

CROSS TIMBERS

By Blayr Beougher
Owasso, Okla.

STRETCHING FROM SOUTH–eastern Kansas to central Texas is Cross Timbers, a 19.5-million-acre ecosystem crossing through Oklahoma State University territory. OSU owns roughly 1,800 acres of Cross Timbers on the OSU Range Research Station, 12 miles southwest of campus.

“Cross Timbers is a big ecosystem and one of the few ecosystems still largely intact because of the nature of the terrain,” said Adam Gourley, range research station assistant superintendent. “The soils and brush make it hard to farm and costly to develop.”

In the past, research has focused on vegetation responses on the Cross Timbers Experimental Range, Gourley said.

In fact, scientists agree a gap exists in the scientific knowledge about the Cross Timbers ecosystem.

This Southern Plains ecosystem is not what it once was, said Dwayne Elmore, state wildlife extension specialist.

Historically, Cross Timbers would have been an oak-savannah habitat with an open-forest structure. Fire suppression is a major component of the closing canopy, the diminishing grasslands and the reduction in native wildlife species, Elmore said.

Fire can bring back what was once natural to this area.

“The interesting part of all this is that when you drive from Stillwater to Oklahoma City what you see is not what this landscape looked like 100 years ago,” Elmore said. “It would have been much more open, and there would have been great numbers of bison, prairie chickens and elk in Payne County, species that are not anywhere in this county now.”

The goal of the research station is to restore native habitat with prescribed fire, said Chris Stansberry, range research station superintendent. Every year, the fire crew “crosses their fingers” to hold off burn bans. In spring 2008, areas on the Cross Timbers Experimental Range were burned; the rest of CTER will be burned in the near future.

“It doesn’t take a rocket scientist to figure out if you suppress fire in an ecosystem that evolved with

fire, then you are going to end up with a problem,” Stansberry said. “And we definitely have a problem in this state.”

Fire is a unique tool when used to keep ecosystems intact, but with fire suppression, the invasive Eastern redcedar is somewhat overtaking the Cross Timbers ecosystem in Oklahoma, Elmore said. CTER, just like the rest of the Cross Timbers ecosystem, has changed dramatically due to lack of fire.

Cedars are invading the land base basically east of Interstate 35, said Brent Westerman, field and research service unit senior director. And fire is the most economical way to control invasive species like the Eastern redcedar.

The Eastern redcedar is not fire adapted, meaning it does not re-sprout following fire like oaks do, Elmore said. Fire suppression has led to the current overabundance of this invasive species in Cross Timbers.

“CTER is suffering from an enormous cedar encroachment problem, and if nothing is done, it will eventually be one solid cedar forest,” Gourley said.

“Areas on CTER where old herbicide studies were conducted have not been burned for at least 25 years,” he said. “It is extremely evident how fast the cedars will take Cross Timbers over without fire.”



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Some areas on CTER that once were grasslands already have been converted to a cedar forest, Gourley said. Because patches of CTER are so far gone, it will take years and a lot of work to see a major turn around, he said.

The abundance of cedars on CTER makes the staff more determined to do everything possible to get rid of the rapidly spreading invasive species.

“Using fire to open the forest canopy is going to somewhat shift Cross Timbers back to a grassland system and not dominated by forest,” Elmore said. “Cross Timbers will be more of a balance between forest and grass.”

Stansberry said the fire crew plans to make the perimeter and interior firelines on CTER 150 feet wide and free of cedars with few oaks, making prescribed fires much easier and safer.

“Economically important wildlife species, such as bobwhite quail, can thrive in Cross Timbers habitats that are managed appropriately,” said Sam Fuhlendorf, professor of natural resource ecology and management.

The OSU Range Research Station and its Cross Timbers Experimental Range areas are important for research, as evidenced by the number and size of grants that have been awarded to study wildlife, invasive species, cattle and ecosystem shifts, Westerman said.

Most research stations only conduct cropland research, making the OSU Range Research Station unique, Fuhlendorf said.

Cross Timbers is a mosaic of oak woodlands with patches of savanna and prairie openings that covered nearly 20 million acres before European settlement primarily in central Oklahoma and northern Texas.

OSU Department of Natural Resource Ecology and Management

Research on CTER started in the early 1980s. Now, the station has plans for multiple research projects in one area, providing farmers and ranchers in Oklahoma with information on how to manage their land.

“We have decided to shift the research’s focus and build on what we learned from the previous 20 years of experiments, which is that basically we can’t do anything in that land without fire,” Fuhlendorf said.

The primary research project on CTER now is the development of a research and demonstration area for the Cross Timbers ecosystem.

The primary part of the research and demonstration area is to demonstrate patch-burning techniques on a landscape scale, Gourley said.

Eighteen patches will be burned, and cattle will be collared to monitor how fire affects grazing behaviors, he said.

“The OSU Range Research Station crew, in conjunction with Dwayne Elmore, have begun to monitor wildlife numbers and movements,” Westerman said. “They have set up cameras to monitor deer; it is something we haven’t done in the past.”

CTER is designed to research several things at the same time similar to a working ranch, Fuhlendorf said. Fire lines built throughout CTER will double as roads, helping the workers get around easier and allowing tours, which are part of the new project.

Due to the rough terrain, conducting research on CTER has been a struggle in the past, Westerman said.

CTER is under a major renovation to improve the infrastructure, which will complement ongoing research activities, he said.



Photos by Blayr Beougher

Cross Timbers Ecosystem with suppressed fire (left) and with prescribed fire.

Renovations include road improvements, pond upgrades and preparation of the station to showcase research and demonstration activities in the near future, Westerman said.

“Currently, the terrain is so rough, one can hardly get around, not to mention build fire lines and support research,” Westerman said.

“Most of the area is only accessible on foot or horseback.”

The Range Research Station recently received new equipment to help complete many tasks they have struggled to complete in the past.

“We were very fortunate this winter to receive funding from the Oklahoma Cooperative Extension Service and the

Oklahoma Agricultural Experiment Station’s field and research service unit to purchase an ASV Posi-Track loader,” Stansberry said. “That piece of equipment is going to be a tremendous asset to the range station for constructing fire lines, roads, creek crossings and fences not only on CTER but also the rest of the range station.”

CTER not only benefits research projects but also is an area where local and national groups and organizations can come for demonstrations or hold contests, Elmore said.

In the past, CTER brought in 4-H members to discuss fire ecology, Elmore said. This summer, members from 30 states will visit CTER during the big-

gest wildlife contest in 4-H, the National Wildlife Habitat Evaluation Program Contest, which will be held in Oklahoma for the first time.

“The more people we can get on this site the more people we can educate about fire, cattle grazing and wildlife,” Stansberry said. “Research possibilities out here are endless.”

A goal of the natural resource ecology and management department at OSU is to perform research that not only will be published in journals but also will provide relevant information to landowners about exactly how to manage their land, Fuhlendorf said.

CTER and OSU provide Oklahomans across the state with useful information about how to manage natural resources for multiple uses.

“We do research to help people in Oklahoma make a better living and have a better life,” Fuhlendorf said.

For more information about CTER, call Chris Stansberry at 405-743-4714 or send a message to stansbj@okstate.edu.

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