

DEPARTMENT OF BIOLOGY NEWSLETTER

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PANTHER GROUPE

CHAIR'S CORNER



Dr. Mark Bolyard

Greetings: We've made it through Fall semester, and we are grateful to have celebrated the birth of our Savior! Fall was once again a busy time for the Biology Department. Our new tenure-track faculty member, Dr. Michael Schiebout, is "off and running", and we have an article in this issue to introduce him to you. He is busy teaching some of our plant courses, the list of which is increasing! In addition to Botany and Taxonomy of the Vascular Plants, we plan to offer Dendrology (taught by Dr. Madison), Plant Physiology (taught by Dr. Schiebout), and Plant-Insect Interactions (taught by Drs. Madison and Huggins). We have modified our Conservation Biology major so that these new courses are now electives.

Speaking of plants, Union has hired a part-time "Sustainability Coordinator" (using external funding). She is Cari Phillips, Union alumna, who is working to initiate raised-bed gardens to be used in a variety of academic contexts, assist with the Arboretum, and oversee Union's recycling initiatives. The Arboretum project has been approved and is just beginning. Our plan is to allow people (like you!) to participate by either "adopting" a tree ("in honor of" or "in memory of" someone special), or becoming a "friend" of the Arboretum! I hope this is something you will consider!

We also have a new secretary! Mrs. Kelly Farrar has started working for the department this Fall, and we appreciate her hard work. We have an article in this newsletter so that you can meet her as well.

One of the most colorful additions to our department has been the conversion of the 750 gallon freshwater tank to saltwater. Not only is it beautiful and interesting, but it provides support for our Marine Biology course, among others. It may also provide opportunities for research questions in the future.

In this issue we also highlight what another alumnus, Lee Holt, has been doing since graduating. We hope you enjoy reading about all of the exciting things going on in Biology at Union!

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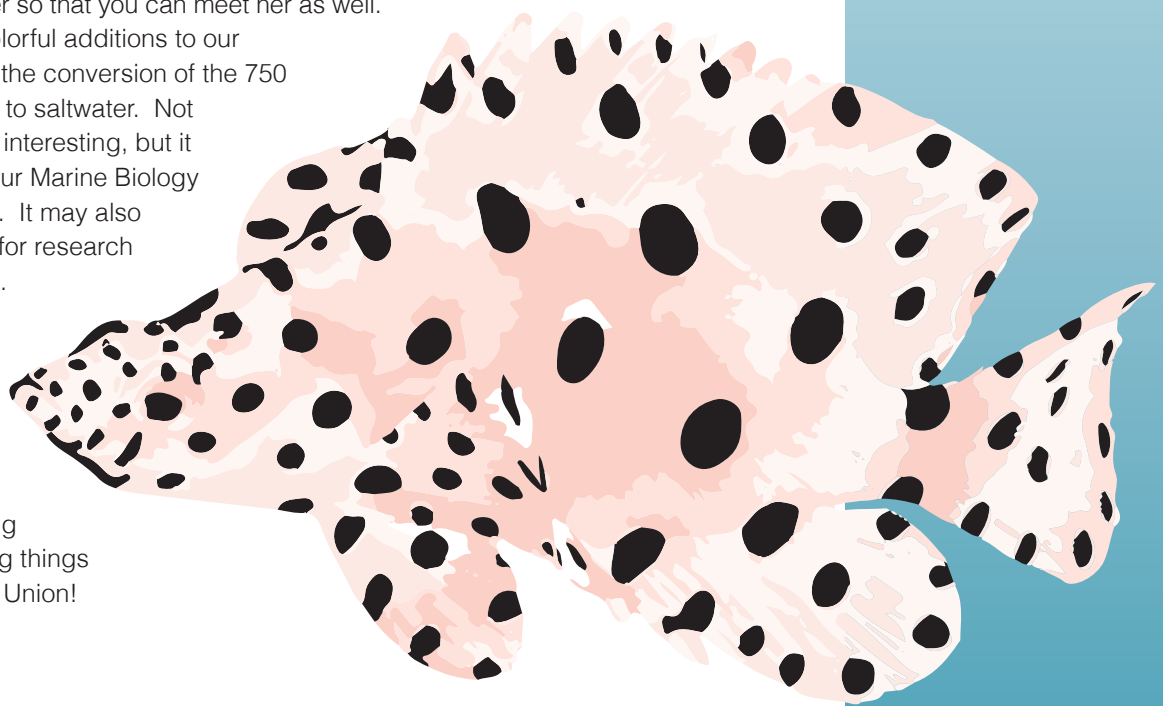
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Members of the Biology Department have received permission to begin an Arboretum on Union's Campus, and we are excited about this.

The Union University Arboretum is being developed with three goals in mind. First, it is our hope that students, staff, faculty and administrators will further appreciate the handiwork of our Creator God as they view these trees on campus. Second, we envision an Arboretum that will be a vital curricular component to those studying sciences and those engaged in the sciences as part of their liberal arts education. Third, we anticipate that the Arboretum will be a way for alumni and friends of Union to participate in the life of the University in a sustainable way and to increase the enjoyment of the campus by all who visit.

The Arboretum will consist of trees that pre-date Union's move to this area, trees that have special significance to the University, trees that have been added since the advent of the University, and trees that will be added in the future.

We are looking forward to having folks interested in the development of the Arboretum participate in one of two ways. The first is to "adopt" an existing tree that is selected for inclusion, or, in the future, to

adopt a new tree to be planted on campus. The second is to provide an annual contribution by becoming a "Friend" of the Arboretum.

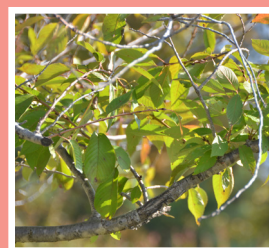
The short term goal will be for the Arboretum to be certified



as a "Level 1" Arboretum by the Tennessee Urban Forestry Council, which requires 30 labeled trees and a map for self-guided tours. We are also working on developing the "Jackson Area Arboretum Consortium", in which trees from the five arboreta in the Jackson area (Liberty Gardens, First Presbyterian Church, UT Research and Education Center, Green Frog Village [Alamo], and Union) will be listed in one searchable database. Work on this project is just beginning.

If you are interested in adopting a tree or becoming

a friend of the Arboretum, contact the Office of University Relations at 731-661-5050.



SALTWATER CONVERSION

by Kelly Farrar

The Department of Biology is excited to welcome its latest additions... a starfish, a pufferfish and a panther grouper! These fascinating creatures and many more can be found in the 750 gallon aquarium in the main lobby of White Hall. This past July, the aquarium was converted from a freshwater tank to a saltwater tank. The conversion was led by Dr. JR Kerfoot, Assistant Professor of Biology, with the assistance of students Sarah Porter and Patrick Clark and several biology department faculty.

"Saltwater tanks are more difficult to maintain initially, but once established are relatively easy", says Dr. Kerfoot. A delicate chemical balance must

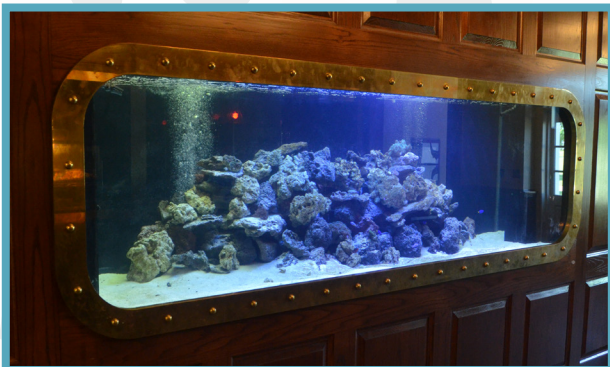
specialized sand with beneficial bacteria, UV sterilizers and saltwater are just a few of the components of the new saltwater system. Soft corals were added because they are easier to maintain than hard corals, especially while establishing the specific water chemistry. In addition, to mimic the shimmering effect of the ocean, metal halide lights are used, as well as fluorescent lights to emit UV radiation similar to outdoors.

Once the tank environment was stable, the fish were added—damselfish, triggerfish, gobies, bicolor angelfish, coral beauty angelfish, foxface rabbitfish, panther grouper, pufferfish, as well as mollusks, snails, thin striped hermit crabs and a starfish. Dr. Kerfoot has established a relationship with Below Sea Level, a local store that has supplied most of the fish. The tank also includes three fish that outgrew their previous homes and were donated by individuals.

Saltwater aquariums are "a process" according to Dr. Kerfoot. A heater recently was added to replicate the temperature of a coral reef in the

tropics, and the wish list still includes more lights and a pump to simulate currents found in the ocean. Dr. Kerfoot is researching what fish potentially could be added next, and he is still accepting fish donations. The biology department currently is partnering with Below Sea Level to host the Jackson Reef Club in February.

When asked what he thought the aquarium added to the biology department, Dr. Kerfoot replied "in addition to aesthetics, a different dimension of God's creation that many students have not seen before." Having the 750 gallon aquarium housing marine life will complement the Marine Biology course well, and while the Invertebrate Zoology course dissected a starfish this past fall semester, students can now observe the movements and behaviors of a living starfish. Biology major Sarah Porter says "the fish tank is one of my favorite parts about White Hall! I have to stop and look at it every time I come in. All of the fish, crabs and coral are fascinating and beautiful to watch. For me, it serves as a great de-stressor when I get bogged down with papers, tests and the general busyness of the semester. It serves as a nice reminder that I really do like biology and I'm happy to be majoring in it."



Salt water aquarium in White Hall

be established. A reverse osmosis filtration system, live rock from Fiji,

recently was added to replicate the temperature of a coral reef in the

ALUMNI PROFILE: DR. LEE HOLT

by Taylor Maylott



Dr. Lee Holt

During his undergraduate career at Union University, Dr. Lee Holt was awarded the Academic Excellence Award for Biology in 2003. After graduating from

Union, he attended the University of Tennessee College of Medicine in Memphis. He graduated from medical school and completed a Transitional Internship at Methodist University Hospital in Memphis. He then did his radiology residency at Baptist Memorial

Hospital, also in Memphis. Dr. Holt currently lives in Nashville where he started a fellowship in nuclear medicine at Vanderbilt University in July 2012 and will finish in June 2013. This fellowship encompasses general nuclear medicine including endocrine studies and cardiac imaging with additional emphasis on cancer imaging with positron emission tomography (PET).

Dr. Holt is extremely grateful for the preparation he received while at Union. He stated, "The unique aspect of Union for me was that I felt I was not just working under my professor's guidance, but that they were working alongside me to make sure I was

understanding the material. All of my biology professors mentored me in different ways and gave me good advice about my career endeavors and life in general. I trusted their advice and judgment because I knew they were all God-fearing men and women." When asked about Dr. Holt's time at Union, Dr. Carol Weaver replied, "his attention to detail, his seriousness for doing his best, his ability to critically analyze and solve problems, and his innate talents have always made me give him the highest compliment a teacher of pre-med aspirants can give a student: when I have a need for his medical specialty, I want Lee to be my doctor."

FACULTY PROFILE: DR. MICHAEL SCHIEBOUT

by Rachel Horton and Dr. Wayne Wofford



Dr. Michael Schiebout

Dr. Michael Schiebout has joined our Biology faculty this year. Dr. Schiebout brings both teaching and research experience to the Biology Department. He

earned his B.A. in science education from Dordt College in Iowa. He then taught middle school and high school science classes for eight years before beginning his graduate studies. He taught the first four years at a high school in Wisconsin. He then felt a calling to missionary education and moved to Sao Paulo, Brazil to teach middle school and high school science. Dr. Schiebout then went on to obtain his M.S. and Ph.D. from the University of Northern Colorado.

During his graduate education, Dr. Schiebout was involved in research on the resistance of the malarial parasite *Plasmodium falciparum* to the kinase inhibitor GW5074 with the goal of developing new antimalarial drugs. He was also involved in a floristic survey in parts of northeastern New Mexico. In this study, 9,619 specimens were collected, including 93 families, 437 genera, and 911 species from the 41,000 km² study site. Approximately 93% of the plants were non-native and 11 species were listed as noxious. He also conducted a study on the reclamation of a gravel mine.

Dr. Schiebout teaches courses in Botany, Anatomy and Physiology,

and Taxonomy of Vascular Plants. In spring of 2014, he will introduce a Plant Physiology course into the Biology Department curriculum. His research interests are: response of plant communities to disturbances, floristic inventories, reclamation and restoration of degraded environments, and the response of individual species and communities to invasive plants.

Dr. Schiebout currently is involved in the Union University Arboretum Project (see article in this issue). Union is seeking certification as a Class I Arboretum by the Tennessee Urban Forestry Council. Dr. Schiebout, along with Dr. Mark Bolyard, Dr. Andy Madison, and Dr. Wayne Wofford, has been assisting this effort by being involved in the identification and location of trees on our campus. He has also generated a map of the location of these trees on campus to be posted online. He will also help maintain and operate the greenhouse which we hope will be constructed soon.

Dr. Schiebout is a member of the Ecological Society of America and the Native Plant Society of Colorado. Dr. Schiebout has been married for 15 years, and he has four children. When he is not teaching, Dr. Schiebout enjoys reading, hiking, casual sports, and running (occasionally). Dr. Schiebout is excited about teaching at Union, and we are certainly excited about having him as a part of the Biology department! Having a plant scientist at Union will allow the biology department to offer a wider variety of courses in the area of plant sciences and to expand the Conservation Biology Major.

NEW STAFF MEMBER: MRS. KELLY FARRAR

by Jenna Ward



Mrs. Kelly Farrar

The Department of Biology at Union University would like to welcome their new secretary, Mrs. Kelly Farrar, to

the staff. Kelly is an alumna of the class of 1996, where she majored in accounting. She worked at H+M Construction as a corporate finance accountant for ten years. After her son Evan was born, she chose to leave the workplace and stay home with him. After Evan started school, Kelly wanted a part time job. She was drawn back to Union because of the Christian environment, which is very important to her.

Being back on Union's campus on a regular basis has been a walk down memory lane for Kelly. "The campus was quite compact in my days. When I began at Union in 1992, the cafeteria was still located in the middle of Penick Academic Complex. I can remember having enough time between classes to walk to the cafeteria and visit with friends." The campus also has seen many changes academically since her days at Union. "The opportunities available to the current students are so much greater now, and I thought I had a hard time choosing a major."

Kelly's mother-in-law Alice Farrar works at Union as Assistant to the Registrar, and Kelly's husband Aaron recently completed Union's Master of Social Work program. Her son Evan already enjoys going to basketball games. "Union continues to play such a large role in my life. I am proud to tell people that I graduated from Union, and now I can say that I'm proud to work at Union. It is a joy for me to see the university that has meant so much to me continue to grow and thrive," she said. Kelly is a great asset to our department and is already contributing so much.



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