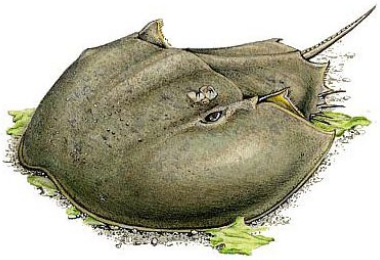
# Limulus



NEWSLETTER

**Department of Biological Sciences, Wagner College, Staten Island, NY**

**Volume 2011, Issue Fall-01** **September, 2011**


*SUMMER 2011 - BI:335: NATURAL HISTORY OF THE MID ATLANTIC STATES*

Students of BI335 enjoy one of many spectacular sites, a dam, during their field trip to Watchung Reservation in New Jersey.

## TABLE OF CONTENTS



## LETTER FROM THE EDITOR

The first LIMULUS in the academic year 2011/2012 comes with a new format of the cover page: A big photograph and a Table of Contents. I found this idea of one of the student editors very good. I promise that we will not rename from "Newsletter" to "Post" of the Department of Biological Sciences. Moreover, there will never be half-naked polar bears or the like on page 2.

In the first newsletter of a semester we used to review the last semester. To some degree we keep this habit. However, we have some contributions from the summer, and there are already news and experiences of the current semester. I hope you enjoy the first issue of the academic year 2011/2012.

Although it is somewhat late, I want to welcome everybody back to the college. Of course, a special hello goes to Dr. Lily McNair, our new provost. During the first months at Wagner College she had to deal with the Main Hall Catastrophe, an earthquake of magnitude 5.8, and hurricane Irene. Prepared by such challenging events, I am sure Dr. McNair is well-prepared to guide us through the harshest times, if that should be necessary.

HAVE A SUCCESSFUL FALL SEMESTER!

Dr. Horst Onken, The Editor

## BIOLOGY STAFF AND FACULTY NEWS

### BIOLOGY PROFESSOR RECEIVES TENURE

Dr. Heather Cook has been at Wagner College for several years. She teaches many courses in the biology department including: Cells, Genes, and Evolution, Gene Expression and Development, Molecular Cell Biology, and Science: The Good, the Bad, the Controversial (the Freshman RFT). She is an active researcher and her new research project focuses on the effects of endocrine disrupting chemicals on drosophila development. In the past, Dr. Cook received the "Teaching with Technology" award at the Faculty Awards Dinner in 2009. Recently, she learned that she received tenure. The members of the biology department went to celebrate Dr. Cook's good news. Photographs from the event are pictured in later pages of the newsletter. On the behalf of the Limulus Staff, I would like to congratulate Dr. Cook!

*Contributed by Nidhi Khanna with a photograph from Dr. Moorthy*

### DR. ONKEN BECOMES NEW DIRECTOR OF THE HONORS PROGRAM

Dr. Horst Onken is an associate professor of Physiology and Zoology at Wagner College. Dr. Onken has been teaching at Wagner since 2006 and has received recognition for his exceptional work. He was the recipient of the "Teaching with Technology" award and the Faculty Award for Exceptional Performance in the Area of Scholarship.

Dr. Onken has published articles in various prestigious publications, including two articles in the Journal of Experimental Zoology. The papers published in this journal were co-authored by his Wagner research students. His research interests include studying epithelial tissue and working with the *Aedes agypti* mosquitoes. In addition to his extensive research schedule, Dr. Onken teaches several courses in the biology department including Human Biology, Forms and Functions, Comparative Vertebrate Anatomy, and Animal Physiology. This past year, he published a chapter in the book Epithelial Transport Physiology. He also serves as the chair of the Academic Honesty Committee.

Dr. Erica Johnson has been the director of the Honors Program for several years. She has done exceptional work for the program, and this year alone, the number of graduating students that participated in the program has doubled. At the end of the summer, she will be stepping down as the director. Dr. Onken will be the new director of the program beginning this fall semester. Congratulations to Dr. Onken!

*Contributed by Nidhi Khanna*

### DR. HOULIHAN TEACHING AT RANDOLPH COLLEGE FALL 2011

Dr. Houlihan began teaching at Wagner during the fall 2008 semester. Even though he has been at the college for a few years, Dr. Houlihan has definitely helped the biology department grow. He will be leaving Wagner to teach at Randolph College in the fall. Randolph College is in Virginia and is a small liberal arts college. He will be teaching microbiology and genetics classes to undergraduate students. Additionally, he will teach a class that is similar to Wagner's Cells, Genes, and Evolution and will have students conducting research in his lab. The biology department and all of Dr. Houlihan's students will miss him dearly, and wish him the best of luck in the fall.

Dr. Houlihan received his Bachelors in Molecular Biology from the University of Mississippi. He later obtained his PhD in Microbiology from Cornell University. Dr. Houlihan's research is focused on plant microbe interactions, specifically the ways in which plants resist and respond to infection. He recently became more interested in gastrointestinal microbiology research.

Dr. Houlihan has taught several courses at Wagner including: Cells, Genes, and Evolution, Plagues and Outbreaks, Applied Food, Microbial Physiology, Microbiology, Microbial Ecology, Immunology, Serology, and a few years ago, he began teaching a freshman learning community with Dr. Stearns entitled, "Human Health and Survival."

Prior to Wagner, Dr. Houlihan admits that he had very limited teaching experience. "I had some teaching assistantships in graduate school, but at Wagner, this was the first time I was able to teach in this capacity," he stated.

Additionally, Dr. Houlihan mentioned that it was extremely rare for a college with less than 200 undergraduate students to have such an impressive microbiology program. He said," The microbiology program is very unique and is made up of dedicated faculty. I believe that it is good for the college to have such an excellent program."

Dr. Houlihan enjoyed his time at Wagner and believes that the family environment is beneficial both to the students and faculty. "The thing that stood out at Wagner was that it felt like everyone was part of a family. This aspect of the college is something that I will truly miss," he said.

*Contributed by Nidhi Khanna*

## BIOLOGY STUDENT NEWS

### VOLETA CAPRIC WINS STUDENT GOVERNMENT PRESIDENTAL ELECTIONS

Junior Violeta Capric is a double major in biology and anthropology. Capric ran a successful campaign for the SGA presidency for the 2011-2012 academic year. She served as a SGA Senator during his sophomore year. Additionally, Capric is currently the Vice President of Tri-Beta, and is a member of the co-ed service fraternity Alpha Phi Omega. Last year, she received the Academic Excellence Award (4.0 GPA) for both the fall and spring semesters and the Robert D. Blomquist Memorial Award in Biology at the spring Undergraduate Awards Ceremony. Congratulations on behalf of the *Limulus* staff!

*Contributed by Nidhi Khanna*

### SENIOR ACCEPTED BY DENTAL SCHOOLS

Senior biology major and psychology minor Peter Pisano received acceptances from four prestigious dental schools. Peter was accepted to the University of Medicine and Dentistry of New Jersey (UMDNJ) and New York University's College of Dentistry last semester. During spring semester, Pisano learned that he gained admission to the School of Dental Medicine at Stony Brook University and Columbia University. He will be attending Stony Brook University in the fall.

Additionally, Pisano will be graduating with departmental honors. He will receive the Kevin Sheehy Award in Biology, given in recognition of the highest cumulative grade point average in the study of biology and the Dr. Norman L. Freilich Memorial Award, given to a graduating student accepted into medical or dental school at the Senior Awards Banquet that will be held before Commencement.

On the behalf of the Limulus staff, I would like to congratulate Peter on all of his accomplishments!

*Contributed by Nidhi Khanna*

### GRADUATING SENIOR TO ATTEND DUAL DEGREE PROGRAM IN THE FALL

Senior double major (Biology/Chemistry) Victor Stora was accepted to two excellent veterinary schools. Stora will be attending Louisiana State University and will be pursuing his D.V.M. (Doctor of Veterinary Medicine) and PhD in Molecular Cell Biology starting this fall semester. Stora was also accepted to Iowa State University College of Veterinary Medicine.

Stora conducted research this past summer at the School of Veterinary Medicine at the University of Pennsylvania. He worked in the PennGen Lab for Inborn Errors of Metabolism and the Deubler Lab for Genetic Testing. Stora's research mentor was Dr.Urs Giger DVM PD FS MS ACVIM. The results from this research are being presented at the American College of Veterinary Internal Medicine in Denver. It is under review by the Journal of the American Veterinary Medical Association (JAVMA).

Additionally, he is the vice president of Allied Health for the Pre-Health Society. He is the SGA representative for Tri-Beta and works in the Peer Tutoring Center as the biology tutor. On the behalf of the Limulus staff, I would like to congratulate Victor on all of his accomplishments and wish him the best of luck in the fall!

*Contributed by Nidhi Khanna*

### BIOPSYCHOLOGY MAJORS ACCEPTED

This year, three biopsychology majors will be attending various graduate schools this upcoming fall. The Limulus staff would like to highlight the achievements of these three senior students.

Leandra Manfredini is a commuter student from Staten Island, NY. She is a member of various honor societies on campus including Psi Chi (the International Honor Society in Psychology), Omicron Delta Kappa (the National Leadership Honor Society), and Psi Epsilon Alpha (the Biopsychology Honor Society). Manfredini is also a proud member of the sorority Alpha Sigma Alpha and served as the VP of Programming and Ritual for ASA. She also was the Greek Senate chair for her sorority. Manfredini was accepted to the City University of New York's Graduate Program for Doctor of Physical Therapy (DPT), and will begin her studies this upcoming fall semester.

Aimee Marin is also a commuter student from Staten Island, NY. She is a member of ODK, Tri-Beta, Psi Chi, and Gamma Sigma Epsilon (the Chemistry Honors Society). She founded the Wagner chapter of Psi Epsilon Alpha (Biopsychology Honor Society) this year and she served as the organization's president. She gained admission to the Evelyn Spiro College of Nursing at Wagner College. Marin will be pursuing her second Bachelors in Nursing this fall and hopes to continue her education at Wagner to receive her Masters in Nursing in the near future.

Thomas Rammelkamp is a resident student from Long Island, NY. Rammelkamp is a student athlete and was named to the NEC (Northeast Conference) Winter Academic Honor Roll on several occasions during his undergraduate career. Athletes that are on the NEC Honor Roll need to have a grade point average of at lease 3.20 and need to have distinction as an athlete on a varsity college team. He is a member of the Men's Track and Field team. Despite having a demanding academic and athletic schedule, Rammelkamp was able to graduate a semester early and finished his undergraduate career this past

December. He gained admission to Stony Brook University's Physical Therapy (DPT) program and will begin his studies shortly this upcoming June.
On the behalf of the Limulus staff, I would like to congratulate all of the biopsychology majors on their acceptances to three excellent graduate programs! I wish you all the best of luck in the future.
*Contributed by Nidhi Khanna*

## NEWS FROM CLUBS AND SOCIETIES

BIOLOGY CLUB

The biology club has passed the 100 active member mark and growing. Working closely with organizations and charities, the club will be holding a second annual health awareness event this October featuring a "MED-iterranean Medley Feast." Delicious kebobs, appetizers, dips and deserts from the Mediterranean will be served in support of various biology related topics and raising funds for ACS Making Strides Against Breast Cancer Walk on Oct. 16th. New members are always welcome to join and come to our fun-filled meetings to discuss current events in biology and meet with other students interested in the same field. Those interested in joining should contact Janna Denisenko (janna.denisenko@wagner.edu).
*Contributed by Gregory Balaes*

**A remark by the editor:** First of all I want to congratulate the Biology Club to surpassing 100 active members. This is truly remarkable. As the faculty advisor of the Biology Club I am proud, of course, but I want to underline that this outstanding success of the Biology Club is most certainly based on the engagement of the members alone. Especially under the presidency of Leonid Denisenko this club has had remarkable progress, and I hope that this success will continue under the presidency of his sister Janna..
*Contributed by Dr. Onken*

TRI-BETA BIOLOGY HONORS SOCIETY

Tri-Beta took part in a garden rehabilitation for Dr. Onken and the Biology Department. The garden behind Megerle should now be ready to plant for the Spring.
Tri-Beta will also be participating in the Light the Night walk on Staten Island. The Light the Night Walk supports The Leukemia & Lymphoma Society's and is Saturday October 1st at 5:30 PM on the Midland Beach Promenade. Please contact Joanna.emilio@wagner.edu if you would like to be involved in Light the Night.

*Contributed by Gregory Balaes. Photos by Joanna Emilio.*

BIOPSYCHOLOGY HONORS SOCIETY

A new Biopsychology Honors Society has been formed at Wagner College. The following photographs are from the induction ceremony.

*Contributed by Gregory Balaes*

PRE-HEALTH SOCIETY

The Pre-Health Society held elections this past month. The new VP of Allied Health will be Samar Alwani, a rising junior biology major. The results for the other E-Board positions will be announced shortly. For more information, please contact Pre-Health Society President, Felicia Giunta at Felicia.giunta@wagner.edu.

*Contributed by Gregory Balaes*

PRE-DENTISTRY SOCIETY

Many exciting events are planned for the 2011-2012 academic year. Between promoting oral health in neighboring schools, and their Spring 2012 Health Fair, the Pre-Dentistry Society is certainly giving back to the community.

Among other exhibits and activities, the 2012 Health Fair will feature the 21 feet. long by 15 feet. wide inflatable MEGA Heart ®. The MEGA Heart displays the entire anatomy of the human heart, including examples of heart disease, and some of the latest medical treatments for the heart. Students of the Pre-Dentistry Society and various clubs and organizations will provide information and activities all in relation to promoting proper health. The following are organizations who plan to participate and incorporate components of maintaining proper health: Physician Assistant Program, Tri-Beta Honors Society, the Student Nursing Association, the Physician Assistant Association, the Microbiology Club, TKE, and Theta Chi (two fraternities here at Wagner Collge). In addition, the Society has invited neighboring Public Schools, in an attempt to attract and inform a diverse audience. If you're your organization or company is interested in participating, please contact the Society's President, Gregory Balaes at gregory.balaes@wagner.edu.

The Pre-Dentistry Society will also hold their bi-annual CPR Certification event on Saturday, October 22 at 11 AM. Becoming CPR Certified not only is important for everyday life scenarios, but remains to be a highlight for various health related jobs. Certification is offered at a very discounted rate, a factor which makes this event very appealing for students.

Photos are taken from the Spring 2011 CPR Certification event at Wagner College.

All of those interested in the Fall 2011 CPR Certification on Saturday, October 22 at 11 AM should contact pre-dental@wagner.edu for more information for the

Lastly, the Society has a new executive board, with the following students and their respective positions:

Gregory J. Balaes (President), Leonard Giordano (Vice President), Sara Mfarrej (Community Service Chair), David Finkelstein (Treasurer), and Angelo Cacciatore (Secretary).

Any student interested in dentistry is certainly welcome to join the Pre-Dentistry Society. For more information, please email pre-dental@wagner.edu .

*Contributed by Philip Fomina. Photos by Gregory Balaes.*

## EXPERIENCES

BI335: NATURAL HISTORY OF THE MID-ATLANTIC STATES

During the two weeks following the Spring 2011 semester's end, students of BI335 (taught by Dr. Palestis) truly had a remarkable experience in "learning by doing." BI335 involved many trips to several nearby locations, such as the New Jersey

Pine Barrens, Jamaica Bay, the Hackensack Meadowlands, and the American Museum of Natural History.

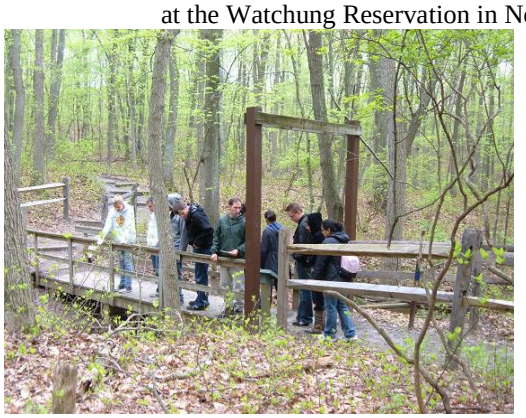
Students particularly enjoyed two overnight trips to witness the horseshoe crab spawning/shorebird migration spectacle in Delaware Bay and to hunt for marine fossils in the Pocono Mountains.

If you are interested in the course, please email bpalesti@wagner.edu in order to express your interest. Remember, this is elective course, which may be used as one of the three required electives for the biology major, or environmental minor.

Above: Students Gregory Balaes and Casey Lindine gearing up, as they prepare to enter the deep sea!

Above: Dr. Palestis returning a snapping turtle to its habitat. The turtle was previously stranded on the side of the road, seemed dehydrated, and clearly lost. If it was not for Dr. Palestis' wild-life strategies, it may not have lived. Great job Dr. Palestis!

Students taking a quick rest along side of a dam at the Watchung Reservation in New Jersey.



Delaware Bay. Student Casey Lindine observed as shore birds hunt mating horseshoe crab eggs.
*Contributed by Gregory Balaes*

## FROM BLARING HORNS TO SCREAMING PIHAS AND BACK

During Summer 2011, I was given an amazing opportunity to experience and learn biodiversity survey methods in the Iwokrama Forests of Guyana, South America. Through Operation Wallacea; an organization funded by tuition fees that operates biological and conservation management research programs in remote locations across the world, I was introduced to a type of field work that many do not get to experience. The program was centered in the Iwokrama Forests in the Guyana Shield at the Iwokrama Research Center however as an expedition we traveled to additional sites; including Canopy Walkway, Rock Landing in Surama Village, and Sandstone.

The program started in the capital, Georgetown where our group of 16 met for the first time. There were 5 volunteers from America, 2 from Canada, 1 from Wales, 2 from Scotland, and 6 from England; our supervisors included 1 American scientist in the PHD program at Missouri and two scientists and a doctor from England. Our first week consisted of introductory lectures into the Guyana environment and the background information on the animals and techniques that we would be using over the next 3 weeks. We learned how to set-up mist nets, how to extract birds and bats from the mist nets, what to look for on mammal surveys and herpetology surveys', and how best to avoid any venomous animals we may encounter. Our stay at the research facility was short and mainly tutorial. The second week we arrived at Canopy Walkway, which is a tourist attraction for Guyana. This week we began to conduct regular surveys that started at 5:45 every morning and normally ended at 11:00 to 11:30. These surveys included bird point counts, bird nets, two mammal surveys, and a herpetology survey. On the bird point counts we would walk onto the platforms (see picture) and watch and listen closely to the birds that were around us.

We would have either a scientist or an Amerindian guide with us to help identify the bird, the angle of its direction, and its distance by the call that it made. The mammal surveys were similar in that there were transects cut that ranged in distance from 1.5 km to 3.4 km and a survey consisted of walking slowly with a guide or scientist and listening and watching closely for birds or any signs of large mammals. These were difficult surveys to conduct because the forest is dense and we as volunteers are clumsy at maneuvering the fallen logs and swamps so we were easily heard and not always as observant as our well trained guides. Bird netting was an all day procedure that began at 6:00 in the morning and ended at 6:00 at night. At each site we set up 18 twelve meter nets, these nets are made from a thin material and can be hard to see at certain angles. A bird would fly into it and become tangled; our job was to extract the birds from the net and identify it and make a small mark on its far right tail feather so we knew that it had already been counted. We would check the nets every hour until dusk approached because then it would be time to open the bat nets. We always kept the bat and bird nets separate because the bats carry parasites that would potentially transfer to the birds and be hazardous to their heath. The herpetology survey consisted of a walk along either a transect, or an access road that looked promising for reptiles or amphibians. We would use sticks in order to poke around the leaf litter on the floor to provoke a frog to jump or in some cases and snake to slither. In our expedition we were lucky enough to have caught a juvenile caiman, a juvenile anaconda, and to see two bi-striped pit vipers, a rare find (see picture below). During the night there were two activities to participate in, either the night herpetology walk or bat nets. The only difference in the night herpetology walk was that you had to use you headlight, 1. to see where you were going and 2. to see the eye shine of the different animals. Red meant larger animal; caiman, predator cat, or some type of mammal; blue meant spiders, and orange or yellow usually meant frogs. Bat netting was similar to bird netting, the only difference was that with the bats you have to avoid being

bitten by their fangs and the extraction process was more tedious. The bats tended to bite and thrash more than the birds creating holes in the net, so when a bat became tangled, he was really in there and trying to adjust your body and the bats' while not being bitten was sometimes a challenge. The second and third camps that we visited were off of the Burro Burro River and they included river surveys. River surveys consisted of traveling 20 minutes either up or down stream and then switching the motor off for an hour and looking to see any large mammals such as monkeys, tapirs, or river otters in addition to water birds as we floated down the river. For our entire journey we stayed in hammocks that were tied between two trees; we were provided with mosquito nets and a basher or tarp that was tied above the hammock for protection from the sun and the rain. Our meals were served on a routine basis of 5:30 a.m., noon, and 6:00 p.m. of local cuisine consisting of rice, chicken, beef, and fish. This trip was an experience of a lifetime for so many reasons. Not only did I learn about the techniques of field work and how science is carried out in a real life application, but I also made international connections and lasting friendships. Iwokrama Rainforest is under the protection of the Guyana Shield and should remain so because the pristine nature of the forest is remarkable. To be able to spend a month in one of the last remaining untouched lands was an honor and a privilege and I encourage all who ever come across such an opportunity to take it.

*Contributed by Judy Betz*

ANOTHER SUMMER IN WASHINGTON

As in the last years, I spent the summer again at Washington State University (WSU) where I have the chance to focus on my research with mosquitoes. Hours of lab work are accompanied by discussions with colleagues and students.

However, these times in the Pacific Northwest are not only dedicated to work. I meet old friends, and it may be a good opportunity to introduce two of them to you today. Stacia and David Moffett are professors for Neurobiology and Physiology at WSU. However, they also have a second life. Living in the vicinity of the Wawawai Canyon close to the canyon of the Snake River, they are expert biological gardeners who grow produce and fruit for a food coop. On top, they have a vineyard and a winery, producing a selection of delicious wines that are sold at home, in their tasting room, or online. Over the years, their place has become a second home for me. Just to give you a taste of what it means to grow biologically to Stacia and David, let me tell you of their way to fight grasshoppers and other insects that threaten their crop. Instead of spraying pesticides, David and Stacia successfully use chicken, turkeys and guinea fowl to fight insects. The eggs, sold at the food coop or at a local farmers market, give some additional income. Of course, these birds need to be taken care of, not only because they could become prey only too easily to the cougars, bobcats or coyotes that roam the countryside. At times also other little vagabonds need to be taken care of, like these two little raccoons that had evidently lost their mom. Small rodents like the many kinds of mice and moles who favor to nibble on the roots of producing plants are fought more or less successfully by the snakes who like to explore Stacia and David's premises for the abundant food resources. A special treat in a country like Washington State is for me the opportunity to hike before or after work or on weekends. It is very different to be surrounded by sheetrock and cars or by nature and wildlife. In Washington State the latter is close and you can have marvelous moments in the most unlikely places.

Since this year, another very pleasant

part of my summers in Washington State is, of course, my wife and my family. Some of you may remember that my wife moved to Washington State in 2010 to get her PhD in Molecular Plant Science at WSU. Instead of teaching Environmental Biology at Wagner College, she is now studying the Münch Hypothesis and laminar flow in the phloem of *Arabidopsis*. Professor Beecher says hello to everybody who remembers her.

Last not least, my summers are determined by the drives across the country. Leaving Staten Island after graduation, it almost seemed that the cold, wintery weather did not want to let me pass the Rocky Mountains. Despite the obstacles, I had a great time driving West at the end of May. Fortunately, the drive back East in August was considerably easier. During this last summer my car crossed 25 states, and I had the pleasure to visit eleven National Parks and five National Monuments. My summer was enriched by spending time in a number of very interesting National Preserves and State Parks. My "batteries" were recharged for another academic year at Wagner College while I was camping in remote places in Eastern Oregon or Northern Colorado. My campfire burnt in Southern Utah and Western Arizona. Many times, I was surrounded by most magnificent scenery and amazing animals and plants.

*Contributed by Dr. Onken*

LEARNING COMMUNITY AT WASTE WATER PLANT

Last Tuesday, September 20, 2011, the first-semester freshmen in Learning Community 17, taught by Dr. Mosher and Dr. Stearns went on their first of many field trips. This one in particular was to a large wastewater treatment facility, where the students learned how microbes are used to biodegrade organic wastes.

The experiential component of that learning community involves several class field trips to see how microbiologists earn their livings. We go to private pharmaceutical corporations (e.g., ImClone), academic research institutions (e.g., microbiology research facilities at Rockefeller University and New York University), federal facilities (e.g. Food and Drug Administration), city facilities (e.g. New York City Department of Health and Mental Hygiene), medical schools (e.g., New York University Medical School), hospitals (e.g., Bellevue Hospital), as well as a wastewater treatment facility in New Jersey. The students also have opportunities to attend two professional meetings especially focused on microbiology themes this fall (e.g., New York Academy of Science, and the Metropolitan Association of College and University Biologists). The students also are preparing to teach basic microbiology concepts in three local elementary schools in November.

As part of this learning community, the students also conduct empirical research to determine if bacteria can survive and thrive using an industrial chemical as the only source of carbon. In other words, the students are determining if bacteria can biodegrade an industrial chemical that they have been given. For the Bioremediation Project, the students are working in pairs; each pair has been given a different chemical. At the end of the semester, they will give a

presentation of their results, to which we will invite the college community. Anything new that is learned here may be useful in biologically eliminating lab-created chemicals that are otherwise long-lived in the environment.

*Contributed by Dr. Stearns, Dr. Mosher, and Gregory Balaes*

## ACE LECTURE ABOUT THE HUMAN GENOME PROJECT

The field of biology has been advancing every day. Scientists learned to manipulate pieces of DNA and even developed ways to use machines to automate many laboratory procedures. The first rough draft of the human genome project was first proposed at the turn of the century. The human genome project was an incredible technological achievement; however, the project stirred controversy. Many individuals believed that the genome project was a crazy idea, and many skeptics did not understand why it would be useful to sequence the entire human genome.

George Dewey, Provost and a chemistry professor from the University of La Verne, gave an ACE lecture at Wagner College recently. In the near future, Dewey speculated that parents of newborns might receive a CD-ROM version of their child's entire genome. Although sequencing the human genome had many benefits, there were some problems associated with sequencing the genome. The human genome has three billion nucleotide base pairs. It was rather difficult to try to assemble 3 million reads (reads refer to a fragment in the genome) in perfect order. Craig Venter, a prominent American biologist, believed that the best way to sequence the human genome was to use shotgun assembly. This method chews up the DNA and the computer will be able to read the fragments. Contrastingly, Francis Collins, an American physician-geneticist, believed that the best way to sequence the human genome was to match 1000 reads with the physical location of the chromosomes. Nevertheless, Venter's method was the most efficient sequencing technique, and he did not need to identify the chromosomes in the fragments. Many individuals were still skeptical that it was impossible for a computer to read the DNA libraries. Eventually, Venter chopped the DNA a second time, and was able to get a different set of 1000 reads.

After the human genome project was sequenced, there were many direct outcomes. The human genome project allowed scientists to discover 1800 new disease genes and 1000 genetic tests for human disease conditions were developed as a direct result of the human genome project. Additionally, 50 major types of cancer were identified. There were also many surprises from the human genome project. Scientists realized that the number of genes in the human genome is roughly 35,000. The human genome also contains many silent genes. The outcomes from the human genome project also taught people about genes and race,

Many individuals believe that race can be defined through genes. Scientists realized that there are no genes for race and it is difficult to clearly define race through genes. The human genome project taught scientists about the differences and similarities between individuals of various races. There are three million human single nucleotide polymorphisms (SNPs) in the genome. The SNPs occur at 1 out of every 1000 bases. The individual variations between people are due to the SNPs, and the SNPs allow scientists to compare how individuals are similar and different from each other. Additionally, individuals of different racial backgrounds can actually have identical SNPs. Dewey stated that race is a consequence of population migrations, but, there is no fundamental difference between race. Race is defined by society, and there is no scientific way to accurately define race.

Dewey's lecture on the human genome focused on the importance and the controversies surrounding the human genome project. The human genome project allowed scientists to study the variations and similarities between human beings. Additionally, many genetic tests and diseases were discovered using the data that was obtained from the genome project. The wealth of data from the human genome project has also allowed scientists to study the evolution of human beings. Early humans actually had the genes for brown eyes and lactose intolerance. As agriculture developed, early humans were pressured to develop a tolerance for lactose. Even though there are a lot of ethical issues surrounding the human genome project, scientists can use the information from the genome project to study the evolutionary history of human beings.

*Contributed by Nidhi Khanna with a photograph from the University of La Verne's website*

## RUTHIE'S RETIREMENT

Ruthie Hernandez has retired from her position of housekeeping, and will forever go down in history as one of the best housekeeping ladies ever! To celebrate close to 45 years of hard work, co-workers from the physical sciences, social sciences, library, registrar, housekeeping and others gathered in Megerle Science Hall to wish the best of luck to Ruthie. Her commitment, strength and kind heart made her more than just another co-worker. She is truly a friend to many, and not seeing her smiling face will leave a gap in the daily routine of those who will miss her motherly attention and vibrant personality.

*Contributed by Gregory Balaes, Stephanie Rollizo, and Professor Linda Raths*

RESCUE OF BROWN BAT

It began when Dr. Kathy Bobbitt came from her "General Pathology" class to let us know that as she was teaching about rabies transmission through an animal such as a bat, a student questioned if a bat was in their classroom. Dr. Bobbitt assumed the student was kidding around, but it was not a joke when she spotted the little brown bat clinging onto the ceiling. Prof. Linda Raths, Dr. Horst Onken and I immediately went to investigate. And there, quietly attached to a ceiling tile, was the tiny creature. Luckily, we are prepared in the biological sciences department, and after assessing the situation thought we might be able to rescue the frightened mammal.

With an old butterfly net in hand, Dr. Onken climbed atop a desk, reached up, and caught the bat! With the helpless animal trapped, we took it on a quick journey up to the roof of the science building, and released it. At first its wings were spread; then it quickly folded them up and rested. We left it there, overnight, and discovered it had found its way back into the wild this morning.

Although it is true that bats can transmit rabies, as Dr. Bobbitt confirms, they still do more good than harm, eating up lots of mosquitoes, which then decreases the spread of other diseases, such as West Nile virus. See: http://www.nydailynews.com/lifestyle/2007/09/15/2007-09-15_bats_do_far_more_good_than_harm.html

In addition, the U.S. Fish and Wildlife Service reports that a fungus called white-nose syndrome, first noticed in 2006 in New York bats, has a 95% mortality. See: http://www.fws.gov/whitenosesyndrome/ . Unfortunately, according to these studies, it appears the little brown bat, will become almost extinct in the northeast in 16 years.

For his gallant efforts in saving this elusive, helpful, and now threatened animal, a big thank you to Dr. Onken!

*Contributed by Stephanie Rollizo with a photograph from the US Fish & Wildlife Service.*

## OPPORTUNITIES

RESEARCH WITH MOSQUITOES AND CRABS

Dr. Onken offers research opportunities for students in the frame of a project in which he collaborates with scientists from Washington State University, the University of Idaho, and the University of Alberta (Edmonton, CA). The project is funded by the National Institute of Health and studies the physiology of the midgut of larval yellow fever mosquitoes (*Aedes aegypti*). Mosquitoes are vectors of a number of parasites, transmit devastating diseases like malaria, yellow fever and dengue, and are a major threat to the health of billions of people on our planet. The principal investigators of this project address larval mosquitoes, because it appears more straightforward to fight these vectors as long as they are confined in an aquatic habitat.

In collaboration with colleagues from the U.S. (Mt. Desert Island Biological Laboratories, Maine), Brazil (University of São Paulo in Ribeirão Preto, University of Paraná in Curitiba) and Canada (University of Manitoba in Winnipeg) Dr. Onken pursues research with Crustacea related to the osmoregulatory capacities and mechanisms of crabs.

Dr. Onken can offer research opportunities for two to three students. If interested contact Dr. Onken in his office (Megerle Science Hall Room 411), lab (Megerle Science Hall Room 406) or via e-mail (horst.onken@wagner.edu) or phone 420-4211.

For the spring semester Dr. Onken offers a work study position related to his work with mosquitoes.

*Contributed by Dr. Onken*

**The editor would like to encourage faculty members of the Department of Biological Sciences to describe their opportunities for research projects in the LIMULUS.**

**If students are interested to volunteer, to do research for credit (BI 493 and 494), or to prepare for their research experience in the frame of the senior learning community, please, contact the faculty members of the department.**

WORK IN THE GARDEN

Students interested in collaborating in the greenhouse and/or garden during the fall of 2011 should contact Dr. Onken (horst.onken@wagner.edu).

*Contributed by Dr. Onken*

BE A LIMULUS ASISTANT EDITOR

Proficient student writers are invited to become assistant editors for the newsletter of the Department of Biological Sciences. If you are interested, please, contact Dr. Onken (horst.onken@wagner.edu).

*Contributed by Dr. Onken*

## PUBLICATIONS

**To our knowledge, no manuscripts have been published during the year of 2011. Please, communicate publications to the editor.**

## PRESENTATIONS

**Palestis, B.G**. and **K.E. Eppinger**. 2011. A banding study of common terns on Pettit Island, NJ: Preliminary results. Greater New York/New Jersey Harbor Herons and Waterbirds Working Group. Staten Island, NY. January 12-13.

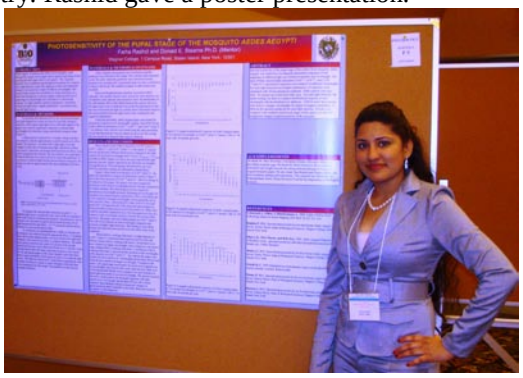
**Palestis, B**., I. Nisbet, J. Hatch, J. Arnold, and P. Szczys. 2011. The importance of tail length for sexual selection in roseate terns. Waterbird Society. Grand Island, NE. March 13-16.

## PROFESSIONAL MEETINGS

SENIOR PRESENTS AT CONFERENCE

Senior biology major and environmental studies minor Farha Rashid presented at a conference earlier in Spring 2011. She presented her research that was entitled, "Spectral Photosensitivity of the Pupal Stage of the Yellow Fever Mosquitro *Aedes aegypti* Larvae." This research was conducted under the direction of Dr. Stearns and was funded with the generous donations from the Undergraduate Senior Thesis Research Fund for the Department of Biological Sciences.

The research symposium that Rashid attended took place at William Paterson University. Undergraduate students from the Mid-Atlantic area presented their findings in biology and chemistry. Rashid gave a poster presentation.



*Contributed by Nidhi Khanna*

Dr. ONKEN IN SCOTLAND

In June/July, Dr. Onken visited Glasgow, UK, for a week to participate in the annual meeting of the Society of Experimental Biology. One of the major symposia in the frame of this conference, entitled "Molecular physiology of epithelial transport in insects: a tribute to William R. Harvey.", was dedicated to the professional life of Bill Harvey. Dr. Harvey holds a PhD in Biology from Harvard, worked for decades at Temple University and is currently Professor of Physiology and Functional Genomics (Whitney Laboratory, University of Florida) and Professor of Global & Environmental Health (College of Public Health and Health Professions, University of Florida). He has significantly influenced the past 50 years of epithelial transport in insects. Bill received many honors, organized significant meetings, and acted as editor of the Journal of Experimental Biology, a leading journal of the field. The symposium was attended by about 60 researchers especially active and successful in the field of epithelial transport in insects. Apart of the scientific sessions, there was time to socialize and discuss plans, hypothesis and results.

Dr. Onken presented a poster at the conference in the Scottish Exhibition and Conference Center in Glasgow under the title "Electrophysiology of the isolated and perfused posterior midgut of adult, female yellow fever mosquitoes *(Aedes aegypti)*." He was also invited to give a keynote lecture at a satellite meeting in the University of Glasgow (the "home" of Lord Kelvin). Dr. Onken's visit in Scotland was financially supported by the Litzenberger Fund.

*Contributed by Dr. Onken*

MACUB FALL CONFERENCE

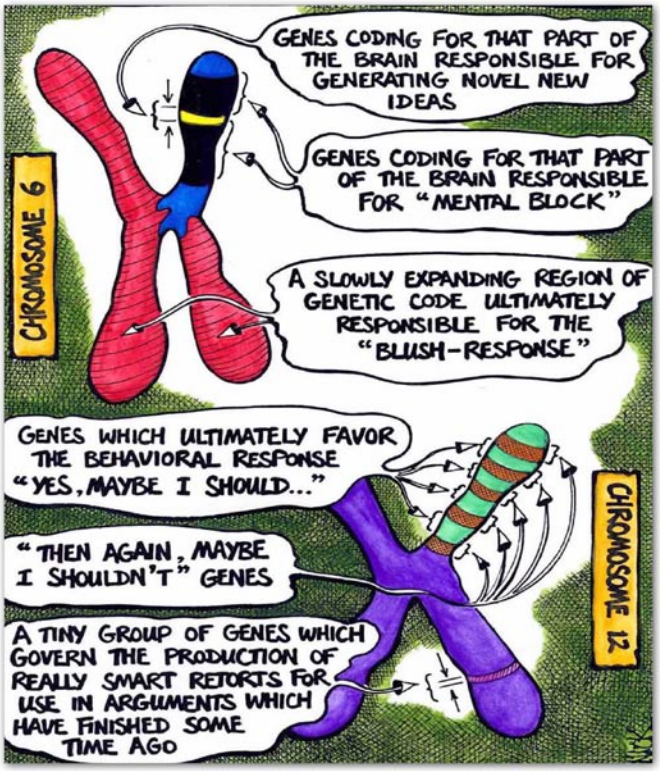
The 44th annual fall conference of the Metropolitan Association of College and University Biologists will be held on October 29 at Seton Hall University (South Orange, NJ). This year, the conference theme is "Microbes: Tiny but not Insignificant". The two keynote speakers are Dr. Bonnie Bassler (Squibb Professor of Molecular Biology at Princeton University), who will talk about "How Bacteria Talk to Each Other", and Dr. Martin J. Blaser (Frederick H. King Professor of Internal Medicine and Professor of Microbiology at New York University School of Medicine) will address the topic "A mixed Bag: Bacteria that Colonize Humans". The MACUB conference is always a great opportunity for students to present their research. Applications for poster presentations must be submitted online not later than October 13. Conference registration is open until October 19.
*Contributed by Dr. Onken*

## ALUMNI

**Dear Alumni,**

**If you are interested in contributing to our newsletter, you are very welcome to do so. Contact Dr. Onken by e-mail (horst.onken@wagner.edu) with your submission, comment, ideas or questions! We are excited to hear about where you are, how and what you do!**

## CARTOON




Specialized regions in a couple of human chromosomes.

*Cartoon from www.lab-initio.com*

## GUIDELINES FOR CONTRIBUTORS

Authors in all sections should keep in mind that not all readers are specialized in their area of interest. Keep your contribution on a level that everybody can understand.
Contributions may vary in length between about 50 and 500 words and must be submitted by e-mail to horst.onken@wagner.edu, or to one of the assistant editors (see below).
Photographs or other images that accompany an article are very welcome, but must be submitted as separate files (high quality jpg is the preferred file format) attached to the e-mail. Be aware that photographs/images may be minimized in size.
Indicate the section of the newsletter where you want your contribution to appear.
The deadline for submission of a contribution is the 20th of the month. Contributions received later may or may not be considered.
**The editor reserves his right to edit your contribution or post an immediate response.**
**Editing may involve to publish contributions in other sections as indicated by the author.**
**All contributions will clearly indicate the author's identity.**
**All contributions are reviewed and publication may be refused by the editor.**