MEET A SCIENTIST

CBG's Wagenius works to save dwindling prairies

FOUAD EGBARIA, Editor

Fires, particularly in the wild, are often seen as a bad thing, bringers of chaos and destruction — but scientists like Stuart Wagenius know that fire is a crucial piece of the plant life cycle.

Wagenius has worked at the Chicago Botanic Garden for 14 years, assuming the role of senior conservation scientist in 2012. He grew up in Minnesota and attended Carleton College, after which he joined Teach For America in New Orleans.

Wagenius was actually a physics major, but he picked up a love for prairie landscapes while down in The Pelican State.

"I was amazed by it," he said of experiencing the natural offerings of Louisiana. "Then I started learning more about it and I said 'Wow, I love being outside and looking at plants ... that kind of got me started and thinking about the natural world.'"

From there, he entered a doctoral program at the University of Minnesota to study ecology, evolution and behavior — namely with respect to tallgrass prairie lands, prominent across the Midwest.

"The tallgrass prairie, which covered a good portion of Minnesota and a good portion of Illinois, used to be vast and expansive," he said. "It must have been amazing ... these tall grasses and lots of flowering plants and birds and insects. ... [Now], those little bits of prairie are hard to find."

In Minnesota and Illinois, much of that space is now used for agricultural purposes, namely corn and soybeans. As Wagenius learned more about the shrinking prairies, he found that the species that called it home were "imperiled," he said. In fact, that topic became his dissertation, outlining the threats prairie plants face.

Scientists usually think of these threats in ecological or genetic terms, Wagenius said. With respect to the latter, inbreeding depression is one such deleterious effect on a plant population. And in a shrinking habitat, in which plants often only have other relatives to mate with, that creates problems for the next generation.

"They don't live very long, they're not healthy," he said. "They could have all sorts of problems."

Ecologically, he said prairie fires no longer happen with the same frequency they once did. While fires in the natural world are often thought of as a bad thing — for instance, destructive California wildfires — they are a needed component of the prairie's circle of life.

"Native plants are adapted to the fires," Wagenius said. "They need the fires. A lot of the weedy plants that are in prairies now, they suffer when there's a fire."

One plant he studied, the purple coneflower, is a species many have in their home gardens but is naturally found in western Minnesota. In the course of that study, he said he found that if a prairie remnant went unburned, seeds in the ground there were likely to die (or, if the seeds germinated, the seedlings would).

"But, if you burn, the seedlings have a chance to make it," he said.

Another layer to the process is developing an increased understanding of the mating scene, he said. In order to reproduce, plants have to flower at the same time other plants are flowering — not unlike the human dating scene, he said, they have to be at the right place at the right time.

"What fires do is they serve as a signal for plants to know when to reproduce," he said. "So if there's a fire in the fall or the spring, that next summer, all the purple coneflowers tend to flower at the same time."

Then, they don't do much mating until the next fire. So, despite its connotations, prairie fires are very much creators of life — at the very least, a facilitator.

Going forward, he said he and his fellow conservationists are looking to quantify the benefits of fire for the prairies. Most people only think of its benefits in terms of fire's ability to kill weeds, he said, but fire does more than that, namely helping plants reproduce.

In addition, they're working on developing software to help understand mating dynamics of plants, specifically how the timing of flowering helps plants.

Wagenius said the diversity of his work keeps him coming back: being able to work both inside and outside with people of various scientific backgrounds (professional scientists, students and citizen scientists).

"They say that all life depends on plants," he said. "And it's true. Helping our planet maintain good prairies and healthy ecosystems makes all of our lives better. It's great to feel that I'm contributing to that."

Stuart Wagenius, senior conservation scientist at the Chicago Botanic Garden, is pictured during field work in experimental prairie restoration in Douglas County, Minnesota. PHOTO SUBMITTED

Glencoe residents do big work at Little House

New Trier seniors, Scouts coordinate service project

sit. (The gazebo was removed a few
ago, thanks to another Troop 28 Eag
vice project by Mehlman.)

They also performed landscaping w