

Status of the Lesser Prairie-Chicken in Texas

John P. Hughes

Kevin D. Mote

Texas Parks and Wildlife Department

Introduction

The lesser prairie-chicken (*Tympanuchus pallidicinctus*) is currently being considered for listing as threatened throughout its range under the Endangered Species Act. Given the recent concern over population levels of this species and its apparent decline throughout its range, information concerning its current status is needed. In this document we summarize past and present status of the lesser prairie-chicken in Texas.

Past and Present Distribution in Texas

The lesser prairie-chicken is presently found in two disjunct ranges located in the northeastern Panhandle along the Oklahoma border and in the southwestern Panhandle along the New Mexico border. Although most lesser prairie-chickens in Texas are found in either sand sagebrush/midgrass or shinnery oak/midgrass habitats, use of Conservation Reserve Program habitat in the southwestern Panhandle and sand sagebrush/shortgrass habitat in the northwestern Panhandle was documented in 1997. Historically, the lesser prairie-chicken occurred throughout most of the grasslands in the Texas Panhandle in both the High Plains and Rolling Plains ecoregions. In 1940, the Texas Game, Fish, and Oyster Commission estimated the range of the lesser prairie-chicken as 1,366,478 hectares (ha) (Henika 1940). Occupied range in 1989 was estimated to be 573,230 ha (Brownlee 1990).

Population Surveys

Initial survey efforts for the lesser prairie-chicken began in the Texas Panhandle in 1937. Two study areas were established in the northeastern Panhandle in 1942, a 40,469 ha sand sagebrush/midgrass area in Hemphill County and a 2,720 ha shinnery oak/midgrass area in Wheeler County. All active leks on these study areas were censused and the total number of displaying males recorded from 1942 to 1986. In 1967, survey efforts were initiated in the southwestern Panhandle in Cochran, Terry, and Yoakum counties. An attempt to locate and determine the number of displaying males for all leks in the above counties continued until 1986. In 1987, attempts to census all active leks were discontinued and a sample of four leks per county were chosen and the number of displaying males per lek recorded. An effort to locate new leks in counties on the periphery of the lesser prairie-chicken range was also initiated in 1987, and active leks in Andrews, Bailey, Collingsworth, Donely, Gaines, Gray, and Lipscomb counties were found. In 1997, the study areas in Hemphill and Wheeler counties were reinstated, and new study areas were established in Bailey and Gaines counties. By censusing all active leks on each study area, estimates of the number of active leks per unit area can be obtained. Cannon and Knopf (1981) found that the number of leks per unit area was a better

Rec'd from John Hughes 8/26/97

indicator of breeding male density than the mean number of males per lek, and future population monitoring in Texas will include lek per unit area data.

Because of the change in survey methodology that occurred in 1987, the only population trend index available for the period 1942-1997 is the mean number of males per active lek. Considerable variation exists in these estimates due to varying survey effort, so annual changes in the mean number of males per lek may fail to reflect changes in the total number of displaying males for a given area (Cannon and Knopf 1981). Although considerable year-to-year variation is evident, the northeastern population has increased slightly from 1942 to present ($R^2 = 0.14$, $P < 0.05$; Fig. 1). During the past ten years, however, this population has experienced a significant decline ($R^2 = 0.72$, $P < 0.05$). The southwestern Panhandle population has experienced significant declines since the beginning of monitoring activities in 1969 ($R^2 = 0.51$, $P < 0.0001$; Fig. 2) and during the past ten years ($R^2 = 0.46$, $P < 0.05$).

Number of active leks per unit area data are available for the period 1942-1986 for the Hemphill County study area, and for the period 1942-1985 for the Wheeler County study area (Fig. 3). Collection of these data resumed in the spring of 1997. A total of 0.049 leks per 100 ha were located on the Hemphill County study area in 1997, which is 41% below the 1942-1986 average of 0.083 leks/100 ha. For the Wheeler County study area, a total of 0.074 leks per 100 ha were recorded in 1997. This estimate is 85.7% below the 1942-1985 average of 0.518 leks/100 ha.

Disease and Parasite Monitoring

In the spring of 1997, a small sample of lesser prairie-chickens were trapped by TPWD personnel in Hemphill County for the purposes of disease and parasite analysis. Both fecal and blood samples were taken from captured birds. Although inference is limited by the small sample size ($n=12$), no evidence of viral or bacterial diseases, hemoparasites, parasitic helminths, or ectoparasites was found. TPWD plans to continue these surveys in the spring of 1998.

Conclusions

Private landowners play an important role in the conservation of the lesser prairie-chicken in Texas. Over 98% of the land in the Panhandle region is privately owned, and only two known lesser prairie-chicken leks occur on state-owned lands. To address both private landowner goals and the conservation of the lesser prairie-chicken, TPWD has initiated a Landowner Incentive Program (LIP) through its Endangered Resources branch. This program provides small financial incentives to private landowners who manage for rare species such as the lesser prairie-chicken. TPWD biologists are providing technical assistance to private landowners interested in lesser prairie-chicken management through the Private Lands Enhancement Program, and are working with Natural Resources Conservation Service (NRCS) personnel to maximize possible Farm Bill benefits for the lesser prairie-chicken. Through these measures as well as participation in the Lesser Prairie-Chicken Interstate Working Group,

TPWD hopes to stem the lesser prairie-chicken population decline without resorting to full protection under the Endangered Species Act.

Literature Cited

Brownlee, W.C. 1990. Final report: upland game investigations. Texas Parks and Wildlife Department, Federal Aid Project No. W-125-R-1.

Cannon, R.W., and F.L. Knopf. 1981. Lek numbers as a trend index to prairie grouse populations. *J. Wildl. Manage.* 45:776-778.

Henika, F.S. 1940. Present status and future management of the prairie chicken in Region 5. Texas Game, Fish, and Oyster Commission Division of Wildlife Restoration Project 1-R: Special Report.

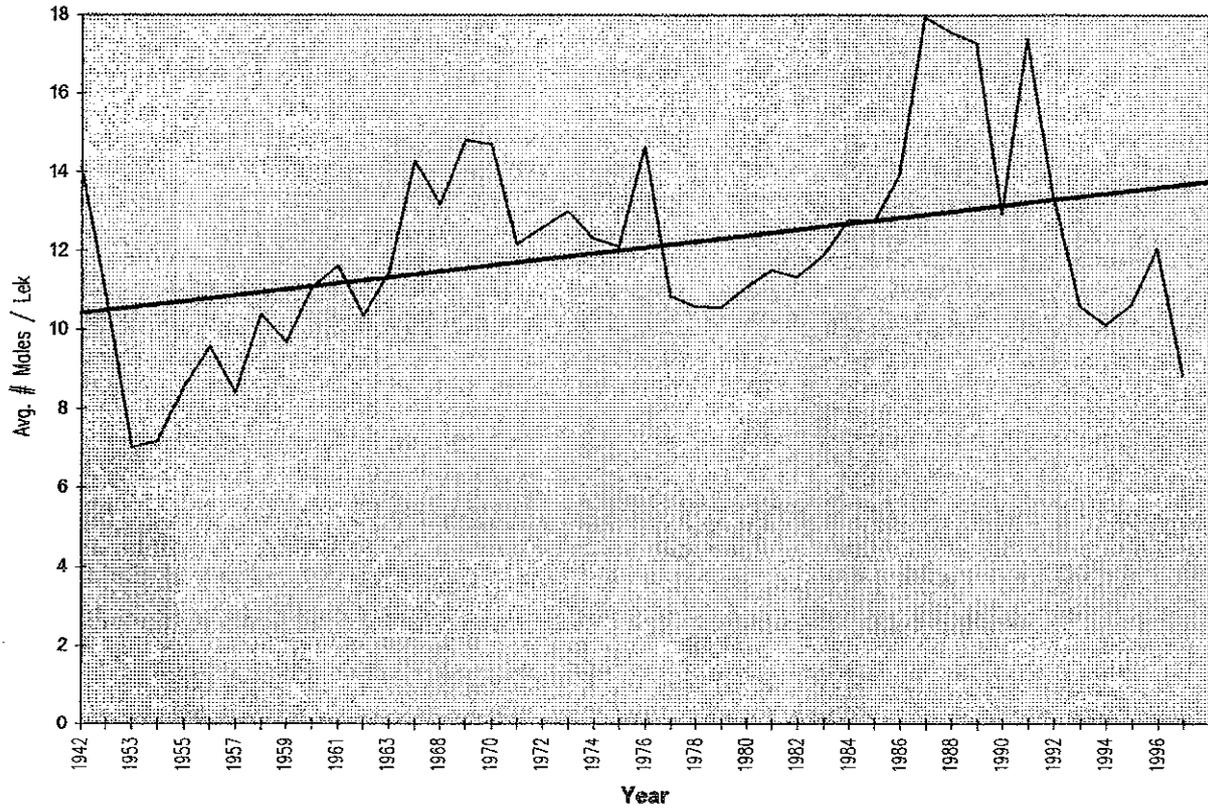


Figure 1. Mean number of males per lek for NE Panhandle lesser prairie-chicken population, 1942-1997.

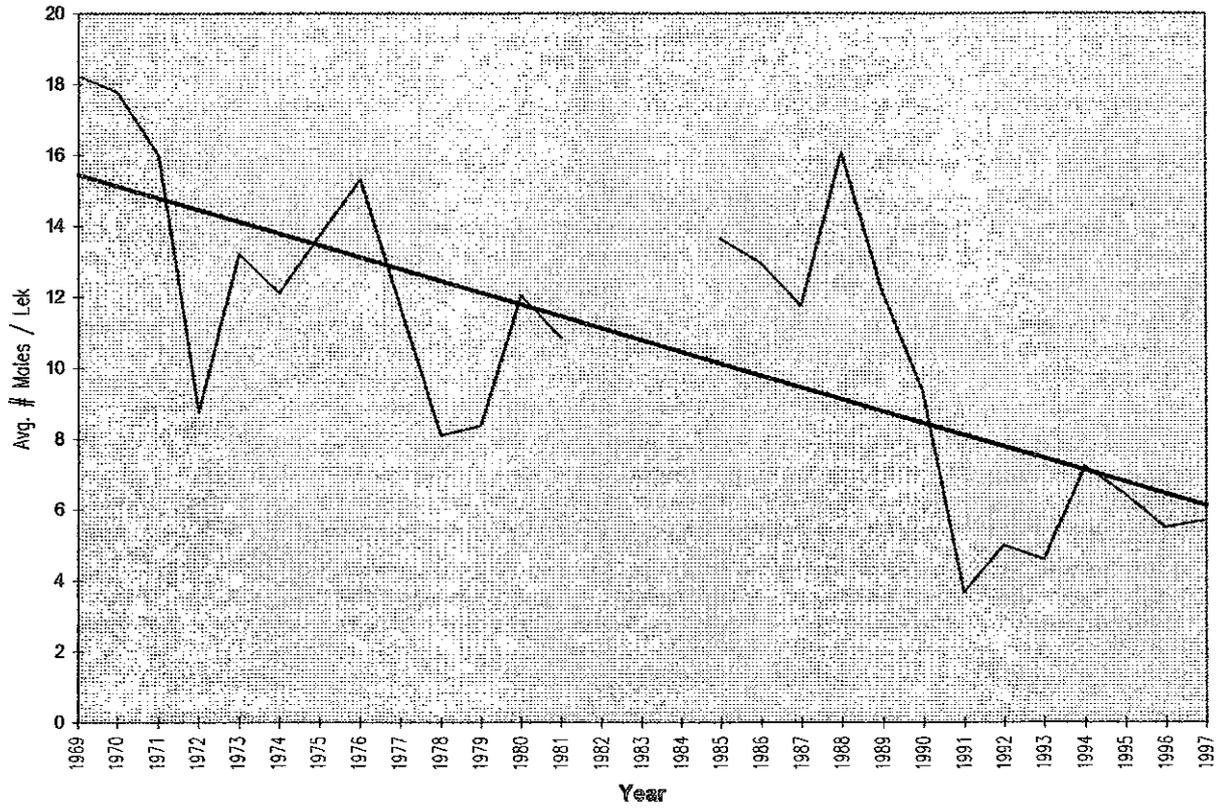


Figure 2. Mean number of males per lek for SW Panhandle lesser prairie-chicken population, 1969-1997.

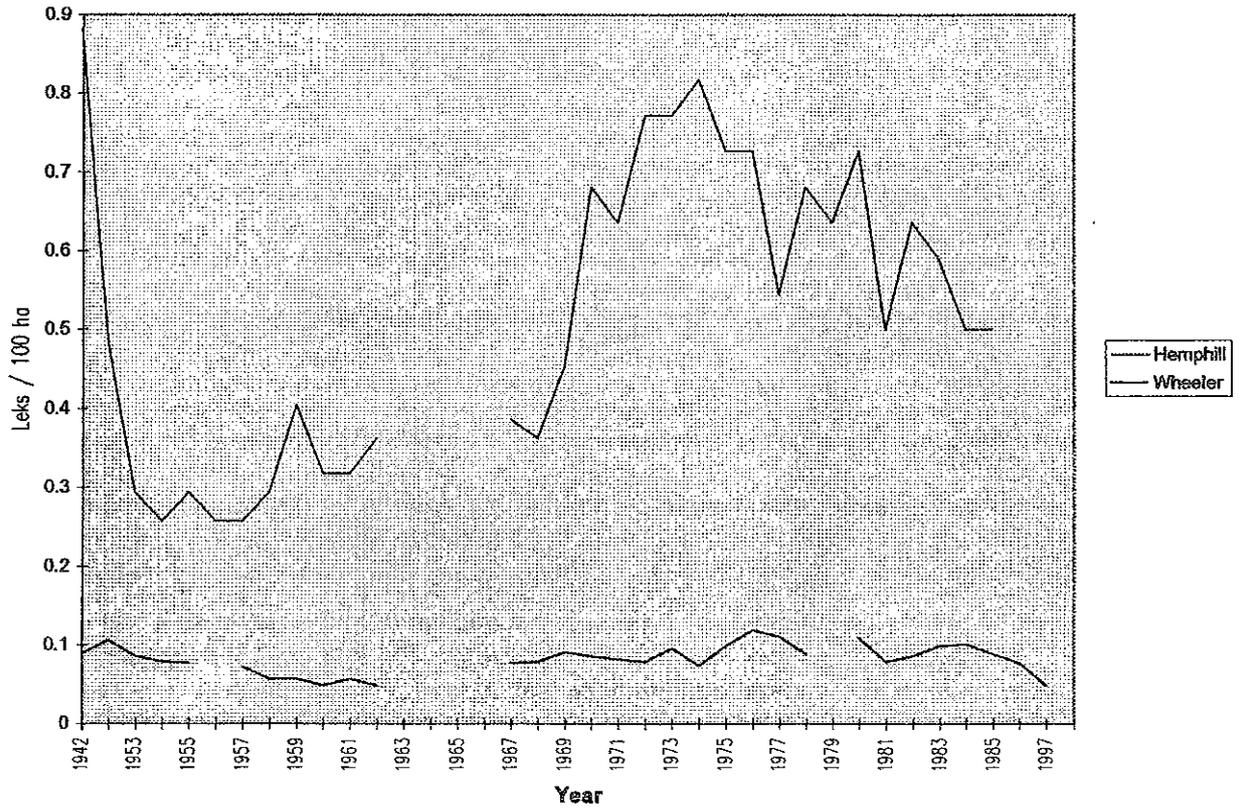


Figure 3. Number of leks per 100 ha for lesser prairie-chicken study areas in Hemphill and Wheeler counties, 1942-1997.