

BioNews 2016

Department of Biology
Pittsburg State University



Downy gentian at the Monahan.

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From The Chair's Desk

Now that most of our summer courses are online, the peace and quiet on campus during the summer months is at times profound. It's not that there is no one here, but the numbers of students and researchers is so much reduced that it is not uncommon to be able to work uninterrupted for several hours. Even the telephone rarely rings. In contrast, the abrupt ramping up of activity when students arrive in August, is a tremendous change of pace. In a matter of a just a few days, campus goes from pastoral to bursting with energy. The change is at once exciting and a little unnerving.



This August, the fall semester got off to a fairly calm and even beginning. However, at this point in the semester, the figurative snowball is gathering energy and starting to gather momentum as we approach the last four-five weeks of the semester. My Soil Ecology students are looking forward to our annual field trip with the Office of Surface Mining (OSM) up in Frontenac. The trip to OSM reclamation projects is always interesting as the students get to see the re-contouring, re-planting, and soil reconstruction. The representatives from OSM talk about the safety and ecological requirements of their work that include building replacement habitats, wetlands, and community access that are part of most of their projects. The beautiful weather that we have had this fall has made soil sampling and field trips absolutely delightful.

Speaking of how enjoyable the fall weather has been this year reminds me to mention that we began our Fall 2016 semester without Steve and Cindy Ford for the first time in longer than I have been here. Dr.'s Steve and Cindy retired last spring, and I know that they must love being able to enjoy their home and time outside without having to drive to Pittsburg every day. At least I hope they are. Also missing from our ranks this fall is Dr. Xiaolu Wu. Xiaolu and her family moved to the Kansas City area awhile back, as the commuting was not sustainable. Fortunately, while these colleagues are not on campus with us each day, they are not that far away and we get to see them from time to time. For example, Dr. Snow saw Xiaolu in Kansas City by chance while traveling last summer, and the Fords pop in to see us from time to time.

While we are missing some colleagues, we have gained two new ones this fall. Joining us this semester are Dr. Andrew George and Dr. Christine Brodsky. Dr. George is working into leadership of our field sites, and developing new versions of some organismal courses. Dr. Brodsky has taken on the leadership of Environmental Life Science, PSU's life science general education course. She is also bringing us a new course, Urban Ecology, which will be a new area for our students. We are happy to welcome them to our department and to campus, and I hope that when you are in the area you will stop by for an introduction.

Speaking of dropping by, recently we had a visit from Dr. and Mrs. Harold Kent, from St. Simon's Island, Georgia. Dr. Kent is a 1974 graduate, and



Students carrying out field surveys in Dr. Smith's Soil Ecology class at the Monahan field site, Fall 2016.

Note to self – don't ever do two meaty online classes at the same time. This fall I'm doing Limnology again – always nice to get back to the basics – and a topics course on developing site management plans for field sites. The students are working on three of our sites and the outcomes will be interesting.

On the research side, students Karen Stoehr, Lucas Epler, and Jared Simon helped collect water quality data from the Monahan Outdoor Education Center and put together a poster for the spring PSU Research Colloquium. They did a great job. Over the summer, undergrad Derek Scholes helped collect some further Monahan water quality data, but focusing on downstream impacts. I also had a chance to work with a graduate student and high school teacher Karis Boyer on a land snail survey on the Monahan. She generated a great collection comparing land snail communities in the grassland and woodland. I attended the Kansas Natural Resources Conference in Wichita, KS last January and the Kansas Academy of Science in March.

Speaking of snails (was I?), undergrad Hannah Thomas was on an entomology field trip and brought some snails to me (so nice!). One of them, the Bladetooth Wedge, turned out to be a county record! That made my day.



The White-lip globe, a common snail in Kansas.

brother of Dr. Hazel Coltharp, came into the office while I was working on this letter, and I promised them that I would be sure and mention them in my newsletter. **(Or maybe that was a warning that I'd mention them!)** He mentioned that he remembered Dr. Riches as a junior faculty member, and an Apple Day when a skunk made a memorable appearance. It was evident that if we could sit down and talk for a while, he would have some good stories to tell. We also were privileged to host Dr. Holly Cranston, a 1998 graduate and designated an outstanding Alumnus this fall. She was honored at several events over Homecoming Weekend. I enjoyed getting to meet Holly and her family, but it is always fun to touch base with our alumni!

Be sure to drop by when you are in the area. For right now, I can feel that snowball catching up with me and soon it will be right on my heels. Every week from now until the semester ends is packed more and more full, and then it will be Christmas! Where do the years go?

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From Dr. Joe Arruda



Greeting to all of our alumni and friends.

Where to start?? Coursework is still a good place. Dr. Snow and I are now splitting Principles of Biology II completely down the middle – both lecture and lab. Reducing the time for animal biology has required my getting “down the core” of the most important content and experiences.

In the Spring I taught two courses online - Environmental Protection and the non-major Environmental Life Science.

Some changes will be coming to the Monahan. For several years, acid mine drainage from the north slope has been seeping into the ditch and downstream on the property. Both relevant state and federal agencies are beginning a new and more intense water quality survey to estimate pollutant loads for the purpose of designing a remedial project. So far, weirs (to estimate discharge) have been installed a few water quality collections have been made. The work has several years to go. We're helping out these lead agencies.

By the way, the O'Malley Prairies are now the O'Malley Property. The land has been given to the University. To honor the event – after the fact – my Limnology class collected water quality samples from a small wetland in the woodland of the “east” O'Malley property.

On the administration and service side, I chaired the Wildlife Biologist Search committee. Our new wildlife biologist is Dr. Andrew George. Andy started this fall and is doing a great job. He's a quick learn. I am also serving with Dr. Peter Chung as his co-mentor.

For the Department, I continue to wrangle our Facebook page, and run department assessment numbers for administration. I no longer do the newsletter – maybe it was the jeers or just time for me to start turning over some of my extra “jobs” to new folks.

As I expressed last year at this time, the losing and gaining of colleagues continues. It is wonderful to welcome new faces (younger faces) with their newer experiences and perspectives. The newest faculty, all in the field program – Drs. Whitney, George, and Brodsky - bring great skills and enthusiasm to the job. I know they are going to be great. I hope all of our new faculty – and those that remain - appreciate the gift that this department and university is to them, to the students, and the region. We are very lucky here to have what we have.

My best to all,
Dr. Joe Arruda

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Adam King (L) and Jared Simon taking the first water samples from the O'Malley properties.

From Dr. Christine Brodsky



Hello everyone!

Thank you for welcoming me into the Department of Biology! It has been so exciting to start my new career as an assistant professor at Pittsburg State.

To tell you a little about myself, I originally grew up in New Jersey and completed my undergraduate and Master's degrees back East (University of Massachusetts and University of Delaware, respectively).

I migrated out to the Midwest for my Ph.D. in wildlife ecology at the University of Missouri, where my husband and I have lived for the past four years. We still live in Missouri, just right across the border in Joplin, where my husband is an elementary school teacher. Even though we are both new to living in a smaller town, we have been enjoying exploring the area, eating at the Eagle Drive In (yum!), and going for hikes in the Ozarks. We look forward to continuing to explore the four-state region and Pittsburg!

My research interests focus mainly on urban ecology and avian ecology. In the past, I have worked on projects spanning bird song evolution in Massachusetts, to those linking soil calcium availability to bird territory placement in Delaware. I conducted the majority of my Ph.D. research in Baltimore, Maryland where I studied how vacant lots provide habitat for birds within cities and how local residents perceived this type of land. Vacant lots are unused spaces in cities that usually become weedy and full of shrubs over time. Because people have such a strong aversion to this kind of greenspace in cities, I was interested how we can manage vacant lots to benefit urban wildlife, specifically birds, while also balancing the preferences of residents.

At PittState, I look forward to continuing my urban ecology research in Baltimore and cities close by! I am particularly interested in understanding how ecological and socioeconomic factors influence bird communities in and around cities. I hope to get a few projects started this summer in PSU field sites, and continue to study the long-term bird community data we have from Baltimore. If this sounds interesting to you, I would love to start working closely with PSU students on my research!

This fall, I taught Environmental Life Science lectures and lab. It has been so wonderful to get to know many PSU students from all different majors around campus; however, I am looking forward to meeting many more Biology and SSRM majors soon! Next semester, I will be teaching ELS again and also offering a new course: Urban Ecology (Topics BIOL 602*17)!



Spring Picnic, 2016. Biology student award winners. Front (L to R): Josh Yeomans, Trista Dugan, Leann Patterson, Karen Stoehr. Back: Jackie Huse, Jayden Bowen, Maria Newmaster, Kelsy Goins, Diana Laffin, Chance Curran.

I am so excited to teach this course and I hope many of you are excited to take it.

I hope everyone has a great academic year and successful Spring 2017 semester!

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PSU Biology Club meeting, Fall 2016.

From Dr. Peter Chung



Greetings from us to you as another busy year draws to a close. The year has just flown by! If I could use a few words to summarize our year, it would be, "Where has the year gone?" Classes continue to keep the central hub of the department, the prep lab, hustling and bustling. Kim and our student workers do a great job keeping our workflow going efficiently. We say goodbye to some

of our student workers (Chynna and Addi) and welcome new ones (Kate and Brennen). Following Xiaolu's departure this last summer, Anu has stepped up in a huge way to maintain and provide a great learning environment for our General Microbiology students. Our teaching lab was able to purchase new microscopes for our senior microbiology classes and those scopes are being put to good use.

Following our big lab move last year, our research lab has stayed busy this year, with an undergraduate student and five graduate students. Two of them joined us this year, one left for greener pastures, and two of them will hopefully be defending their theses in December and graduating. Great job Myles and Kayla and good luck with your thesis defenses! Welcome September, Samuel and Kiralyn!

While some things remain constant, others do not. We were sad to see Cindy and Steve Ford retire this last year after many years of dedication and service to our department. Best wishes to them in enjoying their retirement! It was a busy spring for the department as several search

committees were formed to hire new faculty. I was happy to serve on a search committee alongside Joe and Neil for a

wildlife biologist. We are very pleased to welcome Dr. Andy George, along with our other new hires, Dr. James Whitney and Dr. Christine Brodsky. Considering their last names follow mine alphabetically, I am sure you will enjoy reading and getting to know them a little bit later on in the newsletter. As always, we are excited to add faculty members of their quality and caliber to help continue grow our department!

We successfully hosted over 600 high school students for the 2016 Science Day event, organized by the PSU Biology Club with the support and assistance of everyone in the Department, along with Physics and Chemistry. Special thanks to Trista Dugan and members of the Biology Club executive team for making it happen! Science Day 2017 will take place Thursday, February 23, 2017.

We are always looking forward to meeting with prospective students interested in our Department. Contact us if you know of someone interested in Biology at Pitt State.

Graduation ceremonies are a great opportunity to come back and visit, so if you ever make it back...

Congrats to our May graduates who got accepted into professional school or Med Tech clinicals. Good luck to everyone still waiting to hear. We wish you the very best.

Some dates to keep an eye on:

February 23, 2017- Science Day

April 6, 2017- PrePT Open House and Pre-PT Student Orientation

April 20, 2017- Department end of the year picnic, sponsored by the PreMed Club

May 12 and 13, 2017- Spring Commencement

There is always more to be said, but I leave you with my usual farewell:

To all our graduates, colleagues and friends, don't be strangers; stay in contact, keep in touch, and do stop by and visit if and when you are in town.

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Department of Biology graduates, Spring semester 2016.

From Dr. James Dawson



Spring 16 semester included my algae course. A total of 9 students completed the course, almost an all time high number. I was a judge at the Greater Kansas City Science Fair and was recognized for my years of service in that capacity. At the end of the spring semester we travelled to Kentucky for a few weeks. While there I was able to visit CAER, Center for Applied Energy Research at the University of Kentucky. While there colleagues

and I discussed several potential new research projects for the coming year or two.

Returning to PSU in June I prepared for the 6Th International Conference on Algal Biomass, Biofuels & Bioproducts, in San Diego Ca. I presented the third year of a 3-year study supported by CAER. Hurrying home I taught ELS in July. It was a whirlwind tour.



Drs. Ghosh and Dawson sharing a laugh at the Major's Fair.

Fall semester brought General Biology with lab, as a learning community course, and epidemiology. I will be a mentor at the Science Pioneers of Kansas City Meet the Mentor Day. This is my 28th year as a mentor. I am the only botanist at Meet the Mentor Day, and the only mentor from PSU. With retirement looming I hope they can find a replacement soon.

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From Dr. Andy George



For those who I haven't had the chance to meet yet, I am one of the newest members of the department. My background is in wildlife ecology, and I will be teaching several of our field-oriented classes in addition to managing the department's field sites.

I earned my PhD from Mizou in 2014, and continued working with the same research group as a post-doc until starting at PSU. My

PhD thesis focused on patterns of bird nest predation by snakes. For my post-doc I evaluated the long-term effects of forest management on bird communities as part of the Missouri Ozark Forest Ecosystem Project (MOFEP). During my time in Columbia I had many opportunities to teach classes, both at "Mizzou: (Univ. of Missouri-Columbia) and at Westminster College. I am excited to bring some of my research and teaching experience to PSU, and I look forward to getting out into the field with students!

I will be teaching herpetology for the first time in 2017. One highlight of this course will be an overnight field trip to the Ouachita region of Arkansas. Other courses on the horizon are ornithology and wildlife management. In 2017 I will also begin getting students involved in my ongoing work with MOFEP.

With the move to Kansas, 2016 has been a year of transitions for me and my family. While we will miss our friends in Columbia, we are excited to join PSU and the Pittsburg community!

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From Dr. Anu Ghosh



Greetings to everyone!

It is hard to believe that we are near the end of another year and I am writing for the Newsletter again. This year has been overwhelming and the semesters are just flying by. In the Spring I taught Environmental Health for the first time. It was a very nice experience, especially with the students outreaching to the community with health, environmental, and sustainability issues. We had off-campus visits and invited lecturers throughout the course and that made the subject much more interesting. I hosted professor and a registered nurse from Universidade Paulista, São Paulo, Brazil,

Dr. Paula de Sa, who talked about the epidemiology and clinical cases related to Zika virus outbreak in Brazil and its surrounding countries. It is a most relevant topic of the year and several people across the campus attended the lecture. I am looking forward to teach Environmental Health again in the coming semester.

The summer was very eventful. I received a Summer Faculty Research Fellowship and spent time in both field and lab. One of the projects focused on **“Ecology and Epidemiology of Ticks in Southeast Kansas and Understanding the Tick-Pathogen Interactions”**. Regina, Zack, and Marcus (undergraduate students) helped me out in tick collection from Pittsburg and surrounding area. I was really happy to see the exciting response from the community on this project.



Drs. Arruda and Ghosh sampling at Monahan, 2016.

The vet clinics, Humane Society, Biology alumni, our faculty members, volunteers from the community as well as other Departments of Health and Environment (KDHE) – they all helped us out in this work. Further, we worked together with CDC entomologists and visited Bourbon County for tick sampling (FYI: Bourbon virus was first identified in 2014 in a man from Bourbon County, KS, who died after being bitten by ticks). Currently, we are processing the ticks in my lab for identification and prevalence of bacterial pathogens. This is the main project for my graduate student Abrar. Also, part of this work is dedicated to a High School Science Fair Project and Sam, a senior student from Carl Junction High School, is working on it.

My other graduate student Rachel's research focuses on **“Bacterial Diversity of an Abandoned Mine Land Soil in Southeast Kansas”** and its long-term application on using bacterial isolates to clean-up the acid-mine drainage at Monahan (the abandoned coal fields in Cherokee and Crawford counties). Her project was well-received by the scientific community and she won the first prize on graduate poster presentation at the PSU Research Colloquium held in last April. I believe that this work will attract some state and federal funding in near future. Undergrad students Mikaleigh and Marcus who received the Faculty Academic Year Research Stipend are working on my ongoing collaborative venture on antibiotic resistance. They make

the lab work lot of fun and the lab ambience so radiant. Happy to have you all wonderful people around me!

I greatly enjoyed participating in the Biology Bowl and other recruitment programs and hope that with the widespread initiatives of the University, the number of undergrad and graduate students in our department will go up. I am teaching Microbiology and Toxicology this Fall semester and thoroughly enjoying both the classes. I feel fortunate to have a bunch of enthusiastic students who make the classes quite stimulating.

I am grateful to my senior faculty mrmnrtd, Kim, and Kelly for their continuing support. Thanks to our custodians Mike and Linda for taking good care of us. Lastly, a warm welcome to our newer faculty: Christine, James, and Andy; wishing you all the best and looking forward to a long journey together!

Happy New Year to all the alumni and friends of the Biology department!

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From Dr. Phil Harries



Greetings from Heckert-Wells! I can't believe it's Newsletter time again. It seems like 2016 has flown by. Between teaching and research it's been a very busy year. In the classroom I've been teaching Principles of Biology I, Introduction to Research, Senior Seminar, Biology of Cancer and Bioethics. This summer I taught Principles of Biology I as a “hybrid” course with the lecture portion online and lab meetings once a week.

In the research lab, I'm currently working with three undergrads on various projects. Hannah DeVries, who graduates this December, is continuing to work on an ongoing project exploring gene function in the bryophyte *Physcomitrella patens*. Anthony Diskin has been working on a microscopy based project that takes advantage of the beautiful microscope camera the department obtained this year. Newcomer Wyatt Osterhage has been learning some basic lab techniques and will likely start on a new project next year.

Up on the rooftop, we've continued to see some significant changes in the greenhouse. The majority of the original wooden benches were torn out and replaced with shiny new stainless steel last year. This year a new evaporative cooling system was constructed and installed by university plumbers. The old system has been removed and the support wall capped with metal. The new system should be installed over the winter so that we can be ready for another hot Kansas summer. It is good to finally to have these upgrades.

On a personal note, I was featured in a local magazine, JMag (published by the Joplin Globe) this summer. For



the past five or six years I've been making lots of trips to the Arkansas Ozarks with the University rock climbing club or with friends and family on hiking and photography trips. The magazine wanted someone to talk about the beauty of the Ozarks and I was happy to oblige.

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fortlessly what I had failed to find on prior trips. The colony's defenders were not alerted and their work continued. When the weather puts a stop to their activity and the brood collapses, we will try to remove the underground nest before the end of the semester.

In addition to our courses and student interactions, we have had many opportunities to help those considering PSU as their choice for a quality higher education. Several of us in the department assisted by meeting good numbers of visitors through our Majors Fair (30 students visited our table) and also the popular PSU "Rumble" events (50-60 registered high school seniors visited our tables; see image below), as well as many individualized meetings between prospective students and faculty advisors across all emphasis areas we offer.

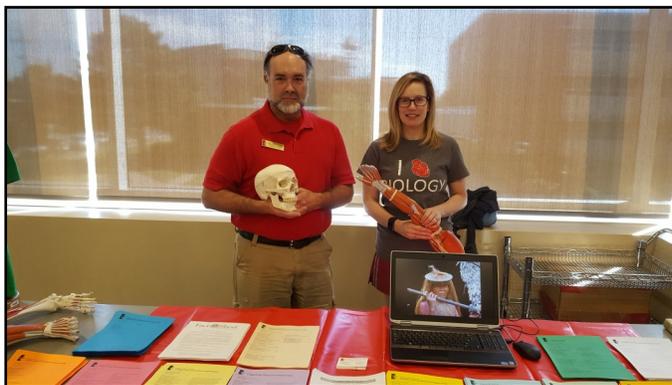
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From Dr. Hermann Nonnenmacher



In the Spring, as part of her Senior Honors work, Karen Stoehr produced a research poster about summer and fall work she completed in southeast Kansas on tall thistle and insect foragers. In April, she presented her findings at the 2016 Annual Meeting of the Kansas Academy of Science, in McPherson, KS, and at the 2016 PSU student research colloquium. Her work is a valuable addition to work completed by Sam Young (fall, 2013) and Trevor Burrows (fall, 2014).



Dr. Nonnenmacher and Peak Bryan at Rumble in the Jungle, PSU's "open house" for potential students.

During the summer break, I moved from Hartman Hall into an office in Heckert-Wells Hall as well as into research and teaching lab space. Of course there was a lot of cleaning and reorganizing associated with the move, but my lab now houses ten field students and one research student, Adam King. Adam is completing preliminary work before investigating bumble bee colonies collected from human habitations in urban and rural sites.

At the start of the fall, 2016 semester, we welcomed Drs. James Whitney, Andy George and Christine Brodsky as they began orientation, teaching classes, arranging field trips and setting up their research laboratories.

In my general entomology class, a bit of déjà vu of sorts has provided a special learning opportunity to the enrolled field students: at one of our field trip sites, two students located an active yellow jacket colony similar in size to the one studied last fall. This is a great find, as I had spent much free time during summer to locate one for the fall students. In this case, students literally walked up to the wasps' ground-level entrance and quickly retreated, in wise fashion, to a safe distance. Hailing the rest of us brought a bit of chatter from me as I had worked so hard all summer and here the students had discovered so ef-



Ali Blanchard presenting dental kits that were taken to Viet Nam with the New York Rotarians, donated by the Community Health Center in Pittsburg.

From Dr. Mandy Peak Bryan



Happy New Year Gorillas!

In 2016, two of our faculty members, Cindy and Steve Ford retired and we gained three junior faculty (all from the University of Missouri!) in the field biology section. Welcome Andy George, Christine Brodsky, and James Whitney! Cindy and Steve, thank you for your support and knowledge (and for letting me tag along on your Regional Natural History field trips)...you are missed!

In January 2016, Peter Chung and I were recognized by the PSU Athletics Council for providing exceptional support for the athletics teams (next column, top right). Peter was selected by the Woman's Basketball team and I was selected by the Women's Cross Country team. It was an honor!

My research students presented three posters at conferences this year. Tayita Abudu presented at the K-INBRE conference in Kansas City and the Kansas Academy of Science in McPherson, KS. Tayita and Megan Peters presented at the PSU undergraduate research symposium and was awarded third place for their poster presentation.

This past year the Biology Department has participated in numerous recruitment and advisement events, including Rumble in the Jungle, Junior Jungle Day, Physical Therapy Open House, University of Kansas Pre-Med Advisor's Conference, and summer sessions of enrollment during Pitt C.A.R.E.S. I also taught a Learning Community Freshman Experience class this Fall. This class is associated with our Principle of Biology I course and is populated with Biology and Chemistry students.

Several of our current students have interviews at medical, dental, and physical therapy schools and we wish the luck! Finally, this leads to a few shout outs to my advisees and study abroad students that are either currently attending their first year in professional schools, including, Trista Dugan, Tyler Elmore, Kelsie Goins, and David Schlee to KU med and MacGyver Norris to University of Oklahoma Physical Therapy School (Boomer Sooner!). Furthermore, several of our PSU Biology alumni are currently interviewing for residency positions during their fourth year of medical school...we wish you the best of luck (including Andrea, Zach, Sara, Taylor)! Also, a huge congrats to Megan Carlson and Gerald Diskin for graduating KCUMB med school and for their residency positions, respectively, in OB/GYN in Toledo, Ohio and Emergency Medicine in York, PA (both traveled to Belize in 2010).

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From Dr. Virginia Rider



Greetings to all the friends of the Biology Department.

It was another year of success for students who applied to a variety of professional schools. Those accepted to professional schools are: Levi Arnold, MS program KU; Whitney Baldrige, PhD program, Scripps Institute; Alexandra Blanchard, wait listed OSU; Trista Dugan, KU early decision; Tyler Elmore, KU early decision; Kelsey Goins, KU; Jared Hight, KCU; Peter Meier, KU; Rachel Miller, PT Wichita; Maria Newmaster, KU; Leanne Patterson, PA school; David Schlee, KU; McKenzie Spessor, PA school; Ryan Thompson, Ross Medical School; Briggs Westby, Edward Via College of Medicine. Congratulations to you all. If I have overlooked anyone, please let me know as we enjoy following you and your career successes.

Yegor Paschenko has been accepted to KU Medical School early decision for 2017. Yegor will graduate in May and begin medical school at the end of next summer.

The Fourteenth Annual K-INBRE Symposium was held at the Overland Park Sheraton Hotel in Overland Park, Kansas. The meeting took place January 16-17, 2016 and was well attended by both undergraduate students and Faculty.

Eleven faculty members and twenty-eight students attended the meeting from PSU. The symposium kicked off with excellent talks from Dr. Sally Camper (Hypopituitarism) and Dr. John Thyfault (Fitness Impacts Susceptibility for Obesity and Metabolic Disease). Jyothi Kallyu, a student working on a Master's degree with Dr. Santra, was chosen to present a platform talk titled "New MR Activatable Nanoprobe for the Multiparametric Imaging and Treatment of Prostate Cancer." Tyler Shelby, a Star Trainee student with Dr. Santra, was given an award for his poster titled "Novel Magnetic Nanosensor for the Rapid Detection of Influenza Virus and Comparative Analysis of Entry Blocker Proteins". Students and Faculty presented their research in poster sessions held from 4:30-6:30 on Saturday evening. As always, the science at the meeting was very good, the food was delicious and the fellowship was superb. We all look

forward to the Fifteenth Annual Symposium to be held in Manhattan.

Research continues to progress in my laboratory. Brady Steinbock is wrapping up his research project and plans to defend his MS thesis in the Spring semester. Two undergraduate students, Hannah Thomas and Mallory Gibson, are enjoying great success with their research projects and both should have enough data to present their results at National meetings in the near future. We have purchased a new camera for the microscope, along with sophisticated software, that will help bring more quantitative methods to our studies of endocrine control of cell proliferation and differentiation in the uterus. We had a paper published in the *Journal of Endocrinology* this year titled "Wingless (WNT) signaling is a progesterone target for rat uterine stromal cell proliferation". This publication has 5 student co-authors and I am especially proud of the quality research that students accomplish at PSU.

Alexandra (Ali) Blanchard took a trip to Viet Nam this semester with a group of New York Rotarians (page 7, bottom right). Ali was given approximately 600 dental kits to take on her trip. This donation came from Community Health in Pittsburg. This trip exemplifies the community spirit of our students with local businesses and agencies.

Dr. Garner continues to help our students gain experience in a medical setting through the Premeds with Promise program while other PSU graduates (Drs. Cranston, Dunbar, Farris, Fenech, Humble, Neiderklein, Sandness) continue to mentor our premedical students and help them gain admission into medical school. The participation of the local health care providers contributes directly to the success of our pre-health programs.

We are very lucky to have had such an outstanding number of students who chose the Biology Department for their higher education. Please don't hesitate to stop in and visit us when you find yourself in the Pittsburg area. As always, I send you my best wishes for your continued successes.

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PSU participants in the K-INBRE Conference, January 2016.

From Dr. Neal Schmidt



I hope our 2016 newsletter finds you well and looking forward to the holiday season! I have been keeping busy with the Anatomy and Physiology lecture and lab courses this semester and I am teaching a Human Anatomy course for the first time this term. Another upper division class that I am involved with is Immunology lecture and I will continue to assist Drs. Chung and Peak with this course next semester. Hopefully, these upper division courses will provide beneficial educational experiences for our majors in the pre-health and biological sciences and also at the next level in professional school, graduate school, or the workforce.

An opportunity to hone my dissections skills came my way this fall and I went to the University of Utah School of Medicine and I worked with the medical students in their Human Anatomy course. It was a rewarding experience and it afforded me the chance to network with many students and colleagues in the anatomical sciences.

I continue to assist in the healthcare community through the provision of pharmaceutical care and consulting. I have been working in an emerging area called Medication Management Therapy (MTM). During this process, I review patients' charts and I evaluate the indications, cost, effectiveness, adherence, and or side effects of therapy or gaps in therapy and make recommendations, if warranted. I hope to continue in this capacity as new opportunities come my way.

I attended the Human Anatomy and Physiology Society (HAPS) annual meeting in May in Atlanta, GA. I have been serving as Chair of the Safety Committee for this organization for several years. This organization allows me to network with colleagues, learn new approaches to optimize teaching effectiveness, and improve my knowledge base.

My wife Tammy and I are staying busy outside of academia and healthcare as our children, Ben and Olivia, continue to become more involved in various activities. Olivia is eight years old and is involved with gymnastics, dance, basketball, and church youth group. Ben is ten years old and is involved in parkour, soccer, gymnastics, baseball, basketball, Cub Scouts, and the church youth group. Both children attend George Nettles Elementary School in Pittsburg.

Congratulations to all my advisees and other students that have moved on to professional school, graduate school, or the workplace. Thanks to my students and assistants for their solid efforts in my courses over the last year. Keep moving forward and stay the course! As always, I am

grateful for the opportunities to work with our students and biology faculty and appreciate all the support I have received over the past year.

Have a great holiday season!

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From Dr. Neil Snow



G'day Gorillas, near and far.

I volunteered to edit *BioNews*, and thank Dr. Arruda for his work on its behalf for these past several years.

In general, 2016 has been filled with new opportunities for students. For example, I am teaching a new course *Plants and People*, a broad look at how humans use plants. We recently had a botany-themed potluck that was fun.

This year included the second half of the Inaugural academic year of the Natural History Collections Curation Club (NHC3) at PSU. I organized a trip for approximately two dozen students and associated faculty from PSU, Arkansas State, and Missouri State University for behind-the-scenes tours of the St Louis Zoo and Missouri Botanical Garden Herbarium ("MO"). Our public service project at MO was resorting 25 large boxes of plant specimens to their various genera. The boxes had been returned from loans to other institutions but had not been refilled yet. Our group saved MO's staff at least a week's worth of effort.

I had five papers published on the systematics of the Myrtle family, including the description of 8 new species of *Eugenia* (mostly) in New Caledonia and Madagascar. The decidedly international flavor to the research collectively involved 8 coauthors from the U.K., New Zealand, the Netherlands, Switzerland, France, New Caledonia, and Mauritius. PSU graduate student Sam Young coauthored one of the papers. Another paper was submitted to the *American Journal of Botany*, with MS student Gary Sur from the University of Hawaii-Hilo as the lead author.

I presented a poster at BOTANY 2016 in Savanna, and was an invited speaker at the Society of Herbarium Curators (also in Savanna). The poster and presentation each focused on the value of Reference Collections in herbaria and how they enhance teaching, outreach, and research.

I continued as book and media review editor of *Systematic Botany* (American Society of Plant Taxonomists) and began a 4-year term as Associate Editor in January.

Outreach included teaching two 7th grade lectures on general botany and two phone interviews from students in a gifted program on Botany as a career choice.

I continue to serve as graduate advisor to Natalia Agostini Schneider for her curatorial research of herpetological collections, and for Samantha Young on her floristics project in southeast Kansas. Both are making excellent progress.

This year Chance Curran (Outstanding Field Biology Student for 2016) collected, identified and databased plants for the Grand River Dam Authority along the Neosho River, west of Commerce and Miami, OK. Working with Sam Young (B.S. 2013) in this endeavor, together they have collected several dozen Ottawa County records and what appear to be a few state records for Oklahoma. We currently are preparing the final report for GRDA.



Chance Curran examining (not visible) a small parasitic plant growing on a tree near the Neosho River, Oklahoma.

As Dr. Smith indicated above, we enjoy meeting alumni returning for a visit. I had a relaxed and extended chat with Collete Fleming, M.D. (Class of '71) and Randy Fitzgerald (Oswego, KS: M.S. '73) during their visit in late September. They reminisced fondly about PSU, which included many classes in old Carney Hall (where Heckert-Wells now stands). They remarked how attractive the campus is – kudos to the PSU landscaping crew – and on how well they had been treated on their visit. The janitors keep our buildings looking great, so thanks to them also!

Speaking with alumni such as these two Gorillas reinforces the importance of our roles as teachers and mentors. I also want to warmly welcome Drs. Brodsky, George, and Whitney. Their expertise will add important new dimensions to our outstanding program. Looking forward to 2017!

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Eugenia plurinervia, a newly described shrub from the northwest coast of New Caledonia. The species is considered "Critically Endangered" based on standards of the International Union for the Conservation of Nature.

From Dr. James Whitney



2016 was an eventful year for me in many ways both professional and personally. We'll start with the professional, and end with the personal.

As 2016 began, I began my first semester as an assistant professor in Biology at Pittsburg State University. During the Spring 2016 semester I taught

Principles of Ecology and Ichthyology. Teaching Ichthyology was especially enjoyable, as we were able to take several field trips throughout the region, including an overnight camping trip in the Ozarks of southern Missouri. On this trip we collected 66 unique fish species from 6 different rivers, which in my opinion was pretty exciting. This trip also included some unexpected excitement when one of our vans got stuck in the sand at our final site, but through the ingenuity of the students and Dr. Jim Triplett, we were able to liberate the van from the sand without too much delay. Field trips were also a major component of Fisheries Management, which I taught for the first time during the Fall 2016 semester. We took several trips to sample fishes (Figure at right), but also took a tour of the Farlington Fish hatchery from PSU Biology alum Dan Mosier. During the Fall semester I also taught Ecology and Environmental Life Sciences. Although teaching all of these classes for the first time was challenging, I fully-enjoyed my first year of teaching at PSU. The Spring 2017 semester looks to be fun but challenging as well, as I will be teaching ELS and Ecology for a 2nd and 3rd time respectively, but will also be offering 2 classes for the first time, including Biometry and Research in Stream Fish Ecology.

In terms of research, 2016 was a balance of finishing up projects from my PhD and postdoctoral work while also trying to get new projects off the ground at PSU. As part of finishing my PhD work, I traveled to Manhattan, KS in February to present an oral presentation at a joint meeting of the Kansas and Nebraska Chapters of the American Fisheries Society. Ongoing work associated with my PhD project also took me to the University of Kansas in March to use the Plasma Analytical Laboratory for an otolith microchemistry project, and to the Gila River of southwestern New Mexico in October to help with ongoing monitoring of aquatic communities recovering from past wildfire and flood disturbances. Finishing the obligations of my postdoctoral work took me to the other Pittsburg (aka Pittsburgh, PA) in March for an oral presentation at the North American Wildlife and Natural Resources Conference, and then to Washington DC in June for a special briefing to congressional staff on the effects of climate change on inland fish in the United States (see figure, top of p. 12). In between finishing up work from previous projects, I also found some time during the summer to generate ideas for research projects at PSU. The effect of climate change on fish distributions

in the Spring River Basin of Missouri, Kansas, and Oklahoma is among these projects, the preliminary findings of which I will be presenting at the Kansas Natural Resources Conference in Wichita, KS in January 2017. As my PhD and postdoctoral projects reach completion, I hope to devote more time to developing my research program at PSU in 2017.

I consider 2016 the year I truly became an adult, based on the fact that in 2016 I did several adult things, including starting a permanent job in January, acquiring a mortgage in May, and my wife Megan and I welcoming our first born, Audrey Blaine Whitney, to the world on August 4th at 2:16 AM. Audrey has been a lot of fun, and we look forward to watching her grow in 2017. In between all this adult stuff, my wife and I were able to travel to Oak Ridge, TN to visit friends in June, which is also included a tour of the Smoky Mountains National Park.



Jacob Barnes, Derek Scholes, and Sterling May contemplate the fishes they just captured on a Fisheries Management field trip to Limestone Creek, Crawford County, KS on 28 October 2016

In conclusion, 2016 was an exciting year with a lot of new beginnings. Here's to hoping 2017 is just as good.

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Dr. Snow speaking with a potential PSU student at Rumble in the Jungle, discussing various focal areas in Biology.

Photo Gallery, 2016

From Dr. Daniel Zurek



Hello everybody!

It's been a few years since I contributed to the newsletter. I am still alive and still at Pitt (if those aren't contradictions in terms), doing the single parent gig during the school year, with my son Hadrian in 2nd grade and

my daughter Avery (who just turned 6) starting kindergarten this year at George Nettles, where they're both doing great!

I have some new faces to join the previous folks in the lab! Gage Davies is continuing his and Jayden Bowen's work on the antibiotic project, assessing mammalian toxicity. Jayden Bowen has since moved out to the East Coast, where he is working for a government agency. (I could tell you the initials, but then I'd have to kill you. OK, it's the NIH, just kidding).

Zach Denton started this fall, working on constructs to transform soybeans and hopefully make them charcoal rot resistant.

My former graduate student, Grace Anderson (now in optometry school, yay Gracie!) tested our first batch of plants and found out that the contractor who had promised to provide us with soybeans that had our gene construct in it had not in fact succeeded...so back to the drawing board. We will see what happens: there is always the possibility in these projects that what we are doing will turn out to be lethal to the plants, in which case it's back to square one again. Well so, that's why it's called "re-search".

Oh, and in my copious 'free' time, I am leading another study abroad trip, again to Belize. Since I led the first one nine years ago the program has become a major part of the education of many of our prehealth students, and continues to deliver substantial rewards for them personally and professionally. If any of you former PSU grads who are medical care professionals now want to go, hit me up. Donations of course are always welcome. ;)

That's all for now: I have some children to go tickle, a Cell test to write, then there's this research I need to do...

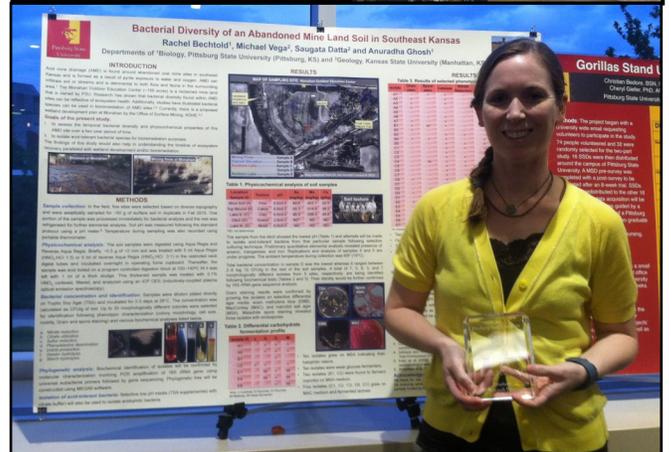
Send me an email to let me know what you are up to, I love to hear from all of you wonderful people who have graced my life here.

I hope this finds you well and happy.

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Top: Dr. Ghosh's Environmental Health class at Pittsburg wastewater treatment plant. Upper middle: Regina Sapp (L) collecting ticks; (R) Megan Peters and Tayita Abudu. Lower middle: Rachel Bechtold with poster and award from PSU Research Colloquium. Bottom: Kirstin Winchester studying insects for her Entomology class.



Left to right: Len Hunt, Abigail Lynch, James Whitney (at lecturn), and Craig Paukert give a briefing to congressional staff on the effects of climate change on inland fish in the United States, 13 June 2016.

Nature Reach – Delia Lister



Nature Reach was busy as usual this last summer. I hired Katie McMurry as my summer intern. She did a fantastic job helping out with animal care, doing a few programs, assisting in our annual Summer Day Camp, and even working in the teaching garden.

Thanks to a generous donor we were able to get a bee hive up and running, and we have had quite the learning curve in dealing with these fascinating creatures. We were pleased to host the Zone 6 Garden Club this summer as well as a teacher workshop (Co-Sponsored with the Kansas Association for Conservation and Environmental Education). We had a total of sixteen 1st-3rd grade summer day campers. I can't say enough how wonderful it is to have a group of kiddos so incredibly excited about learning about science and nature. The campers spent 5 mornings in June digging for potatoes, chasing dragonflies, learning to ID birds, and even making clay models of mammal scat!

We were also generously funded by a grant that helped to cover the cost for programming for local schools. With these funds gave 158 presentations to approximately 4400 students in 20 local communities in Kansas, Missouri, and Oklahoma. These funds also made it possible for professional development and further training for myself. I'm quite proud to say I am an official Certified Interpretive Trainer through the National Association for Interpretation. This certification means I can train students to become Certified Interpretive Guides. With this specialized certificate our students will have a "leg-up" when looking for both seasonal and permanent positions in state and national parks, nature centers, private eco-tour companies and the like.

By far the highlight of my summer was taking 10 partici-

pants (7 students, 2 recent graduates, and 1 community member) to Glacier Bay National Park, Alaska for a "Study Away" trip. The trip was so wonderful I felt it deserved a special article in our newsletter (below). I hope you enjoy it!

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Gorillas in Glacier Bay

No one forgets the moment they first saw the ocean, marveled in the sheer power of the water and tasted the salt in the air. For student Katie McMurry it was an experience that has forever changed her.

"For me, Alaska wasn't just the wildest place I've ever visited, but it was also the most beautiful and diverse. Exploring the tidal pools and following a pod of whales is something classroom ecology courses just can't compete with."

John Muir said, "When we try to pick out anything by itself, we find it hitched to everything else in the Universe".

There is perhaps no better place to witness this than Glacier Bay National Park, Alaska. Students on this trip were engaged in every way possible. No amount of classroom lecture time could compare to the education they received in just a week.

Students most likely will never forget what Devil's Club, a large shrub with nasty spines, and why they should avoid it. They will never forget the taste of handpicked blueberries along the trail or the low thunderous sound of the Margerie Glacier calving into the water.

In the classroom students learn terms and concepts like succession and climate change. However, at Glacier Bay they were able to observe successional changes from the tiniest beach strawberries to the mighty spruce-hemlock forest and everything in between. They were able to see direct evidence for climate change from one of the wildest places on the planet.

They also explored the interface and interdependency between both marine ecosystem and terrestrial ecosystem. They visited and heard from professionals in the field. Upon returning, student Taylor Frazier said "I have witnessed first-hand what my degree can do! I can finally explain to my family what I want to do with my degree!"

Students were connected with people living in the small community of Gustavus just outside the Park, and saw how the native Tlingit survived and thrived off of the land.

Many students noted the difference in the attitude of the people in Alaska compared to other places they had been or lived—they noticed that the residents of Gustavus were more connected to the land and treated it with high regard.

The sense of community in this little town, not connected to any other by a road, was something incredibly special. The required reading for this trip was a book written by Kim Heacox, resident author of Gustavus We were lucky enough to have him join us one evening during the trip.

Sitting around a campfire with guitar in hand, he told stories and even sang a few songs.

If you are wondering how a bunch of PSU Gorillas ended up in Alaska, it is because it took a partnership.

A few years ago I met an enthusiastic PSU Biology alum, Dan Van Leeuwen. He and wife (also a PSU alum), Dr. Sonya Culver, share an appreciation for getting students in the field. They offered to host a group of students at no cost if I could work on logistics and recruiting. Their generosity made a trip that would have cost thousands of dollars down to just \$1700.00. This compares favorably to many study abroad trips, which may be double that amount.

We also were lucky to have some funding by friends of the University cover part of the cost of a planning trip in 2014. This trip was helped overcome logistical hurdles and determine what activities were possible with a group.

So, what happens when you take a bunch of Kansas students to Alaska? Pure magic. As a college instructor, little in my professional career has brought more fulfillment than to witness college students, some of whom have never seen the ocean, start exploring tide pools with child-like enthusiasm—and diving into field guides to find answers to questions raised by said exploration. Watching those joy-filled, teary eyes glued to pods of humpback whales feeding was worth every bit of extra time spent planning and preparing for the trip. Beyond a shadow of a doubt, these students were transformed. They had the time of their lives, and learned by doing—by experiencing.

In the future I hope that others will consider supporting immersive and highly educational trips such as this for our These unforgettable experiences provide our students

opportunities that bring to life what they learn in the classroom throughout their time at PSU. They provide clarity for

future career pathways and help them discover more about themselves than they thought possible. With more programs such as this offered, PSU students will no doubt continue to set themselves apart both academically and as global citizens.

From the Prep Room – Kim Grissom



It's hard to believe another semester is coming to a close, and how quickly time flies by. We said a few goodbyes to faculty and wished them the best as they begin retirement. We have also welcomed a number of new faculty. They are settling in quickly, sharing new ideas and learning some old tricks. It's an exciting time.

Research is in full swing after the brief hiatus during the remodel. I enjoying seeing everyone's enthusiasm working hard to reach their goals. It seems like we have more students than ever. Needless to say, the Prep Lab has been busy again and I'm happy to see the department bustling.

The holiday season is upon us. I hope we all take some time with our friends and families to remember what we are thankful for, to share some time together, exchange gifts, and celebrate new beginnings. Don't forget to get some rest as well, as a new semester is right around the corner.

May you and yours be blessed.

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Glacier Bay National Park.