



Legacies Incomplete and Indelible

In the last issue, I mentioned that events were happening fast around our department. This past spring semester things continued to change — but in a very difficult way for us. We lost an undergraduate student, a new graduate student, and two long-time faculty members who were retired, yet remained an active part of the department until their passing. Early in the semester, Dian Zou, a first-year graduate student, was killed in a traffic accident in Arizona. Late in the semester, one of our undergraduates, Jessica Meyer, passed away. Both of these young people had yet to begin their chosen careers, which is both sad and tragic.

In March of this year, Dr. John Skvarla passed away suddenly after a brief illness, and in May, Dr. Leonard Beevers died while recuperating from a bout with pneumonia. These much beloved and respected faculty members shared a background in the plant sciences: John was a world-renowned palynologist — an expert in the structure of pollen grains. John came to work every day, even after his retirement, and continued to conduct collaborative research with colleagues around the world up until his death. Leonard was recognized as a world expert on the nitrogen metabolism of plants and was elected president of the large scientific society, the American Society of Plant Physiology. Leonard also had served as the previous chair of the department (then the Department of Botany and Microbiology) for 19 years, from 1981-2000, overseeing a productive and dynamic unit and serving as a mentor to many faculty, including me.

Both John and Leonard were George Lynn Cross Research Professors, which is a select group of faculty who have

excelled in research in their particular discipline and who are recognized by their peers as a leader in their field. Thus, the department, and plant biology, lost two excellent scientists within the same year; however, they both left their own impressive legacies. Members of our department were in constant contact with both of these retired faculty, and so we had many years with them as colleagues and friends. (More about both John and Leonard may be found on our Facebook page — a tribute has already been posted about John, and one for Leonard is forthcoming.)

So, this has been a tough semester for all of us in the department: we lost two young people at the beginning of their careers, and two dear friends with long, accomplished, and well recognized histories within the plant sciences. In all cases, we extend our sincere condolences to their families — we are sorry for your loss, and for ours.

— Gordon Uno, chair



MEET A NEW FACULTY MEMBER: LARA SOUZA

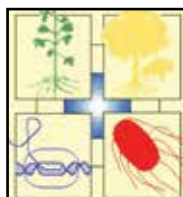
As a journalism major at Appalachian State University in North Carolina, I was required to take an introductory biology class as an elective. While enrolled in this biology class, I became extremely fascinated by the ecological concepts I was presented and, by the end of the semester, I declared biology as my minor. My goal was to become a science writer, but during my last semester in college I took an Environmental Studies course and volunteered for a field trip to the Great Smoky Mountains National Park, where I discovered my passion for plant ecology. The professor leading the research project in GRSMNP asked if I would be interested in joining his lab for a master's degree in biology, and I did so without hesitation.

As a master's student, I conducted my research project at GRSMNP, documenting both ozone pollution and the patterns of effects of the pollution on several native plant species. My research project was part of a nationwide ozone monitoring network aiming at documenting and better understanding patterns of ozone pollution in high elevations. Recording ozone induced plant damage allowed me to identify key plant bio-indicators that could be used to monitor ozone in remote locations within GRSMNP. I was able to train volunteers and mentor undergraduate students during my master's thesis work, allowing me to expose the broader community to impacts of ozone pollution in natural ecosystems. It also made me gratified to make scientific discoveries, and realize that I wanted an academic career as a university professor. I then decided to pursue a Ph.D. at the University of Tennessee, working on global change projects with a focus on the consequences of climatic change and biological invasions structuring plant communities. As a post-doctoral researcher, I



continued addressing key research questions focusing on the role biodiversity influenced climate change effects on plant community dynamics and ecosystem properties such as carbon cycling. Moving to Oklahoma for a joint appointment as an assistant professor with the Oklahoma Biological Survey and the Department of Microbiology and Plant Biology has been an exciting opportunity for my family and me. As a plant ecologist, I have focused my research program on grasslands for over a decade. Oklahoma's mixed grass prairies have been important testbeds of ecological theory on plant community dynamics and ecosystem function. As outdoor enthusiasts, my family and I have been taking advantage of the beautiful landscapes Oklahoma has to offer with two of our favorite spots being the Wichita Mountains Wildlife Refuge and Beavers Bend State Park. I look forward to our future here.

— Lara Souza



Department of Microbiology and Plant Biology
University of Oklahoma
770 Van Vleet Oval
Norman, OK 73019-0245
(405) 325-4321
<http://mpbio.ou.edu>

NEWS FROM THE DEPARTMENT

Yiqi Luo's Research in the Journal, *Science*

Faster Decomposition Under Increased Atmospheric CO₂ Limits Soil Carbon Storage

Yiqi Luo, in collaboration with a research team from Northern Arizona University, has discovered rising atmospheric CO₂ could stimulate microbial activities, leading to higher rates of carbon loss from the soil.

Carbon dioxide (CO₂) is released to the atmosphere when humans burn oil, coal and gasoline, and is the major cause of global warming. Soils can store carbon (C), helping counteract rising carbon dioxide. Carbon accumulates in soil through many years of plant photosynthesis, and is lost from soil as microscopic organisms, mostly bacteria and fungi, decompose soil C, converting it back to CO₂ and releasing it to the atmosphere. The balance of these two processes and the future of the soil C sink is uncertain. How much will soil organic C persist, and how much will soil microorganisms convert back to CO₂, returning it to the atmosphere? This is a major uncertainty about the future C sink on land.

This research compared data gathered from experiments around the world with models of the soil C cycle to test how carbon release from soil by microorganisms responds to rising CO₂. The main finding was surprising: increased plant growth caused by rising atmospheric CO₂ was associated with higher rates of CO₂ release from soil. On balance, the findings indicate that rising CO₂ will not enhance C storage in soil as much as we previously thought or global models predict. These results indicate that soil C may not be as stable as previously thought, and that soil microorganisms exert more direct control on long-term C accumulation than currently represented in global models.

Contact information: Yiqi Luo: ylo@ou.edu.

Susan Schroeder Receives Mentorship Award

Susan Schroeder is the 2014 recipient of the Nancy L. Mergler Faculty Mentor Award for Undergraduate Research. The award is sponsored by the Office of the Vice President for Research and the Office of Undergraduate Research and is given annually since 2013. The award recognizes faculty efforts and commitment to nurturing undergraduates' growth as scholars. Student nominations for the award are solicited at Undergraduate Research Day and among undergraduates completing senior theses in the Honors College. Schroeder has enjoyed mentoring more than 30 undergraduate scholars in her laboratory, 12 of whom have completed senior theses and 15 of whom have participated in Undergraduate Research Day at OU.

Eight undergraduate scholars have coauthored publications in professional journals with Schroeder, and four more are currently preparing their research results for publication. The undergraduate scholars in Schroeder's laboratory pursue diverse studies in at least 12 different science and engineering majors and work together to solve interdisciplinary problems in viral RNA structure and function. The undergraduate research in her lab is supported by a National Science Foundation CAREER Award and the Oklahoma Center for the Advancement of Science and Technology.

Schroeder and the undergraduate scholars in her lab are active participants in the many opportunities for undergraduate research at OU, including the First Year Research Experience program, Undergraduate Research Opportunities, Undergraduate Research Day at the Capitol, the McNair Undergraduate Scholars program, and the Honors Research Assistant Program.

Alumni Updates

We welcome updates from our alumni! Please send your information to Gordon Uno (guno@ou.edu).

From our alumni:

Christina Thompson, master's degree in microbiology in 1973, is a retired biological safety professional who still consults worldwide, including work with the American Biological Safety Association.

John Senko, who received his Ph.D. in microbiology in 2004, is now an assistant professor at the University of Akron.

Earl Stephenson received his bachelor's degree in microbiology in 1987, and currently is medical director of his own private plastic surgery practice in the metropolitan Atlanta area.

Department of Microbiology and Plant Biology Scholarship Award Winners, 2014

George L. and Cleo S. Cross Endowed Undergraduate Scholarship:

Brennan Spencer, Erin Weese, and Carolyn Le



George L. and Cleo S. Cross Endowed Graduate Scholarship:

Tao Xu, Zhenzhen Qiao, and Kangmei Zhao

Harrison L. Chance Scholarship:

Lindsey O'Neal

Lois Pfiester Scholarship for Women in Science:

Chamindika Siriwardana

Paul G. Risser Scholarship:

Crystal "Niki" Johnson

Margaret Root McKinley Scholarship:

Marrett Hild

Additionally, Alyssa Hill was selected as an **NSF Graduate Fellow**. Congratulations to these outstanding students!



Visit the site and become a fan in support of the department. It is the fastest way to find out what we are doing these days. We hope to bring our alumni, faculty, and current and future students together. Please feel free to share your experiences and photos from your time in the department on our Facebook page. These items also may be mailed to the department for scanning and posting, or emailed to ksavage.ashlock@ou.edu.

Let's Go Green!

For those of you receiving a paper copy of *The Legacy*...to receive this newsletter electronically, or to have your name removed from our mailing list, please contact Gordon Uno at guno@ou.edu.

Thanks for helping us reduce our printing and mailing costs and helping the environment!

You can also find out what's happening in our department on a more frequent basis by checking our website: <http://mpbio.ou.edu/>.

A new outlet for undergraduate research in the biological sciences is the OU Undergraduate Biological Sciences Journal which is seeking articles for its inaugural issue. For more information, please visit www.ou.edu/ouubsj.

CENTENNIAL PERPETUAL ENDOWMENT FUND

Your gift will help preserve the future of Botany and Microbiology and provide important resources for students and faculty.

In 2007, we were able to establish an endowment fund that allows us to support the teaching and research activities of our students and faculty.

We use the interest generated from these funds to:

- repair and purchase equipment for our teaching laboratories.
- support the research and travel to meetings of our undergraduate and graduate students
- purchase materials and supplies for our greenhouse and our Media Prep Center

We have 1,001 needs each year, and for each \$20 contribution, we will receive about \$1 per year perpetually to be used to support our work.

You can help us celebrate 100+ years of science and science education in the Department of Microbiology and Plant Biology with your tax-deductible contribution to the University of Oklahoma Foundation.

Your gift will help preserve the future of Microbiology and Plant Biology and provide important resources for students and faculty.

Please cut out or copy the following form, or contact Gordon Uno at guno@ou.edu or Cassie Gilman at cgilman@ou.edu, in the Development Office of the College of Arts and Sciences. Thank you for your support!

FOR INFORMATION ABOUT MAKING YOUR GIFT, CONTACT:

Cassie Gilman
Executive Director of Advancement
(405) 325-3724
cgilman@ou.edu

PLEASE RETURN TO:

University of Oklahoma
Office of Development
339 West Boyd
Norman, OK 73019-5141

I am enclosing a contribution in the amount of

\$1,000 _____ \$500 _____ \$100 _____ Other \$ _____

I would like to contribute a three-year pledge totaling

\$ _____ . My first gift of \$ _____

is enclosed, and please send me an annual pledge reminder beginning _____ .

METHOD OF PAYMENT

Check enclosed \$ _____
(Payable to OU Foundation)

Please charge my credit card \$ _____

AmEx Discover MasterCard Visa

Name on Card _____

Account Number _____

Expiration Date _____

Signature _____

Date _____

MY INFORMATION

Please complete your contact information below
(please print). Thank you.

Name: _____

Email: _____

Home Phone: _____

Business Phone: _____

Address: _____

City: _____

State: _____ ZIP: _____

Office Use Only \$ _____ 42147 950 C

My company matches my giving, and I will apply for matching funds.

I would like to discuss using a portion of my estate to benefit the Department of Microbiology and Plant Biology at the University of Oklahoma.

Department of Microbiology and Plant Biology
University of Oklahoma
770 Van Vleet Oval, Norman 73019-0245
(405) 325-4321
<http://mpbio.ou.edu>

Non-Profit Org.
US Postage
PAID
University of Oklahoma



The University of Oklahoma in compliance with all applicable federal and state laws and regulations does not discriminate on the basis of race, color, national origin, sexual orientation, genetic information, sex, age, religion, disability, political beliefs, 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, printed by the Department of Microbiology and Plant Biology, is issued by the University of Oklahoma. 1,000 copies have been prepared and distributed at no cost to the taxpayers of the State of Oklahoma. (#89639, 07/14)