



Department of Botany, OSU

Bluestem

Summer 2010

Botany Students Rake in Awards and Honors!

2009-10 proved to be an outstanding year for our undergraduate students who won both university and national awards and scholarships. Our department had several Niblack Scholars, a Wentz Scholar, and various departmental and college award winners. The highlights of the year were the announcements that Lydia Meador was named a Goldwater Scholar and Alesia Hallmark was named a Udall Scholar. Both young ladies were honored at the OSU Scholar Development Student Recognition reception on April 30. We are so proud of our students and wish them all the best in their academic and professional careers!

Lydia Meador of Broken Arrow OK, a triple major in Botany, Microbiology & Molecular Genetics, and Biochemistry & Molecular Biology, has been named a **Barry M. Goldwater Scholar**. She is OSU's only Goldwater Scholar this year and OSU's 18th student ever to be selected.



Dr. Janette Steets and Lydia Meador at the OSU Scholar Development Student Recognition reception

Created to honor Arizona Senator Barry Goldwater, this scholarship is the most prestigious and competitive scholarship for undergraduate sophomores and juniors who plan to pursue careers in math, natural sciences, or engineering. The \$7500 scholarship covers the cost of tuition, fees, books, and room and board.

Lydia has worked with her mentor Janette Steets, Assistant Professor of Botany, for several years on various research projects. Janette agrees that Lydia is highly deserving of this honor. "She is an exceptionally bright, ambitious, and dedicated student. In addition to her outstanding academic achievements, she excels in research and will go far in the sciences."

Other awards and honors Lydia has received include OSU Freshman Scholar, Wentz Scholar, Niblack Scholar, Botany Junior Scholarship, Outstanding A&S Junior, and Outstanding Botany Senior. She has presented posters at various symposia and conferences and even conducted research at North Carolina State University during the summer of 2009. This next semester, Lydia will be working on her Senior Honors Thesis with Dr. Steets.

While excelling in academics and research, Lydia makes time to participate in campus activities. She is an active member of Golden Key International Honor Society, having served as vice-president and chairman of the annual membership drive, as well as being in charge of the induction ceremony. She also holds offices in the Campus Girl Scouts and Stout Residential Life.

Lydia will graduate in May 2011, the first in her immediate family to do so. She will then pursue her career goal to earn a doctorate in plant genetic engineering and biotechnology. Lydia would like to conduct research in genetic engineering of antibiotics, edible vaccines, and other medicinal compounds.

[This information taken from the Nov. 2009 A&S Student Spotlight and the 13 April 2010 OSU press release.]

Alesia Hallmark of Chandler OK, a double major in Zoology and Botany, has been named a **Morris K. Udall Scholar**, one of four OSU students selected for this prestigious award.

The scholarship was created to honor Arizona-Congressman Morris K. Udall and provides \$5000 for educational expenses to outstanding sophomores and juniors who are studying the environment and related fields, or are Native Americans or Alaska Natives in fields related to health care or tribal public policy.

Alesia has worked on research projects with both Botany and Zoology faculty, including her mentor of several years Karen McBee, Professor of Zoology. This coming year she will work on a Wentz Scholar project involving Ron Tyrl, Emeritus Professor of Botany, and on her Senior Honors Thesis with Mark Fishbein, Assistant Professor of Botany.

Other awards and honors Alesia has received include Freshman Research Scholar, NSF Research Experience for Undergraduates, and Niblack Scholar. She has presented her research at various symposia and conferences, including the Southwest Association of Naturalists.

In her free time, Alesia is involved in Sigma Xi, OSU Botanical Society, Tri-Beta Biological Honor Society, Golden Key, and the SGA Sustainability and Recycling committees.

Alesia plans to pursue a career in conservation research to help ensure the protection of organisms and their environment. She wants to work in a high risk area like the tropics.



Dr. Karen McBee and Alesia Hallmark at the OSU Scholar Development Student Recognition reception

Niblack Research Scholars

Three Botany majors were named 2009-10 Niblack Research Scholars: Lydia Meador, Wyatt Sharber, and Alesia Hallmark. Funded by OSU alumnus Dr. John Niblack, each student received an \$8000 scholarship and the opportunity to conduct scientific research.

Lydia Meador (Broken Arrow, OK), Botany/Microbiology/Biochemistry major, worked with Janette Steets, Assistant Professor of Botany, and graduate student Brooke Bonner, to study the combined affects of herbivory and drought stress in the perennial herb *Arabidopsis lyrata*.

Wyatt Sharber (Pauls Valley, OK), Botany/Zoology major, worked with Mike Palmer, Regents Professor of Botany, and graduate student Kelly DeRennaux, to investigate the presence of annual growth rings in the roots of herbaceous prairie perennials.

Alesia Hallmark (Chandler, OK), Zoology/Botany major, worked with Jennifer Grindstaff, Assistant Professor of Zoology, to look at territoriality and habitat preference in Eastern Bluebirds (*Sialia sialis*).



Alesia Hallmark (first row, first from left); Lydia Meador (first row, second from right); Wyatt Sharber (second row, second from left)



Jake Long, Botany master's student, has been awarded a scholarship by the Native American Faculty and Staff Association. Jake is a member of the Miami Tribe of Oklahoma and was previously employed as their Environmental Education Coordinator. While here at OSU, he plans to pursue his interest in the corn grown by his ancestors and research the phylogeny and population/conservation genetics of this unique, Miami landrace of maize (*Zea mays* ssp. *mays*). The seedstock of this corn is believed to originate from a few ears obtained from tribal elders that predate a 50-year time period when Miami corn was not cultivated.

Molly Parkhurst, 2010 Outstanding Botany Senior

Molly is a native of Tulsa, Oklahoma and graduated from Tulsa Edison High School. After several years of being in the workplace, she decided to pursue a college degree. In Spring 2010, Molly received her BS in Botany with a minor in Microbiology and will receive a second degree this summer in Biology. She will be entering the Botany master's program this fall at OSU where she will study with Janette Steets and Yinghua Huang. Her ultimate plans are to pursue a PhD in Plant Biology and to seek employment with the USDA.



Molly was an OK-LSAMP scholar and conducted several independent research projects with Ming Yang, Yinghua Huang, Andrew Doust, and Janette Steets. As an Honors student, Molly earned both a General Honors Award and a Departmental Honors Award. She completed her Senior Honors Thesis, "Spatial Genetic Structure in *Dichanthelium oligosanthes*," working under the guidance of Janette Steets and Andrew Doust. Molly presented her research this past year at the Oklahoma Academy of Science Technical Meeting and the OSU Research Symposium.

Molly is a Golden Key and Phi Theta Kappa Honor Society member. She is also active with the OSU Botanical Society, helping with various activities and events.

15th Annual Research Day at the Capitol

Lydia Meador, Botany/Microbiology student from Broken Arrow, presented her research on drought adaptations to judges at Research Day at the Capitol recently. Meador was selected to represent Oklahoma State University at the annual event. Twenty one undergraduate students representing 15 Oklahoma colleges and universities presented competitive research posters to the State Legislature and the public during this annual event sponsored by Oklahoma EPSCoR, the Oklahoma State Regents for Higher Education and the National Science Foundation. This event is designed to bring about awareness of the outstanding research taking place in Oklahoma's colleges and universities.



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McPherson Fund Awards

The Botany Department awarded McPherson Funds this spring to three graduate students. These awards are given each semester in honor of the late James K. McPherson, an ecology professor from 1968 until his retirement in 1992, and are funded through the OSU Foundation.

Reed Couch received funds for his master's research on the interactions between plants and their belowground mutualistic fungi (mycorrhizae) and their influence on plant-pollinator interactions.

Kelly DeRennaux attended the Ecological Society of America meeting in Pittsburgh, August 1-6, where she conducted a workshop with Dr. Janette Steets, "Careers in Ecology: Advice from Professionals in the Field."

Channing Richardson attended the ESA meeting in Pittsburgh, where he presented a poster, "The Effects of Seasonal Mowing on Prairie Bryophytes."

Congrats, Graduates! 2009-2010

BS degrees

Katie Miller
Molly Parkhurst

MS degrees

Gard, Mary
[advisor Ron Tyrll]
Taxonomic and Ethnobotanical
Investigations of the Vascular
Flora of Oklahoma.

Lowry, Will
[advisor Ron Tyrll]
Floristic Investigations of the
Ozark Plateau National Wildlife
Refuge and the Genus *Quercus*
in Oklahoma.

Ray, Karen
[advisor Bill Henley]
Tamarix Species (Salt Cedar)
Stem Density Along Fluvial and
Salinity Gradients on the Salt
Plains National Wildlife Refuge.

OSU BOTANICAL SOCIETY

OSUBS started the fall semester on an environmental note by supplying recycle bins for mixed paper, plastic bottles, and aluminum cans. A very successful venture!

In November, the students took a trip to the Crystal Bridge and the Myriad Gardens in downtown Oklahoma City. They went behind-the-scenes to see the water cycling system and growth rooms and to visit with other excited botanists!

Another interesting field trip was the tour of the park plots maintained by the City of Stillwater. OSUBS joined the Cross Timbers Chapter of ONPS to visit the plots and make plans to refurbish them as natural wildflower areas. Other events included co-sponsoring Judy Jordan's seminar and hosting a booth at OSU's Earth Fest celebration.

New T-shirts were designed this year: a prairie orange shirt with a black Indiangrass logo and a prairie sage shirt with a white *Echinacea* logo. Special thanks to Amy Richardson for creating the designs.

New officers for 2010-11

President – Mike Malahy
Vice President – Alesia Hallmark
Secretary – Wyatt Sharber
Treasurer – Brooke Bonner
Historian – Amy Richardson
Webmaster – Tricia Bolene

Website

www.orgs.okstate.edu/botanical/index.htm

2010 OSUBS Photo Contest Winners

Plants and Animals

1st Place, Mark Fishbein
2nd Place, Shelley Mitchell
3rd Place, Alesia Hallmark

Black and White

1st Place, Heinz Hall
2nd Place, Alesia Hallmark
3rd Place, Amy Banister

Green

1st Place, Mark Fishbein
2nd Place, Kate Halpin
3rd Place, Alesia Hallmark

Flowers

1st Place, Heinz Hall
2nd Place, Mark Fishbein
3rd Place, Alesia Hallmark



Botany undergrads Molly Parkhurst and Tricia Bolene work the OSUBS booth at the OSU Activity Fair.

National Science Foundation Research Experience for Undergraduates

Kevin Kilhoffer, Biology senior, is working with Mark Fishbein on his NSF grant “Resolving the Phylogeny of North American Milkweeds through the Application of Massively Parallel Sequencing Technology.” Kevin will be performing DNA extractions for “next-generation” sequencing to be done at Oregon State.

Molly Parkhurst, Botany graduate, is working with Janette Steets on an NSF-EPSCoR project “Phenotypic and Genetic Diversity in Sorghum, a Dedicated Bioenergy Crop.” Molly will examine the phenotypic and genetic diversity in a collection of sorghum germplasm.

Michael Carson, Biology major from Hastings College in Nebraska, is working with Mike Palmer on his NSF-EPSCoR project “Ecological Forecasting, Bioenergy Harvest, and Biodiversity in Oklahoma.” Michael will be involved in the ‘Floras of North America’ project to gather floristic data from the literature and from the field; he will also work on the native biofuels project, studying the potential effects of low-input, high-diversity systems on biodiversity.

Graduate Student Presentations and Publications



Matthew Allen, doctoral student and OSU Distinguished Graduate Fellow, has co-authored *Lessons from the Prairie: Research at The Nature Conservancy's Tallgrass Prairie Preserve*. Since its establishment in 1989, The Nature Conservancy's Tallgrass Prairie Preserve (TGPP) has been an important refuge for the conservation of tallgrass prairie species and an important resource for ecological research in Oklahoma. This book highlights the history of the preserve, its facilities, and its management and also gives an overview of all of the scientific projects that have occurred at the Preserve, which include bison, grassland birds, plant communities, prescribed fire, and the remediation of brine and oil spills. This book also includes a fully annotated bibliography of all publications resulting from research at the TGPP and should serve as a helpful resource to persons interested in the history, science, and ecology of the TGPP.

Coauthors include Ulrich Melcher of the OSU Department of Biochemistry & Molecular Biology, Bob Hamilton of The Nature Conservancy, and Michael Palmer of the OSU Department of Botany. The development of the book was supported in part by NSF, OSU College of Arts and Sciences, and OSU Vice President for Research and Technology Transfer, and was published by the Oklahoma Academy of Sciences. An electronic version is available at the OSU library or at http://ecology.okstate.edu/Tgp_booklet_web.pdf.

Brooke Bonner, MS student

Salinity affects germination in *Distichlis spicata* and *Sporobolus airoides* – OAS Fall Technical Meeting.

Kate Halpin, MS student

A phylogeny of Agavaceae subfamily Chlorogaloideae with a focus on species delimitation in *Hastingsia*: Insights from chloroplast DNA. Oklahoma Academy of Science Fall Technical Meeting.

A chloroplast phylogeny of Agavaceae subfamily Chlorogaloideae with a focus on species delimitation in *Hastingsia*. California Botanical Society 22nd Annual Graduate Student Symposium, San Jose, CA.

Fishbein, M., S.R. Kephart, M. Wilder, K.M. Halpin, and S.L. Datwyler. 2010. Phylogeny of *Camassia* (Agavaceae) inferred from plastid *rp116* intron and *trnD-trnY-trnE-trnT* intergenic spacer DNA sequences: Implication for species delimitation. *Systematic Botany* 35:77-85.

Ajay Jha, PhD student

Wang, Y., A.K. Jha, R. Chen, J. Doonan, and M. Yang. Genomic dynamics in a cyclin mutant: Limited progressive duplications and a rapid decay. 20th International Conference on Arabidopsis Research, Edinburgh Scotland.

Wang, Y., A.K. Jha, R.Chen, J. Doonan, and M. Yang. 2010. Polyploidy-associated genomic instability in *Arabidopsis thaliana*. *Genesis* (available online).

Mike Malahy, MS student

Malahy, M. and Doust, A. Is vegetative architecture phylogenetically informative across the grasses? BSA Botany and Mycology Conference 2009, Snowbird, Utah.

Somashekhar Punnuri, PhD student

Molecular mapping of greenbug resistance in Sorghum. SICNA Great Plains Sorghum Conference Aug 2009 and OSU BMB Graduate Symposium Sept. 2009.

Vaskar Thapa, PhD student

Vijay Muthukumar, Ulrich Melcher, Marlee Pierce, Graham B. Wiley, Bruce A. Roe, Michael W. Palmer, Vaskar Thapa, Akhtar Ali and Tao Ding. 2009. Non-cultivated plants of the Tallgrass Prairie Preserve of northeastern Oklahoma frequently contain virus-like sequences in particulate fractions. *Virus Research* 141:169-173.

Welcome, New Graduate Students!

We welcome five new graduate students to our department this coming fall semester.

Lupita Borja, MS [advisor Andrew Doust]

Leticia Dadalt, PhD [advisor Mike Palmer]

Wendy "AJ" Harris, Ph.D. [advisor Linda Watson]

Molly Parkhurst, MS [advisors Yinghua Huang and Janette Steets]

Angela Rein, MS [advisor Mark Fishbein]

The Botany Department will have 18 graduate students in total: 7 pursuing a PhD degree and 11 pursuing an MS.

Faculty News

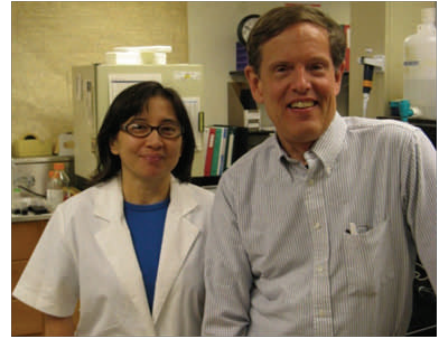


Charmaine Naidoo, former postdoc in our department, is working with **Gerald Schoenknecht** this summer. Her research proposal, *Cell-free protein expressions*, was funded by the Oklahoma EPSCoR Research Opportunity Award program. Charmaine is a faculty member in the Biology Department at Langston University.

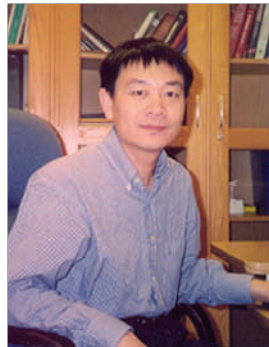


Bill Henley, Professor, was awarded a Big 12 Faculty Exchange Fellowship for sabbatical leave last summer and fall at the University of Colorado. He explored new collaborative research opportunities in algal biofuels with CU colleagues in the Dept. of Ecology & Evolutionary Biology, as well as with the Colorado School of Mines and the DOE National Renewable Energy Lab. Bill's research focuses on the hypothesis that mass algal cultures are likely to be more stable and productive over time if composed of complementary mixtures of multiple algae rather than monocultures, and that it should be possible to maintain algae with near zero growth but with high productivity.

David Meinke, Regents Professor, was awarded an OCAST grant to study the reproductive significance of a large number of essential genes that ultimately contribute to seed development and plant productivity. In this project, "Molecular Basis of Reproductive Lethality in *Arabidopsis*," Dave and his postdoc, **Rose Muralla**, will identify factors that determine whether the loss of a basic cellular function in a model plant results in embryo or gametophyte lethality. This work will provide a foundation for understanding the reproductive significance of large numbers of essential genes, which underlie the cellular processes that contribute to both seed development and plant productivity. [OCAST press release Jan. 12, 2010]



Mark Fishbein, Assistant Professor, was awarded NSF funding to study the milkweed genome and learn how the plants coevolve with pests such as aphids and pollinators such as butterflies. "Resolving the Phylogeny of North American Milkweeds through the Application of Massively Parallel Sequencing Technology" is a collaborative study between OSU and Oregon State. Fishbein and four OSU students will collect and process samples from across the country. Scientists at Oregon State will obtain the genomic DNA sequences using next-generation sequencing technology. Historically, milkweeds adapted with potent defensive mechanisms against its predators. More recently, the plant switched strategies and has reduced its preventative measures, allowing caterpillars, beetles, and aphids to devour the plants. The milkweed compensated with an improved ability to regrow from below ground parts. [OSU press release Dec 3, 2009]



Ming Yang, Associate Professor, is participating in a 3-year grant from the Institute of Botany, Chinese Academy of Sciences. He travels to China each summer and does collaborative research on cell growth and cell cycle regulation in plants

Faculty News (continued)

Mike Palmer, Regents Professor, is joining scientists from the University of Oklahoma and the University of Kansas on a collaborative project, “A cyberCommons for Ecological Forecasting,” funded by the NSF-EPSCoR program. The scientists are gathering data and developing models and analytical tools in order to predict how ecosystems will change in the future. The information will be placed on a website so that researchers and the public can interact with the data to ask questions about diseases, invasive species, biodiversity, and global warming. Palmer’s part of the project is to create a database plant checklist and to model what will happen to plants under changing conditions. This endeavor is a logical extension of Mike’s 20-year “Florals of North America” project, in which he has extracted data on floras in books, dissertations, articles, and government documents published from the late 1700s to the present. [OSU press release Oct. 27, 2009]



IN MEMORIAM



George A. Gries was born on May 2, 1917, in Cambridge, Massachusetts, to John M. and Ethel (Goff) Gries and spent most of his childhood on the family farm in Ohio. He earned an AB in Botany and Chemistry in 1938 from Miami University in Oxford, Ohio, an MS in Plant Physiology and Pathology in 1940 from Kansas State, and a PhD in Plant Physiology and Pathology in 1942 from the University of Wisconsin.

Dr. Gries began his career as Assistant Plant Pathologist at the Connecticut Agricultural Experiment Station. From 1945-1960, he was Associate Professor and Professor of Botany and Plant Physiology at Purdue University. He also taught botany while on sabbatical leave in 1957 at the University of Wales in Swansea. In 1960, Dr. Gries moved to Tucson, where he served as Professor and Head of the Department of Plant Pathology at the University of Arizona. He also served as acting Head of the Department of Botany and the Head of the Department of Biological Sciences.

In 1968, George Gries was named Dean of the College of Arts and Sciences and Professor of Botany at Oklahoma State University. During his tenure at OSU, Dean Gries emphasized undergraduate education by involving students in college committees, establishing the student evaluation of courses, and strengthening the university-wide program of general education. Another priority for Dean Gries was the reorganization in the 1970s of the various college departments into nine major schools or divisions.

During his career, Dr. Gries served at the national level on the Commission of Arts and Sciences, the Commission on Undergraduate Education in Biological Sciences, and the Commission on Education in Agriculture and Natural Resources. He was active in the American Phytopathological Society, American Association for the Advancement of Science, American Society of Plant Physiologists, Botanical Society of America, and the Oklahoma Academy of Science. He also served as a consultant and evaluator for the North Central Association of Colleges and Schools.

After 12 years, Dr. Gries stepped down as dean and spent his last years at OSU as Professor of Botany. During this time, he developed and taught a general plant biology course. He retired in 1982, and he and his wife Mary Lou moved to Green Valley, Arizona, where he enjoyed gardening and nature watching. In 1999, Dr. Gries was given the Johnny Appleseed Award for his efforts in the planning and establishment of the Arid Land Plant Garden for the Men’s Garden Club of Green Valley.

George A. Gries died November 11, 2009, in Green Valley, Arizona, at the age of 92.

[Information taken from *Green Valley News and Sun*, November 14, 2009; Adelia N. Hanson and Joseph A. Stout, Jr., *A History of the Oklahoma State University College of Arts and Sciences*, Board of Regents for Oklahoma A&M Colleges, 1992; OSU Department of Botany files.]

STAFF NEWS

Jim Hull is no longer the Senior Academic Advisor for Botany. But he hasn't gone far! In fact, he is in the same office area, 213 Life Sciences East. He accepted a position as the Academic Advisor for Microbiology & Molecular Genetics and the primary Pre-Health Advisor. Even though he isn't officially working in Botany, Jim will certainly remain a part of our department as he is a long-time colleague and friend.



Beth Watt is our new Academic Counselor for students pursuing Botany and Biological Sciences undergraduate degrees, as well as Pre-Health professions.

She received BS degrees in Zoology and Secondary Science Education and an MS degree in K-12 Education with an Emphasis on Science, all from

OSU. Beth taught science and math for 8 years in public schools, most recently sixth grade science at Stillwater Middle School. As an undergraduate student, she worked with Dr. Donald French to redesign the Introductory Biology course (BIOL 1114).

Beth's husband, Trent, is an electrician (appropriate name, right!). Beth enjoys cooking, gardening, riding her motorcycle, and teaching Zumba at the Seretean Wellness Center.



Shakuntala Fathepure is a laboratory technician in the lab of Mark Fishbein. She came to Mark's lab in September 2009 after having worked with Andrew Doust the previous year. Before coming to Botany, Shakuntala worked with Bjorn Martin in Plant & Soil Science, Chuck Tauer in Forestry (now NREM), and Jeff Anderson in Horticulture.

Shakuntala earned her PhD in Botany from the University of Gulbarga in India, and her BS and MS degrees in Botany from the Karnatak University of Dharwad in India. Her research area was the detection of heavy metals on cyanobacteria.

She is married to Babu Fathepure, an Associate Professor of Microbiology & Molecular Genetics. They have two elementary age children, and she enjoys spending time with them.

Bharat Joshi was a postdoc for Gerald Schoenknecht last year, but he has since taken a position in the College of Veterinary Medicine. He is a research technician in the Department of Physiological Sciences. Bharat earned his PhD in Biochemistry & Molecular Biology at OSU. He held several postdoc positions at Louisiana State University, S.R. Noble Foundation in Ardmore, and OSU Biochemistry & Molecular Biology. We wish him well in his new job.

VISITING SCHOLARS

Yinghua Huang, Adjunct Professor, is currently hosting several scientists from China in his lab to conduct research. Peng Lv is an assistant professor at Shandong University; Mingsheng Zhang is a professor at Guizhou University; and Fujian Ding is a graduate student from China. Huang also hosted graduate students Shuiyi Lu, Shenyang Normal University, and Fei Li, Shandong University.

Bill Henley, Professor, is hosting two OSU student researchers this summer, teaching algal physiology to Tristan Wulfers, Biology major, and Shweta Harankhedkar, MS student in Environmental Science.

Mike Palmer, Regents Professor, hosted Victor Santana during the fall semester 2009. Victor is a Ph.D. student from Alicante University in Spain. While at OSU, he studied soil seedbank dynamics in sites with different vegetation types, mainly shrublands, affected by recurrent perturbations (fires).



Hanjun He came to OSU this year from South China Agriculture University where he is a graduate student with Professor Hong Wu, former postdoc in our department. Hanjun worked as an assistant for Ming Yang in his Biological Microtechnique course and studies fruit dehiscence in Dr. Yang's lab.



Mike Palmer has also continued to work with Eahsan Shahriary, who came from Iran to OSU in August 2007. Eahsan conducts research on vegetation of piospheres in grazed rangelands. A piosphere is a gradient of disturbance, caused by herbivores, around a point of water, such as a pond.

Plains Apache Ethnobotany: Native Americans Using Native Plants

"These things should be passed on, according to my notion. To the grave with us is no place for it. Our young peoples should know of our language, belief, and history, of our generation. It should be put in writing."

Ray Blackbear, Plains Apache elder, July 6, 1961

Long-time Oklahoma Native Plant Society member Julia (Judy) Jordan has taken Ray Blackbear's words to heart and recently published *Plains Apache Ethnobotany* which encompasses interviews and field work begun in the summer of 1963 in western Oklahoma. Her book is described as "...the most comprehensive study of a southern plains tribe... a valuable resource for ethnobotanists, anthropologists, historians, and anyone interested in American Indian use of native plants."



Judy's visit to Stillwater was hosted by the OSU Library, the OSU Department of Botany, the Cross Timbers Chapter of the Oklahoma Native Plant Society, the OSU Botanical Society, and the OSU Native American Student Association. The evening was topped off with a pot-luck dinner hosted by the ONPS Cross Timbers Chapter and OSUBS.

Judy earned a bachelor's degree in English and a master's degree in anthropology from the University of Oklahoma. As a research anthropologist, she conducted extensive fieldwork for the Doris Duke Indian Oral History Project and participated in several anthropological studies at the Sam Noble Oklahoma Museum of Natural History. Now retired, Judy couples her photographic skills with her interest in wildflowers and birds.

On Friday, March 26th, Julia Jordan spoke at the 2nd annual OSU Library and Botany Seminar Series about her work and her book, which documents more than 110 plant species valued by the Plains Apache and details traditional Apache collection, preparation and use of these plants for food, medicine, ritual, and material culture.

Judith Bronstein visits OSU



Dr. Judith Bronstein, Professor in the Department of Ecology & Evolutionary Biology at the University of Arizona, gave a lecture on April 30 of this year, jointly sponsored by the Departments of Botany and Zoology. "Why Cooperate? Mutualism, Antagonism, and the Community Context" was the title of

her talk. Dr. Bronstein visited with various faculty and students and attended a reception in the home of Dr. Janette Steets.

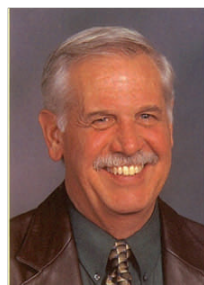
Dr. Bronstein earned both her master's and doctoral degrees from the University of Michigan. She then held a NATO postdoctoral researcher position at Montpellier, France and one at the University of Alberta, Canada before joining the faculty at the University of Arizona. She served as Program Director for the NSF Division of Environmental Biology in 2007-08.

Women in Science Conference



The OSU Botany Department participated in the 2010 Oklahoma NSF-EPSCoR Women in Science Conference, "Girls Growing Oklahoma's Future," which was held Feb. 9 at the Science Museum in Oklahoma City. Kay Scheets, adjunct assistant professor, served on the event planning

committee and was responsible for a hands-on science booth titled "Plants for Bioenergy and Growing Girls." Lydia Meador, Botany undergraduate student, helped with the booth; Brooke Bonner, a Botany doctoral student, served as a panelist for the interactive discussion; and Shipra Mittal, former Botany graduate student, helped with the Noble Foundation booth, "Cellulosic Biofuels 101." About 262 students from 31 Oklahoma middle and high schools attended the conference which is aimed at increasing the number of women for careers in science, technology, engineering, and mathematics.



Oklahoma Academy of Science Award

Ron Tyrl, Professor Emeritus, received the Oklahoma Academy of Science Lifetime Achievement Award at the OAS technical meeting in November 2009. This award honors a person who has contributed to the advancement of science in the state. Nominated by Dr. Susan Barber, past-president of OAS and OSU Botany alumna, he is described as "an extraordinary teacher, a dedicated mentor to both undergraduate and graduate students, an unwavering supporter of academy activities, and a productive scientist collaborating with other scientists in a variety of disciplines." More of Ron's biography can be found in the Proceedings of the Oklahoma Academy of Science 89:103-104 (2009).

Botany Participates in National Lab Day

Area high schools came to OSU on May 12 to take part in the first annual National Lab Day. Linda Watson, Chris Wood, Kay Scheets, Janette Steets, Mike Malahy, Jake Long, and Lydia Meador led a session titled "Is there DNA in my food?" to students from Glencoe, Morrison, and Guthrie public schools. Channing Richardson and Wyatt Sharber led a session on tree-ring dating.



Linda Watson discusses biodiversity to Glencoe students.



Channing Richardson and Wyatt Sharber explain tree-rings.



Guthrie students extract DNA from fruit.



Chris Wood talks about plant adaptations to Glencoe students.

On a personal note...

Babies!

Andrea Kirkwood, former postdoc in Bill Henley's lab, and her husband Mark Sauve are the proud parents of a baby boy, Cameron Robert Paul, who was born August 2009. Andrea is on the faculty at the University of Ontario Institute of Technology.

Bharat Joshi, former postdoc in Gerald Schoenknecht's lab, and his wife Anita are the proud parents of a baby girl, Shriya, born in October 2009.

Janette Steets, Assistant Professor, and her husband Jeff Byrnes, Assistant Professor of Geology, are the proud parents of a baby boy, David John, born January 2010.

Ajay Jha, current doctoral student, and his wife Shipra Mittal, former graduate student, are the proud parents of a baby girl, Anaisha, born July 2010 in Ardmore, Oklahoma.

Andrew Doust, Assistant Professor, and his wife Cristina Gonzalez, Assistant Professor of Art, are the proud parents of a baby girl, Isabela Inés, born July 2010. They also have a little boy Emilio.

Moving back to Oklahoma!

Becky Rogers and her husband, **Michael Berg**, former members of Dave Meinke's lab, will be moving to Tulsa this summer, after several years of living in the Philadelphia area. Becky works for the FBI and Michael works for Severn Trent Laboratories. They have two children: a son Patrick and a daughter Clara. It will be good to have Becky and Michael back home in Oklahoma!

Marriages!

Larinda Hall, Botany undergraduate, married Steven Holland this summer on May 30. Larinda works part time in Mark Fishbein's lab. Steven is working on his PhD in Microbiology.

Alesia Hallmark and **Wyatt Sharber**, Botany undergraduates, are tying the knot this summer during their vacation trip out West.

Alumni News

Susan Barber (*MS 75*) is Interim Provost at Oklahoma City University, having previously served as Assistant and Associate Vice President of Academic Affairs, and Associate Provost. She is also a professor of biology and has taught courses in biology, botany, ecology, and plant systematics. She recently served as president of the Oklahoma Academy of Sciences and serves as assistant editor for the *Flora of Oklahoma Project*. She is married to Dr. David P. Nagle, an associate professor in the Dept. of Botany and Microbiology at OU.



Katie Miller Brown (*BS 10*) is living in Texas with her new husband and is looking for a job in pharmaceutical sales.

Manolo B. Castillo, Sr. (*PhD 1969*) passed away last fall. He was living in the Philippines.

Kasturi Ghatak (*MS Nat Sci 08*) finished her degree at the London School of Economics and works for Ernst & Young in the Human Capital department. She is busy learning about U.S. tax analysis and is thoroughly enjoying the corporate world. Kasturi appreciates all the support from the Botany Department and especially Bill Henley and Andrew Doust.

Jessica Rivers Horn (*BS 04*) and her husband Jason are the proud parents of a son, Jonathan Marshall Horn, born November 2009 in Santa Rosa, California. Jessica enjoys staying at home and being a mom!



Todd Nickle (*PhD 98*) brought his wife Penny and their two children from Calgary, Canada to Stillwater for a visit last summer. Of course, it was one of the hottest days of the summer! His son and daughter were both born in Stillwater and hadn't been back for several years. They enjoyed seeing their birthplace again. Todd teaches biology at Mount Royal University

Andy Potter (*BS 03, MS 06*) has been employed by Valcent in El Paso, Texas, where he researches the use of algae for large scale biofuel production with the focus on growing native strains of algae in a vertical bioreactor. In the future, Andy would like to pursue a PhD in algal-biofuel production, as well as hypersaline algal biogeography.

Adam Ryburn (*PhD 03*) moved back to Oklahoma last summer after several years on the faculty of SUNY College at Oneonta. He is an assistant professor in the Department of Biology at Oklahoma City University, where he teaches biology, ecology, economic botany, general botany, field botany, and plant systematics. He has also joined the *Flora of Oklahoma Project*, coordinated by Ron Tyrl and composed of a group of Oklahoma botanists who are compiling *The Keys and Descriptions of Oklahoma Flora*. Originally from Anadarko, Adam, his wife Maranda, and their two children live in Mustang.

Marilyn Brady Semtner (*MS 72*) and her husband and son visited the OSU campus in November and

came by our department. Marilyn is an assistant professor and the director of aquatic science in the Dept. of Math and Science at Saint Paul's College, Lawrenceville, Virginia.

Steve Thompson (*MS 86, PhD 05*) is Associate Professor of Biology at Northwestern Oklahoma State University in Alva, OK where he teaches general biology, common plants of Oklahoma, grassland ecosystems, plant taxonomy, and ornithology. He is co-director of Northwestern's Museum of Natural History, secretary of Northwestern's faculty senate, co-director of the Northwestern Oklahoma Regional Science Fair, and director of the Northwestern Oklahoma Junior Academy of Science.



Margaret, Isaac, Amanda, Steve, Lydia, Karolyn, Jonathan (Amanda's husband)

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Alumni Spotlight — Michael G. Carnes

After receiving my BS in Botany from the University of Oklahoma (1961-1966), I attended Oklahoma State University (1966-1969) and received a MS in Botany, working with Dr. Gene Guinn. I continued my formal education at the University of Minnesota where I obtained my PhD in Plant Physiology (1969-1974).



I chose an industrial career in agricultural biotechnology and was treated to a truly magical career that literally bordered on science fiction. I joined Monsanto's (St. Louis, MO) fledgling agricultural biotechnology research program in 1974. Over the next 13 years, I conducted and managed research programs across a broad array of disciplines including plant and hormone physiology, tissue culture, cell biology, genetics, biochemistry, and molecular biology. The major focus of these efforts was to clone and genetically engineer soybean. We were successful in these efforts. Roundup resistant soybean is now being grown on over 75% of the soybean fields in the United States. The Monsanto biotechnology program is highly regarded as a pioneer and a leader in agricultural biotechnology.

In 1987, I joined the Ciba Geigy Corporation (Research Triangle Park, NC) which was developing its own agricultural biotechnology program directed toward corn. Here, I was also privileged to be involved in a successful world class research effort. Ciba Geigy was the first to market a genetically engineered insect resistant corn product.

My botanical training, part of which I received at Oklahoma State University, allowed me to be involved with pioneering applied research that literally changed the face of US agriculture. It was a wonderful and rewarding experience!

Alumni Spotlight — Charles Bird

Growing up in Brandon, Manitoba, Canada, Charles attended Brandon College and the University of Manitoba where he earned a bachelor's degree. He earned both MS and PhD degrees in Botany from Oklahoma State University in 1958 and 1960, respectively. Charles held a National Research Council of Canada Post-doctoral Fellowship at the University of Alberta, Edmonton, from 1960-62. Taking a faculty position at the University of Calgary, Charles became Assistant Professor of Botany in 1962; Associate Professor in 1967; and Professor in 1974. He was Curator of the Herbarium for 15 years.

Charles was recognized for his teaching skills when the students voted him one of the best science teachers. The courses he taught included Introductory Botany, Non-Vascular Plants, Vascular Plants, Biogeography, Phycology, Bryology, and Lichenology. Author of over 260 papers, Charles's research covered a variety of topics involving natural history, primarily on mosses and lichens.

While at the University, Charles belonged to the Calgary Field Naturalists and the Federation of Alberta Naturalists, and often taught non-credit courses. He was given the Loran Goulden Award as the outstanding Alberta naturalist in 1978. Charles has been Associate Editor (Botany) of the Canadian Field-Naturalist from 1975 to the present.

"Charley" took early retirement in 1979 and settled on a farm in Alberta. He and his wife Ann maintained the farm until 1992 when they bought a home in Erskine, Alberta. Charley has continued his interests in natural history and conservation, especially with the Buffalo Lake Naturalists, and is often asked to lead field trips and give talks.

Charley also continues his life-long love of butterflies, identifying and studying the butterflies and moths of Alberta. He is senior author of the comprehensive book *Butterflies of Alberta* and has quite a collection of his own, which will be donated to the University.

Other awards Charles has received include being made honorary member of the Ottawa Field Naturalist's Club in 2004 for his work as Associate Editor of the Canadian Field-Naturalist and the Alberta Order of the Big-horn Award in 2008 for his natural history research and activities.



Charley and his wife Ann

Notes from the Past

Memories of Dr. J. M. J. de Wet and the OSU Botany Dept in the 1960s
as told by alumnus Digamber S. Borgaonkar (PhD 1963)

The news of the death of Dr. J. M. J. de Wet brought back memories of 50 years ago. I started out as a graduate student of Dr. Charles Burnham at the University of Minnesota in the spring of 1959 and took the human genetics course offered by Dr. Sheldon Reed, who coined the phrase – “genetic counseling.” However, for lack of assured financial support, I left the program and joined the laboratory of Dr. Robert P. Celarier at OSU in the fall semester of 1959. His untimely death in December of 1959 left six of his graduate students without a mentor. Dr. Jack R. Harlan, of the OSU Agronomy Department and the leader of our genetics research program, was able to recruit Dr. J. M. J. de Wet rather quickly in the spring of 1960. Both Drs. Harlan and de Wet were students of the legendary G L. Stebbins of the University of California at Berkeley/Davis. Dr. de Wet became the principal investigator of the NSF grant from which I derived financial support in the form of a graduate research assistantship which enabled me to complete my PhD.

I became very close to Dr. de Wet and his family, as they were kind enough to have his students in their house many times. Years later, I visited them again in Champaign-Urbana, Illinois, and he came to give a talk while I was at Johns Hopkins in Baltimore.

After completing my requirements for the PhD in late January 1963, I was able to continue my student status since the commencement was not until May. During this time, I continued as a research assistant to Dr. Harlan in a paleo-archeological-botanical project related to the origin of cereals in the Middle-East. I also worked as a teaching assistant in biological sciences courses led by Dr. Herb Bruneau. This half time teaching job was a stepping stone for me to obtain a faculty position as Assistant Professor at the University of North Dakota in Grand Forks in the summer of 1963. While in Grand Forks, I first saw the human chromosomes under a microscope. I wrote to Dr. Victor McKusick of Johns Hopkins because I had seen his book *Medical Genetics* at the OSU library. This changed the direction of my research and career from botany to human genetics.

The 1960s were formative years for this country in many respects, especially in civil rights. I was able to hear President John Kennedy in Grand Forks just a few days before his assassination. These years and events were very important for me also, because I had to make some important decisions in my own life about where to raise my family and lead a productive life. The rest, as they say, is history. For more information go to: www.wiley.com/borgaonkar.

Thank you for all the donations we received this year!

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