

The Life Scientist

UMD BIOLOGY DEPARTMENT NEWS

Alumni Support Hawk Ridge



(left to right) Dr. David Schimpf, Dr. Gerald Niemi, Dr. Hollie Collins

The sky is big and blue. The scene stretching below is a birdseye view of the Duluth Lakeside and Lester Park areas. In the midst of all that blue sky soars a kettle of broadwinged hawks. These clues suggest that the viewer is enjoying a crisp fall day on Duluth's famed Hawk Ridge. Right? Not necessarily. This scene can be enjoyed from the first floor of UMD's Life Science Building, at any time during any season, rain or shine.

Thanks to donations by alumni and friends to the Biology Department Gift Account, the diorama described above has been updated and enhanced. Through the work of a faculty committee chaired by Dr. David Schimpf and including Dr. Gerald Niemi, Virginia Borden, and Dr. Hollie Collins, and assisted by the Duluth Audubon Society, the display has been given a facelift. The bold letters spelling out "HAWK RIDGE" can be seen approaching from the long corridor which extends through the main floor of Heller Hall and also from the direction of the Chemistry building. Standing closer, one can read the four panels—the first describes the location and

(Continued on page 14)

All-Class Reunion

An enthusiastic and active group of UMD Alumni is organizing a grand finale celebration to be held this summer, on Friday and Saturday, July 26 and 27. For those of you who plan to be in Duluth at that time, a variety of events will be available, ranging from campus-wide activities to college and department get-togethers. The events wrap up a year of celebration of UMD's 100 year heritage and is

billed "YOU SHOULD SEE US NOW, UMDuluth—A CENTURY OF CHANGE." The objectives of the reunion are to close the year-long celebration on a high note, to rekindle alumni interest in UMD and its past, to honor faculty and alumni, to develop new partnerships in the community and to reconnect with friends and faculty.

(Continued on page 14)

Faculty/Staff News

New Faculty/Staff

The Department of Biology is pleased to announce that **Dr. Merry Jo Oursler** will join the department faculty as an assistant professor starting summer, 1996. Dr. Oursler received a BA from Skidmore College (New York), an M.A. from the University of Rochester (New York), and Ph.D. from Washington

University, St. Louis. From 1990-1993, Dr. Oursler was a post-doctoral research fellow in the Department of Biochemistry and Molecular Biology, Mayo Graduate School, Rochester, MN. Currently, she is an associate consultant in the Department of Biochemistry and Molecular Biology at Mayo and she also serves on the editorial board of the journal *Endocrinology*. Her research interests include the relationship of hormones and cytokines to bone resorp-

tion and the role of osteoclasts in metastatic breast cancer-induced bone destruction. This research is presently funded by grants from the National Institutes of Health (NIH) and the Arthritis Foundation. Her research has resulted in the publication of over thirty chapters and papers in major scientific journals, including the *Proceedings of the National Academy of Science*. In 1992, she received a Young Investigator Award from the American

Society for Bone and Mineral Research and in 1993 she received the Kendall Award for Meritorious Research. At UMD, Dr. Oursler will teach cell biology, general biology, and upper level specialty courses in the area of molecular and cell biology.

Sarah Crawford received her master's degree in Biology from UMD in fall ('95) and was hired to teach Biology and Society during the winter

From the Department Head

by Donald P. Christian

In the past several newsletters, former Department Head Dave Schimpf and I have commented on the tremendous growth in biology enrollments at UMD. That growth surge may have peaked, as enrollments this past year were generally similar to those the previous year.

However, Biology is still the largest undergraduate program at UMD. Similarly, although graduate enrollment also has decreased slightly, the UMD Biology Graduate Program has by far the largest number of thesis-based masters students of any graduate program on campus (other programs have more students, but emphasize coursework, rather than thesis research, in their education of graduate students).

This has been a year of many changes in the department, including staff and faculty, programmatic aspects, and in other ways. We have experienced tremendous changes in departmental staffing. Phyllis Jensen, long-term secretary and accounts supervisor in Biology, retired at the end of February. Mary Simon joined the staff as our new accounts specialist in March. Ruth Hemming's position was re-classified from Senior Secretary to Executive Secretary, reflecting changing responsibilities and a new role in the depart-

ment office. During the winter, the department remodelled the office complex, including reorganizing the work areas, installing new carpeting, some new furniture, and new computer network connections for office staff. We believe the new arrangement will help us meet needs of students and others more effectively. We hope that alumni and other friends will take a chance to visit the new office (perhaps during this coming summer's reunion).

We also have had several changes in faculty positions. George Ahlgren, who ended his teaching activities in the department two years ago, officially retired at the end of fall quarter. Mel Whiteside, who has been on the faculty since 1985, began a "phased" retirement program which will see him in the department only half the year over the next four years. Hollie Collins, who has been on a "phased" retirement the past several years, will retire at the end of next year. Zofia Gagnon, who was a temporary faculty member in the department last year, left to accept a position in New York. Dr. Merry Jo Oursler will begin as a faculty member in the department in September 1996. She will be a key faculty member in the new cell biology major program. We also recently finalized hiring Dr. John Pastor as a Professor in the depart-

ment. These two new positions emphasize the continued strengthening of linkages between UMD Biology and other units within the university—especially, the UMD School of Medicine and NRRI. We are very excited about having these new faculty join the department. The department is also in the process of hiring yet another faculty member—a plant physiologist, but the search for that position is not yet (early April) completed.

In my column in last year's newsletter, I noted continuing progress in developing a new undergraduate major program in cell biology. I am pleased that the university's Board of Regents approved this program, to begin in fall 1996 (some currently enrolled UMD students have already declared majors). This program will be administered in the Biology Department but will be delivered through close cooperation with three School of Medicine Departments (Anatomy and Cell Biology, Medical and Molecular Physiology, and Medical Microbiology and Immunology). The cell biology program will exist alongside a relatively new undergraduate program in Biochemistry and Molecular Biology

quarter and Animal Biology, the second course in the new three-quarter sequence, this spring. Sarah served as a graduate teaching assistant in the department for the past two years and is gaining valuable experience in assuming full faculty responsibility for courses. She is actively seeking a permanent position teaching introductory biology at the small college level. We thank Sarah for her contribution to the department

teaching mission and wish her good luck in her job search.

Dr. John Pastor will join the Biology Department as a professor in the fall of '96. Doctor Pastor has been a leading researcher at the Center for Water and the Environment at the Natural Resources Research Institute (NRRI) since 1985. He has taught courses in the department and has been a member of the Biology Graduate Faculty.

offered jointly by the Chemistry Department (in the College of Science and Engineering [CSE]), and the Department of Biochemistry and Molecular Biology in the School of Medicine. The programs are designed so that students will have relatively easy transfer between biology, cell biology, and biochemistry/molecular biology during their first two years.

The new programs are designed to take advantage of the physical and administrative proximity of our science departments and the School of Medicine. We believe that these programs will represent a unique opportunity for students to study and gain experiences in the fields of biochemistry/molecular biology/cellular biology.

The developing strength in areas of molecular and cellular biology will parallel the already existing strength in ecology, especially aquatic ecology. Indeed, UMD has developed tremendous recognition for research, undergraduate and graduate education, and outreach in these areas. The UMD Biology Department, the Natural Resources Research Institute, and the relatively new Large Lakes Observatory are all key ingredients in this strength. Our recent faculty hires in the department will play key roles in fostering our continued develop-

John is a nationally and internationally renowned ecosystems ecologist, with special expertise in northern ecosystems. His major research efforts focus on herbivore-ecosystem interactions, nutrient cycling, climate change and forest ecology.

To accommodate some shifting teaching assignments in the department, **Lyle Shannon**, a long-time research fellow in limnological studies, taught the

to upgrade and replace other equipment used in our courses and in research.

Faculty and students have also been investing considerable time and effort this year in planning the changes in our curriculum for the conversion from quarters to semesters. This is due to take place in fall 1999, but much advance planning is needed. We are trying to use this as an opportunity to re-evaluate and upgrade our curriculum, although it clearly involves a lot of hard work and difficult decisions.

We continue to strive to be a department that emphasizes high-quality undergraduate instruction, at the same time that faculty direct graduate students and engage in significant research. We see the research mission of the department feeding into undergraduate education, for example through providing opportunities for research participation by students. As in previous years, many undergraduates work on research projects, through UROP (Undergraduate Research Opportunities Program—a university-wide program), the biology undergraduate research course number, or as paid employees on faculty research projects. The skills, experience, and confidence that our students gain through these experiences have been extremely valuable as they seek employment or

course in Animal Diversity during the winter quarter, and is currently teaching Limnology. Broadly trained and always versatile, Lyle will also be involved in student advising for fall quarter classes.

A warm welcome to **Mary Simon**, who has filled the accounts specialist position vacated by the retirement of Phyllis Jensen. Mary is a native of St. Paul, and most recently worked for

further training in biological or health sciences areas.

The contributions of friends and alumni continue to be important resources for the department as we work to serve students well. I am sure that I speak for all the faculty, students, and staff in the department in thanking friends and alumni for their generous contributions to the Biology Gift Account and the Jack Hargis lecture Fund this past year. We deeply appreciate your generosity. These funds have supported the T. O. Odlaug Award for outstanding Biology majors (see student pages), this newsletter, and other special (continued on page 4)

Central Computing Services at the Lauderdale Computer Facility, a position she held for more than eight years. Mary has been doing a great job in learning the ropes of overseeing the many active budgets and accounts in the department. She and her 15 year old son recently moved to Duluth and both are getting adjusted, and liking, their home, school and the community. In her spare time Mary enjoys reading, caring for her houseplants, and bowling.



Mary Simon

(Dep't Head from page 3)

projects in the department. This past year, we used gift account funds to upgrade one of the displays on the first floor of the Life Science Building. Dr. David Schimpf's efforts were the impetus for us to seek corporate funding to upgrade and improve other display windows in that area. We are awaiting the results of those efforts to attract further funding to the department. This spring, we will be bringing in a lecturer through the Hargis Lecture Fund, named in honor of our former faculty colleague Jack Hargis who passed away in 1984. Dr. John Cullen of Dalhousie University in Nova Scotia, Canada, will be visiting the campus in late April to speak about plankton in Antarctica. The title of his talk is "Effects of ultraviolet radiation and ozone depletion on water-column primary production in the context of vertical mixing." Dr. Cullen is an ecologist who is internationally known for his work on human impacts on large lakes and oceans.

Contributions may be made at any time to the Development Office, Darland Administration Building, UMD, Duluth, MN 55812, earmarked "Biology Department" or "Hargis Lecture Fund." Donations to the Hargis Lecture Fund are used solely to fund a lecture visit to UMD by a distinguished environmental

Other Staff News

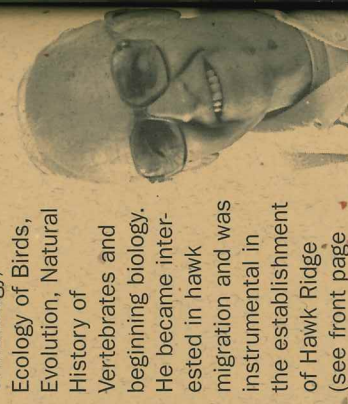
For 21 years, the warm smile and pleasant demeanor of **Phyllis Jensen** have graced the Biology Department office. This past February, after nearly 30 years total service to UMD, Phyllis has retired to "get caught up with the things that have been on hold for many years." Phyllis was in charge of the clerical work for the department and worked closely with the CSE office on budgetary matters.

In her stay in the department, Phyllis worked under the supervision of six department heads, beginning with Dr. T.O. Odlaug in 1975. She recalls, but not fondly, from her early years the practice of typing multiple copies of office forms with carbon paper on a manual typewriter. No copy machines. No fax machines. No computers. When asked about a humorous memory, Phyllis recalled that each year there was a faculty/staff talent show.

Visit with a Professor

Second in a Series

Dr. P.B. "Jack" Hofslund retired from the University in 1982, having served in the Biology Department for 33 years. He holds a doctorate from the University of Michigan, where his ornithology background focused on warbler life histories. At UMD, Dr. Hofslund taught courses in Ornithology.



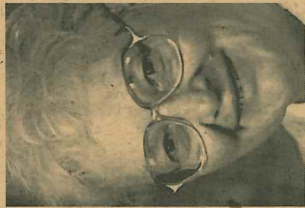
Dr. P.B. Hofslund

Evolution of Birds, Evolution, Natural History of Vertebrates and beginning biology. He became interested in hawk migration and was instrumental in the establishment of Hawk Ridge (see front page article) and the Hawk Migration Association of North America. His active professional life included membership and offices in many organizations serving the UMD Campus, the City of Duluth, and the State of Minnesota. He also served as past president of the Wilson Ornithological Society, an international organization.

scientist, such as Dr. Cullen. The department uses contributions to the gift account for a variety of purposes closely related to our educational mission, and for preparing this newsletter. Donors should feel free to earmark their gift for other, specific educational or research uses in the department. We remind you that many corporations and organizations will match individual donations to education institutions, and urge you to inquire whether your employer will match a contribution you might make to UMD Biology.

On behalf of students, faculty, and staff in the department, I send you the best wishes of the Department and our thanks for your continuing support. I again urge you to consider visiting the department when you are in Duluth so that we can visit with you about changes in the department and some of the directions we are pursuing. We have several departmental events planned for this summer's reunion, and look forward to renewing contacts with friends and alumni.

One year, Dr. Ray Darland (then teaching in Biology) and Dr. Tom Chamberlain (Geography Department) did a dance to "Me and My Shadow." That brought down the house.



Phyllis Jensen

or Emeritus

One of my most enjoyable tasks as newsletter editor is the opportunity to maintain contact with former professors (and later, my colleagues) in the Biology Department. Since Jack is currently actively involved with University for Seniors and is on campus often, I arranged to interview him for this article.

Jack reminisced about the early days of the Biology Department and the UMD Campus back in the early 50's. He and Ted (Dr. T.O. Odlaug, now also retired) walked from their Woodland Avenue bus stop across the open fields past the Chester Park Elementary school to campus. During his first winter in Duluth, there were many big snowstorms, leaving hip-deep snow to plunge through. Snow vacation days were unheard of. The campus was nearly wilderness-back in those days; and in the spring and summer, one could find meadowlarks, yellowthroats, clay-colored sparrows and nesting short-eared owls. One foggy day brought thousands of geese to campus for a day. Another time an unfortunate porcupine wandered into the parking lot and ended up being the first erithe-

Phyllis says the thing she will miss most about her former job is meeting and working with students. She has been a source of information and friendship to young people over the years and many of them still remember her with cards, wedding and birth announcements and visits to campus.

What lies ahead? Phyllis and her husband Lawrence, who retired from JMD Plant Services in 1991, are the owners

zontid in the mammal collection. The vertebrate collection was an important resource, both for teaching and historical purposes.

The Biology Department was much smaller then and was housed on the second floor of the Science Building (now Chemistry Building), with the Physics Department occupying the first floor and the Chemistry Department the third floor. Jack said that each year brought something "new"—separate offices and telephones, for instance. He is mildly amazed that faculty offices now have computers, when back in those days, professors brought and used their own typewriters, since there were no departmental secretaries. At that time, AAUP - American Association of University Professors, had a large membership on campus and was effective in formulating campus policies and philosophy.

Fourteen years after retirement, Jack said he still misses the close faculty ties and the atmosphere of that small department. Now as a member of the University for Seniors, he continues to peer-teach, sharing his interests in birds and travel with a different audience. In the last thirty years, Jack and his wife Elaine have traveled in more than 60 countries, (and every continent

of a motor home, which will now see a lot more use. The most frequent destinations will likely be the homes of their four children. Their son David lives farthest away, in Columbus, Ohio. The three daughters—Paula, Gerri and Sue—live with their families in the twin cities. When not travelling, the Jensens will be at home at 5808 Highway 194, Hermantown, 55811-9660.

except Antarctica), most recently to Costa Rica and the Panama Canal zone. They have a special fondness for tours to the rain forests of Central and South America.

As part of their active lives and travel, the Hofslunds have accumulated an extensive collection (close to 3000 books) in their home library. One of Jack's most important future projects is to catalog his library with the help of a home computer. He also expects to write his memoirs for his children, regretting that he has little recollection or information about his Norwegian parents. The Hofslund's son Jeff lives in Duluth, has two daughters, and is still a wizard with foreign cars. Their daughter Jennifer lives with her husband and family of three children in Ironwood, Michigan. Jack and Elaine still reside at 4726 Jay Street in Duluth, 55804-1553. They would like to hear from former students and perhaps reminisce further at the UMD All-Class Reunion next July.

Phyllis, your friends in the UMD Biology Department wish you a long, happy, and healthy retirement. We'll miss you, but we're glad you can enjoy your new-found freedom.

Ruth Hemming received a certificate of appreciation for quality work and a high standard of excellence as a Civil Service employee. Ruth is the Executive Secretary of the Biology Department.

Focus on... Great Lakes Research

In the picture on the next page, Dr. Randall Hicks and graduate student David Pascoe examine some data on bacterioplankton as part of their ongoing research on picoplankton (very small planktonic organisms). One of the main results of this research so far is the indication that prokaryotic cells called Archaea exist in the plankton of North American Great Lakes. This was unexpected because these organisms have previously been isolated from unique and often harsh environments, such as hypersaline, extremely hot, or strictly anoxic habitats.

The objective of Dave's research was to investigate the diversity of these bacterioplankton communities in the Great Lakes, using a DNA/DNA similarity method and a metabolic method (Biolog GN Microplates). This allowed genetic and metabolic comparisons of communities of organisms in the epilimnion and hypolimnion at sites within each lake. Results vary for each of the Great

Bette McNamara, (Laboratory Services Coordinator), is recovering slowly from back surgery last winter. She regrets being unable to ride horseback.

In Memorium

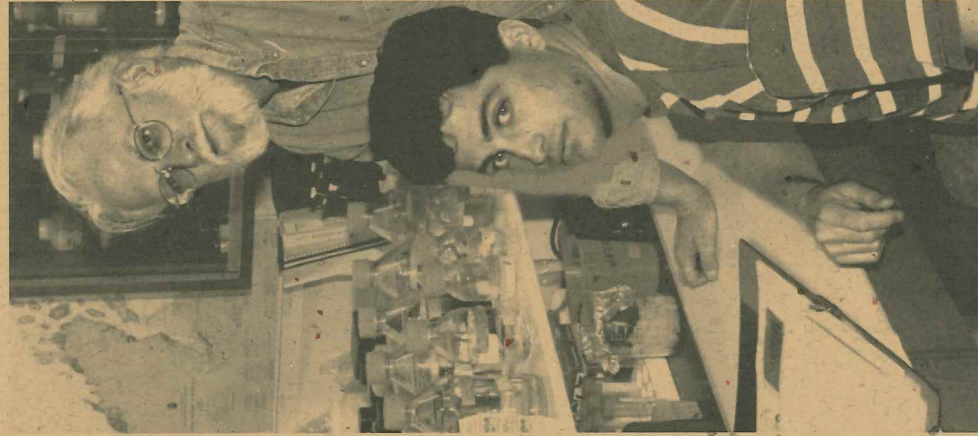
The UMD community was saddened by the death of **Charlotte MacLeod** on July 19, 1995. From 1973 until shortly before her death due to brain cancer, Mrs. MacLeod taught in the Physiology

Department of the UMD School of Medicine and from 1961 to 1973 she taught in the UMD Biology Department. In addition to her teaching, she was active in many campus and professional organizations, including the UMD Commission on Women, the American Association of University Women, the American Heart Association, the National Women's Studies Association, Friends of the American Medical Women's Association, Minnesota Women in Higher Education,

Association for Women in Science, National Women's Health Network and the National Museum of Women in the Arts. To commemorate Mrs. MacLeod's humanitarian contributions, a fund has been established in her name to present an annual prize to an outstanding female student in the School of Medicine or the Women's Studies program. Gifts to this fund can be forwarded to the UMD Development Office c/o Charlotte MacLeod Memorial Fund.

Lakes, but it appears that all of the epilimnetic communities are genetically similar, except for Lake Superior. This work forms the basis for Dave's thesis, and will result in his receiving a master's degree this year.

During the '94-95 academic year, Dr. Hicks was granted a sabbatical leave and a Bush Sabbatical Fellowship. He collaborated with researchers at the Center for Microbial Ecology at Michigan State University and spent time on a Russian scientific cruise ship, in order to further study the biology of these unique microbes. Future research in his lab will utilize rRNA probes to compare nucleic acids from communities of bacteria; in order to study their relationships. Both graduate and undergraduate students will receive hands-on training in the laboratory and computer techniques needed to pursue this exciting area of research.



Dr. R. Hicks and David Pascoe

Graduate Student Profiles

by Cathy Podeszwa

Jim Gangl, a graduate of UW-Superior, started his work with Dr. Carl Richards of NRRRI on the Sea Grant River Ruffe Project in the summer of 1995. His 1996 research plans include field studies using mesocosms to study the effects of different densities of ruffe on the benthic insect community. Jim hopes to use experience from his graduate studies to continue work in projects investigating the ecology of exotic species or endangered/threatened species.

Jay Sandal is in his second year of graduate work with Dr. Mel Whiteside. As well as providing scientific information for the Superior Lakewatch Project, Jay has been a committed TA. He also devotes much of his time to volunteer work at the Lake Superior Center.

Tamara Swanson works with Dr. Carl Richards of NRRRI on aquatic invertebrates and benthophagous fishes of the St. Louis River. She has been busy for countless hours this year, identifying aquatic invertebrates from her 240 mud samples. After UMD, she plans to seek a position as a fisheries biologist or researcher.

Andy Wold is now located at the Twin Cities campus, pursuing a Ph.D. in the new Water Resources Program (a joint program between the Twin Cities and Duluth campuses of the University of Minnesota). He will return to Duluth in June of 1996, to continue work on nutrient effects on periphyton in north shore streams.

Jeff Denny is a Ph.D. candidate in the Toxicology Program of the Twin Cities and Duluth campuses. He is working with Dr. Randy Hicks on his dissertation project, "The Effect of PCB Addition On Model Lake Superior Microbial Communities." In April of 1996, Jeff presented a poster of preliminary work at the Midwest Regional SETAC (Society of Environmental Toxicology and Chemistry) meeting in Duluth.

Shane Yokom has been finishing work with Drs. Rich Axler and Mike McDonald on issues relating to aquaculture. He recently presented his thesis research in a talk entitled "Recovery of a Mine Pit Lake Following Removal of Aquaculture Loading" at the Lake Superior Biological Conference at UMD.

Grants and Publications

Research activities by Biology faculty and students results in numerous recent publications. The following are some of those that were accepted or published recently. Due to space limitations, only co-authors linked to UMD Biology are indicated, and full citations are not included. Write to the Biology Department for more information about these research activities:

A native of the twin cities of Palo and Markham, **Tyler Lampella** presented part of his thesis research on fine particulate matter dynamics in arctic Alaskan streams at the 1995 North American Benthological Society Meeting. Tyler has spent numerous summers working with Dr. Anne Hershey at the Toolik LTER site. He will return to Alaska once again in the summer of 1996, this time as a member of Dr. Mike McDonald's fishing crew.

Joan Weyandt-Fulton continues to work on her thesis entitled "Vegetation Composition and Mineral Nutrition in an Ombrotrophic Bog Receiving Wastewater Effluent" while also working for the University of Minnesota Extension Service. Joan is advised by Dr. David Schimpf.

Frank Kaszuba has spent the last two summers on the rivers and lakes of Alaska—at the Toolik Station LTER Site for Arctic Research. He is currently finishing his thesis work with Dr. Anne Hershey on the effects of subsurface flow on stream ecosystem processes. Frank's other interests include applied microbiology—he is an apprentice at the Lake Superior Brewing Company.

Don Christian—Carbon, nitrogen, and phosphorus mineralization and mycorrhizal fungal spore content in feces of arvicoline rodents, to appear soon in *Ecography* (coauthors include John Pastor at NRRI—see "From the Department Head").

Effects of mechanical strip-thinning of aspen on small mammals and breeding birds in northern Minnesota, to appear soon in *Canadian Journal of Forest*

Working with Dr. Mike McDonald, **Kathy Mayo** is concentrating on her thesis project, "A Test in Experimental Management: Use of a Bioenergetics Model to Evaluate a Top-Down Control Strategy." This study evaluates the DNR strategy for controlling river ruffe in the St. Louis River. Kathy works for the National Biological Service in Ashland, Wisconsin.

Sarah Crawford completed her degree work with Dr. Don Christian in the Fall of 1995. She presented results from her thesis, entitled "Small Mammal Diversity and Abundance in Hybrid Poplar Plantations," at the Lake Superior Biological Conference held at UMD last Fall. In December, Sarah earned a temporary Instructor position in the UMD Biology Department. Her long-term plans include teaching or research.

Michelle Barlow has also successfully completed her MS degree—working with Dr. George Host of NRRI. Michelle presented her seminar on "Habitat Selection by Forest Birds Using Geostatistically-Modeled and Spatially-Classified Vegetation Data" in January of 1996. She has now returned to her native Wyoming, to work on wildlife projects as a GIS technician.

Research (coauthors include former Biology graduate student Marlys Reuvers-House, JoAnn Hanowski, and Jerry Niemi; JoAnn, a scientist at NRRI, received her BS and MS degrees in biology from UMD, as did Jerry, who is a professor in the department).

Conrad Firling—Lack of an effect of sodium zeolite A on rat tibia histomorphometry, *Journal of Bone and Mineral Research*, 1996.

Jim Lee, a graduate of Luther College in Iowa, began his Master's work with Dr. Anne Hershey in the Fall of 1995. He plans to work at the Toolik Station in Alaska this summer—investigating insect communities in a fertilized section of the Kuparuk River.

Cindy Hale, a Cottage Grove, Minnesota native, works with Dr. John Pastor of NRRI. She is completing her thesis work on structural and compositional characteristics of old-growth hardwood forests in Minnesota, and nutrient cycling and decomposition characteristics of coarse woody debris in those forests. From these studies, she hopes to gain information that will help develop more biologically "friendly" management strategies for Minnesota forests that will promote both a more diverse and healthy environment and a more diverse forest economy.

Richard D. Gitar continues his project on collecting and identifying the vascular flora of Gooseberry Falls State Park. His advisor is Dr. David Schimpf.

Nick Danz of Barneveld, Wisconsin (population 600) is in the early stages of plant ecology work with Dr. David Schimpf. He will be investigating the effect of Canada Yew on reproduction of canopy trees in northern deciduous

Anne Hershey—Global warming impacts on trophic structure in arctic lakes, to appear soon in *Limnology and Oceanography*.

The limnology of Toolik Lake, chapter in *Alaskan Freshwaters*, a book to be published soon by Springer-Verlag.

Organic matter processing by larval black flies in a temperate woodland stream, to be published soon in

Effects of edge type, patch shape, and patch size on avian communities in a mixed conifer-northern hardwood forest, soon to be published in *The Auk* (coauthor is Rita Hawrot, who received her MS in Biology at UMD).

Response of breeding and migrating birds to extremely low frequency electromagnetic fields, accepted for publication in *Ecological Applications* (coauthors include JoAnn Hanowski [see above]).

Recent trends of breeding birds in Minnesota and Minnesota forested regions—1966–1993, soon to be published in *The Loon* (coauthors include JoAnn Hanowski).

A comparison of on and off-road bird counts: "Do you need to go off road to accurately count birds?" *Journal of Field Ornithology*, 1995 (coauthor is JoAnn Hanowski)

After working as a teaching assistant for most of her UMD career, **Paula Holter** is now concentrating on finishing her thesis, "Effects of Transforming Growth Factor Beta on the Adhesion, Migration and Invasion of High and Low Metastatic Variants of a Murine Melanoma in Response to Type IV Collagen and Peptide IV-H1." Paula is advised by Dr. Lillian Repesh from the UMD School of Medicine.



Denise Mayer has moved to Cambridge, NY, to pursue research on potential bacterial toxins for use against zebra mussels. She continues to work on her thesis project with Dr. Randy Hicks and Lyle Shannon on the effect of introduced bacteria on mortality of bacterioplankton.

Dave Pascoe has submitted a paper, "Community DNA Similarity and Metabolic Diversity of Bacterioplankton from the North American Great Lakes" to the journal

Limnology and Oceanography. He plans to finish his thesis work at the end of May 1996, and start a Ph. D. program in 1997. Dave works with Dr. Randy Hicks.

Tammy Rieber, a new mom (Kaitlyn, born August 10, 1995), is living in Detroit Lakes for the year and trying to finish her thesis entitled "Carbon-Limited Growth Kinetics Of Gas-Vacuolate Vs. Non-Gas Vacuolate Cyanobacteria." This work, under the advisement of Dr. Andy Klemer, investigates algal species competition and succession in carbon-poor lakes.

John Terwilliger, a graduate of Colorado State University, has completed his first field season on a project to determine the persistence of abandoned beaver ponds as graminoid meadows. Working with Dr. John Pastor of NRR1, he is testing if small mammals feces serve as inoculum that may promote mycorrhizal development in black spruce seedlings planted in meadow soils.

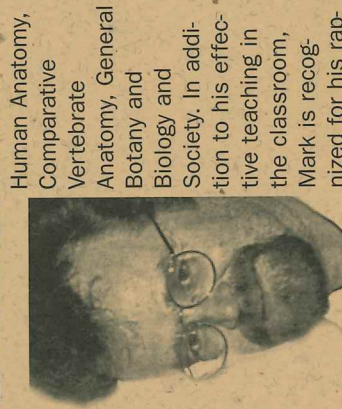
Seth Moore started his graduate work at UMD in the Fall of 1995, under the advisement of Dr. Carl Richards. He is a Northland College graduate, who devotes his summers to working with the National Biological Service in

Bird community dynamics in boreal forests, chapter in *Wildlife Conservation in Forested Landscapes*, Elsevier Press, 1995.

A bioenergetics-based model for accumulation of polychlorinated biphenyls by nesting tree swallows, *Tachycineta bicolor*, *Environmental Science and Technology*, 1995 (coauthors include Chris Larsen, who received his BS degree in Biology at UMD).

Graduate Teaching Assistant Award

Mark Nelson is the recipient of the "Outstanding Graduate Teaching Assistant" award for the '94-95 academic year. Since his arrival at UMD, Mark has gained broad teaching experience in diverse courses such as



Human Anatomy, Comparative Vertebrate Anatomy, General Botany and Biology and Society. In addition to his effective teaching in the classroom, Mark is recognized for his rapport with students and his willingness to spend additional time with them on an individual basis. Mark's research, under the guidance of Don Christian, has focused on the ecology of agroecosystems. He

plans on completing his thesis, "Hybrid Poplar Plantations and Small Mammal Diversity in the Agricultural Landscape" this spring. After finishing his degree, Mark hopes to establish an ecological consulting firm. Congratulations, Mark, on your award and thank you for your contribution to the department's teaching excellence.

Ashland, WI. Seth's thesis work will involve stock differentiation in siscowet trout using morphometrics in a multivariate statistical design.

Other Biology graduate students include Kevin Flynn, Steve Garske, Michele Hughes, Kurt Johnson and Paul Tucker.

Oikos (coauthors include Jason McCrea, who received his biology BS at UMD).

Effects of climate change on fresh waters of region 2: arctic and subarctic North America, to appear soon in the journal, *Hydrologic Processes*.

Seasonal changes in chlorophyll a response to nutrient amendments in the French River, a North Shore tributary of Lake Superior, to be published soon in the *Journal of the North American Benthological Society* (lead author is Nan Allen, who received her MS in Biology at UMD)

Randy Hicks—Biodegradation of Azotobacter vinelandii copolymer by Lake Superior microbes, *Limnology and Oceanography*, 1995 (lead author is Dan Weaver, who received his MS in Biology at UMD in 1994).

forests at Pictured Rocks National Lakeshore in Michigan. Although he began his graduate work in the Fall of 1995, Nick has already been a teaching assistant for Human Anatomy, Biology and Society, Genetics and Plant Biology.

Lisa Schulte will complete her thesis, entitled "Avian Community Response to Habitat Disturbance in Northeastern Minnesota," in the spring of 1996. Her work with Dr. Gerald Niemi at NRRI has given her experience in bird censusing, database management, GPS and teaching ornithology labs. After doing "bird work" somewhere in North America this summer, she plans to investigate Ph.D. programs in ecology.

Anne Gingery is currently working with Dr. John Pastor at NRRI, studying microbial decomposition.

Gretchen Gettel, a Vermont native who graduated from Boston University, began her graduate work with Dr. Anne Hershey in the Fall of 1995. Gretchen has recently worked for the International Pacific Halibut Commission in Seattle and for the Massachusetts Biological Laboratories in Woods Hole, Massachusetts. She will be starting her thesis work this summer in Alaska, studying food web modeling of arctic

Andy Klemer—Carbon availability and the pattern of cyanobacterial dominance in enriched low-carbon lakes, *Journal of Phycology*, 1995.

Cyanobacterial buoyancy regulation: The paradoxical roles of carbon. *Journal of Phycology*, 1996.

Qinqin Liu—published two papers in *Minnesota Wild Rice Research* in 1996: "Analysis of transition zone in wild rice

lakes at the Toolik Field Station.

Pat Brown continues to work for the National Biological Service in Ashland, Wisconsin while writing his thesis, "The Early Life History of Ruffe in the St. Louis River." A graduate of Northland College, Pat is advised by Dr. Hollie Collins.

Cathy Podeszwa, from Fridley, MN, is a former English major now working on terrestrial ecology with Dr. Don Christian. Cathy is in the process of finishing her thesis project on movement patterns of small mammals in hybrid poplar plantations and adjacent lands in an agricultural landscape. In 1996, she presented posters at the Midwest Population Biology Conference in Iowa and the Sigma Xi Conference at UMD.



Cathy Podeszwa

panicle development" and "Characterization of male floret developmental sequence in both normal and mutant wild rice plants (coauthors include current biology undergraduate students Craig Troska and Kim Granberg).

Jerry Niemi—Nest success of breeding birds in forested landscapes of northern Minnesota, soon to be published in *The Auk* (coauthors include Tim Fenske, who received his MS in Biology at UMD).

is to analyze the data from this summer's projects and submit two papers for publication: the first on fungal spore germination and the second on small mammal foraging patterns for the sporocarps of the mycorrhizal fungi *Elaphomyces granulatus*.

Chris von Rabenau, a Duluth native, continues his work with Dr. Don Christian on small mammal abundance in St. Louis County. Chris is employed full time as both a teaching assistant in the Biology Department, and a manager at the Whole Foods Co-op of Duluth.



Graduate students

Randy Hedin continues aquatic work with Dr. Andy Klemer. His research project focuses on how nutrient supply affects blue-green algal growth rates and competitive abilities.

Breeding bird abundance patterns in the Chippewa and Superior National Forests from 1991 to 1993, *Loon*, 1994 (coauthor is JoAnn Hanowski)

In addition to the above research publications, Biology faculty gave 31 poster or oral presentations at regional, national, or international meetings. These included 13 invited presentations. Faculty continued to bring in grant funds to support their

research. During the past year, 14 funded research projects were in effect in the department. Nine new projects initiated during 1995 and the first part of 1996 totalled over \$1.9 million. These grants do not include funding obtained by Jerry Niemi, who is a professor in the department but also is Director of Center for Water and the Environment at the Natural Resources Research Institute (NRRI). However, several of the funded

research projects being conducted by Biology faculty involve collaborative work with scientists at NRRI. These include projects that Don Christian is conducting with Jerry Niemi, JoAnn Hanowski, and others, and two project Anne Hershey is conducting with Carl Richards, John Pastor, and Rich Axler.

MS Commencements

Master of Science Degree

Summer, Fall 1994

Heather L. Brient-Johnson
Tracy L. Galarowicz
Rita Y. Hawrot
Oksana Piterman
John R. Wheeler

'95 Bachelor's Degree Graduates

Bachelor of Applied Science

(Teaching Life Science)

Kelly Grant, International Falls, MN
Jason G. Greenslit, Mound, MN
Keith Lillquist
Brandon Robinson, Osceola, WI
Aaron Salmela
Tara Simpson, Golden Valley, MN
Martin Sundberg, Hastings, MN
Geri Tesser, Proctor, MN
Robert Weinmann, Winona, MN
Cynthia Welsh

Bachelor of Arts

Shawn Hnato, Hibbing, MN
Keith Lillquist
Margaret Moore, Walker, MN
Douglas Torrel, Hibbing, MN

Bachelor of Science

Shahrul Ali, Malaysia
Diane Anderson, Vadnais Heights, MN
Erick Anderson, Duluth, MN
Mark Anderson, Rochester, MN
Michelle Arndt, White Bear Lake, MN
Jodi Arvidson, Parkers Prairie, MN
Niklas Axelsson, Waxholm, Sweden
Anthony Balk, Lakeville, MN
Petra Balli, Apple Valley, MN
Barbara Beau, Squaw Lake, MN
Kristina Bertrand, Coon Rapids, MN
Hope Book, Brooklyn Park, MN
Kevin Bovitz, Chisholm, MN
Hope Burchill, Fargo, ND
Andrew Burgess
Kimberly Cartie, Crosslake, MN
Nicole Colaizy, Osceola, WI

Amy Crump, Hermantown, MN
Dori Defoe, Proctor, MN
Meaghan Dircks, Minnetonka, MN
David Doebler, Elk River, MN
David Doerr, Monticello, MN
Pamela Drinkwine, Osceola, WI
Robert Dunsmore, Hinckley, MN
Denise Eider, Duluth, MN
Michelle Eldred, LaCrescent, MN
Heidi Erdahl, Wadena, MN
William Flannagan, Austin, MN
Nathan Flooding, Detroit Lakes, MN
Mark Foede, Waverly, MN
Renee Funk, Pierz, MN
Jenniffer Gluth, New Ulm
Jennifer Gregory, New Prague, MN
Jeffrey Gryga, Edina, MN
Peter Harrison, Hastings, MN
John Haussner, McGregor, MN
Britt Heidinger, Golden Valley, MN
Kevin Hinton, Spring Lake Park, MN
Jason Hoffbeck, Lakeville, MN
Erika Hogenson, Silver Bay, MN
Anne Hoppenrath, Bloomington, MN
Carl Hornfeldt, Duluth, MN
Shara Johnson, Little Falls, MN
Jennifer Kelzer, Waconia, MN
Vasilisa Kiselevich, Moscow, Russia
Gina Klemmack, Duluth, MN
Cassandra Larson, Elizabeth, MN
Kraig Larson, St. Paul, MN
Scott Larson, Proctor, MN
John Levasseur, Baudette, MN
Lyle Mahlberg, Duluth, MN
Thomas Mauer, Fergus Falls, MN

Corey Mead, Meadowland Farm, MN
Jeremy Mott, Hayfield, MN
Jill Nagel, Rochester, MN
Richard Narum, Duluth, MN
Sean Nelson, Austin, MN
Denise Nicoski, Superior, WI
Bradley Neufuss, Ashland, WI
Jennifer Olin, Brainerd, MN
Craig Peterson, Aurora, MN
Andrew Pulkrabek, Burnsville, MN
Shannon Raaen, Prior Lake, MN
Wayne Robke, Owatonna, MN
Corey Salmela, Duluth, MN
Shannon Salmi, Eveleth, MN
Glenda Samuelson, Duluth, MN
Jason Schiro, Winthrop, MN
Aaron Schlenker, Fridley, MN
Katrina Schloesser, Hibbing, MN
Crystal Schnortz
Heather Seemuth, Bay Village, OH
Brent Sheasby, Duluth, MN
Darren Simon, Farmington, MN
Steven Soukup, Red Lake, MN
Michael Splett, Whitebear Lake, MN
Martini Sundberg, Hastings, MN
Trevor Swenson, Little Falls, MN
Eric Tate, Duluth, MN
Bryan Thayer, Mahtomedi, MN
Todd Toman, Iron, MN
Craig Troska, Glencoe, MN
Zachary Twilight, Canyon, MN
Matthew Vaillant, Red Wing, MN
Amy Visnes, Rosemount, MN
Erin Williams, Princeton, MN
Kimberly Wilson, Rochester, MN
Scott Wright, Poplar, WI

Winter, Spring, Fall 1995

Kent L. Montgomery
Roland E. Sigurdson
Kathryn M. Gronlund
Joseph C. Whittaker, Jr.
Amy K. Fisher
Andrew J. Edwards
Timothy J. Fenske
Ann C. Thering

Sigma Xi Poster Exhibition

Each February, the Duluth chapter of the scientific research society Sigma Xi holds a poster session to present recent research information to the local scientific community. As in past years, several Biology Department faculty and students participated. The following were part of the exhibit:

"Small Mammal Response to a Hybrid Poplar Plantation Mosaic," Catherine Podeszwa and Dr. Donald P. Christian.

"Ribosomal RNA-based Probes Reveal Archaea in Picoplankton from the North American Great Lakes," Dr. Randall Hicks and David Pascoe.

"In vitro Synergistic Effects of Six Plant Extracts on HSV-1 and HSV-2 in Hep-2 Cells," Aaron Johnson, Shara Johnson, Satoshi Takida, Matt Thompson and Dr. Raj Karim.

UROP AWARDS

by Amanda Reu

The Undergraduate Research Opportunities Program is a university-wide program that provides financial assistance for undergraduate research. The program allows students to conduct research with, or under the advisement of, a faculty member in the student's major. This opportunity provides the students with an understanding of what research entails outside the classroom. Biology students selected to participate in the program for the 1995-96 school year are listed below along with the research project title and faculty advisor's name.

John Judge "Habitat Availability for Sharptailed Grouse in the Pre-settlement Landscape of Minnesota" (D.P. Christian)

Michelle Langley "In vitro Effect of Select Sera and Antibiotics on an Epithelial Cell Line Infected with Helicobacter pylori" (R. Karim)

Joshua LeClaire "Monoclonal Antibody Assay for Membrane Proteins of Ruffe Sperm" (J. Holey)

Todd Martin "Responses of Phytoplankton Photosynthesis and Growth to the Aquatic Herbicide Hydrothol 191" (R. Axler, D.P.Christian)

Tanya Pierce "Transcriptional Changes in the Nuclear Matrix Apparatus During Cellular Differentiation" (J. Holy)

Sandy Fritzlar "Development of an Isolation Technique to Determine if Intact Archaeal Cells Are Present" (R. Hicks)

Kevin Wolf "Analysis of Chromosomes and Cytoskeletal Organization in the ms2 Maize Post-meiotic Mutant and Its Possible Alleles" (Q.Q. Liu)

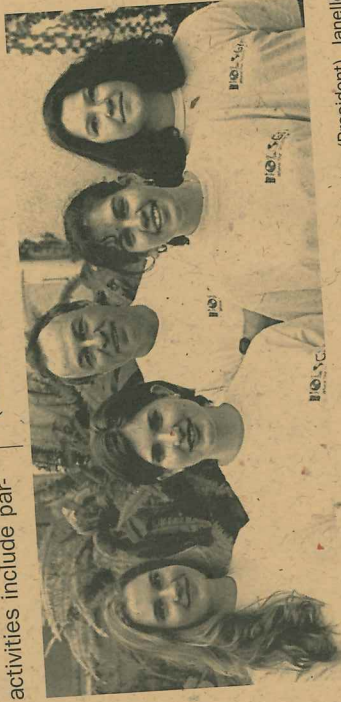
BIOLOGY CLUB

by Becky Norton

Last fall, a group of 40 biology students elected a slate of officers to lead them through the academic year. Dedicated to both service and social missions, one of the top priorities of the club officers was to help biology students to meet others in their major. To get people together, several "fun" events were coordinated by the club. These included several nights of bowling and a hike along the north shore at Split Rock Lighthouse. The club fielded an intramural volleyball team this winter, having a lot of exercise and fun, but few victories. Spring social activities include participating in soccer, a Saturday hike, a smelting excursion and a now-annual spring barbecue in Chester Park.

As a service club, the officers set up the first "Meet the Professors and Graduate

Students" open house. This informal event, bringing faculty and students together outside of the classroom, allowed undergraduate students to ask questions about graduate schools, graduate school tests, reference letters, summer employment and a variety of other topics. Professors, in turn, wanted to know how to get students more interested in their classes and more open to instruction. The club also hosted Professor Louisa Tabatabai from Iowa State University to give a seminar. She spoke on the topic "Runny" (continued on page 12)



(left to right) Becky Norton (President), Janelle Jendro (Secretary), Dana Bahr (Historian), Beth Johnson (Treasurer), Deb Erickson (Vice President)

T. O. Odlaug Award

The recipient of the annual Odlaug Award for the '94-'95 school year is **Shara Johnson**.

The award is presented annually in honor of Professor Odlaug, a former department head, to an outstanding student who also shows strong leadership qualities and service to the department. The recipient selects a

reference book of her choice. Shara received a BS degree in Biology at the 1995 spring commencement and is currently in her first year of medical studies at the UMD School of Medicine. In December of '95, she appeared on the cover of *Minnesota Medicine* magazine.

ALUMNI NEWS

Gabriel D'A. Venticinqu (BE '36 DSTC) was the first graduate to major in the biological sciences. He studied under Dr. Olga Lakela her first year at DSTC. He retired in 1976 after 30 years in the Detroit Public Schools as a general science teacher and principal.

Kevin Nelson ('79) completed his MS in 1980 and Ph.D. in 1991, both in environmental health (Health Physics specialization) from the U of M. He has worked as a Senior Health Physicist at the U of M, a project scientist at Brookhaven National Lab in New York, and is currently employed at 3M in St. Paul as a Health Physics Specialist.

Senior Spotlight

by Sarah Knott

Graduation Day! The day has finally arrived when you have to start making some serious choices about your future. Do you continue your education, or do you seek employment in your major?

If you choose the academic route, how will you finance your education? Where will you live? If you are not accepted into the school of your first choice, do you work for a year and reapply for the next year? Or do attend your second choice school? If seeking employment, do you work for government or private industry? Do you accept a part-time position where you will gain valuable experience, or a full-time position with a higher salary? Whichever route you choose, academia or immediate employment, life is full of learning. Your college education has provided you with the tools to learn. What you do with your education from here is up to you!

Patrick Buckwalter will receive his BS this spring. He represents a portion of the graduates that have chosen to continue their education in graduate school. In the fall, he will attend Idaho State University where he will pursue his studies in ecology. In addition to

acceptance at the university, he was granted a research assistant position starting in June. This summer he will research agriculture field-abandoned succession and the effects animals have on plant dispersal.

Just 30 credits short of graduating, **Tirzah Roach** will pursue her dream of becoming a veterinarian. In September she will attend the

University College, Dublin, Ireland, where she will eventually receive a degree in veterinary medicine. In a class of 75, only ten foreign students were accepted. While in the program, Tirzah will take numerous exams, offered only in the summer, focusing on oral, practical and written expression. The five-year program also includes 20 weeks "shadowing" a practicing vet and ten weeks working on a farm gaining hands-on experience. Tirzah admits feeling a little scared, but more than anything she is excited about fulfilling her dream. She hopes to one day become a missionary veterinarian in a developing country.



Sarah Knott

(Biology club from page 11) Noses, Pneumonia, and Biochemistry: What Do They Have In Common?" She was also available during the day to answer questions about the opportunities at Iowa State. In May, the club will participate with several other science clubs in sponsoring a professional panel, which will give students the opportunity to learn about a variety of career fields.

The club had a number of fund-raisers this past year, the most successful being the sale of T-shirts with an environmental theme and also club T-shirts with a new logo, designed by the students. As in the past, students have baked and supplied the department with cookies for the Friday afternoon seminars. There are plans to sell plants and other environmental items in recognition of Earth Day this spring. Club members will also be participating in the city-wide "Clean and Green" effort, volunteering their time for this community event.

The Biology Club has had an active and interesting year. Many students have had opportunity to practice their leadership and organizational skills. The future of the club is promising. For students wanting to participate, check out Life Science 235—"where the wild life is."

Barb Farrell (MS '82) is a small animal vet at a clinic near San Francisco. She and her husband, Bob Madison, have a small home in Mill Valley and enjoy cross-country skiing.

Gregory Friedrichs (BS '84) received his MS from the Department of Physiology (U of M '86), Ph.D from the Department of Biomedical Engineering ('91) and a Merck Research Fellowship at the University

Todd Martin will receive his bachelor's degree this spring, and like many other graduates, he plans to take a year off before applying to graduate schools. In the meantime he is applying for internships in limnology, ichthyology, and fisheries biology. Todd developed an interest in limnology while working on a project with Chris Owen and Elaine Ruzycki at NRRI. He assisted in the lab helping to develop new algal toxicity testing techniques for wastewater holding ponds in treatment facilities. He would one day hope to work in lake remediation.

Jenna Krough will receive her BS degree this summer and hopes to work in a zoo somewhere in the midwest after graduation. This past quarter she has been interning with the Lake Superior Zoo working on the polar bear exhibit. She wants to gain first-hand experience with zoo animals before going on to pursue animal behavior research or conservation of endangered animal species.

Rebecca Hertaus may be familiar to current students as an undergrad TA in general biology this past year. She will graduate this spring, but plans to take a year off, hoping to work either as an intern for a water-

of Michigan Department of Pharmacology where he worked as a research investigator. He was recently promoted to Assistant Research Scientist in that department.

Lawrence Karl Olson (BS '86) received his Ph.D in 1991 from the U of M. In 1995 he completed his postdoctoral training in the Department of Medicine (U of M) and has taken a faculty position at Michigan State where

his primary research interests include the regulation of pancreatic cell gene expression and diabetes.

Lynn Gillie (BS '89) completed her Ph.D in Zoology at Southern Illinois University at Carbondale. She has a one-year appointment as a visiting professor of biology at Beloit College in Wisconsin, where she plans to continue her research on foraging behavior. Lynn was married in the summer of '95 to Scott Huss.

Lake Superior Biological Conference

M. McDonald), "*Taxus canadensis* and the Northern Hardwood Forests near Lake Superior." (Schimpf, D. Landscape), "Perspectives and Biodiversity Management of Forest Birds in

The Kirby Student Center Ballroom was the site of the September 25-26, 1995 meeting of the Lake Superior Biological Conference. Several UMD Biology faculty and graduate students either contributed posters or gave talks at the session. Poster presentations included: "Water Quality Issues Associated with Aquaculture: A Case Study in Minnesota, Mine Pit Lakes." (Axler, R., C. Larson, C. Tikkanen, M. McDonald, P. Aas, and S. Yokom) and "Ribosomal RNA-Based Probes Reveal Archaea in Picoplankton from the North American Great Lakes." (Hicks, R., D. Pascoe and T. Schmidt)

Contributed talks were given as follows:

"Effects of Decomposing Salmon Carcasses on Lake Superior Tributary Streams." (Schuldt, J., and A. Hershey), "Recovery of a Mine Pit Lake Following Removal of Aquacultural Loading." (Yokom, S., R. Axler, C. Tikkanen, and

purifying company or at the Minnesota Zoo. Becca has always had an interest in marine biology, but the hands-on learning in the coral reef field studies class (Biol 5674) really inspired her to pursue her dream of someday studying lobsters.

Debra (Hinterleitner) Anderson (MS '90) is the Science Department Chair at Lac Courte Oreilles Ojibwa Community College. She and her husband Mike, 3 year old Morgan and baby Kaelan Robert are enjoying life on their sheep farm near Hayward in northern Wisconsin.

David Nessa (BA '90) is working as a research associate with Integrated Laboratory Systems at the Duluth

Minnesota." (Niemi, J., J. Hanowski, L. Pfannmuller, and D. Mladenoff), "Small Mammal Distribution and Abundance in Hybrid Poplar Plantations." (S. Crawford and D. Christian), and "Small Mammal Foraging Patterns for the False Truffle, *Elaphomyces granulatus*." (Barnes, C., D. Christian and J. Groth).

The banquet invited address was given by Tom Johnson, Director of LLO, UMD and was titled "The University of Minnesota's Large Lakes Observatory."

Gifts and Donations

Our records show that the following alumni and friends made a donation to the Biology Gift Account or the Jack Hargis Lecture Fund during 1995. We deeply appreciate their generosity and thoughtfulness. Their gifts have helped us fulfill our educational mission.

Abbott Laboratories Fund, Abbott Park, IL (matching contribution)
Sheila Arimond, Hibbing, MN
Thomas Becker, Clive, IA
Edward Bersu, Madison, WI
Jon Birch, Durhamville, NY
Beverly J. Cackoski, Hibbing, MN
Mary L. Ebert, Cincinnati, OH
Mitchell D. Forstie, Saint James, MN
Maureen Frikke, Salt Lake City, UT
Ken & Linda Holmstrand, Cloquet, MN
Kathleen & Douglas Jensen, Duluth, MN
Cynthia & Gary Johnson, Northford, CT
Edward Lance, Rochester, MN
Roger E. Lindberg, Libertyville, IL
Philip Loucks, Longwood, FL
(continued on page 15)

EPA lab. He is a co-author on several research papers.

James Schneider (BAS '90) teaches all of the science classes at Northome High School in Northome, MN. He and his wife Juleen are the parents of Caleb Trisko, now one year old.

Jeffrey Bieter (BS '91) graduated from the Southern College of Optometry in Memphis, Tennessee.

He is now practicing with the Group Practice Organization of Allina Health Systems in Roseville, MN.

Russell Sticha (BS '91) holds a DPM degree from the College of Podiatric Medicine and Surgery at the University of Osteopathic Medicine and Health Sciences in Des Moines, IA. He is currently in residency at St. John's Hospital in Detroit where he specializes in reconstruction of the foot and ankle.

All-Class Reunion

(continued from page 1)

The Biology Department welcomes and encourages alumni and former students to participate in these activities, especially those on Friday the 26th. Our department is fortunate to have seven Professors Emeritus—Ted Odlaug, Jack Hofslund, Blanchard Krogstad, Paul Monson, John Carlson, Helen Hanten and George Ahlgren. All have been contacted and invited to take part in the departmental social events. Selected classrooms in the Life Science Building will be opened to the public and will exhibit a variety of teaching materials, student research posters and other displays of interest. Sure to attract a lot of attention and conversation will be a photo exhibit from the department archival collection. Paul Monson has donated several hundred slides from the "Ecology of Minnesota" field course of the '70s and a number of anonymous donors through the years have contributed snapshots for this "Biology Rogues Gallery."

In addition the department will offer a Pre-Reunion Workshop on forest ecology and management, which will focus on current issues and approaches to forest management in Minnesota. Continuing education credit will be available (tuition yet to be determined). More information can be obtained from Donald Christian at (218)726-6262.

More information about the general reunion events can be obtained from the UMD Alumni Office, 315 Darland

Christine Wyrum (BAS '91) is in her third year of teaching biology and physical science in Virginia, Minnesota. She attended a session at Wolf Ridge Environmental Center in preparation for the opening of the school district's 100 acre environmental learning area.

Gary Phleger (BS, BAS '92) teaches science and coaches varsity girls golf at Cooper High School in New

Administration Building, 10 University Drive, Duluth, MN 55812 or by phone at (218)726-7110. You might want to nominate an alum for the UMD Distinguished Alumni Award, the UMD Outstanding Recent Alumni Award, or the UMD Distinguished Service Award. You can also register for reunion events and reserve your copy of a photo-history account of UMD.

Hawk Ridge

(continued from page 1)

national importance of the observation area as a flyway for migratory birds of prey. The other three focus on individual raptors including the broad-winged hawk, the osprey and the northern goshawk. For each, abundance is shown in graphic form, over a more than twenty-year period, from counts recorded by the Duluth Audubon Society at Hawk Ridge. Explanatory text accompanies each graph and explores the reasons for the patterns and variations seen.

The Hawk Ridge display, and others in that same area, are used extensively by UMD students, touring school groups and are viewed by hundreds of visitors to campus. In addition, students in our ecology laboratory and other courses often study the fall hawk migrations through Duluth. We hope that you will

Hope, MN. He is especially enjoying his role as the father of a one year old child.

Dan Bronson (BS '94) is completing his master's degree this spring at St Cloud State University, where his research has centered on Lyme disease in red squirrels. He will be working with the Peace Corps in central Europe on an environmental

take time to see this display during your next visit to campus, perhaps during this summer's reunion. For more information on hawk migration or Hawk Ridge Nature Reserve Programs contact: Friends of Hawk Ridge, Duluth Audubon Society, c/o Biology Department, 10 University Drive, Duluth, MN 55812. This year, 1996, will be the 25th consecutive year of continuous counting at Hawk Ridge during the fall migration!

clamation project.

ori R. Johnson (BS '94) who also holds a BS degree in chemistry, is employed as an analytical chemist at Fort Dodge Laboratories, a division of American Home Products involved with veterinary pharmaceuticals. She lives in Fort Dodge, Iowa.

Christine Jankovich (BS '92) after a year in El Paso, Texas, is work-

ing at Protein Technologies International in Affton, Missouri. She is employed as a chemist making solutions/coatings for the paper industry.

Peter Aas (MS '92) spent time during the past year working in the Gerlach Straits on the northwest side of the Antarctic Peninsula. He is part of a research group from the Center for Environmental Diagnostics and

Bioremediation, University of West Florida, doing basic microbial ecology in the area.

Other Undergraduate Activities

by Sarah Knott

In addition to Biology Club, there are additional organizations on campus for participation by biology students. The **Pre-Med Club**, with about 40 active members, meets biweekly and supports aspiring medical students with a variety of activities. Here, contacts can be made while gaining volunteer experience in hospitals, as student tutors, with Big

Brothers/Sisters and others. The club invites doctors, UMD medical students and UMD faculty to talk about their experiences and to lend their insight into medical careers. The club also has one social event each month.

The **Pre-Pharmacy Club** welcomes students interested in the profession, although UMD offers only the first three years of courses in this pre-professional program. Several of the 23 members are graduate students in pharmacology at UMD. The club invites guest speakers, usually pharmacists working in hospitals or retail settings, as well as pharmacy students to share their experiences. This year, several members attended the U of M Pharmacy School Open House. Social activities included bowling, flag football. At Christmas, some served as bell ringers for the Salvation Army.

Gifts & Donations from page 13)

David C. Lurye, Winter Park, CO
Joseph Mayasich, Cloquet, MN
William McCollough, Seattle, WA
Beth Middleton, Carbondale, IL
Rodney C. Mowbray, La Crosse, WI
Barbara A. Peterson, Cocoa Beach, FL
Donald Rakowsky, New Port Richey, FL
Margery M. Salmon, Cuttingsville, VT
James Sandelin, Slidell, LA
Mark Schaberg, Maplewood, MN
Rodger Schaeffbauer, Delano, MN
Daniel Sherry, Ellsworth, WI
Stephen & Gayle Stroup,
Altamonte Springs, FL
David Swanovich, Minneapolis, MN
3M Foundation, St. Paul, MN
Lloyd Turtinen, Eau Claire, WI
Timothy Velner, Duluth, MN

In its second year, the **Pre-Vet Club** has 15 active members. They sponsored local veterinarians and a U of M admissions counselor to answer questions. Members also toured the U of M School of Veterinary Medicine, the North Shore Veterinarian Hospital and attended a national Pre-Vet symposium in Kansas City. One of the goals of the Duluth group is to become members of the national Pre-Vet Club.

Women in Science and Engineering (WES) is a club for all women in science, math or engineering fields at UMD. The club's main objective is to encourage women to enter and stay in technical fields. There are three main committees: outreach, fund-raising, and social events. The Outreach Committee, concerned with community involvement, each year puts together a panel to visit high schools in the area. This year the fundraisers sold Candy-grams. The Social Committee organized several pizza parties and a trip to the Lake Superior Zoo and will sponsor a barbecue later this spring. WES will be joining the Biology Club and the Pre-Med Club in presenting a professional panel this spring, giving students the opportunity to meet professionals and to network for jobs and internships.



Students in the UMD Pre-Med Club



Women in Science

Winter '96

The Life Scientist

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

Editor — Linda Holmstrand

Advisory Board — Donald Christian

David Schimpf

Helen Hanten

Ruth Hemming

Cathy Podeszwa

Rebecca Norton

Photos — Ken Moran

Linda Holmstrand

Student Writers — Cathy Podeszwa

Sarah Knott

Rebecca Norton

Jennifer Lindgren

Amanda Reu

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University of Minnesota, Duluth
Department of Biology
211 Life Science Bldg
10 University Dr
Duluth MN 55812-2496

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Alumni Update

(Please return so we can update our files)

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Name _____

Address _____

Class of _____

UMD Degree _____

(MS, BS, BAS, BA)

What's News? (Promotions, special recognitions, change job, civic involvement, family, research, travel, etc.)

