1956

1956- Spring Pheasant Inventory

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JOB COMPLETION REPORT
INVESTIGATIONS PROJECTS

State of Nebraska

Project No. W-15-R Job No. 25 & 27 - 54

Title of Job Spring Pheasant Inventory

Objectives: To determine pheasant breeding population trends.

Techniques Used: The spring pheasant inventory consisted of two surveys; the crowing count and roadside count. Initially, they were planned as separate surveys; job numbers 25 and 27, Project 15-R, 1954. But it was later decided, in cooperation with the South Dakota Department of Game, Fish and Parks, to join them into one composite survey. The crowing count was made travelling one way on a 20-mile route, and the roadside count was run immediately following, going back over the same route.

Conservation Officers and Game Technicians ran spring pheasant inventory routes in 58 of the 93 counties of the state. Five counties, one in each district, contained check routes which were to be run once a week from the middle of April until the latter part of May. Complete survey procedures and instructions are found in the appendix.

Findings: Unfortunately, strong winds prevailed during much of the survey period, causing many observers to make counts during days when desired weather conditions could not be met, or else fail to run them at all.

1. Crowing Count

The five district check routes, which were run for determing the peak or peaks in cock crowing, revealed little usable information. Extremely windy conditions, mentioned above, undoubtedly affected the observers crowing data, thus preventing a clear-cut trend in crowing intensity. Figure 1 graphically depicts the crowing peak data obtained. It appears that the greatest peak in crowing intensity was roughly the second week in May although during the last week in April, some consistently high recordings were made. In any case, there was no alteration of crowing count data taken on regularly assigned routes, since they were run during the first and second week in May (the probable crowing peak), and reliability of the overall census data was uncertain.

On Table 1 is a summary of the district crowing count data and the statewide average. Also on Table 1 is a spring hen pheasant population index. This index was derived by using the adjusted winter sex ratios obtained by the Rural Mail Carrier Game Survey--Winter, 1955 (P-R Project No. 15-R, Job No. 20) in conjunction with the average crowing counts. Obviously crowing count data alone may be misleading as a spring population index because of varying intensities of hunting pressure in parts of the State, differential winter mortality, etc. The

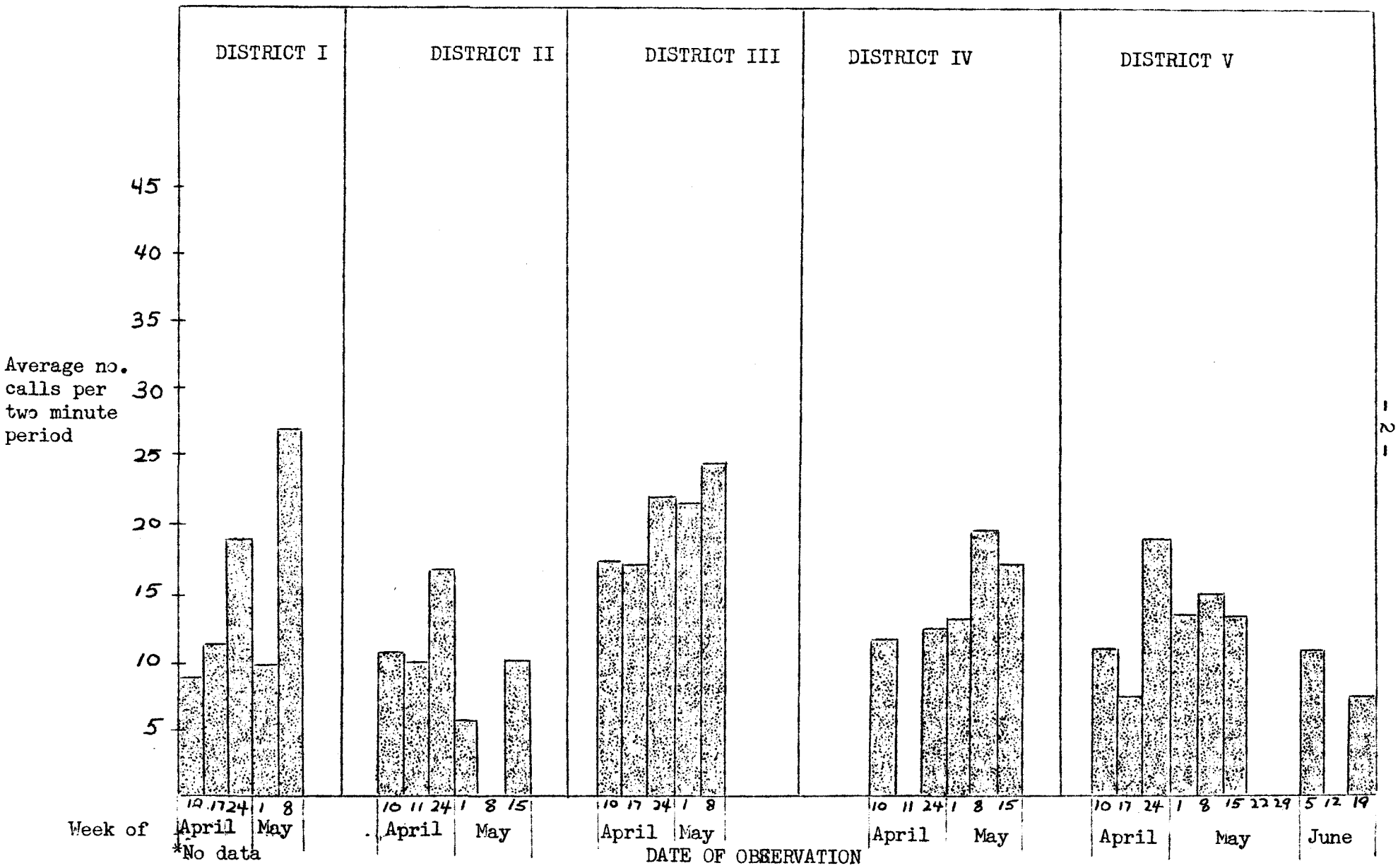

FIGURE 1. CROWING PEAK INDICATIONS FROM FIVE DISTRICT CHECK ROUTES

derived spring population indices coincide more nearly to the relative population distribution in the districts indicated by the winter mail carrier survey mentioned above and by the Rural Mail Carrier Game Survey -- Spring, 1955 (P-R Project No. 15-R, Job No. 26) than does the unaltered crowing count data. Figures 3 and 4 contain the district population distribution using the unaltered and altered crowing count data respectively.

TABLE 1. SUMMARY OF CROWING COUNT DATA
With Derived Population Indices

District	Ave. No. Calls Per 2-Minute Stop	Winter Sex Ratios Cocks Per 100 Hens	Spring Hen Pheasant Population Index
I	11	59	19
II	7	149	5
III	14	94	15
IV	18	65	28
V	18	58	31
Total	14	66	21

Figure 2 shows the yearly crowing count trend since 1947 when the survey was initiated. It is difficult, however, to make a very accurate appraisal of the annual data, since very little consistency was employed in using the same counties each year. Weather, particularly wind, has always been a limiting factor in the degree of success of the crowing count survey in Nebraska.

2. Roadside Count

No comparison of spring roadside count data can be made with other years since this was the first year the count was undertaken. A collation of districts (Table 2) indicates Districts I and V to have above the state average number of birds per mile while the other three districts show below average figures. When only cocks per mile are used the implication of relative district distribution remains virtually the same. On the other hand, the hens-per-mile figure indicates District I only to contain above the State average. Figures 3 and 4 show the suggested district population indices using birds per mile, and hens per mile, respectively.

It is quite possible that there was an insufficient sample size obtained during the roadside counts, as only 1094 birds

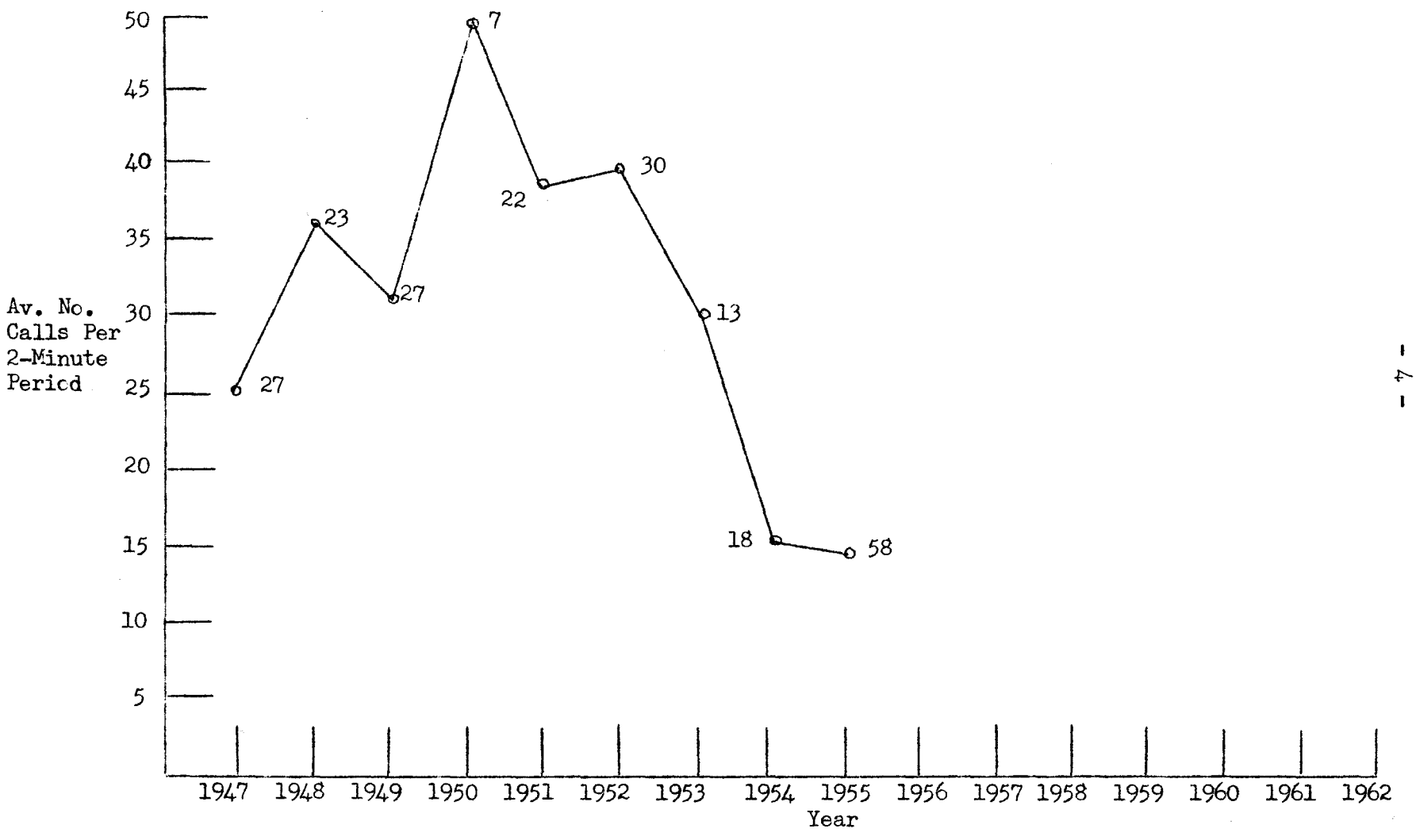

Figure 2. Spring Pheasant Population Indices from Crowing Counts
(Figures on curve indicate numbers of counties used in survey)

TABLE 2. SPRING ROADSIDE COUNTS -- 1955
Summary of Data

	DIST. I	DIST. II	DIST. III	DIST. IV	DIST. V	TOTAL
No. of Cocks	94	57	150	126	248	675
No. of Hens	98	40	81	76	124	419
Total	192	97	231	202	372	1094
Total Route Mileage	234	221	381	361	529	1720
No. Birds Observed per Mile	.82	.44	.61	.56	.70	.64
No. Cocks Observed per Mile	.40	.26	.39	.35	.47	.39
No. Hens Observed per Mile	.42	.18	.21	.21	.23	.24
No. Cocks with Hens	32	19	42	37	65	195
% Cocks with Hens	34	33	28	29	26	29
No. Cocks with 1 Hen	14	13	30	27	47	131
No. Cocks with 2 Hens	14	5	11	7	13	50
No. Cocks with 3 Hens	2	0	1	3	3	9
No. Cocks with 4 Hens	1	0	0	0	1	2
No. Cocks with 5 Hens	1	1	0	0	1	3

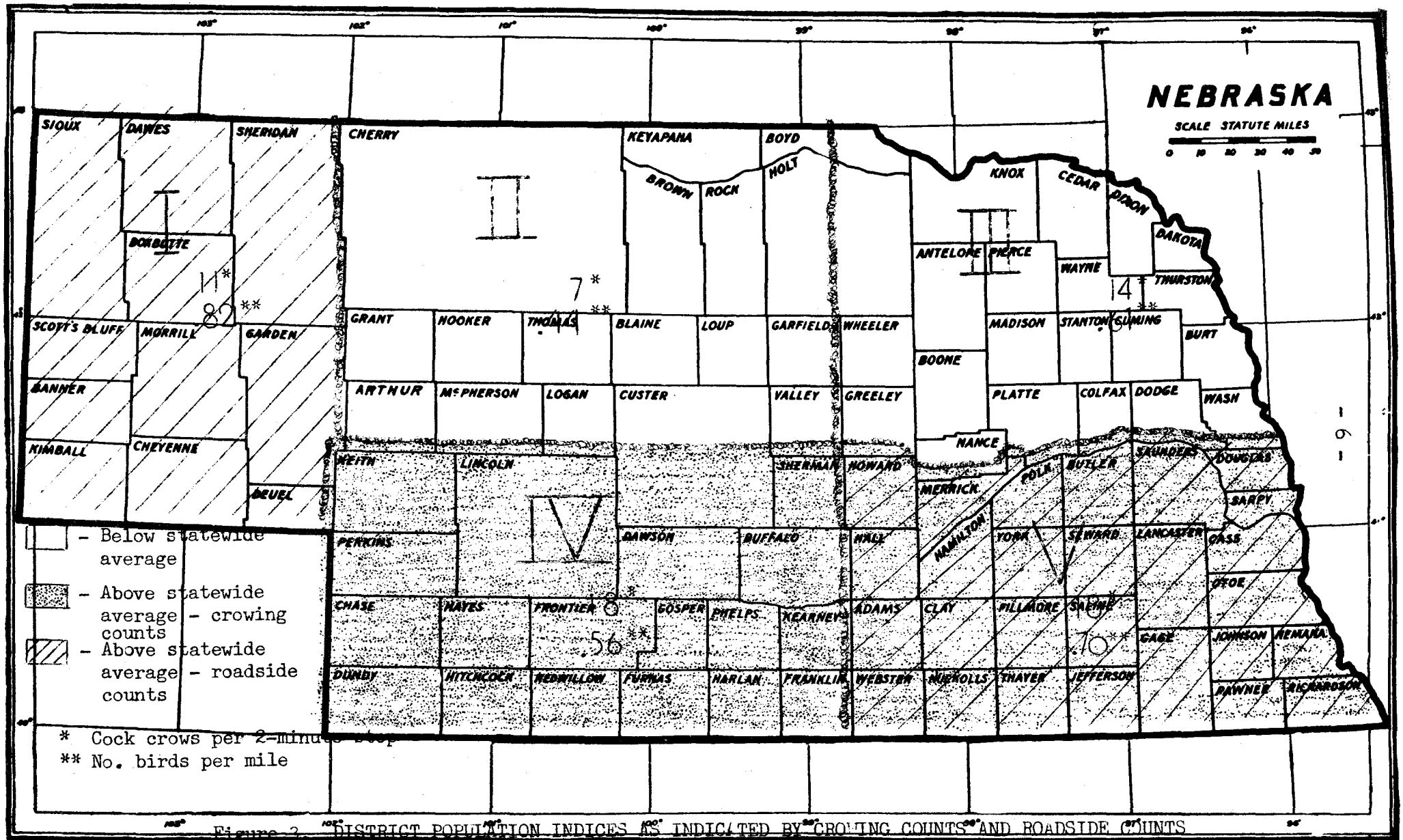

Figure 3. DISTRICT POPULATION INDICES AS INDICATED BY CROWING COUNTS AND ROADSIDE COUNTS

State Average No. of Crowing Calls Per 2-Minute Stop - 14
State Average No. of Birds Per Mile - .64

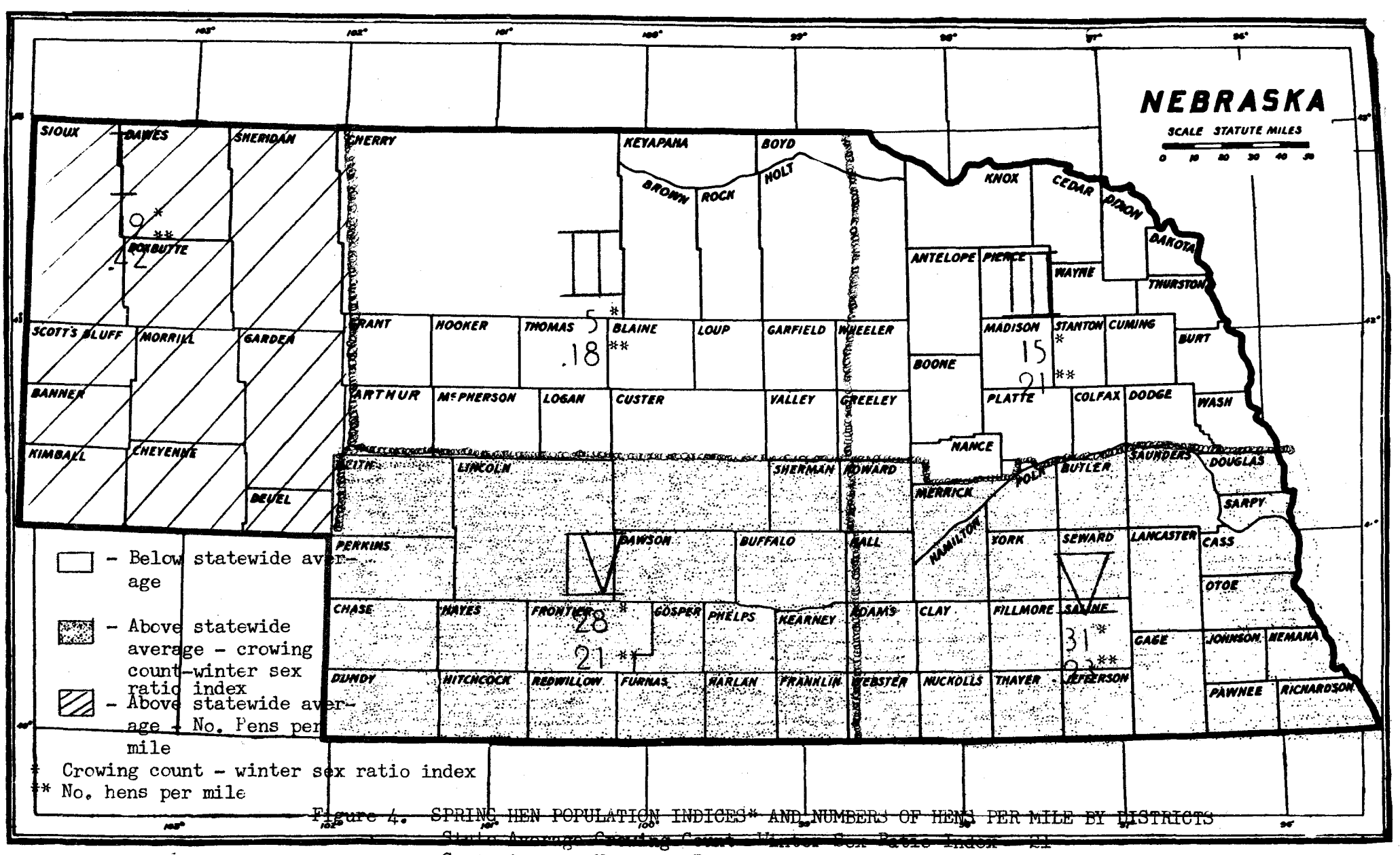

Figure 4. SPRING HEN POPULATION INDICES* AND NUMBERS OF HENS PER MILE BY DISTRICTS

State Average Crowing Count-Winter Sex Ratio Index - 11

State Average No. Hens Per Mile - .24

* Spring hen population indices calculated from crowing count and winter sex ratio data

were observed on 1720 miles of routes. Another consideration is that Nebraska presently has the lowest pheasant population known since the establishment of the ringneck. Mohler (unpublished) believed roadside counts were not accurate when low populations occurred.

Roadside count data revealed small harems. Ninety-two percent of the observed harems contained one or two hens per cock, with 67 percent of the harems consisting of only one hen. This is not surprising as the Rural Mail Carrier Game Survey -- Winter, 1955, disclosed an adjusted statewide sex ratio of 66 cocks per 100 hens.

ecommendations: Recommend investigation of the merits of these two surveys by review of current literature, contact with other state pheasant investigators, and further analysis of data at hand. Unfavorable findings should result in discontinuance of the surveys if better data can be obtained from other census methods.

mmary: Conservation Officers and Game Technicians ran spring pheasant inventory routes in 58 counties including five check routes with one in each district. Strong winds prevailed during much of the survey hampering the collection of good data.

The statewide crowing peak appeared to be about the second week of May. Crowing count data probably did not show an accurate distribution of the breeding population within the State, particularly when winter sex ratios were not incorporated with it. Virtually the same number of cock pheasants were indicated for 1955 as for 1954. The index for both years is the lowest since the beginning of the crowing counts in 1947.

Roadside count data indicated District I to have the highest breeding population. Harem sizes were small. Ninety-two percent of the observed harems contained one or two hens per cock, with 67 percent of the harems consisting of only one hen.

epared by Dan Heyl, Dist. Game Manager Approved by Lloyd P. Vance, Supervisor, Game Division

te: January 1, 1956

A P P E N D I X

PHEASANT CROWING COUNTS - 1955
Raw Data

County	Date	Observer	Av. No. Calls Per 2 Min. Check Route	Regular Route
DISTRICT I				
Box Butte	April 14	Smith	8.0	
Box Butte	April 22	Smith	11.1	
Box Butte	April 29	Smith	3.1	
Box Butte	April 30	Smith	18.6	
Box Butte	May 7	Smith	9.35	
Box Butte	May 12	Smith	27.2	
Check Route Average			12.89	12.89
Cheyenne	May 12	Ulrich		13.7
Dawes	May 11	Cunningham		1.8
Deuel	May 5	Smith		7.9
Garden	May 2	Ramelli		6.4
Kimball	May 6	Keeler		.3
Kimball	May 13	Keeler		1.6
Morrill	May 10	Ulrich		8.45
Scottsbluff	May 11	Smith		17.5
Sheridan	May 6	Heaton		3.88
Sheridan	May 7	Greving		42.5
District Average				10.63
DISTRICT II				
Boyd	May 8	Miller		7.8
Brown	April 11	Miller	10.0	
Brown	April 18	Miller	8.6	
Brown	April 25	Miller	16.1	
Brown	May 2	Miller	4.9	
Brown	May 21	Miller	9.1	
Check Route Average			9.7	9.7
Cherry	May 10	Harpham		.75
Holt	May 7	McCarraher		1.1
Holt	May 10	McCarraher		2.1
Keya Paha	May 8	McCarroll		.2
Loup	May 5	Johnson		13.9
Valley	May 4	Ahern		19.7
District Average				6.90
DISTRICT III				
Antelope	May 4	Burney		15.2
Boone	May 4	Linder		16.6
Cedar	May 10	Green		8.95
Cuming	May 11	Linder		13.45
Cuming	May 14	Nun		27.05
Dakota	May 10	Nun		5.2
Dodge	May 13	Woodgate		11.15
Knox	May 10	Salak		4.0
Madison	April 14	Linder	16.9	
Madison	April 21	Linder	16.6	
Madison	April 28	Linder	17.8	
Madison	April 29	Linder	21.9	
Madison	May 5	Linder	21.15	
Madison	May 10	Linder	21.2	
Madison	May 13	Linder	24.15	
Check Route Average			19.96	19.96

Pheasant Crowing Counts - 1955 (Continued)

County	Date	Observer	Av. No. Calls Per 2 Min. Check Route	Regular Route
DISTRICT III, Cont.				
Pierce	May 17	Benson		14.3
Pierce	May 18	Benson		15.1
Platte	May 12	Shaffer		11.4
Stanton	May 8	Bailey		13.4
Wayne	May 10	Carlson		26.4
Wheeler	May 7	Linder		4.7
District Average				13.79
DISTRICT IV				
Buffalo	May 7	Bohart		3.15
Chase	May 7	Heyl		11.15
Dawson	May 11	Guyer		7.15
Dawson-Custer	May 13	Heyl		8.4
Dundy	May 4	Bowers		7.3
Frontier	May 13	Bohart		19.75
Harlan	May 11	Bonsall		13.8
Hitchcock	May 13	Orr		22.0
Kearney	May 17	Hamilton		25.26
Keith	May 10	Bunney		6.6
Lincoln	April 13	Heyl	10.95	
Lincoln	April 25	Heyl	11.8	
Lincoln	May 6	Heyl	12.1	
Lincoln	May 10	Heyl	19.85	
Lincoln	May 20	Heyl	16.3	
Check Route Average			14.20	14.20
Logan	May 21	Grasmick		15.7
Perkins	May 12	Heyl		51.0
Phelps	May 17	Bohart		22.95
Sherman-Howard	May 5	Dexter		28.2
Sherman	May 5	Taylor		30.25
District Average				17.18
DISTRICT V				
Adams	May 5	Gettmann		15.3
Adams	May 11	Gettmann		13.1
Clay	May 4	Hamilton		22.53
Clay	May 6	Agee		29.0
Clay	May 6	Hamilton		25.5
Clay	May 18	Agee		31.55
Fillmore	April 29	Agee		17.06
Fillmore	May 4	Agee		20.55
Fillmore	May 12	Agee		28.22
Gage	May 10	Huppert		6.7
Hall	May 16	Kampsnider		28.6
Jefferson	May 2	Owen		4.9
Jefferson	May 10	Owen		5.2
Lancaster-Saunders	April 15	Schildman	10.85	
Lancaster-Saunders	April 21	Schildman	6.8	
Lancaster-Saunders	April 29	Sather	19.6	
Lancaster-Saunders	May 4	Schildman	13.2	
Lancaster-Saunders	May 11	Sather	14.5	
Lancaster-Saunders	May 17	Schildman	13.00	
Lancaster-Saunders	June 10	Schildman	10.8	
Lancaster-Saunders	June 22	Schildman	7.1	
Check Route Average			11.98	11.98

Pheasant Crowing Counts - 1955 (Continued)

County	Date	Observer	Av. No. Calls Per 2 Min. Check Route	Regular Route
DISTRICT V, Cont.				
Lancaster	May 19	Cunningham		3.3
Saline	May 5	Patton		19.25
Saline	May 11	Patton		11.45
Saunders	May 8	Wolkow		13.7
Seward	May 8	Von Dane		15.8
Seward	May 11	Schildman		19.05
Thayer	May 11	Newton		18.55
Webster	May 5	Schildman		16.9
York	May 5	Sather		21.15
District Average				17.36
		Statewide Average		14.48

Form No. P-7
Revised

TO CONSERVATION OFFICERS:

Gathering information on pheasants in the summer period is the largest and most important survey work our field men participate in each year.

You will note that some changes have been made in the length of the survey period. This year sight records will begin on June 6 and be continued until September 15. This is not such a great increase in brood observation duties as it may seem, since the early brood card and harem observation records have been discontinued. Actually this extended survey incorporates the other two.

As you probably have noted, late summer losses of broods seem to be of great magnitude in some years. That is the reason the survey will continue on into September. When such losses are significantly high, we are hoping that these sight records may give us some leads as to when they occur and how serious they are.

Information from previous years shows that a peak in the ratio of young pheasants to adult hens is reached sometime in late July or during August. This is the reason why we ask you to keep several weeks of records, enabling us to catch this peak regardless of the particular week in which it occurs.

It will be greatly appreciated if you will keep field records as carefully as possible. Please read the instructions carefully.

Remember that this survey just represents random observations made while carrying out your regular routine duties.

Please mail your pheasant sight record sheets promptly after each week's work is completed.

GAME, FORESTATION & PARKS COMMISSION

Paul T. Gilbert
Executive Secretary

Form No. P-8
Revised

PROCEDURE FOR PRE-SEASON PHEASANT RECORDS

1. Please begin your records the week of June 6. Start a new week of observations each Monday.

2. Keep a separate record of each observation, using a new line on the sheet each time you see one or more pheasants.

3. If you happen to see 150 young before the end of the week, you may omit record keeping for the remainder of the week.

4. It is not required that you flush broods; however, it is important that you indicate on the record sheet whether you did or did not flush a brood. Just enter a check mark in the proper column.

5. Only a few broods will be seen during early June, but it is important to have these recorded so that we can follow the hatching progress throughout the state.

6. Mail your record sheets at the end of each week to Dan Heyl at North Platte.

7. Do not record information from two weeks on the same sheet.

General Information Concerning Pre-Season Pheasant Records

One of the best indicators of pheasant productivity which we get is the ratio of young per adult hen in the summer population. This is the chief piece of information obtained from your field records. This survey is not intended to be a "pheasant census".

In order to evaluate reproductive observations correctly, it is also necessary to know what percent of the hens are accompanied by young after hatching is nearly complete. This is the reason for recording each observation separately.

Unless a relatively large number of young are seen each week, a large brood or a very small brood can change the ratio of young per hen considerably. Such ratios are very questionable. This fluctuation is practically eliminated if we have large weekly samples.

It is obvious that a higher average of young per hen will be obtained when broods are flushed than when they are not flushed. For this reason it is important for the observer to indicate whether he flushed the birds or not.

Form No. P-9
Revised

CONSERVATION OFFICER'S RECORD OF PHEASANTS SEEN

____
Officer's Signature

(Include Sunday with previous week)

Date	Adult males	Adult females	Young	Not classified	Brood Flushed Yes	Brood Flushed No	County	Remarks

PHEASANT BROOD STUDIES

To: Game and Land Managers

This summer, pheasant brood information will be collected in a joint effort by Conservation Officers and Game and Land Managers. The Conservation Officers, who have already begun their observations, will gather brood data all summer until the middle of September. They are not assigned definite routes but will make observations during their routine patrol. The Game and Land Managers will have definite routes assigned. These will consist of regular routes and one check route to be run by the Game Manager in each district.

As you all know, brood studies should be conducted in order that the success of various stages of the rearing period can be followed. Fluctuations in brood progress might then be correlated with various environmental influences. In 1954, brood study data and field bag check data revealed two different hatching peaks. This would seem to indicate that either one or the other source of data was inaccurate and possibly both. Better brood data may help us determine the most accurate source of information.

Your instructions and forms are enclosed. Please mail your brood data sheets to Dan Heyl each week, whenever possible. Dan must have the check route data promptly in order to properly time the running of the regular routes.

Wade Hamor, Project Leader
Land Management Division

J. Henry Sather, Project Leader
Game Division

INSTRUCTIONS FOR BROOD STUDIES - GAME TECHNICIANS

1. The 1955 crowing count routes will be used for this survey whenever possible. These routes will be extended to 40 miles in length, in order that additional information be secured. Dan will send you maps or descriptions of these routes later.
2. Each game manager will run a check route at least once a week, beginning the last week in June and terminating in late August, depending upon the hatching progress. Use your crowing count check route as your brood check route. Remember to extend it another 20 miles.
3. Game and Land Managers will each run once several regular routes during the peak period of visible broods. The peak period will be determined by the check routes and will probably occur in late July or early August.
4. The number of regular routes run will be determined by the time available and the existing weather conditions.
5. The following weather conditions are desired for your brood counts:
   a. Wind velocity----------less than 12 m.p.h.
   b. Dew or frost----------moderate to heavy preferred (if other conditions right but no dew, run route anyway
   c. Precipitation----------Do not run route during rainfall, if a storm is threatening, or if foggy.
   d. Sunshine----------Continuous or frequently intermittent.
6. If weather conditions deteriorate below the standards set up while running a route, rerun the route on another day.
7. The Beaufort system is included for use in estimating wind velocities.

Beaufort Number	Velocity in Miles per hour	Suggestions for Estimation
0	Less than 1	Smoke rises vertically
1	1 - 3	Direction of wind shown by smoke drift.
2	4 - 7	Wind felt on face, leaves rustle.
3	8 - 12	Leaves and small twigs in constant motion.

8. Begin your brood count one-half hour after sunrise and complete by about 8:00 a.m.

9. Drive 15 - 20 miles per hour.

10. Record all pheasants seen.

11. Use a new line on the record sheet for each observation.

12. All birds observed should be flushed. This applies to cocks, hens, or young alone or in combination. In some instances, this may not be possible. Please indicate on record sheet whether or not you flushed at each observation.

13. All broods should be aged to the nearest week.

14. Record only one route on each sheet.

15. You are requested to collect as much random brood data as you can, when it does not directly interfere with your other work. Random observation forms are supplied.

16. Please age young pheasants found dead on the road and record with your random observations.

GAME TECHNICIANS RECORD OF BROOD DATA

Date ________________________________
(Month) (Day) (Year)

County________________________________

Time: Start ________Finish__________

Dew: None___Lt.___Mod.___Heavy________

Observer______________________________

Temperature: Start________Finish________

Wind Velocity: Start______Finish______

Amount of Clouds: Start____Finish______

Speedometer: Start________Finish______

Length of Route ______________________

Obs. No.	Adult males	Adult females	Young	Not clas-sified	Brood Flushed		Age of Young	Remarks
					Yes	No		

GAME TECHNICIANS RECORD OF BROOD DATA
Random Observations

____
Observer

Obs. No.	Date	Adult Males	Adult females	Young	Not classified	Brood Flushed		Age of Young	County	Remarks
						Yes	No			