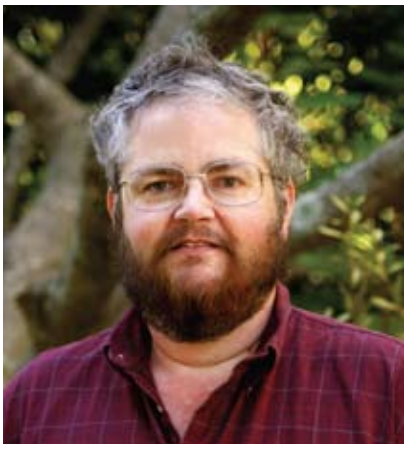
THE UNIVERSITY OF GEORGIA FRANKLIN COLLEGE OF ARTS AND SCIENCES

PLANTBIO

A DEPARTMENT OF PLANT BIOLOGY NEWSLETTER JUNE 2008

BIG CHANGES AT THE TOP

Michelle Momany and Russell Malmberg step up to the plate



Michelle Momany's first day as the new Department Head in Plant Biology was January 1, 2008. When asked to comment on her new job Michelle said, "so far I like being head, especially getting to know what all of my colleagues are doing and hoping to do. Everyone has been very supportive. I've actually had several other UGA administrators tell me how lucky I am to be Head in Plant Biology because we have the reputation of being a very collegial and accomplished group...of course, I agree with them. The only down side is that I fear my inbox will never again be empty!"

While implementing a few changes in the department she was quick to comment "most of the changes I am making are fairly small. We've had really good leadership in the department so in some ways my job is to be sure that I don't mess up a good thing."

When asked what was at the top of her list of needs and concerns Michelle responded, "I've set up a special Graduate Student support fund through the Arch Foundation for donors who want to contribute any amount to improving our graduate stipends. Our stipends are lower than the other biology departments on campus and lower than many of our peer institutions across the country. That puts us at a disadvantage in recruiting and really isn't fair to our current students. Our graduate students contribute so much to everything we do as a department! Hopefully this effort will help us to at least get our graduate student stipends to the same level as the other biological sciences departments at UGA.

I think we have a terrific group of faculty, students and staff. I feel very honored that they trust me to lead Plant Biology and hope that I will prove deserving of that trust."

Russell Malmberg joined the staff of Dean Garnett S. Stokes on November 7, 2007 as the new Franklin College Associate Dean for Research and Graduate Education. Russell made the move to north campus but still manages time for his duties in the Plant Biology Department.

"My responsibilities as Associate Dean of Arts and Sciences include working with the Biological Sciences Departments in the college. Additionally, I have general oversight of Interdisciplinary Research and Graduate Education activities in Franklin College. Some of my activities have been to bring faculty together from various parts of the college to take advantage of new research and grant opportunities. For example, there was a funding opportunity for research on ethical, legal, and social implications of genome projects; for this, I organized a discussion among faculty from Philosophy, Genetics, Speech Communication, the Biomedical Research Institute, and the Law School.

Working in the Dean's office is of course different from being a Department Head, and I'm still getting used to it. I have a nice office in Old College on North Campus. It has a view of one of the campus fountains (currently dry because of the drought). I spend 3-4 half-days each week in my office in Plant Biology; my neighbors on the third floor probably see me there more often than they did when I was department head. I still have research going on in my lab," said Russell.

Congratulations Michelle and Russell!
Please see page 8 for graduate stipend donation information.

Undergraduate Education

Making a million-dollar jump forward

Students at work in the new state-of-the-art computer lab during the fall of 2007.

Howard Hughes and Barbara McClintock have been smiling down upon Sue Wessler. She was one of twenty professors selected to receive a Howard Hughes Medical Institute Undergraduate Science Education Award for one million dollars. According to HHMI's website the grants are "intended to empower leading scientists at doctoral and research universities to work more closely with undergraduates at their home institutions and provide other institutions with innovative models for transmitting the excitement and values of scientific research to undergraduate education." Sue's vision for *The Dynamic Genome: Teaching Evolution to Undergraduates* fits that bill like peas in a pod. Sue's life work in Plant Biology has been spent studying and teaching others to understand the role of transposons in evolution and genome change. When asked, what does one do with a million dollars? Sue replied, "our department has always been one of the strongest on campus in both research and teaching. Our success in teaching extends from Alan Jaworski, Bill Barstow and Marshall Darley to Peggy Brickman and others. The HHMI Professor program was set up to bring the excitement of research into the undergraduate science classroom. To this end, HHMI selected 20 Professors from a pool of almost 200 applicants to receive 1 million dollars over 4 years and to spend these significant funds in a variety of ways. My program replicates my research laboratory in an undergraduate classroom. To this end, Provost Arnett Mace provided $250,000 to build a facility that includes office space and rooms for both computational and "wet bench" experiments."

The 2007 and 2008 classes gained valuable hands-on experience in the wet lab.

The facility was ready for fall semester of 2007. The first class offered was *Transposable Elements of Style: Science & Sentences* and co-taught with Phil Williams, Franklin College Assistant Dean for Public Information. Sue and Phil combined their expertise to produce a course offering undergraduate students a chance to learn cutting-edge science and creative writing skills in a state-of-the-art computer lab and wet bench lab facility.

Sue just finished teaching PBIO/BIO3250L, *The Dynamic Genome,* with the help of Jim Burnette and teaching assistant Yujun Han (read the sidebox story on Jim & Yujun), "The course content focused on transposable elements, which comprise a staggering 50% of the human genome and over 75% of some plant genomes. By helping to determine the transposable element content of a genome, the students learned that the genome is more than an instruction manual for making an organism; it is also an historical record of how species evolve," said Sue.

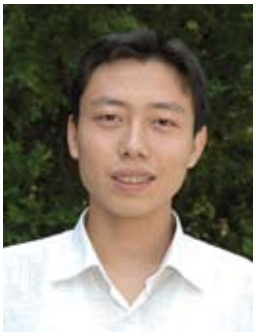
Opening the door to greater understanding in science is a legacy that Sue will leave for many generations. Howard Hughes and Barbara McClintock would be proud.

Sue Wessler received her PhD from Cornell in 1980. She began her career at UGA in 1983.

Phil Williams (left) and Sue Wessler (right) co-taught the first class in '07.

Solid Gold Assistants

Meet the rest of the team who helped make it happen



Yujun Han wrote the computer programs.

Yujun Han is from Shenyang, Liaoning Province, in the northeastern part of China. He earned his B.S. degree in Microbiology from NanKai University (Tianjin) in 2001 and then worked for three years on genome sequence analysis at the Beijing Genomics Institute. His job involved finishing the assembly and analysis of the rice genome, which was published in the journal *Science*. During this time, Yujun became interested in transposable elements (TEs) and developed a novel algorithm for finding TEs. This interest led him to his current studies in the Plant Biology department at UGA as a doctoral student. He is in his third year in Sue's lab and is working on combining bioinformatical and biological techniques to find active transposable elements.

Dr. Jim Burnette moved back to Athens in January 2008. A native Georgian, Jim graduated from UGA in 1995 with a BS in Biology. He received a PhD from Carnegie Mellon University in the Biological Sciences in 2000. After a post-doctoral position at the University of Virginia Jim returned to Carnegie Mellon where he also was on the teaching faculty from 2004-2008. Happy to be home, Jim said, "my position here is to create courses that give students the opportunity to experience the excitement of scientific discovery and a deeper understanding of the progress being made in research labs on campus."

Jim Burnette assists a student in the lab.

EDUCATION KUDOS

Peggy Brickman, associate professor in PBIO, received the 2007 Board of Regents' Teaching Excellence and Scholarship of Teaching & Learning Award. Congratulations, Peggy!
In 1998, Peggy (PhD UC-Berkeley, 1993), began her career at UGA as a lecturer in the Division of Biological Sciences. "I have a novel position for a large research university, that of an introductory Biology teaching specialist. I currently teach over 600 students each semester and strive to impart a lifelong interest in Biology as well as the skills needed to really use that knowledge in decisions they make in their future careers and lives," Peggy said. During her 10 years in the classroom Peggy has received multiple teaching awards and was named a National Academy of Sciences Education Fellow in 2004.

Brigitte Bruns (PhD 1986, University of Freiburg, Germany), the PBIO teaching lab coordinator is striving to reinvent and reenergize the laboratory courses. Brigitte said, "I want the lab sessions to be motivating, informative and fun as well improve the teaching experience for TAs." She is especially concerned that non-Biology majors have a great experience in Plant Biology courses. "I want the labs to be 'wow, awesome' and not just 'have to do' courses," said Brigitte. Brigitte led a major cleanup and remodeling of classrooms 1604 and 1606. "I greatly appreciate the help of the custodial crew, staff and faculty. Now many more faculty members use the laboratories," said Brigitte. During the clean-up Brigitte unearthed a wonderful collection of teaching materials and she created new exhibits that are enjoyed by the students and faculty. Bravo, Brigitte!

Q&A

Outstanding in the Field

Catching up with Jim Hamrick and his former student, Eric Fuchs

by Beth Richardson

Jim Hamrick

Q Jim, what are some of the highlights of your rewarding career in plant population genetics?

A It is difficult to come up with just a few highlights. Certainly among the top highlights is just being a member of two high quality departments such as Plant Biology and Genetics. I'd also have to mention the collaborative grants on which I've had an opportunity to work. This has given me the opportunity to work closely with several outstanding biologists, Yan Limhart, Jeff Mitton, Chris Smith, Kathy Parker, Ted Fleming, Bill Platt, and Peter Smouse to name a few.

I certainly learned a lot of biology while working with them.

Another highlight is the people who have worked in my lab - students, post docs and research scientists. Once again I've probably learned as much from them as they have learned from me. The Friday Population Genetics lunch group has provided consistent stimulation. Finally, the Mechanism of Plant Evolution training grant that Sue Wessler and I co-PI'd has to have been a major highlight.

Q What research projects do you have planned for the next few years?

A Since I'm planning on retiring during the next 6 years I've begun to scale back my research program to some degree. There are at least three research efforts I plan to pursue during the next 3-5 years. First, we (Shu-Mei Chang, Rodney Mauricio, Ron Walcott and Karin Myhre) recently received a large multi-faceted grant to study the evolutionary genetics of invasive species exchanged with China. This project will allow us to study several species in both the invaded country and the native country. This should allow us to develop significant insights into the evolution of invasive species. Second, Eleanor Pardini and Tiffany Knight at Washington University, St Louis invited me to join a study of the population ecology and genetics of a rare lupine and its closely related common congener. Since my days as a graduate student at Berkeley I've always thought that the California lupines would be a nice group to study and now I can be involved in studying two of them. Nice symmetry there. I'm planning to continue to study breeding patterns in the Guanacaste tree, *Enterolobium cyclocarpum* in Costa Rica. With a little luck I should be able to monitor breeding patterns of related trees in a variety of habitats over a 15-year period. I'm a firm believer in long-term data sets and the insights we can gain from them. To my knowledge there is no such data set available for any plant species. Finally, Chris Peterson and I want to document the source of seeds that have successfully colonized the successional plots Chris and Bruce Haines established at Las Cruces, Costa Rica.

Q If funding were not an issue, where would your interests take you?

A That's a hard question to answer since I've never felt that I really had all the funding I've needed to do things, as I would have liked. I'd probably do pretty much as I'm doing now. I might establish long-term monitoring of the breeding patterns of selected plant species both here and in the tropics which would be monitored as I have done with *E. cyclocarpum*. I expect that there would be several surprises. There is so much we don't know about the basic biology of most

Eric Fuchs

plant species. Our greatest weakness as a community of scientists is that we are often forced by funding and ambition to follow the next wave before we've really adequately addressed the questions generated by the current wave.

Q Eric, where are you now and what are you doing?

A Currently, I´m an Intern Professor in the Biology Department at Universidad de Costa Rica (University of Costa Rica, UCR). After my Ph.D. I returned to Costa Rica and resumed my teaching position at UCR, where I currently lecture in Population and Quantitative Genetics. As starting faculty I have a larger teaching load than most of the older faculty, but it is very exciting to apply and transmit the information I received during my stay at UGA. I'm also involved in two different research projects: The effects of forest fragmentation on pollen flow distances in three tropical tree species, and I'm also studying variation in gene flow patterns of species with different pollination and seed dispersal syndromes in the tropical rain forests of Costa Rica. Starting from scratch was a difficult task, but I believe the dedication and skills I learned from Jim Hamrick (my adviser) and from the different professors at UGA have been a motivation to continue with work.

Q How was your experience at UGA with Jim Hamrick as your major professor and mentor?

A I truly enjoyed working with Jim Hamrick during my time in Athens. As I've told him: it is hard to find someone as passionate about trees as I am; that common interest made our interactions interesting and fun. I learned a great deal from Jim, his knowledge about population genetics and the biology of tropical trees (and trees in general) made our conversations the best class I ever took at UGA. Jim is very strict, but he knows that relevant scientific findings are the product of hard and continuous work. And he works like no other person I've met in my life. It was not uncommon to find Jim in his office at two in the morning, listening to ZZ-top at an ungodly volume and working on some paper or looking over some of his student's dissertation chapters. Jim's dedication was contagious which made hard work an enjoyable and challenging endeavor, rather than an obligation. Nowadays, sometimes I find myself repeating some of Dr. Hamrick words to my own students and I realize how important my time at Georgia was.

Q You did some teaching and coordination in the intro labs. Did that help you for what you are doing now?

A I didn't do a lot of teaching at Georgia but the few opportunities I had, were a great experience. I had a lot of fun interacting with US students and I learned a lot from the different labs I had to teach. I actually enjoyed coordinating the 1220 labs a lot, since I had to work with different TA's and their very different personalities and teaching strategies.

Q What are you doing these days for fun?

A These days don't leave too much time for fun, so I spend most of my free time resting, laying on a hammock in my backyard reading papers and trying to catch up on some sleep.

GA Herbarium Receives Generous Bequest from Harriet DiGioia

by Wendy B. Zomlefer, Curator

Harriet G. DiGioia (pronounced "dee-joyah"), U.S. Forest Service Ranger and naturalist, passed away 10 April 2007 at the age of 78. She had established a charitable trust with 15% designated for the GA Herbarium amounting to $68,811.95 at the time of her death. Harriet's largesse is truly inspiring!

Who was this remarkable woman? Harriett and her late husband, Frank, lived in Dalton, Georgia, and raised four children. They were very active in the Audubon Society, and Harriett was also a self-taught botanist. She shared her enthusiasm and expertise with folks of all ages through presentations, field trips, and a regular nature column for the *Dalton Citizen* newspaper. Harriett became friends with Sam Jones and David Giannasi (both retired directors of the GA Herbarium) through her work for the U.S. Forest Service as a ranger assigned to Lake Conasauga and the Cohutta Wilderness in northwestern Georgia. Many of her pressed specimens from those areas are part of the Herbarium accessioned collection. The herbarium connection was strengthened further when one of her daughters, Harriett DiGioia Guthrie, took plant taxonomy (then BTNY 4640) under David Giannasi.

The Curator has placed the bequest in an endowment account, so that the funds will grow and perpetuate Harriet's vision and generous gift. Modest yearly interest from the endowment will be used to help finance various herbarium student projects.

Graduate Student Awards


BROUILLETTE


VAN ETTEN


HOVICK


HOWARD


SUGIYAMA


TOPP

Larry (Beau) Brouillette: Donovan Lab
$4,000 grant from Garden Society of America, 2007 Graduate School Travel Award, 2007 UGA Graduate School Dissertation Completion Award, 2008-09

Cecile Deen: Chang Lab
$1,000 Palfrey Small Grant 4/2007 Highland Biological Station's Wm. Chambers Coker Fellowship in Botanical Research, $1800

William Duval: Sharitz Lab
Presidential Management Fellow Finalist, 2008

Matt Estep: Bennetzen Lab
UGA Graduate School Dissertation Completion Award, 2008-09

Scott Gevaert: Donovan Lab
Graduate School Assistantship, 2007-08

Cara Gormally: Donovan Lab
Graduate School Travel Award, 2007 Marie Mellinger Field Botany Res. Grant Award, Ga. Bot. Soc., 2007 Natl. Estuarine Res. Reserve Grad. Fellowship, NOAA. 2007-2009, $40,000

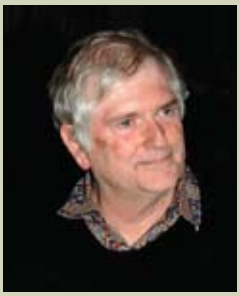
Christopher Graham: Peterson Lab
Presidential Graduate Fellowship, 2007-2008

Zhangying (Ann) Hao: Mohnen Lab
$690 Palfrey Small Grant, 4/2008

Steve Hovick: Peterson Lab
Graduate School Travel Award, 2007 Pymatuning Lab. of Ecology McKinley Award, 2007, $1,000 Soc. of Wetland Scientists Student Grant, 2007 $9,500 Mid-Atlantic Panel on Aquatic Invasive Species small grant, 2007 Ecological Soc. of America Real/Brown Student Section Travel Grant, 2007 Presidential Fellowship, 2007-2008 NSF Doctoral Dissertation Grant, 2008, Pymatuning Lab of Ecology McKinley Award, 2008

Ava Howard: Donovan Lab
Graduate School GRSC 7770 Assistantship, 2007 Graduate School Travel Award, 2007 Wilbur Duncan Award for Outstanding Graduate Student, 2007 Excellence in Teaching Award, 2008

NEWS BRIEFS



After 8 years at UGA **Steve Hubbell** retired from the dept last fall to take a position at UCLA.

Bill Barstow (shown with his wife **Dolly**) retired this year. He will be back in the fall to teach part-time in Biology.

We welcome new faculty members **Wolfgang Lukowitz** and **Xiaoyu Zhang.**Wolfgang (PhD Univ. of Munich and Univ of Tubingen) is a plant development biologist. Xiaoyu (PhD Univ of Georgia) has come home to UGA to work on plant functional genomics.

Kelly Dawe was elected to the American Academy of Arts & Sciences.

KENNEDY

MEROLA

MEENTS

BOYD

DADISMAN

Shannon Kennedy is our new Business Manager, **Brenda Merola** is our new Accountant, and **Kristin Meents** is our new Administrative Assistant. Our best wishes to **Brenda Mattox**, **Elaine Dunbar** and **Tonya Cox** all of whom took jobs in other departments on campus. **Mike Boyd** was promoted to Greenhouse Manager and **Jeff Dadisman** was hired as a Research Assistant.

Joann Davis received recognition from **Dean Garnett Stokes** for 40 years of service to Franklin College. Joann has been a Laboratory Technician in the PBIO department for 15 years.

The first PBIO Staff Appreciation luncheon was held at the home of **Michelle Momany** on April 30, 2008. Graduate students **Yainitza Rodriguez**, **Steve Hovick**, **Luanna Prevost**, and **Michael McCain** served the meal and others donated desserts. **Carla Ingram** and **Melanie Smith** were unable to attend.

Lisa Kanizay: Dawe Lab
Presidential Graduate Fellowship, 2007-2008

James Kellner: Hubbell Lab
$500 Palfrey Small Grant, 2007 Graduate School Dissertation Completion Award, 2007-2008

Xuexian Li: Dawe Lab
$1,000 Palfrey Small Grant, 2008

Ryan McCarthy: Ye Lab
Graduate School Assistantship Award, 2007-2008

Michael McKain: Leebens-Mack Lab
Graduate School Assistantship, 2007-2008
$1,000 Palfrey Small Grant, 2008

Clinton Oakley: Schmidt Lab
Graduate School Assistantship, 2007-2008

Luanna Prevost: Peterson Lab
$1,000 Palfrey Small Grant, 2007 $1,100 UGA Plant Biology Jaworski Award, 2007

Yainitza Rodriguez: Momany Lab
Robert D. Watkins Graduate Research Fellowship, 2006-2009, $19,000/yr/3 yrs

Natasha Sherman: Burke Lab
$750 Palfrey Small Grant, 2007, Tied for best talk at the Plant Biology Graduate Student Symposium, Fall 2007

Anna Sugiyama: Peterson Lab
$1,100 Jaworski Travel Award, 2008
$740.50 Palfrey Small Grant, 2008

Haibao Tang: Patterson Lab
$750 Palfrey Small Grant 2007, Graduate School Travel Award, 2007

Chris Topp: Dawe Lab
Graduate School Dissertation Completion Award, 2007-2008 $1,500 Palfrey Small Grant, 2008

Megan Van Etten: Chang Lab
Graduate School Travel Award, 2007
$1,000 Palfrey Small Grant, 2007
Outstanding Teaching Assistant, 2008

Victoria Vazquez: Porter Lab
Graduate School Travel Award, 2007
$1,000 Palfrey Small Grant, 2007

David Wills: Burke Lab
$200 Jaworski Travel Award, 2007

Sarah Jardeleza Winger: Farmer Lab
Outstanding Teaching Assistant, 2008
$1,000 Palfrey Small Grant, 2008

Jianli Zhou: Ye Lab
$1,000 Palfrey Small Grant, 2007

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Photo Credits: Kelly Dawe (Brickman), the DiGioia family, Cara Gormally (Brouillette), Cory Momany, Robert Newcomb (Wessler), Beth Richardson (all others), Tatiana Robles (Fuchs), Dorset Trapnell (Hamrick), William Weems (Malmberg), Sue Wessler (photos in the wet lab). *Dogwood Drawing*: Wendy Zomlefer, *Guide to Flowering Plant Families.* The UNC Press.

Alums—Let us know what you're up to these days. Email beth@plantbio.uga.edu

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