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## Prairie Chickens in Kansas

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Two living species of the true prairie grouse (genus *Tympanuchus*) are known<sup>(1)</sup>; these are *T. cupido* and *T. pallidicinctus*. *Tympanuchus cupido* is separable into two subspecies; (1) the greater prairie chicken (*T.c. pinnatus*) ranging from northern Oklahoma and southern Kansas northeast to Indiana and Ohio, and north into Canada and (2) the Attwater prairie chicken (*T.c. attwateri*) now limited to the coastal prairies of Texas and Southwestern Louisiana. *Tympanuchus pallidicinctus*, the lesser prairie chicken, occurs from southwestern Kansas and southeastern Colorado through the Oklahoma Panhandle and into western Texas and eastern New Mexico. Thus, both the greater and lesser prairie chickens occur in Kansas where both are at the periphery of their ranges rather than at the centers of the areas of distribution.

Although in the past twenty years there has been considerable study of the ecology of the upland game birds, prairie chickens have received less attention in this respect than have quail and pheasants. Results of extensive research on the greater prairie chicken in Missouri<sup>(2)</sup>, Illinois<sup>(3)</sup> and Wisconsin<sup>(4)</sup> have been published. Less intensive studies have appeared concerning this species in Michigan<sup>(5)</sup>, Oklahoma<sup>(6)</sup>, North Dakota<sup>(7)</sup> and Nebraska<sup>(8)</sup>. Intensive studies of the lesser prairie chicken in Oklahoma and the Attwater prairie chicken in Texas have extended our knowledge of the ecology of these forms.

Extensive areas of native grassland, which is the habitat of prairie chickens, occur in Kansas. At present much of this area is populated with prairie chickens, but little is known of the ecology of the birds, and especially their relationship to these extensive areas of grassland. Proper utilization of the prairie chickens as a valuable wildlife resource can be accomplished only with better knowledge of the ecology of the two species.

The foregoing were some of the considerations that led to the selection of the prairie chickens as proper subjects of study by the Biological Survey of Kansas when it was reactivated in 1949.

Two aims are being stressed in the course of this project. First, a study of the distribution and abundance of both the lesser and greater prairie chickens in Kansas and second, an intensive study of the ecology

of the greater prairie chicken. In connection with the first aim, both the present and past distribution are being investigated. Also study is being made of the changes in the use of land that may have influenced the habitat of prairie chickens. It is hoped in this manner to define the practices in the use of the land that have been most beneficial to the two species.

It is noteworthy that no intensive studies of the life history and ecology of the greater prairie chicken have ever been made in areas supporting heavy continuous populations of these birds. In some areas of Kansas there are large populations of chickens and one of these was selected for study—namely the area centering around Welda, Anderson County, Kansas. There, winter flocks of males consist of 100 to 150 birds. One such flock has been under observation intermittently beginning in November, 1949. Each morning this flock gathered upon a certain wheat field and indulged in booming and strutting. This occurred even on cold and foggy mornings throughout November, December and January. In this period most of the birds fed on sorghum (waste grain) in a field one-half mile west of the booming ground. Others found food on weedy, fallow land one-half mile farther south than the others did. The entire daily activity seems to have been limited to an area approximately one and one-half miles in diameter, with the booming ground serving as a hub of activity.

During February, booming and strutting activity increased, and the morning and evening visits by the birds to the booming ground were prolonged. Surprisingly, however, the number of birds visiting the principal booming ground decreased. This was puzzling until it was noted that there were three smaller booming grounds within the limits of the daily winter range of the original flock. During a visit to these four booming grounds on April 2, 1950, 107 cocks were observed, thus accounting for approximately 81 per cent of the total fall population of males in the area. If this may be considered as representative of the winter survival of this flock, it indicates relatively low mortality and gives data on the potential shootable surplus in the event of an open hunting season.

In order to evaluate such factors as population turnover and seasonal movements it will be necessary to band and in other ways mark for observation a fair percentage of the population being studied. This presents a rather imposing problem in an area such as east-central Kansas where heavy prolonged snows, which assist live trapping attempts, cannot be relied upon. Trapping efforts to date have been rather discouraging, resulting in the capture of only one chicken in December, 1949.

However, seeing this individual bird on the main booming ground three months later was ample reward.

Sportsmen will be interested to know that we aim to collect and organize data to: (1) show where there are shootable surpluses of birds, and (2) indicate in what areas they can be shot without detriment to the following year's breeding population. Any concrete information concerning prairie chickens in Kansas from other observers will be gratefully received.

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