

## Department Chair Dr. Christopher Norment

The Department of Environmental Science and Biology was founded in 2002. At the time, there were three tenured faculty in the department and about 40 undergraduate environmental science majors in four concentrations. The department had no graduate program of its own and, instead, shared one with the Department of Biology. Since then, the department and its programs have grown tremendously; now we have 120 undergraduate majors in six concentrations, including the newer wetland ecology and combined aquatic/terrestrial tracks. There also are over thirty graduate students in two programs, the “regular” MS in Environmental Science and Biology, and the combined BS/MS program. Finally, to teach all of these students and run the active research labs that provide environmental science students with hands-on opportunities for professional development, and the larger community with important scientific knowledge, we now have a larger crew of tenured or tenure-track faculty (six), adjuncts (three or four), and staff (three). Of the original ES&B faculty, only Drs. Haynes and Norment remain, as does our department secretary, Ms. Dilker, and Mr. Ted Lewis, a former scientist with the Research Foundation. Most everyone else is new—and there will be further changes in the coming years, as some older professors retire and other, younger assistant professors take their place.

One reason that I am thinking back over the last 14 years is because this academic year is when the Department of Environmental Science and Biology and its programs are undergoing a Periodic Program Review, or PPR. The PPR process provides the opportunity for evaluating programmatic strengths and weaknesses, reflecting on past achievements, and articulating future directions. To do this, the department relies on input from faculty and staff, undergraduate and graduate students, Brockport administrators, and two outside reviewers—in our case, Drs. Michel Boudrias (University of San Diego) and Dr. Christopher Pennuto (SUNY College at Buffalo)—who will be visiting us on February 8th and 9th. Hopefully, the PPR will help prepare the Department of Environmental Science and Biology to meet the needs of future generations of environmental science students and adapt to the fast-paced changes that now confront higher education.

So, to all of those who read this newsletter—students, faculty and staff, alumni, or interested folks in the large community—let us know how we have done in the past, and what we can do better in the future. Think, too, about how you can help to make the Department of Environmental Science and Biology even more successful and productive than it has been since its founding in 2002. In the meantime, enjoy your work and the coming of spring.

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## Dr. Clay Williams, Aquatic Ecology-Biology, Limnologist

Humans have fundamentally altered ecosystems and their elemental cycles. Dr. Williams' research program seeks to understand how human activities drive water quality and the type and amount of detritus (i.e., organic matter) cycled through aquatic ecosystems. His research aims to understand how our ecosystems have changed in response to human disturbances, so that we can restore and manage ecosystem function to best meet human demand and environmental sustainability. Since joining the department in Fall 2015, Dr. Williams has actively sought research opportunities locally and abroad. Dr. Williams will assist Drs. Douglas Wilcox and Kathryn Amatangelo by providing water quality data for their EPA-funded wetlands monitoring program. In addition, Dr. Williams is pursuing grant opportunities to help understand the effects of restoration projects in Lake Ontario's watershed and is exploring collaboration opportunities with the Finger Lakes Institute and citizen science community of New York.

Dr. Williams is currently collaborating with Dr. Helen Baluch (University of Saskatchewan) to understand the impact of natural organic matter levels on drinking water quality and the formation of disinfection by-products. The goal is to help water treatment plant officers manage their reservoir (Buffalo Pound) and treatment process to provide the best water resource for southern Saskatchewan residents. Dr. Williams is also collaborating with Drs. Mark McCarthy (Wright State University), Silvia Newell (Wright State University), and Peter Lavrentyev (University of Akron) to determine how nitrogen and organic matter cycles promote harmful cyanobacterial blooms in Lake Erie. These collaborations will generate pilot data that will be used in research grant applications and scientific papers. Dr. Williams is looking forward to a rewarding research program at Brockport and is currently seeking undergraduate students to help with these projects.



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## Environmental Science and Biology student news and updates

### Audrey Payne, BS '07

After spending the last three and a half years as a film publicist at an entertainment communications firm in Washington, DC, Audrey has started a new job with the World Wildlife Fund (WWF) as a Specialist, Media & External Affairs. Audrey's main priority will be to support the Oceans Department via media relations.

### Cassandra Inzerillo, BS '13

After graduation, Cassandra enrolled in the School of Professional Horticulture at the New York Botanical Garden in Bronx, New York. Cassandra is learning botanical ID of over 1,000 plants common to the Northeast. Cassandra is also taking classes in botany, landscape design, graphics, soil sciences, herbarium preparation, and more. She plans to combine her passion of environmental science and horticulture to practice and teach about sustainable and organic growing—better for the environment, local ecology, and human population



### Kevin Berend (MS in progress)

Kevin is currently in the process of writing grants and permit applications to support his thesis ecology of alpine snowbed communities of Mt. Washington, New Hampshire and how this affects community composition. Kevin is also working with Dr. Kathryn Amatangelo in developing a project looking at genetic uniqueness of herbaceous alpine plant populations compared to the same species found elsewhere.

### Steven Hart, Taylor Listowski, and Evan Woods (BS in progress)

Steven, Taylor, and Evan conducted an independent research project for Dr. Christopher Norment in the fall of 2015. Their study examined the red-backed salamander (*Plethodon cinereus*), which occurs in striped (red-back) and lead (gray) morphs. These morphs have adapted to different temperature regimes, with lead preferring warmer temperatures. They studied changes in morph frequency in three populations in central New York with historical records dating from the 1920s and 1930s. In 2015, they resampled these sites to determine if changes in morph frequencies had occurred and also examined long-term data sets from two additional local *P. cinereus* populations. Only one of the three sites had a significantly greater proportion of lead morph salamanders in 2015 than in 1929. The high variability in morph ratios among local populations with similar climates implies that temperature may not be the only factor affecting morph frequencies. In the red-backed salamander, other conditions that may affect morph frequencies include forest community type and soil pH. Although results of their study are equivocal, they demonstrate the importance of long-term data sets for understanding the effect of climate change on the ecology and distribution of organisms.

### Edward Wesolowski (BS '10)

Edward is employed by Erie County Sewer as Laboratory Technician—Environmental Chemistry



## Wetland Science Team Receives Grant

Andie Graham, Eli Polzer, and Brad Mudrzynski, under the direction of Dr. Douglas A. Wilcox, received a \$94,000 grant from the National Fish and Wildlife Foundation's "Sustain Our Great Lakes" (SOGL) program to restore a lake-connected fen located in the Rochester Embayment. The fen has been overrun with invasive cattails (*Typha angustifolia* and *Typha x glauca*), and the team will oversee a crew of undergraduate technicians to remove both living and dead cattail biomass. Upon completion, the uninvaded fen will be 25 times larger in size and will allow for short-statured fen species, such as sphagnum moss, cottongrass (*Eriophorum* spp.), and cranberry (*Vaccinium* spp.) to receive full sunlight that previously was robbed by cattails.

The restoration will begin in winter/spring of 2016 and will involve at least four paid undergraduate students. "I look forward to not only improving this rare and unique habitat, but also getting many undergraduate students involved in the process. This will be a great opportunity and learning experience for them," said Andie Graham, Instructional Support Associate with the department. The restoration crew will continue its work throughout the summer of 2016 and will resume in spring of 2017. By that time, the team will have removed living and accumulated dead cattails from 10.5 acres of fen.

The team is also performing some research in addition to the restoration that was funded through SOGL. Most notably, the team paired up with an outside expert, Dr. Bob Booth from Lehigh University, to perform a paleoecology study on the fen to determine its age and what plant species occurred there historically. Graduate student Eli Polzer is excited about this opportunity and says, "Pairing this kind of historical data with data from current floristic assessments will allow us to ascertain the dynamics that have created and sustained this habitat."

The team is not alone and will be working with Ducks Unlimited collaboratively. Research scientist Brad Mudrzynski says "We look forward to the challenges of running this restoration project, but we will be relying on our partner, Ducks Unlimited, quite a bit. Our long-standing relationship has been mutually beneficial and will allow us to specialize in project management tasks that will give us the best opportunity to fix the habitat."



The wetland

team collecting a peat core for paleoecological work

