April 2017 Volume I Issue VI

Environmental Science Newsletter

Allegheny College

Fourth Graders as Scientists

On February 10th and 24th, and March 3rd and 23rd, Allegheny College welcomed fourth graders from local schools to participate Fourth Graders As Scientists Days. The days began with volunteers, comprised of students and staff, leading fourth graders on tours around campus, so that they could see some Allegheny's buildings and gardens. The rest of the day was spent in fun science activities led by community members and professors. The activities included a bird migration game, playing with robots and drones, and a blow-up planetarium. The goal of the program is to get young students excited about science through hands on activities, and inspire continued interest.

Creek Connections Symposium

April 17th, Allegheny's Campus Center was transformed into a science center filled with experiments and research projects designed by students from local schools who are involved in Creek Connections. Creek Connections is a program based on the partnership between Allegheny College and regional schools that is designed to get kids involved in science and the outdoors. This symposia was an opportunity for students to display and present the projects they have been working on, and see what other schools have done. Students also participated in science activities around campus that were led by Allegheny students, professors, and community members. Allegheny students and those from local schools also had the opportunity to talk with environmental organizations about careers and volunteering.

Department News

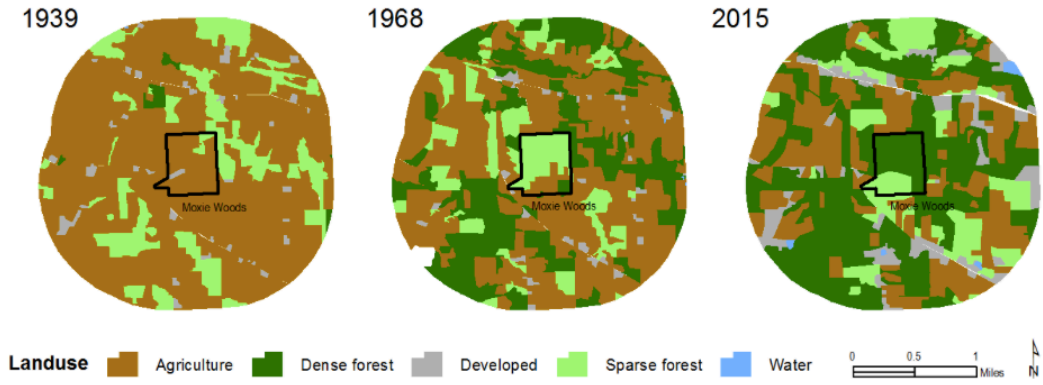
EDUC 510: Farm to School Internship 2 Credits. Contact thinton@allegheny.edu

PHIL 290 Environmental Philosophy will count in the Policy and Culture category

Editor: Brittany Lutheran '19 Staff: Ally Wood '19 & Rene Benoit '20

ES Classes Collaborate to Strengthen Research

As Spring unfolds the semester, various classes within the Environmental Science Department strive together to develop innovative research projects. Students examined the changes and trends, between 1939 and 2015, of landuse/landcover (LULC) and wetland habitats, referencing air photos from the USDA Agricultural Adjustment Agency and the USDA National Agricultural Imagery Program. Students from the *Environmental Remote Sensing* (ES 315) class, "acquired digital aerial photography from multiple time series, used IDRISI software to prepare the data sources for spatial analysis, then assembled a guide to aid in the interpretation of the air photos," reports Professor Shaffer, GIS Manager. ES 315, then, formed mosaics of the air photos to differentiate the changes and trends of Moxie Woods (themes included: agricultural, dense forest, developed, sparse forest, woods and water) and the Erie National Wildlife Refuge (themes included: natural and constructed). The mosaic air photos of Moxie Woods, figure 1, were then observed by the *Forest Ecosystems and Management* (ES 332) class, led by Professor Bowden, where the boundaries and code data were digitized, the total area and percentage of LULC was calculated, and the changes were determined. The mosaic air photos of the Erie National Wildlife Refuge were observed by the *Wetlands* (BIO/ES 346) class, led by Professor Wissinger, where the boundaries and code data were digitized, the total area of the wetlands was calculated, and the changes were determined. The results from the LULC analysis show a drastic transition from agricultural land to forests within a 1-mile radius of Moxie Woods, "due to changing views related to land use management practices," reports Professor Shaffer. The results from the wetland analysis show an increase of both constructed and natural wetlands ever since the construction of the Erie National Wildlife Refuge in 1959. Together, the collaborated analyses highlight how nature preserves inspire better management practices. The results provide hope for forest and wetland growth in our communities, and the power of teamwork within the Environmental Science Department.



Moxie Woods - Figure 1

Interview with Alum Jared Balik ’16

Jared is currently studying at North Carolina State University where he is pursing his PhD in ecology and evolutionary biology. He considers himself an aquatic ecologist and biogeochemist. The goal of his dissertation is to study the impacts of climate change on the progression of nutrient dynamics in headwater streams, in order to understand and predict how these ecosystems are changing in their ability to uptake and retain nutrients. When asked about what his favorite thing is about graduate school is, he had this to say, “Grad school is demanding and challenging, but it is equally fulfilling and rewarding because I spend my time thinking and learning about things that I'm very passionate about. So, I guess my *favorite* thing about grad school is that I find my project interesting and fun. To that end, my advisor and I have great chemistry, and I get to spend my summers working on stupendously beautiful rivers at the Rocky Mountain Biological Laboratory in Colorado.” After graduate school, “I'd like to get a post-doctoral researcher position to diversify my training, and afterwards I'd ultimately like to establish my own undergraduate-focused research program at a liberal arts college. My mentors at Allegheny are among the most important and influential people in my life, and I find myself motivated to ‘pay it forward’ when I become a professor. I also believe that scientists should take an active role in disseminating the results and implications of their research, so I want to incorporate lots of outreach and citizen science components to my research program.”

Jared had this to say about his time at Allegheny that helped to prepare him for graduate school, “I sought out research experience early; I did my first 4 credit independent study in the fall of my sophomore year. That semester I also wrote a research proposal and received the Beckman Scholar fellowship/grant, which funded two summers of independent research at the Rocky Mountain Biological Laboratory. That project became my senior thesis, which I'm working on publishing. That kind of can-do and self-starting mindset is important, but at the end of the day, I am on this career path because I made strong connections with ES and Biology faculty.” He also added in this advice to current students, “Talk with your professors and find out what they do and see if you can find a way to help out. Be an RA or TA. Any and all experiences are valuable, and you never know where those connections might lead. My secondary piece of advice is to read broadly (scientific literature, environmental literature, news, etc) and never stop asking questions.” His favorite thing about Allegheny was the community and stated that he misses it!