

# Botany & Conservation

A newsletter for alumni of Botany and Biological Aspects of Conservation • Spring/Summer 2014



Some of the class at Torres del Paine



A lichen sample plot

## Ten students travel to “the end of the world” to study plant diversity & conservation

Southern Chile was the January 2014 destination for ten UW undergraduates, led by Botany professors Linda Graham and Joy Zedler. Students fulfilled both dreams and educational objectives, thanks to our Chilean host, Dr. Patricia Arancibia (PhD 1994) at the Universidad del Bío-Bío in Chillán, and to a generous, anonymous donor who provided financial support.

Torres del Paine is Chile’s most-visited national park, but most people don’t spend their time counting plant species. However, Leah Dittberner, Axel Adams, Karen Hill, Hannah Lee, Martin Feehan, Zac Alexander, Alyssa Studer, and Andy Muench did just that. They documented diverse vegetation along the edges of shallow wetlands within the Patagonian steppe. Nicolas Galleguillos, who just received his master’s degree in Botany

under Joy Zedler’s supervision and was formerly a guide at this park, facilitated sampling and plant identification.

The area is also a global hotspot for moss and lichen diversity, which attracted lichen expert Marie Trest (Botany staff) to help Rachel Keuler and Nat Shay photograph 48 mini-plots with lichens on the south vs. north sides of beech tree trunks. Back at the UW, the class used the photos to quantify species richness and cover.

During the trip, the students experienced the ecology of Patagonia that they had been read so much about. They viewed orchids, alstroemerias, and southern beech trees in the wild, walked among penguins and guanacos, and were watched by Darwin’s rheas. They even encountered one puma! Afterwards, one student expressed the group’s sentiment: “This trip changed not only my outlook

on the biodiversity and conservation in Chile, but also my outlook on interpreting environmental observations...” Urged by the donor to “pass on the giving,” the class is writing up their field research experiences to help Chilean conservationists protect native plants, while encouraging ecotourism.

### Upcoming field trips

Field courses are beyond the means of many students, but a generous donation has made it possible for us to subsidize costs for several courses. We look forward to updating you on Tom Givnish’s “Hawaiian Ecology and Evolutionary Biology” class this summer and Don Waller’s “Tropical & Midwest Agriculture & Conservation” course to Guatemala in January 2015.



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Botany: [botany.wisc.edu](http://botany.wisc.edu) BAC: [bacmajor.ls.wisc.edu](http://bacmajor.ls.wisc.edu)

### Super-resolution microscopy to debut in Botany's Newcomb Imaging Center

Coming this summer to the Newcomb Imaging Center (NIC) in Birge Hall is a new Zeiss state-of-the-art light microscope, called the Elyra PS.1 system. Just as the development of electron microscopy and sample preparation techniques decades ago allowed Botany Department emeritus faculty Eldon Newcomb to capture some of the most beautiful and enduring images of the ultrastructure of plant cells, recent advances in imaging technology have greatly enhanced our ability to visualize subcellular features using light microscopy. The new microscope will enable a greater level of detail and speed for

catching a record of dynamic processes in living cells.

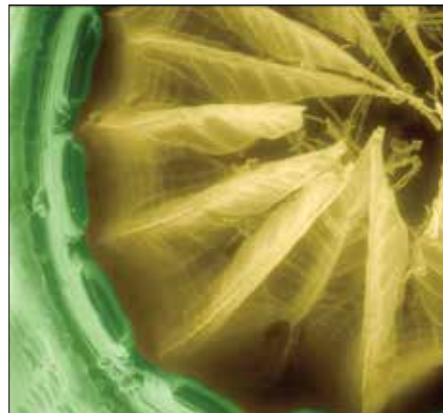
Experiments already lined up for our new Zeiss Elyra system range from the investigation of cellular membrane form and function (Otegui Lab) to the measurement of signals which are generated and transmitted throughout the plant as it grows and adapts (Gilroy Lab). The localization of structures inside a single cell in space and time will be much more precise thanks to the machine's cutting-edge optics coupled with its advanced computer-based image processing. When using this super-resolution capability of the new microscope it will be possible

to observe structures smaller than the wavelength of visible light, usually the limit of resolution for light microscopes. This microscope will be the first of its kind on the UW-Madison campus and will be used by not only Botany faculty, post-docs, and students but also by life science researchers campus-wide.

Purchase of the Elyra system was made possible by a generous donation to Botany's Theophrastus Fund along with funding from many other departments and units across the UW-Madison campus. For more information about the new microscope, please see: [botany.wisc.edu/NIC/elyra.html](http://botany.wisc.edu/NIC/elyra.html).

#### Miss the Botany Crossword?

Visit the UW-Botany alumni web page for a challenging new puzzle.



#### Another Cool Science Image winner!

Botany continues to take honors at the Cool Science Image contest. This environmental scanning electron microscope image of a moss capsule was taken by Madison College intern Angie Derr as part of a project to produce an archive of instructional images. This effort is a collaboration between the Department of Botany's Newcomb Imaging Center and the Electron Microscopy Program at Madison College.

This newsletter is published by the Department of Botany at the University of Wisconsin-Madison for alumni, colleagues and friends. Editorial team: David Baum, Anna Berberet, Sarah Friedrich, Andrea Herr-Turoff, Cheryl Rezabek, and Kirsten Walters.

Submissions are welcome. Please send comments, ideas and photos to:

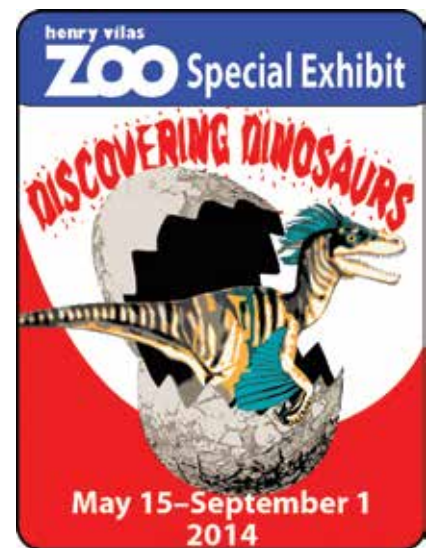
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#### Kandis Elliot goes prehistoric

Kandis Elliot, Botany's Senior Artist Emerita, has retired but not left. She is currently working at Birge Hall on plates for Ted Cochran's *Podandrogyne* opus. Moreover, she has also moved into the Zoological Museum in Noland Hall and has established a small studio there, where she volunteers as Artist-on-Hand. Currently the Museum and Kandis are working with the Henry Vilas Zoo on a special summer display about dinosaurs. This exhibit, featuring models, skeletons, and lots of artwork, is aimed at the zoo's grade school visitors, but it includes the latest scientific information on dinosaurs, including their feathers, so everybody will learn something new. The exhibit runs from May 15 through September 1. Bring the kids!





## Letter from the Chair

The annual cycle of academic life accelerates through May towards the swirl of finals and graduation. Graduates in robes trailed by families with cameras surge across campus, taking time to climb into Abe Lincoln's lap outside the windows of Birge or capture a last long glance down Bascom Hill. This year, traditions shifted course as UW convened a combined mass graduation at Camp Randall on a picture perfect Spring Saturday for the undergraduates and MS students (with professional and PhD students retaining their more studied ceremony Friday at the Kohl Center). To connect with our own students, we hosted our first (annual?) reception for Botany and BAC graduates in our lobby. Families were invited, too, making for a chance to meet the "P generation" and bid farewell to those we worked so closely with but may not see again.

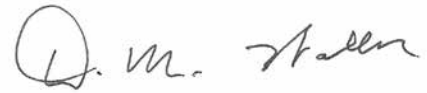
Finishing seniors and graduate students got handshakes, congratulations, and a white pine seedling to go along with their flash-frozen smiles. It seemed a fitting gift, and allowed for a predictable simile about how even as they disperse, grow families, strive to sequester carbon, and gain stature in their field, their roots remain here in Madison.

The crowds and pomp are past now, leaving a stillness as the leaves finish unfolding in this slowest of Springs. Those of us still here sort through the aftermath, seeking to tie up a million loose ends. We look back on a semester that included: dedicating our Newcomb Imaging Center; installing new growth chambers; welcoming Tricia Fry as our new Ecology 460 coordinator and Anna Berberet as our new BAC and Molecular Biology advisor; mounting field courses

to Chile and Hawaii; hiring new IT staff jointly with Math; and watching workmen move out as research moved into Kate McCulloh's new lab. Spring is a season for change. The UW is shifting, too, gaining a new Chancellor and Dean of L&S this year and Provost, Dean of International Studies, and Director of the Arboretum in the coming year. In June we'll say goodbye to Andrea Herr-Turoff, our Graduate Coordinator, and Jerry Davis after 45 years of teaching Botany summer courses.

Stay well, productive, and in touch!

Don Waller, Chair



## BAC welcomes Student Services Coordinator Anna Berberet

Anna Berberet joined the Biological Aspects of Conservation (BAC) major in March 2014 as the undergraduate student services coordinator. After two years working in international education, Anna is thrilled to be working with BAC students as they explore the many academic and professional opportunities available to them both on campus and in the community. Anna's academic background in geography and environmental studies makes her passionate about the BAC curriculum - something she hopes translates into motivating interactions with students. The importance of conservation spans academic and professional fields. If BAC students graduate feeling they've gained an understanding of that importance and the connections across disciplines, Anna will consider the BAC experience a great success!



## Letter from the field: Austin Yantes

I'm currently in Ecuador studying tropical conservation through the Ceiba Tropical Conservation semester program. We have traveled to every corner of the country, from the high Andes to the tropical rainforest to the Galapagos Islands. Along the way I have had the opportunity to visit some of the most unique places on Earth – the kind of places where sea lions will swim within inches of your face, or where you can see four different species of monkey from your front porch.

Unfortunately, this paradise is threatened by deforestation, oil drilling, overfishing, and more. I had learned about these issues in my BAC classes, but

throughout the semester I have been able to see their effects firsthand. This experience has broadened my understanding of global threats to biodiversity, and the conservation challenges faced by developing countries. I look forward to applying my knowledge to my remaining BAC coursework on campus, and I am excited to see what my future as a conservation biologist has in store for me.

*Austin Yantes is a BAC/Spanish double major studying abroad on the Ceiba Tropical Conservation semester program in Quito, Ecuador. She will be a senior in Fall 2014.*



## Meet a Botany major: Erick Fruehling



Botany majors at UW Madison don't mind getting their feet wet! – especially if it means that their research might help to stop the spread of invasive aquatic plants. To fulfill the department's requirement that all seniors complete an independent thesis project, Mr. Erick Fruehling '14 has been working under the supervision of Dr. Ken Cameron, Director of the Herbarium, to complete a series of aquatic plant inventories for three small lakes located in far northern Vilas County, Wisconsin.

During the summer of 2013, Erick was employed by a team of scientists based at the UW's Trout Lake Field

Station who are exploring the potential use of a weevil to control the spread of Eurasian milfoil, one of the greatest threats to freshwater habitats in the Great Lakes Basin. In conjunction with being paid to collect data and gaining valuable experience with methods of sampling aquatic plants at Trout Lake, Erick decided that he would attempt to document the diversity of flowering plant species in nearby Shannon, Shallow, and Frog Lakes. Not only did he sample for deep water, submerged, aquatic species along shore-to-shore transects, but he also wanted to inventory the emergent species closer to shore and the terrestrial plants growing at the water's edge. These important transitional zones are not always considered in such surveys.

Mr. Fruehling transferred to UW-Madison after taking classes locally at Madison Area Technical College, but knew immediately that he wanted to declare Botany as his major. Curiously, his younger sister will be transferring to UW

as well, and has the same strong botanical interests as her big brother. Erick says that he was especially inspired to study organismal botany after taking Plant Systematics and Mycology, and has come to see the value of conducting fieldwork and using historical specimens from the herbarium to document the spread of exotic species. By the end of last summer he made more than 120 collections from approximately 30 different plant families, and found that the native plant diversity of his three study lakes has not yet been diminished by nonindigenous invasives. So impressed by his plant ID skills were staff of the WI DNR and Trout Lake Station, that they have offered him a paid position to return to the northwoods after graduation. Eventually Erick plans to attend graduate school, but feels that a year off continuing to "get his feet wet" will give him a chance to consider alternative career directions working with the scourge of invasive species in the Upper Midwest.

**Answers to plant ID quiz on back cover** (clockwise from top left): *Cornus canadensis* (bunchberry), *Sanguinaria canadensis* (bloodroot), *Mitella diphylla* (twoleaf miterwort), *Mitchella repens* (partridge berry), *Fragaria virginiana* (wild strawberry), *Uvularia sessilifolia* (sessile bellwort), *Linnaea borealis* (twinflower), *Clintonia borealis* (blue-bead lily). Photo credits clockwise from top left: Joshua Meyer, Kandis Elliott, Flickr user BlueRidgeKitties, Joshua Meyer, Claudia Lipke, Jason Hollinger, Brian Gratwicke, Wikipedia user Tango7174



## A key player in the Dimensions of Biodiversity Project: Marian Lea

Botany major Marian Lea has worked at a variety of activities for the Dimensions of Biodiversity Project (see story on p.6) in the Waller lab over the last three years, first as an undergraduate and now as an LTE.

In the summer of 2012, she worked with Daijiang Li during his first season of fieldwork in the pine barrens of west-central Wisconsin. She served as a plant identifier, data taker, driver, and logistics person through long days in hot and buggy conditions. She was critical to the field effort, especially in terms of her expert ID skills, even with sterile plant material.

Marian became crew chief in 2013, which involved implementing a complicated set of protocols to sample plants across multiple populations, taking exacting measurements as well as collecting DNA samples and vouchers.

Meanwhile, she has been working with Bil Alverson and Don Waller on analyzing results from a 20-year experiment on how white-tailed deer affect the growth and survival of young hemlock trees in northern Wisconsin. This was the topic of her senior thesis and she is now developing this into two publications.

After helping to wrap up parts of the Dimensions Project this summer, Marian will head to a master's program at the University of Colorado-Denver in the Fall. We are confident she will excel, and thank her for all her efforts!



## BAC major finds a match with Slow Food: Claire Jones



About the same time I declared my Biological Aspects of Conservation major, I also attended my first Slow Food UW (SFUW) Family Dinner Night, two experiences that shaped my undergraduate experience. With a guarantee of a free meal in exchange for cooking help, I checked out the SFUW Café, fell in love with it, and am now Café director.

Slow Food relates to my major in that it educates our community about the ways to support a food industry that is economically, socially, and environmentally just. The Café creates menus based off of what is available seasonally, in order to support Wisconsin farmers

year-round, and we seek to create a transparent relationship between farmers, cooks, and consumers. These farmer and community relationships not only allow for better land stewardship, but better awareness of how our choices impact our environment.

My classes and SFUW aligned perfectly my sophomore and junior year—I felt I could leave my American Environmental History class understanding why our food system looks the way it does, or my Environmental Conservation course and directly apply lessons of environmental justice to food deserts seen here in Madison.

## Consider helping our Department's people and programs

### Botany Department General Fund (fund # 1216106)

The generosity of our donors allows the Botany Department to help our students, faculty and staff reach their full potential via grants, awards, travel support, internships, guest lectures, and buying critical equipment. Please consider making a donation to via the UW Foundation. See: <http://www.supportuw.org/giving?seq=1254>  
Additional targeted funds are available at: <http://www.botany.wisc.edu/giftgiving/>

### Biological Aspects of Conservation Major Fund (fund # 12168143)

Please join us in our efforts to provide support for important BAC program priorities. Gifts to the Biological Aspects of Conservation Major are used to recognize outstanding BAC undergraduates, support various activities such as research and study abroad, and to sponsor special lectures and other professional development opportunities for students. See: <http://www.supportuw.org/giving?seq=19206>

Online donations at the links provided are easy and secure. Check donations can be made out to the University of Wisconsin Foundation. Please include the fund number on the check.

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# THE CONSERVATION LE

*The landmark ecology studies of John Curtis laid the foundation for a 5-year, NSF-funded "Dimensions of Biodiversity" study led by professors Don Waller, Ken Cameron, Ken Sytsma and Tom Givnish to explore the causes of plant species losses in Wisconsin.*

## The Plant Ecology Laboratory: then and now

John T. Curtis founded the Plant Ecology Laboratory (PEL) at the University of Wisconsin-Madison in the 1940s to investigate the nature of plant communities and how these varied over environmental gradients and among sites. Excellent baseline data for Wisconsin's plant communities exist because Curtis and colleagues conducted surveys of over 2,000 field sites during the 1940s and 1950s. These sites include upland and lowland forests, prairies, savannas, meadows, sand barrens, dunes, fens, and bogs. They devised new techniques to sample and compare plant communities. Their data included species lists, quantitative data on tree sizes and the occurrences of individual species, and in many cases data on soil characteristics and other environmental factors. These surveys provided the basis for the detailed descriptions and analyses of Wisconsin's plant communities contained in a string of MS and PhD theses, and laid the foundation for Curtis's landmark book, *The Vegetation of Wisconsin: An Ordination of Plant Communities*, first published in 1959.

### RePEL: the modern resurveys

Since the 1990s researchers at the University of Wisconsin have relocated and resampled over 500 of the sites originally surveyed by Curtis and his students. Mark Leach and Tom Givnish pioneered this effort by resurveying 54 prairie remnants. Subsequent resampling has focused on upland and lowland forests, cedar glades, and pine barrens. The contemporary RePEL researchers faced challenges, including relocating the original sites, modifying techniques to build on advances in sampling and statistical methods, and ensuring that plant names and species concepts remain congruent across data sets separated by 50-60 years.

Future goals include resurveying additional plant communities (oak savannas, alder thickets, bracken grasslands, fens, etc.). In addition, Charles Umbanhowar, Dan Olsen, and Sarah Johnson have worked to digitize the original PEL data, making them readily accessible to a broad audience. Ultimately, both these and the RePEL data along with appropriate metadata will be posted to the PEL web pages (see [www.botany.wisc.edu/PEL/](http://www.botany.wisc.edu/PEL/)) so both the original and resurvey data will be readily available to the broader research community.



John Curtis at the UW Arboretum. Image courtesy UW Arboretum

## Curtis data provides evidence for climate change

Jeremy Ash, a PhD student working on the Dimensions of Biodiversity project, is exploring how climate change is affecting the distribution and abundance of plants in Wisconsin. He is comparing survey data on forest understory plants collected by John Curtis and his team in the 1950's to contemporary data from those same sites collected by Shannon Wiegmann, Dave Rogers, and others in the 2000s. The figure at right is our first attempt to visualize these changes. It shows shifts in the geographic centroids (weighted centers of distribution within the state) of various species have shifted over the past 50-60 years. Note that about 70% of the 108 species shown here have shifted northward (shown in blue). Centroids for these have moved an average of 66 km in a mean northwestern direction corresponding to the direction some climate variables are shifting. We are studying which of these variables may be related to the shifts in distribution and abundance we have already observed. We are also eager to see how functional traits and phylogenetic relationships among species affect these species-specific responses. Ultimately, of course, we want to predict just how climate change is likely to affect our future forests. Stay tuned.

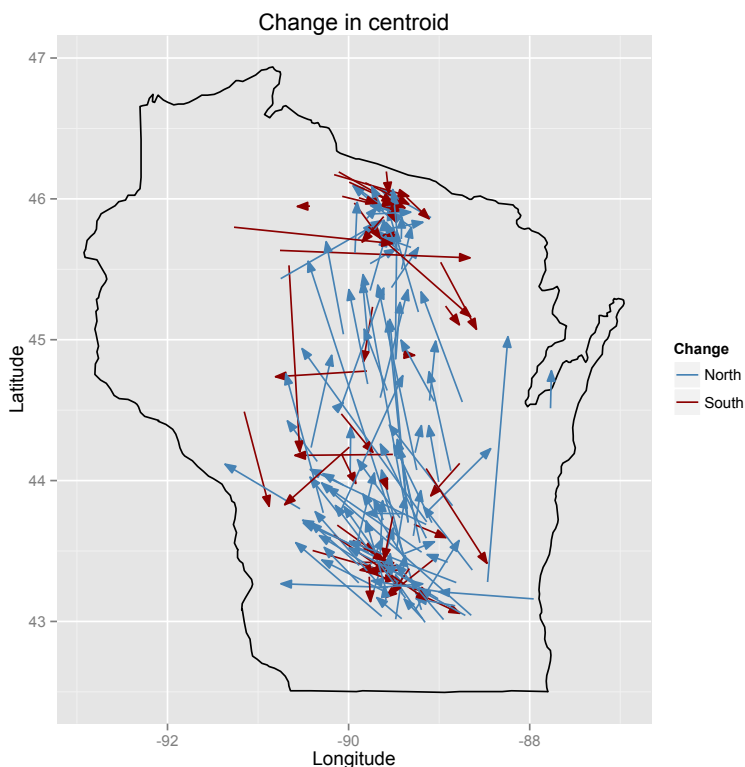


# GACY OF JOHN CURTIS



## Plant systematists use DNA barcodes to generate a molecular phylogeny of the Wisconsin flora

The Badger State is set to be the first in the nation to have genes sequenced from its entire vascular flora. Although it is much less diverse than states such as Florida, Texas or California, Wisconsin is one of the few states that offers local botanists the opportunity to study terrestrial species representing northern coniferous forests, eastern deciduous forests, savannas, and grassland biomes, as well as various freshwater communities distributed across both a historically glaciated and driftless landscape. In total it is estimated that the state harbors at least 2,640 species of vascular plants, of which 1,873 are native and 767 are introduced; there are at least 158 families and 779 genera represented, but the relative genetic distances and evolutionary relationships among these plants is unknown. In order to provide phylogenetic information to ecologists and others interested in studying changes in floristic composition through time (past, present, and future), Drs. Ken Cameron and Ken Sytsma have made considerable progress toward reconstructing the relationships among all species present in the Wisconsin flora as part of the ongoing Dimensions of Biodiversity project being conducted with Drs. Don Waller and Tom Givnish. Genomic DNA has been extracted almost exclusively from existing herbarium specimens held within the Wisconsin State Herbarium (WIS) at the UW-Madison, and two chloroplast gene segments have been sequenced from at least one individual of each species. The challenges of amplifying and sequencing loci from decades old vouchers has been overcome by using primer pairs that target particular plant orders when 'universal' primers fail. The project has allowed nearly a dozen undergraduate and graduate students to be trained in methods of DNA sequencing over the past three years. Remarkably, our phylogenetic reconstructions are well resolved and mostly congruent with known phylogenetic relationships for all vascular plants, in spite of the fact that many angiosperm orders and tropical elements are absent from the local flora. With a nearly complete phylogeny of the Wisconsin flora in hand, we are now ready to document trends, correlations, and patterns of change in genome size, life history, key functional traits, phylogenetic diversity, and other factors across multiple plant communities in the state. The DNA barcode library generated as a by-product of this effort will also prove value for researchers attempting to identify sterile or fragmentary plant samples using modern molecular approaches.



## ALUMNI NEWS

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*Thank you to all the alumni who took the time to send us their updates. Please keep the news coming!*

### BOTANY

Post graduation, **Edward W. Beals (MS 1958, PhD 1961)** had a summer post-doc in Alaska on a joint UW Zoology- Anthropology project, then one year teaching and doing research in Lebanon, and three years in Ethiopia before returning to Wisconsin, first as a Visiting Assistant Professor of Botany, then on the Zoology faculty in Madison. He also had a courtesy appointment in the Botany Department, and half of his graduate students were botany majors. His research took him from the Alaskan tundra to the Colombian rain forests. After 28 years in Wisconsin, he retired, only to teach again in the Environmental Sciences Division at Unity College in Maine for 11 years. He retired again in 2003 and moved to a retirement home in Newberg, OR, where he taught as an Adjunct Professor in Biology at George Fox University. He quit that job at age 80 and is enjoying organ playing and composing, having published many organ compositions over the years.

After **Frederick R. Swan, Jr. (MS 1961)** received his masters, he served in the US Army in Orleans, France from July 1961 to July 1963. He came home on leave in November 1962 and married Patricia Ann Larson of Eau Claire, Wisconsin (BS, Medical Technology, University of Wisconsin, Madison). They celebrated their 50th wedding anniversary last November 24, 2012 and took their two sons and daughters-in-law to Paris and Amboise, France for 10 days.

After a career in medical research, **Cathy McConnell Williams (BS 1963)** has returned to botany. She volunteers at Saguaro National Park by managing their field herbarium and cleaning, cataloging, and storing the seeds that are collected for revegetation projects. Very satisfying!

**Gary Borger (PhD 1971)** graduated with a joint major in Forestry and Botany under Ted Kozlowski and Ray Evert in 1971, and taught at the University of Wisconsin–Marathon Campus from 1971 until 1999. He is currently Emeritus Professor of Botany there. He is also an expert on fly fishing, having taught, written, published books, and produced videos about it since 1972. Currently he is working on a 20 volume series about fly fishing, entitled (surprise) *Fly Fishing, the book series*. The first four volumes are in print, and the fifth will be going to press around the first of the year.

**Erin (Lieg) Woodard (BA 2002)** has been with Rotary International for nearly nine years and has recently accepted a position as a Regional Grants Manager. Her team is responsible for reviewing and approving the Rotary Foundation's humanitarian, scholarship and vocational training grants taking place in Latin America and the Caribbean.

### BIOLOGICAL ASPECTS OF CONSERVATION

**Gary Ackerman (BS 1964)** is retired atop a hill in Guttenberg, Iowa. After graduation, Gary was hired by the Iowa Conservation Commission and over the years worked as a Fishery Research Biologist, eventually being promoted to Regional Fishery Manager in NE Iowa in charge of three trout fisheries. In 1967, Gary moved on to the U.S. Bureau of Commercial Fisheries Missouri River Investigations working as an exploratory fishing gear specialist. He moved back to work in Iowa in 1975 for the Upper Mississippi Regional Fishery working with inter-state and inter-agency coordination of federal and state fishery management activities on the UMR. Gary retired in 1999. Gary does a little woodworking, target shooting, is an orchardist, competitive contract bridge player, and likes to talk a lot!

**Jim Evrard (BS 1964)** joined the Peace Corps and served as a technical advisor to the Peruvian Forestry and Wildlife Service in 1965-66, stationed in Cuzco. He then returned to the U.S. in 1967 and entered graduate school at UW-Madison, earning a MS in Wildlife Ecology in 1969. He began employment with the Wisconsin Department of Natural Resources as a wildlife biologist in 1970 and worked as a wildlife manager and researcher primarily in northern Wisconsin until 2000 when he retired. He also served in the National Park Service for a short time in 1980. Jim lives in Grantsburg with his wife of 46 years. They have two daughters and two grandchildren. He stays active as a volunteer in several wildlife conservation organizations and write a conservation column for the Wisconsin Outdoor News.

Once **Keith Kelling (BS 1966)** graduated, he did 3 years of military duty in the army (mostly in the Panama Canal Zone fortunately), and then came back to graduate school in Soil Science at UW with an MS in 1972 and PhD in 1974. After 3 years of teaching soils classes in the Natural Resources Department at Ball State University, Muncie IN, he joined the faculty in Soil Science at UW-Madison where he continued to work until his retirement in 2004. Keith's appointment here was primarily extension work working in soil fertility with dairy farmers, vegetable producers and the ag industry, although like all UW faculty he did a substantial amount of research and some classroom teaching.

**Daniel Hein (BSE 1974)** started at UW-Madison in 1965. During that time, he was in Vietnam in the Army and returned after service. His degree included BAC, as well as a major in Geology and Botany. John Thompson was Daniel's advisor, and he enjoyed taking courses both from Dr. Thompson and Dr. Hugh Iltis. Daniel had retired in 2008, having been a HS teacher in N. Wisconsin. This past August, he came back to the area and is now living in the country near



Cross Plains. Daniel returned to UW-Madison during the Fall '13-'14 semester using the 'elder student' program. Dan has been taking courses to get back into the intellectual mix. In spring '14 Daniel took Tom Givnish's Ecology course in addition to a GeoSci course, "Evolution of the Earth", an Arts course, and an Intermediate Photography course. It has been wonderful!

**Mark Struve (BA 1974)** is currently the laboratory supervisor for the Medical College of Wisconsin pediatric gastroenterology diagnostic laboratory. What thrills Mark most now is the time he volunteers with the Ice Age Trail Alliance based in Cross Plains. The IATA partners with the WI DNR, National Park Service, local governments, private companies and individuals whose mission is to extend, protect and construct the 1200 mile Ice Age National Scenic Trail as it traces the glacial formations across the state. Mark builds new trail, maintains old trail and educates volunteers and interested persons about the Ice Age Trail. They are always looking for volunteers to help out!

Since leaving Madison, **Dan Urban (BS 1974)** travelled quite a lot, going around the world three times but spending the most time in South Asia. He has settled in Alaska for the last 30 years, working for the Alaska Department of Fish and Game and, currently, for the National Marine Fisheries Service as a Research Marine Biologist. Part of the job includes a summer crab survey to the Bering Sea, i.e. Deadliest Catch. Throughout his travels, Dan says that Madison remains one of his favorite places on the planet.

**Jennifer Turk (BA 1993)** wanted to share one of her favorite memories: "I think it was 1991 or 92 when Dr. Waller and a bunch of students all went to Rockton, WI, to camp at my aunt and uncle's cabin. It was walking distance to the Kickapoo river and we were able to rent canoes from the tavern right down the lane. We canoed the Kickapoo river and found really unique plants growing everywhere in the heart of the driftless

area, as it is truly an ancient river. We camped and had a good time, sat around the fire at night, and didn't even mind the cold and misty weather. Dr. Waller was our leader and guide, and he showed us some great things growing along the river. Good times!"



**Vicki Lynn Ramsay's (BS 1997)** environmental science education was the driving force behind the kind of teaching she wanted to do. Vicki's family settled in the Driftless region in 2005 and she promptly began teaching Botany and Agriculture at Youth Initiative High School in Viroqua, WI. From there she picked up more Biology classes (Human Anatomy, Zoology, Genetics & Biotechnology), then chemistry, and was eventually asked to serve as Science Department Chair. At the same time Vicki began working as an environmental educator for the Kickapoo Valley Reserve. Her second child was born in 2008, and in the summer of 2013 she was hired as the Water Quality Coordinator for Valley Stewardship Network, a non-profit organization who focuses on stewardship of the waters of the Kickapoo Valley and neighboring watersheds. Vicki truly loves all of her jobs. She never took the straight and narrow path through school or beyond, but feels that her life is richer for it in all

the things she loves: good land, healthy soil and water, warm and wonderful community and a loving family.

**Jennifer Gihring (BS 1998)** currently serves as a Project Manager for the St. Johns River Water Management District in Palatka, Florida. Since graduating with a dual-B.S. degree in Biological Aspects of Conservation and Psychology in 1998, Jennifer has worked in various aspects of water resource management, including twelve years as project manager for large-scale watershed management projects that involve water quality, water supply, water policy, land use, endangered species, and regulatory issues. She has worked in the private, public, non-profit, and academic sectors across the country, from the Pacific Northwest to Florida. Given the shared nature of water resources, skills in meeting facilitation, mediation, consensus-based decision-making, public engagement, and project management are also critical components of successful water resource management. Her degrees in BAC and Psychology provided a solid foundation of scientific knowledge necessary to be successful in this line of work. Go Badgers!

Since graduation, **Benjamin Crain (BS 2000)** continued his education in the discipline by completing a M.A. in Biology from Humboldt State University. He has also participated in the Organization for Tropical Studies program in Costa Rica, and will complete his Ph.D. in Biology from the University of Puerto Rico in May. Benjamin has



## ALUMNI NEWS

also had the opportunity to work with a number of conservation organizations including the National Park Service, Olbrich Botanical Gardens, the Shedd Aquarium, the Chicago Academy of Sciences, and the San Francisco Zoo. Currently, he is working with the Caribbean Landscape Conservation Cooperative at the International Institute of Tropical Forestry in Puerto Rico. Through these experiences, Benjamin traveled to Africa, Asia, South America, Central America, Europe, and across the U.S. As a result, he has been fortunate to develop ongoing collaborations with researchers from each of these diverse places. For these reasons, he feels extremely privileged to have had the opportunity to build his foundation at the University of Wisconsin - and he looks forward to visiting campus again soon!



**Michelle Parker (BS 2001)** is the Vice President of Great Lakes and Sustainability for the John G. Shedd Aquarium. She is a board member for

Freshwater Future and has served as the elected Chair of the Aquarium and Zoo Association's Green Scientific Advisory Group. She was also an elected member of the Conservation Alliance for Sustainable Seafood's Steering Committee and the co-lead of the City of Chicago's Green Museums Steering Committee. Before joining the Shedd team, Michelle worked closely with scientists worldwide to develop volunteer-based research expeditions for the international non-profit, Earthwatch Institute. She also spent time with Walt Disney World's Animal Kingdom, New England Aquarium, and Museum of Science-Boston as a conservation educator. Before embarking on her career, Michelle graduated with honors from UW and holds a Masters in Zoology from Miami University of Ohio.

**Mike Skuja (BA 2001)** is a wildlife biologist and geographer by training who first gained an appreciation and awareness for watershed issues through outings with his father and uncle. Since graduation, he has worked on marine policy for the United Nations-World Conservation and Monitoring Centre, sea turtle conservation with the Nature Conservancy, and issues related to pollution, rivers and environmental justice with communities on the West Side of Chicago. Mike started his own non-profit called The Center for Rural Empowerment and the Environment to foster locally-led ideas for sustainable development. This gave him experience connecting directly with stakeholders such as farmers and fishermen dealing with conflict over wetland and coral reef resources. Mike is excited to now be leading Tualatin Riverkeepers because its diverse programmatic focus on environmental protection, social justice, and human health builds on his experiences both in the US and abroad.

**Leah Boyer (BA 2005)** double majored in BAC and Anthropology, with a Certificate in Environmental Studies. She continued her education, obtaining a Masters Degree in Urban and Regional Planning at UC-Irvine in an effort to combine anthropology and conservation biology. She worked as an environmental planner for a consulting firm in Santa Ana after graduating. There she worked on Environmental Impact Reports for various development projects around southern California, ranging from housing developments to commercial shopping centers on old landfills. Leah got tired of pushing paper and now works for a local non-profit that supports the local food movement in Los Angeles called Food Forward. Food Forward "gleans" excess produce that would otherwise be thrown out and donates it to local service agencies. It's a bit of a stretch from conservation biology, and sometimes Leah misses studying trees and plants, but she finds the knowledge she gained from studies at UW-Madison still prove to be very important and rewarding.

Like many in the major, **Christine Molter (BS 2006)** graduated with a BS in Zoology and BAC. She attended veterinary school at UW, graduating in 2011. Currently she lives in San Diego and is completing a residency in Zoological Medicine through UC-Davis, San Diego Zoo Global and Sea World. Christine provides medical care to animals in zoological facilities, including endangered species, in addition to performing clinical and field research. She loved being a student at UW, and feels that her undergraduate studies prepared her for this career that incorporates conservation on a daily basis.

**Ione Machen (BS 2007)** double majored in BAC and Zoology with a certificate from the Nelson Institute, and enjoyed the classes she took in the Botany department. This past fall, she finished up her Master's of Science degree in Nutrition at Teachers College, Columbia University, and will go on to obtain her Registered Dietitian and Nutritionist (RD or RDN) credential next year. She hopes to eventually work in garden-based nutrition education, or another job that combines nutrition and sustainability.



**Corinne Palmer (BS 2008)** currently lives in Milwaukee. After graduating from Madison, she worked as an Environmental Education Instructor at Nature's Classroom Institute in Mukwonago, WI for two years, and



also spent a summer working at the Milwaukee County Zoo in the "Wings From Down Under Exhibit". After that, she bounced around at different jobs (banks, dog daycares, bars) while always volunteering in places she hoped to work (Nature Centers, Humane Societies and the Zoo). Five months ago, Corinne got her dream job working at the Schlitz Audubon Nature Center as a Naturalist. Her advice to people in this major is to volunteer, intern, and network as much as possible while in school and after you graduate. Get to know people in the city who are doing what you want to do. It might take a few years to figure out exactly what you want your career job to be. Experience is important, so if you don't get your dream job right away find a job that will pay the bills but allow you to volunteer, travel, or intern continuing to do what you love.



Laura Patrick

**Laura Patrick (BS 2008)** started her career after graduation by working for the UW Madison limnology dept, where she was a head technician for the Cascade Project. The project involved a whole-lake experiment, and the results were - and continue to be - published in many journals, including Science. One of the most pivotal experiences in her life, spending summers in the northwoods of Wisconsin for four field seasons, helped her to come out of her shell, love who she was becoming, and deepened her interest in the natural world. Laura worked with the Cascade Project until 2010 and will be

soon starting as a technician in a "crab lab" at the Smithsonian Environmental Research Center. In addition to being a BAC major, Laura also majored in Art. Art has continued to be a huge part of her life, and her relationship with our natural world continues to be an influence. Laura writes several blogs on a wide range of issues. In general, she tries to live her life by being good to herself, others, and the earth.

**Adam Choe (BS 2010)** currently lives in Minneapolis. He has held a number of positions since graduation, and currently works at St. Jude Medical as a Product Surveillance Analyst. He loved the courses offered in the BAC degree and, while they don't apply to his everyday duties these days, the values of conservation will always be with him.

After graduating, **Casey Sweeney (BA 2012)** spent 11 months in Mexico working with the organization Sarar Transformación helping to increase access to water and sanitation in 6 public middle schools. The schools represented a combined population of over 3,000 so involvement and education was difficult. However, this led to large results. One of the project's greatest successes was moving the schools towards water independence by improving water quality and hygiene through installing rainwater harvesting, filtration, and purification systems. Hand-washing stations were also installed to promote healthy behaviors. After his time with Sarar Transformación Casey returned to the United States, travelling to eight states to encourage others to pursue international service. He currently resides in Green Lake, Wisconsin.

**Calli Thompson (BS 2012)** took an intern position shortly after graduation on Sanibel Island, FL, working with the Native Plant Nursery of the Sanibel-Captiva Conservation Foundation. After learning much about island ecology, native Floridian plants, and dune restoration, Calli accepted an AmeriCorps position across country in California. She is currently working for Our City

Forest, an urban forestry non-profit, in San Jose, CA. After finishing up their fruit tree distribution program, Calli is continuing to work with San Jose residents to provide them with affordable and diverse street and yard trees. Calli will have the opportunity to travel to Hawaii this June to stay with a friend she made while studying abroad in Costa Rica during her undergraduate years at UW. This coming year will bring lots of changes and new adventures and she cannot wait!

**Kimberly Kelly (BS 2013)** double majored in Zoology and BAC. She lives in Madison where she is currently working on a Master's degree in Zoology, studying population genetics of two birds in Australia, the Black-eared Miner and the Yellow-throated Miner. She has taken one trip to Victoria, Australia, and just received a grant from the Zoology department for an additional trip to Australia for field work this summer! She is working through her degree as a teaching assistant for introductory biology 151/152, and hopes to teach ornithology next spring. Below is a picture from her travels to Australia.



Kimberly Kelly





Linda Graham

Nat Shay and Marie Trest document a lichen plot in Patagonia. (story on front page)



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Madison, WI

## Declining Wisconsin herbs

How many of these vanishing natives can you identify? Answers on page 4.

