



Sand Shinnery Ecosystem Protection

In the southern Great Plains, there is a unique ecosystem featuring shin-oak, a low-growing native shrub that provides food and habitat to a wide variety of native wildlife. Referred to as the sand shinnery community, these oak forests extend across five to seven million acres in New Mexico, Texas, Oklahoma, Arizona, and Utah and constitute the country's largest stand of oak. Sand shinnery communities are co-dominated by shrubs and a mixture of grasses, the composition of which varies by region. Unfortunately, a bevy of threats face this ecosystem, including herbicide treatment, oil and gas development, and livestock grazing. Altogether, over 1.2 million acres of sand shinnery have been lost to cropland conversion and the application of herbicides for rangeland conversion. As the sand shinnery is destroyed or degraded, the repercussions impact wildlife most closely associated with this unique landscape. In particular, the Lesser Prairie-Chicken and Sand Dune Lizard are critically imperiled species that are highly dependent on the sand shinnery ecosystem.

Lesser Prairie Chickens & Shin-Oak

Lesser Prairie-Chickens are dependent on quality shin-oak habitat, which provides them with both cover and food. Shin-oak acorns constitute nearly 70% of the Lesser Prairie-Chicken's winter diet, and shin-oak products (acorns, galls, catkins, and new leaves) provide approximately half of Prairie-Chickens' fall and spring diets. Insects in sand shinnery provide nearly the entire diet of young Prairie-Chickens and a significant portion of the adult diet. Current Lesser Prairie-Chicken habitat in New Mexico is almost exclusively shin-oak grasslands.

Control of shin-oak to enhance rangeland productivity for livestock negatively impacts Lesser Prairie-Chickens. Other threats to this species of grouse include livestock overgrazing of nesting cover, disturbance from oil and gas operations, drought, and hunting. As a result of this array of threats, Lesser Prairie-Chickens have been extirpated from over 90% of their historic acreage. The most recent data indicate that Lesser Prairie-Chickens are declining in four out of the five states within their historic range (CO, NM, OK, TX) and face a new threat, of hybridization with Greater Prairie-Chickens, in the fifth state (KS).

Sand Dune Lizards & Shin-Oak

The Sand Dune Lizard is the only reptile restricted to sand shinnery habitat. This highly specialized lizard has the second most geographically restricted range of any lizard in North America. The Sand Dune Lizard evolved away from its wider-ranging relative, Sceloporus

graciosus, whose range is throughout the western U.S. The Sand Dune Lizard is an excellent example of evolution in action, as it has become so specialized to life in the sand shinnery that it has evolved into its own species. The sand dune lizard is found in areas of open sand, especially in large blowouts, but requires the refuge and insect foraging provided by shin-oak. These lizards are seldom more than six feet from a shin-oak plant.

Like the Prairie-Chicken, the Sand Dune Lizard's dependence on shin-oak has meant its decline as sand shinnery habitat has been degraded. A series of studies indicated reductions of Sand Dune Lizards on the order of 70-94% when shin-oak is controlled. Any loss of Sand Dune Lizard habitat is important to consider, given the lizard's extremely restricted geographic range, and the unsuitability of much of the habitat within that range for the species. The U.S. Fish and Wildlife Service considers herbicidal treatment of shin-oak to be a primary threat to the Sand Dune Lizard.

Other Wildlife and Plants Associated with Sand Shinnery

In addition to the Lesser Prairie-Chicken and Sand Dune Lizard, a bounty of other wildlife finds sustenance in the sand shinnery. Mule deer, white-tailed deer, pronghorn, and javelina are the most conspicuous. In addition, black-tailed jackrabbits, eastern cottontails, a variety of burrowing mammals (pocket gophers, kangaroo rats, moles, ground squirrels), shrews, songbirds, mammalian predators, raptors, turtles, snakes, arthropods, and others benefit from a healthy sand shinnery ecosystem.

A Non-Renewable Natural Legacy

Shin-oak commonly attain ages of hundreds and probably thousands of years. Most reproduction is by cloning, and reproduction by seed is rare. While seldom taller than two feet high, shin-oak has a disproportionately large underground stem system that serves a vital function in sand and soil stabilization. The lateral movement of shin-oak into adjacent areas is exceedingly slow, with plants failing to encroach on old fields surrounded by shin-oak and left fallow for over 50 years. The application of the herbicide tebuthiuron in shin-oak grassland therefore causes virtually permanent reduction of this ecologically vital plant community.

Forest Guardians' Advocacy for Sand Shinnery

Forest Guardians has a number of projects aimed at protecting the sand shinnery ecosystem and its associated wildlife. Our actions include challenging oil and gas exploration and extraction, potential tebuthiuron application on U.S. Bureau of Land Management Land (BLM), a hazardous waste facility planned near Roswell, livestock overgrazing on BLM land, and other threats. Forest Guardians has led the effort to list the Lesser Prairie-Chicken under the Endangered Species Act and has proposed a 183,000-acre area of critical environmental concern be designated for this species in NM. In addition, we're supporting the Center for Biological Diversity's listing initiative for the Sand Dune Lizard.

Visit www.fguardians.org or call 505-988-9126 for more information on sand shinnery and its associated species or to volunteer your help in Forest Guardians' efforts to preserve and restore native wildlands and wildlife in the American Southwest.