BIO News

Murray State University *Volume 3, March 2001* *College of Science, Department of Biology*

Greetings from the Chair, Dr. Tom Timmons

I had an opportunity to relax and talk with past faculty and students at our Biology Alumni picnic. Hunter Hancock described the struggles to convince an administration of the merits of a biological station on Kentucky Lake, and the disappointment of not being allowed to apply for federal funding in the 1960's like our neighbor Tennessee Tech (Tech Aqua on Center Hill Reservior). But then a retiring MSU president surprised Hunter with a promise of a building on Kentucky Lake from money the president had squirreled away. Emily Wolfson described Dr. Wolfson's and Hunter's excitement of a biological station. Soon there was a building but no funds for equipment. Heavy teaching loads, heavy service expectations, sparse teaching equipment, and no research equipment limited expansion of the department. Even so, Murray State University was recognized for its strong premed program and its wildlife and aquatics programs.

HBS remained little used into the 1980's, and no space was dedicated to research in Blackburn. Important collections like our herbarium were stuck into almost unusable space in the attic of Blackburn, the fish collection was almost disposed of twice, and the herp collection received minimal work. Beginning in the early 1980's new faculty like myself were encouraged to do research, and by creative scheduling of classes, we were given one less class to teach. Over the following years, a record of grantsmanship, wise selection of new faculty, and publications moved the Biology Department above all the Kentucky regional universities.

We received a Center of Excellence in Reservoir Studies, one of only five centers designated across the state (UK received 2 and UL received 2), and an endowed chair. Our biomedical faculty and our ecological faculty furnished their labs with research equipment that they share with their upper-level classes. We offer courses in cellular and molecular biology that could never have been offered without the research equipment.

Our reputation, for both academics and research, has brought us national recognition. The Howard Hughes Medical Institute awarded the biology and chemistry departments $1,500,000 to strengthen our biomedical program and introduce undergraduates to biomedical research. The National Science Foundation (NSF) awarded the ecological group $800,000 to build an undergraduate research program to study reservoir ecosystems. NSF also awarded the faculty $200,000 to develop the best undergraduate curriculum for all biology majors and additional funding to build a glasshouse/mesocosm at HBS. Three major grants just for our undergraduate program!

Where do we go from here? We hope to maintain this level of activity in both academics and research. At this time all of our faculty have research grants in addition to the three grants listed above. We may have the maximum time commitment for teaching, research, and service that faculty can have. The department has requested additional lines to strengthen our faculty.

How can our alumni help their department? We still have basic needs for equipment in classrooms. There are no Howard Hughes or National Science Foundation awards for student microscopes, lab balances, class travel for field trips, repair or maintenance of class equipment, computers, and other class supplies. We presently have some Biology Alumni scholarships, and we would like to offer more. We could offer new scholarships in areas such as Biology/Secondary Certification for high school teachers. There is a national shortage of certified biology high school teachers. Our curriculum for these majors is as challenging as the Pre-Med curriculum and it requires an addition two semesters to finish!

As we begin planning for construction of a new science building, alumni support will continue to be very important to the department. We will plan a second Alumni Picnic at Homecoming in the Fall 2001(See page 5), and we would like for you to come and allow us to show our appreciation of your support.

Howard Hughes Medical Institute Grant will Enhance Undergraduate Training in the Biomedical Sciences

By Dr. Sterling Wright

This past August, the Howard Hughes Medical Institute (HHMI) awarded Murray State University a competitive educational grant in the amount of $1.5 million. HHMI is among the nation's largest private supporter of science education from elementary school through postdoctoral studies. HHMI invited 224 colleges and universities (out of ~1200) from the United States and Puerto Rico to submit proposals for this past year's competition. Invitations for proposals were based on an institution's history of producing graduates who attended medical, dental, or graduate school. An external panel of distinguished scientists and educators reviewed the 204 proposals received and selected 53 award recipients. Only California State University and Haverford College received awards larger than did Murray State.

The program director for the project is Dr. John Mateja, Dean of the newly formed College of Science, Engineering, and Technology. Assisting Dr. Mateja with the preparation of the proposal included faculty members from the Department of Biological Sciences (Drs. David Canning, Sterling Wright, Tim Johnston, Jim Stuart, Ed Zimmerer, Leon Duobinis-Gray, Terry Derting and Tom Timmons) and the Department of Chemistry (Drs. Ricky Cox, Mark Masthay, Robert Volp, and Jeff Anderson). Additional contributors included W.A. Franklin, Robert Lewis, Larry Salmon, Becky Fairbanks, and Brenda Maddox from the Murray City and Calloway County school systems.

The main focus of the project is to enhance undergraduate preparation for professional careers in medicine, dentistry, physical therapy, pharmacy, optometry, and biomedical research. In addition to the administrative and assessment portions of the proposal, the major categories of the project include:

1. Student Research and Broadening Access to Science

One priority of this section of the grant is to promote undergraduate scholarship throughout the state and includes a statewide undergraduate research meeting at Frankfort, as well as an effort to secure state funding to sponsor undergraduate research at all state funded universities. Additional funding is available for supporting undergraduate research opportunities at Murray State during the summer months, as well as at well-known research institutions across the country. These off campus sites include Oak Ridge National Laboratory, The Johns Hopkins University School of Medicine, Vanderbilt Medical Research Center, Saint Jude Children's Research Hospital, and California Institute of Technology.

2. Faculty Development

The goal of this proposal section is to expand Murray State's commitment to supporting research active faculty. Funding is available to recruit and provide competitive startup packages for two new faculty (one in biology and one in chemistry). The Department of Biology search for an immunologist is currently underway. In addition, the College of Science, Engineering, and Technology will provide seed money for competitive intramural proposals that focus on biomedical research.

TAL NEWS

Improved Introductory Biology Curriculum for Biology Majors

by Dr. Terry Derting

left front - Lee Webb, left back - Jeremy Woodward, right front - Jill Krahwinkel, right back - Matthew Richardson (Teaching Assistant).

Due largely to the efforts of new faculty, and with the extensive support of Dean Mateja, the Department of Biological Sciences recently received a two-year grant of over $200,000 from the National Science Foundation. The grant provides funds to revise and improve the introductory biology curriculum for biology majors. The objectives of the new curriculum are to provide students with more exposure to basic biological concepts and scientific research early in their undergraduate studies and to enhance student learning by emphasizing processes in biology and active inquiry. To meet these objectives two new courses have been implemented for incoming students, one of which focuses on the cellular basis of life and one that focuses on biological inquiry and analysis. Students then proceed to take Botany and Zoology, both of which are being revised to meet the stated project goals. In addition to changes in courses, their content, and the teaching approaches used, we are purchasing new equipment that students use for their laboratory and field investigations. For laboratory experiments we now have environmental chambers, drying ovens, water baths, and digital balances. For use in the field we have dataloggers that can collect data on variables such as temperature, pH, photosynthetically active radiation, and water conductivity. In two classrooms, students now have access to laptop computers and printers that function with a wireless communication system. Thus, students and professors can use the internet, work with statistical software, and share information while in the classroom. All of these additions and changes will, we hope, significantly improve the educational opportunities that we provide for our majors.

The first semester for implementation of the new courses was Fall 2000. Students in the new courses conducted research projects of their own making, collected and analyzed their data, and presented their research in the form of a written paper or a poster. They studied significant events in the history of biology using case studies and through presentations made by numerous faculty in the department. They also attended seminars in which faculty from other universities presented their research. The success of these new activities in relation to student learning will be assessed throughout the project, providing us with information needed to make the new curriculum as effective as possible. Once reconstruction of the introductory curriculum has been completed, we expect to seek funds for improving our upper level courses.

Research Focus

Microbial Ecology of Aquatic Ecosystems
by Dr. Susan Hendricks


Ledbetter embayment at Kentucky Lake

My research has been focussed on aquatic ecosystems and how nutrients cycle through them. To those of us who are gardeners, nutrients are the nitrogen and phosphorus we put on the soil to help plants grow. It's basically the same in aquatic ecosystems: nutrients (fertilizers) enter lakes, streams and reservoirs from the surrounding watershed and from upstream and are taken up by algae and plants which form the base of the food web. Many nutrients are locally recycled from sediments which have dense communities of bacteria that break down plants and algae that die and fall to the bottom of lakes and streams. It is this sediment bacterial community, a component of the benthos, with which I am concerned.

I am interested in benthic microbial processes in the sediments of all aquatic ecosystems (streams, lakes, and reservoirs). Benthic bacterial metabolism influences the movement of nutrients between the sediments and overlying waters by regulating oxygen, carbon, nitrate, ammonium, and phosphorus exchange. The contributions of microbial communities to chemical transformations occurring in sediments and water are important in the biogeochemical cycling of nutrients.

Further, I am interested in linking the activity of sediment bacteria to the movement of water (hydrology) within the sediment. Kentucky Lake experiences fluctuations in water level regulated at Kentucky Dam and this affects the degree of hydration of the sediments in near-shore areas. Understanding microbial community processes and patterns in reservoir sediments that are alternately hydrated (wetted) and then dried because of water level management practices at Kentucky Dam requires a complex and multidisciplinary approach. I am part of a large team of faculty and student researchers at Murray State University attempting to improve our understanding of reservoir ecosystems. With the assistance of grants from the U.S. Department of Energy and National Science Foundation, my students and I are studying the effects of water movement on microbial community activities within the sediments. My students collect sediments from Ledbetter embayment in Kentucky Lake and bring them back to the laboratory at the Hancock Biological Station to measure bacterial abundance, enzyme activity, and productivity. We are attempting to correlate bacterial community activities with water seepage rates into or out of the near-shore sediments during summer and winter pool water levels over an annual cycle in Kentucky Lake.

My research should provide a better understanding of how hydrology, and particularly human-induced reservoir fluctuations, are influencing microbial communities. The effects of human activities such as flood control and land-use practices are vitally linked to the ability of these organisms to do their job in recycling nutrients entering the reservoir from the surrounding watersheds. As the human population increases and western Kentucky develops economically, the overall health of our aquatic ecosystems will continue to be a major issue to water quality. I hope my research will contribute to better management practices and policies for our water resources in the future.

Alumni Picnic and Dedication of the Mesocosm Research Facility

by Rebecca E. Brown

Left: Dr. William Spencer,
Right: Dr. Hunter Hancock

On October 27, 2000 Hancock Biological Station (HBS) hosted the first biology department homecoming picnic in ten years. The homecoming picnic was also the site of the dedication of the new Mesocosm Research Facility (MRF) at HBS. Many alumni, faculty, staff, and their families took part in the festivities.

The MRF includes 2,100 square feet of controlled environment for research of both aquatic and terrestrial ecosystems. Water, lighting, temperature, and humidity controls are completely automated. The building was created by Clark Contractors with the help of HBS operations manager, Gary Rice.

Both Murray State University faculty and employees of HBS worked together to create a successful grant for $136,000 to the National Science Foundation, which partially funded the MRF. The main proposal contributors were Drs. William Spencer, David White, Susan Hendricks, Timothy Johnston, and Howard Whiteman. The MSU Center for Reservoir Research and the College of Science, Engineering, and Technology contributed another $50,000 for the project.

The alumni picnic took place inside the MRF, giving alumni the ability to view the new facilities up close. After the picnic, Dr. Tom Timmons, Chair of the Department of Biological Sciences, began the dedication by reading letters from alumni who could not attend the event. For example, Dr. Loren Putnam, who was a freshman in 1931, stated that he used to dream of having a biological station, and was thrilled about the development of the facilities and the potential it has.

Dr. David White, the director of HBS, spoke about the sucessful grant from the National Science Foundation. He explained that a mesocosm is any aquaria, terraria, or other artificial environmnent which can be used to mimic natural environments, and he directed the audience's attention to several of the larger mesocosms that were already being utilized within the MRF, including stream tanks and artifical ponds. Dr. White also acknowledged the hard work of Dr. William Spencer, the principal investigator of the mesocosm grant, as well as Dr. Hunter Hancock, whom was responsible for for the first building at Hancock Biological Station.

After Dr. White's address, the group headed outside to watch the official dedication of the facility. Dr. Spencer said that the facility would be "utilized by untold number of people" and "... is the beginning of a profitable future for both faculty and students." Then he and Dr. Hancock unveiled the MRF plaque on the front of the facility, to the applause of the alumni, faculty, and staff.

Research using the new facilities has already begun. Dr.White believes that many undergraduate students will use the new facilities through the C-RUI program, which is also funded by the National Science Foundation, as well as other research being conducted by faculty and students within the biological sciences, chemistry, and geosciences.

Homecoming Picnic at Hancock Biological Station

The 2nd Annual Biology Alumni Social on Friday of Homecoming weekend (tentatively October 12, 2001), 4:00p.m. to ??at Hancock Biological Station. **Hope to see you there!** For directions to Hancock go to: **http://mursuky.edu/qacd/cos/hbs-map.htm**

Dr. Terry Derting Wins Prestigious Teaching Award

At the MSU Honors Day Program last May, Dr. Terry Derting was awarded the Max G. Carman Outstanding Teacher Award. This award was created by the Student Government Association to honor a faculty member who has established a record of teaching excellence at Murray State. The award was presented by Brandon Kirkham, 1999-2000 SGA president (see photo to the left).

Teaching awards are not new to Dr. Derting. In 1998 she won the Board of Regents' Award for Teaching Excellence for the College of Science. Her excellence is evident in the classroom, in her incorporation of undergraduates in her research program, and in her leadership in pedagogy. For example, Dr. Derting is the leader of the NSF-CCLI program in biology, which is transforming our introductory biology curriculum (see related article on page 3).

Biology Faculty Offers Field Course in Tropical Marine Biology

Dr. Paul Sikkel has developed a new field course in tropical marine biology. The course will be offered through the Kentucky Institute for International Studies (KIIS) in June of 2001. The course will emphasize a hands-on approach to the study of the behavior and ecology of fishes and invertebrates associated with coral reefs, mangroves, and seagrass beds. The course will be taught at the Isla Magueyes field station in La Parguera Puerto Rico, operated

by the University of Puerto Rico at Mayaguez. It was developed in response to student requests for a marine biology course at MSU. Dr. Sikkel is hoping to develop a complementary course that will be taught on campus. To be eligible for the course, students must be competent swimmers, able to use snorkeling equipment, and have a background in biology equivalent to that expected of a Biology major with Jr. level standing. Alumni can also enroll in the course. For more information, contact Dr. Sikkel at paul.sikkel@murraystate.edu, or look at the Puerto Rico program on the KIIS website: www.kiis.org.

Student News

Wetland Ecology Trip

by Julie Wolfe ('00) and Jeremy Bennett ('00)

Julie Wolfe and Jeremy Bennett Canoe at Okefenokee National Wildlife Refuge

While many students at Murray State planned a spring break vacation on a far off beach filled with thousands of other college students, the students in Dr. Bill Spencer's Wetland Ecology class spent their break on a 6 day class field trip. The field trip consisted of 3 days spent in a swamp in southern Georgia and 3 days in Florida looking at wetlands. Ask anyone who went on the field trip and they will tell you that it was the most enjoyable and exciting adventure so far at Murray State. Dr. Spencer left the students for the most part uninformed about the trip plans. I thought that he just didn't have any; however, I soon realized that he knew exactly what he was doing.

We were all prepared for the worst upon reaching Georgia, but the campground that Dr. Spencer called "primitive" was a luxury to those of us who are veterans of wildlife trips. Except for the horrible smell of rotten eggs that poured from the water (we learned this was a good wetland indicator) the accommodations were pretty nice.

Canoeing through the Okeefenokee was beautiful, but then we decided to head to Florida after experiencing the wonders of Okeefenokee. We stayed in Manatee Springs State Park and it was gorgeous. No manatees were in the springs while we visited but it was well worth the drive anyway. We canoed again and even took a nighttime canoe trip.

I think the neatest part of the trip was the visit to the Gulf of Mexico. Dr. Spencer rented a boat big enough for us all and we headed out into the Gulf. We ended up on one of the most pristine islands I've ever seen, where we had a fun afternoon examining plants.

I'm sure the thing that we will all remember the most vividly about our Gulf adventure is the scene on the way back. The sun was setting and we were trying to get the boat back before dark when in front of us we spotted two dolphins a

Wetland Ecology Students (left to right: Rebecca Brown, Angela Shelby, and Kristy Dunning) explore a marine wetland in the Gulf of Mexico.

ways off. I missed them and was very disappointed till a minute later when a group of 4 or 5 dolphins decided to race our little boat part of the way back to shore. There wasn't a person on the boat who wasn't shouting with excitement as we watched them jump and then dive back into the water less than a foot from the boat.

The trip will not be forgotten by any of us and Dr. Spencer's class is a must for any student who wants to experience wetland ecology with a hands on approach.

Editor's note: This article and the Ichthyology Trip article on page 8 first appeared in the April 2000 issue of The Untamed Newsletter, a publication created by the MSU Wildlife and Fisheries Society.

Ichthyology Trip

by Chris Evans('01)

Last spring Dr. Timmons took the ichthyology class to central Tennessee to tour the Tennessee Aquarium and sample streams in the area. The Tennessee aquarium is located in Chattanooga and is the largest freshwater aquarium in the world. The Aquarium tour followed the life of a river from its small mountain stream beginning until it finally empties into the ocean.

Following the tour we headed to Fall Creek Falls state park and sampled some streams in that area. Several species of darters were collected, including the Green-sided darter and the Splendid darter. The next morning after camping out at Fall Creek Falls, we toured the three waterfalls located in the park. Fall Creek Falls is an unbelievably impressive waterfall. Well over two hundred feet tall and sheer cliffs and overhangs on both sides, the falls will put you in awe. That evening was spent collecting fish in nearby streams. Everyone took turns using the backpack shocker and netting the fish.

Overall it was a great trip, and I want to thank Dr. Timmons for such a great experience.

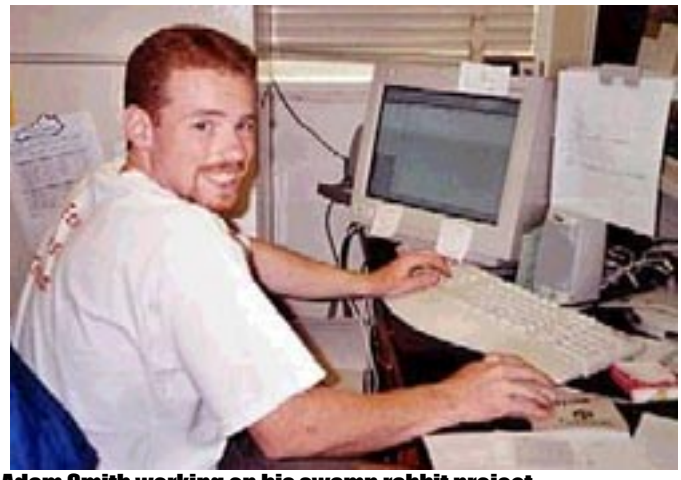
Biology Student Receives Prestigious CUR Fellowship

Swamp Rabbit (Sylvilagus aquaticus)

This summer Adam Smith('00), biology senior who majored in wildlife biology, received a summer fellowship from the Council on Undergraduate Research (CUR). Adam received this prestigious award after submitting a research proposal and application with supporting information from his research mentor, Dr. Terry Derting.

Adam devoted 10 weeks of his summer to full-time research that focused on the development and application of GIS models for predicting suitable habitat for swamp rabbit (*Sylvilagus aquaticus*). Swamp rabbit populations have recently been jeopardized throughout their range, most directly as a result of habitat loss. In addition, a reliable model explicitly relating the occurrence of the swamp rabbits to habitat and other environmental factors throughout its Kentucky range is currently lacking.

Using a geographic information system and logistic regression analysis, Adam developed three models that predicted the probability of occurrence of swamp rabbits in western Kentucky. All models were successful in the prediction of confirmed swamp rabbit observations, both of presence (> 80%) and absence (> 90%), with only slight variation among models. He applied his best model to geographic areas of Kentucky contiguous to the species' current Kentucky range to investigate the possibility of swamp rabbit reintroductions. Only five areas for potential reintroduction were identified, with two of marginal quality and the remaining unsuitable for swamp rabbit reintroduction. He also assessed land ownership and protection status of all habitat determined to be suitable by his best model; the vast majority of all land was in private ownership. Wildlife Management Areas protect the most swamp rabbit habitat (approx. 8%), but most suitable habitat remains at risk. The models that Adam produced can serve as a solid basis for future swamp rabbit management considerations.



Adam Smith working on his swamp rabbit project.

Adam and Dr. Derting found the research experience to be a rewarding one; providing Adam with valuable research experience before entering graduate school and providing Dr. Derting with useful information for her future research projects.

Biology Student Wins Outstanding Senior Man of MSU

Michael Boone ('00) won the 2000 Outstanding Senior Man of Murray State University award at the MSU Honors Day last May. The award honors the man who has exhibited the optimal blend of excellence in scholarship, leadership, citizenship, and academic and extracurricular activities.

Michael has been very active within the biology department. His honors research, entitled "Effects of continual food restriction on reproductive development and body organs in male house mice (*Mus musculus*)" was conducted with his mentor, Dr. Terry Derting. Michael presented his research at the recent Kentucky Academy of Science meeting.

To the left:
Outstanding Senior Man - Michael Boone on Left and Outstanding Senior Woman - Sara Rivers on the Right

Biology Scholarships and Awards

Thanks to the continued support of our alumni, we are able to support a number of undergraduate scholarships and awards for outstanding students. Below are the award recipients during 2000.

Outstanding Second Year Biology Major: Julia Travis, Erin Kilgore
Outstanding Senior Award in Biology: Amber Settle, Adam Smith
Outstanding Undergraduate Teaching Award in Biology: Damian Loveless
Outstanding Graduate Teaching Award in Biology: Brett Whimberley
Larry D. Pharris Wildlife Memorial Fund: Jill Kruper, Amy Benson
Larry D. Pharris OutstandingWildlife Student: Alan Whited

Graduate Program

The department's graduate program continues to produce excellent M.S. students and Ph.D. students through our cooperative program with the University of Louisville. To the right is a listing of graduate students that finished in the December 2000:

Student	Title of Thesis	Director
Brooks, Chris	The effects of erosive landuse on distribution and abundance of hyporheic invertebrates.	Dr. D. White
Hurt, Ryan	Late pliocene and early pleistocene rodents from the Northern Borchers Badlands (Meade County, Kansas) with comments on the Blancan-Irvingtonian boundary in the Meade basin.	Dr. R. Martin
Robertson, James	Mutational patterns in an ancient family of murine endogenous provirus.	Dr. E. Zimmerer
Seo, Jinwon	Comparison of fish communities in Ledbetter creek and Ledbetter embayment of Kentucky Lake.	Dr. T. Timmons

Alumni

Thank You!!!

Thanks to the alumni that have provided continued support through donations. During the past year the alumni contributions have supported the following:

1. Student microscope maintenance
2. Travel for field classes such as Dendrology, Mammalogy, Herpetology, Ichthyology, Ornithology, and Wetland Ecology
3. Scholarships
4. BioNews: Printing and mailing cost
5. Student Worker in the Herbarium and Animal Care Facility
6. First Annual Alumni Picnic at Homecoming
7. New Microscopes

Alumni News

1935

Putnam, Loren. B.S. 1935.

Loren was Director of the Ohio State University Stone Laboratory, a prestigious field station on Lake Erie, for twenty years. He wrote to say that he really enjoyed visiting Hancock Biological Station in 1998, and felt that both Hunter Hancock and the current Director, Dr. David White, should be congratulated for such a fine facility. He is currently living in Fort Collins, Colorado.

1957

Wilson, Jim. B.S. 1957.

Jim is Professor of Aviation Physiology at Embry Riddle Aeronautical University in Louisville, KY, and Official Aviation Historian for the Kentucky Aviation Association.

1962

Taylor, Walter K. B.S. 1962

2415 Baxter Ct, Winter Park, FL 32792

Walter will be entering his 32nd year teaching at the University of Central Florida, as Associate Chair of the Department of Biology. In 1999, he received the Excellence in Undergraduate Teaching Award for the entire university of 32,000+ students. The award is the single highest honor a faculty member can receive for teaching undergraduates. Not only does Dr. Taylor teach undergraduates, but he also has current graduate students and several who have been awarded the M.S. degree. At the Miami conference held in May of this year, he received the Green Palmetto Award for Education from the statewide Florida Native Plant Society. He has also authored two well-known books on Florida wildflowers: The Field Guide to Florida Wildflowers (1992, Taylor Publ. Co., Dallas, TX) and Wildflowers in Their Natural communities (1998, University of Florida Press, Gainesville, FL). Currently, he is writing a book on the East Florida travels of the French botanist, Andre Michaux. Dr. Taylor and his wife, Karin, have a daughter, Anna Ree, who will receive her M.S. degree in molecular biology from U.C.F. in August, and will attend Wake Forest in the fall where she will begin work toward a Ph.D. in molecular neurobiology.

Walter gives much credit to his mentors who were formerly in MSU's Biology Department: Dr. Hunter M. Hancock, Dr. A.M. Harvill, Dr. Evelyn Cole, and the late Dr. Liza Spann and Mr. C. W. Kemper.

Dr. Taylor would like to hear from those friends who attended Murray State at the same time as he.

1967

Arnson, A. Alan. B.S. 1967

Alan retired from the Western Lake Superior Sanitary District - Liquid and Solid Waste Department in July of 1999. He obtained a Master's Degree from the University of Wisconsin-Superior in 1972. His research there consisted of botanical and ecological mapping of Long Island, which is located in upper Wisconsin. This was done with Dr. W. Davison.

Mr. Arnson married Beth Arnson, who recently retired as principal in the School District of Superior.

1972

Smith, Louis C. Jr. M.A.T. 1972

1424 Hwy 416 W., Henderson, KY 42420

Louis recently spent two weeks in Ecuador at Jatun Sacho studying the Amazon Rainforest and the people. A nice field study and trip for the price (teacher free with 10 students). He has retired from teaching in Henderson County after 30 ½ years. He is currently the owner and manager of L.C. Smith Plumbing & Heating Co. Inc., a business started by his father in 1952.

1982

Crittendon, Cindy B.A. 1982
3014 Cane Mill Rd., Lancaster, SC 29340

She has been a practicing OBGyn for the last six years. Cindy now lives on a ten acre farmlet with her husband, Don Frangenberg, two dogs, three horses, and twelve cats.

1990

Burger, Thomas H. 1990. B.S.
Tom develops pharmaceutical analysis and reporting solutions for Eli Lilly & Company and internationally presents methods for information delivery using SAS software. He conducted graduate research in Animal Ecology at Iowa State University and undergraduate studies in Wildlife and Fisheries Biology at Murray State. He is President of the Central Indiana SAS Users Group (CISUG) and has used SAS in scientific R&D for systems development, data management and statistical analysis. His interests focus on systems architecture, internet applications and trends in Pharmaceuticals & Information Technology. He resides in a historical sector near downtown Indianapolis with his Llewelyn English Setter, Ty. Tom's address is: 5444 Carrollton Ave, Indianapolis, IN 46220; Email: thburger@lightdog.com

1994

Hutson, Roger. 1994. B.S.
Roger's career to date involves pharmaceutical, biological and medical device research. He is currently employed by Boston Scientific Corporation, a global company that specializes in the research, development, manufacturing and marketing of minimally invasive medical devices in several different therapeutic areas. Specifically, he's a Field Clinical Monitor in the Urology/Endoscopy division covering the southeastern United States. Roger's responsibilities include reviewing patient data on-site where the research studies are conducted. He insures that each physician and their study staff are meeting the requirements of FDA guidelines, good clinical practices (GCPs) and company-specific standard operating procedures (SOPs). Prior to Boston Scientific, he had many responsibilities within the research arena including overall research project management, regulatory (FDA) submissions and training/supervision of other clinical staff.

Roger loves his carreer, because it allows him to work in the medical field, travel and not have the significant pressures that plague many physicians today. More importantly, he is helping to develop many new medications and therapies that will provide a better quality of life for millions of people.

1997

Stanford, Evin. 1997. M.S.
Evin has been promoted to Surveys and Monitoring Biologist in the Surveys and Monitoring/Technical Guidance Section of the North Carolina Wildlife Resources Commission.

1998

Gordon, Cindy. 1998. M.S.
Cindy continues her successful march towards a Ph.D. at the University of Oklahoma, and spent some time in Poland this past year studying early Cretaceous mammals.

Miller (Joy), Kelly. 1998. B.S.
Kelly is working on her masters in zoology at North Dakota State University. Her research has taken off recently; she is studying a possible case of natural selection on the allozyme locus for Pgdh in the White Sands pupfish, a threatened species in New Mexico. She is using a combination of microsatellites and selection experiments to answer this question, and is enjoying her research.

1999

Cates, Robert. 1999. B.S.
Robert and his wife, Robyn, bought a house and 4 acres in May in the foothills of the Southern Appalachian Mountains of NE Georgia. There are thousands of acres of beautiful U.S. Forest land all around them, and he has been exploring all the local trout streams and woods.

Their new house and Robert's job are keeping him extremely busy. Robert works at the The Kangaroo Conservation Center, which raises red, western grey, and eastern grey kangaroos, springhaas, and dik-dik for zoological parks worldwide. In addition, the Center conducts educational tours for the public concerning the biology and husbandry of exotic animals. Robert's job is to care for the animals (feed, clean, medical treatment etc..), give tours, and maintain the facility. You can visit the KCC's web site at: www.kangaroocenter.com. The KCC has received a lot of publicity lately, with articles in several regional magazines and Southern Living, as well as a recent segment on CNN.

Lane, Kristi. 1999. B.S.
Kristi is working for Carolina Biological Supply Company as the Assistant Greenhouse Manager and Outdoor Collector. Her undergraduate research on mole salamanders, conducted in Dr. Whiteman's lab, was recently published in *Herpetological Review*. Her address is: Kristi Lane Rehrauer, 2703 Barton Ct., Elon College, NC 27244.

Current Faculty

Canning, David R., assistant professor (developmental biology)(1996). B.S. [hons] Manchester University; Dphil, University of Oxford.

Derting, Terry L., associate professor (physiological ecology, bioethics) (1993). B.A, Mount Holyoke College; M.S. Virginia Polytechnic Institute and State University; Ph.D., Indiana University.

Duobinis-Gray, Leon F., associate professor (parasitology, invertebrate zoology, histology, microscopy) (1988). B.S., East Tennessee State University; Ph.D., Louisiana State University.

Fuller, Clair A., assistant professor (ecological parasitology, behavorial ecology, population biology) (1997). B.A. University of California, San Diego; M.S., Ph.D., Oregon State University.

Hendricks, **Susan P**., assistant professor, (stream ecology, limnology, phycology, aquatic microbial ecology) (1999). B.S., University of Michigan, M.A. Western Michigan University, Ph.D. University of Michigan.

Johnston, Timothy C. graduate coordinator, associate professor (molecular biology, microbiology) (1986). B.A., Harding College; M.S. Murray State University; Ph.D., Southern Illinois University.

Kipphut, George W., associate professor of biology and geosciences (limnology, reservoir ecology) (1991). B.S., Providence College, M.Phil., Ph.D., Columbia University.

Martin, Robert A., professor (mammal evolution, paleoecology) (1993). B.A., Hofstra University; M.S., Tulane University; Ph.D. University of Florida.

Sickel, James B., professor (limnology, freshwater invertebrate ecology, malacology) (1975). B.S., Georgia Institute of Technology; M.S., Ph.D., Emory University.

Sikkel, Paul C., assistant research professor (marine biology, behavioral ecology, fish ecology) (1998). B.A., University of California, San Diego; M.S., Ph.D., Oregon State University

Spencer, William E., associate professor (aquatic botany and wetland ecology) (1994). B.S., M.S., University of Florida; Ph.D. University of Michigan

Stuart, James G., professor (microbiology, immunology, bacterial genetics) (1977). B.S., Cameron State University; M.S., Ph.D., University of Oklahoma.

Timmons, Tom J., Chair, professor (fisheries biology) (1982). B.S., Iowa State University; M.S., Tennessee Technological University; Ph.D., Auburn University.

White, David S., Director, Hancock Biological Station and Center for Reservoir Research, professor (limnology, benthic invertebrate ecology) (1988). A.B., M.A., DePauw University; Ph.D., University of Louisville.

White, Stephen B., assistant professor (ornithology, wildlife biology and management, animal damage control) (1981). B.A., West Virginia University; M.S., Colorado State University; Ph.D., Ohio State University.

Whiteman, Howard H., assistant professor (evolutionary and behavioral ecology, conservation biology) (1996). B.S., Allegheny College; Ph.D., Purdue University.

Wright, Sterling N., assistant professor (neurobiology) (1997). B.S., M.S., Texas Tech University; Ph.D. University of Texas, Austin.

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This volume of the BioNews was created by Rebecca E. Brown using Pagemaker 6.5 and edited by Dr. Whiteman and Dr. Timmons. Rebecca began the project in Advanced Technical Writing (ENG 525) and finished it after graduating from MSU with a B.S. in Wildlife Biology in December 2000.

LET US HEAR FROM YOU

Other alumni as well as retired faculty want to know where you are now, and what you have done with your life! So please fill us in, and contribute to the next Alumni News section of **BioNews**.

Name:_____ Graduation Year:_____ Degree: ___B.S. ___M.S.

Address:_____

Phone#:(_____)_____ Email:_____

Can we please include your address and email in the next issue of **BioNews**? _____yes _____no (we will not release phone numbers unless you request it)

Alumni News (please attach additional sheets if necessary) _____

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Send to: **BioNews**, c/o Howard Whiteman, Murray State University, 334 Blackburn Science Building, Murray, KY 42071, or email to: howard.whiteman@murraystate.edu.