



Department of Botany

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College of Arts and Sciences

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## Researchers Focus on Genes

**By Carolyn Gonzales**  
OSU News Bureau

Dr. David Meinke, Oklahoma State University Regents Professor of Botany, is a pioneer in the study of molecular genetics using *Arabidopsis thaliana*, a small plant in the mustard family, as a model.

Because of his expertise, Meinke served as an advisor to the *Arabidopsis* Genome Initiative, an international effort that culminated last December with the announcement and publication of the first complete plant genome sequence.

Now, Meinke and Dr. Iris Tzafrir, a research scientist in the OSU Department of Botany, are heading a new project that recently received \$2.3 million from the National Science Foundation to study the functions of several hundred genes that were sequenced in the Genome Initiative.

Meinke likens the initial genome-sequencing effort to learning the alphabet. Now scientists must learn how the letters of that alphabet function together to form words, sentences, paragraphs, and eventually great books, or in this instance, complete organisms.

*Arabidopsis* has approximately 26,000 genes, and scientists want to determine the function of every gene. Tzafrir says the work is very important for gaining a better basic understanding of plants. This knowledge also can be applied to other groups of organisms, including humans.

Meinke and Tzafrir will focus on genes that are essential to seed development. Knowledge gained from this research will be applied to many seed plants, including important food crops such as corn and wheat.

Several OSU students and local high school students will help with the project and gain valuable research experience.

The Virginia Bioinformatics Institute (VBI) and Syngenta, a large agrochemical company, are partners with OSU on the new project. VBI has specialized expertise required to deal with large data sets. Syngenta will contribute valuable company-funded information so that a considerable amount of fundamental research will not need to be duplicated with public funding.



Dr. David Meinke, OSU Regents Professor of Botany, and Dr. Iris Tzafrir, OSU Research Scientist, are studying the functions of genes essential to seed development in plants. They are using *Arabidopsis thaliana*, a small plant in the mustard family, as a model.

*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 Paula Shryock, Botany Department, 104 LSE, Stillwater, OK 405-744-5559 or E-mail [pshryoc@okstate.edu](mailto:pshryoc@okstate.edu)



## New Faculty Members

**Dr. Ming Yang** joined the Botany Department in August 2001 as an assistant professor in plant cell biology. A native of China, he received his B.S. degree in Physiology and Biophysics from Beijing University in 1986, M.S. degree in Genetics from the Chinese Academy of Sciences in 1989, and Ph.D. degree in Plant Biology from Ohio State University in 1996. Before coming to OSU, he held postdoctoral fellowships at UC Berkeley, Penn State University, and Cold Spring Harbor Laboratory.



Dr. Ming Yang

He has successfully completed his first semester of teaching this fall – BOT 3233 Plant Anatomy, and he is busy putting his research lab in order. His research concerns cell cycle regulation and stomatal development in *Arabidopsis thaliana*.

Ming is married to Yixing Wang. She received her Ph.D. in Plant Physiology at South China Agricultural University and is presently working in her husband's lab.

**Dr. Suzanne McAlister** is an adjunct assistant professor in the Botany Dept. (Her title was made official spring 2001.) She received her B.A. degree in Biology from Lewis & Clark College in 1984 and her Ph.D. degree in Botany from Duke University in 1990. Her area of interest is the study of bryophytes, and she has several manuscripts published and in preparation. Sue is finishing a paper with a colleague from the Canary Islands about bryophytes on laurel forest trees in the Tenerife area of the Canary Islands, Spain. She is also finishing a draft with Sue Studlar about bryophytes in Boehler Seeps, Atoka County, Oklahoma.



Dr. Suzanne McAlister

Sue is a member of the Oklahoma Academy of Sciences and participates in many of their meetings and activities. She recently led a walking tour looking for bryophytes at the OAS fall field meeting at Beavers Bend State Park. Sue is very much an environmentalist and is involved in the recycling program and in the farmers' market.

Sue lives near Perkins with her husband Mike Palmer, a professor in the Botany Dept., and their daughter Emily, who is a kindergartner this year.

## Alumni News

**Digamber Borgaonkar** (Ph.D. Botany 1963) retired in June 1999 as Director of the Cytogenetics Lab at Christiana Hospital in Wilmington, Delaware. He is now a visiting scientist at the Mayo Clinic in Jacksonville, Florida where he is working on the genetics of Late Onset Alzheimer's Disease. He is also working on his database, Chromosomal Variation in Man, which is available online at [www.wiley.com/borgaonkar](http://www.wiley.com/borgaonkar). He continues to live in Delaware and enjoys his four grandchildren who live nearby in Pennsylvania and Virginia.



Reonna Slagell Gossen

**Reonna Slagell Gossen** (M.S. Nat Sci-Botany 1997) received the International Teaching Award of Excellence from the National Institute for Staff and Organiza-

tional Development (NISOD) at a special ceremony at the International Conference on Teaching and Leadership Excellence, held May 27-30, 2001 in Austin, Texas. Reonna teaches science classes at Redlands Community College in El Reno. She is also the OCAST principal investigator and administrator of the Internship Partnership Grant and the Phi Theta Kappa International Honor Society advisor. She received Who's Who Among America's Teachers honors in 1994 and 1995; Academic Student Support Award, 1999-2000; and the Redlands Aggie Club Teacher of the Year Award, 1999-2000. She was a NISOD master presenter at the 2000 conference and again at this year's conference. Reonna lives in Corn with her husband Bryan.

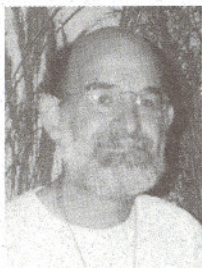
**Mijitaba Hamissou** (Ph.D. Botany 1992) accepted a tenure track faculty position in the Biology Department at Jacksonville State University

in Jacksonville, Alabama. He has been teaching there since August 2001, as well as beginning his own research. Formerly, Taba was a lab manager in the Microbiology Department at Oklahoma State University.

**Aynsley Kealiher** worked in the lab of David Meinke while a student here at Oklahoma State University. She received her M.S. degree in Microbiology & Immunology from Penn State Medical School and is now the research coordinator for the Dept. of Family Medicine at the OU Health Science Center in Oklahoma City.

**Helen Miller** is the Plant Molecular Biologist for the USDA Rice Research Center in Stuttgart, Arkansas. While still in Tennessee, she earned her M.S. degree in Information Science. She lives at home with her husband Gordon and two boys, Jack, 5 years old, and Ethan, 3 years old.





Bruce Smith

**Bruce Smith** (Ph.D. Botany 1997) was named the winner of the 2001 Jimmie Pigg Memorial Award from the Oklahoma Junior Academy of Science. This award included a \$1,000

cash prize, and is named for Jimmie Pigg, a former biology teacher and OEA member with a distinctive way of motivating students in original scientific research. Bruce teaches science at McLoud High School and motivates his students with his hands-on approach to teaching. A typical day will find the botany students with an assort-

ment of branches and twigs in the classroom that they have gathered from the surrounding wooded areas. His students also take field trips to a wide variety of places. In addition, three McLoud botany students join Bruce each summer as he teaches field botany at the OU Biological Station at Lake Texoma.

## Graduate and Undergraduate Student News



Josh Brokaw

**Josh Brokaw** is our newest graduate student. He is studying plant and ecosystems ecology under Anne Cross. He is a native of Texas and received his B.S. in Environmental Science from Abilene Christian University. Josh was married over Christmas holidays and is in the process of making a new home in Stillwater with his bride Amber.

**Jim Hull**, Geography Ph.D. student and long-time teaching assistant for Botany, participated in a little community service on behalf of the Botany Dept. He led Denise Farrell's class of 1st and 2nd graders at Skyline Elementary in Stillwater in a great hands-on experience. The children got to take apart daffodils and tulips and learn the parts of a flower.

**Asuka Itaya**, Plant Science Ph.D. student, graduated in the summer of 2001 and received the Graduate Research Excellence Award in Biological Sciences. Her advisor was Dr. Biao Ding. She is presently working in Dr. Ding's lab at Ohio State University.



Mary Gard

**Mary Gard**, Botany B.S. student from Muskogee, OK, has been awarded the Betty and Richard Spears, Jr. Fellowship in Botany for the spring of 2002. She is an advisee of Ron Tyrl and has done undergraduate research in the Herbarium. Her career goal is to obtain a field-oriented research position in botany, which would allow her to use her expertise in taxonomy, ecology, and ethnobotany.

**Jerad Linneman**, M.S. Botany student, received the Student Research Award from the Payne County Audubon Society. Also, he and Cathy Sonleitner, B.S. Botany student, are the proud parents of a baby girl, Ayn Madison, who was born Dec. 18, 2001.

**Adam Ryburn**, Plant Science Ph.D. student, received an OSU Foundation Distinguished Graduate Fellowship for the 2001-2002 academic year. This fellowship award will provide for educational expenses and is based on the student's outstanding contributions and accomplishments within their discipline. Adam is also the proud papa of a little boy, Addison Keith, who was born May 23, 2001.

## Spotlight: Botany Staff



Becky Rogers

**Becky Rogers** graduated from OSU in 1998 with a B.S. degree in Biology. Since then, she has enjoyed working as a senior research technician in Dr. David Meinke's lab. Being interested in the application of science to the legal system, she has recently completed a M.S. degree in Forensic Science from the University of Central Oklahoma. Becky is a member of the OSU Staff Advisory Council and the Oklahoma Native Plant Society.



Colleen Sweeney

**Colleen Sweeney** worked in the Plant & Soil Sciences Department at OSU for three years before coming to work for Dr. David Meinke in September 2001. She is originally from California and holds degrees from the University of California at Davis: B.S. in Animal Science, M.S. in Agronomy and Range Science. Colleen is married to David Demezas, who teaches in the Microbiology Department at OSU. They have two children: Eryn, 11 years old, and Jered, 8 years old.





Paula Shryock

**Paula Shryock** has been the unit assistant for the Botany Department since August 1995. She is a loyal fan of OSU, having grown up in the area and having received her B.M.E. degree from OSU in 1977. She taught music in the public schools and privately for several years before changing course and becoming a secretary. Paula has two daughters: Jennifer, who is a freshman at OSU majoring in French, and Stephanie, a junior at Stillwater High School.



Ann Yankunas

**Ann Yankunas** is the financial assistant for the Botany Department and has worked here since September 1997. She enjoys her half-time position, which allows her to spend more time with her 4-year-old son Austin. Her spare time is usually spent at church-related activities since her husband Dan is the pastor at Solid Rock Church. Ann is originally from Cushing, OK and received a B.S. degree in General Business from OSU in 1990.

## Faculty News

**Anne Cross** continues to serve on The Nature Conservancy board and is the chairperson of the Conservation Committee. She also serves on the Alumni Board for Colorado College.

**Bill Henley** continues his work on the Salt Plains Wildlife Refuge project.

**Becky Johnson** has been collaborating with Mary Jane Warde of the Oklahoma Historical Society on research concerning American Indian fishkills. They have presented a seminar, "Gathering the Wary Fish: American Indian Use of Devil's Shoestring," to several groups, including the OSU History Dept., Kiowa Indian Tribal Symposium, Pawnee Women's group, and Oklahoma Academy of Science.

**David Meinke** was presented with a "Celebrate State" award by OSU President James Halligan for his seminal research and leadership in the multinational *Arabidopsis thaliana* Genome Research Project.

**Kay Scheets** is collaborating with Peg Redinbaugh of the USDA Lab in Wooster, Ohio on a new virus, Maize necrotic streak.

**Mike Palmer** continues his research with Mary Carmen and Jose Arevalo on the change in vegetation at the Tallgrass Prairie Preserve. Mike is the computer review editor for Vegetation Science and on the editorial board of a new journal, Community Ecology. He is consulting with the National Park Service on the biodiversity in the national parks and with the National Center for Ecological Analysis & Synthesis and the Vegetation Science working group on their vegetation database. He also has a new grant with Valerie Barko of the Missouri Dept. of Conservation studying the fish of the Mississippi River.

**Arnon Rikin** created a new course for the Botany Dept., BIOL 3243 Biological Rhythms in Humans and Other Organisms, which he teaches at OSU-Tulsa during the summer. Arnon also teaches BIOL 3263 Plants and People at OSU-Tulsa during the winter intersession. He coordinates the departmental seminars as well.

**Gerald Schoenknecht** was a speaker for the 12<sup>th</sup> International Workshop on Plant Membrane Biology at the University of Wisconsin at Madison in August 2001. He is in his second year of teaching BOT 3463 Plant Physiology, and he also taught a graduate level class this fall, Plant Mineral Nutrition.

**Ron Tyrl** co-authored two books this year: *Toxic Plants of North America*, with professor emeritus George Burrows, published 2001, and *Field Guide to Oklahoma Plants*, with Terry Bidwell and Ron Masters, in press. Ron coordinated the joint meeting of the Oklahoma Native Plant Society, the Oklahoma Section of the Society for Range Management, the Oklahoma Chapter of The Wildlife Society, and the Oklahoma Ornithological Society that met October 19-21, 2001 on the OSU campus. This event, titled "The Changing Ecology of Oklahoma," featured technical paper sessions, a lecture by Bruce Hoagland of the Oklahoma Biological Survey, and field trips to a prairie restoration site in Payne County and to Horse Thief Canyon on the Cimarron River near Perkins. Ron is still coordinating the Crosstimbers chapter of the ONPS and giving presentations to various civic organizations.



# Donors Keeping Botany Green

During the past year, funds from donations given to the Botany Department's OSU Foundation accounts have been used to support faculty and students in their scholarly activities.

The McPherson Fund was established in memory of Dr. James K. McPherson, former Botany Department faculty member, and is used to assist graduate students in their research and to support travel to scientific meetings.

The general Botany Department Fund is used to support various departmental activities for which university funds cannot be used, such as providing meals and accommodations for visiting seminar speakers.

Both of these funds enable the Botany Department to support activities that enhance its programs, and as department head I want to thank those who have generously

supported us in the past. Of course, I encourage continued support of the department with future donations. Please send donations of any amount to either address below:

Botany Department  
Oklahoma State University  
104 Life Sciences East  
Stillwater, OK 74078-3013

or                      OSU Foundation  
P.O. Box 1749  
Stillwater, OK 74076

Checks should be made payable to the OSU Foundation and please specify the fund.

Again, thank you to everyone who has supported the Botany Department, and I wish everyone a prosperous 2002.

Becky Johnson

# OSU Botanical Society News

OSUBS is in its second year of providing educational and recreational activities for students wishing to expand their botanical knowledge. 2001-2002 OSUBS officers are President Adam Ryburn, Vice President Charriss Hayes, Secretary/Treasurer Ann Chappelle, and Historian Andy Potter.

Kim Shannon (OSU M.S. Nat Sci-Bot 1997) started off the year by telling what The Nature Conservancy of Oklahoma is doing to protect preserves throughout the state, like Black Mesa and the Tallgrass Prairie. OSUBS adopted a bison, "Sweet Pea," through the Conservancy's adopt-a-bison program, which is designed to help fund restoration of the prairie ecosystem.

As they lie tucked in their beds, vision of sand plums danced in Andy, Charriss, and Josh's heads.



At the end of September, OSUBS members attended the Oklahoma Academy of Sciences fall field meeting held at Beavers Bend State Park. Short walking tours were given on Oklahoma geology, ecology, fauna, geography, history, and of course flora. Following the OAS meeting, OSUBS "outlaws" visited the Robbers Cave State Park area for more camping and hiking and then toured the historical Spiro Mounds.

One of the most popular activities this year was the OAS technical meeting at Cameron University in Lawton. The meeting gave students an opportunity to become familiar with some of the scientific research being done in the state. OSU faculty Ron Tyrll, Michael Palmer, and Kay Scheets and graduate students Chris Sellers and Raelene Crandall gave presentations.

To raise funds for OSUBS activities, members participated in fall workdays. Volunteers raked leaves and

did light yard work for donations to the club. Members also sold decorated mistletoe in December. Some of the money raised was used to make donations to the United Way and the Salvation Army's Angel Tree Program.

If you would like to help fund the OSUBS activities, please fill out, detach, and mail the following form with your contribution. Each contributor will receive a membership certificate signifying their contribution. A free OSUBS 2001-2002 T-shirt will be mailed to each contributor who donates \$25.00 or more.

OSUBS members Rae, Charriss, Andy, and Josh take some time to "fish" with fish-on-a-pole grass.



Yes! I want to show my support for the Oklahoma State University Botanical Society by providing the following monetary contribution.

- \$10-\$24 Basic Annual Membership
- \$25-\$49 *Sorghastrum nutans* (Indiangrass) Contributor
- \$50-\$99 *Gaillardia pulchella* (Indian Blanket) Contributor
- \$100+ *Cercis candensis* (Redbud) Contributor

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## 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 above.

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*name*

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*home address*

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*home phone*

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*current professional position*

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