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SPRING PRAIRIE GROUSE CENSUS - 1955

JOB COMPLETION REPORT

State. South Dakota
Project. W-17-R-10
Job Outline. G-2.1-55
Date November 28, 1955

ELMER PETERSON - DIRECTOR
DEPARTMENT OF GAME, FISH AND PARKS

BERNARD A. NELSON
FEDERAL AID COORDINATOR

RAY MURDY
PROJECT LEADER

SPRING PRAIRIE GROUSE CENSUS - 1955

By Reuel Janson

A B S T R A C T

The 1955 spring prairie grouse census was conducted during the period March 30 to May 4. Census data were obtained by means of a survey of dancing and booming grounds on 18 automobile transects.

An average population density of 4.77 sharptailed grouse, and 0.71 prairie chickens per square mile was found. Comparable data for 1954 and 1955 indicate a 10 percent decline in the combined prairie and grouse population. The prairie chicken population declined considerably more than the sharptail population.

The extreme northern portion of the grouse range, Corson and Perkins Counties, experienced population gains of approximately 50 percent which did much to offset the population declines that occurred in many of the counties farther to the south.

The activity of prairie grouse on their dancing grounds followed a pattern similar to that of previous years. The number of males on dancing grounds reached a peak by April 1, and continued at a high level until late April. By early May, the number of males on the grounds had declined considerably.

Females began appearing on the dancing grounds somewhat earlier than in 1954, but did not appear in peak numbers until several days later than in 1954.

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METHOD

The 1955 census of the prairie grouse breeding population consisted of a dancing-booming ground survey on 18 established census transects located west of the Missouri River. Most of the transects are 20 miles long, although a few are shorter. They are laid out along automobile routes, and are considered to extend for one mile on each side of the road.

Census work was performed during the period from March 30 to May 4. The same procedure was followed as in previous years. From two to four mornings, working from 1/2 hour before sunrise to approximately 1-1/2 hours after sunrise, were spent by a biologist on each transect.

The procedure was the same as in previous years: One calm morning on each transect was used to make a listening run on the automobile route. Listening stops of two-minute durations were made at mile intervals and apparent locations of courtship grounds were marked on a map of the area. The other mornings were spent in visiting the grounds and counting the number of birds present. Grounds where birds could not be counted because of difficulty of access were assigned the average of other grounds on the transect. Finding grounds was expedited by using maps upon which courtship ground locations of the previous year were plotted and by scanning the areas with field glasses from high points.

SHARPTAIL POPULATION

Table 1 contains census data for sharptails and comparisons with 1954 figures.

Table 1. Sharptailed Grouse Census Data, 1955, and Comparison with 1954

Transect	Area Sq. Mi.	No. of Grounds		No. of Males			Total Birds Computed	Birds Per Sq. Mi.		% Change
		Present	Visited	Total Counted	Ave./ Ground	Total Computed		1955	1954	
Bennett	40	7	4	24	6.00	42	84	2.1	4.5	- 53
Corson	32	12	9	140	15.56	186.7	373	11.7	7.4	✓ 58
Corson-Dewey	30	13	12	164	13.67	178	356	11.9	10.5	✓ 13
Dewey	40	9	7	88	12.57	113	226	5.7	8.0	- 29
Gregory	14	0	0	0	0	0	0	0	0	0
Haakon	40	16	9	80	8.89	142	284	7.1	6.8	✓ 4
Jackson	38	9	7	70	10.0	90	180	4.7	4.5	-- *
Jones	40	8	8	79	9.88	79	158	4.0	---	----
Lyman	34	3	3	22	7.33	22	44	1.3	---	----
Meade	40	8	6	47	7.83	62.6	125	3.1	3.1	0
Mellette	40	16	12	120	10.0	160	320	8.0	8.7	- 8
Pennington	40	7	5	44	8.80	61.6	123	3.1	3.7	- 16
Perkins	36	6	4	74	18.5	111	222	6.2	4.0	✓ 55
Shannon	30	8	5	38	7.60	60.8	122	4.1	4.3	- 5
Stanley	40	8	7	68	9.71	77.7	155	3.8	7.3	- 48
Todd	40	6	4	30	7.5	45	90	2.2	---	----
Tripp	40	0	0	0	0	0	0	0	0	0
Ziebach	40	9	7	84	12.0	108	216	5.4	6.1	- 12
Totals	654	145	109	1172	10.75**	1558.8**	3118**	4.77**	5.0	- 5

* Figures not directly comparable because of change in route in 1955

** Computed from totals rather than sums of columns

Relatively good sharptail populations, more than 4.0 birds per square mile occurred on the Corson, Corson-Dewey, Dewey, Haakon Jackson, Jones, Mellette, Perkins, Shannon and Ziebach transects, while populations were low, less than 4.0 birds per square mile, on the Bennett, Lyman, Meade, Pennington, Stanley and Todd transects. No sharptails were found on the Gregory and Tripp transects.

Population increase of over 10 percent occurred on the Corson, Corson-Dewey, and Perkins transects. Little change occurred on the Gregory, Haakon, Meade, Mellette, Shannon and Tripp transects. The small increase indicated for Jackson County is misleading because of a change in the route at one end of the transect. Based on the portion run both years, there was actually a decrease of approximately 20 percent (Table 3).

Other population decreases of more than 10 percent occurred on the Bennett, Dewey, Pennington, Stanley and Ziebach transects.

Lack of complete data for the Jones and Lyman transects in 1954 did not permit comparison of population densities. The location of the Todd County transect was changed for the 1955 survey, hence the data for 1954 and 1955 are not comparable.

The average population density of all transects declined from 5.0 sharptails per square mile in 1954 to 4.77 in 1955, an apparent 5 percent decrease. This is a conservative estimate of the decrease because of the inclusion of data from non-comparable routes.

The average number of males counted per dancing ground also indicated a population decrease. This figure was 10.8 in 1955, compared to 11.3 in 1954. However, some of the highest counts of individual grounds since extensive surveys were begun in 1949 were obtained in 1955. These were invariably in areas surrounded by good cover consisting chiefly of lightly grazed grassland of the mid-grass type. Examples of high counts are as follows:

<u>Transect</u>	<u>Ground No.</u>	<u>No. of Males</u>
Corson	10	25 /
Mellette	18	34
Jones	9 X	27
Corson-Dewey	28	27
Perkins	6	32 /

In previous years no more than one or two grounds per season exceeded counts of 25 males. These counts suggest that 1955 may have been a peak year for the breeding population if suitable cover conditions

had prevailed over a more extensive area. However, a relatively dry year in 1954, coupled with heavy grazing, resulted in deterioration of cover conditions on wide areas, and a resultant decline of the grouse population in these areas.

PRAIRIE CHICKEN POPULATION

Prairie chicken population data are shown in Table 2.

Prairie chickens were most abundant in the breaks of the Missouri River and its tributaries in Gregory and Charles Mix Counties. Leo Kirsch, Lake Andes Refuge Manager, reported the same or slightly more prairie chickens in Charles Mix County than in 1954. The 1954 density was between five and six birds per square mile. However, only 3.0 birds per square mile were found on the Gregory route, a 47 percent decrease.

Populations between one and two per square mile were found in Jones, Lyman, Mellette, Todd and Tripp Counties. Declines between 40 and 50 percent occurred on the Mellette and Stanley transects while a six percent decline was indicated on the Lyman transect. Incomplete data for Todd and Jones in 1954 did not permit comparisons.

The average density declined from 0.71 birds per square mile on all transects in 1954 to 0.58 in 1955, an 18 percent decrease. The average number of males per ground declined from 6.8 in 1954 to 6.6 in 1955, and fewer booming grounds were present in 1955. The largest booming ground found, which had 18 males present, was in Todd County.

Table 2. Prairie Chicken Census Data - 1955

Transect	Area Sq. Mi.	No. of Grounds		No. of Males			Total Birds Computed	Birds Per Sq. Mi.		% Change
		Present	Visited	Total Counted	Ave./ Ground	Total Computed		1955	1954	
Bennett	40	0	0	0	0	0	0	0	0	0
Corson	32	0	0	0	0	0	0	0	0	0
Corson-Dewey	30	0	0	0	0	0	0	0	0	0
Dewey	40	0	0	0	0	0	0	0	0	0
Gregory	14	4	4	21	5.3	21	42	3.0	5.7	- 47
Haakon	40	0	0	0	0	0	0	0	0	0
Jackson	38	2	0	-	-	-	0	-	-	-
Jones	40	6	6	37	6.2	37	74	1.8	-	-
Lyman	34	5	4	21	5.3	26	52	1.5	1.6	- 6
Meade	40	0	0	0	0	0	0	0	0	0
Mellette	40	3	2	14	7.0	21	42	1.1	1.9	- 42
Pennington	40	0	0	0	0	0	0	0	0	0
Perkins	36	0	0	0	0	0	0	0	0	0
Shannon	30	0	0	0	0	0	0	0	0	0
Stanley	40	2	1	6	6.0	12	24	0.6	1.2	- 50
Todd	40	5	4	28	7.0	35	70	1.8	---	----
Tripp	40	2	2	25	12.5	25	50	1.3	1.3	0
Ziebach	40	0	0	0	0	0	0	0	0	0
Totals	654	29	23	152	6.6	191	382	0.58	0.71	- 18

BOTH SPECIES COMBINED

The two species are not considered separately in the hunting regulations adopted by the Game, Fish and Parks Commission. Consequently the combined densities and population changes are the most useful figures for Commission consideration. The combined figures are shown in Table 3.

Table 3. Combined Population - 1954 & 1955

Transect	1955			1954			% Change
	Sq. Mi.	Total Birds	Birds/Sq. Mi.	Sq. Mi.	Total Birds	Birds/Sq. Mi.	
Bennett	40	84	2.1	40	180	4.5	- 53
Corson	32	374	11.7	32	238	7.4	✓ 58
Corson-Dewey	30	356	11.9	30	314	10.5	✓ 13
Dewey	40	226	5.7	40	322	8.0	- 29
Gregory	14	42	3.0	14	64	5.7	- 47
Haakon	40	284	7.1	40	272	6.8	✓ 4
Jackson	38	137	3.6(4.7)*	38	178	4.5	- 20
Jones**	40	232	5.8	--	----	----	-----
Lyman	34	96	2.8	28	104	3.7	- 24
Meade	40	125	3.1	40	124	3.1	0
Mellette	40	362	9.1	40	420	10.5	- 13
Pennington	40	123	3.1	40	150	3.7	- 16
Perkins	36	222	6.2	36	160	4.4	✓ 41
Shannon	30	122	4.1	30	128	4.3	- 5
Stanley	40	179	4.5	40	342	8.6	- 48
Todd**	40	160	4.0	--	----	----	-----
Tripp	40	50	1.3	40	50	1.3	0
Ziebach	40	216	5.4	40	242	6.1	- 12
Totals	574	2998	5.22	568	3288	5.79	- 10

* Part of route was changed; comparison is based on same portion covered both years. The 4.7 is the density including the new part.

** Not included in totals.

The combined population density figures were classed as high, 8.0 or more birds per square mile on the Corson, Corson-Dewey and Mellette transects. Medium populations between 4.0 and 7.9, occurred on the Dewey, Haakon, Jones, Jackson, Perkins, Shannon, Stanley and Ziebach transects. Low populations, below 4.0, were found on the Bennett, Gregory, Lyman, Meade, Pennington and Tripp transects.

The average population change for all transects was a 10 percent decline. Two areas, Corson and Perkins showed increases of 58 and 41 percent, respectively, while the Corson-Dewey transect had a 13 percent increase. Little or no change occurred on the Haakon, Meade, Shannon and Tripp areas. Moderate declines, from 10 to 25% occurred on the Jackson, Lyman, Mellette, Pennington and Ziebach transects. Considerably greater declines, from 26 to 60 percent, occurred on the Bennett, Dewey, Gregory and Stanley transects.

STUDY AREAS

Personnel were not available for a census of the Keldron and Norris study area.

Work on the Mobridge area is represented by the census figures for the Corson-Dewey transect in Tables 1 and 3.

SEASONAL TREND IN NUMBER OF MALES ON GROUNDS

Because of the transfer of the author from Mobridge to Pierre, periodic counts could not be made on dancing grounds on the Mobridge study area as was done in previous years. However, enough counts were made on this area, and on a check route in Stanley County to indicate the progress of breeding activities.

The counts on the Mobridge area were:

<u>Ground No.</u>	<u>March 13</u>	<u>Apr. 7-8</u>
27	20	21
13	9	13
6	14	13
7A	3	24
16A	16	19
28	5	27
15A	0	5
3A	4	3
	<u>71</u>	<u>125</u>

Dancing ground activity was not well established by March 13, as shown by the small number of males on the grounds. By April 7, the activity was probably at or near peak occurrence, with 125 males present.

Counts on the Stanley check route were:

<u>Ground No.</u>	<u>March 28</u>	<u>March 30</u>	<u>May 2</u>
# 1	14	16	12
# 2	--	13*	4
#3	10	13	7
# 4	--	5*	6
#21	3	9	9
#22	7	7	1
	<u>34</u>	<u>45</u>	<u>-</u>
	--	63	39

*Not included in first total.

The number of males on dancing grounds on the Stanley County area increased rapidly between March 28 and March 30, probably reaching maximum numbers March 30. By May 2, activity and the number of males present had declined considerably.

SEASONAL TREND IN NUMBER OF FEMALES

Data showing the chronology of the appearance of females on the dancing grounds is shown in Table 4.

Table 4. Chronology of Female Occurrence on Dancing Grounds

<u>Weekly Period</u>	<u>Number of Males</u>	<u>Number of Females</u>	<u>Males per 100 Females 1955</u>	<u>Females 1954</u>
March 28 - Apr. 3	314	24	1290	Inf.
April 4 - 10	541	80	676	1038
April 11 - 17	343	59	581	349
April 18 - 24	295	130	227	397
April 25 - May 1	161	4	4025	Inf.
May 2 - 8	128	10	1280	9500

The data in Table 4 show that females began visiting the grounds a littler earlier than in 1954, but mating activities did not reach a peak until April 18-24, as shown by the low sex ratio. The peak of mating thus appeared to be a few days later than in 1954.

SUMMARY and CONCLUSIONS

1. The 1955 spring prairie grouse census was conducted during the period from March 30 to May 4. The census consisted of a survey of dancing/booming grounds on 18 census transects.
2. The average population density of sharptailed grouse on 654 square miles of census transects was 4.77 birds per square mile. This represents a decline of somewhat more than 5 percent in the sharp-tail population since the spring of 1954.
3. The average population density of prairie chickens on the same sample area was 0.58 birds per square mile, representing an 18 percent decline since the spring of 1954.
4. The combined density of both species on comparable transects declined from 5.79 birds per square mile in 1954, to 5.22 in 1955, a 10 percent decrease.
5. Relatively high prairie grouse populations (8.0 or more birds per section) occurred in the Corson, Corson-Dewey and Mellette areas. Moderate densities, from 4.0 to 7.9, were found in the Dewey, Haakon, Jones, Perkins, Shannon, Stanley and Ziebach areas. Population densities below 4.0 were found in the Bennett, Gregory, Lyman, Meade, Pennington and Tripp transects.
6. Prairie chickens occurred only in the southeastern counties of the grouse range, and comprised more than a third of the grouse population only in Charles Mix, Gregory, Jones, Lyman, Todd and Tripp Counties. The breeding population of Charles Mix and Gregory Counties appeared to consist almost exclusively of prairie chickens.
7. Considerable population gains occurred only in the extreme northern part of the grouse range (Corson and Perkins Counties). In the remainder of the grouse range, populations remained about the same, or declined considerably.

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SOUTH DAKOTA DEPARTMENT OF GAME, FISH AND PARKS