

# WHERE IT STARTS

Nature of Life turns 20 this year. It remains a cornerstone of the undergraduate experience.







## A team player

Idil Abdi (Class of 2023) fell in love with microbiology as a student at Saint Paul College. She transferred to the College of Biological Sciences at the peak of the pandemic. Despite the less-than-ideal circumstances, she made the most of her time at the U, from aiding in research on potential treatments for white-nose syndrome in bats to gaining leadership experience as a member of the CBS Events Board. Abdi plans to continue with research post-graduation with an eye to eventually pursuing a Ph.D./M.D.

Reflecting on her experience as an undergraduate, Abdi says what she'll miss most is working with peers. "Science is very collaborative — you have to work with people," says Idil, who notes that the emphasis on teamwork made her a better communicator and boosted her confidence as a scientist. "Everyone brings a different perspective and different experience. There was always someone there to help."

2 **A message from the dean**

Nature of Life is a catalyst for community.

6 **Research highlights**

A closer look at the evolutionary trajectory of jewel beetles and a game-changing discovery for drug delivery.

8 **A fast track to faculty**

President's Postdoctoral Fellows bring diverse perspectives and experiences to campus.

10 **A natural observer**

Jennifer Powers uses art as an avenue for observing nature closely and capturing details of flora and fauna she encounters in the field.

12 **Nature of Life turns 20**

The one-of-a-kind program celebrates a milestone.

16 **Class notes**

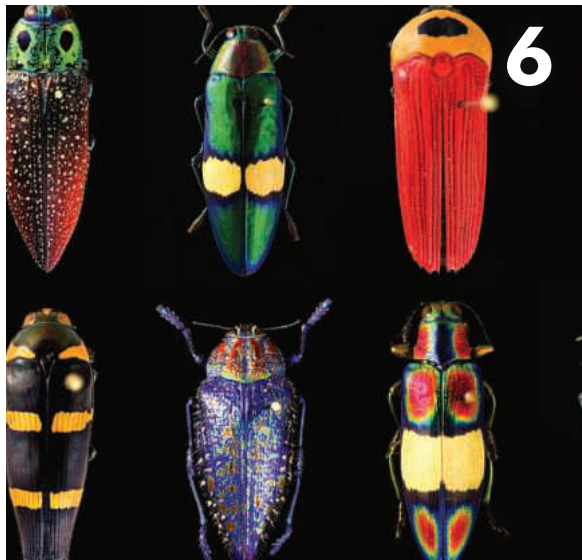
Catch up with alumni of the college.

18 **Mind and matter**

Jocelyn Ricard investigates the impact of inequity on the brain.

22 **Playing to win**

Carol Pletcher sees fellowships as a way to give graduate students the support they need to compete.



**ABOUT THE COVER:** INCOMING CBS STUDENTS ON LAKE ITASCA DURING NATURE OF LIFE IN 2022. PHOTO: ZOE KARWOWSKI

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## A catalyst for community

Maroon-and-gold tie-dye, traditions and close encounters with nature connect incoming students to the college and each other.

This summer, we celebrate 20 years of Nature of Life. For two decades, incoming students have boarded buses and headed north before starting their first year on campus. Nature of Life is a truly unique introduction to college life and a touchpoint for many long after graduation. You won't find anything like it at another public research university. I teach two sessions every summer and know firsthand just how valuable the experience is for all who participate.

**“As the size of our incoming classes continues to grow, Nature of Life is more important than ever.”**

Students arrive at Itasca Biological Station and Laboratories after a long ride from the St. Paul campus looking a bit lost and slightly reticent. That doesn't last long. Friendships form at warp speed. This immersion in an incredible living laboratory quickly casts its spell. Students meet their peers and professors while learning about the college and university traditions in the midst of an environment complete with stunning sunsets and the occasional black bear sighting.

By the time they board the bus home, they are excited about their forthcoming days on campus. Perhaps the most important thing they take away from the experience is a sense of community.

We know that Nature of Life plays a pivotal role in retention and a key part of that is the sense of belonging that students derive from those days in the northwoods. There's nothing like bonding over bug bites and enjoying nightly bonfires!

As the size of our incoming classes continues to grow, Nature

of Life is more important than ever. We may no longer be a small college, but we remain a close-knit community due in no small part to the program. Students continue to meet in smaller cohorts over the course of their first year and participate in programming their second year as they continue to make connections, build their leadership skills and pursue personal and academic goals.



PHOTO BY JACKSON EDDY/A FRAME FORWARD

Of course, it's not just the students who benefit. The instructors do, too. We get to meet students outside the classroom and get to know them as individuals. They see us in the dining hall and around the bonfire. Back on campus, they see their professors as more accessible.

When students arrive at Nature of Life, they receive maroon-and-gold tie-dye shirts. This shared uniform was long ago dubbed the "fellowship of the shirt" and for good reason. They signal belonging. At convocation, CBS students demonstrate their training in traditions as they sing the *Rouser*. As their world gets bigger, this foray to the headwaters of the Mississippi River provides a place of connection and support they can return to again and again.

**DAVID GREENSTEIN**, Interim Dean  
*College of Biological Sciences*



## Research within reach

Research is integral to the College of Biological Sciences undergraduate experience. Students do research from the very beginning of their college career. The Dean's Research Program takes things to the next level. It provides a paid research experience to students who might not otherwise be able afford to volunteer in a research lab. Last year, 119 CBS students and 86 faculty participated. The college continues to grow the program with an eye to ensuring that every student who wants a research experience has access to one.

Learn more about the  
Dean's Research Program at  
[z.umn.edu/deansresearch](https://z.umn.edu/deansresearch)





FROM LEFT: CHRISTIAN MOHR, BRIAN GIBBENS, LORENE LANIER, DAVID GREENSTEIN, ANN ROUGVIE, JEFFERY SIMON, ROBERT BROOKER AND DEENA WASSENBERG

## And the Golden Pipette goes to ....

The CBS Student Board hosted the annual Golden Pipettes Awards in April to recognize faculty in a number of categories. The theme of the event was passion! “There are a few common passions shared by our wonderful CBS faculty,” says Gavin Fuchs, chair of the CBS Student Board’s Engagement Committee. “A passion for learning and research. A passion for students and the community. A passion for diversity, equity, justice and inclusion. And last but not least, a passion for CBS. I would like to say that such passion does not go unnoticed and is part of what makes CBS an amazing place to be.



## Room(s) to grow at Cedar Creek

This year, the Whitney and Elizabeth McMillan Foundation made gifts of \$2.2 million to the Cedar Creek Ecosystem Science Reserve to support increasing capacity for K-12 outreach programs. Funding will be used to build an addition for the Lindeman Research and Discovery Center and to establish a robust field trip fund for K-12 students. The field station welcomes thousands of students each year.

An addition with two classrooms will allow Cedar Creek to achieve its goal of reaching 10,000 K-12 students each year, effectively doubling capacity and ensuring that many more students are exposed to the wonders of science at an early age.

## Partnering to create a path to careers in STEM

A collaboration between the University of Minnesota Morris (UMM) and the College of Biological Sciences aims to break down barriers for Native American students and spark interest in graduate programs in the biological sciences and, ultimately, careers in STEM fields.

The first phase of the year-long initiative funded by the Alfred P. Sloan Foundation focused on gathering as much information from current undergraduates at UMM about how they view STEM careers, the barriers that they have encountered that inhibit them from pursuing graduate education, and their needs and plans for the future.

UMM students will also spend a week participating in a hands-on research laboratory, exploring career options within STEM and learning about CBS graduate programs as part of the pilot.

Rachel Johnson, acting chair of the Division of Science and Mathematics at UMM, is partnering with Associate Dean for Graduate Education Margaret A. Titus and Associate Dean for Undergraduate Education Laurie Parker from CBS on the initiative. Karen Diver, the University’s senior advisor to the president for Native American affairs, will advise the team.

“Students may not know the scope of careers open to them, so one goal is to also introduce them to the breadth of opportunities available to graduates of our programs,” says Titus.



## Bringing a bit of Colombia to Minnesota

Ariadna Mondragón Botero, a graduate student in Plant and Microbial Biology, received a 2023 Mestenhauer Student Award for Excellence in Campus Internationalization. Botero studies dry tropical forests in Professor Jennifer Powers' lab.

"I am fascinated by diversity, and I spend my days studying it," says Botero. "As a biologist, I have been taught to observe the differences among the different components of our study systems, but also notice patterns and commonalities. I approach the natural world with curiosity, admiration and respect, and I think I approach cultural diversity in the same way."

Botero grew up in Cali, Colombia, and actively works to share her culture with the campus community.

"We are known as the world salsa capital, and a lot of things in my city revolve around salsa dancing and music in general," says Botero. "I love sharing that part of our culture with people, because I think that enjoying music and dancing is a universal feeling and it is an easy way to connect with others."

## How Sophia Boman puts her best foot forward

The captain of the U of M's women's soccer team wraps up a distinguished college career and has big dreams for the future.

As captain of the U of M's women's soccer team, Sophia Boman (Class of 2023) is responsible for keeping her teammates motivated and focused on the field. The Big Ten Distinguished Scholar Award recipient's success as a scholar-athlete derives from those same qualities. Balancing the many demands on her time means planning ahead, staying on task, and getting a good night's sleep.

The "beautiful game" is second nature for Boman. "The joke in my family is that I started playing soccer before I could walk," she says. She graduates this spring with her sights set on playing professional soccer and eventually drawing on her biology background as she pursues a career in medicine.

Boman is undoubtedly an inspiration to others given her record of achievement on and off the field. For her part, Boman admires women with drive and determination.

"As a student of science, my mom inspires me. She is a pediatrician and she has made many sacrifices in order to pursue that path. I have been able to shadow her at her work and have seen how grateful her patients and their families are that she is able to help them," says Boman. "As an athlete, Carli Lloyd inspires me because she worked so hard in order to pursue her dreams of

being successful on the U.S. Women's National Team. She never gave up on her dreams, even when they seemed unattainable."

**"The joke in my family is that I started playing soccer before I could walk."**





# JEWEL TONES

A genetic workaround allows jewel beetles to see colors invisible to their ancestors.

Around 300 million years ago, as sprawling Carboniferous rainforests receded, dragonflies with two-foot wingspans zipped through the air. Into this world, beetles evolved—and evolve they did. By the numbers, beetles have become a dominant form of life, now representing a quarter of known animal species. Yet all beetles lack one thing: a protein that allows other insects to see blue light.

“It’s funny because beetles expanded and diversified so massively, but they started with a reduced visual system,” says Camilla Sharkey, a postdoctoral researcher who studies the molecular underpinnings of insect vision with Trevor Wardill, an assistant professor in the Department of Ecology, Evolution and Behavior. Together with colleagues, Sharkey and Wardill published findings in *Molecular Biology and Evolution* that demonstrate how a particular group of beetles—the often-iridescent jewel beetles—see wavelengths of light their ancestors could not.

Most insects have genes that produce three proteins, or opsins, involved in sensing ultraviolet, blue and green light. Although jewel beetles lack the blue-sensitive opsin, behavioral research suggests they still rely on complex color perception. The most notorious jewel beetle in the United States is the emerald ash borer, an invasive species that decimates native ash trees. Foresters know these beetles are attracted to specific

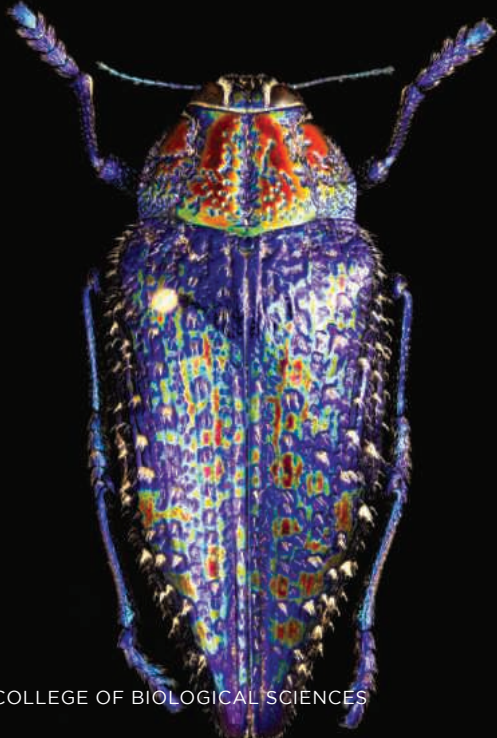
shades of purple and green and design traps accordingly. Still, little was known about how this color-sensing occurred.

Sharkey had previously discovered that jewel beetles possess duplicate copies of the two remaining opsin genes. Now, Sharkey and Wardill have linked this duplication to expanded visual sensitivity. They found that, through evolution, one of the duplicated opsin genes has recalibrated for blue light and the other for orange.

The researchers used sophisticated genetic techniques to copy opsin genes from two species of jewel beetles and insert them individually into fruit flies. They also modified the fruit fly genome to deactivate normal visual functions. That way, when the beetle opsins were produced by the flies, the researchers could use electrophysiology to determine which new colors the flies could sense. “We talk about this *Drosophila* modification as wizardry, but actually, knocking in some of the opsin genes was really difficult,” Wardill says.

This is the first time scientists have directly tested how color-tuning occurs for beetles. “We know very little about beetle opsin function,” Sharkey says, “and in general, compared to what we know about vertebrate opsins, we know so little across insects.” With new connections drawn between opsin genes and function, the enormous diversity of beetles—pests and otherwise—is coming into view.

—JONATHAN DAMERY





# AN UNTANGLED LOOP

Protein engineers discover an improved target for new drug discovery.

In the final seconds of a pharmaceutical commercial, the narrator's voice speeds to a gallop. Television viewers often understand the message from the rhythm alone: it's the list of side effects. Those lists promise to wane for next-generation treatments, thanks to research led by Sivaraj Sivaramakrishnan, a professor of Genetics, Cell Biology and Development, and graduate student Fred Sadler. In a study published in *Nature*, the researchers and their collaborators suggest how an entire class of medications could be refined based on a new understanding of receptors in the surface of human cells.

The research focuses on the most diverse group of membrane receptors: G protein-coupled receptors. The human body has more than 800 types of these receptors, often known as GPCRs. Over one-third of medications approved by the Food and Drug Administration target them, including opioids and allergic reaction-reducing antihistamines. Although these drugs target specific receptors, many GPCRs are very similar, which means the drugs can bind to the wrong receptor, causing adverse effects.

Sivaramakrishnan and Sadler investigated the structure of the receptor protein, focusing on a region where the protein loops inside the cell. As the largest of three internal loops, the region is known as the third intracellular loop. The parts of the protein on either side of the loop are

responsible for structural changes when the receptor activates, but the loop itself has attracted little attention. "This kind of floppy unstructured part got put on the back burner," Sadler explains.

The researchers developed new protein engineering tools and combined them with computational modeling by collaborators at the City of Hope, a cancer center near Los Angeles. They inserted a fluorescent marker into the receptor and tracked how the third intracellular loop changed shape during activation. In a major breakthrough, they found that the loop ensures that receptors activate at the correct intensity, operating like an internal shutter that controls how much light enters a room. Significantly, the loops are distinct, even among otherwise similar receptors.

This new understanding promises to transform how GPCR medications are designed. "We can target the loop and develop much more selective therapeutics," Sivaramakrishnan says, noting excitement for the discovery at a recent biomedical conference. "It's a game changer." The team has already identified a naturally occurring protein that uses the loop to modulate receptor activity. Once medications are developed upon this model, the hope is that patients will encounter fewer side effects and greater benefits.

—JONATHAN DAMERY



OXBOW RIVERS EVOKE THE SHAPE OF THE INTRACELLULAR THIRD LOOP.

# On a fast track to faculty

President's Postdoctoral Fellows bring diverse perspectives and experiences to campus with the potential to advance their careers.

Since the University of Minnesota introduced the President's Postdoctoral Fellowship Program (PPFP) in 2019, the College of Biological Sciences has welcomed four fellows, with a fifth starting next year. The program is designed to provide promising postdocs from diverse backgrounds underrepresented in higher education a path to faculty positions.

"Increasing the diversity of our faculty is in the compelling interest of our university, our students, and society as a whole. It is important for our students to see themselves reflected in their interactions in our classrooms, labs, and college spaces—representational diversity matters," says Interim Dean David Greenstein. "The PPFP program is one avenue for attracting outstanding postdocs and providing them with the opportunity to move into permanent positions within the college."

Learn more about the college's PPFP participants.

## Beatriz Baselga Cervera

**PPFP participant 2022-present**

**Current role: PPFP fellow in Ecology, Evolution and Behavior**

Beatriz Baselga Cervera holds a Ph.D. in microbiology and a D.V.M. from the Universidad Complutense of Madrid in Spain. She studies

microbes to better understand the origin of traits and the diversity of life with interdisciplinary laboratory-field background and practice and previously worked as a postdoctoral associate in the Department of Ecology, Evolution and Behavior (EEB) before becoming a PPFP fellow this fall.

Her passion to share her science is reflected in 10-plus years performing community-centered outreach and communication, mainly targeting Spanish-speaking communities.

"What stands out so far is the support network of the program," says Baselga Cervera. "The PPFP program, from the beginning, has organized informative sessions, networking and social events. I have also experienced a strong commitment on behalf of the department and school to help me push forward my research and apply for new funding."

While beneficial for her research, it's also been beneficial in preparing her to teach future scientists.

"As a researcher in biology interested on unveiling the diversity of life, I seek to bring into the field all the existing perspectives to incite discovery and stimulate community development," she says. "I want to grow and learn the necessary skills to become a successful faculty member who can balance teaching, research, mentoring and service. My goal is to promote novel approaches to scientific and biological

understanding and engaging heterogeneous learners within and beyond the university."

## A. Kelly Lane

**PPFP participant 2020-21**

**Current role: assistant professor, Biology Teaching and Learning**

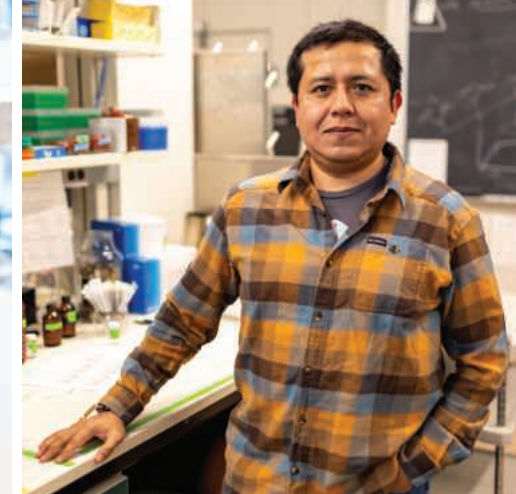
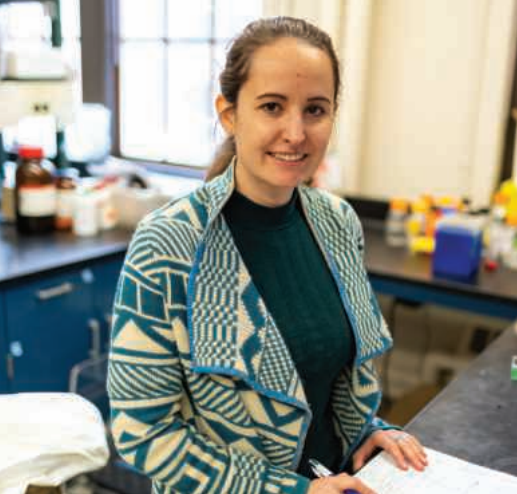
A. Kelly Lane knew she wanted to focus her research on equity and inclusion in higher education. The Department of Biology Teaching and Learning seemed like the perfect place to do that. After completing a Ph.D. in genetics at the University of Georgia and a postdoc in STEM education at the University of Nebraska-Lincoln, she joined the department as a PPFP fellow.

"The Biology Teaching and Learning Department here at the U of M has a great reputation in my field," says Lane. "The opportunity to have a faculty position in that department, even if it wasn't immediate, was impossible for me to pass up."

In addition to the chance to move into a faculty position, Lane reflects on how the program provided support at a critical point in her career.

"By the time I became a member of the faculty, I already knew where to go for help and how the department operated," she says. "I also had significant experience in grant writing that I gained during my time in PPFP, which helped





FROM LEFT: BEATRIZ BASELGA CERVERA, A. KELLY LANE, MINGZI XU, JESÚS PINTO-LEDEZMA

me start my faculty position with external funding and international collaborators. I wrote something like 15 grant applications for internal and external funding during my time as a President’s Postdoctoral Fellow and several of those grants are now funded.”

### Mingzi Xu

**PPFP participant 2019-21**

**Current role: assistant professor, Ecology, Evolution and Behavior**

Mingzi Xu studies the evolution and genetics of sexual behaviors and mating preferences. For the newly minted faculty member, the appeal of participating in the PFPF was to both advance her research and help make her field more inclusive and welcoming.

“I was struck by how supportive my colleagues are in EEB,” says Xu. “It’s the most collaborative and integrative department I have ever seen and I really love it. Since my research bridges behavior and evolution, I found it really easy to integrate into the research community. It has helped me a

lot in growing into a faculty role.”

With her recent move into a faculty position within the Department of Ecology, Evolution and Behavior, she sees how she can potentially make a lasting impact not only in her research but also in representation.

“Although some other subfields of biology have diversified quite a lot in the past years, evolutionary biology, and especially animal behavior, has remained quite white,” says Xu. “I hope to support young minds of all skin colors and backgrounds interested in these fields.”

### Jesús Pinto-Ledezma

**PPFP participant 2022-present**

**Current role: PFPF fellow in Ecology, Evolution and Behavior**

Jesús Pinto-Ledezma sees the University of Minnesota as a springboard for expanding his research network. He completed his Ph.D. at the Universidade Federal de Goiás in Brazil in 2017 and conducts research on biodiversity, with focus on understanding the ecological

and evolutionary processes that underlie the biodiversity patterns and how environmental changes alter those processes and ultimately the observed biodiversity patterns. He has a passion for science and for diversity and inclusion in education and research.

“The major impact this position has had on me is the freedom I have to develop my research program and connect with researchers across the University of Minnesota and researchers in other institutions at the global scale,” he says.

While gaining a foothold with a broader research community, he also sees how his time as a fellow will make an impact on his career as an educator and citizen.

“I aim to contribute to the education and the formation of the next generation of citizens, leaders and scientists,” he says. “With the PFPF support, I started to advise and train both undergraduate and graduate students in macroecology and computational biology. Without this support, this would not have been possible.” —LANCE JANSSEN

# SERRO DO CIPÓ



*Vellozia variabilis*

March 28, 2022

The colors of the  
campo rupestre are  
marvellous —



Canário da terra  
*Sicalis flaveola*



flower of  
the spectacular  
*Vellozia*  
*variabilis*

## A natural observer

Jennifer Powers uses art as an avenue for observing nature closely and capturing details about the plants and animals she encounters in the field.

Jennifer Powers spends hundreds of hours in the field every year setting up and monitoring experiments. She also makes a point of documenting the world around her through art. For Powers, a professor in Ecology, Evolution and Behavior and Plant and Microbial Biology, an art kit is an essential item for her forays to the field. Over the years, she has filled numerous notebooks with sketches and watercolors that provide a window into the places she works and travels. She shares her thoughts on the value of art for engaging with the world around her.

### What inspired you to start keeping a nature journal?

We live in such a highly digital world. We are plugged into our phones and computers all the time. Keeping a visual journal has been one way to help me unplug, slow down, and really look at the world around me. Keeping a nature journal has definitely made me a better biologist. I now have many journals — one for nature journaling, a travel journal that I take on all my trips, and another journal for daily drawing — in which I record one thing that I want to remember each day on a monthly calendar that I drew. This keeps me drawing just a little bit every day and is a great way to remember details from every day.

### There's a long tradition of scientists using art in this way. Why is that?

Keeping a nature journal puts us back into the traditions of observing and documenting natural history, which people have practiced for millennia. I think of the cave paintings in Lascaux, France, and the field notebooks of early explorers. Two hundred years ago, if you wanted to show people what you saw when you went somewhere, you could not bring your iPhone and then post your images to Instagram. Making drawings and sketches was one way to record and share what you see and also to highlight what is most important to you. I like being part of that tradition.

### What's your advice for those interested in starting a nature journal?

Anyone can use art as one approach to learn more about the natural world, and it is fun and meditative. Keeping a nature journal is not about making pretty images — it is a tool to help you observe the natural world more closely. Once you start it, you realize, quite literally, how the natural world is all around us.





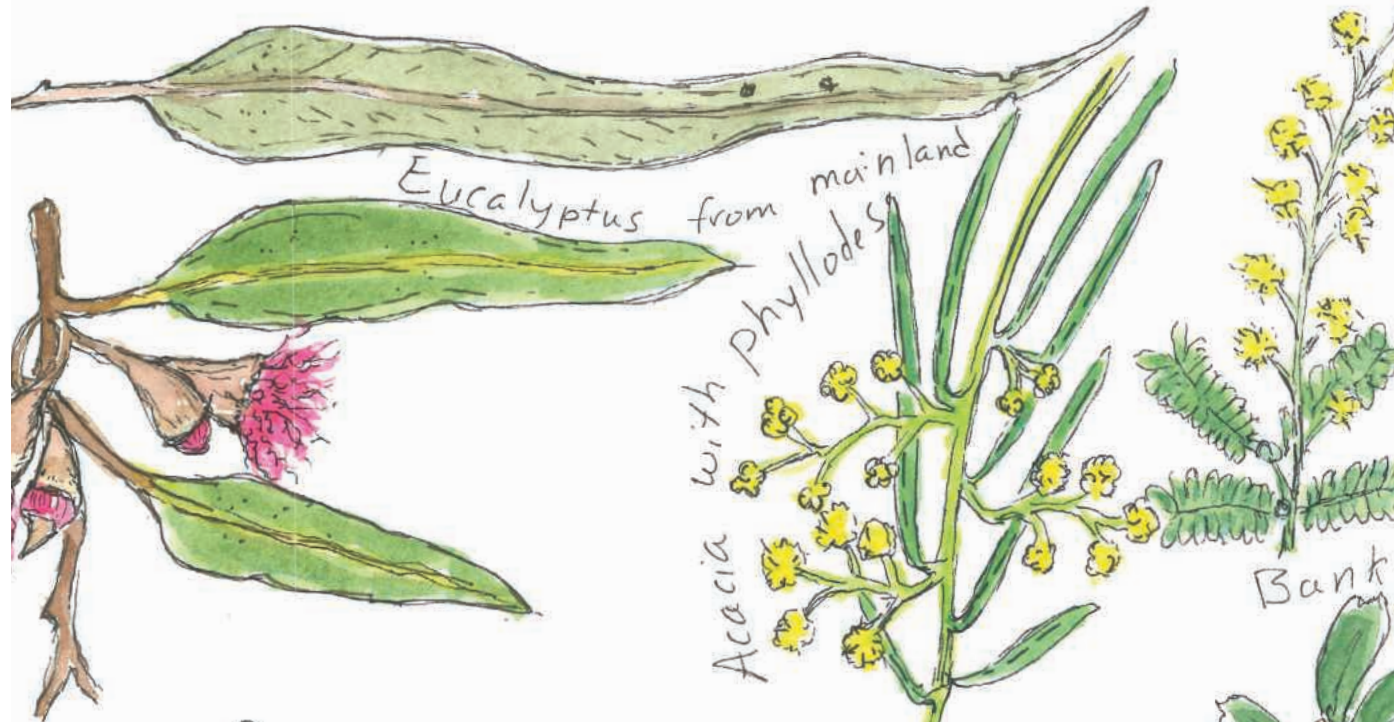
## Try it yourself!

Powers teaches a freshman seminar on nature journaling. She provided some prompts for anyone interested in documenting the world around them and honing their observational skills.

**The classic nature journaling prompts are “I notice, I wonder, it reminds me of,” says Powers.**

“I would encourage people to just go outside and find a couple of leaves — or even go to the fridge and take out a leaf of cabbage, spinach or any other kind of leafy green. Hold up the leaf and really look at it. What do you notice? Hold up the leaf to a light and observe the structures. What kinds of questions do you have? Does it remind you of anything? What do the veins look like, and how are they arranged? Write down your observations and draw a picture to illustrate it. This is your first nature journaling page!”

# TASMANIA

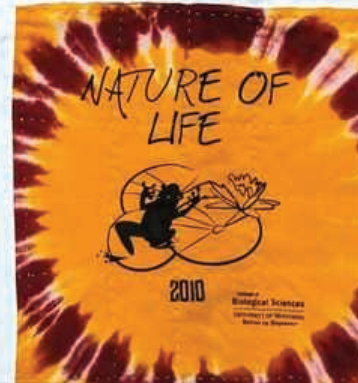
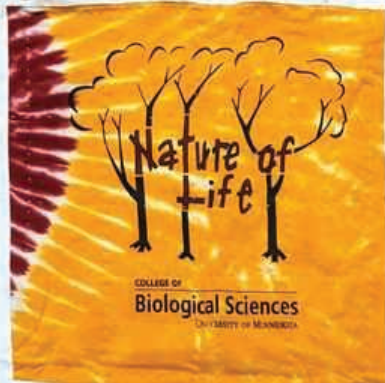
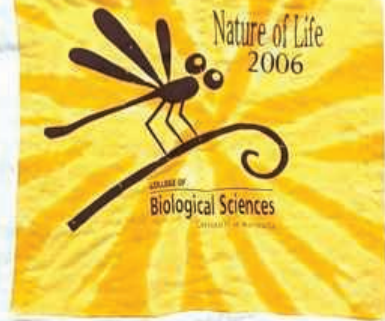


## Around the World in 90(ish) Days

In 2022, Powers set off to visit the dry forests of Cambodia, Brazil and Tasmania with support from a Global Fulbright Award. She spent about a month in each location and documented her experience in a nature journal filled with watercolor paintings and handwritten notes. For Powers, making art is about looking closely and documenting the world around her, placing her within a long-standing tradition of scientist-artists. The result of those observations is on display for your enjoyment.

See more of her journal pages online at [z.umn.edu/90ishdays](https://z.umn.edu/90ishdays)





Bonnie Baskin commissioned Anna Lowenthal Walsh to make a quilt from the Nature of Life T-shirts (center) created during Robert Elde's term as dean.



# NATURE OF LIFE

For two decades, students have found community and forged their science identity through a one-of-a-kind program.

## turns 20

By Stephanie Xenos and Christine Hazuka

Incoming first-year College of Biological Sciences undergraduates share a singular experience. They board a bus full of strangers in St. Paul and travel more than 200 miles northwest to Itasca Biological Station and Laboratories for Nature of Life. The program is an introduction to college life like no other. Part summer camp, part boot camp, this rite of passage has it all, from forays to the field to collect specimens to instruction in how to sing the *Rouser*. Students play games, enjoy hearty home-cooked meals and share bug spray to repel the mosquitoes.

Over the years, Nature of Life has evolved from a four-day experience in the summer to a two-year program. Once back on campus, students are part of guilds — smaller cohorts of students — that meet each week for their first year. In their second year, Nature of Life moves online, emphasizing topics relevant to students at that stage, including how to find research opportunities, developing leadership skills and navigating mental health issues.

While the program has expanded, its purpose remains the same: to foster community and meet students where they are as they navigate their undergraduate experience.

### How it all started

Before becoming dean of the college, Robert Elde, who led CBS from 1995 to 2014, was head of the University's neuroscience graduate program. Inspired by a program for graduate students at the Marine Biological Laboratory — a storied field station located at Woods Hole in the southwestern corner of Cape Cod in Massachusetts — and familiar with the field station at Itasca, he hatched a plan to bring graduate students to the station for a five-week

orientation. It was a hit.

The college began admitting first-year students for the first time in 1997. Looking to increase retention and graduation rates, Elde and college leaders began brainstorming ideas. Elde recalled the success of the graduate program at Itasca. A lightbulb went on and the idea for Nature of Life took shape.

“The goal was really to bring the faculty together, bring the students together, develop camaraderie, esprit de corps, a purpose,” says Elde, who, along with a handful of faculty and staff, worked to bring the program to fruition. The Nature of Life program checked all the boxes.

What started as a brief trip to Itasca Biological Station and Laboratories with a small group of incoming students has become a multi-year program. In 2003, the program evolved to include a semester back on campus, then another. Guilds were introduced as a way to provide students with a cohort of peers to remain in touch with over time. Biology Saves the World, which connects students with experienced scientists for a semester-long project, came into the frame to introduce students to a wide range of research.

Now, the Nature of Life program encompasses the first two years of the CBS experience. It provides students with timely support while giving students further along in their academic journey opportunities to develop their leadership skills as peer mentors and guild leaders. Last fall, Nature of Life held seven sessions for nearly 650 students and added an eighth guild to accommodate a record number of incoming students.



Continued on next page

## A sense of community

Part of the college's reputation as a close-knit community within a much larger university comes from the intentional approach to community-building that happens at Nature of Life. Professor Deena Wassenberg, who has made the trek to Nature of Life at Itasca for the past 15 years, notes that context is a secret ingredient.

"Students get to learn some cool biology content in a fantastic setting," says Wassenberg. "They get to meet faculty as their professors in their modules, but also as full humans who might struggle to make a s'more without burning the marshmallow, miss a serve in a volleyball game, or tell a funny story around a campfire." Back on campus, students see their professors as more accessible.

If the experience at Itasca is a warm-up for what's to come, the programming in the first and second year are a deep dive into how to achieve academic goals and navigate challenges. The philosophy of meeting students where they are infuses Nature of Life, which strives to connect students with resources when they need them.

"Nature of Life is this connection hub. We're connecting you to other students within your year, or students within CBS or instructors or campus resources. Whatever type of connection you need, we try to hit it sometime during that year," says Brittany Eich, Nature of Life's program director. Eich came up through the ranks. She attended NOL as an incoming student, went on to become a peer mentor, and is a longtime staff member who stepped into her current role last year.

For Rob Kulhanek, who, like Eich, attended NOL and served as a peer mentor and then as a staff member for several years, the program also contributes to a shared identity as scientists.

"Incoming students are taken very seriously by the faculty and the college," says Kulhanek. "They are made to understand that they are going to learn how to become a practicing professional in this sphere. It's a huge departure from the rote memorization that happens in many high school science courses. Instead, at Nature of Life they do science right away."



JOHN S. ANDERSON (CENTER) TAUGHT TRADITIONS AT NATURE OF LIFE FOR 17 YEARS BEGINNING WITH THE VERY FIRST SESSION.

## The start of Traditions

Meeting peers and faculty is one key ingredient. Learning about the community they are a part of is another. Enter Traditions.

"A critical aspect of a feeling of belonging to a community is enhanced by learning about the community, not just getting acquainted with some of the people, but also knowing about aspects of the community which knit it together," says Emeritus Professor John S. Anderson. "Thus, the inclusion of Traditions was deemed a key part of the welcoming process."

For the uninitiated, Traditions is a comprehensive overview of the University's history and an introduction to aspects of campus life, including how to navigate the Gopher Way, which happens at Itasca each evening of the session.

"Probably the most impactful activity is learning the *Minnesota Rouser*. Peer mentors lead with gusto and the incoming students are challenged to ramp up their enthusiasm," says Anderson. CBS students have earned a reputation as overachievers when it comes to singing the song at Convocation each fall because of their preparation at Nature of Life.

Anderson taught Traditions for 17 years — from the first sessions in 2003 until 2020. "Through more than 90 sessions over 6,000 students got their start in CBS at Nature of Life. It is of interest that retention and graduation rates have improved substantially with CBS rates among the best in the University," says Anderson.

John Ward, a professor in Plant and Microbial Biology, has stepped into the role with gusto. A longtime NOL instructor, Ward now leads Traditions. "It's important for helping incoming students become part of the CBS community," says Ward.

## Expecting the unexpected

Bringing hundreds of students to Itasca State Park is no small thing and can present unique challenges, including the occasional major storm. Case in point, a storm that hit the region in 2015 causing extensive damage throughout the park. Kulhanek notes that it was the final night of a Nature of Life session.





“There were so many downed trees over the road, no one could access the station. There was no electricity or water,” says Kulhanek. He and the NOL staff spent the night checking on students and assessing the damage. In the

morning, despite the conditions, the kitchen staff made their way to the station. “They made hot breakfast sandwiches for everyone using the storage propane tanks and a grill. It was amazing.” Crews got to work removing the trees and the bus departed more or less on schedule. The power finally came on a few hours before the next group of students arrived.

The IBSL kitchen staff, led by Dawn Wannebo, prepares meals for hundreds of students. It’s a lot of work even without the complications of a power outage. Wannebo is passionate about sourcing much of the food they serve locally.

“Locally grown is a pet project of mine,” says Wannebo. “Starting in May with asparagus and rhubarb, June micro greens and lettuces. We really emphasize local strawberries in July! End of July through August sweet corn, peppers, *lots* of tomatoes, green beans, zucchini and potatoes. Every fall we get enough local wild rice to last for the following year. We use local beef and pork when we can get it.”

### The Fellowship of the Shirt

The first day of fall semester can be daunting for incoming students, especially on the sprawling University of Minnesota campus. While it might be difficult to find a familiar face, identifying fellow CBS students is pretty easy. Just look for the maroon and gold tie-dye! “Tie-dye is easy to see,” says Robin Wright, former associate dean who led establishment of the program. “That was the goal. From there, the “Fellowship of the Shirt” emerged. The idea was that if you saw somebody with a Nature of Life shirt, you were honor bound to say hello to them.”



## Peer mentors to life partners

CBS alums Emily Ellingson and Nate Fremling met before the summer of 2012 when Emily served as a peer mentor at Nature of Life and Nate as a senior peer mentor. But that summer cemented a friendship that would ultimately turn into love.

“Itasca was the first place we truly got to know one another as friends,” says Ellingson, who was impressed with Nate’s leadership skills, work ethic and genuineness. “It was easy to become friends and want to be around Nate for all the joy he brought to other people while quietly working his heart out to make things go smoothly.”

For Nate, who came from a small town in northern Minnesota, Nature of Life delivered the sense of connection and community he craved. “I truly don’t think I can put into words how important the community-building component of the program was for me,” he says. Nate was motivated to help create that experience for other students. Emily shared his enthusiasm for Nature of Life and the way it brought students together with intention.

“Nature of Life is such a unique experience. The opportunity to have a glimpse at college, to become part of the CBS community and start acquiring the skills to be successful in the program is incredible. It was reassuring not only seeing those tie-dyed tees from across Northrop Mall, but to even recognize people in my classes and dorm. Getting the opportunity to help create that community and start fostering those connections and skills for the students was even more rewarding.”

The couple returned to Itasca for an alumni event in 2019. Nate saw an opportunity to bring things full circle. “The day of the proposal there was a break in the scheduled activities and I suggested that we go to the headwaters for sunset. When we got there, I waited until she wasn’t looking and picked up a rock. While walking across the footpath across the headwaters I dropped the rock into the water and told Emily I dropped my phone and had to reach down to try to grab it. When she turned around, I took the ring out and asked her to marry me.”

# CLASS NOTES

Catch up with what's happening with alumni of the college!

## **Kelsie Becklin (B.S. Biology, '17)**

completed her Ph.D. in comparative and molecular biosciences at the University of Minnesota in December. Her doctoral work focused on stem cell biology and gene engineering to better understand cancer initiation and early development. "My son was one when I started my educational journey, and he is 12 now. Going back to school as a nontraditional student and a single mom was hard but the payoff has been amazing," she says.

After completing her undergraduate degree at CBS, **Amy Groszbach (B.S. Biochemistry, '93)** went on to earn an advanced degree in adult education from the University of Minnesota College of Education and Human Development. For the past 30 years she has made a career at the Mayo Clinic in Rochester, Minnesota, where she serves as program director for the Molecular Genetics Technology Internship program and education coordinator in the Molecular Technologies Laboratory. She teaches molecular diagnostics to many different learners, including medical laboratory science students and pathology residents.

## **Charles Hernick (B.S. Ecology Evolution and Behavior, '03)**

started a new role in October as Amazon's head of ESG Policy, where he focuses on environmental, social and corporate governance and sustainability policy. Before joining the company, he led a Washington, D.C.-based advocacy organization that engaged Republicans on bipartisan clean energy and climate policy. He also led environmental and social impact assessments in over a dozen countries around the world for USAID as a private-sector consultant. He lives in Annapolis with his wife, Pamela, and their children.



## **Robert Iverson (B.S. Zoology, '75)**

retired in 2011 after 28 years in the medical device industry, most recently as a director of quality in design assurance. His current passion is for the environment and, in particular, addressing climate change.

## **Jamie Nesbit (M.S. Biological Sciences, '22)**

celebrated two major milestones in the past year. He got married to Diane

Hubbell, whom he met in 2018 in Minneapolis. He also started his "dream job" in the U of M Department of Plant Pathology working with cereal diseases and disease-resistant cultivars.

## **Jake Robinson (B.S. Genetics, Cell Biology and Development, '19)**

married **Sarah al'Absi (B.S. Microbiology, '19)**, whom he met in a biology lab on the St. Paul campus. Both Jake and Sarah are medical students at the University of Minnesota and welcomed their baby daughter this fall. "We are studying and caring for a baby almost every hour of the day and it is looking very busy for the next six or so years!" says Robinson.



## **C. Estelle Smith (B.S. Neuroscience, '15)**

began a position as assistant professor in the Department of Computer Science at the Colorado School of Mines. Her research focuses on computational spiritual support as a design lens for serving users' deepest needs during life-threatening health crises, including physical and mental illness.



A first-year medical student at the University of Minnesota Twin Cities, **Rashika Shetty (B.S. Neuroscience, '20)** spent time conducting medical intakes for Afghan families newly arrived in the Twin Cities as site lead for the Mobile Health Initiative in recent years. Rashika, whose family immigrated to the United States when she was 10, felt called to help others adjust to life in a new country.

## **Robert Valente (B.S. Microbiology, '77)**

retired from his rheumatology private practice in 2021. Since retirement, he has split his time between Minnesota and Missouri spending time with his grandchild, landscaping, barbecuing, boating, swimming, downhill skiing and traveling with my wife, Vicki. His oldest son is finishing a rheumatology fellowship at the University of Minnesota. His resolution for 2023? "To be a better Gophers fan!"

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Share your updates! Submit a class note at [z.umn.edu/CBSclassnotes](https://z.umn.edu/CBSclassnotes)





**Courtney Burnett (B.S. Genetics, Cell Biology and Development, '13)**

is a hospital medicine physician and medical educator working at Regions Hospital in St. Paul, Minnesota. After graduation from CBS, she attended medical school at Northwestern University and completed her residency training in internal medicine at the University of Minnesota. Just before starting her chief residency, she was diagnosed with a rare form of brain cancer. Burnett saw this as an opportunity to spread awareness and help others going through their own difficult experience. She is the creator of the blog “Elephant, Lotus, Brain Tumor” and author of the award-winning memoir *Difficult Gifts: A Physician’s Journey to Heal Body and Mind*. She spends her time outside of the hospital writing and speaking to raise awareness for brain and rare cancers, disability inclusion and patient advocacy.

**“Through dying, I have learned to live. Through sadness, I have found happiness. Through the loss of the guaranteed future I once envisioned, I have found peaceful freedom. I am more alive today [living with cancer] than I have ever been.”**



## Portraits of the plots

An exhibit of paintings inspired by Cedar Creek’s “Big Bio” experiment opens at the Bell Museum.

Cedar Creek Ecosystem Science Reserve artist-in-residence and now-retired Bell Museum curator of exhibits Don Luce is showing a series of paintings inspired by the long-running “Big Biodiversity Experiment.” The paintings were made in a process that mimicked the growth of the plots, starting from a sand-colored base, with details of the plants layered on top.

“Portraits of the Plots” runs May 19–July 16, 2023, at the Bell Museum.

# Mind and matter

Jocelyn Ricard investigates the impact of inequity on the brain and points out systemic issues.





To say Jocelyn Ricard (B.S. Neuroscience, '20) made the most of her undergraduate years is an understatement. She did research in four faculty labs, studied abroad six times, and served as a peer mentor for the North Star STEM Alliance and a hospice volunteer, among other pursuits. In the years since, she has kept up the pace.

After graduating, Ricard took up a post as a computational neuroscience research assistant at the German Center for Neurodegenerative Diseases in Berlin. For the past two years, she has worked as a post-baccalaureate research assistant in neuroscience at Yale University. This fall, Ricard was lead author of a paper in *Nature Neuroscience* that explores the impact of racially exclusionary practices on neuroimaging data.

Ricard was recently awarded a prestigious Ford Foundation Predoctoral Fellowship and will begin graduate school at Stanford University this fall. She hopes to eventually run her own academic research lab. Bringing a social justice lens to her work is a priority. That means considering the impact of inequity on the brain in her research, addressing issues of systemic racism and bias in her field, and centering diversity and inclusion in her future lab. Ricard shared a bit about her plans, the direction of her research, and insights from her recent paper.

**Q. What sparked an interest in this particular area of research?**

Through my research, coursework at the University of Minnesota and lived experiences, I have always found it important to take a holistic approach to studying the brain. Specifically, I became interested in understanding how individuals' environment and experiences with inequity impact the brain. This was especially important to me given that marginalized populations have been historically excluded at different levels of the research process. I have explored the brain from a comprehensive and interdisciplinary perspective — one that uses cellular culture, animal models, post-mortem brain tissue, human neuroimaging, and computational approaches. These experiences ultimately motivated me to study the complex and interdisciplinary effects of substance use disorders on the brain and how societal inequities impact these neural correlates during my graduate education.

**Q. What are you hoping to do once you complete your Ph.D.?**

I plan to establish a lab in an academic setting that continues examining the way in which substance use disorders and environmental inequity comorbidly impact brain function and structure. Additionally, I look forward to continuing to mentor and train the next generation of science leaders as I progress in my

career, and I plan to create an environment where diverse experiences and backgrounds are celebrated. My career goals center around understanding and dismantling systemic problems on a large scale through the field of neuroscience. My ideal career would involve a faculty position where I train future students conducting research in collaboration with communities focused on understanding the comorbidity of our environmental disadvantages and psychiatric illness.

**Q. Your recent paper in *Nature Neuroscience* considers the impact of racially exclusionary practices on neuroimaging data. What was the impetus for this work?**

My first introduction to neuroimaging began at the University of Minnesota, where I was working with functional near-infrared spectroscopy. It became clear that the imaging technology was difficult to optimize in darker skin and coarser hair. However, when I got to working with magnetic resonance imaging (MRI) a few years later, I realized that several exclusionary practices still existed in this realm. For example, typical Black hairstyles such as sew-ins or braids may have metallic decorative elements woven into them. In the magnetic field of the MRI-scanner environment, this can pose a risk to the participant and render unusable data. This ultimately inspired us to write the paper to bring to light the inherent exclusionary practices that exist in our scientific process within neuroimaging and encourage researchers to make actionable changes.

**Q. Your paper raises a number of issues about how data are collected and used. What are some emerging approaches to addressing racism and bias?**

In earlier work, my colleague, Dr. Termara Parker, and I put out a call to action in *Lancet Psychiatry* urging imaging researchers to address the inherent structural racism that exists within our neuroimaging modalities. Researchers in the field have started to tackle this issue by designing methods for obtaining high-quality EEG readings from individuals with coarse and curly hair, to address this systemic collection bias in EEG studies, to optimize flush contact with the scalp and the electrode. Additionally, in the longer term, the FDA has recently put out calls to diversify the racial and ethnic participants in our clinical trials and develop novel technology to image the human brain, and scientists are in a unique position to address these concerns and unanswered questions. While there is significant progress to be made, I am excited about the steps scientists are taking toward conducting more equitable neuroscience.

—STEPHANIE XENOS

## Time for transfer students

Transfer student scholarships allow students to make the most of their undergraduate experience.

One of the best parts of my job is meeting with supporters of the college, many of them alumni. The CBS community is made up of incredibly thoughtful, generous people who care deeply about ensuring that students have the support they need to succeed.

They often share their concerns about the cost of higher education and reflect on how different things were for them. A desire to ease the path for students who, no matter how hard they work, cannot hope to pay their way through college motivates them to give.

When I joined the college seven years ago, boosting scholarship and fellowship support was a top priority. Through the incredible generosity of alumni and friends, we've effectively tripled our scholarship and fellowship support over that time. Yet, until

this fall, CBS had no scholarships specifically for transfer students even though the financial challenges faced by transfer students are often greater than students who enter as first-year students. Not to mention that they have less time on campus and have to learn to navigate a complex institution with no time to spare.

With that in mind, CBS is focused on increasing support for this motivated cohort of undergraduates — students like Idil Abdi, a first-generation student whose family emigrated from Somalia. Her story is featured inside the cover of this issue of *B/O*.

Idil transferred to CBS from Saint Paul College and will graduate this spring with degrees in microbiology and genetics, cell biology and development with ambitious plans. "I hope to become a physician-scientist," says Idil. "For people of color, we need more

women in STEM. So I became the person I wanted to look up to."

As a transfer student, she had to make the transition to a large public research university and hit the ground running in order to achieve her goals. Scholarship support provides the most valuable of resources — time. In particular, time to do research, time to volunteer, time to gain leadership experience, in short, time to take full advantage of what the university has to offer.

We hope to build on that momentum to increase support for transfer student scholarships. This fall, we awarded the very first of these scholarships to a handful of students.

We want to offer that opportunity to even more students.

There also is an opportunity to match transfer scholarships through the Bentson Scholarship Challenge. For donations or pledges of \$50,000 or more, it is a 30 percent match that is front-ended so the dollars can be awarded immediately. For donations of \$1 million and above the match is 50 cents on the dollar.

The goal is to triple the current number of scholarships with an eye to offering the majority of incoming transfer students scholarships.

**REEDE WEBSTER**  
Chief Advancement Officer



PHOTO BY JACKSON EDDY/A FRAME FORWARD



# The Summer of '65

## An Itasca love story – part 1 and 2.

Perhaps they were not the first, and they surely are not the last, but nearly six decades later Ron and Judy Barrett's Itasca love story is truly something to behold. Now, the couple who met at Itasca in the summer of 1965 are sharing that love by supporting students through full-tuition scholarships for summer courses at the Itasca field station

After Ron Barrett's service in the Air Force, he enrolled at Gustavus Adolphus College through the GI Bill. He was the first in his family to pursue a college degree, graduating *summa cum laude*. At Gustavus, Ron vigorously pursued the liberal arts and also became fascinated by French existentialism and Zen.

It was through the lens of Zen that Ron was drawn to ecology and evolution, and the reason that he enrolled in graduate school at the University of Minnesota in 1962. Ron's limited background in the biological sciences prior to graduate school ended up being fortuitous. It became his pathway for meeting Judy Barrett, an exceptional undergraduate student pursuing a zoology degree and his soon-to-be partner for life.

Ron first noticed Judy in large auditorium-style undergraduate courses in genetics and statistics. Unfortunately, Judy did not notice Ron, so they never formally met. Nevertheless, Ron thoroughly enjoyed his master's program in entomology and published in two significant scientific journals. After completing his master's degree in 1965, Ron continued his studies in a Ph.D. program under Dr. Bill Marshall, which included ruffed grouse radio telemetry research and living in a cabin at the Cloquet Forestry Station. Marshall was also the director of the Itasca Station and encouraged Ron to take courses in limnology and ornithology that summer at Itasca.

It was at Itasca where Judy and Ron finally met. It was Judy's second summer at Itasca and Ron's first. They met on the volleyball court and within 10 days were engaged. They went to a minister in nearby Bagley, Minnesota, who was reticent at first. According to Ron, he said he was not "running a marriage mill." Nevertheless, love won the day and they got married that summer while Ron and Judy were still enrolled in their Itasca courses.

For their last weeks at Itasca, they lived in a trailer just outside Itasca State Park



RON AND JUDY MET AT ITASCA BIOLOGICAL STATION AND LABORATORIES IN 1965.



so they could finish up their courses in limnology and ornithology. Friends loaned them a 1961 Volvo so they could drive to the East Coast for their honeymoon. Afterward, they moved to Cloquet, where Ron continued his graduate research.

Judy graduated later that same year Phi Beta Kappa. She then worked in the Botany Department as a lab assistant, completed a master's degree in botany in 1968, and then pursued graduate courses in limnology. Ron completed his wildlife management Ph.D. in 1970 and also did a postdoc in animal behavior through the Bell Museum, working with ornithologist Dr. Frank McKinney.

In 1970, Ron and Judy moved to Fond du Lac, Wisconsin, where Ron taught for decades at what is now called the University of Wisconsin Oshkosh, Fond du Lac campus. Judy completed a master's degree in elementary education and taught fourth, fifth and sixth grades for decades in the Fond du Lac school district. Now retired, they still have powerful memories of their Itasca experience and its important role in educating students. Ron and Judy have decided to provide a legacy of opportunity for future generations of students by establishing full-ride scholarships at Itasca Biological Station and Laboratories through their estate. —REEDE WEBSTER



## Playing to win

CBS alum Carol Pletcher wants to give graduate students the support they need to be competitive.

Carol Pletcher (Ph.D. Biochemistry, '79) likes to tell the story about starfish, the ones on the beach amidst thousands that washed ashore during a storm. There's a single person walking along, picking up starfish one by one and putting them back into the ocean. A skeptical onlooker comments, "This beach is full of them! You can't save all these starfish and you can't begin to make a difference!" The reply, as yet another starfish is put back: "Well, I made a difference for that one!"

This combination of action and determination has characterized Pletcher's academic, corporate and personal life. After earning her Ph.D. in biochemistry from the University, she spent 23 years at global food corporation Cargill, eventually being named as Chief Innovation Officer. But she never forgot to look back and offer a helping hand. Awareness of the challenges faced by women in STEM led to the establishment of the Carol and Wayne A. Pletcher Graduate Fellowship Endowment, which supports graduate students pursuing a Ph.D. at the College of Biological Sciences, with a preference for women applicants.

Pletcher points to the link between the fellowship and the starfish parable: "This is a resource that's been 25 years in the making," she says. "It started with the goal of easing the journey for just one graduate student, and the fund, with its match, has now reached nearly \$1 million. We've been able to make fellowship awards to 33 students, so we've far exceeded our goal to make a difference for just one person."

**"If you don't compete, you can't win."**



## Legacy of paying back

“Carol and Wayne both expressed and practiced the attitude of paying back out of gratitude,” says Gary Nelsestuen, professor emeritus of biochemistry, in whose lab Pletcher worked as a postdoctoral student and research associate. “Their generosity will have a significant benefit for the next generation.”

Pletcher knows just how important one of these fellowships can be for a nascent scientific career. “When I was a student, I earned a fellowship from the American Association of University Women (AAUW), and it meant a lot to me,” she says. She’s especially proud of the fellowship’s structure: “There are minimal limits on how recipients can use the money. It can be for research, supplies, equipment, travel or whatever else they need. When I’ve attended the annual recipient luncheon in the past, many have told me they’ve used the funds for childcare expenses — and I cheer that.”

She knows all too well about the challenges faced by many recipients. “As I was completing my Ph.D., one male professor said dismissively, ‘It took you six whole years to get this done,’ and I thought, ‘Well, I completed one Ph.D. thesis and had two babies in that time, so that seems pretty good to me.’”

## Opening doors

John S. Anderson is professor emeritus in the Department of Biochemistry, Molecular Biology and Biophysics. He was part of the graduate admissions committee that accepted Pletcher’s application, and he served on her final oral examination committee. “This fellowship is in keeping with her long-standing interest in promoting opportunities for advancement for women,” he notes. “Academic opportunities need to precede entry into the industrial sector, so it’s a crucial step for opening doors to a developing career.”

Pletcher has words of wisdom for women who will be following in her footsteps: “If you don’t compete, you can’t win. And then you need to deliver and help your academic institution or company be better, thanks to your efforts. Above all, your job is to deliver.”

## Get to know the fellows

Meet three of the 33 graduate students who have received support from the Carol and Wayne A. Pletcher Graduate Fellowship.

### ABBY GUTHMANN

*Ph.D. candidate, Ecology, Evolution and Behavior; graduation 2024*

“This coming field season in Kenya is likely my very last, so I want to make the absolute most of it, which the fellowship will help me do,” says Guthmann. She studies how humans interface with their environments, especially in pastoral communities that are rich in wildlife. While past research has included studies on urban coyotes in Los Angeles and urban black bears in North Carolina, her current focus is on how humans shape ecology in Kenya.

“I’m interested in what it costs people to live near a high abundance of large animals, and how conservation efforts can benefit residents as well as wildlife,” she says. “I encourage everyone to understand how we as humans exist as part of a broader ecosystem, not a separate one.”

“My funding comes from my teaching assistant’s salary and fellowship funding, so it’s absolutely essential to receive this support,” she says. “It felt very validating and encouraging to have been told, ‘We recognize you and we will help fund you.’” Finally, she adds, “It’s important to have support for women in science. Diversity in science brings a greater diversity of ideas. Without that, you’ll never discover anything new.”

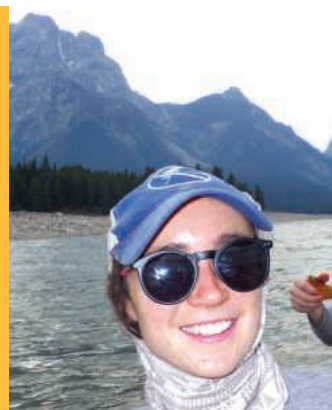


Continued on p. 24

## TAYLOR PRICE

*Ph.D. candidate, Plant Microbial Biology; graduation fall 2024*

Here in the chilly North Star State, it makes perfect sense to be interested in studying some of the coldest places and most resilient creatures on this planet, and possibly beyond. Price's area of focus is on the interaction of microbial communities in alpine environments.



Seeing her first mountain glacier in South America sparked her interest.

"I became obsessed with the dispersal of microbes in glacier environments and wondered how they survived," she says. These days, she's not just looking down into alpine streams, she's also looking up to the heavens. "There were glaciers in the early life of Mars, so those icy worlds might have relevance for us on Earth. I never thought I'd be working on astrobiology and planetary science, but I'd love to be a part of that exploration someday."

As she reflects on the value of being awarded a Pletcher fellowship, she says, "In my application, I wrote about being the first person in my family to go to college and pursue higher education. This was my first fellowship, and the recognition made me feel really and truly seen by the scientific community. I'll use the funds for my final field season and for travel to a conference that could potentially lead to a job."

## REDEAT TIBEBU

*Ph.D. candidate, Plant Microbial Biology; graduation spring 2023*

The edible seed teff feeds millions in Ethiopia, where it's used to make the flatbread known as injera. Yet an estimated 40 percent of those tiny, nutritious seeds currently go to waste, victims of the lodging phenomenon, which happens when the plant's thin and fragile stems collapse as the plant goes to seed.

For Tibebu, who emigrated from Ethiopia to the United States when she was in middle school, that situation represents an opportunity to use genome editing to breed stronger-stemmed, bigger-seeded plants that reduce waste. Inspired by Norman Borlaug's Green Revolution, Tibebu worked in collaboration with scientists at the Donald Danforth Plant Science Center on gene editing and breeding research. "The fellowship will allow me to travel and build closer connections with my colleagues in the Ethiopian Institute of Agricultural Research," Tibebu says.

"Here in the Voytas lab, I'm the only woman and the only minority graduate student," she says. "I'm also a first-generation college graduate. Not only has this funding allowed me to focus on research with less financial stress, but it's also allowed me to connect with those who want to do this kind of work but haven't previously had anyone to emulate," she says. —JULIE KENDRICK



**"Not only has this funding allowed me to focus on research with less financial stress, but it's also allowed me to connect with those who want to do this kind of work but haven't previously had anyone to emulate." —Redeat Tibebu**





## Sharing the love

Jessica Jahn caught the field biology bug as an undergraduate. Now an alum, she's trying to get others up to Itasca and out in the field.

After taking two field classes at the Itasca Biological Station and Laboratories (IBSL) as an undergraduate, Jessica Jahn was hooked. She fell in love with the classes, the students, the professors, the environment, pretty much everything except the insects! She emerged from the experience motivated to spread the word. Jahn and her good friend and fellow IBSL enthusiast Madie Cloutier decided to form the Itasca Booster Club.

"Working in the field gives scientists the chance to observe and test behavior in a way that can't be done in a lab setting," says Jahn. "Fieldwork keeps you on your toes, and I love the challenge of solving problems and adapting to unexpected events — like a hedgehog stuck in a trap meant for a mouse."

### What's in your backpack?

**Camera** – "I love taking photos when I'm in the field, especially of animals!"

**Water bottle** – "Bonus points if it's an insulated water bottle, but being dehydrated in the field is not fun."

**Fanny pack** – "It's super helpful to carry small things that you use a lot, and it's not as heavy as a backpack."

**Tick remover** – "I seem to be a tick magnet sometimes, and it's good to remove them as quickly as possible."

**Book** – "There's often some down time in the field and it's also good for entertainment on the way to and from field sites, although I'm careful to only bring books that I own."



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