

# Additional Observations of Greater Prairie-Chickens Displaying in Tree on Lek

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## ABSTRACT

We describe additional observations of male greater prairie-chickens (*Tympanuchus cupido*) displaying in tree leks. Prairie chickens displaying in tree lek in Kansas was first described by Applegate (1998). An additional observation is of prairie chickens displaying in a tree in Greenwood County, Kansas.

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Applegate (1998) described 23 observations of greater prairie-chicken lekking in a tree lek in Kansas. The display of these birds was similar to the “variant” boom, with erection of pinnae, inflation of air sacs, and snapping of tails (Grange 1948). We describe several additional observations of greater prairie-chicken (*Tympanuchus cupido*) displaying in tree leks in Lyon and Greenwood counties of Kansas.

## METHOD

We conducted observations of two tree leks from a distance of 200 m using binoculars. Our additional observations of the Lyon County tree lek were conducted on 2 and 16 April 1998 and 2 and 5 April 1999 by a single observer. Other observations were made on 31 March 2000 by two observers, by three observers on 3 April 2000, and by a single observer after 10 April 2000. An additional observation of a tree lek in Greenwood County was conducted on 25 March 1999 by a single observer.

## RESULTS AND DISCUSSION

During March and April 2000, lek surveys for greater prairie-chickens were performed in Lyon County, Kansas. On 31 March 2000 we discovered one lek of 15 males displaying in a mown section of native tallgrass prairie. This type of habitat is commonly used by greater prairie-chickens in Kansas for lekking (Horak and Applegate 1998). The birds were performing the typical display described by Hjörth (1970). The lek was flushed, but booming from a different group of birds continued. This group of greater prairie-chickens was located within 300 m of the first lek. Upon closer inspection we found these birds were displaying in a 6 m high cottonwood (*Populus deltoides*) tree described by Applegate (1998). Once approached, eight birds flushed from the tree, but eight birds remained and continued to display. The display observed was similar to the “variant” boom described by Grange (1948). These birds were then flushed and the location was approached. The site had not changed since described by Applegate (1998), with smaller cottonwoods still present. The trees were located in the corner of a fenced pasture. Below the 6 m cottonwood tree was a wallow made by cattle. The wallow was filled with approximately 6 cm of water at its deepest point and measured 3 m in diameter. The

water may have prevented prairie chickens from using the ground to display, as described by Applegate (1998).

The lek was observed over the next three weeks during which birds were observed in the tree one additional time. During this observation there were, approximately six non-displaying birds in the tree during late morning.

The lek observed on the mown pasture during our first observation, was again flushed on 16 April 2000. During this observation, 33 male greater prairie-chickens were documented, but none were in the 6 m cottonwood. The increase in ground lek size suggested the birds using the tree had joined those on the mown pasture.

During lek surveys of the same area conducted on 2 and 16 April 1998, male prairie-chickens used the tree. This observation was the year after Applegate (1998) first documented the tree lek. During both these observations, six birds used the tree, with four and seven on the ground for respective days. The lek was checked on 2 and 5 April 1999 and only six birds were displaying on the ground.

We also observed male greater prairie-chickens using trees for lekking in Greenwood County, Kansas. On 25 March 1999, 10 birds were observed displaying in and around an American elm (*Ulmus americana*) tree. The birds in the tree were raising pinnae, while birds on ground were inflating air sacs. On 26 March the site was revisited and only one male greater prairie-chicken was observed on the ground. This individual was displaying to a female located approximately 400 m east of the tree.

Grange (1948) also documented greater prairie-chickens booming from tree locations. However, the birds he observed flew into the trees and displayed after being flushed. During our observations and those Applegate (1998), we presumed there was no disturbance to the lek to cause this behavior before we arrived.

The documentation of trees as leks is extremely important. It shows that use of a tree in this area did not occur during one breeding season only; the same tree was used at least two of the next three years by male prairie chickens. The possibility exists that the tree was used more than was observed during the 1999 and 2000 seasons, because it was not monitored as intensively as Applegate (1998). This lek has been observed within 800 m of the 6 m cottonwood tree 29 years between the 1963 and 2000 breeding seasons.

In Kansas, greater prairie-chickens traditionally use areas comprised of 50-75% grassland, with the remaining habitat comprised of cropland. Lek sites are located on areas with short grasses, such as pastures or wheat fields, and other cropland (Horak and Applegate 1998). The Kansas Forest Service surveys cropland, pastures, marshland, and idle farmland for increased woody vegetation. The amount of trees in these areas has increased by 43.8% between 1981 and 1994. The majority of this increase has occurred in pastures, which are predominantly native grassland (Leatherberry et al. 1999). The increase in observations of greater prairie-chickens using trees as lek sites may be correlated with the increase of woody cover in traditional lekking areas. This might also be an adaptation to increases in woody vegetation in this part of the greater prairie-chicken range. This is a topic requiring further investigation.

#### **ACKNOWLEDGEMENTS**

This work was supported in part by Kansas Federal Aid Project W-39-R.

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