

# Ecology and Management of the Lesser Prairie-Chicken

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# Ecology and Management of the Lesser Prairie-Chicken in Oklahoma

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**Cover Photo:** The Lesser Prairie-Chicken by Joel Sartore.



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## Introduction

Oklahoma was once home to five species of grouse, including two species of prairie-chicken. The Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*) persists on scattered rangelands of the Southern Great Plains in the shortgrass and mixed grass prairies, sand shinnery grasslands, and sand sagebrush grasslands. Historically, the LPC was common throughout the western third of Oklahoma. They were dependent on large expanses of native prairie that had periodic disturbances from fire and grazing. However, since the land run and settlement of the 1890s, most high-quality LPC habitat has been lost because of the conversion of prairies and shrublands (kinds of rangeland) to cropland, introduced pasture, and development. As recently as 1963, the range of the LPC included 12 northwestern Oklahoma counties. Presently, the LPC inhabits only seven counties in the northwestern quarter of the state including Beaver, Cimarron, Ellis, Harper, Texas, Woods, and Woodward counties. LPCs are rarely seen in Roger Mills and Dewey counties.

The LPC is classified as a game bird in Oklahoma. In response to a 1995 petition to list the species as federally threatened under the Endangered Species Act, the U.S. Fish and Wildlife Service determined it was “warranted, but precluded from listing.” Unless populations sufficiently increase, the LPC will be listed when the U.S. Congress makes the Federal resources available. It is currently (2002) listed as a sensitive (rare) species on U.S. Forest Service National Grasslands in western Oklahoma and has also been state listed as threatened in neighboring Colorado since 1973. The LPC’s range has decreased by 92 percent region-wide since the 1800s, and their numbers have decreased accordingly.

While direct habitat loss to agriculture has been the greatest factor in LPC decline (Figure 1 on p. 17), remaining populations are threatened by ongoing degradation of their rangeland habitat. Tree invasion and tree planting, long-term fire suppression, and poor cattle grazing management are the greatest threats to remaining LPC populations. Other impacts such as spraying herbicides for shrub or weed (forb) control, oil and gas development, and utility lines also contribute to the deterioration of LPC habitat.

One potential factor in the decline of the LPC is the near absence of prairie dog towns throughout much of its historic range. Less than 1 percent of historic prairie dog towns remain. Besides creating optimal gobbling ground conditions, prairie dog towns play an important role in creating LPC habitat. Many important forbs that produce seed are common around prairie dog towns and are particularly evident after abandonment. These highly disturbed areas create diverse early successional plant communities (i.e., abundant annual and perennial forbs) that are very

important for LPC adults and broods. For these reasons, rangeland and wildlife professionals have raised serious questions about traditional management philosophies that endorse prairie dog eradication, herbicide use, and uniform grazing patterns.

## Life History

Adult Lesser Prairie-Chickens average 15 to 16 inches in length. They have a feather pattern of crosswise bars of brown, buff, blackish, and white coloration. Elongated “ear” feathers called pinnae, erected during mating displays, are located on the neck. Below the pinnae on males are reddish, featherless areas of skin called gular air sacs (these are orange on the Greater Prairie-Chicken). These sacs are inflated during mating displays. In addition to pinnae and air sacs, the LPC has a conspicuous bright yellow comb above each eye. Eye combs, like many other secondary sexual characteristics, are most prominent on males.

As with most grouse, mating displays of males are conducted on leks. Specifically, LPC leks are called gobbling grounds because of the characteristic sounds males make. Leks are typically located on elevated, open areas where grassland vegetation is short, visibility is good, and calls (gobbling) can be heard for a mile or more. When available, prairie dog towns are sometimes preferred lek sites. Males concentrate on these communal display grounds to socialize and compete for females. The most advantageous territories are in the central part of the lek and are usually held by dominant, older males. Younger males usually defend peripheral territories or nearby satellite leks. Most females visiting the gobbling grounds, attempt to mate with dominant males that hold central territories. The males advertise their territory by putting on a gobbling display. This behavior is exhibited mainly in spring, but occurs year-round. Activity increases beginning in February, and the number birds on the courtship ground peaks the last 2 weeks of March and first 2 weeks of April.

During the display, males erect their feathered pinnae, inflate their gular sacs, drop their wings, stamp their feet, and make a unique, high-pitched gobble. Often, two males will face off and gobble in a fast cadence. Also, short vertical flights, called flutterjumps, and cackling are performed between gobbling. When in the presence of a female, the male may perform a nuptial bow with wings spread, pinnae erect, and bill lowered to the ground. The hen usually visits two or three different gobbling grounds before she finally mates. After mating, the hen selects a nest site to lay and incubate the eggs, usually within a mile of a gobbling ground. In Oklahoma, LPC nests are found in upland prairies and shrublands devoid of trees for large distances. LPC avoid creeks, rivers, and other low topography that reduces visibility and contains naturally

high predator levels. Nesting habitat is made up of low-shrub cover, high grass and forb cover, and is interspersed with patches of short vegetation.

Normal clutch size is 11 to 14 eggs. The eggs are grayish-olive, buffy-plain, or spotted (rarely). Nests are slight excavations in well-drained soils and are lined with grasses and feathers. The incubation period ranges from 23 to 28 days, but typically lasts 25 days. The hen will lead her brood away from the nest within hours after the last chick has hatched, usually in early morning. Hens then move broods into areas of early stage plant succession. Such areas have abundant tall forbs, an open understory with bare ground, and high insect densities. The brood usually remains with the hen 8 to 10 weeks, after which the brood disperses. Often, two or more broods will intermix when 6 to 8 weeks old. Juveniles will attend established leks in the fall, triggered by changing day length.

## Habitat Requirements

The minimum land area to maintain a sustainable population of Lesser Prairie-Chickens is about 25,000 acres of contiguous high-quality native rangeland. Depending on landscape pattern, habitat structure, and plant composition, larger areas may be necessary. As a rule, LPC can not survive in landscapes with greater than 30 percent cultivation, less if shelterbelts and trees occur in fencerows. LPCs also respond negatively when crops are changed frequently. Stable land use is important. The combined home ranges of all birds at a lek may be 19 square miles (12,000+ acres) or greater. However, the average home range of an individual is about 4 square miles. For a population to remain viable, a series or complex of leks is necessary. Because few landowners control tracts of land that large, cooperative management efforts are vital for success. Within a management unit, maintaining high quality native rangeland with the appropriate vegetation structure (height and density of major grasses and forbs) and plant species composition is essential for a viable LPC population.

LPCs live on native grasslands and shrublands that are adapted for grazing by large herbivores such as bison, elk, or cattle. Grazing is necessary to maintain landscapes that favor the LPC. However, insufficient grass cover from excessive grazing and invading trees, such as the Eastern Redcedar, are the largest threat to existing populations. Fire is also an important landscape driver that must be used to prevent woody species such as Eastern Redcedar from invading. Fire in conjunction with grazing management and limited use of herbicides are the best tools to restore sand shinnery grasslands to their proper health and function. Herbicides, such as 2,4-D and Tebuthiuron (spike), should be used sparingly and cautiously to minimize the impact on broad-leaf herbaceous plants (i.e. forbs)

and invertebrate animals. LPCs do not tolerate trees and spot treatment with herbicides may be the best option to eradicate species like Russian olive and black locust. To successfully manage for LPCs, no trees should be planted or allowed in fencerows, prairies, or shrublands. **Remember, trees are not a natural part of upland prairies. Cutting or removing them is not “bad” for LPCs or other indigenous wildlife.**

A land management plan that maintains rangeland in both early (native annual forbs) and late stages (perennial-native tall grasses, forbs, and legumes) of plant succession are necessary to meet all of the LPC's habitat requirements throughout the year. Optimum habitat is dominated by native vegetation including sand or big bluestem, little bluestem, indiangrass, sand dropseed, sideoats grama, forbs, sand sagebrush, skunkbush sumac, sand plum, and sand shinnery oak.

If native prairie is not abundant and in good condition, large blocks of shinnery oak or sand sagebrush will be of minimal value to LPCs. The preferred habitat of the LPC is prairie with low to moderate densities of shrubs, where most shrubs are less than 40 inches tall. Without fire, shrubs quickly become too tall. Sand shinnery and sand sagebrush should be burned at least every 5 years to maintain proper shrub height and canopy. Optimum habitat cover includes 80 percent grasses and forbs and 20 percent shrubs. However, LPCs survive well, at lower densities, with almost no shrub cover, but good residual grass cover. LPC's select last year's grass growth for nest sites; thus unburned and lightly grazed areas within one mile of the lek are critical for reproduction.

## **Gobbling Grounds (Leks)**

Lesser Prairie-Chickens prefer to use the same gobbling grounds or leks each year, but often move their leks to another site if the vegetation structure is inadequate. Short vegetation is preferred on gobbling grounds, so mowing, spot burning followed by spot grazing, or supplementing cattle on the gobbling ground will usually improve its attractiveness to LPCs. Prairie dog towns are favored places for gobbling grounds.

## **Nesting Cover and Brood-Rearing Habitat**

Nesting cover and brood-rearing habitat are key to Lesser Prairie-Chicken management. Concerns about food during the winter are largely irrelevant if nests and broods are not successful. At least 20 percent of the landscape should support native grasses that are 18 to 20 inches tall to completely conceal nesting hens and foraging chicks, as well as provide good thermal cover in winter.

Grazing impacts prairie-chicken habitat by changing the amount, kind, and pattern of residual grass. Uneven grazing patterns under season- and year-long continuous grazing creates an interspersed pattern of short grass, bare ground, and tall, lightly grazed bunches of grass. This structural diversity provides easy travel lanes for broods, abundant access to seeds and insects, and close escape cover. Patch burning and the resulting patch grazing also provide this requirement. Rangelands with light to moderate stocking rates and spot grazing produce more food (seeds and insects) and habitat diversity than ungrazed or heavily grazed areas.

## Food and Escape Cover

Native forbs (commonly called weeds) provide seeds and habitat for the insects that the Lesser Prairie-Chicken requires. Forbs flourish where animals, mechanical action, or fire produces bare ground. In winter, LPCs consume seeds and cool-season foliage, while insects comprise a major portion of the summer diet. Insects, seeds, and green leafy material are eaten throughout the year when available. As with bobwhite quail, food is seldom a limiting factor for LPC populations.

Historical accounts of large LPC populations show that healthy native prairies and shrublands provided ample food and cover, and that prairie-chickens do not need cultivated grain crops to flourish. Just as well-documented are accounts of LPCs flying into grain sorghum fields by the thousands. While the LPC's appetite for grain sorghum is unquestionable, the importance of cultivated food plots can vary between populations and habitat quality. Research has shown that no single cultivated crop supplies all of the essential amino acids (protein building blocks) that these animals require for optimum health. Heavy use of cultivated food plots may reduce the LPCs' body condition and overall health.

LPCs are often eager to use food plots, so it is easy for the casual observer to assume that they "need" the extra food and benefit from its availability. However, research shows that food is not a limiting factor for upland game birds except during prolonged periods of severe cold coupled with heavy ice or snow. Game birds, like the LPC, have built in safety mechanisms for such weather catastrophes: high reproductive output and wide distribution across the landscape. Unfortunately, many remaining populations are isolated, weak in number, and do not reproduce well due to insufficient grass cover. For these reasons, food plots may provide a temporary benefit to small, weak populations occupying poor, fragmented habitat. However, if food plots are smaller than 10 acres in size, or if they are located too far away from the lek or roosting areas, they may provide little or no benefit.

Predators quickly learn where food plots are located and act accordingly. If food plots are too small, not only will deer, black-birds, wild turkey, and other critters take most of the grain, but LPCs will also be exposed to predators and disease from other birds' fecal material. Also, food plots in distant, low quality habitat attract prairie-chickens (at great energetic expense) away from more secure areas where they would better survive the winter. Food plots should never be planted near power lines or trees. In addition to the risk of avian predators, recent research in Oklahoma shows that 10 to 12 percent of all radio-collared LPCs die from mid-air collisions with fences and power lines that they cannot see or avoid in low light. All of these factors should be carefully considered when deciding if food plots are appropriate. For robust LPC populations in good habitat, food plots are merely an expensive, unnecessary attractant that could have negative effects if planted outside the recommend standards.

## **Water**

Lesser Prairie-Chickens do not require open water. Water requirements are met by the consumption of succulent vegetation, insects, and dew, except in periods of drought, when water from stock ponds and prairie streams may be used. Water is also obtained from metabolizing food.

## **Causes of Mortality and Competition**

Lesser Prairie-Chickens have a short life expectancy, with around 60 percent mortality each year. Mortality of adult LPCs comes from predators including coyotes, bobcats, hawks, owls, raccoons, and foxes. In addition, LPCs are killed by collisions with cars, power lines, and fences. Chicks are taken by the same suite of predators, but may also be taken by other small predators. They may also be killed by hay harvesting operations undertaken before the chicks can fly.

Nests are destroyed by a variety of nest predators including coyotes, raccoons, opossums, skunks, snakes, and rodents. Although nests may be lost to trampling by cattle, this is unusual. High density, short-duration grazing systems may have a greater incidence of nest trampling than less intense grazing systems. Nests in meadows or cropland may be destroyed by harvesting or cultivating during May or June.

## Wind Power Generation

Generating electricity from wind power is promoted as an environmentally friendly technology, but embracing such claims without a thorough examination of all related issues may pose serious threats to some grassland bird populations. Presently, much is unknown about how wind power development affects prairie-chickens, but there exists sufficient information to demand a cautious approach to the issue.

Avian experts' early concerns over direct mortality resulting from bird collisions with wind turbines, towers, power lines, and other infrastructure generally proved unwarranted. With few exceptions, the number of birds likely to be killed by striking a wind power facility lacks potential to be significant on a population level. Exceptions would include turbine complexes that are established where they could affect large portions of very rare species' populations. More significant concerns focus on habitat fragmentation effects associated with grassland birds' avoidance of vertical structures and human disturbance that wind turbine complexes entail.

The species richness among grassland birds at a southwest Minnesota wind generator site, was four times less within 180 meters of each wind turbine, regardless of whether the turbines were running. Sage grouse avoid areas near roads, power lines, and other artificial structures; and use of leks diminishes with increased proximity to such disturbances.

The life cycles of prairie-chickens, require vast areas of relatively unfragmented grassland habitat. More than 90 percent of North America's historic prairies have been destroyed or seriously altered. Thus, the effect of each additional fragmentation influence is magnified. Many other factors diminish existing unfragmented habitats, including oil and gas production, road construction, housing development, crop production, excessive livestock grazing, and woody plant invasion.

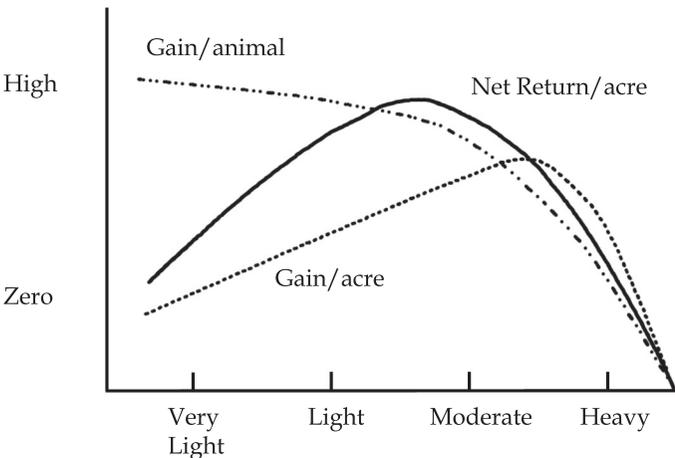
Lesser Prairie-Chickens avoid even high-quality habitat within 200 meters of a single oil or gas well pump, and they avoid the area within 600 meters of an improved road, and within 1,000 meters of an elevated power line, regardless of whether avian predators are present. This means that each wind turbine complex has the potential to void habitat benefits over thousands of acres. Many sites targeted for wind power development in the LPC range lie directly in the scant remaining untilled landscapes, which harbor surviving populations of the birds.

# Habitat Management Tools

## Grazing and Fire

Fire, stocking rate, and grazing system are the main habitat management tools that affect habitat structure and pattern on native prairies and shrublands. The frequency, size, and pattern of burning or grazing, and their relationship (fire-grazing interaction) must be considered and managed to meet the year-round habitat requirements of the Lesser Prairie-Chicken. Since LPCs occur on prairies typically grazed by cattle or other herbivores, grazing management is necessary to restore habitat for the LPC. Experienced ranchers recognize that moderate stocking rates provide the best long-term economic return and reduced economic risk in times of economic uncertainty or drought. Research supports their experience that the optimum-stocking rate for beef cattle is moderate, not heavy (Figure2).

A grazing management plan that maintains the prairie in middle to late stages of plant succession (native tall grasses, forbs, and legumes) interspersed with early stages of plant succession (native annual forbs) is optimal for the LPC. Continuous or season-long grazing at a moderate stocking rate will provide heavily grazed, moderately grazed, and lightly/ungrazed patches within a grazing unit. However, the same patches (near water, riparian areas, etc.) will be selectively grazed every year, eventually driving those areas to poor condition. Continuous grazing provides a moderate level of diversity and habitat quality, but will not maintain optimum habitat over the long-term. Unless light stocking rates are used



**Figure 2.** Relationship of stocking rate to various production and economic factors for beef cattle.

for continuous grazing, optimum nesting cover will eventually be reduced.

Rotational grazing systems for cattle have been promoted as a mimic of historical grazing patterns by large herbivores such as bison and elk. However, since there were no fences, and wild animals moved freely to graze only the highest quality forage, this proposition is inaccurate. Historical accounts and contemporary research demonstrate that grazing animals are attracted to the new growth found either in the most recently burned or grazed area and that they will stay there indefinitely until higher quality forage is made available.

One goal of short-duration grazing (sometimes called cell grazing) is to create even grazing distribution, which reduces spot grazing and makes the plant community more uniform in height. However, if this goal is attained, the structural and compositional diversity of the plant community will decline and thus reduce habitat quality for the LPC. Research has shown that short duration grazing, as it is commonly practiced with multiple paddocks and frequent moves, will not provide the landscape diversity necessary for healthy LPC populations and may also reduce livestock gains and net profits when compared to continuous stocking. This is because cattle are forced to eat lesser quality forage.

Burning 20 to 30 percent of the management unit each year will allow the entire area to be burned within the desired 3- to 5-year interval and still maintain quality nesting cover. Burning more than 50 percent of the area in one year may not provide sufficient cover for nesting and escape from predators. **It is very important to retain unburned areas of dense grass within one mile of the historic lek.**

The timing of a prescribed burn is important both in terms of plant response and effects on prairie-chickens. Burning in any season will remove last-year's growth and nesting habitat. The pattern of the burn in relationship to the unburned area around the lek is extremely important. Late summer, fall, and winter burns usually promote a higher proportion of forbs and act as a natural food plot. Burning improves brood habitat by removing the plant litter and increasing bare ground thus improving seed and insect availability. A recent summary of burning research done in the Southern Great Plains concludes that plant community responses to timing (season) of the burn is highly variable depending on weather. Therefore, specific predictions tied to calendar dates are misleading.

Fire also has potential to alter the structure and composition of the native plant community depending on the season and scale of the burn and its interaction with grazing animals. The right combination of fire and grazing at the landscape level provides the best potential to reverse the decline of LPCs (Table 1). The fire-grazing interaction, also known as patch burning, mimics the

**Table 1.** Spatial variability of management units under typical rangeland management practices and alternative management practices.

	Spatial Variability of Management Units		
	Homogeneous	Heterogeneous	Shifting Mosaic
<i>Typical Range Practices</i>			
Continuous Grazing		X	
Rotational Grazing	X		
Herbicide Application	X		
Multi-species Grazing	X		
Area Burns	X		
Improved Water Distribution	X		
<i>Alternative Practices</i>			
Patch Burning			X
Patch Herbicide Application			X
Patch Fertilization			X
Focused grazing disturbances			X
Shifting attractants			X

historical grazing pattern of wild animals and thus has the potential to create a landscape pattern and habitat structure favorable to the LPC, while also keeping cattle at a high nutritional plane.

Historically, burning occurred randomly across the landscape. In practice, 15 to 30 percent of an area is burned each year. The burns sometimes have been divided into summer and winter burns to add even more compositional and structural diversity. This management practice has been used successfully to benefit bobwhite quail and mourning dove on private lands managed for livestock and wildlife. It has also been used on a large scale with bison, elk, and long-horn cattle at the U.S. Fish and Wildlife Service’s Wichita Mountains Wildlife Refuge in southwestern Oklahoma and with bison and cattle at the Nature Conservancy’s Tall Grass Prairie Preserve in northeastern Oklahoma. However, only recently has research been conducted to measure the effects of patch burning on livestock production, plant communities, and animal communities.

In this research conducted by the Rangeland Ecology and Management faculty at Oklahoma State University, patch burning was applied by burning one-third of a management unit and allowing cattle free access to burned and unburned patches. Research conducted since 1999 indicates that patch burning does not reduce livestock gains when compared to unburned prairies. Since 2000, researchers have compared patch burning to intensive early stocking (IES) where the entire unit is burned. Both treatments were intensively early stocked (also known as double stocking, see OSU Fact Sheet F-2875, Intensive Early Stockers) from April 1 until July 15. Research results indicate that patch burning increases landscape heterogeneity, structural diversity, and diversity of grassland birds without negatively affecting livestock production. The best part about the patch burning grazing system is that cattle move them-

selves and high cost, high input management is not required. This system also allows stockpiling grass for dormant season grazing. Except for actually conducting the burn, no additional labor or structures are required over typical rotational grazing. In most cases, existing cross fences can be removed. This system has the potential to reverse declines in prairie and shrubland wildlife.

## **Herbicides**

The use of broadcast herbicides should be minimized to maintain cover and food producing plants such as shrubs and forbs, and the insects that require them. If grazing management (i.e. stocking rate) is appropriate for the productive capabilities of the land and fire is periodically used to direct grazing and balance shrub canopy and height, herbicides should only be necessary to control invasive non-native plants. Plants, such as Bermuda grass, Old World bluestem, Russian olive, autumn olive, black locust, osage orange, and other exotic species are of no value to the Lesser Prairie-Chicken.

## **Haying**

Although few native hay meadows are cut within the Lesser Prairie-Chicken's range, management of these meadows can be important. Cutting meadows either too early or too late is detrimental to LPC nesting and winter survival. Research has shown that haying before July 1 (when nests are often active) will destroy nests and haying before mid-July may also cause some mortality to young chicks. Research has also shown that cutting native prairies later than July 10 misses the optimum combination of forage protein and production. It also does not allow sufficient time for regrowth to maintain adequate cover and plant vigor for next year's growth. The relationship of forage quality and production is controlled by day length and is not dependent on air temperature or precipitation. Therefore, prairie hay should always be cut between July 1 and no later than July 10. To minimize brood mortality, hay cutting should begin in the middle of the hay meadow and proceed outward.

## **Cultivation**

Croplands within a management area may benefit Lesser Prairie-Chickens under certain conditions, particularly when grazing on adjacent rangelands is managed to ensure residual cover. Waste grain in fields can provide winter food in the same way cultivated food plots do. Annual warm-season seed producing plants such as grain sorghum provide a high energy food source and are particularly favored by the LPC. Benefits to LPCs occur when:

- most of the surrounding rangeland is in a late stage of plant succession
- cultivated crops are warm season grains or alfalfa

# Conservation Reserve Program (CRP) Lands

Most Conservation Reserve Program lands have little or no forb production. While warm-season crops may provide some benefit to landscapes with “grass only” CRP, the best alternative is to incorporate native forbs and shrubs (depending on the soil type) into CRP plantings at the time of enrollment.

Lesser Prairie-Chickens use CRP lands when those lands provide habitat components that meet their requirements and are limiting in the surrounding landscape. Because residual grass is often limiting, LPC populations have benefitted from the residual grass in native CRP. Less than 30 percent of the total acres enrolled in the CRP in Oklahoma were planted to native grass mixtures, and few of those contained grasses, forbs, and legumes. CRP land planted to a single non-native species such as Old World bluestem provides little value to the LPC. Although an introduced species, adding a small component of alfalfa (0.2 lbs./acre) to CRP planting could benefit habitat for the LPC. CRP land planted in a mix of native grasses and forbs, depending on the soil type and potential native plant community, has much greater potential to provide suitable habitat. Insect diversity is also substantially better in multi-species plantings, making most CRP fields unsuitable for brood-rearing habitat. CRP lands may become less favorable to LPCs as the grasses mature and become too dense, if burning and grazing are not periodically applied. Sand sagebrush seed is now available and can be added to new CRP plantings in sandy soils.

## Management Summary for the Lesser Prairie-Chicken

1. Keep livestock grazing patchy to provide lek sites (short grass), nesting cover (tall grass - 18 inches), brood cover (tall forbs with sparse grass - 18 inches). Do not install extensive electric or other fencing for short duration grazing that creates uniform grazing. Electric or other fences can also be lethal to Lesser Prairie-Chickens in flight.
2. Implement patch burning to provide the structural, compositional, and spatial diversity required above.
3. Eliminate the regular use of broadcast herbicides.

4. Convert cropland, Old World bluestem, Bermuda grass, or other introduced forages or trees into native warm season grasses and forbs. Consult the USDA Natural Resources Conservation Service's Ecological Site Guide (located in NRCS County Offices) for the land area of interest to determine the historic plant community composition. Once a CRP contract has expired, restore the native plant community, including shrubs.
5. Native forbs do not need to be fenced and are preferred to cultivated crops. In much of the Lesser Prairie-Chicken's range CRP is devoid of forbs, so food plots may be helpful. Plant food plots if native forbs are inadequate. Use crops such as broom (Kaffer) corn, grain sorghum, or alfalfa. Prepare a good seedbed and fertilize according to a soil test. Plots should be from 10 to 15 acres in size, planted on the contour, oblong in shape, surrounded by protective cover with no trees or powerlines near by. Exclude domestic livestock from food plots. Leave 12 inches or more of wheat, grain or forage sorghum, or forb (weed) stubble in harvested fields. **Do not use Dimethoate based insecticides on cultivated crops.**
6. **Remove all upland trees from the area including field windbreaks and living snow fences.** Lesser Prairie-Chickens and other prairie/shrubland wildlife do not require trees and strongly avoid them. Trees also provide perches for predatory birds and encourage habitat generalists such as raccoons to invade. Trees are invasive plants in prairie and shrublands ecosystems.
7. For existing cropland, put terraces into native grass and/or create cross wind trap strips to make large fields useable space. Native grass (continuous sign-up CRP) should be separated by 100 yards or more.

## Conclusion

Oklahoma is fortunate to have Lesser Prairie-Chickens and the prairies and shrublands that support them. However, their range and numbers have decreased significantly from historical levels and continue to decline. To survive and reproduce, the LPC needs large expanses of native prairies and shrublands without trees in different stages of plant succession. Hopefully, populations of LPC can be maintained and increased if native plant communities are restored and the ecosystem drivers of fire and grazing are used appropriately.

LPCs are found almost exclusively on private property and thus depend on the stewardship of private property owners. Programs that promote conversion of native prairie to non-native vegetation such as introduced forages or trees are not beneficial to the LPC or other native wildlife. Government and private programs that encourage restoration and management of native prairies and shrublands are needed. The LPC is a species that reflects the health of the Southern Great Plains ecosystem and is at a critical threshold for its long-term survival. Oklahoma and many other central and western states still have large tracts of land and the opportunity to reclaim and restore millions of acres of native plant communities for the LPC and other prairie species. Adequate funding, public support, competent consultants, and landowner cooperation are needed to accomplish this goal.

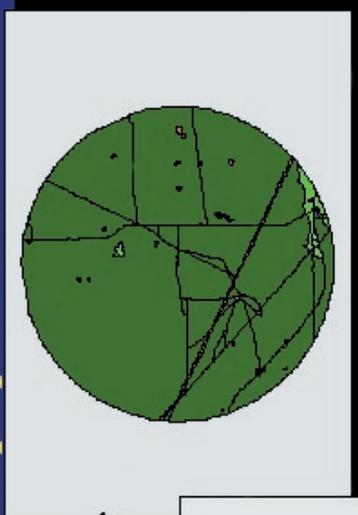
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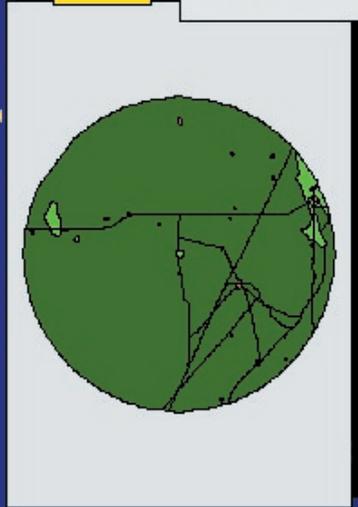
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## Landscape with a stable population



10 yrs

- Mixed shrub
- Cultivated
- Native Grass
- Shinnery Oak
- CRP-Pasture



## Landscape with a declining population



12 yrs



Figure 1. Effects of native habitat conversion and fragmentation on the Lesser Prairie-Chicken.

