

the
Life Scientist

UMD Biology Department News



John B. Carlson, Ph.D.

Professor John B. Carlson retires

After almost 34 years in the UMD Biology Department, John B. Carlson retired on January 31, 1988. His excellence in teaching and advising students, and his service to the department will be remembered by colleagues and students who have known him.

Dr. Carlson grew up and graduated from high school in Virginia, Minnesota, and attended St. Olaf College in Northfield, MN, receiving a BA degree with majors in biology and chemistry in 1950. He completed a Ph.D. at Iowa State University, Ames Iowa, in 1953, and came to Duluth as an instructor in 1954, at the time that the Duluth State Teaches College was evolving to become a campus of the University of Minnesota. He was appointed Assistant Professor in 1956, Associate Professor in 1961 and Professor in 1966. He served as assistant and associate department head for some years and as acting head in 1984-85.

As a botanist, Dr. Carlson's enthusiasm was apparent to students in his courses. His speciality is morphology of both non-vascular and vascular plants and he was known for presenting coursework in well organized, clear, well prepared presentations. He expected excellence from his students and helped them achieve it.

In research, Dr. Carlson studied morphology and development of wild rice with colleagues in the department, and studied both vegetative and reproductive morphology of soy beans, collaborating with Dr. Nels R. Lersten of Iowa State University in writing two chapters of an Agronomy Monograph (1987), Soybeans: Improvement, Production, and Uses, 2nd Ed.

Dr. Carlson's plans for the future include travel, to Hawaii in February 1988, and to the Panama Canal, the Caribbean and to Finland in the next two years. He and his wife, Dolores, also retired, enjoy visiting their children and grandchildren who all live outside of the Duluth area. At home they enjoy gardening, bee keeping, raising ducks and geese and country living on their thirty acres in the woods. Dr. Carlson has no plans for further teaching or research, and says he will miss teaching and advising students, but is looking forward to having time to "smell the roses".

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Happenings in the Department

From the Department Head

Becoming the new head of a well established department, such as Biology, has been rewarding but trying. It is emotionally similar to remodeling a grand old house--the foundations are solid and there are good basic materials holding it together, but it does need some work. However, all "repairs" seem to uncover more complex problems than first imagined--leaky pipes, exposed wiring and plenty of dust. Soon the house appears in disarray.

We are re-modeling, "please excuse the mess." Old walls have come down; are we remodeling or wrecking this place? It all depends on how we put it back together. I believe most of us are confident that the finished product will be as sound as the old, yet serve the changing demands of our role at UMD.

M. C. Whiteside

Dr. Anne Hershey will be continuing her arctic research for at least three more years thanks to funding of two new grant proposals. Her experiments test the effects of nutrients and fish on controlling communities of benthic (bottom-dwelling) invertebrates. Fish and nutrients affect benthic invertebrates in different ways; fish prey on them, and nutrients can affect their growth and density by stimulating production of algal or bacterial food supplies. These studies are of practical as well as academic interest because the arctic is being developed for human uses and consequences of land development include nutrient additions to lakes and rivers and changes in native fish populations. Therefore, experimental studies of effects of nutrients and fish on these benthic communities are important for predicting how arctic aquatic ecosystems will respond to perturbations resulting from land development and for managing arctic development to minimize damage to aquatic ecosystems.

See **HERSHEY** Page 7

SEMINARS

Two alumni of UMD Biology Department were speakers in the departmental seminar series fall quarter Dr. Brent M. Haglund, state director of the Nature Conservancy in Madison, spoke on "Preserving the Biotic Diversity of Wisconsin: The Role of the Nature Conservancy."

"Wild Blueberry Management in Northern Minnesota" was the topic of a seminar by Deborah Shubat on Nov 6. Shubat currently is the operator of the UMD greenhouses, and is involved in ongoing research in wild and cultivated blueberries in Minnesota.

The first Jack R. Hargis Lecture in Biology was held on April 24, 1987. This series was established by the university in recognition of the contributions in teaching, research and service of Jack R. Hargis who died March 31, 1984. Dr. Richard A. Parker of Washington State University, Jack's major professor, spoke on Deep Chlorophyll Layers in Oceans and Large Lakes.

LAKE SUPERIOR BIOLOGICAL CONFERENCE

The 24th Annual Lake Superior Biological Conference was held at UMD, Sept 25-26, 1987. Linda Holmstrand was in charge of arrangements, assisted by Paul Monson and Hollie Collins. A \$50 award for the best student presentation was given to Tom Manning, UMD Biology Graduate Student, for his paper entitled "Sodium Balance in Herbivorous and Insectivorous Cricetid Rodents". Eleven graduate students competed for two cash awards. The keynote address on "Ruffed Grouse Ecology" was given by Gordon Gullion, U MN Professor and Director of the U MN Forest Research Center, Cloquet.

Sigma Xi Poster Exhibit

Biology undergraduate students Steven Hughes and Pam K. Elf, Biology Program graduate students Bone Hatten and Mary K. Berigan, and Biology Faculty members Stephen C. Hedman, Randall E. Hicks, and Conrad E. Firling presented posters at the Fourth Annual UMD Sigma Xi Club Poster Exhibit, January 19-22, 1988 held at the UMD School of Medicine. The titles for the presentations included: Cytogenetic Studies on the White Sucker. Bonnie Hatten and Stephen Hedman. G-Banded Chromosomes from the Fathead Minnow. Steve Hughes and Stephen Hedman. Measurement of Bacterial Abundance and Production in the Water Column of Duluth Harbor and Lake Superior. Mary K. Berigan and Randall E. Hicks. Influence of Lake Itasca on Heterotrophic Bacterial Abundance and Productivity in the Mississippi River Headwaters. Randall E. Hicks. In Vitro Cell and Organ Culture Systems for the Study of Bone Growth and Differentiation. Conrad E. Firling, Pam K. Elf, A. R. Severson (Biomedical Anatomy) and T.E. Huntley (Biochemistry).

Dr. Conrad Firling, with Dr. Thomas E. Huntley of the Department of Biochemistry and Dr. Arlen R. Severson of the Department of Biomedical Anatomy, received a \$6925 grant from the Duluth Clinic Education and Research Foundation to develop a cell culture model to study aluminum induced osteomalacia.

Biology Faculty Member Conrad E. Firling will co-author with Thomas E. Huntley (Biochemistry), Gerald L. Feirson (Chemistry), and Arlen R. Severson (Biomedical Anatomy) a presentation at the 1988 Annual Calcified Tissue Meeting to be held in New Orleans in June, 1988. The title of the presentation will be Similarity of Methylendiphosphonate (MDP) and Aluminum Effects on Ectopic Bone Development in Rats.

Biology graduate student Craig F. Haut, Dr. Conrad E. Firling of the Biology Department, Dr. Arlen R. Severson of the Department of Biomedical Anatomy, and Dr. Thomas E. Huntley of the Department of Biochemistry will present the paper: Aluminum inhibition of calcification in demineralized bone matrix (DBM)-induced bone formation at the 1988 American Association of Anatomists Meeting, April 1988, in Cincinnati, Ohio.

Happenings in the Department

New Courses in Biology

Among the courses recently added to the Biology curriculum as upper division electives are: Microbial Ecology (Biol 5254) taught by Dr. Randall Hicks, which will cover major concepts of microbial ecology and physiology. The laboratory will focus on modern techniques in these areas. Vertebrate Embryology, (Biol 5518) taught by Dr. Conrad Firling, offers a focused, in depth study in this area for biology and pre professional students. Stream Ecology (Biol 5671) by Dr. Anne Hershey, replaces the more general course on ecology of aquatic invertebrates, and will study stream communities with emphasis on North Shore streams. Laboratory Teaching Experiences (Biol 3100) offers students the opportunity to serve as undergraduate teaching assistants with supervision and assistance from professors.

NEW RECOMBINANT DNA COURSE

Filling a void which has long existed at UMD, a new course emphasizing recombinant DNA will be taught in the spring of 1988; Genetics of Prokaryotes. The lecture will cover the genetics of bacteria and viruses together with theoretical discussions of recombinant DNA and genetic engineering techniques. The laboratory will feature the isolation of plasmid DNA from Escherichia coli, DNA digestion with restriction enzymes, electrophoresis of DNA fragments, DNA ligation, and gene cloning. To support this new venture, over \$95,000 in grant funds were obtained from the National Science Foundation and the University of Minnesota. Instructors for the course are Alice Adams (UMD Medical School) and Steve Hedman (Biology).

DANIEL HARTL to SPEAK

This spring the noted geneticist, Dr. Daniel Hartl, will be at UMD to visit with Biology students and to present a public lecture. Dr. Hartl is currently Head of the Department of Genetics, Washington University School of Medicine in St. Louis, Missouri. He enjoys a national and international reputation as a prolific author, a superb teacher, and a skilled researcher. His visit will be sponsored, in part, by a Shea foundation grant awarded to Sister Donna Schroeder (Biology, St. Scholastica), Mike Williams (Biology, University of Wisconsin Superior), and Steve Hedman (Biology). Dr. Hartl will meet with students at these three institutions to describe his research involving human genetics and recombinant DNA. At a public lecture to be given in the evening and expected to attract a large audience, he will discuss some of the ethical and moral issues associated with genetic engineering and recombinant DNA biotechnology. A discussion will follow Dr. Hartl's lecture featuring panelists drawn from religious, medical, philosophical, and biological disciplines. Expect to see extensive advertising during March announcing specific times, dates, and places.

Faculty and Staff — 1987-1988

George E. Ahlgren, Associate Professor
Donald P. Christian, Associate Professor
Hollie L. Collins, Professor
Conrad E. Firling, Associate Professor
Helen B. Hanten, Assistant Professor
Stephen C. Hedman, Associate Professor
Anne E. Hershey, Assistant Professor
Randall E. Hicks, Assistant Professor
Linda L. Holmstrand, Associate Professor
Andrew R. Klemer, Associate Professor
Paul H. Monson, Professor
David J. Schimpf, Associate Professor
Lyle J. Shannon, Research Fellow
Melbourne C. Whiteside, Professor

Phyllis Jensen, Accounts Supervisor
Elizabeth McNamara, Lab Services Coordinator
Deb Shubat, Greenhouses Operator
Michelle Simon, Secretary

HEDMAN RECEIVES AWARD

At the May 23 UMD commencement ceremony, Dr. Stephen Hedman was presented a Chancellor's Distinguished Service Award as a Blehart award winning faculty member, and chair of the recent Chancellor search committee.

HANTEN to TEACH in ENGLAND

Helen Hanten, Assistant Professor of Biology at UMD will teach in the Study in England Programme for UMD students at Birmingham University, spring quarter 1988. Courses to be taught are Biology and Society, and a seminar course on current issues based on biological principles.

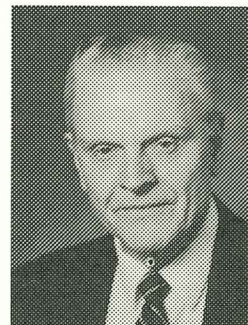
DEPARTMENTAL REVIEW

The UMD Biology department is undergoing a departmental review this year. This includes a self study of strengths and weaknesses as well as a visit by a panel of biologists from outside the U. of Minnesota system to be held during spring Quarter.

Conference

A Lake Superior Water Policy Conference will be held in Duluth on April 22 and 23, 1988. Presentations by individuals and panels will address critical economic, political and environmental issues in the Lake Superior Basin.

Dr. Raymond W. Darland, Professor Emeritus and retired Provost, died on June 21, 1987. Dr. Darland joined the UMD Biology Department faculty in 1948 and served as the department head from 1949-52. He was a botanist with special interest in grasses. He left the department in 1952 and became Provost in 1953, an office he held for 23 years.



Undergraduate Education

BIOLOGY CLUB NEWS

The fall kick-off was a retreat to the U of MN Biology Station at Lake Itasca. Once again Dr. Whiteside and Dr. Klemmer (both have done research at the Station) helped lead and organize the weekend. Klemmer took students out on the lake for limnological studies. Whiteside led a group of purse-seiners.

Other fall activities included a plant sale, cookie baking, and assisting with the Lake Superior Biological Conference. Upcoming events include tours to NRRI and the DNR fish hatchery. The club is also organizing a department display case showing information on faculty research projects.

The officers this year are: Sheryl Bail - president, Kim Pulling - vice president, Jitney Keyport - treasurer, Tim Patterson - secretary, Kari Maas - undergraduate student representative.



Christine M. Bieringer



Keather McLoone

T. O. ODLAUG AWARDS

The Theron O. Odlaug award is presented to students selected by the faculty, in recognition of scholarship and service to the Biology Department. The 1987 award was shared by Christine M. Bieringer and Keather McLoone.

Ms. Bieringer was an initial participant in the Departmental Honors Program, in the Undergraduate Research Opportunities Program (UROP) and received a CSE summer research award in 1986. She is presently a first year medical student.

Ms. McLoone was the first undergraduate teaching assistant in the Biol 3900 program and served as the biology Club president. She is presently a masters student at Michigan Tech, and doing research in stream ecology in Denali National Park.

GREENHOUSE DISASTER - One of the biology greenhouses froze during the New Year break, January 1988, killing all the plants. To help restore the greenery, donations of plants and cuttings are being sought. If you have plant material to donate, call 726-7258 or stop by Life Science 201.

HONORS PROGRAM

Honors Program of the U.M.D. Department of Biology encourages outstanding biology majors in their study of biology and promotes their development as active scholars. Honor students in the Biology Program maintain a high grade point average, participate in the College of Science and Engineering Honors Program and departmental seminars, and conduct independent research under the supervision of a faculty member. Since the institution of this program, the following students have received stipends for summer research.

1986 Brent Bushnell, Tissue culture of Trillium grandiflorum and Consolida regalis.

1986 Christine Bieringer, The effects of aluminum on the embryonic chick skeletal system.

1987 Nola Englehorn, Biology of Young Fish.

1987 Deb Muggli, Population Genetics of Young Fish.

1987 Kathryn Fossum, Nutrient Interactions in Lakes.

1987 Paul Weber, Biotic Interactions in Lakes.

1987 Pamela K. Elf, The influence of aluminum upon bone growth and development.

Congratulations 1987 Graduates!

Bachelor of Science

Brook Amundson
Daniel Anderson
David Backstrom
Renee Barnes
Lorie Barth
Kelly Becicka
Stephen Bejarano
Christine Bieringer
Brent Bushnell
Kristine Ann Carlson
Joseph Clemas
Beth Ann Coleman
Jeffrey Downs
Julie Downs
Bernard Erickson
Sandra Gaudian
Sandra Geegan
Kathryn
Kathleen Hendricksen
Christopher Hoghaug
Timothy Joos
David Johnston
Anthony Kopari
Mark Law
Joseph Lemker
Julie McGuire
Keather McLoone
Douglas Miller
Scott Milner
Tracy Mularie
Gregory Olson Jr.
Neal O'Shaughnessy
William Penning
Gregory Scott Peterson
Kim Reich-Hasskamp
Ted Ringsred

Todd Sjodin
Melissa Jean Sparrow
Donald Larry Sundquist
Lisa Van Riper
Peggy Wallgren

Bachelor of Arts

Harold Annette
Thomas Cady
Warren Foster
Antonio Guimaraes
Sephanie Yvonne Halstead
David Matetech
Leonard Newberg
Mark Paulson
Daren Ritari

BAS (Teaching Life Science)

Mary Ambrosia
Teresa Marie Anderson
Shane Deadrich
Dina Flaherty
Lynn Glumac
Gary Irons
Gregory Irons
Cynthia Kelley
Marney Ruth Mathers
Elenor Monahan
James Moyer
Susan Nelson
David Robert Teske
Hans Trieschmann

Undergraduate Education

Hawthorne Studied By Townsend

As part of a study on rare and endangered plants of Grand Portage National Monument, Daniel Townsend (UMD Biology Jr.) is studying the range of variation in flowers and leaves of Crataegus douglasii. This species of Hawthorne is common and widely distributed in the western U.S., but is found in the midwest only in Minnesota (Gooseberry Falls State Park and Grand Portage) and in Michigan (Isle Royale) Townsend is working in the Olga Lakela Herbarium with Dr. Paul Monson; they anticipate this study will provide some clues to help explain this unusual pattern of plant distribution.

UROP Awards

The Undergraduate Research Opportunities Program (UROP) provides financial awards to undergraduate students for research projects, either scholarly or creative, which educationally benefit the student. Students must collaborate with a faculty member when designing and implementing their projects.

Biology students who have received UROP awards for 1987-88 and their advisers are:

David Barnidge (Dr. Klemmer)

Crystal Stephas (Dr. Hicks)

Stephen Hughes (Dr. Hedman)

Kim Pulling (Dr. Whiteside)



Professor Paul Monson checks the soil temperature under a snowdrift in preparation for a laboratory field trip where students study the effects of snow in the ecosystems. Dr. Monson was recently named Director of Undergraduate Studies for the Biology Department.

Non-traditional Women Majors



Among the increasing numbers of non-traditional (in age) college students, a sizeable percentage are women who have entered or re-entered college after some years of employment or family responsibilities put their further education on hold. Four women biology students, pictured here are all junior or senior undergraduates. All are at least mid-thirties in age and all commute 20 miles or more (one way) each school day. They are described below, as pictured left to right.

Deborah Pomroy-Petry lives in North Star Township, 21 miles north of Duluth, where she and her husband have been developing a tree farm since 1982. They enjoy access to wonderful cross country skiing in the winter and canoeing on the Cloquet river in summer. Debby has been taking college courses in Minneapolis and later in Duluth, since 1970. She has taken UMD classes, some of them on Regents Scholarships, while working at the UMD Medical School as a senior lab technician, doing work in histology and electron microscopy. She hopes eventually to work in an outdoor type job. She and Sherry Phillips (story below) first met while attending a fire fighter's training session. Both are members of volunteer fire departments in their rural communities.

Pamela Elf began commuting to Duluth from McGregor in the fall of 1981 for CEE courses, and took her first biology course in fall 1984. She has been a full time day student since 1985. She was admitted to the Biology Department Honors Program and was awarded a CSE summer honors research stipend for the summer of 1987. She will be presenting Academy of Science meeting at Macalaster College, St. Paul, in April, based on cell and organ culture study salts on new born rat bone growth and development. Dr. Conrad Firling has been her research adviser. Pam expects to graduate in Spring 1988 and is applying to graduate schools.

Sherry Phillips came to Minnesota from east Tennessee twelve years ago and lives on a 40 acre homestead 45 miles north of Duluth. In Tennessee Sherry worked as a animal keeper at a zoo and has had experience in working with polar bears and large cats as well as small mammals. In Minnesota, she has worked with the USFS in the Superior National Forest in jobs ranging from law enforcement, fire fighting and trail construction, to her present job as a biological technician in soils. Sherry's love of outdoor work and desire to

See WOMEN Page 7

Graduate Studies

Research and Activities

The Department of Biology offers graduate study leading to the Master of Science degree with or without thesis. PLAN A - This program is research-oriented and recommended for those who wish to major in some specific aspect of biology (Botany, Zoology, Environmental Biology or Cellular and Physiological Biology). In addition to the major, requirements include course work in a minor or related field and a thesis.

PLAN B - This program is designed for those wishing a broad background in a variety of biological subjects. Requirements include course work in biology and in a minor or related field(s). One or more Plan B projects must also be completed.

Graduate teaching and research assistantships are available, generally on a nine-month basis, and the current stipend for a 0.5 FTE is \$7680. Graduate assistants with appointments of at least 25% receive Scholarships equal to twice the percentage of their appointments. A 0.5 FTE, then, receives 100 percent Tuition Scholarship. Applications for these positions should be received by March 1, although applications received after this date will be considered for any available vacancies. University-wide graduate fellowships and scholarships are available on a competitive basis.

For further information and application forms, write to:

Director of Graduate Studies
Department of Biology
10 University Drive
Duluth, MN 55812 7496

MINNESOTA ACADEMY OF SCIENCE

Undergraduate student Bernard R. Erickson, and graduate students Jack W. Erickson, Thomas E. Manning, Kenneth W. Sargent, Margaret B. Thomas, and Kenneth W. Palar of the Department of Biology at the University of Minnesota, Duluth presented research papers at the 55th Annual Meeting of the Minnesota Academy of Science held April 23-25, 1987 at Moorhead State University, Moorhead, Minnesota. Bernard R. Erickson received the Winchell Award for the best paper by an undergraduate student. Erickson's paper "Computerized Analysis of Fathead Minnow Chromosomes was co-authored by Glenn Andreas and research advisor Associate Professor Stephen C. Hedman. Thomas E. Manning received the Winchell award for the best paper by a graduate student. Manning's research for his paper "Comparative Physiology of Sodium Regulation in Three Cricetid Rodents" was conducted under the direction of Associate Professor Donald P. Christian. Kenneth W. Palar received the second place award in the Winchell (graduate student category) competition for his paper "Plasma Estradiol 17 Beta Levels in Laboratory Cultured Pimephales Exposed to Acid Stress" co-authored with research advisor Associate Professor Conrad E. Firling.

Biology graduate students are again having a busy and productive year with research activity. Coursework, and in some cases employment as teaching or research assistants. Arlene Rothstein was successful in defending her thesis, and also presented her seminar on January 15, 1988. Her topic was "Factors Influencing Distribution and Reproductive Success of Osprey in Voyageurs National Park, MN." She will be presenting her material at the Minnesota Academy of Science meeting at Macalaster College, St. Paul, MN this spring. She and Cal Harth will team teach the Ornithology course for the department in spring quarter, 1988. Jeff Schuldt is employed as a research assistant in a study of winter ecology of aquatic insects in the French River, and is finishing work on his thesis entitled "Feeding Rates of Larval Fish in Lake Itasca." Greg Schmidt is teaching in both botany and comparative anatomy of vertebrates while conducting research on dietary mineral content and gut dynamics of meadow voles. Paul Michelson is analyzing his data and writing his thesis on potassium as a factor in diet selection of the meadow vole. John Krenz is back at UMD this year after teaching Biology, Chemistry, and Field Biology at the International School of Lusaka and at the American Embassy School in Lusaka, Zambia, Africa during the 1986-7 academic year. He expects to complete his MS during spring quarter, 1988.

Meg Shaughnessy is working for the Department of Pharmacology at the UMD Medical School. Last summer she worked for the NRRI Center for Water and the Environment. She anticipates finishing her thesis this spring.

Tom Manning is working on biogeochemistry of beaver ponds at the NRRI Center for Water and the Environment. Field work is conducted at Voyageurs National Park. He finally finished his thesis on sodium balance in rodents in January, and presented his findings at meetings in Duluth (Lake Superior Biological Conference), Moorhead (Minnesota Academy of Sciences) and Albuquerque, New Mexico (American Society of Mammalogists).

Craig Haut, Biology Program graduate student received a \$650 scholarship during the summer 1987 to attend an intensive training course, INTRODUCTION TO TISSUE CULTURE AND IN VITRO TOXICITY TESTING, at the Center for Advanced Training in Cell and Molecular Biology at the Catholic University of America in Washington, D.C. The Center has been designated a "National Center" to provide expert training in concepts and technologies for contemporary research. At the Center, Craig received intensive training in various representative approaches of in vitro cell culture for cytotoxicity, mutagenesis, and carcinogenesis testing, and an evaluation of their attributes and limitations. Over fifty scientists from 30 different laboratories staffed the course. Craig has used his new knowledge in his these research study of bone cell growth and development conducted in the research laboratory of Dr. Conrad Firling of the Department of Biology.

Graduate Studies

Chris Domeier is planning a thesis project involving young-of-the-year black crappie (Pomoxis nigromaculatus) population dynamics in Voyageurs National Park under the advisement of Dr. Hollie Collins. Mary Berigan is a first-year graduate student, specializing in microbial ecology. She plans to study the formation and fate of particulate organic material in Duluth Harbor with Dr. Randall Hicks. Kristin Schmidt is beginning a thesis project on porcupine - eastern hemlock interactions at the Hamlock Ravine Scientific and Natural Area near Jay Cook State Park. Her big plan is to travel the globe engaging in one biological adventure after another!

Teaching Assistants

Mary Berigan
Christopher Domeier
John Hastings
Cal Harth
Bonnie Hatten
David Johnson
Glenn Merrick
Paul Mickelson

Arlene Rothstein
Greg Schmidt
Kristin Schmidt

Research Assistants

Pat Collins
Kristi Hanson

MS Degree, 1987

Margaret Thomas

Training for TA's

The College of Science and Engineering initiated a Teaching Assistant Training Program in the Fall of 1987. George Ahlgren of Biology and Paul Treuer of Supportive Services and the Educational Development Service (EDS) were instrumental in developing this program. It is felt that providing training for people responsible for a considerable part of a student's undergraduate experience should be provided training to help them be more effective. Graduate students participating in the program have felt it was a worthwhile experience.

HERSHEY From Page 2

In Minnesota, Dr. Hershey will be studying the effects of mosquito control agents on other insects which occur in Minnesota wetlands. This project is also of practical significance because environmentalists in the Twin Cities area are concerned that long-term treatment of wetlands for mosquito control will affect use of those wetlands by bird populations. The other insects need to be studied because they are an important food resource for birds using the wetlands.

WOMEN From Page 5

pursue increasing responsibilities with the USFS has led her to resume college studies. After a few years of independent study and CEE classes, she started full time at UMD in 1985. She has chosen courses that support her job and is working now toward a geology major with a biology major or minor. She expects to continue course work after degree requirements are met next year.

Sandra Gray is a junior who changed her major to Biology this fall. Her minor field is American Indian studies and she is presently in the "Indians into Research Program" at the UMD Medical School. Her plans are eventually to go on to medical school. Sandra lives in Bruno, seventy miles south of Duluth, and claims one well known ancestor, John Beargrease, the dog sled mail carrier along the north shore, for whom the annual dog sled marathon is named. Sandra is John Beargrease's granddaughter.

All of these women are managing their time and resources to pursue further education toward college degrees. For each it means time in classes, studying and commuting. For some it means research or field work. Each has her own goals, and her reasons why she is among the non-traditional women students at UMD.

WE WOULD BE DELIGHTED TO HEAR FROM YOU and in particular ask you to let us know of:

News of yourself _____

Name _____

Address _____

Degree and year (if applicable) _____

Change of address _____

Information or addresses of other friends or alumni who would like to receive newsletters _____

Send the above information to the newsletter editor at the department address on the mailer.

Alumni and friends who wish to contribute to the Hargis lecture series or to undesignated support of the department are urged to do so. Such contributions may be sent to the UMD Biology Department, at the same address.

Alumni Notes

DOUVILLE, THOMAS: BA 72. Obtained a Masters of Public Health in Environmental Health Administration at the U. of MN in 1979, and currently is the program manager for Environmental Health in boulder County, Colorado. 3450 Broadway; Boulder, CO 80302.

DURTSCHKE, DICK: BS 83. New address is 2908 - 36th Ave. N.E.; Minneapolis, MN 55418.

EVERETT, WILLIAM: BA 70. Is a mine engineer. Rt 1, Box 166D; Angora, MN 55703.

HAAPOLA, WILL: BA 71. Has moved from Little Falls, MN to Elkhart, Indiana to be the Wastewater Treatment Utility General Manager. 1721 Fortune Court, Unit A; Elkhart, Indiana 46514.

LOUNSBURY, SCOTT: BA 79. Married Sara Boehlke, a graduate of U MN in biology, in 1985. Scott completed MS in Environmental Health at U of MN in 1986. He is presently an environmental health scientist with the EPA office of air quality planning and standards. 5639 Chapel Hill Rd, #414; Durham, NC 27707.

MAGASICH, JOE: Ph.D. (MS 81). Is a post doctoral research associate at the laboratory of plant pigment biochemistry and photobiology, University of Illinois. 206 West Washington, #5; Urbana, IL 61801.

PETERSON, ANN: BS 84. Biologist/Pharmacologist at 3M-Riker Labs in St. Paul. Married in October 1986 to Greg Hupperts. 2425 Co. Rd C-2, Apt 203; Roseville, MN 55113.

VECCHI, STEVEN: BS 77. Is a manager of noise abatement and environmental affairs; Metropolitan Airports Commission (MSP International Airport). 5832 Fairfax Ave. S. Edina, MN 55424.

WANGENSTEEN, VIRGINIA: BA 85. New address is 1927 Goldenrod Way; Daytona Beach, FL 32014.

WICKLUND, SUSAN: BS 83. 4th year medical student at U of MN. Rt. 3, Box 142, Frederic, WI 54837.

WILSON, BOB: BA 79. Stopped to visit the department in July. 330 Harlem St. Missoula, Montana 59801.

WOLFE CATHERINE: BS 81. Is a Voyageur Outward Bound School instructor, summers in Ely, MN 55731, Box 450. Winter address: General Delivery; Redford, TX 79846.

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