Leader

Date April 8, 1964

A P P E N D I X

APPENDIX 1

1963 check station locations

Atkinson	Set up one to two miles east of the east edge of town where U. S. 20 turns east. Set up on the blacktop strip that is parallel to U. S. 20 on the south side of the road. Only the cars going east are stopped.
Albion	Set up on Highways 91 and 39 at the east edge of town. The signs are placed to catch traffic coming from the west from town. The car was parked along a blacktop side road running south from the highway.
Burwell	Set station one-half mile southeast of junction of State 91 and 11 on the south side of the road. Signs are set to stop traffic going southeast.
Dunning	Set up south of town but north of the river on State Highway #2. Signs stop cars coming from the north.
Ericson	Set at the junction of State Highway 91 and U. S. 281 where 91 leaves to the west. Station was set to stop cars coming east on 91 when they hit the junction.
Halsey	Set up on the spur into the forest from State Highway #2, just south of the river.
Merriman	Set up one mile east of Merriman on the turnoff to Cottonwood Lake (south of U. S. 20). Signs are set on U. S. 20 to stop cars from both directions.
Nenzel	Set up at the junction of State Highway 97 and U. S. 20. Station is on Route 97 on the south side of U. S. 20 and signs are placed to stop both east and west traffic on U. S. 20.
North Platte	Set up three miles north of North Platte at the junction of State 97 and 70. State 97 stops at the junction and the station is placed at this stop sign to get the traffic going south on this road. The signs are placed to stop traffic going south on State 70.
Valentine	Set up five miles southeast of Valentine at the junction of U. S. 20 and 83. Signs are placed to stop traffic going north on U. S. 83 and southeast on U. S. 20.
Spencer	Set up on U. S. 281 just south of the Niobrara River at a roadside park. Signs were placed to stop traffic heading north.

1. The first part of the document is a list of the names of the persons who were present at the meeting. The names are listed in alphabetical order.