

The Life Scientist

UMD Biology Department News

Summer 2004

In Memorium – Dr. Paul Monson

by Linda Holmstrand

The Biology Department faculty, staff and students were saddened to hear of the death of Dr. Paul H. Monson on August 9, 2003. Dr. Monson was familiar to generations of students who attended UMD between 1958 and 1990. Although plant biology was his passion, Dr. Monson also developed a liberal education course for non-majors, a course which appealed to students because of its focus on inquiry and hands-on activities.

The philosophy, and many of the lab activities, of that course remain in our current course, Biology and Society. Paul's repertoire of courses also included Aquatic Plants, Woody Plants, Plant Taxonomy, Ecology Laboratory, Flora of Minnesota and Ecology of Minnesota. In the Ecology of Minnesota course, Monson teamed up with colleague Dr. Hollie Collins, to teach what was perhaps the most unusual and creative biology course offered



Paul H. Monson 1925-2003

in the 1970's. For five summers, a converted school bus named the "Oikos" (Greek for 'Ecology') served as a mobile classroom for 16 students who toured Minnesota from the southeast region bordering the Mississippi River, through the western prairies, then to the northern hardwood and pine forests. They pitched their tents in the state parks and studied plant and animal communities throughout the state,

using the bench space, microscopes and lab equipment in Oikos.

Even after his retirement, Paul remained involved in activities of the department, particularly the Olga Lakela Herbarium, where he served as curator for 33 years, until the time of his death. He was responsible for adding many rare or endangered plants to the herbarium collection over a period of forty years and contributed



initially to the ongoing "Flora of North America" project, a multivolume reference set which currently has published eight volumes. The campus, the community and northeastern Minnesota were also benefactors of his expertise, as he served on many environmental impact committees and assessment groups for the city of Duluth, the U.S. Forest Service, the Minnesota DNR and the Department of Transportation.

Dr. Monson's survivors include his wife Betty, sons David (Jeanne) of Brooklyn Center, Philip (Terrie) of Duluth, Mark (Claire) of Plymouth, ten grandchildren and a great-grandson. He will also be sadly missed by former colleagues and

students and others whose lives he touched in his church, Kiwanis, and garden clubs. We are grateful to Dr. Monson for his dedication to teaching and his service to the Biology Department. His professional life here was always one of serving others. Though we sometimes thought him verbose and cantankerous, he was always a strong advocate for students and a true steward of the environment, especially on the UMD campus. He was a champion oftreesRock

Hill Pond... the UMD greenhouse and many other causes. We will remember his strong voice in support of his viewpoint. Some of us also remember his onion lab coat, his pink pants, his bow ties and his words at the end of every department meeting – "Time to adjourn!!!" The words of "Appalachian Round", so beautifully sung by Shuby (Deb Shubat) at Paul's

To contribute to the Paul H. Monson Memorial Fund, contact Tricia Bunten, CSE Development Office at 218-726-6995 or 1-866-999-6995.

(Continued on page 2)

Sara Briggs Joins Biology Office Staff

Sara Briggs joined our Department of Biology office staff as Senior Office Assistant in January, 2004, vacating the position held by Stacy Johnson. She is a welcome addition to the department. Sara is a native of Superior, WI and graduated from UWS with a B.S. in Business Administration-Finance. She worked for Great Lakes Gas Transmission before coming to UMD and continues to work for them on a part-time basis. Sara and her husband, Jim, are in the midst of a very exciting time, building a new home 12



Sara Briggs

miles south of Superior. She says that recently most of their spare time has been devoted to the planning and building stages of their new home. They are awaiting its completion in midsummer and anxious to see the finished product of their dreams. Sara and Jim will be very busy over the next several months, while moving in, decorating, and landscaping their new home. In her spare time,

Sara also enjoys reading, walking, spending time with her family, and playing with their two husky/lab mix dogs, Zeus and Ruger.

(Continued from page 1)

funeral, express the peace and tranquility we wish for Paul Monson.



"Take me back
oh hills I love
Lift me from this
lovely bed
Light my way with stars above
Curl soft wings about my head
Wash my feet in crystal streams
Cradle my arms in boughs of oak
Breathe the scent of pine for dreams
Wrap me tight in earthen cloak"

Alumni and former students who remember Dr. Monson and want to help

commemorate his life are welcome to contribute to the UMD Paul H. Monson Memorial Fund created by the Monson family. The funds generated will be used to support special projects in our greenhouses, the Olga Lakela Herbarium and other plant biology projects. Last May, letters were sent to Dr. Monson's former students from the CSE Development Office, detailing the options for gift-giving. To date, more than \$3,000 has been donated from these alums. Thank you! If you did not receive a letter or need further information, contact Tricia Bunten, CSE Development Officer, 1303 Ordean Crt, Duluth MN 55812 at 218-726-6995 or toll-free 1-866-999-6995.

Faculty/Staff News Briefs

The Biology Department welcomes **Dr. Rachel Berquist**, a post-doctoral researcher who will be working in the laboratory of Dr. Allen Mensinger. Dr. Berquist received her Ph.D. in Zoology from the University of Otago in Dunedin, New Zealand. She is investigating response dynamics of saccular afferent neurons in free-swimming fish responding to acoustical stimuli and will be spending the summer at the Marine Biology Lab at Woods Hole, MA.

Dr. M. Reza-ul (Raj) Karim was recently presented a Lifetime Achievement Award by the Pakistan Society for Microbiology for "recognition of his selfless, devoted and meritorious efforts for the advancement of research in microbiology". Dr. Karim, together with Dr. Robert M. Carlson, Chemistry Department, and Dr. Pavel A. Krasutsky, NRRI, have recently received two patents: "Triterpenes having human antifungal and antiyeast activity" and "Triterpenes having antibacterial activity".

Congratulations to the following Biology faculty members who became new parents during the past year:

Matt and Julie Etterson - Zachary Jacob, born August 7, 2003

Donn and Stacy Branstrator - Mason Alden, born September 10, 2003

Bill Maier and Virginia Borden - Henry

David, born October 23, 2003
Tom Hrabik and Kelsey Anderson
- Grace Ann, born November 18, 2003

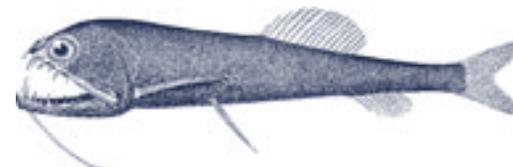
Dr. Shazia Hakim, an assistant professor from the Department of Microbiology, Jinnah University for Women in Pakistan, is spending several months visiting the lab of Dr. Raj Karim. Their work will focus on BVDV, a bovine virus, as a model for Hepatitis C virus as affected by different natural and synthetic chemical compounds.

A farewell reception was held in December to say goodbye and good luck to **Dr.**

Merry Jo Oursler, who accepted a research position with the Mayo Clinic in Rochester, Minnesota. Dr. Oursler was a tenured faculty member who began her service at UMD in 1996.

Dr. Gerald 'Jerry' Niemi has been on sabbatical the past year. He has been concentrating on the Great Lakes Environmental Indicators (glei.nrri.umd.edu) project which is developing indicators for the Great Lakes coastal zone. He has traveled extensively with extended trips to Australia, Oregon, and Florida. Two papers on this work will appear in 2004.

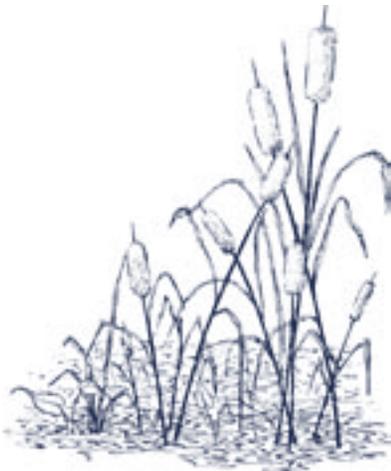
Dr. Andrew Klemer has just completed the first year of a phased retirement. For the next two academic years, he will be on campus teaching during the spring semester.



Farewell to Stacy Johnson

by Ruth Hemming

Stacy Johnson, Biology's senior office assistant since August 2001, left her position the end of December 2003. She continued to work part time for Biology and as a senior administrative assistant for the new UMD Honors Program while completing work for her master's program in English literature, which she completed in December. She continued to work for the Honors Program and the Integrated Bio-Sciences (IBS) Program through the means of computer technology, returning to campus on a weekly basis through spring semester. Stacy and former Biology graduate student Matt Roforth were married last August and Matt began his new career as an assistant scientist at the University of Minnesota on the twin cities campus. Stacy's future plans are to pursue a career in teaching or administration in higher education, and raise a family. Stacy and Matt won't be strangers, though – they both love the Duluth area and will be visiting us often!



Professor Emeritus Hofslund

At 86, he lives independently and does his own laundry and cooking. "I'm a poor cook, though," he says, "and rely heavily on my George Foreman and frozen entrees". Nearly every day he walks the distance from his house to Lakeshore Lutheran Home on London Road to visit his wife, Elaine. Three days a week he is on the UMD campus as an active member of University for Seniors. This is the retirement life of Dr. P.B. "Jack" Hofslund, our featured Professor Emeritus for this issue.

Dr. Hofslund retired from the university in 1982, after 33 years of service. His doctorate in ornithology was earned at the University of Michigan. Alumni from the 1950's through the early 1980's may remember him as an instructor for General Biology, Ornithology, Ecology of Birds, Evolution and Natural History of Vertebrates. He was especially interested in hawk migration and was instrumental in the establishment of Hawk Ridge Nature Area and the Hawk Migration Association of North America.

Visit with a Professor Emeritus Dr. Jack Hofslund

by Linda Holmstrand

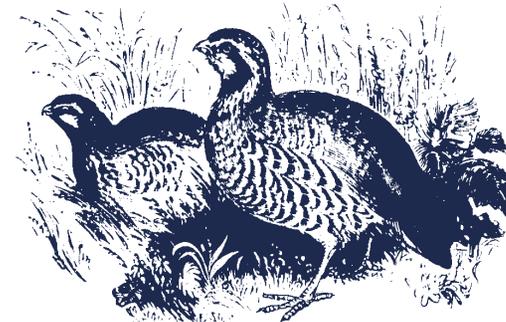
At the last September Hawk Weekend, Jack was given one of the first two annual Hawk Ridge Lifetime Achievement Awards. His groundbreaking work identified the ridges along Skyline Parkway above Amity Creek (now Hawk Ridge), across the UMD campus and behind the College of St. Scholastica as major raptor flyways. His other professional achievements included the presidency of the Wilson Ornithological Society plus membership and offices in many organizations on the UMD Campus, in the City of Duluth and the State of Minnesota.

Jack has been a member of University Seniors for many years and thoroughly enjoys the activities of the group. University for Seniors is part of the University's Lifelong Learning Experience program, described as "intellectual adventures for those 50 years and older". The variety of activities offered to its members include lectures, discussions and workshops about current events, music and art, travel, politics, health issues and other special interest topics. Dr. Hofslund has often served as a "presenter" or peer teacher,

sharing his knowledge and enthusiasm about birds with the group.

One of Dr. Hofslund's dreams for the future is to catalog his personal library of more than 4000 volumes. His wish would be to set up a special ornithology collection at UMD, but accession to the library is very costly. Hofslund and local ornithologists Jan Green and Jerry Niemi are discussing ways to preserve and maintain this valuable collection. Alumni interested in this endeavor can contact any one of these people with their ideas.

On a personal note, Jack's family remains close to him. Although unable to care for Elaine and her physical needs after a series of strokes, he visits with her daily. Their son Jeff is owner and manager of "Foreign Affairs", an auto import dealership in Duluth, and daughter Jennifer is a music teacher in Ironwood Michigan. The Hofslunds also are proud of their five grandchildren, two of whom are in college. We wish Jack a continued active retirement and best wishes for the future. Former students can contact him or send greetings to him at 4726 Jay Street, Duluth, MN 55804.



Recent Faculty Publications

Carey, H.V., **Andrews, M.T.**, and Martin, S.L. 2003. Mammalian hibernation: Cellular and molecular responses to depressed metabolism and low temperature. *Physiol. Reviews*, 83: 1153-1181.

Squire, T.L. and **Andrews, M.T.** 2003. Pancreatic triacylglycerol lipase in a hibernating mammal: I. Novel genomic organization. *Physiol. Genomics* 16: 119-130.

Squire, T.L., Bauer, V.W., Lowe, M.E., and **Andrews, M.T.** 2003. Pancreatic triacylglycerol lipase in a hibernating mammal: II. Cold-adapted function and differential expression. *Physiol. Genomics* 16: 131-140.

Belk, C.M., and **V.M. Borden.** 2004. *Biology: Science for Life*. Upper Saddle River: Prentice Hall.

D.K. Branstrator, L. Mwebaza-Ndawula, and J. P. Montoya. 2003. Resource-consumer relationships in Lake Victoria, East Africa. *Hydrobiologia*. 493:27-34.

M.E. Brown and **D.K. Branstrator.** 2004. A 2001 survey of crustacean zooplankton in the western arm of Lake Superior. *Journal of Great Lakes Research*. 30:1-8.

B. Bungartz and **D.K. Branstrator.** 2003. Morphological changes in *Daphnia mendotae* in the chemical presence of *Bythotrephes longimanus*. *Archiv für Hydrobiologie*. 158:97-108.

Galloway, L.F., **J.R. Etterson** and J.L. Hamrick. 2003. Outcrossing rate and inbreeding depression in the herbaceous autotetraploid, *Campanula americana*. *Heredity* 90: 308-315.

Etterson, J.R. 2004. Evolutionary potential of *Chamaecrista fasciculata* in relation to climate change: I. Clinal patterns of selection along an environmental gradient in the Great Plains. *Evolution* 58(7).

Etterson, J.R. 2004. Evolutionary potential of *Chamaecrista fasciculata* in relation to climate change:II. Genetic architecture of three populations reciprocally planted along an environmental gradient in the Great Plains. *Evolution*. 58(7).

Keough, B., T.M. Schmidt, and **R.E. Hicks.** 2003. Archaeal nucleic acids in picoplankton from great lakes of the world. *Microbial Ecology* 46:238-248.

A. F. Mensinger, N.N. Price, H.E. Richmond, J.W. Forsythe and R.T. Hanlon. 2003. Mariculture of the oyster toadfish, *Opsanus tau*: juvenile growth and survival. *North American Journal of Aquaculture* 65:289-299.

L.M. Palmer, B.A. Giuffrida and **A.F. Mensinger.** 2003. Neural recordings from the lateral line in free swimming toadfish, *Opsanus tau*. *Biological Bulletin* 205:216-218.

Knutson, M.G., M. Hammer-Friberg, **G.J. Niemi**, and W.E. Newton. 2004. Nest survival of forest birds in a forest/grassland transition zone. *The Condor* 106:116-130.

Niemi, G.J. 2003. Book Review - *Conserving Bird Biodiversity, General Principles and Their Application*. *Ecoscience* 10:393.

Crozier, G.E. and **G.J. Niemi.** 2003. Using patch and landscape variables to model bird abundance in a naturally heterogeneous landscape. *Canadian J. of Zoology* 81: 441-452.

Hanowski, J.M., N. Danz, J. Lind, and **G. J. Niemi.** 2003. Breeding bird response to riparian forest harvest and harvest equipment. *Forest Ecology and Management* 174: 315-328.

Mengelkoch, J. and **G.J. Niemi.** 2004. Diet of the nestling tree swallow (*Tachycineta bicolor*). *The Condor* 106: 423-429.

Pastor, J., J. Solin, S.D. Bridgman, K. Updegraff, C. Harth, P. Weishampel, and B. Dewey. 2003. Global warming and DOC export from boreal peatlands. *Oikos* 100: 380-386.

Pastor, J. 2003. *The Mass Balances of Nutrients in Ecosystem Theory and Experiments: Implications for Coexistence of Species*. *Models in Ecosystem Science*: 272-295. C.D. Canham, J.J. Cole, and W.K. Lauenroth, editors. Princeton University Press.

Weltzin, J.F., S.D. Bridgman, **J. Pastor**, J. Chen, C. Harth. 2003. Potential effects of warming and drying on peatland plant community composition. *Global Change Biology* 9: 1-11.

A. Rachinsky, A. Srinivasan, S.B. Ramaswamy. 2003. Regulation of juvenile hormone biosynthesis in *Heliothis virescens* by *Manduca sexta* allatotropin. *Archives of Insect Biochemistry and Physiology* 54: 121-133.

Bronte, C.R., M.P. Ebner, D.R. Schriener, D.S. DeVault, M.M. Petzold, D.A. Jensen, **C. Richards**, S.J. Lozano. 2003. Fish community change in Lake Superior, 1970-2000. *Canadian Journal of Fisheries and Aquatic Sciences* 60: 1552-1574.

L.B. Johnson, D.H. Breneman, and **C. Richards.** 2003. Macroinvertebrate community structure and function associated with large wood in low gradient streams. *Rivers Res. Applic.* 19:199-218.

Johnson, C. M., L.B. Johnson, **C. Richards**, and V. Beasley. 2002. Predicting the occurrence of Amphibians: An assessment of multiple-scale models. Pp. 157 - 170. In M.J. Scott et al. (eds). *Predicting Species Occurrences: Issues of Accuracy and Scale*. Island Press. Washington, DC.

D.J. Schimpf. 2003. Noteworthy collections: Minnesota and Wisconsin. *Michigan Botanist* 42: 90-94.

Current Faculty Funding

M.T.Andrews, U.S.Army Research Office, "Genetic Control of Carbohydrate Metabolism in the Heart of a Hibernating Mammal," 07/99-01/04, \$270,000.

M.T.Andrews (co-PI), Rolf Gruetter (PI), National Institutes of Health, "Dynamic MRI and MRS Studies of Focal Neural Activation," 04/03-03/07, \$1,457,013.

V.M. Borden, L.J. Shannon, J.R. Etterson, Chancellor's Faculty Small Grant, Conversion of analog videos to digital format, Fall 2003, \$1352.

D.K. Branstrator (PI) and **L.J. Shannon**, Minnesota Sea Grant, "Effects of physical and chemical stressors on survival of the resting egg stage of *Bythotrephes longimanus*," 3/03-2/05, \$54,867 and GRA salary for 2 years.

D.K. Branstrator, Grant-in-Aid of Research, Artistry and Scholarship, "Species invasion in Minnesota Lakes: Predicting establishment of *Bythotrephes*," 07/04-01/06, \$33,295.

T.P. Craig, Chancellor's Faculty Small Grant "Geographic variation in *Eurosta solidaginis*," \$900.

P.H. McCartney (PI), **T.P. Craig**, C. Gries, N.B. Grimm, C.L. Redman, National Science Foundation, "Networking our Research Legacy: infrastructure to document and access ecological data", 1999-2004, \$720,489.

T.P. Craig, J.R. Etterson, CSE Student Tech Fees, Instructional equipment, laptops and software," Spring 2003, \$12,000.

J.R. Etterson, CSE Student Tech Fees, Instructional equipment," Summer 2003, \$6010.

J.R. Etterson (PI), University of Minnesota Duluth Sea Grant, "Potential disruption of local adaptation of native Minnesota populations of *Ammophila breviligulata* as a consequence of habitat restoration using nonlocal propagules," 06/03-08/04, \$7,000.

R.E. Hicks (PI), **A.S. Rachinsky** (Co-PI), **A. Mensinger, J.R. Etterson**, and **M.R. Karim** (Additional users). University of Minnesota Grant-in-aid Research, Artistry and Scholarship, "Epifluorescence microscope for microbial, developmental, and neurobiological research," 01/04-06/05, \$30,000.

R.E. Hicks (PI), University of Minnesota Sabbatical Supplement Award, "Identifying the Sources of Coliform Bacteria and Their Relationship to Land Use," 09/02-05/03, \$15,514.

M.J. Sadowsky and **R.E. Hicks** (Co-PI), Minnesota Sea Grant College Program, "Sources and Impacts of 'Naturalized' *Escherichia coli* in Coastal Environments," 02/03-01/05, \$100,000; \$46,440.

R.E. Hicks (PI) and **A. Rachinsky**, University of Minnesota Faculty Grant-in-Aid Program, "Epifluorescence Microscope for Microbial, Developmental, and Neurobiological Research," 1/04-6/05, \$30,000; \$15,000.

L.L. Holmstrand, CSE Student Tech Fees, Purchase of skeletal materials for instruction, \$1500.

L.L. Holmstrand, Chancellor's Faculty Small Grant, "Sherlock Bones", a laboratory enrichment exercise in forensic anatomy, Fall, 2003, \$750.

T. Hrabik, D.K. Branstrator (co-PI), N. Wattrus, B. May, E. Ralph and S. Stark, Minnesota Sea Grant College Program External Research Grant, "Assessing determinants of lake trout reproductive success: comparison of Lake Superior reef complexes with contrasting survival rates of young lake trout," 3/03-2/05, \$70,000 and GRA salary for 2 years.

T.R. Hrabik (PI), O. Gorman and D. Mason, Ontario Ministry of Natural Resources, "Development of a lake-wide acoustic monitoring program for Lake Superior pelagic fishes," 2003-2005, \$80,000.

T.R. Hrabik (Collaborator) with PI's J. Vander Zanden, S. Chandra and collaborators J. Kitchell, E. Stanley, D. Gilroy, P. Moyle, Z. Hogan, B. Allen, M. Erdenebat, A. Brunello, The International Finance Corporation (World Bank), "Development of a research program on the ecology and management of *Hucho taimen* in the Eg-Uur and surrounding watersheds (Mongolia)," 2003-2008, \$250,000.

T.R. Hrabik, Bradley Fund for the Environment-Sand County Foundation, "Assessment of the restoration of winter-kill influenced fish community using winter aeration," \$19,300, 2003-2005.

T.R. Hrabik, Minnesota Department of Natural Resources, "Hydroacoustic Assessment of the Minnesota waters of Lake Superior," Sub-contract 2003, \$11,500.

T. R. Hrabik (PI), N. J. Wattrus, **D. K. Branstrator**, B. D. May, M. H. Hoff, S. T. Schram, O. Gorman and S. Stark, Minnesota Sea Grant Program, "Assessing determinants of lake trout reproductive success: comparison of Lake Superior reef complexes with contrasting survival rates of young lake trout," 2003-2005, \$70,000 and GRA salary for 2 years.

T.R. Hrabik, collaborator with Don Schreiner, Minnesota's Lake Superior Coastal Management Program, "Development of a hydroacoustic survey design for the Minnesota waters of Lake Superior," 2004, \$36,900.

T.R. Hrabik (PI), D. R. Schreiner, M. P. Ebener and M. H. Hoff, Great Lakes Fishery Commission-Coordination Activities Program, "Compilation and analyses of Lake Superior Salmonine diets: a multi-agency collaboration," 2002-2004, \$23,000.

A.R. Klemer (Project Partner), P. Shubat and E. Chu et al., State of Minnesota, "Economics-based Analysis of Children's Environmental Health Risks," 07/03-06/05, \$95,000.

(Continued on next page.)

Current Faculty Funding (continued from page 5)

A.R. Klemer (PI), Chancellor's Faculty Small Grants Program, "Artificial Light Climate Effects on the Growth of Eukaryotic and Prokaryotic Phytoplankton," 03/04-06/04, \$750.

A.F. Mensinger (PI), National Science Foundation, "RUI: Acoustic Detection in Free Swimming Toadfish," 09/03-08/06, \$381,562.

S.M. Highstein, **A.F. Mensinger** (Co-PI), NIH PPG 51511, "Neural Mechanisms of Hearing and Balance", 1999-2004, \$25,000.

A.F. Mensinger (PI), Minnesota Sea Grant, "Olfactory recording from free-swimming steelhead trout," 02/03-01/05, \$66,000 and graduate student fellowship.

G.J. Niemi (PI), R. Axler, J. Hanowski, G. Host, **T. Hrabik**, L. Johnson, C. Johnston, J. Kingston, and **C. Richards**, U.S. Environmental Protection Agency, "Development of environmental indicators of condition, integrity, and sustainability in the Great Lakes Basin," 2001-2005, \$6,188,298.

G.J. Niemi (PI) and C. Johnston. National Aeronautics and Space Administration, "Development of environmental indicators for the US Great Lakes using remote sensing technology," 2001-2005, \$600,000.

G.J. Niemi (PI) and JoHann Hanowski, North Central Forest Experiment Station, Chippewa National Forest,

Superior National Forest, USDA Forest Service and US Fish and Wildlife Service "Monitoring bird populations in Minnesota's national forests," 1991-present, \$310,000.

G.J. Niemi, R. Moen and D. Mech, USDA Forest Service, USDI-US Geological Survey, and US Fish and Wildlife Service Cooperative Agreement through Minnesota Cooperative Fish and Wildlife Unit, "Canada lynx ecology in the Superior National Forest," 2003-present, \$250,000.

J. Pastor (PI), National Science Foundation, "Wild rice population dynamics and nutrient cycles," 2002-2006, \$543,046.

S.B. Ramaswamy, **A. Rachinsky** (co-PI), USDA/NRI, "*Heliothis virescens*: Model for signal transduction of allatotropism in moths," 10/01-09/03, \$130,000.

A. Rachinsky, UMD Chancellor's Faculty Small Grant, Funds for undergraduate research assistant, \$750.

L.J. Shannon, **J.R. Etterson**, Chancellor's Faculty Small Grant, Funding for creation of an online greenhouse holdings database, Spring 2003, \$623.



EXAM DAZE:

Above: Charles Bibbs examines floral structure in Plant Taxonomy final.

Below: Matt Van Watermulen ponders turtle anatomy during Animal Diversity exam.



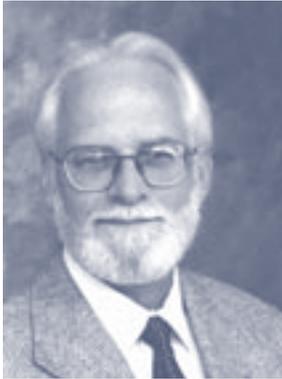
Alumni Scholarship Available

Alumni, check out the web link below. It describes a scholarship (non-resident tuition waiver) available to non-resident, non-reciprocity first-year students who have a parent or grandparent that graduated from UMD. Recipients of the scholarship pay current resident Minnesota tuition and the scholarship is renewable if the recipient is in good academic standing and making progress toward a degree.

<http://www.d.umn.edu/admissions/meritschol.html>



And, please, don't forget our website:
WEBSITE <http://www.d.umn.edu/biology/>



Dr. Randall Hicks

From the Department Head

by Randall E. Hicks

My sabbatical leave is over. I returned last summer and have been serving as Department Head again during the past year. My leave would not have been possible without Matt Andrews' expert direction as interim Department Head and the cooperation of the entire faculty and staff. I enjoyed having time to finish several research projects and papers, reflect on our department and its accomplishments, and bring new ideas and techniques from the University of Georgia to share in my classes and strengthen my research program.

When I returned to UMD, I was amazed at the progress in construction of the Swenson Science Building. You can see the construction progress update, including a live webcam at the site, by visiting <http://www.d.umn.edu/cse/Swenson/progress.html>. If everything remains on schedule, construction should be finished by the end of this year. Many of our instructional and research labs will move into this new building next spring. We are starting to plan an Open House for our alumni,

students and friends next year after it is finished and occupied. There is still time to help our students and department before we move by making a gift to name a laboratory, classroom, undergraduate research table or study room. You can find more information about these opportunities on our departmental web page (<http://www.d.umn.edu/biology>).

Plans to renovate our existing Life Sciences Building have sprung into high gear. This building will be renovated to house other parts of our department and the new program in pharmacy at UMD. We finished the pre-design plans this spring and were elated when this project became one of the few that were supported by our governor, the state senate, and house of representatives. Unfortunately, as you may know, the Minnesota legislative session closed this spring without passing the state-bonding bill. We were disappointed but hopeful that it will soon be passed and university building projects will quickly be back on track. If you live in Minnesota, then you can

help us by telling your legislators how important it is to update this building so we can train the next generations of biologists and pharmacists for Minnesota.

Soon after I returned last summer, a sad event happened that you have probably already read about on the front page of our newsletter. Dr. Paul Monson, a beloved emeritus faculty member, passed away. I will not eulogize Paul's passing here but encourage you to read this article on his life and career. Please join us in celebrating Paul's life by contributing to the newly formed Monson Memorial Fund. Feel free to contact the CSE Development Director, Tricia Bunten (218-726-6995), if you wish to make a gift to this fund.

The good news is that our department is as strong as ever, we are meeting the challenges that face us, and our students are continuing to find exciting opportunities after they leave UMD. We recently hired another outstanding person to join our faculty who will help strengthen our program even further. Dr. Clay Carter and his spouse, Sunshine, will join our department next December after he finishes work at the University of California-Riverside. Dr. Carter is a native Minnesotan, finished a B.S. degree at the Minnesota State University-Mankato and a Ph.D. at Iowa State University before working as an NIH postdoctoral research fellow at the University of California-Riverside. Dr. Carter is a cell/molecular biologist. His expertise in molecular and plant biology

will help strengthen those areas of our program. Dr. Carter replaces Dr. Merry Jo Oursler who left last November to conduct research at Mayo Clinic. Merry Jo joined our department as an Assistant Professor about eight years ago, was tenured and promoted, and had an active research program that trained several graduate and undergraduate students. We wish Merry Jo the best in her new position at Mayo.

Finally, many of you have undoubtedly learned that tuition will increase by 13% for UMD students next year. State support for higher education has been dwindling during the past several years and our students have again experienced a double-digit tuition increase because of this changing support. Fortunately, our department has been able to award several scholarships to biology students since 1999 through the generosity of our alumni and friends. These scholarships are making a direct impact on student's lives as never before. With your continued support, we hope to present even more scholarships with higher awards in the future. I encourage you to let our legislators know that supporting higher education in Minnesota is important to you.

We send our best wishes and thank everyone for your continued support and encouragement. We invite you to visit our web page (<http://www.d.umn.edu/biology/>) and attend the Swenson Science Building open house next year, so we can share the exciting things that are happening in our department.

Society for Conservation Biology Annual Conference “A Great Gathering on a Great Lake”

by Jerry Niemi and Carl Richards*

Since 2003 was designated by the United Nations as the International Year of Fresh Water, it was fitting that the 17th annual meeting of the Society for Conservation Biology was held in Duluth, on the coast of Lake Superior, one of the largest freshwater lakes in the world. Co-hosts of the meeting included the Natural Resources Research Institute, Minnesota Sea Grant, and Continuing Education, all from the University of Minnesota, Duluth and the Conservation Biology Graduate Program of the University of Minnesota, Twin Cities. Additional financial sponsors of the meeting included the Society for Conservation Biology, National Science Foundation, The Nature Conservancy, U.S. Environmental Protection Agency, National Sea Grant, Blandin Paper, Large Lakes Observatory of the University of Minnesota, and The Wilderness Society.

The meeting, held June 28 to July 2, 2003, was attended by 1,137 individuals, including more than 300 students, and was the largest gathering of the SCB. Forty-four foreign countries were represented as well 47 U.S. states. The four day meeting included symposia, workshops and discussion groups, as well as oral and poster presentations. In addition, attendees had opportunity to participate in field trips to such places as the International Wolf Center, Isle Royale National Park, and the Apostle Islands National Lakeshore.



Jerry Niemi and Carl Richards pose with Jack Hofslund at the SCB meeting

The meeting's theme was the “Conservation of Land-Water Interactions” focusing on marine, freshwater, and wetland ecosystems. Four outstanding plenary lectures also focused attention on these interactions. Invited speakers were Dr. Michael Dombeck, former Chief of the U.S. Forest Service and now GEM Pioneer Professor at the University of

Wisconsin—Stevens Point; Dr. David Schindler, Killam Memorial Professor of Ecology at the University of Alberta, Edmonton; Dr. Joy Zedler, Aldo Leopold Professor at the University of Wisconsin—Madison; and Dr. Jane Lubchenco, Wayne and Gladys Valley Professor of Marine Biology and a Distinguished Professor of Zoology at Oregon State University and former President of AAAS and ESA.

The meeting included numerous social gatherings at local pubs and restaurants, also a cruise on Lake Superior. The conference concluded with an awards ceremony, banquet and an ominous thunderstorm. It was an extreme pleasure to serve the Society and share the Western Great Lakes region with so many wonderful individuals. We thank all of the enthusiastic people that contributed so much time to organizing this conference. We look forward to seeing you all at the 18th Annual Meeting in New York City in 2004.

**Dr. Gerald Niemi is Director of the Center for Water and the Environment, NRRI, and Dr. Carl Richards is Director of the Minnesota Sea Grant College Program. Both are professors in the Biology Department and were Co-hosts and members of the SCB 2003 Organizing Committee. The SCB is an international professional organization whose members are interested in the conservation and study of biological diversity.*

Graduate Commencements

The Graduate Commencement ceremony was held on May 13, 2004 in Romano Gymnasium. The commencement address was presented by Dr. Erik T. Brown, associate professor in the UMD Department of Geological Sciences and the Large Lakes Observatory. He was the recipient of the 2002-03 Chancellor's Award for Distinguished Research. The students listed below received the Master of Science Degree in Biology at this ceremony.

Michael P. Callahan

Nathan R. DeJager

David D. Grandmaison

Charlene C. Johnson

Ayuko Kassel

Lucy M. Palmer

Mark A. Paulson

Mark T. Prancus

Bradley A. Ray

Hazel E. Richmond

Jennifer A. Schreiber

John P. Schwalbe

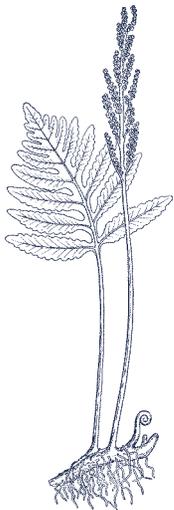


Biology Graduate Students –FRONT ROW (L to R): John Schwalbe, Becky Anderson, Anna Peterson, Jessica Grochowski, MIDDLE: Brad Ray, Matt Balge, BACK ROW: Nate DeJager, Mike Aho, Rhett Johnson, Angela Rohweder, Wendy Hieb, Kamal Alsharif

The Biology Department gratefully acknowledges the teaching and research efforts of its graduate students. About 30 students are pursuing advanced degrees here under the mentorship of the graduate faculty. Most students are supported as teaching (TA) or research (RA) assistants.

The following graduate students began their studies at UMD this past year:

Matt Balge is a Michigan native who received his undergraduate degree from Northland College in Ashland, Wisconsin and a master's degree in Fisheries and Wildlife from Michigan State in 2003. He is supported by a



Graduate Student Profiles

by Linda Holmstrand

research assistantship under Dr. Tom Hrabik on a fisheries project that will attempt to develop a lake-wide hydroacoustic sampling strategy for quantifying fish biomass in Lake Superior. Matt completed one sampling season last summer with an 18 day cruise of the Ontario waters of Lake Superior and is still analyzing that data. He has two research cruises planned for July and August this summer and will cover the remainder of the lake in 2005. Analysis of this data should provide for an estimate of the lake-wide fish population sometime in 2006.

Katharine Brauch received her B.S. degree in Cell Biology from UMD in May, 2003 and immediately put her experience to work as she was awarded a teaching assistant position for the summer microbiology class. She was also a teaching assistant for both microbiology and molecular biology this past year. Katharine enjoys teaching and would like teaching to be a part of her eventual career. Her research is focused on characterizing the genes expressed in the heart of a hibernating mammal, the thirteen-lined ground squirrel, in the laboratory of Dr. Matt Andrews. Katharine received a VDIL summer research grant for summer, 2003, and this July, she will be attending the International Symposium: "Life in the Cold" scheduled on a cruise ship between Vancouver, BC and Seward, Alaska.

Daryn Collins is from Waseca, Minnesota, and received his B.A. degree in Chemistry in 2002 from Gustavus Adolphus College. He is interested in the cellular mechanisms involved in oxygen utilization, specifically the enzyme that is responsible for the production of the signaling molecule, nitric oxide. Working in the laboratory of Dr. Cecilia Giulivi of the Chemistry Department, Daryn has already synthesized a phosphorylated recombinant neuronal NOS and is currently investigating the level of NOS phosphorylation in rat liver mitochondria in different respiratory states. In his leisure time Daryn enjoys playing and instructing tennis, other outdoor sports activities, reading and listening to music. He hopes to receive his master's degree in the spring of 2005.

Jessica Grochowski, from Alpena, Michigan, has a degree in environmental science from Northland College in Ashland, Wisconsin. She has been a teaching assistant for the introductory General Biology classes this past year and this summer will be starting the field and lab research for her thesis. She will be studying the ecological and evolutionary dynamics between two interacting species, *Solidago altissima* (a tall goldenrod) and *Eurosta solidaginis* (a parasitoid gallmaker). Under the direction of Dr. Julie Etterson, she wants to determine the polyploid level and distribution of the goldenrod in

both the prairie and forest biomes of Minnesota, then to relate the genetic material in this plant to the gallmaker.

Winfried (“Winnie”) Ksoll is from Gechingen, Germany which is “almost in the Black Forest”. He holds a bachelor’s degree in environmental and resource management from the Brandenburg University of Technology Cottbus. At UMD, Winnie is a research associate in the Water Resources Science Program and is advised by Dr. Randall Hicks. He is attempting to identify and quantify the influence of various factors on the naturalization of resident *Escherichia coli* in periphyton populations of our northern great lakes environment. So far, he has developed several new protocols, taken samples in Lake Superior at 14° F and is beginning the summer field season. In September, Winnie will present a poster at the 9th International Conference on Wetland Systems in Avignon, France. In his leisure time, he enjoys skiing, biking and hiking as well as music. He is a member of the UMD Concert Choral and the UMD Symphony Orchestra.

Two words – “Amphibians” and “Ecotoxicology” describe **Angela Rohweder**’s research interests. She comes to UMD from Houston, Minnesota, having received her undergraduate degree in ecology from Winona State University. Angela is starting her research this spring under the guidance of Dr. Patrick Schoff at NRRI. This summer she will be at Oak Lake Field Station near Brookings, SD, as she works on a prairie pothole wetlands project, along with her thesis research. She will be examining

northern leopard frogs, *Rana pipiens*, in prairie pothole wetlands of South Dakota, North Dakota and Iowa and focusing on gonadal differences between individuals exposed to varying pesticide concentrations. Angela’s thesis design will include both field and mesocosm experiments.

Megan Forbes is a Duluth native, but took her undergraduate degree in zoology from the University of Wisconsin, Madison. This past year, Megan has been a teaching assistant in General Biology and has completed the proposal for her thesis project. Her fieldwork focuses on the ecology of wild rice and will be directed by Dr. George Host at NRRI. This summer she is beginning experiments in the field, assessing the effects of nitrogen and phosphorus availability on wild rice productivity. She will also measure the effectiveness of current mechanical vegetation removal management strategies. Megan hopes to complete her degree in the spring of ’05 and has both teaching and research in her long-range plans.

The following graduate students are in various stages of completion of their work for the master’s degree.

A Duluth native, **Mike Aho** has a bachelor’s degree in wildlife biology from Minnesota State University at Moorhead. He is finishing his second year in the graduate program here in the area of aquatic ecology and anticipates graduating next spring. Mike has been a teaching assistant for General Biology, Ichthyology and Ecology while continuing his research.



Biology Graduate Students (L to R): Beth Holbrook, John Sandberg, Winnie Ksoll

Working with faculty advisor Dr. Andrew Klemer, he has completed a first series of experiments dealing with light-limited competition between cyanobacteria and green algae and will continue to concentrate on light regimes and their effects on phytoplankton growth and population densities. For the past academic year, Mike served as the graduate student representative to the Biology Department.

Rebecca Anderson is from St. Peter, Minnesota and has an undergraduate degree in Biology and Environmental Studies from Augustana College in Rock Island, IL. She is interested in both plant ecology and restoration genetics and is conducting her research under the advisement of Dr. Julie Etterson and Dr. David Schimpf. Becky is involved

with an ecological restoration project on Minnesota Point, focusing in particular on the genetics of threatened populations of native beachgrass. Her study has field sites on Minnesota Point and in the UMD greenhouse and she will use the results of these studies to assess the potential impact of Michigan beachgrass used in restoration plantings. Becky is a veteran teaching assistant and lab coordinator for General Biology II. Her exceptional teaching abilities were recognized by the Biology Department at an awards ceremony this past spring.

Michael Bourdaghs is completing the work for his master’s degree, evaluating the Floristic Quality Assessment Index (FQAI) as a measure of plant community health in the Great Lakes coastal wetlands. Mike has been working under the direction of Dr. Carol Johnston of NRRI and Dr.

John Pastor. He presented a poster on his work at the 2003 Society for Conservation meetings in Duluth. Mike has taken another step in his wetland management career as he recently started a new job at the Minnesota Pollution Control Agency as a wetland biologist.

Meghan Brown has an undergraduate degree from the University of Michigan and also a master's degree in Biology from UMD. She is currently a Ph.D. student in the Water Resources Science Program, working with Dr. Donn Branstrator. Meghan's research will attempt to define the role of environmental stressors in dormancy as they affect the emergence of resting eggs of *Bythotrephes longimanus*, an exotic zooplankton. Meghan has held an R.A. position, supported by Minnesota Sea Grant, and also served as a TA in General Ecology lab. She has attended a number of professional conferences in the last two years, and will be attending the International Limnology Congress in Finland this August.

Congratulations to **Nathan De Jager** who received his M.S. degree this past May after completing his coursework and thesis defense on the interactions between moose and the fractal geometries of birch and pine. His work resulted in a best poster award at the Sigma Xi exhibit this past spring. During his stay at UMD, Nate was a teaching assistant for both General Biology and Ecology labs. His faculty advisor was Dr. John Pastor. With his degree in hand, Nate says he plans to spend this summer tying flies and flyfishing, then pursuing a job as an ecologist to support his wife's art career.

Adam DeWeese is pursuing his Ph.D. from the Water Resources Sciences Program under the mentorship of Dr. Andrew Klemer. He has been supported as a teaching assistant for General Biology and Advanced Lake Ecology labs. After studying cyanobacteria domination in freshwater ecosystems, Adam has recently taken a new research direction and will be looking at methyl mercury in walleye as it relates to certain landscape characteristics. This summer he is employed by the Great Lakes Indian Fish and Wildlife Commission.

Using antibiotic resistance profiling and DNA "fingerprinting" methods to identify the sources of *E. coli*, **Wendy Hieb** is working on a final data analysis of how land use is related to the source of fecal coliform bacteria in watersheds. Wendy's thesis is in revision and she hopes to complete the work for her master's degree this summer. She spent two years as a research assistant in the lab of her advisor, Dr. Randall Hicks, and a year as a teaching assistant in General Biology and Human Anatomy. Wendy's other accomplishments include awards for her poster exhibits at the 2003 International Association for Great Lakes Research and the 2004 Sigma Xi poster competition held at UMD. Wendy says she has lived in too many states to have a hometown, but took her undergraduate degree in wildlife ecology and conservation at the University of Florida.

Beth Holbrook, from Onamia, MN, has a degree in natural science from the College of St. Benedict and is currently a student here in fisheries

ecology. She is analyzing the data from her first field season in the summer of 2003, and will conduct her second field season this summer, taking a break to present a paper at the American Fisheries Societies meetings in August. Beth's research objective is to analyze the habitat of age-0 lake trout on two shoals in the Apostle Island region of Lake Superior. Working with her advisor, Dr. Tom Hrabik, she specifically will use hydroacoustics to analyze aspects of food abundance, foraging, growth rates, competition and predation.

Besides canoeing, fishing, weight-lifting and art, some of **Rhett Johnson's** most favorite things are sedges and bryophytes. He encounters these plants often as he studies the effects of water table changes on peatland trees and plant communities. This summer, Rhett will be at his study site, a peatland in northwestern Minnesota, looking at the growth of black spruce and tamarack. Advised by Dr. David Schimpf, Rhett hopes to complete the requirements for his degree at the end of fall semester. In the meantime, he is working as a stewardship ecologist/field botanist for the Nature Conservancy near Moorhead, MN.

Anna Peterson has the distinction of having taught the greatest variety of courses in the department in the last two years. She has been a TA for Biology and Society, Human Anatomy, Animal Diversity and Ornithology, as well as setting up labs for Entomology! Anna's teaching excellence earned her the honor of receiving the CSE Outstanding TA Award. In addition, she has nearly completed her

research, under Dr. Jerry Niemi, on an assessment method for wetland birds. She will be presenting a paper in July at the Society of Wetland Scientists meetings. Anna's future plans are to pursue a Ph.D. on bird migration, especially raptors, and eventually to teach or to conduct research at a hawk migration site. She wants to "travel, eat lots of great Mexican food, go birding and help trap the most wonderful, fascinating killing machines".

Brad Ray received his M.S. degree at the recent May commencement ceremonies. His thesis work was entitled "Variability in Lake Superior Salmonine Diets: Characteristics and Selectivity". The work was a compilation of diet data collected by state, tribal and federal agencies over the last 15 years and was used to determine prey selectivity and diet overlap between predators. Brad's faculty advisor was Dr. Tom Hrabik. While a graduate student, Brad was a TA for Ecology lab and was also supported as an RA. He is from Omaha, NE and received his bachelor's degree from Northland College in fish and wildlife ecology.

Kevin Russeth, a native of Duluth, has an undergraduate degree in Biology and Chemistry from Concordia College in Moorhead, MN. He is enrolled in a Ph.D. program and is currently working in the lab of Dr. Matt Andrews. Kevin's research takes him regularly (along with his research animals, a group of thirteen-lined ground squirrels) to the twin cities where he uses mass spectrometry to identify selected proteins in the heart and skeletal muscles. Another aspect

of his research will attempt to use proteomics to detect levels of brain metabolites in hibernating and active ground squirrels. He will present a talk at the "International Symposium: Life in the Cold" meetings in July. In addition to his active research life, Kevin has been a teaching assistant for Human Anatomy, Cell Biology and Genetics, as well as teaching introductory Chemistry labs.

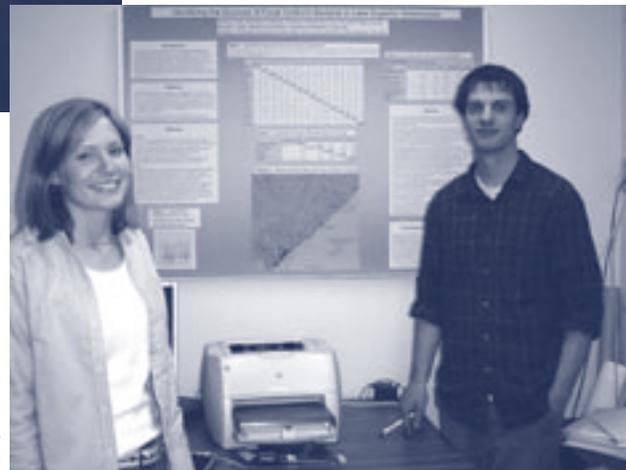
John Sandberg has nearly completed processing samples and data analysis for his thesis work on the nearshore macrobenthos of Nipigon Bay, Ontario. For the past two summers, he has collected data on benthic invertebrates, important to populations of Lake

Superior's "coaster" brook trout, the target of a basin-wide rehabilitation effort. John will be presenting his work at the August meeting of the American Fisheries Society and will continue work on his thesis. For the past two years, John has been an RA in the "bug lab" at NRRI. He has been working under the direction of Dr. Lucinda Johnson. John is a native of Hutchinson, MN and received his undergraduate degree from St. John's University in Collegeville, MN.

Other graduate students in the Biology department include Kamal Alsharif, Christi Mrozinski, John Schwalbe, Chad Westberg, Justin Spanier and Romesh Lakan.



The CSE Outstanding Teaching Assistant Award was presented to Anna Peterson (center) with Rebecca Anderson (left) and Katharine Brauch (right) chosen for special recognition by the Biology Department.



Wendy Hieb and Nate De Jager won awards for their posters at the Sigma Xi poster exhibit.

UMD Chapter of Sigma Xi

by Sara Briggs

Founded in 1886, the non-profit scientific research society Sigma Xi has a membership of nearly 75,000 scientists and engineers who were elected to the society because of their research achievements or potential. There are more than 500 Sigma Xi chapters at universities and colleges, government laboratories, and industry research centers. The UMD Chapter officers this past year were President, Ron Caple; Bob Cormier, Secretary; and Jean Regal, Treasurer.

The Nineteenth Annual Scientific Poster Exhibition had twenty posters displayed in the Medical School Atrium February 16-20, 2004. Awards were given to Erin Peterson for best undergraduate poster and **Anne Gingery** for best graduate student poster. **Nathan De Jager** received first place for his research poster in the Ecology Division and **Wendy Hieb** received an honorable mention in the graduate student poster

division. The poster titles submitted by students or faculty from the Department of Biology were as follows:

"Immunocytochemical Localization of Allatropin in Developmental Stages of Heliothis Virescens and Apis Mellifera". Julie Glasscock and **Anna Rachinsky**.

"Osteoclast Differentiation in the Presence of TGF-beta Elevates NFkB Activation and Down Regulates PTEN Expression". **A. Gingery, M.K. Karst, and M.J. Oursler**.

"The Effects of Experimental Moose Browsing on Plant Fractal Geometry". **Nathan De Jager and John Pastor**.

"Hydroacoustics: A "Sound" Technology in Fisheries Research". **Matthew Balge, Beth Holbrook, Meghan Brown, Thomas R. Hrabik, and Donn Branstrator**.

"Spatial and Temporal Variability of Species and Size Selection of Lake Superior Predatory Salmonids". **Bradley A. Ray, Thomas R. Hrabik**, Mark P. Ebener, Owen Gorman, Don Schreiner, Stephen T. Schram, Shawn Sitar, Bill Mattes, and Mike Petzold.

"Lake Specific Changes in Mercury Concentrations of Yellow Perch (Perca flavescens) as a Result of a Decrease in Atmospheric Hg Deposition in northern Wisconsin". **J.P. Schwalbe, T.R. Hrabik**, C.J. Watras, and K.A. Morrison.

"Identifying the Sources of Fecal Coliform Bacteria in Lake Superior Watersheds and Nearshore Zone". **W. Hieb**, M.J. Sadowsky, and **R.E. Hicks**.

Undergraduate Commencements

by Sara Briggs

The 104th undergraduate commencement ceremony of the University of Minnesota Duluth was held on May 15, 2004, at the Duluth Entertainment and Convention Center. The commencement address was given by renown architect Cesar Pelli, who designed the Music Performance Laboratory on the UMD campus. At the ceremony, he was presented with a Degree of Doctor of Humane Letters, Honoris Causa. The following students were recipients of undergraduate bachelor's degrees for summer, 2003; fall, 2003; and spring, 2004.

B. S. Biology

Garrett P. Ahlborg
Abby J. Anderson
Katherine M. Baratto, *magna cum laude*
Melissa E. Berg
Jeffrey G. Bergh
Margot A. Bergstrom
Edmund L. Blackler, *cum laude*
Allison A. Bohlman
Rebekah A. Bolstad
Amanda D. Brotzel
Ann M. Burford, *cum laude*
Lesley M. Caldwell
Jonathan L. Capstick
Katherine C. Donahue
Benjamin J. Drilling
Thomas M. Dvorak
Holly B. Eggebraaten
Trevor A. Estabrooks
Heidi L. Estby
Corrie J. Evenson
Jeffery P. Fabian
Ryan T. Fevold
Paul A. Fischer
Sarah J. Foltz, *cum laude*
Kristen L. Fritsch
Denise R. Gregoire

Ashley L. Gubbels, *cum laude*
Kari M. Gullickson
Justin H. Gundelach
Amber M. Haglund
Marina L. Halverson, *magna cum laude*
Chad S. Heintz
Austin M. Hill
Laura K. Hoese, *cum laude*
Aaron M. Holmgren
Gretchen M. Imdieke
Chad C. Jacobson
Ryan N. Johnson
Scott M. Johnson
Matthew A. Kading
Laurelyn E. Keener, *magna cum laude*
Nichole R. Klatt
Krystal L. Krause
Kerry L. Kuffenkam, *summa cum laude*
Malia M. Lahr, *cum laude*
Sara B. Lawrence
Mikael R. Leidholm
Joshua R. Lemm
Amy A. Lindgren
Travis L. Little
Tina I. Lorenzi
Joseph R. Magajna
Jonathan J. Maruska, *cum laude*
Christen A. McAlpine, *cum laude*
James J. McNulty III
Benjamin J. Meyer
Anne C. Mueller
Nicole J. Palm
Amanda L. Parker
Michael K. Patton II
Joseph M. Poepping
Aaron L. Pulskamp
Jennifer L. Rask

Sara A. Rubbelke, *magna cum laude*
Grant R. Saari
Nicholas S. Sander
Laura J. Sauer
Sarah F. Schackman
Joseph F. Schad
Kristina L. Schaefer
Elisha A. Schoelzel
Elizabeth E. Smith
Alexis M. Steinberg
Scott J. Stellmach, *cum laude*
Sean D. Stewart
Jessica E. Strange
Kent C. Swanson
Stephanie L. Swanson
Marte C. Thabes
Merrick R. Timbers
Jason D. Traynor
Jordan M. Vandal
Meghan J. Walker
Catherine A. Wallace, *cum laude*
Claude C. Warzecha, *magna cum laude*
Christopher P. Watschke
Samantha M. White
Teresa A. Wingate

B. S. Cell Biology

Jason D. Bruns
Megan E. Bugge
Casey R. Dorr
Lyndsay M. Drew
Kelsey L. Forde
Sean P. Garrity
Hillary E. Hansen, *cum laude*
Tracy M. Hanson, *summa cum laude*
Jennifer M. Koenig

Emily A. Kroening, *cum laude*
Tammy L. Krzoska
Amy B. Kunze, *magna cum laude*
Karen B. Lee
Angela R. Serene Lind, *summa cum laude*
Marcia L. Lundberg, *cum laude*
Jason C. Monroe
Jessica R. Nieuwboer
Brian C. Olsen
Michael T. Paddock
Megan Jean Schultz
Kristen A. Strangstalien
Jeffrey L. Wright
Justin R. Zollner

B.A. S. Teaching Life Science

Megan L. Borg
Jeffrey J. Grabow
Billy K. Koenig
Jeremy R. Schultz

B. A. Biology

Aimee B. Beaurline
Lindsey M. Bucholz
Jeremy D. Johnson, *magna cum laude*
Linsey E. Pistner
Steve P. Traen
Christopher M. Ziebell

Biology Awards and Scholarships

by Ruth Hemming

Through the generosity of family members, friends, and alumni, the Department of Biology is fortunate to be able to present annual awards and scholarships to our majors. The 2003-2004 Awards Ceremony and reception was held on April 29 at the Griggs Center and was attended by family and friends of award winners, along with Biology faculty and staff. Dr. Matt Andrews, representing the Awards Committee, gave opening remarks. Dr. James Riehl, Dean of the College of Science and Engineering, also extended congratulations to the student award winners. The following scholarships and awards were presented by faculty members.

The **T.O. Odlaug Award**, our most long-standing award, is given each year in honor of former Professor and Biology Department Head, Dr. Theron O. Odlaug. This award is presented to an outstanding senior biology student who has demonstrated strong leadership qualities and service to the department. This year the award was given to **Kerry Kuffenkam**. Kerry is a graduating senior from International Falls, MN.

Since most of the awards and scholarships are given to upper classmen, the department created an award that would recognize and encourage students early in their college career. The **Outstanding Freshman Biology Award** is selected by course instructors and given to a beginning

student who excels in the introductory biology courses, Biology 1011 and 1012. This year two students shared the top honors and so awards were presented to both **Marie Foss and Katherine Hines**. Marie is from Ramsey, MN, and Katherine is from Woodbury, MN. Both are pre-pharmacy majors.

Each year, two **Ed and Alma Turcotte Scholarships** are awarded to motivated and high-achieving biology and cell biology majors. This scholarship is dedicated "with profound respect



Student Award Winners for 2003-2004 –
FIRST ROW, (L to R): Corwin Nelson, Eric Bluemn, Lindsey Seifert, Naomi Tucker, Dan Fallon,
BACK ROW (L to R): Katherine Hines, Marie Foss, Kerry Kuffenkam, Neil Olson, Nick Vidor, Anna Peterson,
Katharine Brauch, Rebecca Anderson. Not pictured: Jared Lund

and everlasting love" to the memory of Edgar (Ed) L. and Alma Turcotte, Carlton, Minnesota. Their three sons and two daughters all attended UMD. This year's recipients of the Turcotte Scholarships are **Jared Lund** and **Neil Olson**.

Jared is from Baudette, MN and is a senior cell biology major who hopes to attend medical school after UMD. **Neil** hails from Ladysmith, WI and is a junior pre-dentistry student who plans to be a dentist or an orthodontist.

The **T.O. Odlaug Scholarship** is supported mainly by an anonymous former student who remembered the inspiration and help that Dr. Odlaug had given, and made a donation in Dr. Odlaug's memory. Usually two \$1,000

scholarships are awarded each year to biology students with good academic standing and financial need. However, this year the scholarship was able to provide three, \$1,000 scholarships. They were awarded to **Daniel Fallon, Corwin Nelson, and Naomi Tucker**. **Dan** is a junior pre-dental student from Bemidji, MN. He plans to go to dental school after completing his degree at UMD. **Corwin** is from Hinckley, MN. He is a junior, majoring in Cell Biology, and plans to go to medical school after UMD. **Naomi** is a native Duluthian. She is a junior pre-medicine major and plans to go to medical school also.

The purpose of the **John McCabe Scholarship** is to assist high achieving biology or cell biology students who demonstrate financial need. Two \$1,000 scholarships were awarded this year to **Eric Bluemn** and **Karen Myren**. **Eric** is a junior, pre-medicine major who plans to go to medical school. **Karen**, a senior cell biology major, also plans to go to medical school after UMD.

The **Pre-veterinary Medicine Award** is sponsored by Dr. Reza-ul (Raj) Karim and family in memory of Dr. Karim's father, Sikander M. Karim. This year's recipient is **Lindsey Seifert**. Lindsey hails from Bigfork, MN and is a pre-veterinary medicine major. Her long-term goals are to earn a degree in veterinary medicine and to be an instructor in a veterinary school where she can pursue teaching and research.

The **Enbridge Energy Partners, LP Scholarship** for \$1000 is awarded to a biology or cell biology major, who has used their university science background in community involvement

in Duluth or in an area community within the current year. The award is given every other year. This year's Enbridge Scholar is **Nicholas Vidor** from International Falls, MN. He is a double major, majoring in Cell Biology and Biochemistry/Molecular Biology. Nick is uncertain of his career plans, but is seriously considering medical school or entering a graduate program to do biomedical research.

The Department of Biology congratulates the recipients of this year's awards and scholarships and again extends thanks to those making it possible to recognize these outstanding students.



Senior Spotlight

by Lukas Sheild

(Editor's note: For each newsletter, I ask a student to talk to several graduating seniors who are taking different paths after graduation and to "tell their story". Featured here are three seniors from the Class of 2004.)

Sarah Foltz's interest in biology really took off her freshmen year at UMD; when in her room she began growing sprouts to eat. Intrigued by the growth and development of the plants, she wanted to know more. Since then she has participated in research with several faculty members. Her first experience was with Julie Etterson, working on out-breeding depression in the American bluebell (*Campanula americana*). Seeking a greater knowledge of the field of biology, she then began work under Raj Karim, and chose to do research on complex pattern formation in bacterial colonies. With her roommates looking on and wondering what she's doing, she also runs several minor experiments at home, from mold and bacteria growth to snail population density. The summer of 2004 she will be working with Donn Branstrator on cyclomorphosis of *Daphnia* in response to *Bythotrephes*. She hopes to broaden her research experience in search of a study to undertake at a grad school in the near future. Sarah says she is very thankful for all the hands-on guidance she received at UMD and looks forward to furthering her education.

Lloyd Blackler, a former resident of the Black Hills of South Dakota, changed

his direction from engineering to the field of medicine when on a trip in Honduras. It was there he witnessed a doctor who left a practice to volunteer time and knowledge in helping with the wellness of others. Lloyd paid a visit to a friend at UMD and heard good things about the Biology Department. After a year off being a ski bum and working construction in Colorado, he came back and enrolled. Lloyd volunteers at Benedictine Health Center and also at St. Luke's, where some days are spent overlooking in the operation room. This has prompted Lloyd's interest in surgery, "something hands-on in a society where technology often takes the place of the human touch". Lloyd still kept his interest in surgery even after passing out during one of the first operations he watched. He stated, "the surgeon was up to his elbows in intestines, and I hadn't eaten breakfast". He has also spent several vacations and breaks shadowing doctors in a variety of communities and farming towns. Lloyd is enrolled in the ROTC and was just accepted to University of South Dakota Medical College in Vermillion. Lloyd said he has enjoyed the close-knit community of students and faculty at UMD and stated that's what helped him keep his focus. If Lloyd could pass on words of advice to incoming students he would say "Establish connections with young and old alike, get to know them outside of school" and "Don't get in a sit-and-wait mindset; keep moving".

For **James McNulty**, science is a "rational investigation", a way for him to test his assumptions and to prove what is valid. He states his interest in science as an innate one that has been with him all his life. He left the twin cities campus for Duluth with biology in mind, enjoying the breadth of the field and attention to students. James has played rugby at UMD and traveled the world, including some summers in Panama studying coral reef ecology. This included studying bleaching effects and macroalgae on coral, as well as taking out new students to dive sites and assisting as an independent researcher. Now graduated, he plans to take some time off and gather information and resources to see where he wants to further his education. He plans to take the MCAT this summer and would like to attend medical school in a year or two. He sees himself as a general practitioner, and hopes to use his education on the fly in a career such as Doctors without Borders.



Student Clubs

Biology Club *by Rebekah Bolstad*



Biology Club members enjoy the spring picnic at Chester Bowl - FRONT ROW (L to R): Becky Bolstad, Caitlin Cleary, Denise Gregoire, Julie Holmblad, MIDDLE: Matt Rueter, Matt Stellar, Allison Bohlman, Laura Jensen, BACK: Tammy Tang, Sean Curry

This past year has been a fruitful one for UMD's Biology Club. We had an active group of officers who helped make things happen. We began the year with our annual fall camping trip to Gooseberry Falls State Park. We had good weather and a great location.

Along with our monthly club meetings, weekly seminar cookie fundraiser and daily visits in the clubroom, the highlight of our fall semester activities was an overnight trip to the Science Museum

of Minnesota and the Omnitheater. The museum offered countless fascinating exhibits, including an active biological research laboratory, a histology of the human body exhibit, the dinosaur exhibit and of course a longtime favorite, the Egyptian mummy. At the Omnimax we had the opportunity to see Jane Goodall's wild chimpanzees film, a fascinating look at Goodall's groundbreaking work and how she conducted it.

Spring semester brought the screening of the film "Winged Migration" at UMD, which the the Biology Club co-sponsored with the Duluth Audubon Society. The film was an exciting look at the migration patterns of several different species of birds and had outstanding content and cinematography. Finally, to finish off the 2003-2004, school year, with assistance from the department, the Biology Club held the annual Biology Department Picnic in Chester Bowl. It was a beautiful day and we had a great turnout.

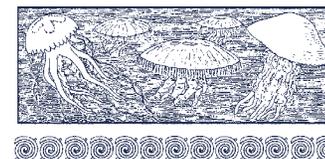
The election of next year's club officers resulted in Caitlin Cleary as president, Julia Holmblad as vice president, Tammy Tang as treasurer, Sarah Tierney as undergraduate representative, Matt Stellar as director of membership activities and Sean Curry as assistant director of membership activities.

The Biology Club would like to thank the UMD Biology Department for all their support and assistance this year. We are looking forward to a productive and exciting 2004-2005, school year.

PreVet Med Club

by Kirstin McKeown

The PreVeterinary Medicine Club is a group open to anybody interested in veterinary medicine. Most of the members are pre-vet students. We meet a couple times each semester and discuss aspects of being a pre-vet student and the veterinary medical field such as applications and gaining experience shadowing or working for a veterinarian. In October, we had a pumpkin carving event with pizza and pop. It was a fun way to get to know other people in the group and we got to carve pumpkins. This spring we had Emily Buchanan, a licensed wildlife rehabilitation specialist, talk to us about what she does and the various animals she has worked with. We also sold candy in the Biology Department Office first semester to help raise money for the club. The officers for 2003-2004 were: Kirstin McKeown-president, Mike Daley-vice president, Greta Zoesch-secretary, and Sara Tierney-treasurer. If anybody wants more information about the PreVeterinary club contact Raj Karim, faculty adviser, rkarim@d.umn.edu.



PreDent Club by David Farrar and Nate Mosner

The UMD Pre-Dent Club is an organization for students interested in pursuing careers related to dentistry. Both dental hygiene and prospective dental students make up the student body of the club. The most exciting part of the club is getting to meet other undergraduates that share the same interest in the field of dentistry.

In the early fall, Gale Shea, the director of admissions for the University of Minnesota Dental School visited for a day to answer students' questions about application procedures and dental school in general. A number of former club members are now in dental school and serve as a support network and source of information for us. The club also participated in the annual co-ed (no shoes) broomball team for both semesters. This year's team name was the "Incisors" and once

again turned in a strong season, making it to the championship game during the fall semester. Many of the members attended the 'Career Day' event in April at the U of M Dental School on the twin cities campus, while others headed to the 'Star of the North' Dental convention at the River Centre.

Club officers for this past year were David Farrar-president; Lucas Temme-vice pres; Nate Mosner-secretary and Ryan Kavanagh-treasurer. If you're interested in becoming a member of the club or just want to play on one of the best broomball teams at UMD, please contact one of the club officers or our club advisor Linda Holmstrand, LSci 313 or e-mail lholmstr@d.umn.edu. Also, the web page for the club can be accessed through links from the Department of Biology home page.



PreDent Club Officers for 2003-2004 (L to R): Lucas Temme, Ryan Kavanagh, David Farrar, Nate Mosner

PreMed Club by Jim Lehman

The UMD PreMed Club had another successful year bringing undergraduates together to discuss the many aspects involved in becoming a physician. The club goal is to provide students with the opportunity to have fun, meet other pre-med students, learn about the medical school application process, and be exposed to the many careers in medicine today.

Throughout the first semester we focused on the academics and community services needed for those pursuing careers as a medical doctor. Dr. Lillian Repesh provided a detailed explanation of what it takes to get into medical school and volunteer opportunities throughout the community were made available to club members. The club also met with first year medical students who told us about their experiences as

undergraduates and now as medical students. During the second half of the year the club turned to life after formal education. We hosted several panels and individual speakers representing many careers in medicine including family medicine, several specialties, physical therapy, nursing, dentistry and osteopathic medicine. It was exciting to hear their thoughts on what they love about their professions.

The PreMed Club continues to provide a source for information and support for the doctors of tomorrow. The club officers for the past academic year were: co-presidents: Jennifer Koenig and Jim Lehman, vice president: Keith Leitzen, public relations: Joe Doerer, secretary: Christen McAlpine, volunteer coordinator: Angela Lind, fundraising coordinator: Christina Bogan, treasurer: Kerry Kuffenkam.



PreMed Club Officers for 2003-2004 (L to R): Joe Doerer, Jennifer Koenig, Kerry Kuffenkam, Jim Lehman, Christen McAlpine. Not pictured are Keith Leitzen, Angela Lind and Christina Bogan.

UROP Awards

by Linda Holmstrand

The Undergraduate Research Opportunities Program (UROP) is a University of Minnesota program available to students on any of the four university campuses. It encourages undergraduate students and faculty members to work together on research or other scholarly activities. Student applicants are required to write a competitive grant, and if successful, receive a stipend of \$1400 plus \$300 for supplies and expenses. Students have the opportunity to learn outside the classroom by developing and implementing an actual research project with their faculty sponsor. Since the UROP program began in 1985, 1500 UMD students have participated and have received 25% of the funding available, amounting to nearly \$1.7 million.

Many UROP projects are worthy of publication and presentation at professional meetings. To exhibit the projects of UROP students on this campus, UMD hosted its ninth annual Undergraduate Research Artistic Fair in the Kirby Ballroom on May 4. Approximately 60 student presenters and their sponsors were available to explain their projects to the campus community and the public. A number of students with Biology or Cell Biology majors were successful UROP participants during the last year. Some Biology faculty members also supervised students from other departments. They are listed below:

Fall 2004 Awards:

Rachel Beukema, Biochemistry, "Mechanism of Betulin Anti-viral Activity on HSV-1 and HSV-2"
Sponsor: Raj Karim

Scott Johnson, Biology, "The Use of Europium (III) as a Probe of Conformational Changes in Calcium Binding Proteins"
Sponsor: J.P. Riehl, Chemistry

Matt Kading, Biology, "Determining Special Differences in Communities of Bacteria and Archaea in Lake Superior"
Sponsor: Randall Hicks

Ann Liebl, Cell Biology, "MCMV Infection in CX3CR1 Knockout Mice"
Sponsor: Kent Froberg

Lindsey Lundeen, Biology, "Sensory Physiology of Round Gobies"
Sponsor: Allen Mensinger

Jason Monroe, Cell Biology, "Assessment of the relationship between lead concentration, microorganism populations, and plant viability"
Co-sponsors: Raj Karim and S. Sternberg, Chemical Engineering

Munir Mosaheb, Cell Biology, "Effect of Various Temperatures in Tea Preparation Against Different Species of Bacteria and Yeast"
Sponsor: Raj Karim

Megan Schultz, Cell Biology, "Role of intracellular Ca²⁺ in Juvenile Hormone"
Sponsor: Anna Rachinsky

Jessica Strange, Biology, "A Regional Analysis of the Affect of Goldenrod (*Solidago altissima*) Gall Size on the Ovipositor Length of the Parasitoid Wasp *Eurytoma gigantea*"
Sponsor: Tim Craig

Nicholas Vidor, Cell Biol and Biochemistry & Molecular Biology, "Evaluation of Natural Products for Anticancer Activity"
Sponsor: Leng Chee Chang, Chemistry

Claude Warzecha, Biology, "Investigation of a *Mycobacterium marinum* promoter upregulated in the macrophage"
Sponsor: Lucia Barker, School of Medicine

Spring, 2004 Awards:

Gerald Bellehumeur, Biology, "Using Stable Isotope Analysis to Determine Food Web Architecture of Nearshore Communities on Lake Superior"
Sponsor: Donn Branstrator

Eric Bluemn, Biology, "Further Development of a Targeted Pla2g2a Knockin Construct Background"
Sponsor: Robert T. Cormier, School of Medicine

Nicole Bretall, Cell Biology, "Effect of C-terminal domains of GGAs on GGA-ubiquitin Interaction"
Sponsor: Patricia Scott, School of Medicine

McKenzi Burmeister, Cell Biology, "An Investigation of Patient and Physician Perceptions of Rural Versus Urban Health Care"
Sponsor: Ruth Westra, Family Medicine

Olufemi, Ekisola, Biology, "Testing the Differences between Wing Patterns of Forest and Prairie Sub-species of the Host Race Species of *Eurosta solidaginis* on *S. Alissima*"
Sponsor: Tim Craig

Amanda Klein, Cell Biology, "Quantification of neuroprotection from global cerebral ischemia (GCI) in rats infused with ketone-based solution"
Sponsor: Matt Andrews

Jason Monroe, a cell biology major, exhibits his poster at the UROP Fair



Carrie Mattson, Biology, “Comparison of Migrating Raptor Numbers Between Hawk Ridge and Lake Superior Shoreline”

Sponsor: Gerald Niemi

Karen Myren, Cell Biology, “Differential Transcription of Macrophage Induced Genes in Biofilm and Planktonic Cells of *Mycobacterium marinum*”

Sponsor: Lucia Barker, School of Medicine

Sara Palmer, Biology, “Determination of a Phonotaxis Response to Adult Vocalization in the Juvenile Oyster Toadfish (*Opsanus tau*)”

Sponsor: Allen Mensinger

Tyler Winter, Biology, “Population assessment of Exotic Goldfish and Native Fish Species in a Small Impoundment”

Sponsor: Tom Hrabik

Biology Students Present Research at NCUR Meeting

by Sara Briggs

Several undergraduates from the Biology Department presented research at the 18th National Conference on Undergraduate Research (NCUR), April 15-17, 2004 at Indiana University – Purdue University, Indianapolis. The program focus is on helping to build communities of students and faculty scholars spanning the academic disciplines ranging from sciences to creative arts. The UMD students that participated are listed below.

Julie Glasscock's project focused on “Immunocytochemical Localization of Allatotropin in Developmental Stages

of *Heliothis virescens* and *Apis mellifera*”. (Dr. Anna Rachinsky)

Nichole Klatt presented on “The Antiviral Effectiveness of Tea Plant Segments, *Camellia sinensis*, against Herpes Simplex Virus Types 1 and 2”. (Dr. M. Reza-ul Karim) Nichole was awarded a fellowship to pursue a doctoral track graduate program in viral immunology at Emory University, Atlanta, GA beginning June, 2004.

Angela Merritt's research involved “Seasonal Patterns of Distribution and Abundance of *Bythotrephes longimanus* in Island Lake, MN”. (Professor Lyle Shannon)

Jessica Strange focused on “The Effects of Goldenrod, *Solidago altissima*, Gall Size on the Ovipositor Length of the Parasitoid Wasp *Eurytoma gigantea*”. (Dr. Tim Craig)





Beyond Research....

by Ken Gilbertson*

Conducting biological research is an essential part of the UMD Biology Department. Striving to learn patterns and relationships in nature is a primary goal of natural sciences. What happens to the information the researchers gain? In what ways does the knowledge gained through research get used? What do the non-researchers do with their biology education? In other words, how does the rest of world learn about the natural world beyond research? The Biology Department is one of the largest on campus, yet, only a small percentage of graduates become researchers. I have often wondered how so many other alumni are using their education from this department.

My education in biology has had a profound impact on my life and has influenced me in my profession. On a personal level, it has helped me to better understand the natural world which enhances my appreciation when I am outdoors. I have learned skills of observation and identification which guide me to understand life histories

of flora and fauna. I keep simple phenological records which help me to learn patterns of behavior and relationships of natural occurrences surrounding my daily life. Yet, I am not a natural scientist. I am an educator – an Environmental Educator. I teach people awareness, appreciation, skills, and relationships about the outdoors.

A science educator or environmental educator's job is to teach a concept called "ecological literacy". That is, we must take the information gained from the natural scientists and translate that knowledge into a form that the general population can understand. Applying the scientific research into daily life is interpreting the knowledge so that it can have personal meaning to the public. An environmental educator strives to build upon a sense of wonder – that innate curiosity that most people have - to gain a greater awareness of the natural world. It is believed that increased awareness leads to greater knowledge which ultimately leads to personal behaviors that are more responsible toward the natural environment. The importance of personal actions is becoming more evident each year.

How do alumni in biology influence responsible environmental behavior? As high school and middle school life science teachers; nature center staff; interpreters in local, state, and national parks; as managers in resource protection agencies; specialized teachers such as working in programs for adjudicated youth; managers of university outdoor programs and fitness centers. The list continues, and it indicates that applying biology

knowledge to a social science setting is a significant aspect of biology beyond research. Following are examples of Biology alumni working in the settings indicated previously.

Clyde Armstrong – Life Science Teacher, Thistledeew Camp for Adjudicated Boys.

Tim Bates – Co-Director, UMD Outdoor Program

Jeanne Daniels – Manager for a State Park in Minnesota

Jen Gates – Upham Woods Nature Center, Madison, WI

Lynelle Hanson – Director of the St. Louis River Citizens Action Committee.

Pat Kohlin - Science teacher at Fond du Lac Ojibway School, Cloquet, MN

John Kohlstedt – Wolf Ridge Environmental Learning Center (WRELC) staff

Barb Lamorea - Science teacher at Hermantown Senior High School

Bill Maier – Hartley Nature Center

Kent Montgomery – UM Extension Service in Natural Resources and Youth Education

Dr. Bruce Munson: Science education and environmental education faculty at UMD

Joel Peterson – Minnesota Pollution Control Agency

Rod Raymond – Director, UMD Life Fitness Program

BJ Smith Kohlstedt – WRELC staff and Curriculum Coordinator at the North Shore Elementary Education Environmental Charter School

Annette Strom – Science teacher at Ordean Middle School, Duluth

These alumni are just a few of the people who are using their biology degrees to teach people about the natural environment and to protect it through environmental education, interpretation, science education, and environmental protection.

**Ken Gilbertson graduated from UMD in 1978 with Teaching Life Sciences major. He is an associate professor in the department of HPER teaching outdoor and environmental education to undergraduate and graduate students at UMD.*



Some of the UMD alumni (mostly grad students from the 80's) who held an informal reunion last October in Duluth and on the North Shore included (L to R): Terry Weins, Theresa Hornstein, Joan McKearnan, David Israel, John Krenz, Kriste Ericsson, and Jeff Denny. At the far right is Biology faculty member Dave Schimpf.

Restoration of Minnesota Point

by Linda Holmstrand and Kinnan Stauber*

Most students, residents and visitors have visited one of Duluth's most unique areas, a stretch of sand dunes on Minnesota Point on Lake Superior's shores. This area has been traditionally called "The Barrens" and has long been used as an access to the nearby public beach. For nearly a hundred years, human foot travel and overuse has damaged the sensitive ecosystem, making it especially vulnerable to the natural erosive forces of wind, wave action and harsh winter blizzards. Many dune species are damaged, but under particular stress is a threatened Minnesota state-listed beach grass *Ammophila breviligulata* Fernald.

Since 1996, UMD Biology Department alumnus **Kinnan Alspach Stauber** has been leading efforts to stabilize the dune system and restore the native vegetation in this high-traffic area. Along with other members of the Park Point Community's environmental committee, Stauber and other dedicated volunteers have made a noticeable difference. With limited resources, they began by starting a public information campaign, building boardwalks to redirect foot traffic, fencing enclosures to protect the trees, shrubs and beach grass and an annual volunteer planting session. Party sites, impromptu trails and bare areas were targeted first. Since poison ivy is also widespread on Park Point, "Poison Ivy Warning" signs were posted to protect people and the newly-planted vegetation. Plantings included beach grass, red and white pines, sand cherries

and pin cherries, along with some deciduous trees and shrubs.

Years of hard work and thousands of plantings have resulted in increased vegetation density, observed by comparing aerial photos taken several years apart. Volunteers have included people of all ages and backgrounds, community residents as well as visitors and school children. Volunteer 5th grade students were recruited for the last several years and their efforts resulted in extensive media coverage. Funding has been provided by the LCMR, Minnesota's Lake Superior Coastal Program and the Park Point Community Club.

Although beach grass has been imported from Michigan and planted with the approval of the Minnesota DNR, there has been concern about using non-local sources because of its potential impacts on the native population. To address this concern, UMD Biology graduate student Rebecca Anderson has undertaken a research project designed to compare the genetic variation of the non-local beach grass with the native species. The results may indicate whether or not genetic mixing produces hybrids that will be adapted to the local conditions for the long-term. Together, Rebecca and her advisor, Dr. Julie Etterson of the Biology Department, have procured funding and enlisted the support of the Park Point Community Club. The restoration project on

Minnesota Point is a good example of how strong leadership, dedicated volunteers and cooperation between the community, funding agencies and the university can save a small piece of an endangered environment for all of us.

* *Kinnan Alspach Stauber received her Biology B.S. degree from UMD in 1997, although she did most of her coursework in the early 80's. In the interim, she ran a laminating company, helped her dad build three sailboats and started and managed the Bluestone Company in Canal Park. She is also married with three children ranging in age from 5 to 12. Kinnan's environmental efforts have intensified in the last few years and she was instrumental in completing a restoration management plan and construction of a website (www.parkpoint.org). She serves as chair of the Park Point Environmental Committee and in addition just completed her 6th year on the City of Duluth's Environmental Advisory Council. Stauber recently published a research article on this work in "Nature Areas Journal" Vol 24(1) 2004.*



Kinnan Stauber

A Face From the Past



Mystery Person

Can you identify the "mystery lady" pictured here? If so, send her name to Linda Holmstrand, Editor, *Life Scientist*, LSci 211, 1110 Kirby Drive, Duluth, MN 55812-2496 OR email lhlmstr@d.umn.edu. Your name will be put in the hat for a drawing to be held this fall. The winner will receive a book "UMD Comes of Age, The First One Hundred Years" by Ken Moran and Neil Storch. It is a photo history of the Duluth Normal School, Duluth State Teachers College and the University of Minnesota Duluth - a wonderful keepsake.

The "Face From the Past" featured in our 2003 newsletter was Barbara Farrell, a UMD Biology graduate student who received her M.S. degree here in 1982. Barbara is currently practicing veterinary medicine in California, while she and her husband Bob are raising their young daughter, Clara. Barb was familiar to the grad students of her era as the "porcupine expert". A number of people correctly identified Barb, but the lucky name drawn from the hat was Carl Mach (M.S. 1984). He received a copy of "UMD Comes of Age."

Aliens on Campus!

by Linda Holmstrand

For decades, students in Biology field classes have hiked from campus over to Rock Hill Pond in the Bagley Nature Center. Hauling waders, dip nets, Hach kits, buckets and thermometers, they were happy to vacate the indoor classroom for the chance to spend a few hours measuring, dipping and searching. Limnology classes made contour maps of the pond and monitored changes in water chemistry. Invertebrate zoology classes used their nets, spades and fingers to gather water mites, amphipods, dragonfly larvae and leeches. Some students conducted research on specific organisms in the pond and on some days, physical education classes practiced their fishing skills, while canoeing classes learned the techniques of paddling. Add the people walking on the hiking paths, sunbathing coeds from the adjacent dorms, and outdoor education students tapping maple trees in the nearby woods, and you had a very busy place!

Rock Hill Pond had a much different look in early May as the pond, which flows into Tischer Creek, was emptied in an attempt to eradicate non-native species that are a potential threat to this designated trout stream. Over the years, the spring-fed pond has changed noticeably as exotic species such as goldfish, koi and rusty crayfish have displaced the native inhabitants and contributed to the cloudy water and unsightly mats of aquatic vegetation. UMD Biology alumni Ken Gilbertson, director of the UMD outdoor program and Doug Jensen, exotic species

coordinator for Minnesota Sea Grant, are members of a committee that is concerned about the preservation of the Bagley Nature Center and have been monitoring the pond. They believe that the non-natives have been released into the pond by well-meaning, but poorly-informed, people who dump unwanted goldfish, aquarium plants, unused bait or other seemingly harmless organisms from water gardens back "into the wild". Unfortunately, some of these introduced species have thrived, and are responsible for stirring up sediments, destroying vegetation and upsetting the naturally established pond ecosystem.

The pond is not gone forever. After a period of "drying out" to kill fish and eggs primarily, the pond will be allowed to refill naturally from rain and spring water. And through the efforts of a national campaign led by Sea Grant, the US Fish and Wildlife Service and the Pet Industry Joint Advisory Council, the pond is serving as the testing ground for a national campaign. The project seeks to prevent the release of aquarium and water garden fish and plants through an educational campaign that involves large aquarium fish retailers and private outlets. In the meantime, students like Tyler Winter have an abundance of dead and dying goldfish and other organisms to study and ecology students will have a chance to monitor the birth of a new pond, the species which return and the succession of the pond ecosystem. With careful oversight by environmentalists, Rock Hill Pond should continue to provide the community and the university a wonderful resource for education and recreation.

Alumni News

Shanna (Darkow) Eskeli (B.A.S. Life Science & Chemistry 2001) lives in Nashwauk, MN, and is currently a middle school science teacher for the Hibbing School District.

Gaea Crozier (M.S. 1999) and **Ryan Maki** (M.S. 2000) were married in September, 2003 on Sanibel Island, Florida. Both worked for a time at the South Florida Water Management District in West Palm Beach, FL where Ryan conducted limnological research on Lake Okeechobee and Gaea conducted research on birds in the Everglades. They recently moved to International Falls, MN where Ryan took a position with Voyageurs National Park as an aquatic biologist. Gaea is volunteering as a bird researcher.



Tyler Winter shows some of the goldfish from Rock Hill Pond.



Doug Jensen

Ayuko Kassel (M.S. '04) sends greetings from Japan, where she has recently started working at a company called DENSO, managing data in the office of environmental planning. She is not looking forward to the rainy season followed by the hot, humid summer and really misses the summers in Duluth.

Steve Mayer (M.S. '84) is a system manager for the Indiana State Police Laboratory in Greenfield, Indiana. He started in 1987 as a forensic serologist, analyzing biological evidence from criminal cases and has since held a number of supervisory positions in the laboratory, most of them dealing with serology and DNA analysis.

Elizabeth Ruther (B.S. and B.A. '02) is enrolled in a master's degree program at Northern Arizona University. She and 8 other graduate students and their advisor are planning a working field trip to Siberia in July, 2004.

Mary Jo Vierkant (B.S. '00) is working as a lab technician in the Biochemical Genetics Laboratory at Mayo Clinic in Rochester, MN.



Skog inducted into UMD's Academy of Science and Engineering *by David J. Schimpf*

Laurence E. Skog, B.A., Biology '65, was one of five UMD alumni who were recognized by the College of Science and Engineering at a dinner and ceremony on the campus in September 2003. Dr. Skog has been on the staff at the U. S. National Herbarium of the Smithsonian Institution in Washington, D.C., ever since he was awarded the Ph.D. in Botany by Cornell University in 1972. Dr. Skog developed his interests in botany as a UMD undergraduate, and some of his plant collections made as a student reside permanently in UMD's Olga Lakela Herbarium. Before studying at Cornell, he earned an M.S. in Botany from the University of Connecticut in 1968.

At the Smithsonian Dr. Skog is currently Curator and Research Scientist. He previously served as Department Chairman in Botany there. His research interests center on the gesneriads, a family of flowering plants found throughout the tropics and extending into the south temperate zone. African violets and gloxinias are gesneriads familiar to house-plant aficionados and florists. Dr. Skog wrote the first scientific descriptions for three genera and 20 species, and has had two species named after him by other scientists. His scientific publications number about 130. He has contributed to the monumental Flora of China project, which involves scientists from both China and many other countries, receiving recognition as Honorary Professor at the Chinese Academy of Sciences. He has also been active in the

Flora of the Guianas project. Dr. Skog is an elected Fellow of the Linnean Society of London, and has received a number of other professional honors.

While visiting UMD for the event, Dr. Skog spoke about the gesneriads at the Biology Department's regular Friday seminar, making a presentation that included many attractive photographs. He was accompanied by his wife Judith, currently serving as a program officer at the National Science Foundation, who discussed that agency's funding opportunities with several UMD biologists.

It is always interesting to learn where life has taken our graduates, and we encourage each of you to keep in touch.



Dr. Laurence E. Skog

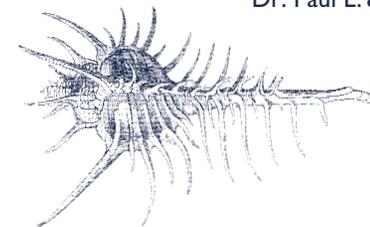


Gifts and Donations

The Biology Department strives to support and recognize students in a variety of ways, in the classrooms and laboratories, as well as in recognition of their achievements. Through the donations of alumni and friends, we can continue to offer student awards and scholarships, sponsor undergraduate research, publish and mail our annual newsletter and support other valued programs and events. The Biology Department would like to acknowledge the following individuals for donations received during the period June 2003 through May 2004. Thank you for your support and your financial gifts. They are greatly appreciated by the students, faculty and staff.

Drs. Thomas E. Becker & Caroline Boehnke-Becker
 Mr. John M. Bernard
 Dr. Edward T. Bersu
 Jon C. & Suzanne C. Birch
 Mr. Brian P. Borgman
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 Dr. Paul E. & Janice L. Wicklund



Dr. Skog is congratulated by CSE Dean James Riehl and Biology Department Head Randall Hicks.

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UMD DEGREE MS BS BAS BA

WHAT'S NEW? (change of job, special recognition, family, civic involvement, travel, etc.)

TO

The Life Scientist 2004

An annual newsletter for alumni, faculty, staff, students and friends of the UMD Biology Department

EDITOR	Linda Holmstrand	STUDENT CONTRIBUTORS	Rebekah Bolstad David Farrar Nate Mosner Jim Lehman Kirstin McKeown Lukas Sheild
ASSISTANT EDITORS	Sara Briggs Ruth Hemming	GRAPHIC DESIGN	Sandra Pederson Tahiti Bay Promotions
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