



UPSTREAM

News from Itasca Biological Station and Laboratories



UMBS and IBSL staff on Lake Itasca.

From Michigan to Minnesota and back

An exchange program between field stations presents a unique opportunity to share perspectives and dig into practical details.

The University of Michigan Biological Station (UMBS) and the University of Minnesota Itasca Biological Station and Laboratories (IBSL) took time this summer to learn from each other. Teams from each field station visited their counterpart's campus as part of an exchange program funded by the Organization of Biological Field Stations.

The two stations have a lot in common. Founded in 1909, UMBS is one of the nation's largest and longest continuously operating field research stations. Laboratories and cabins are tucked into more than 11,000 acres along Douglas Lake to support long-term science knowledge and education. IBSL has operated since 1907 with cabins, a dining hall, and teaching and research

facilities situated along the eastern shore of Lake Itasca on its 49-acre campus inside the 32,000-acre Itasca State Park.

In July, the IBSL team visited Michigan. In August, members of the UMBS team traveled to Itasca.

"We got to meet our doppelgängers," says Jonathan Schilling, IBSL director. During their stay in northern Michigan, the IBSL team explored laboratories and research sites at UMBS, and met with staff to discuss administrative processes, facilities, and research and education programs.

"It was a huge success," says Aimée Classen, UMBS director. "Not only was it valuable to have the Itasca team here so we could see

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DIRECTOR'S MESSAGE



Greetings from Itasca!

I hope this note from the North finds you well. Fall is here, and the expectation is that we *must* be due for a hard winter since last winter was soft. Let the snowflakes fly, I say. My skis don't want to be wall art.

I do have a little remorse for this year. I have not had enough moments sitting by Chambers Creek, gazing across Elk Lake, and watching if any sora or pelicans made appearances. It has been busy, and Emily and I have been locked into conversations with visitors since May, it seems. That is a good thing, but phew! I look forward to having a little time to just listen to the creek gurgle.

All that conversation is really about relationship-building, and relationships are the way forward for field stations. Environmental science and conservation are evolving in a community-oriented direction, making relationships as important to science as the science, itself. We are also hosting a lot more (maybe five or six times!) individuals for shorter periods at the station. The average stay is four nights, rather than multiple weeks as often used to be the case. This means more onboarding, more types of meals to prepare to meet dietary needs, more cabins to clean between groups of visitors, and more strategizing accessibility to reduce unknowns. Is it more work? Yes. Is it worth it? Of course! It means more people and more diversity, and since the environment is an 'all hands on deck' issue, it is well worth the effort.

Enjoy reading *Upstream*, and thank you all for supporting Itasca! -Jonathan Schilling

Making connections

It was a busy year for community outreach at Itasca Biological Station.

Station staff hosted tours and guided hikes, participated in shared programming with Itasca State Park, and engaged Minnesota State Fair visitors. Student interns, Madeline Damkot and Ian Coffman ran "Nature Carts" at the Mississippi Headwaters, sharing five facts in five minutes (affectionately called "5N5" by park naturalists) about Itasca Biological Station and Laboratories with park visitors.

Our Nature of Science program featured eight researchers who communicated their science with curious park visitors. Topics ranged from "All About Bats" with Dr. Erin Gillam from North Dakota State University to "Fight the Bite! Tick and Mosquito Diseases and Prevention" by Dr. Jordan Mandli from the Minnesota Department of Health.

In August, we hosted our first open mic night at the state park amphitheater. Authors from our "Writing the Wild" course and members of the public shared their prose and poetry, celebrating nature through their own work and favorite passages by other authors.

Our popular annual fall hike on Bear Paw Point, led by me and lead park naturalist Sandra Lichter, attracted 58 participants eager to explore fall colors on our trail, which is otherwise inaccessible to park visitors.

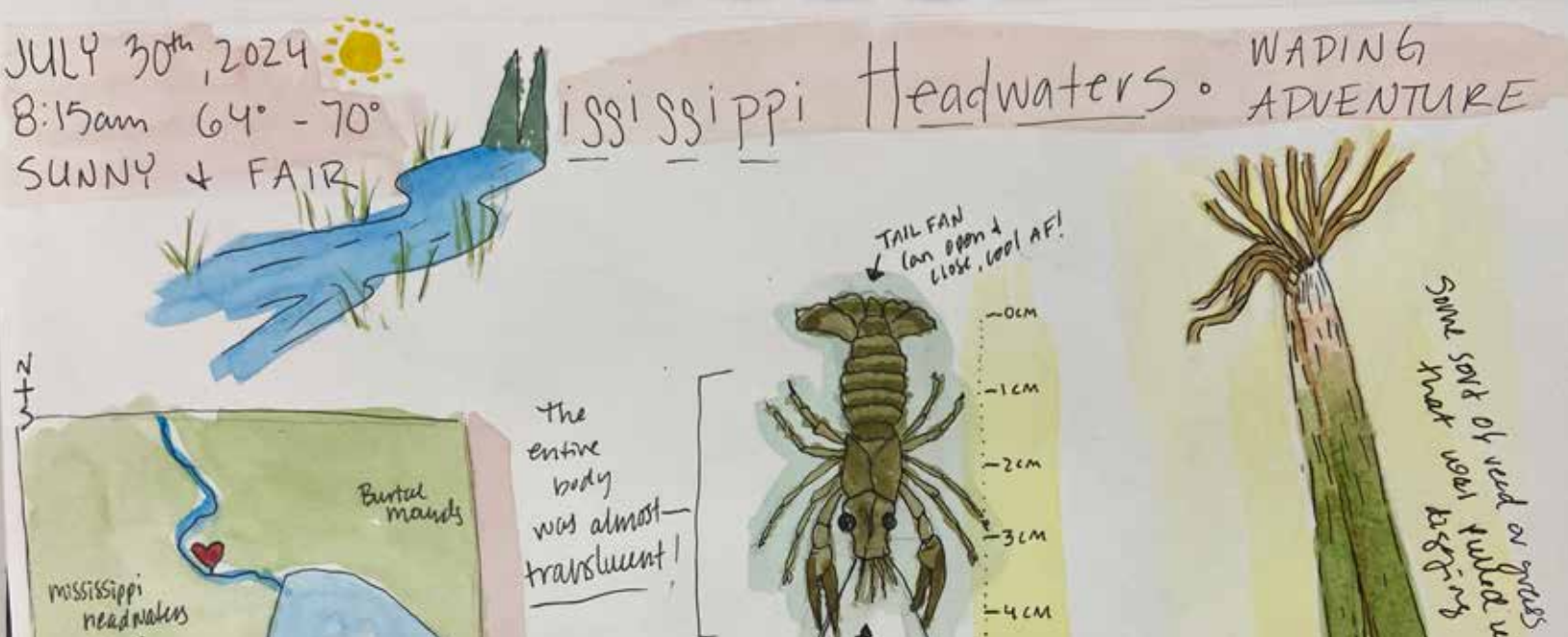
New this fall, we participated in the Manoominikewin (harvesting wild rice) demonstration for area school groups in partnership with the Nature Conservancy, Leech Lake Band of Ojibwe, and the state park. More than 430 elementary students spent the morning learning about harvesting and processing of wild rice, the Anishinaabe relationship with manoomin, and its role in freshwater ecosystems. Station Scientist Victoria Simons presented a module on how birds utilize wild rice.

These efforts were educational but just as important, they fostered community connections around our shared love of the natural world.

-Emily Schilling



Station interns Ian Coffman and Madeline Damkot staffing a Nature Cart at the headwaters.



A crash course in seeing nature in a new way

Science of Craft offered participants the chance to observe the world like a scientist and draw creative inspiration from it.

This summer, Itasca Biological Station and Laboratories (IBSL) launched two new courses weaving together art and science. Participants got a taste of field biology and an opportunity to apply a creative lens to what they observed. Science of Craft included two three-day courses, one on nature journaling led by Jennifer Powers, a professor in the College of Biological Sciences' Department of Plant and Microbial Biology, and one on nature writing led by Marlene Zuk, a professor in the College's Department of Ecology, Evolution, and Behavior, and Kathryn Nuernberger, a professor in the College of Liberal Arts.

"Itasca is a phenomenal place for anyone interested in spending time immersed in nature," says IBSL Associate Director Emily Schilling. "Scientists are keen observers of the world around them. It's a requirement of the job. What makes Science of Craft so unique is that participants have the opportunity to engage with nature in ways they haven't before with the guidance of instructors who bring a science perspective to creative practice."

Case in point, participants in the "Drawn to Nature" course donned waders and used nets to collect macroinvertebrate specimens at the Mississippi River Headwaters, guided by Associate Director Schilling. This was a new experience for most, with one participant exclaiming: "I know what I want to be when I grow up – a biologist!" Students took their collected specimens back to the station to view them under microscopes. Then they sketched them and recorded their observations in their nature journals. "I was nervous about getting in the river, but I'm glad I did," one participant said of the experience. "It really was a unique experience that a lot of people, including myself, could never really have outside this course."

"It's wonderful to see the delight of the participants as they try something totally new and then turn that into a poem or a journal entry," says Schilling, who plans to offer the series again next summer. These courses are not for credit and are open to the general public. –Stephanie Xenos

Learn more about Science of Craft at z.umn.edu/scienceofcraft.



Participants in the Drawn to Nature course on their way to collect samples at the headwaters of the Mississippi River.

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Research highlights

The station is home base for researchers investigating a range of questions from nutrient cycling in lakes to the changing composition of forests. Here's a snapshot of some of the research and long-term monitoring projects currently rooted at Itasca.

Functional Recovery of Crawling Across Minnesotan Hirudinea Species

Seth Campbell and Dr. Karen Mesce (PI: UofM)

This project examines locomotion recovery in Minnesota leech species. After severing connections in the leeches' central nervous system and tracing neurons with fluorescent dye, differences in recovery of crawling motion were compared to that of another model leech species to determine where this mechanism evolved.

Biogeochemistry of Ferruginous Lakes

Dr. Elizabeth Swanner (PI: Iowa State University)

Under a current NSF CAREER grant, the Swanner team is working to identify meromictic lakes (lakes that don't completely mix from season to season) and determine whether iron in the lakes, if present, is introduced through nearby glacial deposits. The Swanner team aims to understand how the origin, composition, and geochemical activity of these lakes shape nutrient cycling – past, present, and future.

Soil Changes and Earthworm Invasion at Upland Forest Sites at Itasca State Park After 55 Years

Fiona Clark and Dr. Mark Fulton (PI: Bemidji State University)

Soil samples were taken from a plot established in 1965 to study how soils have changed over time due to invasive earthworms, loss of fire management, and vegetation changes.

Itasca ForestGEO

Dr. Peter Kennedy (PI: UofM)

This project is part of a long-term forest research study called the Global ForestGEO network, which has 78 sites in 29 countries. At Itasca's site, a team of UMN graduate and undergraduate students, and recent graduates from Wabun High School, work to tag and map all trees within a 15-hectare temperate-boreal forest plot to contribute a full census dataset to the ForestGEO network.



Photo: Maddy Schilling

Common Loon Population Monitoring

Victoria Simons (IBSL)

From May through August, the IBSL loon-monitoring team visits eight lakes within the state park once a month to observe loon activity – i.e., loon nest locations and the number of adults, juveniles, and chicks seen on each lake. Data is contributed to the Minnesota DNR Volunteer LoonWatcher project to aid in statewide population monitoring efforts.

Breeding Bird Surveys on Bear Paw Point

Field Ornithology instructors and students

Every spring, Field Ornithology students and instructors conduct a census of breeding birds on Bear Paw Point. Using a gridded plot established in 1979, students determine the number of territories for different species based on audio and visual observations. Ovenbirds, Red-eyed Vireos, and Black and White Warblers are among the most common species detected.

Check out “Scenes from a living laboratory” online at z.umn.edu/itascavideo



Summer scenes

From left: Students in Field Mycology lay out their finds during a foray. Incoming College of Biological Sciences students celebrate completion of Nature of Life with high-fives with peer mentors. A group of students in Field Entomology collect aquatic invertebrates near the headwaters of the Mississippi River.

ORGANISM SPOTLIGHT

Ovenbird

Ovenbirds (*Seiurus aurocapilla*) are one of the larger warblers that inhabit Bear Paw Point in the spring and early summer. Named for the old-fashioned, oven-shaped nests they build, these ground-dwelling birds have a distinctive “tea-cher tea-cher tea-cher” call that echoes through the forest. Pictured here is an ovenbird that flew into a mistnet and was banded by Field Ornithology students as part of our annual breeding bird survey on Bear Paw Point. -Victoria Simons



Photo: Victoria Simons



Joyce Tester cutting the ribbon to officially open Tester's Hub. College of Biological Sciences Dean Saara DeWalt, IBSL Director Jonathan Schilling, and Associate Director Emily Schilling with members of the Tester family.

A new gathering spot at the station

Tester's Hub represents a new chapter in engagement at Itasca Biological Station.

Thousands of students, staff, and faculty make their way to Itasca Biological Station and Laboratories each year, and over a half million visitors travel to Itasca State Park. For some visitors at the Park, the modest entrance to the station piques their curiosity. For others working or studying at the station, curiosity arises to learn more about who else is on campus. The new John R. Tester Science Hub (aka Tester's Hub) gives a well-situated meeting point at the natural overlap between science and community.

Named after longtime station biologist and renowned scientist Dr. John Tester, the 'Hub' is a physical extension of IBSL's longstanding commitment to engaging local community. Once the old front office, the newly remodeled interior now has a conference room, kitchenette, accessible bathroom, and communal office space. IBSL Director Jonathan Schilling describes it as "a space that is intentionally warm, inviting, and engaging. We want people to connect to something deep."

"We called it a hub because it is in the middle of campus, capturing activity from faculty row, student bunkhouses, and our entrance road," says Schilling. "John helped create the conditions here for a thriving scientific community. Students and faculty would spend extended time at the station over the summers focused on nature and conservation. Tester's Hub will echo that sense of purpose to a new, more diverse group of users." -Stephanie Xenos



The boys in Bufo Cabin

Don Hultman reflects on friendships forged 50 years ago at Itasca Biological Station and Laboratories. He and three other undergraduates participated in field biology courses at the station and shared a cabin. They recently reunited to revisit their experience and renew a bond.

Read their story at z.umn.edu/itascabond.

our field station and operations through their eyes, it was helpful to see how they run things. We learned a lot – from ideas on research and academic programming to thinking about how to reduce paper waste in our dining hall.”

Director Schilling concurs. “We learned so much by visiting, sharing tips, and spending time at UMBS, and we all made connections that will be lasting,” he says. “It was a unique opportunity for those in operations roles. Imagine the value of demonstrating to an entire staff that we are not alone – that others share our experiences and our sense of purpose with these jobs. It is very reaffirming and efficient networking.”

“What a rewarding experience,” said UMBS Associate Director Karie Slavik. “By matching up respective positions, we were able to discuss our specific approaches to our roles. We have very similar challenges, and we learned from each other new ways to navigate them. It was fun to troubleshoot together. Our field stations have

different programming and land management styles, but the fundamentals are the same – our dedication to research and teaching.”

“The joy of this experience has been in discovering another biological station so similar to ours,” IBSL Associate Director Emily Schilling said. “Even though we come from different institutional ‘home teams,’ it’s like convergent evolution: we’ve both ended up with strikingly similar approaches to our work. This exchange was a fantastic opportunity for our IBSL staff to create new connections with UMBS colleagues who share our passion for field biology and perspectives on how to run a biological field station.” –Chrissy Billau

Excerpted from a longer article, published on the University of Michigan Biological Station website at lsa.umich.edu/umbs.



From top left: Staff from both stations gather on the shore of Douglas Lake at UMBS. UMBS and IBSL staff at the headwaters of the Mississippi River. UMBS Director Aimée Classen gives IBSL staff a tour. Staff members from both groups gathered for lunch outside the IBSL dining hall.

Interested in supporting IBSL? Learn more at z.umn.edu/supportIBSL

PHOTO CONTEST WINNER

Petrophora subaequaria

Emma Ambrosi, who is majoring in Fisheries, Wildlife, and Conservation Biology, was the winner of our photo contest that was open to all 2024 field biology program students. Emma participated in Itasca's Field Entomology course this summer.

Taken at Bear Paw Point, this photo shows a northern petrophora moth (*Petrophora subaequaria*) using its natural camouflage to blend in with the leaf litter. During its caterpillar stage, it feeds on the ferns that grow plentifully in the area.

