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WATERFOWL BREEDING GROUND SURVEY, 1952 IN NEBRASKA

Harvey W. Miller

Introduction

The Nebraska Breeding Ground Survey has been conducted for the fifth consecutive year. This survey is aimed at providing indicators to the waterfowl population through measuring the seasonal and year by year trends in breeding numbers and production success. The survey recognizes the sandhill region as the most important waterfowl-producing area of Nebraska and therefore, studies have been largely concentrated there.

Methods Used and Area Covered

The sandhills are sub-divided into three main waterfowl producing areas and for the purpose of this survey, these are sampled as the western, central and eastern areas. The samples are taken over ground routes using the one-fourth mile transect method. Aerial counts made by the Fish and Wildlife Service, Game Management Division and the Nebraska Game Commission in former years were discontinued for the 1952 season. One aerial count was made over the central sandhills by the Fish and Wildlife Service, River Basin Studies (Grand Island office).

All ground counts are made from autos using binoculars and spotting scopes to aid identification. The roads and trails over which the counts are made generally follow valleys and skirt the dry roughs. This limits the data to use as trend indicators only.

Weather and Water Conditions

The 1951 season was the wettest of the past several decades. The carryover from this resulted in high lake levels and numerous potholes at the outset of the 1952 breeding season. Indications are that in mid-April, available water area was nearly double that of a normal year.

The 1952 season has experienced near drought conditions over the sandhills in general with high temperatures and high winds starting in May and continuing until mid-September. Rainfall has been scant or entirely lacking over the entire area.

Results were that by mid-May pothole numbers were about that of a normal year and that by mid-June, less than ten percent of the potholes had water in them. Local residents reported that the total water area available to a waterfowl population at the time of the breeding population counts was about that of a normal year. At the time of the mid-July brood counts, the reports indicated somewhat less than normal water area and by September, some lakes were dry for the first time since the late 1930's.

Central Sandhills Counts and Trends

Table 1. Central Sandhills Transects, Air and Ground

aerial count*		ground count**		
date	ducks/sq. mile	date	ducks/sq. mile	pairs/sq. mile
5-24-49	6.8			
5-24-50	8.3			
5-18-51	7.5	5-14-51	12.1	3.1
5-20-52	7.7	5-20-52	30.3	11.2
change (%)	416		4150	4261

* 1952 count by W. Sweeney and R. Goodman.

** 1952 count by W. Sweeney and G. Larson.

The data for table 1 was furnished for this report by the Missouri River Basin Studies, Grand Island office. The transects follow the Valentine-Thedford Highway for the ground count and follow and parallel it for the aerial counts. Three observers made the 1952 ground counts as compared to one observer for the 1951 counts.

Table 2. Western and Eastern Sandhill Ground Transects*

	western routes	eastern route	overall routes
square miles sampled	33.1	8.2	41.3
ducks in sample	1093	152	1245
ducks/square mile	33.0	18.5	30.1
pairs sampled**	671	112	783
pairs/square mile	20.3	13.7	18.9
change (%) from 1951			
ducks/square mile	-4.1	(flooded trails prevented 1951 counts)	
pairs/square mile	-4.2		

* Counts made June 9, 10, and 11, 1952.

** Actual pairs plus territorial drakes.

The decrease in breeding population shown in table 2 may be due to the advancement of the 1952 season over that of 1951. The hatching dates and other phenology were from one to two weeks earlier than those of 1951. Using this and the average daily decline in apparent breeding numbers, this loss is offset; in any event, the decrease is insignificant.

This same seasonal advancement may be the cause of the much greater increase in pairs/square mile as related to ducks/square mile as shown in table 1. All observers noted the increase in territorial activity at the time of breeding population counts.

Brood Counts and Trends

Table 3. Sandhill Brood Counts*

	broods	broods/ sq. mile	pairs	broods/ pair**
western sandhills	82	2.5	671	.12
eastern sandhills	84	8.6	112	.75
overall sandhills		(1948) 1.3		
		(1949) 3.4		
		(1950) 1.8		
		(1951) 2.2		
	166	3.85	783	.21
change (%)		76 over average 75 over 1951		

* Counts made July 10, 11, 12, 13 and 14, 1952.

** Actual pairs plus territorial drakes.

The brood per pair figure for 1951 was .12 for the western sandhills or the same as found this season. This figure is not available for the eastern area.

A total of 147 different broods were identified on the western routes. This would increase the brood per pair figure to .22 for all coverages or near double that of the above count.

A factor affecting the brood count is the dry-up. This would force broods into concentration points from the rather abundant water areas shown at the time of the breeding pair counts thereby showing as increased production per breeding unit. It is believed that the water available at the time of the brooding season was comparable to that of other years and that the indicated increase in production was actual, within the limits of the sample method.

Table 4 gives the species breakdown of all the 166 broods observed on the transects during the count. The average brood size is seven plus ducklings which compares with the figures from all other study years. The 1951 average of 6.5 reflects the later phenology of that season in that less of the blue-winged teal, commonly larger than the mallard and pintail broods of slightly earlier hatches, were present.

The blue-winged teal made up 37 percent of the breeding population and 61 percent of the broods. This, when compared to the 1951 figures of 33 percent and 42 percent, respectively, shows the season advancement of 1952 also. Species composition varies greatly from the western areas to the eastern areas. This is most pronounced in the blue-winged teal with 31 percent of the western breeders and 74 percent of the eastern group. Other species are more nearly represented by the brood breakdown.

Table 4. Species Breakdown, Sandhill Broods*

	western		eastern		overall	
	# broods	%	# broods	%	# broods	%
mallard	27	32.9	4	4.8	31	18.7
gadwall	1	1.2			1	.6
pintail	7	8.5	4	4.8	11	6.6
blue wing	27	32.9	75	89.2	102	61.4
green wing					0	0.0
shoveller	2	2.4			2	1.2
redhead	11	13.4			11	6.6
canvasback	2	2.4			2	1.2
ruddy	2	2.4			2	1.2
unidentified	3	3.6	1	1.2	4	2.4
TOTAL	82		84		166	

* Those observed on transect during count.

Table 5 gives the sex composition of 1068 ducklings handled in banding operations in the eastern sandhills. All but fourteen of these were of the local age group, mostly class II and class III. The banding was done with drive traps or by driving from the ponds and capturing them by hand hence no sex-selectivity was shown.

Table 5. Sex Breakdown, Brood Banding

	male		female		sex-ratio of local group
	adult	local	adult	local	
blue-winged teal	3	496	9	423	117:100
mallard	1	39		29	134:100
pintail	1	21		12	169:100
green-winged teal		5		6	
gadwall		2		2	
baldpate		2		1	
shoveller		6		10	60:100
TOTAL		571		483	118:100

Summary

Though weather and water conditions were not at optimum, a large breeding population and good success showed a substantial increase in production in the Nebraska sandhills. Advanced phenology may have biased the count some but the blue-winged teal shows up as the number one nester in Nebraska with 61 percent of the broods.

Banding Operations

In addition to the 1068 ducks banded during the brood banding operations (see table 5), 363 ducks were banded to September 15 at the Spring Lake Station in western sandhills. This total included 250 mallard, 103 blue-winged teal, 6 pintail, 2 gadwall and 2 green-winged teal. These ducks were of too immature class for the most part.

In addition to the 1431 ducks listed above, 4 coots, 4 long-billed curlew, 1 mourning dove and one black tern were banded.