



UPSTREAM

News from Itasca Biological Station and Laboratories



The research bug

I fell in love with Itasca and field research as an undergraduate. I returned this summer as a graduate student to study Giant Water Bugs.

By Tanner Mierow

As the bus full of incoming CBS first-year students turned onto Wilderness Loop, my heart began to pound. Thoughts raced through my head about what I was going to experience the next few days at my Nature of Life session at Itasca Biological Station and Laboratories. Unsure of what I was getting myself into, my anxiety began to creep in and I started to feel panic. Just when my worries began peaking, the station came into view accompanied by the sound of a loud blast from a horn heralding our arrival.

Surrounded by the flora and fauna of the northwoods, the surreal image of the station resting on the shore of Lake Itasca calmed any worries I had about my next three days there back in 2018. During my experience at Itasca as a first-

year student, I discovered my love for ecology and working in the field. The passion I developed for field ecology and animal interactions would lead me to return to the station three more times: once as a Nature of Life peer mentor, once as a field biology student and, most recently, as a graduate student researcher.

My research journey at the station began when my colleague and mentor Dr. Kate Feller first encountered giant water bugs when she was guest lecturing at Itasca for an animal behavior class. I met Dr. Feller when she was a postdoctoral research associate at University of Minnesota and I was an undergrad working in Dr. Paloma Gonzalez Bellido's lab. Dr. Feller brought up the idea of working on the giant water bugs and their prey selection behaviors.

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DIRECTOR'S MESSAGE

A sense of purpose

Greetings from Itasca station!

I hope this note from the North finds you well. We had another busy summer, with over 7,000 overnight users. Dr. Emily Schilling joined the staff as Associate Director, we got our seasonal staffing slots filled with awesome local hires, and a new Station Scientist, Victoria Simons, is on her way from Colorado! As our Facilities Lead Eric Sather would say, “We’re getting there.”

For this edition of *Upstream*, we particularly want to highlight this year’s five donor-supported Itasca graduate student research Fellows. These students, including Tanner Mierow whose work is highlighted here, push our place-based mission forward. They widen our circle of scientists. Their professionalism as field scientists demonstrates a sense of purpose, and this helps shape our station culture. They also share their knowledge while in residence, opening our eyes to what is around us while we support what they need to succeed. This makes us proud, and we know it brings joy as donors play an active role as these early career scientists gain traction.

Enjoy reading *Upstream*. — Jonathan Schilling

Connecting with community

Visiting scientists and station staff introduce Itasca State Park visitors to research and natural history.



Photo credit: MN DNR

Itasca Biological Station and Laboratories’ location within Itasca State Park provides obvious and unique potential for science communication with the public. We regularly give station tours, providing the public a “behind-the-scenes” look at what it’s like for researchers and students to live and study here. We work closely with park naturalists on our joint “Nature of Science” program to offer scientist-led outreach events. Five different scientists participated this year. Some led interpretive walks or demonstrations, and others gave talks about their field research. All found ways to approachably communicate their research to a range of visitors, from local school kids to travelers from overseas. One of our station interns, Madie Cloutier, set up weekly “Nature Carts” at the Headwaters, providing an informal opportunity to share information with park visitors about the types of research efforts and courses that go on at the station. We ended the season with a very well-attended fall hike out to Bear Paw Point, co-led by Associate Director Emily Schilling and Park Naturalist Sandra Lichter (pictured above). Fifty-three participants learned about the area’s natural history and long-term research efforts at the station, including our breeding bird surveys. Locals, in particular, love this opportunity to get a peek at the station and walk out to the end of the point, an area that is normally closed off to the public. Our goal with each of these programs is for park visitors, hailing from nearby communities and far off places, to interact with field scientists as professionals and as real people, building trust in science by offering connections with scientists and their work.

Interested in supporting IBSL? Learn more about the Itasca Improvements Fund and the Itasca Director’s Scholarship.

cbs.umn.edu/itasca/about-station/support-our-work



Merlins in the mix

Merlins (*Falco columbarius*) are smaller cousins of the Peregrine Falcon and are similarly expert predators, especially of small birds. This year a family of Merlins decided to nest in a pine right over the dining hall at Itasca. After fledging in mid-July, the trio of young birds continued to hang around the nest area, following their parents from tree to tree and screaming to be fed (perhaps to the chagrin of some trying to sleep in nearby cabins). Here the trio of juveniles (recognizable by the pale fringes on their feathers) hang out together in their nest tree. — Anya Auerbach

Anya Auerbach is a graduate student in Ecology, Evolution and Behavior who studies diversification of bird species.



**College of Biological Sciences
Dean Saara J. DeWalt made her
first visit to IBSL in September!**

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Update and invite

IBSL Booster Club members
share their enthusiasm for Itasca

The IBSL Booster Club has been busy! This summer, we recruited 20 more students and two new officers to join our club, which is now 47 members strong. Our group promotes Itasca's educational programming and hosts events that allow field biology alumni to stay connected. This summer we volunteered at IBSL's Minnesota State Fair booth, where more than 750 fairgoers experienced life as a field biologist, guessing bird calls, identifying fungi and matching scientific names to mammal specimens. Later in September, we were invited to attend the alumni-donor weekend at the station. We enjoyed wonderful fall weather while getting to know alums with a connection to the station as we took nature walks, rode on the pontoon, and shared s'mores around the bonfire together. Finally, the booster club represented IBSL in the Homecoming parade! We had a ton of fun driving a truck with Itasca banners and handing out candy (from fish nets, naturally). Later this fall, we will visit classes on campus to start recruiting for field biology courses and host other events for members. — Jessica Jahn

Contact us at ibslboosters@gmail.com to join our mailing list and hear what we're up to!

Upstream Fall 2023

CONTRIBUTING EDITORS Jonathan Schilling, Emily Schilling

CONTRIBUTORS Anya Auerbach, Tanner Mierow, Adara Taylor, Stephanie Xenos

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A Familiar New Face

The station's new associate director brings a background in biology and a passion for field education and research, and public engagement to the role.

Though she stepped into the role of associate director just before field biology courses started last spring, Emily Schilling is no stranger to Itasca Biological Station and Laboratories. She's been spending summers at IBSL for the past six years along with her partner Director Jonathan Schilling. She exchanged her position as a biology professor at Augsburg University for the role after emerging as the top candidate following a national search. She worked part time running field biology courses during the summer for the past several years, as well. Itasca is also a great fit for her research interests in aquatic ecology.

What's something unique about your role that you enjoy?

Field station jobs are akin to being a human Swiss army knife. To be successful you have to have a lot of tools and skills at your fingertips. I really enjoy the wide range of things that I think about and work on in a given week: mentoring students, curricular work, facilities and budgetary management, engaging with the public alongside state park naturalists, getting my hands dirty in the field. There is also a really interesting phenology to the job - with summer being the season of high contact and engagement with students and faculty from across the college and beyond and the academic year focusing on laying the groundwork for the year to come.

Is there a project you're looking forward to over the next year?

We are developing a program that will bring together scientists and craftspeople/artists in a workshop format: no course designator, no credits, no grades. Science is central to the theme, but these workshops will branch out into a more interdisciplinary space. It will be like a science-based folk school. We have some awesome CBS faculty who are interested in helping us launch this program next summer.

What are some of the ways you see programs or efforts at Itasca growing or changing in the next few years?

I expect to see growth in our field biology session, adding more courses that are regularly offered and expanding our enrollments. This will be enabled, in part, by the curricular work that we are doing to make sure our courses are embedded in majors and the work we are doing to remove barriers that prevent students from enrolling. I also expect that our community engagement work will expand, building on relationships that we have been cultivating with our neighbors to share different ways of knowing and caring for the natural world.

Where's your favorite spot at Itasca and why?

That's a hard question, because the list is long and it depends on the time of year and even the time of day! This is going to sound cliché, but if I had to pick one, it would probably be the headwaters. Specifically, it would be the headwaters early in the morning, late in the evening, or in the heart of winter when no one else is there. I love to stand on the rocks and dip my hand into the flowing water and think about the long journey it is about to



take down to the Gulf of Mexico. If I could pick a second favorite spot, it would be the top of the fire tower on the Wilderness Loop Drive, facing west at sunset. From this vantage point you can see a sea of trees and the Height of Land continental divide, visible proof that we are at the top of the Upper Mississippi River watershed.

Meet the 2023 Interns

IBSL summer interns Madie, Lou and Alex talk about their Itasca experience.

By Adara Taylor

Many CBS faculty and students get to experience the beauty of the station periodically throughout the summer, but few get to experience the behind-the-scenes at the station all season long. We asked Itasca student interns Madie Cloutier, Lou Hoff and Alex Doeblner to share what they love about the station.

What interested you in joining the team?

Madie: I took some field biology classes in the summer of 2021 and it was one of the best undergraduate experiences I had. I was determined to find a way to spend more time at the station! Last year I became the station assistant and fell even more in love with Itasca and the programs that happen there. Now I feel very lucky to be an intern at the station for the second year in a row.

Lou: I was originally interested in joining the team because I really like being at Itasca. The vibes are just really good. Originally I was vying for the station intern position (sorry, Alex), but then Jonathan reached out to me to talk about doing some station history research this summer. I'm a history minor, so when presented with the opportunity to explore that interest at Itasca, I jumped on it.

Alex: I fell in love with the station when I took field bio classes in the summer of 2022!

What's your favorite part of being an intern?

Madie: How do I choose?! The sunsets, meals at the dining hall, great fishing, living inside a state park, always being amongst friends, helping support a mission of research and hands-on learning ... I love it all!

Lou: I think my favorite part of being an intern is the access to nature. Who else can say they lived inside a state park? I also love



From left: Lou Hoff, Alex Doeblner and Madie Cloutier

being around all the other people who are into the outdoors and likely to get distracted in the middle of a conversation by a bird or a plant.

Alex: My favorite part of being an intern is enjoying everything the station and the park has to offer during my down time, whether that's canoeing, hiking, fishing or just exploring the forests.

Any favorite locations around the park?

Madie: Iron Springs Bog is definitely my favorite place. It's such a fascinating and beautiful ecosystem. I really like to walk around and look at all the sundews, mosses, orchids and pitcher plants, and see how many different species of frog I can find!

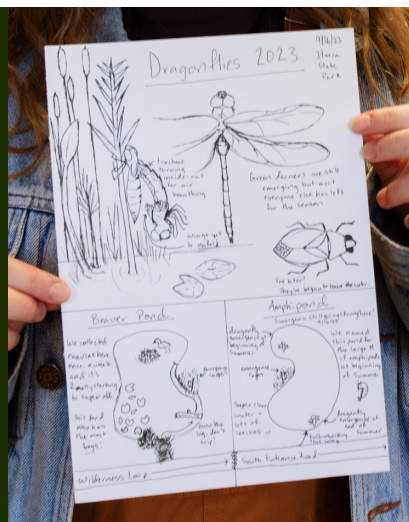
Lou: My favorite place is Iron Corner Lake. It's a more remote lake by the section of the North Country Trail that goes through the park. One of my favorite activities is hiking by myself and I found that lake completely on accident one day. It was so peaceful and it was there I realized why people love the Northwoods so much.

Alex: The fire tower has an incredible view for miles and miles, and is relatively close to the station, but my favorite location in the park is Hernando Desoto Lake in the southern edge of the park. The lake is only accessible by hike or by portaging a canoe, but fishing it is like a dream come true.

Dragonflies for the win!

For Lou, it's fungi. For Alex, ecological interactions. For Madie, dragonflies take the prize as most interesting subject for research at Itasca. She even created a nature journal page to document their awesomeness.

Itasca has an abundant and diverse dragonfly population that attracts many different kinds of dragonfly researchers looking at everything from predatory adaptations to migration patterns. The implications of the research are really important, encompassing things like understanding how to design better aircraft and helping us understand how climate change may be affecting different ecosystems. Plus, we should all care about dragonflies anyway because they keep our mosquito population in check! — Madie Cloutier



A Match Made at Itasca

David and Linda Maschwitz met over a sink of dishes at Itasca Biological Station and Laboratories. Their connection to each other and the station has lasted a lifetime.

By Elizabeth Caballero

Not many love stories start with a sink full of dishes, but that's where David (Ph.D. Entomology, '76) and Linda (B.S. Home Economics, '71) Maschwitz's began. David and Linda met at Itasca Biological Station and Laboratories (IBSL). He was a graduate student. She was a summer employee from the local community. They were introduced when David was volunteered by former station director Dr. Bill Marshall to wash pots and pans when the kitchen was short-staffed.

"Right away, David asked me if I wanted to go to an evening talk about some aspect of the flora and fauna that students would be seeing at Itasca ... we just sort of clicked, and that was the beginning," says Linda, who grew up on a farm eight miles north of the station. She had just graduated from high school and started her first job in the station dining hall.

David moved from Ames, Iowa to Minnesota to start graduate school at the College of Biological Sciences in 1963. David and Linda's fateful meeting happened two years later while David was taking summer classes and conducting fieldwork. "Those years, the mid-1960s, might have been the peak of the vibrancy at the station," says David. "We had faculty from all around the country teaching topics from aquatic plants and mammalogy to fungi."

Toward the end of that summer, the reality set in that David and Linda had to return to their lives. David went back to the St. Paul campus to continue his studies. Linda headed to Bemidji State University to start her bachelor's degree in home economics. The more time they spent apart, the more they knew their relationship was special. Later that fall, David drove to Bemidji to propose to Linda. She accepted, and in June 1966, they exchanged vows at the Mission Catholic Church, just north of Itasca State Park, followed by a reception at Douglas Lodge.

After they tied the knot, Linda transferred to the University of Minnesota, where she finished her bachelor's degree. A few years later, their family grew as they welcomed two sons. In addition to raising children, Linda held a variety of jobs, most recently as a patient services representative at Fairview University Medical Center. David worked at the Minnesota Pollution Control Agency for 34 years, where he developed water quality standards to protect fish and aquatic life from toxic pollutants.



Throughout their life, the couple has remained connected to the station personally and more recently, philanthropically. They understand the transformative power of education in a field setting and how it could ignite a passion that lasts a lifetime. Their support for the Itasca Graduate Research Fellowship and John Tester Research Fund has allowed numerous students the opportunity to spend time at Itasca. Both funds support research activities at the station, with the Itasca Graduate Research Fellowship providing financial support to 11 students since its inception in 1999.

For the Maschwitzs, giving is a two-way street. They enjoy learning what the research fellowship recipients are doing at Itasca and sometimes even see it in action. "We had met one of the students who received funding from the fellowship and watched him and his colleague filming dragonflies with high-speed video equipment," says David. "It was amazing and fascinating."

David and Linda recently celebrated their 57th wedding anniversary. Their journey from a chance encounter to a lifetime of love, learning and philanthropy is a testament to the impact the station can have on people's lives. Linda expressed this sentiment, saying, "I think the University and Itasca changed my life. To think that a gift could give a student a chance [at Itasca] and develop a career out of that is pretty neat."

Around Itasca

Snapshots of summer and fall at the station.

From top: A misty morning on Lake Itasca; students take measurements during a field biology course; a group of Nature of Life students learn how to collect aquatic invertebrates in the Mississippi headwaters; students and alumni around the campfire next to Lake Itasca; fall colors around Itasca.



CONTINUED FROM P. 1



Giant water bug (*Belostoma flumineum*) - photo credit: Dr. Kate Feller

After learning about this project and these fascinating animals, I eagerly signed up. We found that two native species of giant water bug have size-specific prey preferences, with the significantly larger species, *Lethocerus americanus*, preferring larger prey while the smaller species, *Belostoma flumineum*, prefers prey specifically between two and three mm.

After this initial project, my love and passion for these insects exponentially grew and I continued to carry out research projects on their behaviors and visual ecology. Recently, I became interested in how giant water bugs shift from a fully aquatic lifestyle as a nymph to an amphibious lifestyle as an adult. I am specifically interested in how the visual system (eyes and corresponding neurons) accommodates this lifestyle transition. My most recent adventure to the station was funded by the Itasca Director's Fellowship. I collected over 200 individuals of *B. flumineum* to study this question. I conducted behavioral experiments to test for differences in vision of nymphs and adults when the animal is placed in water and air.

The research I conduct on giant water bugs began at the station and has continuously brought me back. I can say without a doubt that if I had not chosen the College of Biological Sciences and gone to Nature of Life at the station I would not be the researcher, or person, I am today. To the station and its staff, thank you for making Itasca a truly magical place and I am forever grateful for the guidance and experiences it has provided me.



Take a walk on the wild side this spring!

Register for field biology courses this May and June! You don't have to be a UMN student to take classes at Itasca. Offerings include:

- Field Studies in Mammalogy
- Animal Behavior in the Field
- Field Entomology
- Field Mycology
- Field Microbiology
- Field Ornithology

Learn more at z.umn.edu/ItascaFieldBio2024