FOCUS ON UNDERGRADUATE RESEARCH

Providing undergraduates with meaningful research experience is a priority for the UMD Department of Biology and the university, as a whole. The department offers students a number of different ways to participate in scientific research: the Undergraduate Research Opportunity Program (UROP), enrollment in BIOL 3994 Undergraduate Research, volunteer or paid employment in a research lab. Here are some of the outstanding students at work in the department that exemplify each of these opportunities:

**David Johnston** (UROP Sum/Fall 2013)—is working with a crab spider, *Misumena vatia*, that is known to change color from white to yellow interchangeably over a few days in the wild. The spider sits on white and yellow flowers and preys upon arthropods attracted to the blooms. The selective factors for the spider’s color changing behavior is unknown. David will try to experimentally determine if *M. vatia* can tell what their current color is, what the color of a given substrate is, and if they are capable of choosing between foraging sites based on color. The results will yield important information on the constraints on the evolution of this rare behavior (Dr. Timothy Craig, mentor).

**William Licht** (UROP Summer 2012)—tested the preference of *Oecanthinae* tree crickets for ovipositing, or laying eggs, as his UROP project. He presented his research at the National Conference of Undergraduate Research at Weber State University in Ogden, Utah, in spring 2012 and at the Entomological Society of America’s meetings in Knoxville, Tenn. in fall 2012. He is currently writing a paper, for which he is the lead author, for a peer-reviewed publication describing the results of his studies. Wil was awarded the Biology Department’s **Excellence in Academics and Research Award** in 2013. Wil’s undergraduate career culminated in May, 2013 when he accompanied Dr. Craig to Kyoto University to assist with lace bug research. Wil will be attending graduate school this fall at the University of Kentucky on a graduate research assistantship in the Entomology department.

*(Continued on page 9)*
Congratulations to Dr. Jennifer Liang and Dr. John Dahl who became tenured faculty in 2012 and promoted to the rank of Associate Professor. Both joined the Biology department in 2008.

Congratulations to Dr. Thomas Hrabik who was promoted to the rank of Full Professor in 2013. Dr. Hrabik joined the department in 2000.

The Biology Department’s faculty continue to be recognized as some of the best on campus. Colleen Belk (2012) and Lyle Shannon (2013) were both honored with the UMD Chancellor’s Award for Excellence in Teaching. This award recognizes faculty who have made contributions to the teaching mission of UMD that are of extraordinary quality and reflect UMD’s emphasis on high quality undergraduate and graduate education. This award honors faculty for innovative pedagogy, development of critical and critical thinking, student mentoring, commitment to liberal education, and leadership and impact within a department.

Colleen has written Biology: Science for Life (Pearson, 2012), a leading non-majors biology textbook, now in its fourth edition, as well as several other texts. In addition to writing the textbook for Biology and Society, she also adapted the class into an online course at UMD. She has been awarded the SCSE Advising Award (2007), and was the Linda M. Larson Woman of the Year (2009).

Lyle has been a pioneer in the use of technology in teaching and has served as an ITSS faculty technology fellow helping other faculty to incorporate technology into their courses. He has continued to conduct research in aquatic ecology and has been actively involved in mentoring students in the Undergraduate Research Opportunity Program (UROP). Lyle previously received the Swenson College of Science and Engineering Outstanding Advisor Award (2008) and the Biology Department’s Inspirational Teacher of the Year Award (2009).

The Biology Department also recognizes outstanding work in the classroom through its Inspirational Teacher of the Life Sciences Award. Colleen Belk was the 2012 recipient of the award and Dr. Shannon Stevenson received the award in 2013. Shannon was recognized for her work in Active Learning in the large lecture class.

Dr. Jennifer Liang received the 2013 SCSE Outstanding Faculty Advisor Award. Dr. Liang will receive $500 as a cash bonus or travel or an equipment allocation. In addition, the Biology department will receive $500 to spend on its advising program.

Credit: Contributors: Rachel MaKarrall, Gerald Niemi and Kathy Stewart
Photos: Tim Craig, Brett Groehler, Katie Lassi, Rachel MaKarrall and Kathy Stewart

STAFF NEWS

Michelle Anderson, Principal Office & Administrative Specialist, left the Biology Department in May, 2012. She and her husband, Shaun, moved to the Twin Cities upon his graduation from the University of Minnesota College of Pharmacy Duluth. Kathy Stewart joined the department at the same time to fill Michelle’s shoes.

Welcome to Katie Lassi who joined the Biology Department as a Lab Services Coordinator. Katie not only received her B.S. in Biology (2008) from UMD but also earned an M.S. from Integrated Biosciences (2011) and a B.A.Sc. in Teaching Life Sciences (2012). Katie’s duties include responsibility for the Genetics and Microbiology teaching labs, department technology, and laboratory safety.
I have been a member of the department since 2000, and comparing the results of a comprehensive external review of the department completed the year after I started and last year, makes me realize how rapidly the department has grown in both quantitative and qualitative measures. When I arrived at UMD we had 325 undergraduate majors, while this fall we are expecting to enroll over 750 majors. Our graduate programs have grown, too, as we now have 68 graduate students in the Master’s and Ph.D. programs of the Integrated Biosciences program, which didn’t exist 10 years ago, as well as the Water Resources program. Research activity has greatly expanded as we have more than $6.7 million externally funded projects. During this period we also have greatly improved our teaching and research facilities with the new James I. Swenson Science Building and the completely remodeled Life Sciences Building.

While this growth is exciting in many ways, bigger is not necessarily better, and I hope that despite this growth, we will not lose the tradition of personal interactions that have inspired many former students. We hear from many former graduates who have reached the top of their professions in academics, medicine, and other fields who talk about the importance of their experiences in the UMD Biology Department interacting with faculty and other students in launching careers. This year Dr. Brian Kobylka was awarded the Nobel Prize, and in every interview I heard him give, he credited doing undergraduate research with one of our emeritus faculty, Dr. Conrad Firling, as inspiring his interest in research. I see many indications that this tradition continues. For example, the last two winners of the UMD Chancellor’s Award for Excellence in Teaching were from our department. As well as excelling at research at the graduate level, we have a large number of undergraduates involved in research who are winning awards, giving talks at national meetings, and publishing in peer-reviewed journals. We invited external reviewers from prestigious universities to evaluate the department, and the comment they made that I value most is that they would not hesitate to recommend their best students to enroll in our undergraduate or graduate programs. I hope that you enjoy reading the details about what has been happening in the department in this newsletter.

MESSAGE FROM TIMOTHY CRAIG
DEPARTMENT HEAD

TWO GENETICISTS JOIN THE FACULTY IN FALL 2012

Briana Gross has been fascinated by plant evolutionary genetics since about 1999, when she took a course titled “Plant Systematics and Evolution” at Willamette University as an undergraduate and read a paper about heavy metal tolerance in monkey flowers. Since then, Briana has worked on wild plants that are native to North America (Helianthus deserticola, the desert sunflower), weedy plants from Asia (Oryza ssp, weedy rice), and domesticated plants from Eurasia (Malus domestica, the domesticated apple). Briana grew up in Idaho, but her path has taken her to Salem, Oregon for her undergraduate degree, Indiana University for her Ph.D., Washington University in St. Louis for an NIH postdoctoral fellowship, and the USDA National Seed Bank for another two years of research.

Dr. Gross’ lab is focused on questions concerning the origin and evolution of domesticated plants and agricultural weeds. They are using genetic tools to understand the origin of weedy and domesticated plants and to identify the genes underlying important traits in these groups. Currently, they are using African and Asian domesticated rice to understand the genetic basis of parallel changes in response to artificial selection (the two species are in the same genus, but were domesticated at different times on different continents). The other main project in the lab deals with apple domestication genetics, and they are in the process of genetically identifying local trees as a way to understand regional diversity in this perennial fruit crop.

Briana taught Genetics this spring and will teach Genetics Lab in Fall, 2013. She looks forward to teaching Ethnobotany, the evolution of food plants and plant domestication.

Jared Strasburg received his BS in biology (along with minors in chemistry and philosophy) at the University of Missouri-Rolla, a small town in the Ozark Mountains of southern Missouri. He then moved to St. Louis and earned his Ph.D. at Washington University studying hybrid parthenogenetic geckos (geckos where the populations are entirely female and reproduce clonally, with mothers having daughters that are genetically identical to them). This work was motivated by Jared’s interest in the phenomenon of hybridization, or successful matings between individuals from different species. Hybridization has historically been thought to be unimportant in evolution, but recent work has shown that it can play a big role in adaptation and speciation by moving genetic material from one species to another. Jared switched from animals to plants when he went to Indiana University to study hybridization in sunflowers. He is continuing to work with sunflowers at UMD, but is also branching out into other plants and animals, including starting work this year on the genetics of Minnesota moose and wolf populations. He’s still interested in trying to answer evolutionary questions related to hybridization and speciation using genetic data.

During his first semester at UMD Jared taught Evolution, a course he will continue to teach each fall. He will also teach Genomics in Spring 2014. Jared really enjoyed teaching Evolution, even though teaching to a class of about 100 students for the first time was challenging.

Jared and Briana are married to each other. They love Duluth, especially the view of Lake Superior they have from their back windows, and the great walking and running trails near their home. They’re looking forward to taking advantage of all of the hiking, skiing, and snowshoeing opportunities near Duluth. They also finally got a dog, Sadie, from the shelter when they moved here, which they’d been wanting to do for a long time. They feel like they’re settling in to great jobs in a great city, and they’re very happy to be here.
UMD GRADUATE WINS 2012 NOBEL PRIZE IN CHEMISTRY

UMD graduate Brian Kobilka (1977) was awarded the 2012 Nobel Prize in Chemistry, along with another U.S. scientist, Robert Lefkowitz, for their pioneering work on G-protein-coupled receptors.

Kobilka graduated summa cum laude from UMD in 1977 with Bachelor of Science degrees in biology and chemistry. He earned his medical degree from Yale University School of Medicine in 1981. He joined the faculty of the Stanford University School of Medicine in 1989, where currently he is professor of medicine and molecular and cellular physiology. Dr. Kobilka was inducted into UMD’s SCSE Academy of Science and Engineering in 2005.

Brian’s first research project at UMD was studying gene expression in the salivary glands of insects. “That was pretty advanced for the time,” said Conrad Firling, professor emeritus of Biology. It was almost unheard of at that time for undergraduates to conduct research. “He was probably one of the first,” said Firling.

Robert Lefkowitz started to use radioactivity in 1968 in order to trace cells’ receptors. He managed to unveil several receptors, among those a receptor for adrenaline: β-adrenergic receptor. His team of researchers extracted the receptor from its hiding place in the cell wall and gained an initial understanding of how it worked. Dr. Kobilka joined the Lefkowitz team at Duke University School of Medicine to try to isolate the gene that codes for the β-adrenergic receptor. When the researchers analyzed the gene, they discovered that the receptor was similar to one in the eye that captures light. They realized that there was a whole family of receptors that looked alike and functioned in the same manner. Today this family is referred to as G-protein–coupled receptors. About a thousand genes code for such receptors, for example, for light, flavor, odor, adrenaline, histamine, dopamine and serotonin. About half of all medications achieve their effect through G-protein–coupled receptors.

In 2011, Kobilka achieved another breakthrough when his team captured an image of the receptor for adrenaline at the moment when it was activated by a hormone and sent a signal into the cell. The academy called the image “a molecular masterpiece.” (Pictured top right).

KOBILKA TO VISIT UMD

Dr. Brian Kobilka will visit campus on Friday, September 13th. He will present a lecture from 3:15 to 4:00 p.m. that day in 200 Chem. The lecture will be followed by an all-campus reception from 4:15 to 5:30 p.m. in the atrium of the Swenson Science Building. Both of these events are open to the public. Please contact the SCSE Development Office at 218-726-6984 or check the UMD website www.d.umn.edu for further information.

RETIREMENTS

Professor Stephen Hedman retired after 40-some years at UMD and the Biology Department in May, 2012. Hedman, who joined the department in 1968, misses teaching Genetics and challenging students to perform beyond their expectations, has been very busy since he left the department. Dr. Hedman is in the process of becoming a University of Minnesota Extension Service Master Gardener (come see him Wednesdays at the Duluth Farmer’s Market) and has recently become the chair of the Human Subject Protection Program at Duluth’s Essentia Health. He is also on the Board of Directors of the Sugarloaf Nature Center in Schroeder, MN. Above all else, Steve and his wife, Dee, smile whenever they see their seven grandchildren!

Professor Robert Hecky and Associate Professor Stephanie Guildford retired from the Department of Biology in May, 2013. Hecky and Guildford, who joined the faculty in 2007, also had appointments at the Large Lakes Observatory. They will maintain a research presence at LLO and continue to travel for research.
2011 AND 2012 SCSE ACADEMY INDUCTEES

2011 BIOLOGY INDUCTEE — DR. DANIEL ENGSTROM

Dr. Engstrom earned his Bachelor of Arts degree in zoology and chemistry from the University of Minnesota Duluth. He went on to earn a Master of Science degree in zoology and a Ph.D. in ecology from the University of Minnesota. Currently Dr. Engstrom is the Director of the St. Croix Watershed Research Station at the Science Museum of Minnesota. His research centers on the use of lake sediment records to understand long-term environmental change, particularly the effects of human activities on water quality, atmospheric chemistry, and biogeochemical processes on a global scale.

2012 BIOLOGY INDUCTEE—DR. BRENT HAGLUND

Dr. Brent Haglund earned his Bachelor of Arts degree in biology in 1970 at UMD and a Ph.D. in ecology from the University of Georgia where he studied with Eugene Odum and Frank Golley. He currently serves as the President of the Sand County Foundation in Madison, Wisconsin. Dr. Haglund’s research interests have been in ecosystem level effects of weather modification, fire management, and wildlife populations. He was ecological consultant to the Wisconsin Legislative Council on non-point water pollution, was a member of the Wisconsin Sesquicentennial Commission, is a member of the Executive Committee of the Wisconsin Public Utility Institute, and was a private sector conservation advisor to the Cabinet of Premier Nick Greiner, New South Wales, Australia. Dr. Haglund’s book, Hands-On Environmentalism (Encounter Books, 2005), was co-authored with Tom Still.

HAVE YOU BEEN TO ZOMBIE FEST?

Dr. John Dahl's annual Zombie Fest is rapidly becoming a tradition at UMD. The concept emerged after a student told Dr. Dahl that his philosophy professor had used zombies as a subject of a class lecture. After contacting Dr. David Cole himself to find out more, John was intrigued about the idea of using the theme of zombies to bring together divergent departments in a one-evening, interdisciplinary symposium. Zombie Fest was a success from its beginning, with over 350 people attending in both 2011 and 2012.

Zombie Fest 2014 will be held Friday, October 18th at the Egyptian Theatre of the Duluth Masonic Center, 4 West Second St., Duluth. Dr. Dahl will talk about generating a vaccine against zombies; Nathan Carroll from St. Scholastica College will talk about the theme of zombies in film; and Ryuta Nakajima from the UMD Art Department will talk about zombies in art.
The generosity of alumni and friends make it possible for the Department of Biology to present annual awards and scholarships to students within the department. This year’s reception was held on April 25th in the Library Rotunda on UMD’s campus. Thank you to the committee members who had the difficult task of choosing this year’s winners from the many deserving applicants. Congratulations to the following award and scholarship recipients!

**A. Jane Berry Warren Memorial Scholarship**—awarded to a full-time undergraduate biology student.
2012—Phyo Ma and Karissa Vosen
2013—Alexie Larson

**Ed & Alma Turcotte Scholarship**—awarded to motivated, high-achieving biology or cell biology majors. This scholarship is dedicated with profound respect and everlasting love to the memory of Edgar L. and Alma Turcotte of Carlton, Minnesota. Their three sons and two daughters all attended UMD.
2012—Cathryn Bettendorf, Jay Feuillerat and Joseph Zbaracki
2013—Ashley Kangas, Alexandra Sauer, Logan Van Hon

**Excellence in Academics and Research Award**—given to a student who has contributed substantially to biological research at UMD, while maintaining a high GPA of at least 3.5.
2012—Rachel Toczydlowski
2013—William Licht

**Ernest & Tyyne Niemi Scholarship**—dedicated to the memory of Ernest and Tyyne Niemi, children of immigrant Finnish parents who lived and raised families in northeastern Minnesota.
2012—Chaz Heikkila
2013—Kelsey Melgaard

**John McCabe Scholarship**—awarded to a high-achieving biology or cell biology student.
2012—Molly Gorder
2013—Morgan Reno

**Karim Pre-Veterinary Medicine Award**—sponsored by Dr. Reza-ul (Raj) Karim and family in memory of Sikander M. Karim, Dr. Karim’s father. The preveterinary medicine student who receives this award demonstrates high academic achievement, a dedication to the veterinary profession, maturity, and reliability.
2012—Kristine Woerheide
2013—Elizabeth Madole

**Mowbray Scholarship**—awarded to a motivated and high-achieving biology major who intends to pursue graduate school in the biological sciences, exclusive of the medical and health sciences, and based on merit and commitment to a professional career in the biological sciences.
2012—April Rollins
2013—Paula Miller

2012 Scholarship & Award Recipients
SCHOLARSHIPS AND AWARDS

**Outstanding First Year Biology Student Award**—given to a freshman student who excels in the introductory biology courses, Biology 1011 and 1012, and is selected by the instructors of these courses.
- 2012—Chaz Heikkila
- 2013—Abigail Whitney

**Outstanding Undergraduate Teaching Assistant**—awarded to the top undergraduate teaching assistant in the Department of Biology. The recipient is chosen by faculty members using established criteria.
- 2012—Tyler Traynor
- 2013—Brent Schotl

**Outstanding Graduate Teaching Assistant Award**—presented to the top graduate teaching assistant in the Department of Biology. The recipient is chosen by faculty members using established criteria.
- 2012—Eric Berens, William Chen, Andrea Crouse
- 2013—Caroline Lund, Jessalyn Toldo, Rachel Ward

**Solidarity Through Science Scholarship**—awarded to students studying abroad in the current program in Poland or other programs held in Eastern European countries.
- 2012—Molly Gorder, Stephanie Herrala
- 2013—Andrew Olufson, Stephanie Schramel

**T.O. Odlaug Scholarship**—given in honor of Dr. Theron O. Odlaug, a former biology professor and department head who retired in 1978. Dr. Odlaug passed away in 2000. This scholarship was initiated when an anonymous donation was made in memory of Dr. Odlaug. The anonymous alumnus remembered the inspiration and help given by Dr. Odlaug.
- 2012—Alexie Larson, Morgan Reno, Jacqueline Thaemert
- 2013—Katelin Goebel, Alexandra Theis, Brandon Westmoreland

**T.O. Odlaug Outstanding Senior Biology Student Award**—given to a senior biology student nominated by the biology faculty. The recipient has demonstrated strong leadership qualities, service to the department, and participation in undergraduate research.
- 2012—Emily Kalkbrenner
- 2013—Molly Gorder

**UMD Peterson Memorial Scholarship**—given through the Swenson College of Science and Engineering (SCSE) and rotates between SCSE departments. It is presented to a motivated, high-achieving student.
- 2012—Alex Johnson
- 2013—Megan Neuberg

The UMD Department of Biology would like to express their grateful appreciation to all of the Scholarship and Award Donors for their generous support. Their belief in today’s generation helps provide a springboard to tomorrow’s advancements in science and medicine.

2013 Scholarship & Award Recipients
2011—2012 BIOLOGY DEPARTMENT GRADUATES

B.S. Biology
Maria Elizabeth Abernethy
Christopher Anderson
Anna Beth Arnold
Elizabeth Joy Auclair
Eric Richard Bacheler
Charles Benton Beery
Michael Quinn Benson
Christopher William Berg
Jack William Bergman
Nathan A. Birno
Carley Jo Boisjoli
Elliott J. Bucholz
Amie R. Chan
David Joseph Chiarelli III
Sara Louise Chlebeck†
Nathan Bennet Dahlberg
Nathan Paul Dennis
Joshua David Ditsworth
Eric M. Dowling**
Benjamin Michael Dresow
Amanda Gayce Dvorak
Angela E. Erler
Rachel L. Fleming
Andrew L. Fuhrman
Marie Maureen Garry**
Kyle Glen Gilles
Anthony Andrew Granda
Abigail Marie Guderian*:
Benjamin Christopher Gunn
Christopher Blair Hauglid
Rosemarie Ann Heikkila
Alexis K. Heim
Kelsey Rae Hero
Angela Kay Jackson
Logan R. Jackson
Amanda Maureefa Jeffy
Jeffrey J. Johanson
Michael Asa Johnson
Samantha Marie Johnson
Emily Ann Kalkbrener
Benjamin A. Kanstbauer
Stephanie Kay Keppler
Andrew J. Kneussl
Sarah Ann Kohman
Janine Leigh Kreyer
Natalie Christine Kullberg
Michael Steven Kurz
Logan Reece LaBonne
Grace Josephine Larsen
Kathryn J. Larson
Catherine D. Leavitt
Brittney Kay Livingston
Kelsey Jae Locken
Rachael Ann Loo
Zachary James Maas
Brittany Leigh MacDonald
Christina A. Maley
Melissa Maluyak
Brook Nicole Martell
Krianna K. Masters
Scott Carol McIntosh
Melanie Maxine Spasenko
Kalie Diane McNallan
Jesse Julian Miller
Kaitlin Maureen Mulcahy

Alexander Samuel Muller
Red Louis Nelles
Andrew David Nelson
Joseph Ayers Nielsen
Molly Marie Nustad***
Andrew Robert O'Keefe
Ashley Parcohe
Douglas Richard Parson
Vanessa Peterson
Jethyl Ashley Piersack
Benjamin J. Polgreen
Joshua D. Quammen
Andrew Steven Radzak**
Jaclyn Marie Reimennant**
Peter Retka**
Wesley W. Rice
Lauren Alyssa Rustad
Kayla Marie Salo
Kali Rae Samuelson
Elizabeth Catherine Schnabel
Michael John Schoeneberger
Lauren N. Schulberg†
Jacob Michael Schultz
Deanna Sue Secord
Courtney Florence Serra
Stephanie Spencer
Courtney Margaret Sivalu
Victoria Mora Hill Stall
Ryan S. Stever
Kelsey Nicole Spieczynska***
Maenisa Tan-atitch
Benjamin G. Thalhuber
Rachel Helen Toczydlowski***
Jessica Lynn Treat
Diane Wanger
Evan F. Warner***
Karen Jo Westberg*
Molly L. Wilson
Patrice Marie Witschen**

B.S. Cell and Molecular Biology
Brittany Anita Bauer***
Audrey Louise Bennett***
Elena Nikole Campea
Cassandra Marie Columbus*
Stephanie Cara Driskell
Jade M. Halvarson*
Erin Marie Hammes**
Grant Warren Hicks
Matthew A. Joval
Lauren E. Kaldun
Kayla Ann Kastanek
Joseph Andrew Kealy
Curtis Michael Henry Nelson
Janet Marie Non
Elizabeth Lynn Peterson
Abigail Lea Richie
Eljah Daniel Salfer
Abigail Josephine Sauerbrey
Christopher James Sipe
Samantha Jo Sivertson***
Jesse Sutherland
Grant D. Syverson*
Peter Louis Timinski

B.A. Biology
Kyle Scott Braden
Sean Patrick Burns
Brennen P. Collins
Timothy Lyle Fellman
Carly Ann Herath Gimm
Kayla Marie Kiminski
Allison Marie Kubbehising
Justin Tweedale
Jaclyn Alexi Uithoven
Nicole Leigh Wajcman
Nathan Peter Young

2012—2013 BIOLOGY DEPARTMENT GRADUATES

B.S. Biology
Metadel Fisheha Abegaz
Monsaur O. Adeyemi
Rebecca Marie Arneson
Blake Dewanye Dale
Evelyn Ensminger
Peter John Bather
Cayla M. Bergstrom
Cathryn Claire Bettendorf*
Brent William Bockwitz
Benjamin Duane Brakke
Kiah Emily Brach
Chelsey Barbara Cannata*
Andrea Therese Carpenter
Laura Jean Chmielewski
Blake Peter Cifaldi
Jennifer Dee Cross
Kelly Rae Djerf
Mary Joseph Dougherty
Amanda Christine Drewek*
Nathan Joseph Dum
Bryan Owen Duncanson
Maxwell Lawrence Efiehl
Gary Mitchell Ellis
Conor Seamus Fahy
Michael Thomas Feldstein
Jay Joseph Feuilleart**
Maureen Carol Flackey
Michael Thomas Gorder**
Elizabeth Hannah Gray
Joseph M. Gray
Thor Thomas Greengard
Alex Richard Guer
Kari Lynn Hansen
Tiffany M. Harvey
Stephanie Lynn Herrala*
Samantha A. Hertiaus
Dalton James Hesley
Bayli Stast
Hanna Iaizzo
Erin Kristina Johnson
Brandon Lee Kalivoda
Jennifer Lynne Kiekwiet
Samantha L. Laers
Sally Elizabeth Kloempken
Amanda Marie Kloppek
Alisha Lina Lall
Emily Alise Lasiweski
Rebecca Anne Lee***
Hannah Marie Lemke
Amanda Jo Lester
William Isaac Licht*
Stephani Rebecca Lipskey*
Jonathan C. Lo
Brianne Marie Loeks
Jesse Lee Longtin
Jenn Malinowski
David F. Malyuk Jr.
Rose Marie Maslowski
Emily Jo Meyer
Tashannya Marie Meyer
Samantha Ann Moen
Ashley Emma Murray
Krysta Rose Nelson*
Matthew Lewis Nelson
Brennin K. O'Brien
Keith C. Oleheiser
Patrick J. Olson**
Michael Okioi Onami
Dirin Onyeneho

Christopher Michael Osberg
Kyon Joel Onsrud
Chloe Alexandra Pitts
Kristin M. Reed
Thomas George Rishel
Brent Alan Schott
Leah Shaw Schoer**
Carolyn Clare Schupp*
Allison Katherine Schute
Brittney Megan Sethor
Kaleb John Springer
Kaela B. Stellrecht
Elana Marie Thompson
Tessa Lynn Tjepkes
Erik M. Topie
Tyler Joseph Traynor
Bryce Matthew Van Klein
Karissa R. Vosen**
Angela Catherine Wagner
Theresa M. Weber
Jakob M. Weikum
Adam Jeffrey Westman
Timothy Daniel Williams
Lake Wohldenh"en
Elizabeth Ann Wojtczak
Elizabeth C. Wyman
Sheng Sara Yang
Valentina Villenga
Elizabeth Lynn Young
Yuyan Zhang**

B.S. Cell and Molecular Biology
Daniel James Austing
Brittany Faith Bailey
Mya Emily Barlage-Lillemoen
Ashley Jean Bauer*
Andrea Elaine Bilderdicker
Ashley Ann Bird
Nathan Joseph Buermann
Rachel Mae Cantion
Jessica A. Clay
Richard Leigh Conrath
Alia Rae Coughlin*
Alaina Ciecko Doran
Cory Both Doroff
Matthew Gabriel Tom
Jeffrey Michael Finlon
Chelsey Rae Ford
David Andrew Grunst
Corey Allen Hanson
Katie Herlache
Clare Elaine Hess
Alex C. Johnson**
Jacob James King
David M. Kline
Chun Wing Lee
Hanna Lentsch*
Matthew Joseph Malecha**
Kelsey E. Mork
Tony Nguyen
Jamie Lynn Nobsch***
Paul L. Ollila
Jolene Marie Prochazka
Brandon J. Randall
Arthur Richard Reynolds
Hannah Jo Sahli
Stephanie Santarriaga
Escamilla
Abby Chaline Schumann
Amy Jo Van Hecke
Jessica M. Villenueve
Xuan Wang*
Focus on Undergraduate Research

Outstanding students (continued from Page 1)

Brianna Loeks (UROP Fall 2012) - Brianna’s project was “Variation in cytotypes among host plant Solidago altissima in relation to herbivore preference.” Brianna conducted a series of experiments to test the hypothesis that differences in ploidy levels of the goldenrod Solidago altissima influence herbivore presence, and the oviposition preference of Eurosta solidaginis (Dr. Timothy Craig, mentor).

Paula Miller (UROP Sum/Fall 2013) - is studying Oceanthinae, tree crickets; the males sing to attract mates as do other crickets but also produce a protein rich spermatophore eaten by the female during copulation and thus termed a nuptial gift. Paula plans to study the attraction potential and reproductive significance of the nuptial gift by analyzing the copulation success of male tree crickets who have differing protein concentrations in their spermatophore (Dr. Timothy Craig, mentor).

Whitney Scherkenback (BIOL 3994 Summer 2013) - is studying the genetic structure of the sunflower species Helianthus debilis and its five subspecies. She is collecting DNA data from samples representing the five subspecies in order to examine population genetic structure and levels of gene flow among the subspecies (Dr. Jared Strasburg, mentor).

Emily Wack (UROP Fall 2012) - investigated the effects of invasive buckthorn (Rhamnus cathartica) on plant diversity at UMD’s Bagley Nature Area. She further tested eradication methods for effectiveness and efficiency. Emily presented her research at the 2013 National Conference on Undergraduate Research (Dr. Paul Bates, mentor).

In the Field

This summer is a busy one for the 13 undergraduate students working in Dr. Ron Moen’s lab. Most of these students work at the Natural Resources Research Institute (NRRI) daily helping Dr. Moen and his graduate students conduct research on moose, bats, American marten, slugs and snails, ticks, and wolves.

In the field, undergraduate students have learned techniques for measuring moose browsing, wolf scat collection, snowshoe hare pellet transect measuring, and using VHF telemetry to track marten and bats. Some students have also been involved with observing the capture and collaring of moose and wolves in northeastern Minnesota.

In Spring 2013, five undergraduates, Megan Gorder, Kaleb Springer, Ashton Gronholtz, Cord Reno and Any Wizik, worked with graduate student Michael Joyce to catalog the Biology department’s mammal collection and entered it into a database. Undergraduate Lee Austin took hundreds of pictures that will be incorporated into the Minnesota Mammals website: (http://gisdata.nrri.umn.edu/MNMammals/). Dr. Moen’s lab has just started a project that will predict changes in birds, mammals, and vegetation in upper Midwest National Parks due to the climate’s changes.

Buggy Business

The Biology Department’s insect research and teaching collection consists of about 45,000 specimens, mostly collected by biology students and instructors over the past 75 years. In the spring of 2012, entomologist Rachel MaKarrall (UMD M.S. 2009) began a massive effort to identify, sort, catalog, and improve the collection.

Students have contributed many hours and much taxonomic skill to the department’s existing collection. These students include (with specialties): Kyle Bounds (Diptera), Corey Choi (Formicidae), Kyle Cross (Lepidoptera), Tim Fellman (Ichneumonidae), Brent Gilbertson (aquatic insects), David Johnston (Araneae), Kendra Larson (Vespidae and Odonata), Jesse Longtin (Orthoptera) Ryan Lumen (Hemiptera), Joe McDearmon (Carabidae), Kevin Moris (agricultural pests), Sam Muller (Formicidae), Dena Olson (Odonata), Deb Richards (Apoidea), Evan Timmerman (Orthoptera), and Liz Wojtowicz (Coccinellidae, Chrysomelidae, and Silphidae).

In the past year, several undergraduate research projects have added to our collection’s taxonomic and geographic diversity. Kyle Cross and Sam Muller worked in the field summer 2012 to inventory carabid beetles, butterflies, moths, dragonflies, ants and spiders of Boulder Lake Management Area north of Duluth. Joe McDearmon completed a UROP this spring investigating the presence and movement of carabid beetles in mixed crop organic farming systems in conjunction with UMD’s Sustainable Agriculture Project. Liz Wojtowicz completed an undergraduate research project comparing historic lady beetle records from Minnesota Point with summer 2012 survey data. Kendra Larson is working on a UROP this summer surveying the dragonflies and damselflies of Jay Cooke State Park.

Top right: Kendra Larson in Jay Cooke State Park. Bottom right: From left to right: Kyle Cross, David Johnston, Kendra Larson, Dena Olson, Liz Wojtowicz, and Deb Richards working on the collection.
GIFTS TO THE DEPARTMENT OF BIOLOGY

The Department of Biology warmly thanks the following alumni and friends who supported our students and programs with a charitable gift. Listed below are the names of individuals who donated to Biology Department funds between January 1, 2012 and May 31, 2013. Thank you for your generous contributions!

Thomas Becker, M.D. and Caroline Boehnke-Becker, M.D.
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Dr. Paul E. and Ms. Janice L. Wicklund

IGNITING A PASSION FOR RESEARCH

Focusing on research early in a student’s academic career ignites the passion to ask questions and then search for answers, laying the foundation for future success. Nobel Prize winner and UMD alumnus (’77 Biology and Chemistry) Dr. Brian Kobilka’s passion was sparked with his first undergraduate research opportunity at UMD. In continuing our tradition of providing an exceptional educational experience, the Department of Biology has recognized the need for an intensive undergraduate summer research program. The specialized environment of a concentrated 10-week full-time project will encourage students to become better researchers and scientists who are also effective communicators, problem solvers and critical thinkers. Faculty are preparing to launch the Biological Undergraduate Research Program for Summer in 2014 but your support is needed. To discuss sponsoring a student and sparking their passion through summer research opportunities or to make a gift to any of the funds supporting Biology at UMD, please contact: Carrie Sutherland, SCSE Development Director, at 218-726-6984 or csutherl@d.umn.edu.
**IN MEMORIAM**

Pershing Benard “Jack” Hofslund (1918—2012)

Pershing Benard “Jack” Hofslund was born 13 April 1918 in Jeffers, Minnesota, and passed away on 21 April 2012 at the age of 94 in Duluth, Minnesota. Jack began his interest in birds at an early age without encouragement from others, identified his first birds from Arm and Hammer Baking Soda cards and pictures clipped from magazines and pasted into a pocket notebook (Pettingill, O. S., 1965, *The Bird Watcher’s Anthology*, McGraw-Hill Book Company, New York, USA: 378-384). It was not until he was a senior in high school that he borrowed *The Birds of Minnesota* by T.S. Roberts from the local library and read both volumes cover to cover in the allotted 10 days.

Jack graduated from high school in Jeffers, Minnesota (1936) and received his B.S. Degree from Mankato State Teachers College in Minnesota (1940). In 1940 he married Elaine Warner who died in 2009. Many of us observed that Jack was never really the same after Elaine passed away. Jack and Elaine had a special relationship; the envy of any married couple. He was absolutely devoted to her.

Jack taught high school in Pequot Lakes and Milaca, Minnesota, then served in the Navy (1945-1946) during World War II. Shortly thereafter he began his ornithological research career, receiving an M.S. in 1947 and his Ph.D. in 1954 from the University of Michigan. His doctoral dissertation, “*A Life History Study of Yellowthroats*,” initiated his long interest in parulid warblers and had a major influence on countless students, including me. During his graduate studies, Jack began his career at the University of Minnesota-Duluth (UMD) in 1949 and retired as a full professor from UMD in 1982. He then became professor emeritus. Upon retirement, Jack remained active at the Lakeside Presbyterian Church and continued to teach in the University for Seniors and the local chapters of AARP.

Jack Hofslund inspired hundreds of students, colleagues, and friends with his expertise on birds and his breadth of knowledge about life. He joined the Wilson Ornithological Society (WOS) in 1944, became a life member, and served WAS in several capacities: elected WOS Council member (1957-1960), Secretary (1962-1967), Second Vice President (1968-1969), First Vice President (1969-71), and President (1971-1973). He also served as chair of the WOS Membership Committee (1970-1971) and hosted the WOS meeting at Duluth in 1957. Jack was also active in the American Ornithologist’s Union (AUO) and was made an elective member in 1959. He hosted AUO (1967) and Raptor Research Foundation (12976) meetings in Duluth. Jack also served as President of the Minnesota Ornithologist’s Union (MOU)(1963 to 1965) and as editor of *The Flicker*, the publication that preceded *The Loon* as the official journal of the MOU, (1951 to 1958). Jack was active in the Duluth Audubon Society, the board of the Lake Superior Zoological Gardens, Duluth Parks and Recreation, the Board of the Minnesota State Zoo, and on the Boards of both the Raptor Research Foundation and the Hawk Migration Association of North America.

Among Jack’s major accomplishments was aiding the establishment of Hawk Ridge Nature Reserve in Duluth. He started the annual hawk counts in Duluth, published some of the first scientific articles on Hawk Ridge (*The Wilson Bulletin* 78:79-87, 1966), and provided evidence that Duluth was a major hawk migration route in the United States. Jack along with many others in the Duluth area began the long process to educate the public about the benefit of raptors and the protection of Hawk Ridge Nature Reserve. He was recognized for these efforts with a lifetime achievement award by the Duluth Audubon Society in 2003.

Jack and Elaine loved traveling. They visited all 50 states, many Canadian provinces, and over 50 countries on every continent except Antarctica. Besides birds, Jack enjoyed movies, bridge, the Minnesota Twins and Vikings, and reading. Jack is survived by his son, Jeffrey of Duluth, his daughter, Jennifer Burla of Ironwood, Michigan, and five grandchildren.

Jack will be remembered as a kind, loving, and gentle man with a flair for dapper dressing. He encouraged and facilitated the development of hundreds of students and colleagues during his years at UMD, Hawk Ridge, and his other professional activities. His efforts will long be remembered, especially as one of the founding members of Hawk Ridge Nature Reserve in Duluth.


**FOLLOW “JACK” ON HIS TRAVELS**

Golden Eagle 53 was trapped on November 12, 2012 by Frank Nicoletti at the Hawk Ridge Banding Station in Duluth, Minnesota. The bird was in full adult plumage and based on his small size we believe he is a male. He was released from the Hawk Ridge overlook at around 1500 hrs.

Audubon, Hawk Ridge Bird Observatory, and the National Eagle Center decided it was appropriate to name this bird “Jack” after Dr. Jack Hofslund, the founder of Hawk Ridge.

Check out an interactive map highlighting the current migration of Golden Eagle 53 at the Minnesota Audubon web site (http://mn.audubon.org/golden-eagle-53).

**Golden Eagle 53**

Photo credit: Kristin Hall
New Look for Swenson Science Building Atrium

Casual seating was installed in time for the start of Fall 2012 classes. The atrium is now a popular study and meeting place for students and faculty.

Funding for this project was provided by the Swenson Science Building enhancement fund and the Vice Chancellor for Academic Administration’s office.