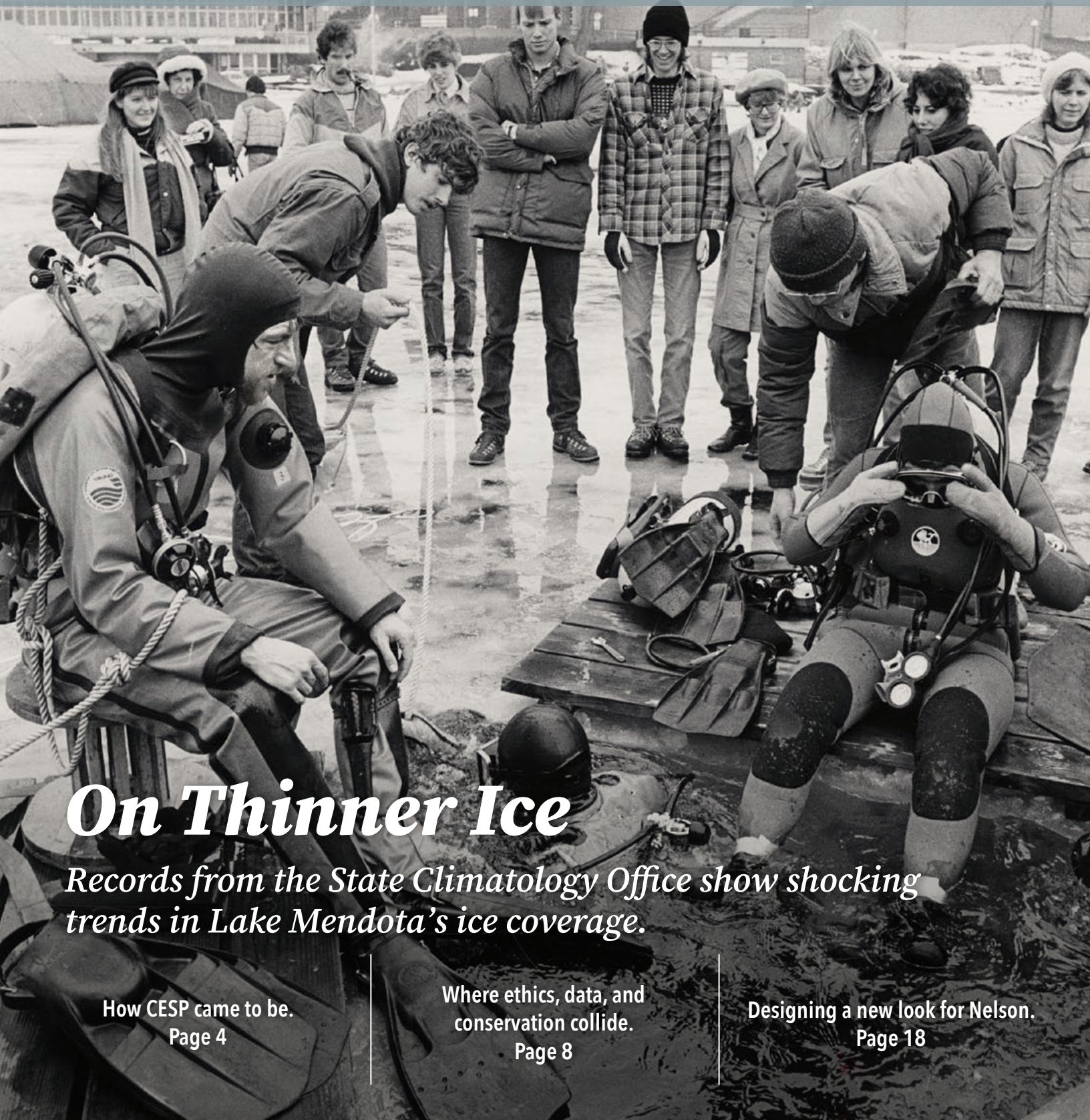
Nelson Institute for Environmental Studies
UNIVERSITY OF WISCONSIN–MADISON

February 2025

THE COMMONS

For alumni and friends of the Nelson Institute for Environmental Studies at the University of Wisconsin–Madison



On Thinner Ice

Records from the State Climatology Office show shocking trends in Lake Mendota's ice coverage.

How CESP came to be.
Page 4

Where ethics, data, and conservation collide.
Page 8

Designing a new look for Nelson.
Page 18

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Stay connected by updating your contact information or by joining our LinkedIn group.

We're reducing our carbon footprint! We hope you enjoy our digitally published magazine, sent monthly to Nelson alumni, students, and friends.

Cover photo: A group of students looks on as three men scuba dive on Lake Mendota during the Winter Carnival, entering through a hole cut in the ice. Photo courtesy of UW–Madison Archives

INSIDE

From the Dean

Greetings, Nelson Institute community,

We're just three weeks into the spring semester, six weeks into 2025, and the amount of activity has been staggering; some of the recent news surrounding funding and programs has also certainly been complicated and confusing. I remain grounded and optimistic by reading, watching classic films, and adventuring around with my eight-year-old. I'm sure you have your own methods. Last week was a particularly energizing one for the Nelson Institute, as we got a rare glimpse into our future through four remarkable RISE-EARTH candidate visits. Thank you to all who attended both in person and online. If you still have thoughts to share, please reach out. Your feedback is integral in shaping the next iteration of Nelson.

It is, as always, under that banner that we proudly share this issue of the *Commons*. In these pages, you will read about centuries of records kept at the Wisconsin State Climatology Office that demonstrate Madison's warming winters. You will be prompted to consider the ethical considerations about the intersection of genetics, data science, and conservation. You will meet some of the students whose inspiring stories are, frankly, the reason I show up to work every day. There's a virtuous circle in all this; we bring together the most wide-ranging expertise with broad constituencies, firms, and communities; these collaborations identify grounded, important problems the university can address with its partners; students are drawn to problem-solving, and they join us in the work; they graduate and become the best, most wide-ranging experts, ready to address complex environmental problems. The stories you read here track every moment in this generative process.

Before I close, I'd like to extend a special thank-you to everyone who completed our reader survey, which was sent out last month. We're looking forward to diving into your collective feedback on how this magazine, and all of our communication efforts, can better serve you. You can expect to see some exciting changes this fall. (If you missed the survey window, you can always reach out to our editorial team to share your thoughts.)

As always, if you have feedback to share or topics you'd like to read about, I'd love to hear from you.

Be well,

Paul Robbins
Dean, Nelson Institute

what we hear of conservation is mostly what transpires in the parlor of land-use. This is a factual account of what happens in the Kitchen. The particular Kitchen of which we speak is one of the sandy counties of Wisconsin, in which we have spent nearly every Sunday for the past six years.

Plum mer's point is one of the few hills, in our region massive enough to force the Wisconsin River to make bends. Marquette undoubtedly passed it, and perhaps camped there. Six years ago, in April, its oak woods were carpeted with Dutchman's breeches, pasque flowers, and puccoons. The owner, a genial Dutchman, had at that time just heard the dictum of the Extension Service: that fifteen cows can pay a profit where ten return a loss. So he turned more cows into Plum mer's point.

Today we have just completed our annual trip there. The relics of pasque flowers are hard to kill. Each clump, until it actually caves into a gully, persists in putting up at least one bloom.

wednesday Apr. 23, 1941

weather Cold, cloudy, NW wind, clearing by noon. River falling.

Birds Cormorants 13. Mallards 2, 8, Pintail 3. Some deep water on river, sp? Ruffed Grouse 1. Woodcock 1. Cock pheasant 1.

Phenology Elm in front of shack has set seed, green, with wings.

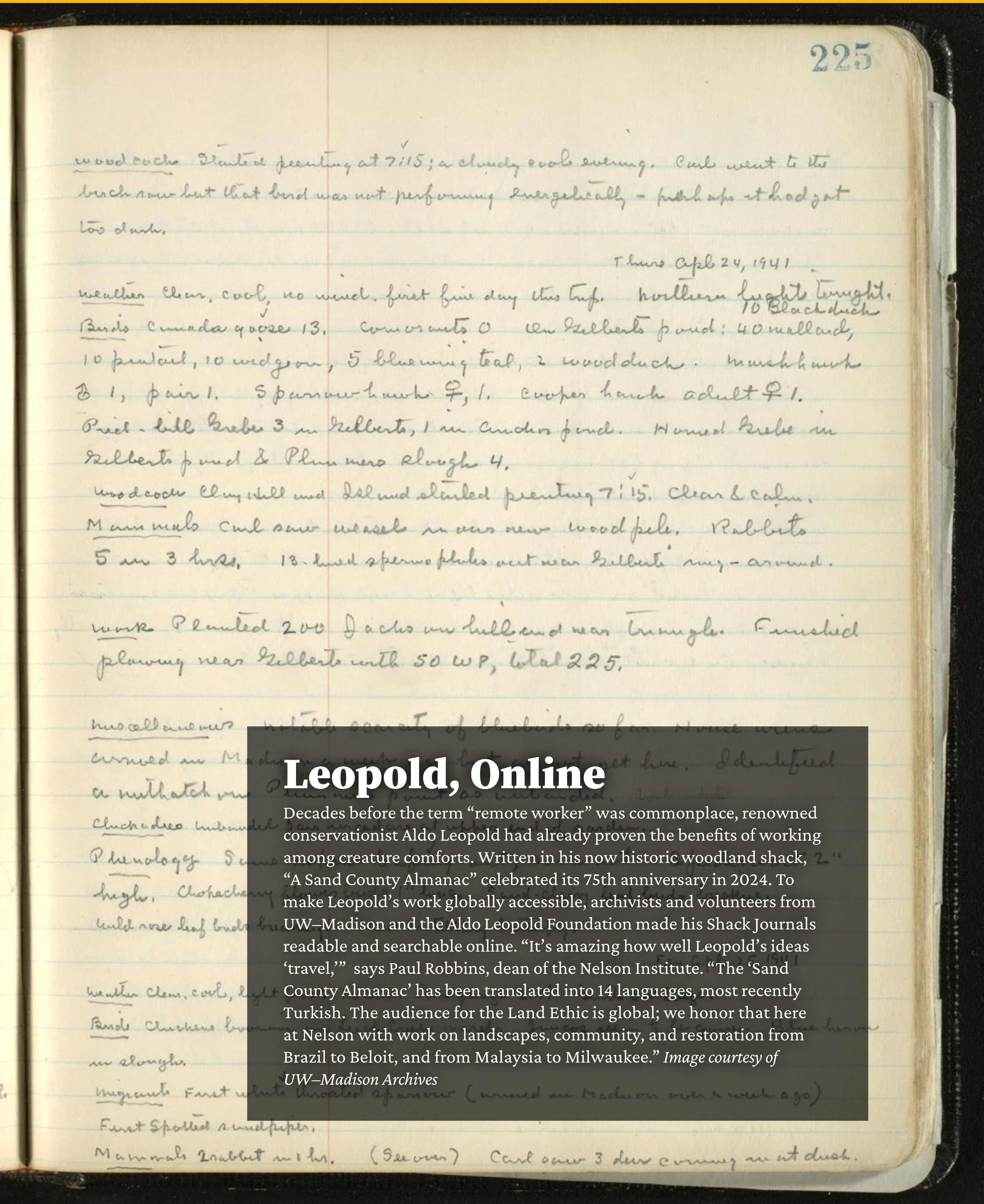
Chickadees unbanded pair still in yard; banded pair on Thomas's woodroad.

Salix cerecea, S. candida, & petiolaris just past bloom. S. discolor still has pollen.

Mammals Saw 1 rabbit 1 hr.

migrants Barn Swallows

Work Carl planted a lot of Dutchman's breeches near shack and on N. slope of hill. 50 whites on N. slope. 35 whites in hazelnook planting. 100 whites near planting this side of Gilbert's rug-ground. 200 Jacks set on hill. Planted 100 spiderwort, 1 bird plant, 10 partridge, near paths now.



Leopold, Online

Decades before the term "remote worker" was commonplace, renowned conservationist Aldo Leopold had already proven the benefits of working among creature comforts. Written in his now historic woodland shack, "A Sand County Almanac" celebrated its 75th anniversary in 2024. To make Leopold's work globally accessible, archivists and volunteers from UW–Madison and the Aldo Leopold Foundation made his Shack Journals readable and searchable online. "It's amazing how well Leopold's ideas 'travel,'" says Paul Robbins, dean of the Nelson Institute. "The 'Sand County Almanac' has been translated into 14 languages, most recently Turkish. The audience for the Land Ethic is global; we honor that here at Nelson with work on landscapes, community, and restoration from Brazil to Beloit, and from Malaysia to Milwaukee." *Image courtesy of UW–Madison Archives*

Celebrating CESP

Nelson Institute program shapes the next generation of environmental leaders.

By Tony Xiao

CESP students gather during the commencement festivities in May 2021. Photos courtesy of Rob Beattie (2)

UW–Madison student Journey Prack is an entomology major who loves cooking. In her junior year, she joined the Community Environmental Scholars Program in UW– Madison's Nelson Institute for Environmental Studies for its scholarship and relaxed learning environment.

But it also led her to the job she has today.

For a community service project with the Community Environmental Scholars Program, called CESP, Prack worked with a student organization that hosts dinners for people in Madison using recovered foods from the dining halls.

After finishing her degree, Prack wanted to continue her work serving the Madison community.

Through the program, she was introduced to Rooted, an organization focused on creating healthy, equitable and sustainable communities through collaboration in education, food and land.

She spent her summer teaching little kids about gardening and is now working full-time at Rooted, teaching kids about plants and nutrition at three Madison-area schools and leading cooking clubs at two of those schools.

"I would have never found out about my job at Rooted if I hadn't joined CESP," Prack said. "You never know what you could learn and it could open a lot of new doors that you maybe don't know about."

The Community Environmental Scholars Program originated following the passage of a 2010 state law that gives $100,000 annually to underrepresented students. The program initially only served junior and senior students, but since 2022, it's been open to incoming first-year

students in STEM majors using grants from the National Science Foundation. The program is crucial to the Nelson Institute's mission to foster the next generation of leaders to protect and preserve the environment.

"Environmental studies in many ways is too big a topic," said Robert Beattie, director of the Community Environmental Scholars Program and a member of the teaching faculty at the Nelson Institute. "There are some people who really want to work at that small local scale … So the idea behind the program is just, how do you connect environment and community?"

Cohorts of around 10 students are enrolled in the program, receiving scholarships and joining a three-semester seminar. The first semester focuses on introduction to core ideas, the second focuses on working with local community partners, and the third focuses on professional development.

Beattie said the cohort system creates a low-pressure environment for students to work together across the three cohorts. For example, third-semester students can help incoming students by sharing their experience while also continuing to benefit from the incoming students as new materials and ideas are introduced each semester.

A poster created by CESP alumna Aidee Guzman hangs in Rob Beattie's office. Guzman is now an assistant professor at Stanford University.

"We're teaching them to build the skills they need in order to be good environmental citizens connecting their knowledge from whatever their majors are to community engagement and community service, and they're responsible for designing, defining that connection," Beattie said.

Students lead the program, organize classes, select their community service projects, invite guest speakers to the classroom and more.

To current student Angel Salas, the close-knit cohort system means he gets to know and interact with the people in his cohort better every week than in his 200-person mechanical engineering lecture.

For his community service project, Salas is working on a solar power module to charge all the electrical equipment in the Allen Centennial Garden.

Journey Prack

Angel Salas

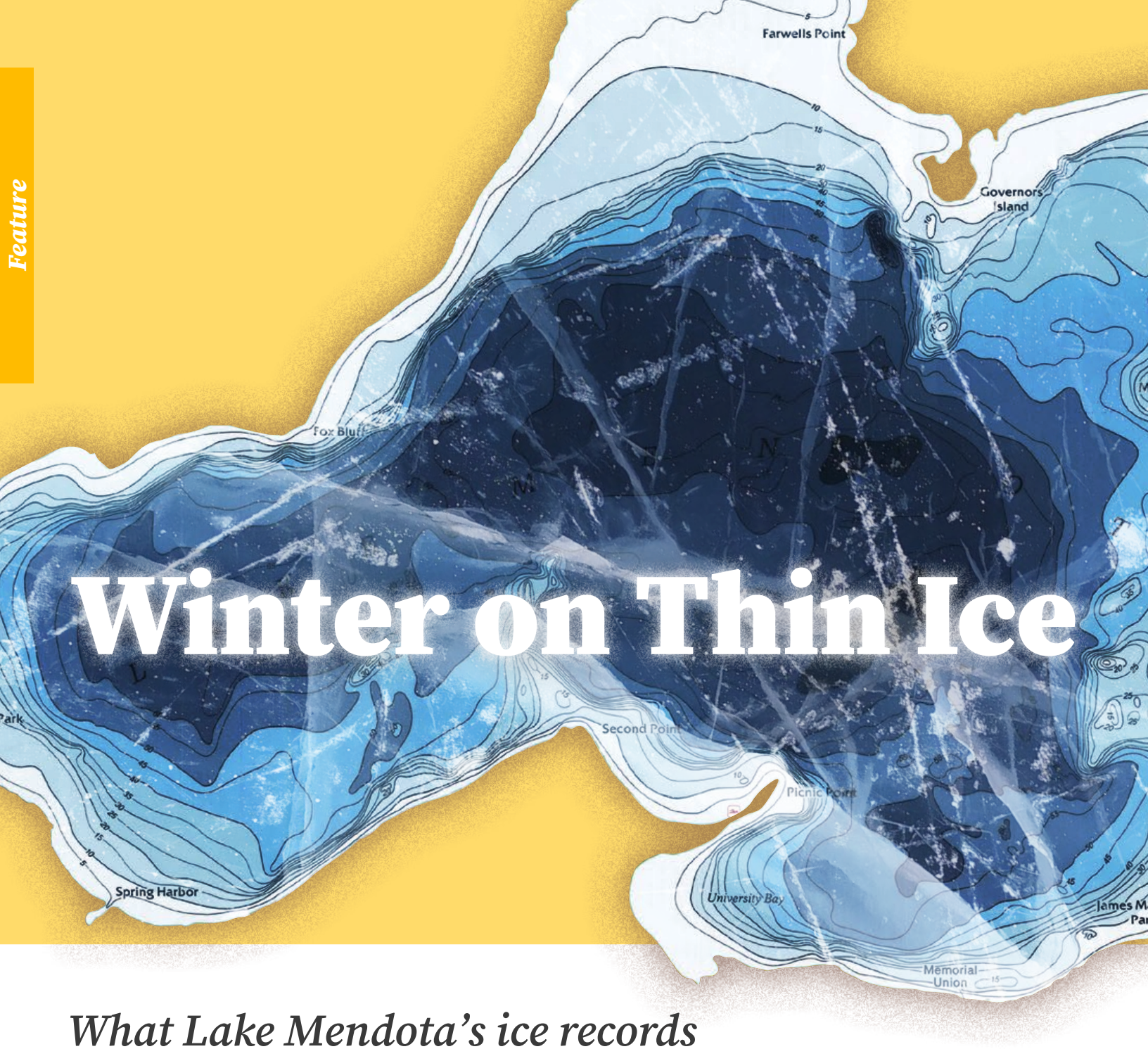
Rob Beattie

Salas wanted to go into helping the planet after learning about the climate crisis at a very young age. "And since I'm good at math and I know a lot about science, engineering was the place to be," he said.

Students in the program are from all kinds of majors and backgrounds. They all bring something different to the program.

Beattie said 'underrepresented' is defined in a pretty broad way, with one requirement being financial need. Beyond that, students often tell the program what they consider to be underrepresented in environmental studies.

"I know some of my past TAs want to come back and steal my job because the students are so cool," Beattie said. "You know, every day you look at them and you're like, I was never this cool as an undergraduate."



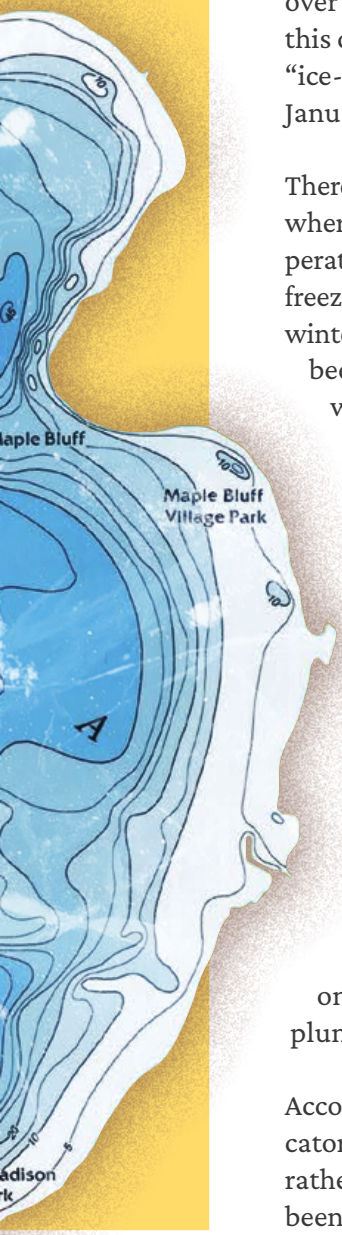
Winter on Thin Ice

What Lake Mendota's ice records reveal about Wisconsin's changing climate.

By Chelsea Rademacher

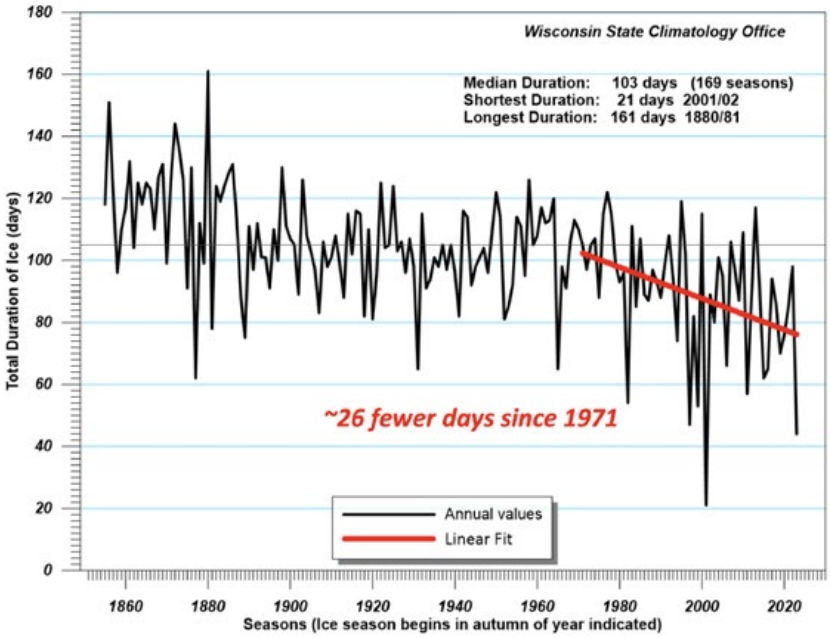
Coverage, fish, cube, duration. What connects these four words? That's right, *ice*! And when it comes to *ice duration* and *ice coverage*, few places have better records than the Wisconsin State Climatology Office. Maintained by assistant state climatologist Ed Hopkins — known among friends and fans as the "Ice Man" — records of freezing and thawing on Lake Mendota date back to 1852. (That's just three years younger than the university itself.) What can these records tell us about Wisconsin's changing climate? A recent data analysis from Hopkins offers good news for migratory birds and bad news for ice fishers: less ice, more water.

For starters, it's taking longer for Lake Mendota to freeze over. The UW student experience may have looked entirely different in 1886 than 1986, but Badgers of both centuries got to enjoy icy activities before heading home for break. Compared to 1971, Lake Mendota now freezes



over about 15 days later, and this century, the majority of "ice-on" dates have been in January.

There have also been seasons where vastly fluctuating temperatures have caused multiple freezes, like the 2024–25 winter. "Lake Mendota has been unusually fickle this winter," says state climatologist Steve Vavrus. "[We saw] a brief freeze-over on Christmas Day that melted off a couple days later, followed by a long stretch with open water. Despite the really cold weather since the start of January, the recent sustained winds kept ice from reforming lake-wide until January 7." It's no wonder the ice is confused this year: it reached 50 degrees on January 17 … and four days later, plummeted to a low of -13.



Ice cover duration on Lake Mendota - duration of ice on Lake Mendota (1852/53–2023/24 winter seasons. Chart courtesy of Wisconsin State Climatology Office

According to Vavrus, the best trend indicator is duration of coverage, however, rather than ice-on dates. "There have been a lot fewer days with ice cover on Lake Mendota in recent decades as the climate warms," he summarizes. Since the new millennium, the average duration of ice coverage is 82 days; in the 1800s, it was 114. The longest duration of ice occurred in 1880–81: Mendota froze just before Thanksgiving and didn't thaw until May 3. Through 1999, the lake would typically stay frozen until April. But since 2000, 57 percent of "ice-off" dates have jumped to March. All told, that's about 10 fewer days of ice coverage today than there were in 1971.

When you look at the increase in annual temperatures across the Madison area, the loss of ice makes sense: it's 2.3 degrees warmer than it was in 1971. If that trend continues, Badgers 50 years from now might never get to lace up their skates on the frozen shores of the Terrace. Ice activities aren't the only winter pastimes at risk. Just last year, northern Wisconsin's historic Birkebeiner ski race had to shorten its course due to lack of snow for the first time.

Fortunately, groups like the Wisconsin Initiative on Climate Change Impacts (WICCI) are meeting these challenges head on. In fact, its tourism and recreation working group has laid out a series of actionable steps that the state can take to both mitigate the effects of and adapt to our warming world. Offers Vavrus, who also serves as the organization's codirector, "Proactive approaches like these are increasingly necessary as Wisconsin adjusts to a 'new normal.'"

Lady Liberty returns to frozen and snow-covered Lake Mendota as an inflated replica of the Statue of Liberty is erected near the Memorial Union at the University of Wisconsin-Madison during the Hoofers' Winter Carnival on Feb. 1, 2019. Photo by Jeff Miller / UW-Madison

Feature

The Ethics of Conservation Genetics

An interdisciplinary team of researchers is exploring the technical and ethical questions of conservation genetics.

By Chelsea Rademacher

Across the globe, human activity has led to the rapid decrease in biodiversity. In just over five decades, one-third of all bird life has vanished from North America, and global wildlife population sizes have dropped nearly 70 percent. The threats here aren't only to the plants and animals that risk erasure, but to the very fabric of humanity as we know it.

"Loss of biodiversity is an ethical threshold for human existence on this planet," explains Paul Robbins, dean of the Nelson Institute for Environmental Studies. But with recent funding from the National Science Foundation, Robbins and a team of researchers at UW–Madison are exploring intersections between conservation, genetics, ethics, and data science. "What we're really talking about is: is it worth it to host a freezer farm filled with a genetic heritage of the Great Lakes?" asks Robbins, the project's principal investigator.

Conservation genetics itself isn't a new field. Defined as "the application of genetics to understand and reduce the risk of population and species extinction," the field first gained recognition in the 1980s, then hit the mainstream in December 2020 with the birth of Elizabeth Ann, a black-footed ferret who was cloned from the cryogenically preserved cells of Willa, a black-footed ferret who died in 1988. This type of assisted population recovery is called biobanking.

While Elizabeth Ann has spurred hope for many conservationists, so, too, has she raised serious questions for others. That's what the UW–Madison team seeks to address with their new

grant. "This research will address the ethical and responsible use of a new technology with great potential to strengthen wildlife conservation," says Francisco Pelegri, coprincipal investigator and professor of genetics in the College of Agricultural and Life Sciences.

"We started with conservation and genetics, and then the questions that raises for sovereign entities and the problem of data."

— Paul Robbins

Per the grant proposal, a particular concern of the team is the use of these technologies "in lands currently or formerly populated by Indigenous communities." The team is not only raising questions about the practical aspects — trapping and collecting samples — but the subsequent questions of what happens with, and who owns, the data. "The future of conservation genetics is best assured through honoring Indigenous Data Sovereignty (IDS)," the proposal states.

With Robbins' expertise in conservation and Pelegri's in genetics, rounding out the project's three pillars is Kyle Cranmer, director of the UW's Data Science Institute. "[This project] builds very much on the strengths

Black-footed Ferret. Photo by iStock / Kerry Hargrove

THE TEAM

UW–Madison

Paul Robbins, environmental studies

Kyle Cranmer, physics computer science, statistics, data science

Francisco Pelegri, genetics

Matt Anderson, medical genetics

Zuzana Burivalova, forest and wildlife ecology

Clinton Castro, philosophy

Tim Van Deelen, forest and wildlife ecology

David Drake, forest and wildlife ecology

Jon Pauli, forest and wildlife ecology

Adena Rissman, forest and wildlife ecology

Sean Schoville, entomology

Steven Wangen, data science

Brian Yandell, statistics

Annette Zimmerman, philosophy

Partners

Christopher Caldwell, The College of Menominee Nation

Jonathan Gilbert, Great Lakes Indian Fish & Wildlife Commission

Deanne Whitworth, University of Queensland

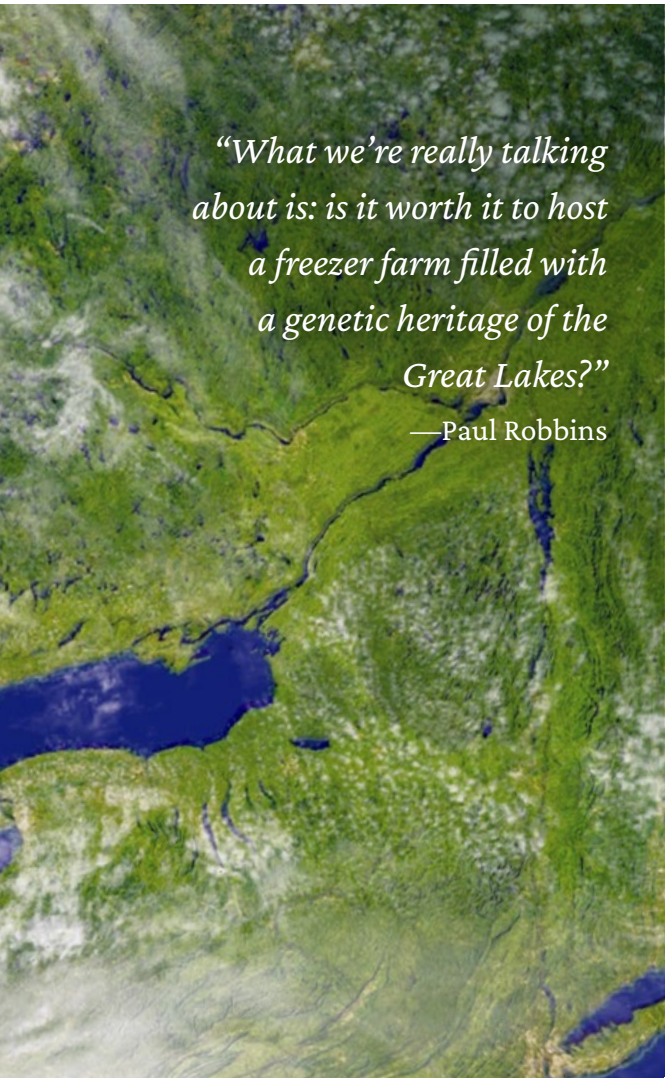
The work led by Robbins, Pelegri, and Cramer will focus on the genetic heritage of the Great Lakes region. Photo by iStock / Harvepino

in genetics and the strengths of the Nelson Institute around sustainability. Managing the data, making decisions about what new samples would be most valuable, and doing all of this while honoring Indigenous Data Sovereignty is a fascinating and rewarding data science challenge," Cranmer says.

The Karner blue butterfly are among the species facing threats from habitat loss, pollution, climate change, and other factors. Photo by iStock

The creation of the team — and the successful grant application — is due in large part to UW–Madison's Sustainability Research Hub, a new campus service that connects faculty with similar research goals and provides project coordination for grants of all sizes. "We started with conservation and genetics, and then the questions that raises for sovereign entities and the problem of data," Robbins says. "The Sustainability Research Hub is waiting for complicated conversations like this one."

In fact, it was the Hub's coordinators who suggested reaching out to faculty with expertise in ethics and philosophy to join the team. This sets the team apart from others working in this area, says Annette Zimmermann, assistant professor in the Department of Philosophy. "We have brought together people who work in the hard sciences, who work empirically, with people who think more conceptually, like me as a philosopher," they say. Based on this interdisciplinary collaboration, the team collectively decided to place a strong emphasis



Paul Robbins. Photo by Kevin Berger

Francisco Pelegri. Photo by Bryce Richter, University Communications

Kyle Cranmer

Annette Zimmermann

on true collaboration and meaningful participation with the communities it seeks to serve. Too often, research "extracts knowledge from Indigenous communities, only then to utilize that knowledge for purposes not aligned with the goals and needs of those communities," Zimmermann explains. "As a team, we are asking ourselves: How can we, from the get-go, create a more equitable process where researchers *and* their interlocutors in local communities all have a good opportunity to voice complex arguments and even tackle deep value-based controversies in a way that doesn't follow this one-off, extractive structure?"

With the team in place, the grant will move forward on a number of initiatives, including hosting workshops and listening sessions with Indigenous communities, running biopreservation experiments, and collaboratively developing IDS principles. The big picture, however, is to lay the groundwork for technically and ethically sound research for all future conservation genetics work — and learn which conditions can make that work possible.

Definitions

Biobanking: the practice of preserving biological materials like cells and tissues.

Data sovereignty: a group or individual's right to control and maintain their own data, which includes the collection, storage, and interpretation of data.

Indigenous data sovereignty: the ability for Indigenous peoples to control their data and includes autonomy regarding a variety of data types such as oral traditions, DNA/genomics, community health data, etc.

How to Win Friends and Influence Policy

A crash course in conservation communications with Rob Beattie.

By Chelsea Rademacher

What do a communication arts major, a consultant, and a professor have in common? They're all Rob Beattie, a familiar name to anyone who's come through the Nelson Institute in the past, oh, 20 years or so. Beattie has lived a lot of lives; his journey traverses directing UMass Boston's undergraduate environmental studies program to cleaning up former nuclear weapons facilities. Today, he's a teaching professor in the Nelson Institute — a promotion that's been a long time coming. Not only does Beattie lead the Community Environmental Scholars Program (CESP) — which he also helped develop in 2011 — he also teaches several graduate seminars, serves on master's and PhD committees, and shapes the Nelson Institute as a member of its faculty governance.

Above: Beattie (left) with CESP graduates at the Nelson Institute's 2022 commencement celebration.
Right: The 2023-24 cohort enjoys a warm, May day outside Science Hall. Photos courtesy of Rob Beattie (2)

In the Nelson Institute, Beattie's teaching has made an impression on everyone from first-semester undergrads ("It's this combination of people who have a tough time adjusting to college, and people who flourish because they're in college.") to PhD candidates ("They're more fully formed human beings."). But regardless of the class number, there's a surprising core competency that Beattie preaches to all of his students: emotional literacy. What does that have to do with the environment, you ask? "Being able to listen for emotions is the one thing we don't emphasize in training conservation professionals or training environmental professionals," says Beattie.

So, that's where every class — and this article — starts. Whether you're working in corporate sustainability or wetland rehabilitation, here are five lessons in finding feelings for conservation communication.

People ...

"The biggest problem you're going to face as a conservation professional is working with people. It's not going to be figuring out how fast bats fly or where the wastewater is coming from; it's going to be the fact that you have to talk to people to do those things. Your ability to interact with people is really the key," Beattie explains. "It's one of the reasons that both CESP and the professional master's programs operate with a cohort model. "The cohort experience is so important, particularly for the environmental field,

because you really need to be able to understand different people in different circumstances with different sets of values if you're ever going to promote any kind of positive environmental change — whether it's climate change or saving the water buffalo."

99 Problems

To approach any conservation conversation, one must first recognize that the issue at hand … really isn't the issue at hand. "No environmental issue is ever about just one technical issue that can be analyzed by experts. It's about that issue, plus the history of power relationships, plus the fact that this is happening in a global capitalist economy where the reasons for pollution or the reasons for an organism becoming extinct are really tied into all of these other features. People end up being the only thing that [matter] in these circumstances."

"You really need to be able to understand different people in different circumstances with different sets of values if you're ever going to promote any kind of positive environmental change."

– Rob Beattie

Knowing Me, Knowing You

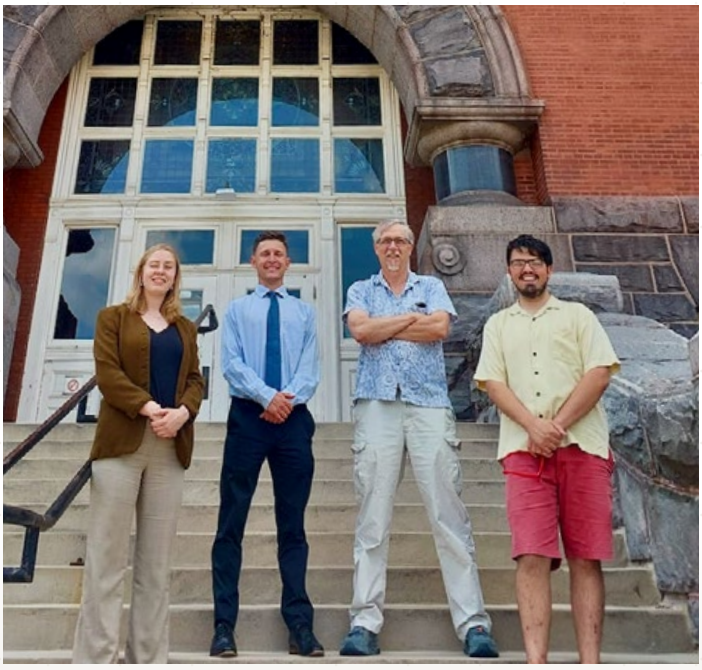
Beattie often references *The Conservation Professional's Guide to Working with People*. The author, Scott Bonar, uses the term "verbal judo" to describe the notion that listening — not one-upping — is the best way to win an argument. "Say, for example, somebody's really angry about new wetland regulations," Beattie explains. "They think the regulations are going to steal their waterfront from their vacation home. That's probably not going to happen, but that's what they are worried about, and that's what they feel. So, if your [job is to explain the] regulations, one great step is just to talk about how your family has a summer home on a lake or how you had great experiences paddling through wetlands as a kid. [Do] everything you can to establish a level emotional playing field."

Sit Down, Be Humble

"[What] we're teaching in CESP is to go in with humility and listen to what needs to be done. If you really want to be of service in a community engagement setting, you take your cues from the community rather than going in and saying, 'You know what? I want to build a greenhouse so you can have fresh food,' and then plant food they hate. We've all heard those horror stories. Doing community service is not just about doing a good thing, it's about engaging a community where it is and listening to what it is that they need, not coming in with expectations or assumptions."

Everybody Wants to (Save) the World

"I really do think that most people have at least some environmental sensibilities, even if they don't know it. They certainly have senses of justice and fairness and beauty and truth and all those vague values. And all you have to do is listen for them," Beattie shares. "You can talk to anybody, and you don't have to be agreeing with them on everything. But they are human beings, and they have feelings and desires and hopes. Chances are, they also share some of your values in many circumstances. Finding that core of shared value is the way that you get an ongoing opportunity to have conversations that can get you in the place you want to go as a conservation professional."



Beattie (second from right) sends off three environmental conservation MS graduates.

From the Office of Sustainability

A monthly update from faculty, staff, and students in the Office of Sustainability - Education and Research.

Applications are now open for the University of Wisconsin–Madison's Corporate Sustainability Internship Program, a unique opportunity for students to apply sustainability knowledge in a corporate setting and gain valuable professional experience. The summer-long program, which is open to both undergraduate and graduate students, pairs participants with companies to tackle real-world sustainability challenges.

Sarah Saturday Ashland and Maya Herzog presenting on their internships at the Wisconsin Sustainable Business Council's Award Banquet hosted at Milwaukee Tool.

Interns work on clearly defined projects that evaluate both quantifiable sustainability metrics — such as energy savings, waste reduction, or water conservation — and the business case for sustainability, such as regulatory compliance, market research, or process improvements. Through this dual-lens approach, students develop both technical and strategic skills that translate across industries, from business and engineering to policy and communications.

Before beginning their internships, students participate in a three-day sustainability and corporate culture boot camp led by the Office of Sustainability. This immersive training covers key sustainability principles, professional skills, and insights into corporate sustainability frameworks. At the end of the summer, interns reconvene for a one-day reflection event, providing a chance to share experiences, discuss challenges, and connect with peers.

Open to students of all backgrounds and disciplines, the program matches interns with host organizations based on project needs and student expertise, ensuring that interns are well-positioned to make meaningful contributions. Each intern is mentored within their host company, gaining direct industry experience while also receiving a small scholarship from the university in addition to their paid internship.

For Wisconsin businesses, the program provides a direct connection to UW–Madison's talent pool, bringing in students with fresh perspectives and a strong foundation in problem-solving. For students, it's an opportunity to step beyond the classroom and into professional roles where they can apply their knowledge in meaningful ways.

Applications for the summer 2025 program are open through March 3.

Director's Cut

A quarterly update from Michael Notaro, director of the Center for Climatic Research.

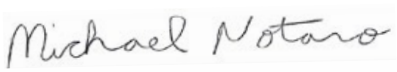
The past year, 2024, was a clear reminder of the growing threat of anthropogenic climate change. Global annual temperatures reached their highest level of the Industrial Era, and for the first time, clearly exceeded the pre-industrial level by over 1.5 degrees Celsius, which was the threshold assigned by the Paris Climate Agreement, of which our nation is no longer a participant.

Atmospheric carbon dioxide levels have reached 426 parts per million, more than 50 percent greater than pre-industrial levels, with 2024 experiencing the largest annual increase for the entire 67-year Keeling Curve record. In 2024, the United States experienced a shocking 27 confirmed weather and climate disaster events with individual losses in excess of $1 billion. Closer to home, 2024 was Wisconsin's warmest year on record, which included the first ever recorded tornadoes in February. Politically, the science community is facing federal grant stoppages, DEI restrictions, and opposition to climate research and climate action.

Armed with a prominent 62-year record of interdisciplinary climate science research, education, and outreach, the Nelson Institute Center for Climatic Research continues to tackle these growing environmental challenges. We invite you to read our 2024 CCR Newsletter.

The 2025 Bryson Poster Competition was held on February 10 at Union South in which a record number of 56 undergraduate and graduate students competed for Bryson Scholarships. The interdisciplinary nature of this event is astounding, with student applicants from 22 different departments and centers, including animal and dairy science, art history, bacteriology, design studies, economics, and entomology, and diverse research topics that include sustainable energy, hurricane forecasting, agriculture, cranberries, streamflow, wildfire, manure, soil microbes, algal blooms, lake habitats, forest canopies, and speleothems, among other topics. Despite the continued environmental threats such as climate change, the future is bright with such impressive and dedicated students at the University of Wisconsin–Madison.

If you wish to support CCR, please consider a gift to either the John Kutzbach Climate Research Fund for general discretionary support or the Reid Bryson Climate Scholarship Fund for student support, as outlined here. With your help, CCR aims to make 2025 a memorable year with outstanding research, education, and outreach in support of our shared global environment.



Michael Notaro

NASA in New Lisbon

Students and teachers in New Lisbon, Wisconsin, see expanded climate science through hands-on learning.

By the Rural Partnerships Institute

Michael Notaro holds a discussion during a Rural Partnerships Institute event, a part of Earth Fest 2024. Photo by Sirtaj Grewal / SMPH Media Solutions

Through university outreach, students at New Lisbon (Wisconsin) Middle and High Schools will get hands-on climate science and research experience. In November, Michael Notaro, director and senior scientist at the Nelson Institute Center for Climatic Research at the University of Wisconsin–Madison, hosted a professional development workshop with four teachers in New Lisbon to train them how to implement NASA's Global Learning and Observations to Benefit the Environment (GLOBE) program.

GLOBEPROGRAM®

The GLOBE program is an international youth citizen science and environmental education program that promotes scientific literacy and building connections between people passionate about the environment. Students from around the world collect, submit, and analyze data while developing research projects to better understand their environment.

Notaro's workshop helped teachers determine how they will develop and implement youth-led local research projects with their students, including the GLOBE program's four protocols (atmosphere, pedosphere, hydrosphere, and biosphere). Community science and hands-on learning can be key ways to understanding climate research and impacts.

"GLOBE will provide a way for students at New Lisbon to get hands-on experience with science and climate topics," Notaro said. "I'm looking forward to seeing what projects the teachers and students develop, and we hope to see them at the Midwest GLOBE Student Research Symposium in the spring."

Topics discussed for further planning included soil frost depth and tube, soil fertility, soil particle size distribution, arctic bird migration, wind speed, and snow crystal identification and photography.

The GLOBE program in Wisconsin is supported in part by the Wisconsin Rural Partnerships Institute (RPI), which allows Notaro to provide the school with the scientific equipment they need to collect data and conduct research projects. The program also provides stipends to teachers participating in the training.

"Empowering our students at New Lisbon with hands-on climate science experience through the GLOBE program is not just about education; it's about inspiring the next generation of environmental stewards," said Yvonne Butterfield, science teacher at New Lisbon

School District. "With the guidance of experts like Dr. Michael Notaro, we are paving the way for meaningful connections between science and our community."

> *"[It's] not just about education; it's about inspiring the next generation of environmental stewards."*
>
> —Yvonne Butterfield

Teachers at New Lisbon are now developing implementation plans so their students can begin collecting data and developing projects. The Midwest GLOBE Student Research Symposium held each spring will provide an opportunity for New Lisbon students to present their research, meet peers and scientists, and learn more about careers in Science, Technology, Engineering, and Mathematics (STEM).

The Rural Partnerships Institute's mission is to conduct research and outreach to maintain the social and economic vitality of rural communities. Administrators and communities interested in learning more about RPI programs, including GLOBE, and how they can bring them to their schools, can contact Jackson Parr, Extension Climate Hazards Planning Educator, at jgparr@wisc.edu.

This work is supported by the USDA National Institute of Food and Agriculture.

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Michael Notaro (left) helps Kim Jensen, Yvonne Butterfield, and Kaitlin Walker use the GLOBE equipment. Photo by Chanyn Dorn

Sticking with Sustainability

Undergraduate student Lia Tabor's sticker design was recently voted into production.

By Anica Graney

The votes are in! Meet Lia Tabor, the winner of the Nelson Institute's recent sticker design competition. Voted on by the Nelson Institute community, Tabor's sticker features sandhill cranes with the words, "stand with sustainability," and are available for pick up at Science Hall. This isn't the first sticker Tabor's ever designed. In fact, she has a whole portfolio of sticker designs behind her as she ran her own sticker shop while in high school. Now a junior at UW–Madison, Tabor jumps at any opportunity to show off her creativity through artistic expressions, all while keeping a pulse on sustainable business practices.

Lia Tabor

Tell us a little about yourself. Where are you from? Any interests or hobbies?
I'm from Edina, Minnesota, and I went to Edina High School. Some of my interests and hobbies throughout high school included business and sustainability—two subjects I've always been interested in. I started a recycling club in high school where we took old homework, test exams, and teachers' paperwork, recycled it, and made it into homemade paper that we then donated as notebooks for people to use. So, that's where my interest in sustainability and environmental science first started.

Why did you choose to pursue a sustainability certificate?
I originally wanted to go to school for either environmental science or art, and my biggest inspiration for that is my dad who works in renewable energy. He's the guy that digs through the trash and rinses out the plastic bags because he thinks it's a waste to throw it away. So, that's why I chose to do the sustainability certificate, and my major is supply chain management. It's a really small major, but I knew I wanted to go into it because I had a sticker shop in high school.

You ran your own sticker shop in high school? How did you manage that?
I produced all of the stickers in my closet during my COVID years in high school. I ran it all through social media, and I had my own website. That was a learning curve. I had to be my own customer service person and learn HTML coding, but it was a super cool experience and great to mention during job interviews!

How did you make your sticker shop sustainable?
When you make your own stickers, there's a lot of paper waste, and I became interested in how to reuse my materials, not only to save money, but to be more sustainable.

That mindset has always stayed with me, and I really want to work in the healthcare supply chain. I think a lot of people don't realize how business and sustainability can go hand-in-hand. For example, say I'm ordering surgical tools for my hospital and a bunch of them don't get used or they're not sterile anymore. Where do they go? How can I reuse that product so it doesn't go to waste? That's another part of sustainability and I'm super excited to work in that industry in the future. That's another reason I chose the sustainability certificate. It fits with all my interests.

Have you always been creative? How has art manifested itself in your life?

Art has always been a huge part of my life. I loved drawing, painting, and jewelry-making while growing up. You name it, I can make it! I've done every possible arts-and-crafts hobby, and I was very surprised at how many opportunities UW–Madison has presented for me to be able to express that. My freshman year, I submitted a final project where I was able to make a zine about my own personal story and identity. I'm also in a club called the Wisconsin Business Review, and I designed their merch this year, which was really cool. And then, of course, the Nelson Institute sticker competition. There have been so many opportunities at UW–Madison that allow me to express myself in art, which has been wonderful because that's originally what I wanted to go to school for. So, it's almost like I get the best of both worlds.

Why did you decide to enter into the sticker design competition?

I honestly think that the sticker competition was made for me. It couldn't have been a better opportunity. I'm earning my sustainability certificate, I ran a sticker shop, and I love drawing. I also wanted to bring attention to how business and sustainability intersect. That's one of my passions in life, and I hope that through this sticker competition I'm able to advocate for business and sustainability.

Why did you choose to feature cranes in your sticker design?

I met up with the dean of the Nelson Institute, Paul Robbins, during one of his beginning-of-the-year meetings where he introduced himself and talked about the Nelson Institute. I think I was one of the only undergraduate students there — almost everyone else was a grad student. It was kind of scary, but I went in between classes, and Paul made this big speech about birds and how much he loved them.

So, when I saw the sticker competition, I emailed him, and the subject line was, "Very important bird question." And I said, "Hi, Paul! My name is Lia Tabor and I'm a business student at the Wisconsin School of Business. I attended the Nelson welcome event last week and your intense passion for birds really resonated with me. I was wondering if you had a favorite bird that I could include in my sticker competition design. Thank you."

That was my first time ever emailing him, and his response was actually the funniest thing ever. He said, "Hi, Lia. Whether my favorite bird is a useful place for you to start or not, it is your call, but I think we all unquestionably know that, for me, the bird is the crane. Which crane? I hear you ask. All of them." And the first one he mentioned was the sandhill crane, which he described as giant, elegant, gregarious, graceful, funny, and a sign of our dedication to conservation throughout the late 20th century and early 21st. Obviously, with such a beautiful email that he wrote back to me, I had to make the crane the main focus of the sticker.

Where is your favorite place to stick your stickers?

I really like to decorate things. That's what my stickers — they're called deco stickers — were made for from my sticker shop. Honestly, anything with a flat surface like my phone, my computer case, and even my lamp!

Tabor, second from right, at the University of Arkansas taking part in the Women Impacting Supply Chain Excellence (WISE) Future Leaders Symposium. Photo courtesy of Lia Tabor

Breaking Down Borders

Gandhiprasad in conversation with the community representatives to identify gaps and needs in terms of water security and sanitation. Photos courtesy of Induja Gandhiprasad (7)

Inspired by the village she grew up in, graduate student Induja Gandhiprasad wants to bring environmental values to communities around the world.

By Laila Smith

"When I was young, I never walked on roads," says Induja Gandhiprasad, a graduate student pursuing a master's degree in environmental conservation. "If I had to go to our family's farm, I would always walk through the landscape and the fields," she says. "I was never stopped by anyone saying 'This is my territory, you shall not enter.'" Gandhiprasad grew up in a rural, agricultural village in Southern India, surrounded by a backdrop of mountains and lush greenery. In her village, the concept of "borders" was unknown — she never felt unwelcome in the harmonious environment around her, and she felt a deep connection to her community and the natural world from a young age.

But today, Gandhiprasad's village is "unrecognizable." The farming practices have decreased drastically, and the lush greenery has been replaced by new buildings and real estate. "What was once lush and green is all brown now," she says.

To Gandhiprasad, the changes to her community were accompanied by a sense of loss. "The developments have made positive impacts on so many lives, but our values have been cut off," she says. "My value systems were connected to the landscape I grew up in. As I started losing the landscape, I felt there was a bit of a disconnect from my own values."

To bring some of these values back to her community — and others across India — Gandhiprasad decided to pursue a degree in architecture. She felt that new buildings weren't being built consciously, and she wanted to protect the natural environment from new developments. "In the five years that I studied architecture, I traveled a lot within India and saw many different places, cultures, problems, and solutions," she says. "I got a bigger picture of what is needed for positive change: it's not just the buildings, but also everything the buildings are connected to. I realized buildings weren't my interest — I needed to find something bigger."

Left: Gandhiprasad on campus at UW–Madison in summer 2024.

Top: A moment of immense learning for Gandhiprasad in the midst of cultural richness and environmental wisdom of the Indigenous people in India.

Above left: Gandhiprasad participating in a peer review on the study of cultural, economic, social and architectural relationships in an urban environment in India.

Above: A photo from a ceremony in Auroville showing how everyone's presence is much bigger than just their physical beings.

Left: The beauty of cocreations with the community at the Matrimandir in Auroville.

After graduating, Gandhiprasad found "something bigger" in Auroville, India, working on urban planning projects that helped emerging cities balance environmental preservation with urban growth. She took up a project focusing on providing drinking water access to marginalized communities across India. "That project gave me the opportunity to travel to remote places, what I call 'roads less taken,'" Gandhiprasad says. "Sometimes, there weren't even roads to reach certain communities — we'd have to find our way trekking through the forest."

This project was the deciding factor that pushed Gandhiprasad to further her education at the University of Wisconsin–Madison's Nelson Institute for Environmental Studies. Throughout her career she had often second-guessed her readiness to pursue new opportunities — but after working with many indigenous communities in India, she was inspired to take direct action. "These communities lived in such a great harmony with the environment they were blessed with. I felt that there was something very pure about this kind of connection between nature and people, and I wanted to bring this value of stewardship back to communities in whatever way possible," she says. To her, pursuing a master's degree was the next step towards reaching that goal.

"There's a sense of collectiveness that reassures me that beyond borders, we're all connected through a single goal."

— Induja Gandhiprasad

Gandhiprasad started the Nelson Institute's environmental conservation professional program last summer, drawn to the program's action-based approach to learning and the institute's legacies of Aldo Leopold and Gaylord Nelson. "Coming from another country, I wanted to get the best exposure to knowledge that I could find," she says. "I also had a lot of support from my community in Auroville, and I would give them a lot of credit for preparing me to come here."

Since starting her degree at the Nelson Institute, Gandhiprasad has been most impressed with the welcoming environment and warmth within her cohort. Her cohort consists mostly of mid-career professionals like herself, and she's found a lot of value in learning from them, their knowledge, and their experiences.

To remind her of the places, people, values, and experiences she's encountered, Gandhiprasad likes to sketch the different landscapes she's visited.

"The openness in learning has been beautiful for me, and the sharing doesn't just stop at a classroom level," Gandhiprasad says. "There's a sense of collectiveness — which is very important for this profession — that reassures me that beyond borders, we're all connected through a single goal."

After completing her master's degree Gandhiprasad plans to work in habitat and landscape restoration or water management, bringing knowledge of natural systems to communities around the world. "The ecological integrity of many places around the world is being destroyed, which is very concerning," she says. "Having a sense of stewardship and a deeper understanding of these systems are both crucial in effecting positive changes. It brings people a different level of consciousness that would make us better consumers, which would contribute less to the damage we've caused."

To Gandhiprasad, protecting the environment is an international responsibility. "In today's world we have a sense of territory and a lot of borders," she says, "but we need to fight beyond borders because a climate crisis in one place is going to affect people everywhere." By breaking down borders between communities, countries, and even continents, collective action can result in powerful efforts to protect and restore our environment. "I know there are millions of people who are thinking like me," Gandhiprasad says. "The more we dream, the more we can bring those dreams into reality."

Charging Toward a Greener Future

Witman posing with some larger-than-life-size AA batteries at a Home Depot in Madison. Photo by Alexander Klein

A senior writer for Wirecutter, Sarah Witman takes a sustainable approach to tech reviews.

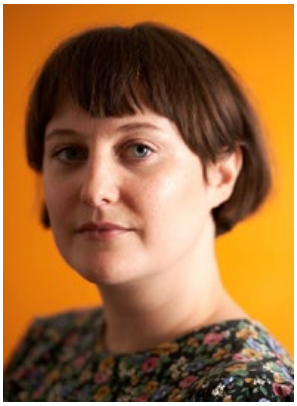
By Laila Smith

What's the best surge protector on the market? Which portable charger is going to last me the longest? How do I recycle batteries? If you've had any of these questions, you might want to see what Sarah Witman has to say. Witman is a writer for *Wirecutter*, the *New York Times*' product recommendation service. She specializes in reviewing batteries and chargers for all kinds of devices, from electric vehicles to smartphones.

Witman's career in journalism started in high school, where she wrote for — and later became an editor of — her school's newspaper. "It made me realize that I liked being able to dive into topics that I'm curious about or interested in," she says. After high school, Witman continued her

studies at the University of Wisconsin–Madison, graduating from the university's journalism school.

In addition to her love of journalism, Witman also had another passion — the environment. She recalls a "wave of environmentalism" happening while she grew up, which pushed her to pursue a certificate in environmental studies when she started at UW–Madison. "Climate change has always been something that I cared about, and I wanted to be able to use my journalism skills to help the environment," says Witman.



"People want to know what they can do to help the environment on a consumer level, so I try to meet people where they're at and remove barriers for living more sustainably."

— Sarah Witman

To Witman, UW–Madison's rich history of journalism and environmental studies made it the perfect place to study both. "I was really involved in the *Badger Herald* all four years of college," she says. "I was an editor for the arts section, but I did try to write a few environmental-related pieces while I was there." Sometime after Witman's graduation from UW–Madison, the paper added an entire section of their paper dedicated to science news, something that Witman is excited to see.

In 2017, Witman started writing for *Wirecutter*, a branch of the *New York Times* that covers product reviews and recommendations. Before she started specializing in batteries and chargers, Witman reviewed a variety of household items. Her favorite item to review? Mousetraps. "A mousetrap is such a seemingly mundane thing, but something that most people end up needing," she says. "I talked to a lot of interesting people that know a lot about mousetraps, and I learned that preventing mice from getting into your house is much more effective than mouse traps are. Instead of thinking of a mouse infestation as an intrusion on your space, it's helpful to realize that we actually are invading their habitat."

Now a senior staff writer for *Wirecutter*, Witman focuses on chargers and batteries — "anything that has to do with powering another thing," she says. "I research, test, and review all different kinds of technology." When reviewing these chargers, Witman often has to speak with experts to learn more about the inner workings of the technology she's testing. To her, the science writing foundation she gained from her environmental studies education has helped her learn and write about the technology behind the products she's reviewing. "Being able to talk to engineers and scientists, and being able to understand technical things and synthesize them for a wider audience are valuable skills," she says.

Since finding her niche with batteries and chargers, Witman gets to test some of the latest technology for

Sarah Witman. Photo by Lauren Justice

Above: Witman hiking in the San Bernardino Mountains. Photo by Meggan Klein
Below: Witman testing rechargeable AA batteries at the *Wirecutter* offices in New York. Photo by Sarah Kobos

Wirecutter — like at-home electric vehicle chargers. "Writing the guide was so interesting. They had me rent two electric vehicles, and test them with all these different chargers," Witman says. "People have a lot of questions about these types of things. I'm writing for someone who might want to someday own an electric vehicle, so when they're ready to make that transition, they'll know that there's information out there, making it less of a scary experience for them."

Witman has also written about many other sustainable technologies, such as solar chargers, battery recycling, and portable power stations, which are large-scale portable batteries. "When I first started writing about these things at *Wirecutter*, it was more of a niche area. It's so cool to see so many more companies making these types of things now — especially with there being more natural disasters than ever — giving people the option to use battery and solar-powered energy instead of gas generators."

When writing her tech reviews, Witman uses a sustainable approach to make environmentalism accessible for all audiences. "People want to know what they can do to help the environment on a consumer level, so I try to meet people where they're at and remove barriers for living more sustainably," she says. By combining her journalism expertise and commitment to bettering the environment, Witman shows that by making informed decisions — like picking a charger that's built to last or properly recycling electronics — everyone has the power to help combat climate change.

2025 Nelson Institute Alumni Awards

We are now accepting nominations for the 2025 Nelson Institute alumni awards! Know a Nelson alum (yourself included!) who's making waves and inspiring others? Nominate them for a Rising Star or Distinguished Alumni Award. Nominations are open until Friday, Feb. 28.

Learn more at nelson.wisc.edu/alumni/awards.

Save the Date for These Spring Events!

Monday, Feb. 17
Tales from Planet Earth Presents Wild & Scenic: 2024 Rewind
Learn more at nelson.wisc.edu/wildscenic

Tuesday, Feb. 25
People, Planet, Profit: Careers in Corporate Sustainability
Learn more at nelson.wisc.edu/ppp

Thursday, March 13
Sustainable Success: Renewable Energy Policy
Learn more at nelson.wisc.edu/renewable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