



PHOTO BY SHERYL HAGAN-BOOTH

Kentucky Prairie

BY TOMMY NEWTON

DR. MICHAEL STOKES IS OUTSTANDING IN HIS FIELD — LITERALLY. ON A HOT JULY MORNING, STOKES IS ON A WALKING TOUR OF A PRAIRIE RESTORATION PROJECT AT THE RAYMOND ATHEY BARRENS STATE NATURE PRESERVE IN LOGAN COUNTY.

“This is about the best example of native prairie we have in this area. This isn’t exactly what it looked like 200 years ago, but this is where I bring people if they want to know what a Kentucky prairie looks like,” Stokes said.

The Kentucky prairie is similar to the prairie of his native Kansas but is a somewhat different ecosystem, Stokes said. That ecosystem — mammals, birds, insects, grasses, flowers, plants, and their physical environment — is the focus of the research Stokes and Western students in the Center for Biodiversity Studies are doing at the 160-acre Logan County site.

“Everybody thinks the big things have an impact on the world around them, but a lot of times it is the little stuff that has a much greater impact than you would imagine,” said Stokes, who earned his doctorate at the University of Kansas.

The research began as a project to study the effect prescribed burning had on small mammal populations. Fire is a necessary and defining process in maintaining prairie ecosystems. In Kansas, Stokes knew the prairie soil was deep enough that small mammals could burrow and avoid fire. However, the shallow topsoil of the Kentucky barrens provides no haven for small mammals.

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One of the early research projects looked at different burn patterns to determine what happens to small mammals and how quickly they recolonized the burned areas.

Now the research is looking at how the small mammal communities affect plant life in the restored prairie. “What we’re doing here in Kentucky is burning some of these areas throughout where the barrens are, in an attempt to bring back some of that native prairie-like vegetation,” he said.

It’s easy to see how grazing by cattle can change a plant community, but smaller animals like mice, voles, shrews, and moles are busily working out of sight eating seeds, clipping grass, and burrowing under the soil.

“Right now my students are looking at how the presence or absence of different small mammals affects plant communities,” he said.



PHOTOS BY SHERYL HAGAN-BOOTH

Prairie wildflowers: left, Rose-pink, Sabatia angularis; right, a native small sunflower, genus Helianthus.

To most who drive by, the Raymond Athey Barrens State Nature Preserve may look like an overgrown field, but to Stokes and his students, the fields are a piece of ecological heaven.

"Most of us as biologists are interested in seeing a lot of different things," he said. "To us a beautiful lawn is a desert. It's a monoculture of fescue or bluegrass. A weedy old field is of much more interest to me than a golf course or a lawn."

Several types of native grasses, along with flowering plants, are growing in the nature preserve. The prairie-type grasses don't need a lot of water and can flourish in the summer heat. The area also includes fire-resistant oak trees and not as fire-resistant winged elm and cedar trees.

"To me this is the perfect lawn. You have flowers that change all year round. I don't have to mow it. I just have to burn in March or early April," Stokes said.

But "if you look out across the countryside almost a third of the plants are not natives," Stokes said, describing other plants such as fescue, bluegrass, or Johnson grass that have been introduced.

"The grasses that you see in the Raymond Athey Barrens State Nature Preserve are native. That's the key," he said.

For Stokes, the key to restoring prairie ecosystems is

helping people appreciate biodiversity, which simply refers to "the diversity of life and what is living in your area."

"I've found that if you get people out on a prairie, and if they care just a little bit, they become evangelical about prairie restoration," he said.

Western's Center for Biodiversity Studies, along with other centers in the Applied Research and Technology Program, is spreading the message to the region and the state that biodiversity is important to our ecological, environmental, and economic future.

Undergraduate and graduate students are involved in numerous research projects both on campus and for national parks and other agencies. Students from varied backgrounds — science, mathematics and computer science, for example — are well-prepared for careers in the field.

Since 1998, the center has received more than \$1 million in external funding. In the coming months, Western will establish a field station along the Green River that will provide an enormous educational and research boost for the program, Stokes said. Western's Biology Department also has plans for a new environmental education facility.

"In cooperation with state and federal agencies, we have new opportunities for certain types of ecological research along the Green River that is on a nearly unprecedented geographical scale," Stokes said.



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Dr. Stokes stands by part of the L. Y. Lancaster Nature Exhibit housed in the Center for Biodiversity Studies.