

Winter 2011

## Biology News, Winter 2011

University of Northern Iowa. Department of Biology.

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# Biology News

University of Northern Iowa

Winter Edition - 2011

## Greetings from the Department of Biology

**D**espite the tough financial times over the past year, the Department of Biology has weathered the storm thus far and continues to offer outstanding educational value to our students. Through the generosity of the Carver Trust Fund, the Department received \$150,000 in funding to purchase equipment for our General Biology: Cell Structure and Function laboratory and our sophomore level



Genetics laboratory. In addition, the University graciously provided matching funds to remodel these two rooms, providing a modern and comfortable working environment for students. These two classrooms, prior to remodeling, were much the way they were when McCollum Science Hall was built in 1968.

We continue to hear from alumni and enjoy doing so. I envy those faculty members who have been in the Department for sufficient time to have known so many of these individuals and fostered relationships with them. Please continue to let us know what you are doing so that we may share this with others. You can send information to me by email to [david.saunders@uni.edu](mailto:david.saunders@uni.edu) or you may contact any member of the Department of Biology. Believe it or not, faculty and staff members do like to hear from former students! We take pride in our alumni and their accomplishments, and whether we should or not, we also like to think perhaps we had some role in your success.

There have been personnel changes in the Department due to retirements. We have a new Developmental Plant Anatomy faculty member, Dr. Julie Kang, who fills the position previously held by Dr. Jean Gerrath. Additionally, this will be the last year we will have Dr. Virginia (Gini) Berg and Dr. Dorothy Brecheisen teaching for us, as both will retire at the end of the spring semester. We will certainly miss these two individuals, who between them provided more than forty years of service to the Department of Biology at UNI. We are equally proud of our students who continue to be productive and whose accomplishments are noteworthy.

Our students continue to obtain top notch internships, present research findings at national meetings, obtain competitive scholarships, and are asked to represent the University at various functions. We also continue the tradition of highlighting a student club in each newsletter, with this year's newsletter providing information about the Pre-Physical Therapy Club.

In this edition of the newsletter you will learn of faculty who are working to provide our students with international experiences, who remain active in scholarship and who provide service to people of Iowa. In addition, members of the Tallgrass Prairie Center and the Department of Biology were involved in hosting the Annual Meeting of the North American Prairie Conference at UNI.

I continue to ask for your financial support of our students and programs. Alan and Karen Orr are featured in this year's newsletter detailing why they have chosen to support student education in the form of an undergraduate biology research scholarship. We have many students who could benefit from the financial support of our alumni. I think you would find that those students whom you might support would be greatly appreciative and you would likely have a friend for life!

Finally, I need to apologize to Gary and Myrna Floyd who were featured in last year's newsletter for their support of the Dr. Gary and Myrna Floyd Scholarship, which provides scholarships for a number of students in the Department of Biology. In that newsletter, I failed to mention Gary and Myrna's last name in the "You Make a Difference" message from our donors. In our Department, they are simply known as Gary and Myrna and without thinking, I assumed they would be known similarly to the rest of you.

Bev Schomaker, Sandi Ingles, and I very much enjoy working on the newsletter. We hope that you enjoy reading it and that it keeps you updated on the activities within the Department of Biology. Please let us know if there are ways we can change the newsletter to serve you better.



# Focus on UNI Biology Alumni

◆ **Libby Abbas** received a full-tuition scholarship to Des Moines University College of Osteopathic Medicine through the Rural Medicine Educational Pathway. The RMEP program prepares students to work in rural, underserved areas in Iowa. Libby attended UNI's pre-medical program and worked at Allen Hospital as a phlebotomist.

◆ **Jeff Berckes** (Environmental Emphasis with Chemistry and Economics minors) and **Jason Palmer** were on the UNI campus on October 19, 2010 to explain a draft plan to clean up Dry Run Creek in Cedar Falls, including the UNI campus. The plan aimed to reduce urban storm water runoff into the creek, so that aquatic insects can survive better in the stream. Both presenters also answered questions regarding careers with the Department of Natural Resources. Jeff works for the Iowa Department of Natural Resources as the TMDL (Total Maximum Daily Load) Program Coordinator in watershed improvement.

◆ **Adam Clore** (B.S. Biology, Minor in Chemistry, 2001, Ph.D. Portland State Univ, 2007) and his family have moved back to Coralville from Portland, OR, where Adam is (again) working as a Technical Specialist in the research/production labs at Integrated DNA Technology.

◆ **Dr. Pat Gibney**, former student and alum, recently wrote to Michael Walter that he has finished his dissertation and graduated from The University of Texas Graduate School of Biomedical Sciences at Houston. Pat's thesis was entitled "The Eukaryotic Cellular Stress Response: Biochemical And Genetic Analyses In *Saccharomyces Cerevisiae*." Pat started his post-doc with David Botstein at Princeton in September.

◆ **Becky Groshens** has accepted a permanent full time position with the Nebraska Department of Natural Resources (NDNR). Although the position title is "Engineer," Becky's main responsibilities will be to help plan and carry out the DNR's floodplain mapping projects. The Nebraska DNR partnered with FEMA some years ago to produce updated digital flood insurance rate maps (DFIRMs). Becky was previously temporarily employed with the NDNR, working with engineers and GIS software to produce these DFIRMs since November, 2009.

◆ **Thomas Lammers**, former UNI student now on the faculty of the University of Wisconsin-Oshkosh, was asked to help identify a Hawaiian plant species thought to be extinct on the Big Island of Hawaii. The Nature Conservancy and Parker Ranch in Hawaii said staff discovered the plant earlier in the summer of 2010 in an upland rainforest on the slopes of Kohala volcano. They were surveying a rare tree snail population on the ranch when they stumbled upon a plant with greenish white flowers and dark green leaves. Lammers identified the plant as *Clermontia peleana singuliflora*, a species last seen on the Big Island in 1909 and last collected in East Maui in 1920. More than 30 of the plants have since been found, and the conservancy has collected seeds to propagate the species.

◆ **Jeff Perkins** is in the second year of his program in science education at the University of Iowa. Jeff states that if things go well, he should be ready to graduate in 2014, with a doctorate in Science Education. In an email to Dr. Darrell Wiens, Jeff mentioned that he still has vivid memories of the classes he took at UNI and of Developmental Biology. Jeff currently teaches lab classes in Principles of Biology and really enjoys it. He asked Dr. Wiens to please convey to everyone in the Biology Departments that UNI does a super job of preparing people to go on and that at the University of Iowa he is prospering and hanging tough! Jeff will be presenting as second author on an interactive poster session at the 2011 Association for Science Teacher Education (ASTE) conference in Minneapolis from Jan 19-22 and also at the 2011 National Association of Research Science Teachers (NARST) in Orlando, Florida in April.

◆ **William (Bill) F. Porter** (1973 graduate) received his Ph.D. in Ecology and Behavioral Biology at the University of Minnesota in 1979 and then joined the faculty at the State University of New York in Syracuse. Most of Bill's career has been spent teaching and conducting research in areas related to wildlife ecology, and developing a field station in the Adirondack Mountains of northern New York ([www.esf.edu/aec](http://www.esf.edu/aec)). Bill recently accepted the Boone and Crockett Chair of Wildlife Conservation and Policy at Michigan State University and he and his wife moved to East Lansing in late summer. The Boone and Crockett Chair of Wildlife Conservation and Policy is intended to promote the application of science to policy decisions pertaining to wildlife on a national and international level.

◆ **Jeremy Pritchard** has taken a position at Integrated DNA Technology – Coralville in the customer care department answering customers' questions about how to get the most out of Integrated DNA Technology's products and which of their products would be best for the customers' project goals.

*Let us hear from you. . .*

Let us know what you have been up to.  
You can email us at [david.saunders@uni.edu](mailto:david.saunders@uni.edu) or return this form to:

Department of Biology  
University of Northern Iowa  
Cedar Falls, IA 50614-0421

First Name \_\_\_\_\_ Last Name (maiden) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Email: \_\_\_\_\_

Please share any news about you or your family to be included in the next Biology Newsletter.



## Twenty Second North American Prairie Conference: Restoring a National Treasure



NAPC Cedar Hills Field Trip

The week of August 1st was “prairie central” at the University of Northern Iowa in Cedar Falls. Five hundred and sixty prairie enthusiasts gathered to discuss prairie preservation, restoration, reconstruction and management and catch up on some of the latest research. There were 95 oral and 33 poster presentations related to research, techniques, education and cultural aspects of the prairie. Reed Noss, Davis-Shine Professor of Conservation Biology at the University of Central Florida and President of the Florida Institute for Conservation Science, discussed *Southern Grasslands* and Mark Ackelson, Director of the Iowa Natural Heritage Foundation, reviewed *Iowa Prairie Projects* as keynote speakers in the plenary session on Monday morning Aug. 2. John Price, up and coming Midwestern author, shared readings of his *Personal and Literary Journey into Prairie* at the banquet. Keynote presentations in the closing session were titled the *Importance of Prairie* by Rich Leopold, outgoing Director of the Iowa Department of Natural Resources, and *Restoring a National Treasure* by Daryl Smith, Director of the Tallgrass Prairie Center at UNI. Partici-

pants represented 22 states, two Canadian provinces, Great Britain and Germany. Thirty-one exhibitors provided displays, materials, merchandise, and information. The Iowa Prairie Network celebrated its 20th birthday after Bill Witt’s presentation of *Enchanted by Prairie*. Monday afternoon a tour of the Tallgrass Prairie Center was held concurrently with a reception by the University of Iowa Press to kick-off the release of the Center’s Guides to *Prairie Restoration in the Upper Midwest* by Daryl Smith, Kirk Henderson, Greg Houseal and Dave Williams and *Seed and Seedling Identification in the Upper Midwest* by Dave Williams and illustrated by Brent Butler.

Despite the hot, humid weather on Tuesday Aug. 3, eleven different day-long, field trips ranged across northeast and central Iowa to learn about prairie remnants, prairie restorations and other prairie related projects. Mesquakie dancers and the appearance of a funnel cloud ten miles south of town enlivened the barbeque.

Iowa institutions have hosted this biennial conference four times since its inception in

1968. UNI hosted the 12th Conference in 1990.

Sponsors and grant supporters of the 2010 conference were Natural Resource Conservation Service, Living Roadway Trust Fund, Cedar Falls Tourism and Visitors Bureau, Max & Helen Guernsey Charitable Foundation, Truax Manufacturing, Bravo Printing Co., University of Iowa Press, Prairie Moon Nursery, Savanna Oak Foundation, Inc., Allendan Seed Company, Shooting Star Native Seeds, The Nature Conservancy, Dow AgroSciences, The Prairie Enthusiasts and Minnesota Native Wildflower/Grass Producers Assoc.

Publishing of the Conference Proceedings is being funded by conference receipts and grants from the Living Roadway Trust Fund and the Carver Foundation.

Volunteers from UNI, the Cedar Falls-Waterloo community, Iowa and other locations all contributed to the success of the conference. UNI participants included the staff of the Tallgrass Prairie Center: Ryan Welch, Kirk Henderson, Dave Williams, Greg Houseal, Mary Weld, David O’Shields, Brent Butler and Daryl Smith, Biology faculty members Laura Jackson and Mark Myers, Biology graduate students Ryan Neuhaus, Chris Barber, Anna Abney, Sarah Benedict, Rebekah MacKay, Jim Mason and Environmental Science grad student Molly Schlumbohm. Biology undergraduates Christina Boeck and Angela Lake. Other UNI staff volunteers included Kelly McCarthy, UNI Conference & Events, Billie Hemmer Botanical Center & Preserves and Paul Meyermann, Operations Planning.

# Faculty and Staff News

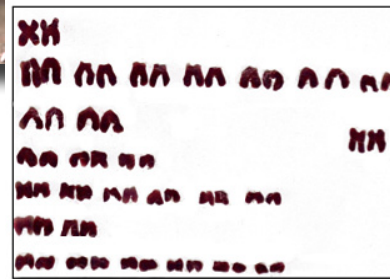
## Summer Research

**D**rs. Theresa Spradling and Jim Demastes traveled to the mountains of Colorado to begin a new research project that will examine hybrid zones of mammals and their parasites during the summer of 2010. These high-altitude hybrid zones involve rodents called pocket gophers with differing numbers of chromosomes coming into contact and interbreeding. This is interesting to Theresa and Jim because they want to understand what happens at these zones of contact to the parasites that are piggy-backing on these gophers. It turns out that pocket gophers and their parasites are one of the best examples of two species evolving together through time. By examining the genetics of these hybrid zones, Theresa and Jim hope to gain insight into how new species are formed within these co-evolving hosts and parasites. This summer, Theresa and Jim will be returning to continue their work at The Rocky Mountain Biological Lab in Gothic, Colorado,



where they will be collecting samples for genetic analysis during the next school year.

Sheree Harper (senior in biology) has been working in the lab all fall and winter on gophers collected last summer. She has photographed the gophers' chromosomes (one individual shown below), and she is now determining the DNA sequence of their genes for comparison. Soon she will extract and sequence DNA from the lice of these gophers.



Three more biology undergraduate students are working on other aspects of this fascinating host-parasite system. Kayla Peiffer (senior) and Paige Milbach (junior) are working to sequence several genes in a variety of Central American pocket gophers and will be evaluating evidence for a new genus of gophers there. Alex Poppinga (senior) is beginning a project examining coevolution between gophers and lice found in Mexico.

## Trip to West Virginia's eastern panhandle was a success



Broad-headed skink (*Plestiodon fasciatus*) found in Sleepy Creek Wildlife Management Area on May 20.

**D**r. Jeff Tamplin, Jim Gronewold (Science Education '10), and 13 undergraduate biology majors traveled to the eastern panhandle region of West Virginia in May 2010 as part of a field biology course offered jointly through UNI's Department of Biology and the Division of Continuing Education. The group

camped in the area for 7 days and searched for reptile and amphibian species; students kept records of species identified, habitat characteristics, and relative abundance of each species encountered at 6 different localities. These data are submitted to the West Virginia Natural History Inventory, a database that is used to create management and conservation policy by the West Virginia Division of Natural Resources.

While surveying Sleepy Creek Wildlife Management Area on May 20, Alexa Dostart, Derek Miller, and Jamie Thomas captured a rare species of lizard that was not previously known to inhabit the area. A similar species-- the "5-lined skink" (*Plestiodon fasciatus*), is common across most of West Virginia, but the group captured a second skink species, the "Broad-headed skink," (*Plestiodon laticeps*) - a

mostly southern species whose range was previously thought to extend only to Northern Virginia. The UNI group captured an adult male (displaying breeding colors) and two juvenile Broad-headed skinks, and took several photos. These two skink species are so similar that they can often only be distinguished by counting the number labial (lip) scales above the mouth. Fortunately, the photos taken by the group were sufficient evidence to conclusively identify the correct species. After searching published sources, university and museum records, and getting verification from West Virginia state herpetologists, it was determined that this discovery represented a significant range extension for the Broad-headed skink. Tamplin, Dostart, Miller, and Thomas co-authored an article documenting this extension that was published by the journal "Herpetological Review" in Volume 34, Issue 4 (December 2010 issue). Congratulations to these students on making this discovery and getting their first official scientific publication!



# Faculty and Staff News (Continued)

## Thurman on PDA in Brasil

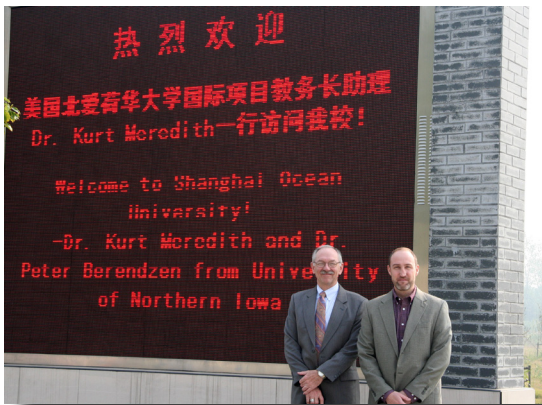


Carl Thurman and Larisse Faroni-Perez, who is currently employed by the Mangrove Action Project, Bentic Ecology Lab, Federal University at Vitoria, Espirito Santo, Brasil.

In Oct 2009, **Dr. Carl L. Thurman** of the Biology Department was awarded a Fulbright Fellowship by the US Department of State and Fulbright-Brasil Foundation to collaborate with scientists and students at the University of São Paulo (USP). For his Brazilian studies in biogeography, morphology, ecological physiology and population genetics, he

received additional monies from The University of Iowa Center for Global and Regional Environmental Studies (CGRER), Scientific Foundation for the State of São Paulo (FAPESP) and the Brazilian National Research Council (CNPq). With his colleague Dr. John McNamara (USP), Samuel Coelho, and faculty at the Center for Marine Biology on the coast under the Tropic of Capricorn, Dr. Thurman was able to study fiddler crabs along 5200 miles of the Brazilian coast between French Guiana and Uruguay. During studies between May 2009 and Aug 2010, he was able to collect more than 7200 specimens representing ten species of crabs from 63 different marshes, mangrove and estuaries across ~30° of southern latitude. Results from this study are currently being organized for scientific publications and for additional grant proposals to pursue future studies in Mexico, Panama, the southern Caribbean and Suriname.

## Taiwan Exchange Program



**Dr. Peter Berendzen** traveled with Dr. Kurt Meredith, Assistant Provost of International Program to Shanghai, China in the first week of November, 2010. In Shanghai, Kurt and Pete met with the faculty and international programs administration at Shanghai Ocean University to discuss a cooperative agreement with UNI. The goal of the agreement is to foster the exchange of students who would be interested in Fisheries related

courses and faculty who would be interested collaborative research. They toured the university and research labs studying questions on fishes related to Pete's research. The visit was successful, and collaborative research projects with one of the faculty at Shanghai Ocean University on the evolution of sidedness in flatfishes are being developed.

Pete then traveled to National Chengchi University (NCCU) in Taipei, Taiwan to work out details of an exchange program involving students in their Institute of Neuroscience and UNI Biology students. Students from UNI Biology will travel to NCCU in July 2011. The students will be involved in active research in labs in the Institute of Neuroscience and take Chinese language and culture courses in their International Summer School. The program will be for 4 weeks. NCCU students will travel to UNI in the second week of July 2011 and

## Climate change impacts report

Following a report from the Iowa Climate Change Advisory Council and the devastating flooding events of 2008, the Iowa Legislature requested additional information on the consequences of climate change for Iowans.

Over the last two years a committee comprised of faculty from Iowa's Regents Universities reviewed the effects of climate change on Iowa. The focus of the effort was to better understand how climate change could affect Iowa's agriculture, wildlife, public health and economy. Two of UNI's Biology faculty, **Dr. Laura Jackson** and **Dr. Peter Berendzen**, authored the chapter on climate change consequences for Iowa's flora and fauna. The chapter describes the challenges in predicting what will happen to Iowa's wildlife in the future and summarizes published research and data on what is known about the effects of climate change most relevant to wildlife in the Upper Midwest.

One study that was highlighted in the report was a recent article published by two additional UNI Biology faculty, **Dr. Theresa Spradling** and **Dr. Jeff Tamplin**, and two UNI undergraduate students, Samantha Dow and K.J. Meyer on Iowa's state-endangered wood turtle. The report was issued in January 2011 and can be downloaded at <http://www.iowadnr.gov/iccac/index.html>.

participate in the Summer Undergraduate Research Program in the Department of Biology and take English language and culture courses in the Culture and Intensive English Program (CIEP) through UNI's International Programs Office.

While at NCCU, Pete gave a 2-hour lecture on his research to students and faculty and led a discussion with students to promote the exchange program. Pete compiled a list of more than 20 interested students from NCCU. The program will involve 10 students from each school.

# Focus on UNI Biology Students

**Jack Kosmicki** (Biology/Computer Science double major) attended the i2b2/HST 2010 Summer Institute in Bioinformatics and Integrative Genomics (BIG) this past summer. This program is administered collaboratively with the Harvard-MIT Division of Health Sciences and Technology and seeks to identify talented sophomores and juniors from around the country to spend time on the Harvard Medical School-Harvard teaching hospitals-MIT campuses. Students work in a research laboratory under the mentorship of experienced scientists participating in the various i2b2 interdisciplinary projects focused on the application of informatics to enhance clinical research in the genomic era.

**Aaron Stahl, Bethany Stanhope, Kathryn Berge and Katherine Olson** attended the Society for Integrative and Comparative Biology (SICB) Conference in Seattle, Washington in January of 2010. SICB is one of the largest professional associations and its members represent a broad range of disciplines in biology. Their projects focused on: Aaron Stahl, toxicological study of common farm fertilizers and their effects on frogs; Bethany Stanhope, evolution of genome size in the sucker fish family; Kathryn Berge, population genetics of morphologically distinct fishes in Ethiopia; Katherine Olson, localization of cadherins in secondary neurulation in chick embryos. While they exhibited the results of their scientific studies, they were also able to meet with potential advisors and investigate Ph.D. programs.

**Susan Meerdink** received the NASA Iowa Space Grant Consortium research scholarship for the 2010/2011 school year. The Space Grant scholarship provides research opportunities for undergraduate students in science, technology, engineering, or math. Susan will be researching climate, human activities, and predators' effect on spatial fidelity of Taimyr reindeer's calving grounds in Eurasia.



**Alexa Warwick** is a second year Ph.D. student at Florida



State, where her focus is the evolutionary history and contemporary conservation of herpetofauna and their associated habitats in the Americas. She uses genetic tools to relate spe-

cies diversity to landscape features and geologic events in order to understand, and possibly alleviate, current threats to global amphibian diversity. One goal is to elucidate the interaction of enigmatic decline factors and subsequent species responses at a genetic level (ecological genomics) for anurans to distinguish characteristics of resilient versus susceptible species. Currently she is working with the rare pine barrens treefrog, *Hyla andersoni*, in eastern North America to understand the origin and maintenance of diversity across the range of the species. Alexa's undergraduate work at the University of Northern Iowa investigated phylogeography of fiddler crabs on the Atlantic and Gulf coasts of North America.

**Jack Kosmicki and Susan Meerdink** attended and presented posters at the NASA Midwest Space Grant Consortia in September 2010 in Minneapolis, MN. This conference was a showcase of NASA Space Grant recipients. Jack's topic of presentation was spatiotemporal modeling of glacial refugia of *Etheostoma blennioides* during the last glacial maximum. Susan presented on the topic of using geospatial technology and environmental variables to develop an ecological niche model of *Glyptemys insculpta* in Iowa.

**Jim Mason** (Biology Graduate Student) was selected to present his research during the Legislative Luncheon held on September 17, 2010 in the Georgian Commons. The Legislative Luncheon is an annual event hosted by the Graduate College with the intent to inform Iowa's Legislators about what The University of Northern Iowa's graduate education is doing for the community.



# Student Clubs

## Pre-Physical Therapy Club

**P**re-Physical Therapy club is an active society in UNI's Biology Department. The club is devoted to helping students pursue a career in physical therapy (PT). It encourages students to properly track their undergraduate careers enabling them to become the best possible candidates for future physical therapy graduate programs. In addition to academic advice, the club invites licensed physical therapists to speak about their jobs and admission representatives from PT schools to explain their admission requirements.

UNI's Pre-Physical Therapy Club is unique in that both the officers and senior members are dedicated to insuring the success of their peers. At the beginning of fall semester, the officers hold a meeting to familiarize club members with the Physical Therapist Centralized Application Service (PTCAS). The PTCAS is a centralized online application that goes out to any physical therapy program of one's choice. This application service can be very difficult to navigate; club members repeatedly comment that this one of the most beneficial meetings of the year. Near the end of spring semester, the seniors hold a meeting where they explain their personal hardships and joys of interviewing as well as getting accepted into graduate school. Club members are able to ask the seniors several questions providing younger members with more confidence for the day when they apply.



Karen Weltzin of River Hills met with students from the Pre-PT Club

The most exciting club events include visits with local physical therapists and admissions representatives. This past fall the club visited with PT Karen Weltzin at River Hills. River Hills is a school in Cedar Falls for elementary to high school aged students with special needs. Karen gave the club members a tour of the facility and explained the unique demands of working with a pediatric population. The admissions representative from Creighton University, David Belieu, and the University of Iowa, Byron Bork, visited with the Pre-PT club in the fall as well. The visit with Byron Bork was especially exciting as he met one-on-one with students for 'mock' interviews. The students gained critical information about Iowa's PT program and had a great time

interacting with Byron. The Pre-PT club is excited to host more admission representatives in the Spring of 2011 from Des Moines University, St. Ambrose University, and Clarke University.

A hallmark trade of Pre-PT club members is their involvement in the Cedar Falls community. Many volunteer at local hospitals or outpatient physical therapy clinics. Others are highly active in sports, intramurals, or running clubs. In previous years, several club members participated in the Relay for Life walk against cancer. Club members are devoted to such activities, because they know it is preparing them for a career dedicated to serving others.

The club welcomes support from local physical therapists and alumni, particularly as guest speakers for their meetings. If you have a desire to be a guest speaker or want to learn more about the club, please contact president Amy Klopfenstein at [klopfen@uni.edu](mailto:klopfen@uni.edu).



Byron Bork from University of Iowa met individually with members of the Pre-PT Club

### OTHER BIOLOGY CLUBS

- Biotechnology Club
- Microbiology Club
- Pre-Chiropractic Club
- Pre-Dental Club
- Pre-Medical Club
- Pre-Mortuary/Forensic Science Club
- Pre-Occupational Therapy Club
- Pre-Optometry Club
- Pre-P.A. Club
- Pre-Pharmacy Club
- Pre-Vet Club
- Student Nature Society
- Students for Organ Donation
- Tri-Beta (Beta Beta Beta)



# Faculty Changes - *Retirements*

## ❖ Virginia Berg

**D**r. Virginia Berg will be retiring in May of 2011. She came to UNI in 1984, and has been a member of the department since that time.



She has worked with 21 undergraduate research students, and six master's students, several of whom have obtained Ph.Ds., with at least five now teaching at universities. Others are working in industry.

Gini's research has investigated how plants move their leaves to avoid excess sunlight and heat, and more recently the spectral properties of leaves.

Gini has had a number of publications in major journals. She has also received a number of research grants, including ones from the National Science Foundation, the US Environmental Protection Agency, the US Department of Agriculture and the Iowa Space Grant Consortium. Gini was given the University Distinguished Scholar Award and has collaborated with research colleagues in Colombia, Korea, Wyoming and Vermont.

"The university has changed a lot in the 26 years I have been here, but the department has changed more, from one where research and external grants were only the goals of a few faculty members to a department of teacher-scholars working with many research students. The size of the department, in terms of faculty, students and facilities, has increased tremendously. It's been an exciting time to be here.

Seeing the progress of my research students as they move through their lives and careers has provided great pleasure and satisfaction. During my time here, I have been blessed by many wonderful colleagues, both faculty and staff, and many great students. I'm sure I'll miss them, but I have many other things to do, most of them outdoors or far away."

## ❖ Dorothy Brecheisen

**A**fter more than twenty years of dedicated and outstanding service to the Department of Biology, Dr. Dorothy Brecheisen will retire this spring.



Dorothy initially came to UNI in 1986, but left to teach at Cedar Falls high school for one year, before returning to UNI in 1989. Dorothy taught as an adjunct for the Department but took on an instructor position in 1997.

During Dorothy's twenty-plus year tenure in the Department of Biology, she taught at least 8 different classes including Activity Based Life Science, General Biology II, Genetics, and Life: Continuity and Change. Dorothy's teaching is well respected by both faculty and students. She twice received the College of Natural Science Dean's Award for Teaching Excellence in addition to receiving the Tri Beta Excellence Teaching Award.

Dorothy has become known for beginning each lecture with a cartoon that relates to the topic of the discussion that day. The Far Side is always a favorite.

Jenny Connolly, Assistant Director of Outreach in the Office of Admissions at the University of Northern Iowa, recently mentioned at a Panther Peek recruitment day that she remembers fondly the course she took with Dr. Brecheisen and uses Dorothy as an example of the quality of teaching prospective students will find at UNI.

Asked what she will do in retirement, Dorothy is looking forward to spending more time with her grandchildren, camping and geocaching with her husband, quilting, knitting, and traveling.

## You make a difference! *Message from our donors. . . .*

### Why support undergraduate biological research at UNI

In 2003 my wife, Karen, and I initiated the Alan Orr Undergraduate Research Endowment Award in the Department of Biology at the University of Northern Iowa to enhance undergraduate student research opportunities, and to assist the partnering of faculty and student in the quest for new knowledge in the biological world. We provide annual financial assistance for student-faculty cooperative primary research to integrate discovery, innovation and scholarship into the fabric of the undergraduate experience in the Department of Biology.

During my undergraduate days at Simpson College I was given the opportunity to engage in my own research project on hereditary blindness in white mice. This positive experience had a lasting impact on my career in the Department of Biology. It eventually led to my first published research, an oral presentation at an annual Iowa Academy of Science meeting my senior year in college, and acceptance into the graduate program at Purdue Univer-

sity. My undergraduate research activities helped infuse the confidence and knowl-



edge in my ability to succeed in research at the graduate level.

Subsequently, I came to the University of Northern Iowa (State College of Iowa) to lay down footprints in both teaching and

research. As my research productivity spanned the years in the Biology Department it involved collaboration with many undergraduate students engaged in primary research in my laboratory. Many of these young investigators became coauthors on published research papers in national referred journals, and several successfully completed post-graduate work in the life sciences.

Undergraduate research in the Department of Biology has a rich history of building strong foundations for a student's future career. The result is outstanding biology students who graduate and take leadership roles in professional schools, secondary and university classrooms, and health related fields. I am pleased to have played a role in the development of creative thinking skills through research.

Karen and I are pleased to support the creative efforts undertaken by talented and motivated undergraduates in the pursuit of new scholarly insights.

### New Faculty

#### ❖ Dr. Julie Kang



**D**r. Julie Kang joined the Biology Department in August 2010 as a newly appointed Assistant Professor. Julie obtained her Ph.D. at the University of Toronto, Canada, working with Professor Nancy Dengler. Her thesis was entitled "The role of cell cycling during vascular development in leaves of *Arabidopsis thaliana*".

During her Ph.D., she entered the Developmental Biology Program where she became proficient in both animal and plant developmental systems. Focusing on plant development, she mastered a strong background in plant anatomy and plant morphology where she specifically studied leaf and vascular development.

While at the University of Toronto, Julie was awarded a prestigious and highly competitive graduate and post-doctoral fellowship (NSERC) from the Canadian government. Additionally, Julie was awarded the Katherine Esau Post-doctoral Fellowship from the University of California, Davis, to conduct her postdoctoral work in the laboratory of Professor Neelima Sinha. It was during her postdoctoral work that Julie recognized that there was "a missing link" in knowledge about the role of leaf veins and the cell cycle during leaf shape formation.

Julie brings many leadership qualities, having mentored numerous undergraduates during her Ph.D. and post-doctoral work. She is excited to be part of the Biology Department and looks forward to working with the undergraduates here at UNI, both in the classroom and in her own laboratory. We are fortunate to have Julie join us as a faculty member in the Department.

# YOU CAN MAKE A DIFFERENCE!

**W**e take much pride in the accomplishments of our students and we hope that we have played some role in their success. We take very seriously our responsibility to educate and provide opportunities to our students and we are continually looking for ways to improve. With each passing year this has become increasingly difficult. Our Departmental budget has not seen an increase in the past ten years. Yet the costs of equipment, supplies, and travel have continued to rise. Our faculty have attempted to meet these challenges and have found ways to support students and provide students with opportunities by obtaining external funds. However, this too has become more difficult.

The cost to students continues to rise through increased tuition coupled with fewer opportunities available to students via University-sponsored programs. It now

costs the average student about \$22,000 per year to attend UNI. Most of our students work outside of the University to support themselves and to pay for tuition. This in turn can impede their education and reduce their time for experiential learning. Although working while attending school can benefit students in learning time management skills, it may also defeat the purpose of attending a university and taking part in all that it can offer.

The financial support of many of our alumni help to provide what would otherwise be lost opportunities to our students. Many of the student scholarships that are offered via private funds have the caveat that students must work within the Department in order to receive scholarship funds. This is a wonderful idea as it requires the students to participate in our Department and I hope this, in turn, stimulates the stu-

dents to think of our Department as their home away from home. It provides faculty the opportunity to better know our students and provides our students the opportunity to interact with faculty, a win-win situation for both. Unfortunately, we have too few of these scholarship opportunities available for our students. Your financial support of existing scholarships or the endowment of new scholarships would ensure that our students today receive the same opportunities that were afforded to you. This is a legacy worth leaving. Your financial support of student scholarships and the Department as a whole would be much appreciated. Listed below are the current scholarship funds available for students as well as the Department's Biology fund which supports student/faculty research.

## *Scholarships and Funding*

### ◆ **Biology Awards & Honors**

This fund is used to support "hard working" students who do not have any other financial assistance. Biology faculty nominate deserving students.

### ◆ **Biology Department Fund**

This fund is for general support for the Department of Biology. Monies from this account are used to support faculty/student research, faculty/student travel, and purchase of teaching supplies and equipment.

### ◆ **Biology Preserves Fund**

This fund is used to support the development and maintenance of the Biological Preserves System at UNI, including such items as purchase of trees, shrubs, and equipment as well as for the development of exhibit areas and support of personnel involved.

### ◆ **Caroline Czarnecki Biological Sciences Scholarship**

This scholarship provides support for students who demonstrate merit and financial need, with preference given to students with a declared major in biological sciences, with a grade point average of at least 3.0. The award amount is \$1000.

### ◆ **Myra and Gary Floyd Undergraduate Research Assistantship**

This assistantship is to provide support for

two undergraduate research assistantships in the Department of Biology.

### ◆ **Vivian Wiseman Fullmer Scholarship**

This scholarship is awarded to undergraduates who have a major or emphasis in an environmentally focused undergraduate program. Students must have financial need, scholarship, and professional dedication. The amount of the award is \$300.

### ◆ **Dr. and Mrs. Robert Good Summer Research Fellowship**

This fellowship is intended to support undergraduate student research carried out through the summer. The fellowship provides \$3000 for the support of an undergraduate research project.

### ◆ **Dr. Timothy Greiner Undergraduate Biology Scholarship**

This scholarship provides support to undergraduate biology majors who are in no less than their second semester of their major. The award amount is \$1000.

### ◆ **LaDuke Scholarship**

This scholarship is awarded to two students who will be juniors or seniors and who are pursuing an undergraduate biology degree with an emphasis in Ecology and Systematics. Each applicant will receive a total of \$500.

### ◆ **J.S. Latta Biology Scholarship**

This scholarship provides support for a declared biology major, either a freshman or sophomore having either completed or currently enrolled in both Organismal Diversity and Cell Structure and Function. The student must have GPA of 3.5 or higher. The amount of the award is between \$250 and \$500.

### ◆ **Northern Iowa Association of Pond and Water Gardeners Scholarship**

This scholarship provides support for biology students at UNI who are of sophomore, junior or senior standing and who demonstrate merit with preference given to students from Iowa who are interested in plants and/or aquatics. The amount of funding is \$1000 per student.

### ◆ **Dr. Alan R. Orr Research Awards Endowment Fund**

This award supports undergraduate experiential learning through hypothesis-driven research. Applicants must be Biology majors conducting research with a faculty member in the Biology Department.

### ◆ **Dr. Dave Swanson Genetics Research Award**

This award supports undergraduate experiential learning through hypothesis-driven research. Applicants must be Biology majors conducting research with a faculty member in the Biology Department.



# Support for students or department

**Would you like to support a Biology student and/or the Biology Department?  
If so, please fill out the form below and return it to:**

## UNI Foundation Financial Services

1223 W. 22nd Street  
Cedar Falls, IA 50614-0239

If you would like to start your own scholarship, contact Cassie Luze  
cassie.luze@uni.edu or Phone: 319-273-6360

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

E-mail: \_\_\_\_\_ Phone \_\_\_\_\_ Is this a cell phone \_\_\_\_\_

Please check if different than addressed.

I/we would like to support the following fund(s)

\$ \_\_\_\_\_ Biology Department Fund which includes Dr. David Swanson Genetics Research Award (21-221607)

\$ \_\_\_\_\_ Biology Awards & Honors (21-210342)

\$ \_\_\_\_\_ Biological Preserves Fund (21-220162)

\$ \_\_\_\_\_ Caroline Czarnecki Biological Sciences Scholarship (21-212250)

\$ \_\_\_\_\_ Vivian Wiseman Fullmer Scholarship (21-210232)

\$ \_\_\_\_\_ Myrna & Gary Floyd Undergraduate Research Assistantship (21-222165)

\$ \_\_\_\_\_ Dr. and Mrs. Robert Good Summer Research Fellowship (21-222342)

\$ \_\_\_\_\_ Dr. Timothy Greiner Undergraduate Biology Scholarship (21-212261)

\$ \_\_\_\_\_ J.S. Latta Quasi-Endowed Biology Scholarship (20-210303)

\$ \_\_\_\_\_ Dr. Alan R. Orr Research Awards Fund (21-211914)

\$ \_\_\_\_\_ Total

*Online* \_\_\_\_\_

Go to the online pledge form at [www.uni-foundation.org/](http://www.uni-foundation.org/) and click on "Make an online gift". You will need to enter the specific name(s) of the Biology projects in the "Other" box near the bottom of the web form.

Matching Gifts: My (or my spouse's) company, \_\_\_\_\_ (name) will match my gift. Please contact your HR office for details and the matching gift form to be submitted with your payment.

*Check* \_\_\_\_\_  Check enclosed, payable to the UNI Foundation

*Credit Card* \_\_\_\_\_  Credit Card: Please charge my card \$ \_\_\_\_\_ beginning (mo/yr) \_\_\_\_\_ / \_\_\_\_\_

Signature (required) \_\_\_\_\_ Date \_\_\_\_\_

*Credit card information will not be kept on file.*

100415

Charge my: VISA MasterCard Discover American Express (circle one)

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_

**Department of Biology**

University of Northern Iowa  
Cedar Falls, IA 50614-0421



Photos by Kirk Henderson



*Contact info:*

David Saunders  
Department Head  
319-273-2456



*Web info:* <http://www.biology.uni.edu/>