



Department of Botany

Fall, 1995

College of Arts and Sciences

Volume 2, Issue 1

Oklahoma State University

In this issue...

- 2 Speairs Fellowship
- 3 New Faculty
- 3 Graduate Student News
- 4 Alumni News
- 4 OSU, Botany WWW
- 5 Belize

Bluestem is published annually to inform alumni, faculty and friends about the issues, activities, and news of the Botany Department.

Comments and inquiries should be directed to Editor, Botany Department, 104 LSE, Stillwater, OK., 405-744-5559 or Email jdownby@osuunx.ucc.okstate.edu

Oklahoma State University in compliance with Title VI and VII of the Civil Rights Act of 1964, Executive Order 11246 as amended, Title IX of the Education Amendments of 1972, American with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, sex, age, religion, disability, or status as a veteran in any of its policies, practices or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

This publication, issued by Oklahoma State University as authorized by Department of Botany, was printed by the Audio Visual Center, University Printing Services at a cost of \$530.90. 250/10/95; No. 4515.

McPherson Preserve Burns!

After 12 years of encroachment by eastern red cedar and other exotics, the McPherson Preserve, 160 acres of prairie and crosstimbers west of Stillwater, needed a trim. The Botany Department took action last spring with a controlled burn of the Preserve's northwest half. So far the results are impressive. Native grasses, including big bluestem and Indiangrass, are thriving on soil nutrients released by the burn.

The tract of land that is now the McPherson Preserve was given to the Botany Department by OSU in 1968. Long known as the Ecology Preserve, it was renamed last fall to honor late Emeritus Professor Jim McPherson. Harrington Creek, whose wooded banks support a good crop of morels in April, bisects the Preserve. The uplands away from the creek are tallgrass prairie, maintained in nature by periodic fires. A ridge on the north edge is crosstimbers, mostly blackjack and post oak.

Led by Mike Palmer and Sue McAlister, members and friends of the Botany Department began clearing a fire-break in February. March 28 was overcast with a gentle northerly breeze, providing ideal conditions for the burn. Dave Engle and Terry Bidwell of the Range Management program, who are experienced in controlled burns, were there to be sure

Continued on page 2

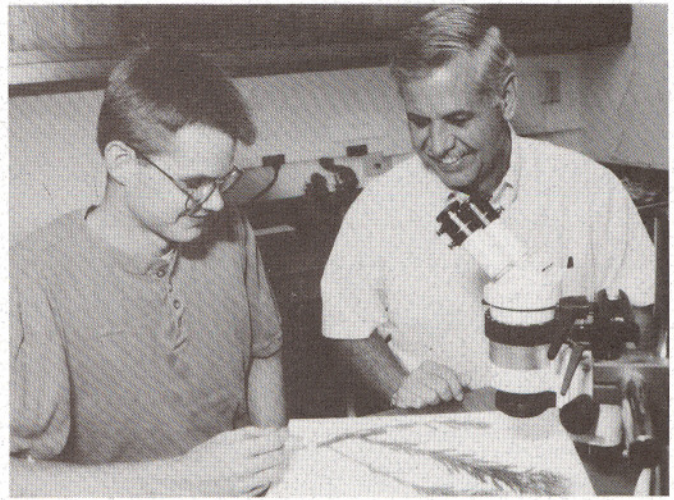


Participants in the controlled burn of the McPherson Preserve dressed for the occasion.

Spears Fellowship Supports Botany Students

As he tells it, Richard Spears decided to choose botany as a career after he served as a teaching assistant in the freshman botany labs at OSU under the tutelage of Gilford Ikenberry. After getting his B.S. at OSU in 1941 and a Ph.D. at LSU in 1957, he enjoyed a distinguished career, eventually becoming Chairman of the biological Sciences Department at LSU-Shreveport. Richard also served as President of the Arkansas Academy of Science and the Arkansas Native Plant Society.

Now he and wife Betty are helping other students get turned on to lab and field work through the Richard and Betty Spears Fellowship in Botany. The first recipient, Martin Zoher, earned the \$1000 Fellowship by working in the Herbarium with Ron Tyrl last spring. Martin, a native of Owasso, was also the Outstanding Senior in Botany. Shown in the photo at right with Ron, Martin began work this fall on an M.S. degree in Mike Palmer's lab in the Botany Department.



Dr. Ron Tyrl, right, and Martin Zoher, recipient of the Richard and Betty Spears Fellowship, examine a specimen from the Herbarium.

Continued from page 1

we didn't burn all of western Payne County. We began with a back-fire, which burned into the wind from the fire-break and increased its width. At the north end of the Preserve we then lit the head-fire,

with the wind at its back. It swept south through the prairie, stopping only when it reached the area burned by the back-fire.

The blackened land smoldered for a few days, but soon rainfall

brought new growth. Heavy rains in early August gave the grasses an additional boost, and today the burned region is growing vigorously, with many impressive stands of Indiangrass, Oklahoma's state grass. Students on General Ecology and Field Botany class field trips will now see first-hand the role of fire in maintaining our native prairie flora. Annual burns are planned to keep the cedar and exotics in check.

Before the burn, Mike Palmer (shown here) and others in the Botany Department removed all cedars from the fire-break and dragged them into the area to be burned.



New Faculty Member

Anne Cross

The Botany Department gained its 8th faculty member when Dr. Anne Fernald Cross, an ecosystems ecologist, arrived for the Fall, 1995 semester. Anne received her Ph.D. in Botany in 1994 at Duke University under William Schlesinger, and spent last year teaching at the North Carolina School of Science & Mathematics in Durham. Her field of study is the effect of overgrazing and climate change on vegetation patterns in the American Southwest.

Anne, a native of Boulder, Colorado, earned her B.A. degree in history at Colorado College in 1981. An undergraduate project on

wetlands in the Southwest kindled an interest in nature. She received her M.A. in biology at the University of Colorado in 1987. For her Ph.D. dissertation at Duke, she studied shrubs that invade grasslands in the northern Chihuahuan desert in New Mexico. She observed that these shrubs create "islands of fertility" by trapping wind-borne soil. The resulting unequal distribution of soil nutrients favors the further spread of desert shrubs at the expense of grasslands, an important feature of desertification. She plans to continue work on ecosystem nutrient cycling in the Tallgrass Prairie here in Oklahoma.

Anne's husband Rob is a freelance photographer whose assignments have taken him to New York City and the Appalachian Trail. They both sweltered in our 100+

temperatures while house-hunting here in July, but came back in the fall anyway.



Dr. Anne Fernald Cross and husband Rob.

Graduate student news

We are very proud of our current group of hardworking graduate students, some of whose achievements and activities are noted here.



Linda Gatti Clark

Linda Gatti Clark, a Ph.D. student with Ron Tyrl, was awarded a \$500 McAlester Scottish Rite Fellowship for 1995-96. This award honors students with a commitment to applied research, public service and/or teaching at the postsecondary level. Linda was also one of three finalists for the Phoenix Award, given by the Graduate Student Association each year for meritorious scholarship, research, and teaching.

Through the generosity of alumni, faculty, the Dean's Office, and especially Iris McPherson, we supported 7 graduate students last summer with McPherson Memorial funds. Funds for travel were given to **Carolyn Clink**, now working on her M.S. degree with Mike Palmer, who attended the annual meeting of the International Association of Vegetation Science in Houston, TX; to Yi Yin, Bill Henley's M.S. student, who attended the American Society of Limnology & Oceanography meetings in Reno NV; and **Linda Gatti Clark**, who attended and presented a paper at the regional AAAS meeting in Norman, OK in May. McPherson funds also supported four other stu-

dents who are working on their M.S. degrees with Ron Tyrl. Kim Shannon received support for a floristic survey of a site on Pennington Creek, south of Ada, that was recently acquired by the Nature Conservancy. Registration was paid for **Reonna Slagell**, who participated in a Workshop on Recombinant DNA Techniques here at OSU. **Bruce Smith** used his support for field trips to the McCurtain County Wilderness Area, where he is surveying plant communities. Finally, **Gregg Robinson** purchased chemicals for her study of potentially toxic secondary compounds in *Albizzia* and *Asclepias*.

Alumni notes and news

Susann Fry Biddulph (M.S. in 1939 with Robert Stratton) completed her Ph.D. in 1944 with Marion Ownbey at Washington State. A plant anatomist by training, she was "reformed" upon her marriage to plant physiologist Orlin Biddulph. Working together and separately, they were recognized for many years as leaders in research on long-distance transport of mineral nutrients. She retired from Washington State in 1984 and now lives in Mesa, Ariz. where it is much warmer.

Myron C. Ledbetter (B.A. in Botany in 1948) ranks as one of the department's most distinguished alumni. A native of Ardmore, he received his Ph.D. at Columbia in 1958. During the next three decades he pioneered many techniques in transmission and scanning electron microscopy of plant tissue. In 1970 he and Keith Porter wrote the classic *Introduction to the Fine Structure of Plant Cells*. Dr. Ledbetter served as President of the Electron Microscopy Society of America in 1978 and President of the Torrey Botanical Club in 1984-85. He retired from Brookhaven National Laboratory in 1989.

Digamber S. Borgaonkar (Ph.D. with J.M.J. de Wet in 1963) has been Director of the Cytogenetics Laboratory at the Medical Center of Delaware in Newark since 1980. He is the author of the 6th and 7th editions of *Chromosomal Variations in Man*. His wife Manda is a physical therapist; son Raj works in a bank and daughter Sonya is in her final year of Law School. Digamber reports that he has visited human cytogenetics laboratories in Europe, Asia, and even Madagascar.

Susan C. Barber (M.S. in 1975 with Ron Tyrl) completed her Ph.D. in 1980 at OU, where she wrote a monograph of the genus *Verbena*. She later taught at Sam Houston State in Huntsville, Texas, before returning to Oklahoma City University. Susan is currently Professor & Head of the Department of Biology at OCU. She does research on pollination ecology, and is also an editor on the *Flora of Oklahoma* project.

Beth Hood (M.S. in 1980 with Jim Ownby) completed her Ph.D. under Mary Dell Chilton at Washington University in St. Louis in 1985. She remained there on a post-doc with the late Joe Varner from 1985-88. She is currently Research Manager of Protein Products with Pioneer Hi-bred Intl. Inc., in Johnston Iowa. Her work deals with transforming

plants with genes for high-value proteins. Beth's husband **Kendall** (M.S. in Natural Sciences at OSU in 1982) teaches high school chemistry. Older son Kyle, who had a job detasseling corn for Pioneer last summer, is 15, while Nathan is 9.

Bao-gan Wu (M.S. in 1983, Ph.D. in 1986 with Glenn Todd) is Professor in the Department of Biology at Jinan University, Guangzhou, People's Republic of China. He has continued his work on algal physiology, especially photosynthetic fluorescence in algae. One of the students in his Plant Molecular Biology course recently was his daughter Jia-qian, who graduated in 1995. She wants to follow in her father's footsteps; next year she plans to begin work on her M.S. degree in the Botany Department here at OSU.

Marty Stone (M.S. in 1990 with Jim McPherson) completed his Ph.D. at Texas A&M in 1994. He is now a Senior Research Scientist at Sandoz Agro Inc. in Gilroy, Calif. His work involves whole plant assays to screen herbicide candidates; he also studies the mode of action of new herbicides. Marty and his wife, **Joleen Nieman-Stone** (B.S. in Botany at OSU, 1988) have two small Stones, Laramie, who is 3 1/2, and Savannah, who just turned 1.

OSU, Botany, and the information superhighway

Do you enjoy surfing the Internet? Try OSU's World Wide Web site at <http://www.okstate.edu>. This site provides information on events, enrollment, and course offerings at OSU. Also profiled are the individual departments, including Botany. Maintained and updated by Mike Palmer, our Gopher server describes the Botany Department, its faculty, and graduate students. Students in Mike's

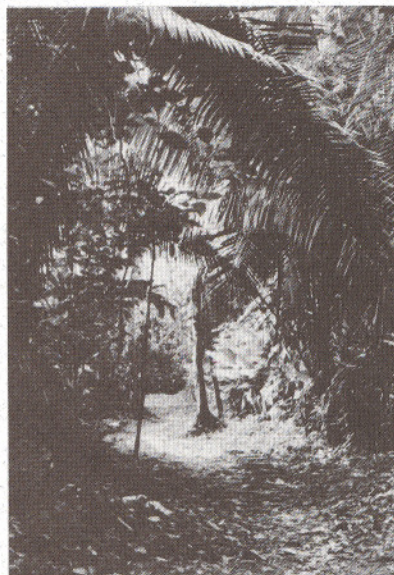
ecology courses can also find class notes and outlines here.

In a recent development, the Botany Department at OSU has joined with the Department of Botany and Microbiology at the University of Oklahoma to offer reciprocal courses by compressed video. Under this plan, Mike Palmer is teaching his Advanced Ecology course this semester simultaneously to students at the OSU campus and to students at OU. The

students at OU can ask questions and join in discussions through complete audio and video interaction. In Spring of 1996, Linda Wallace at OU will reciprocate with a course on Physiological Ecology that our graduate students can take for credit toward their OSU degree. In years to come we expect that many courses will be offered this way to take full advantage of the research and teaching expertise available in this region.

Edu-Venture in Belize

Remember those great botany field trips? We've scheduled the mother of all field trips next May, a 16-day excursion to Belize, Central America. Led by naturalist Kevin Loughlin of Wildside Enterprises, *Edu-Venture in Belize* will devote time to Mayan archeology, terrestrial ecosystems (rainforest and savanna) and coral reef biology. The trip is open to everyone. Student participants will have the option of receiving up to 3 hours credit toward their college degree by enrolling in Botany 4400. Scheduled for May 27- June 11, 1996, the trip will cost \$1995 including round-trip airfare from Houston, Texas or Miami, Fla. If this sounds like a great way to start your summer, contact Walter Shaw, Arts & Sciences Extension, Oklahoma State University, Stillwater, OK, 74078; phone (405) 744-8379. Jim Ownby, Head of the Botany Department, visited Belize last March and has been planning the trip with Kevin Loughlin. He can also provide details at (405) 744-5559.



OSU Launches Drive to Raise \$125 Million



Oklahoma State University launched its first-ever comprehensive fundraising campaign in August, 1995. The goal of the campaign is to raise \$125 million by the year 2000. Its theme is "Bringing Dreams to Life," and the top priority is to raise \$35 million for student scholarships, services and programs. Speaking to reporters at the kickoff meeting,

President James Halligan emphasized that the campaign will focus on students. "This is not a bricks and mortar campaign," he said. "This is about giving students the opportunities, facilities, equipment and education they need to prepare for the future." Funds will also support endowed faculty positions, classrooms and laboratories, as well as annual support of academic programs.

The OSU faculty is supporting this important drive through the Family Fund, with the goal of contributions from 100% of the faculty

and staff. We invite alumni and friends of OSU to help in this campaign that means so much to our future. You may earmark your donations specifically for the Department of Botany (Account #223840) or the McPherson Memorial Fund (Account #225090). Please send all contributions to the OSU Foundation, H100 Student Union, Oklahoma State University, Stillwater, OK 74078.

Alumni information requested

The department is currently updating information from alumni. Please take a moment to complete the questionnaire and return it to the address below.

_____ *name*

_____ *home address*

_____ *home phone*

_____ *current professional position*

_____ *business address*

_____ *business phone*

_____ *achievements and awards*

_____ *additional education/degrees*

_____ *areas of distinction*

Oklahoma State University
Department of Botany
104 Life Sciences East
Stillwater, OK 74078

Address Correction Requested

Non-profit
Organization
US Postage
PAID
Stillwater, OK
74078
Permit #191