November 2022

Nelson Institute for Environmental Studies
UNIVERSITY OF WISCONSIN–MADISON

THE COMMONS

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

Posoh, Haho, Boozhoo, Bosho, Shekoli, Koolamalsi, Aquy!

The Nelson Institute celebrates Native November.

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We invite you to stay connected by updating your contact information or joining our LinkedIn group for alumni and friends.

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

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Cover image: Taylor Wolfram/UW-Madison

Dear Nelson community,

The University of Wisconsin–Madison and the Nelson Institute occupy native Ho-Chunk land, and we recognize the sovereignty of this nation, as well as the 11 other sovereign Native Nations of the state now known as Wisconsin. That is an acknowledgment, of course, which isn't nearly up to the task of addressing the history of this relationship. But as we enter Native November, we have a chance to learn, listen, and think about how to better work with, and serve, our Ho-Chunk neighbors and students.

We are proud that, very belatedly in our more than 50-year history, the Institute helped support the creation of the "Our Shared Future" project here on campus, an ongoing effort to learn about the histories of these relationships and chart better ways forward. The work is continuous; we are only beginning; I hope this issue of *The Commons* merely provides some collective sense of common purpose. UW–Madison and Nelson have a long way to go here. There are a handful of stories in this issue that I'll call your attention to, as they offer important opportunities for personal reflection during Native November.

Earlier this month, Bill Quackenbush — the Ho-Chunk Nation's tribal historic preservation officer — led volunteers in the construction of a ciiporoke, a traditional Ho-Chunk dwelling (see a timelapse of construction). Then see how the Village of Waunakee is honoring the Ho-Chunk Nation — this month and beyond. Further afield — nearly 3,000 miles from Science Hall — explore Utqiaġvik, Alaska with Cathy Middlecamp and Tim Lindstrom, where they help teach summer STEM camps at the state's only tribally controlled college.

There is too little room to honor all the timely, critical work being done by Nelson faculty. If you missed last month's issue, Noah Weeth Feinstein's crucial support of the UW's Sifting and Reckoning project stands out. So does the work of Nelson's community partnership liaison, James Edward Mills, founder of the Joy Trip Project, who hosted his far-reaching book club this fall. And in this issue, read about Tracey Holloway, who was elected to the National Academy of Medicine; Ankur Desai, who received the American Geophysical Union's 2022 Joanne Simpson Medal for Mid-Career Scientists; Holly Gibbs, who made international headlines with her study on deforestation and cattle production; and so many more. We are proud of all the work of all our staff and faculty.

And finally, as we race toward the end of 2022, I'd be remiss if I didn't humbly ask you to consider including the Nelson Institute in your year-end philanthropic plans. Your support helps us share our globally recognized research, support brilliant students, and find real solutions to real problems. You can help us fast-track these efforts by joining the Nelson Institute Leadership Circle with a gift of $1,000 or more. Learn more about the Leadership Circle here.

Paul Robbins
Dean, Nelson Institute


NIKE

Native November on Campus

To honor the ancestral Ho-Chunk land that UW–Madison occupies and to celebrate our shared future, campus hosted a variety of Native November events. Outside Dejope Residence Hall, students and community members built a ciiporoke (chee-poe-doe-kay) — a Ho-Chunk dwelling — (cover photo) and learned about traditional foods and crafts (pictured here). Campus also hosted an Indigenous blessing ceremony at the site of the proposed Lakeshore Nature Preserve Outreach Center. Photo credit: Taylor Wolfram/UW–Madison

Advocating for a Shared Future

On Nov. 1 in honor of Native American Heritage Month, the Village of Waunakee raised the Ho-Chunk Nation of Wisconsin flag and installed new emblems on a welcome sign.

The flag of the Ho-Chunk Nation dances in the wind at Bascom Hall. Photo by Althea Dotzour/UW-Madison

By Abigail Becker, UniverCity Alliance

While Elliott Funmaker of the Wisconsin Dells Singers drummed a song passed down through generations, officials raised the Ho-Chunk Nation of Wisconsin flag outside of the Waunakee Village Hall on the first day of Native American Heritage Month.

The flag will fly during November to honor all those who came before Waunakee existed. In a permanent installation, Waunakee and Ho-Chunk Nation officials also added new 15-inch diameter circular emblems on one of the village's "Welcome to the Only Waunakee In the World" entry signs, with plans to add them to the additional three signs.

"It really has been an honor for us to engage and build friendships with the Ho-Chunk Nation," Village Administrator Todd Schmidt said during the November 1 event.

These actions further build on the efforts of the Village of Waunakee to recognize and celebrate the Ho-Chunk Nation. In 2020, Waunakee entered into a multi-year partnership with UniverCity Alliance's hallmark UniverCity Year program (UCY), and much of the work focused on relationship-building efforts with the Ho-Chunk Nation.

"This is the first day of Native American Heritage Month," Ho-Chunk Nation Public Relations Officer Casey Brown said during the flag raising ceremony. "I'm really happy that in the Village of Waunakee, it's not just a month, especially with UniverCity Year. It's been an ongoing process. It's not just one day or part of the year."

The decision to work with UCY came after Waunakee began reflecting on how welcoming their community is toward employees and residents following the racially-charged murder of George Floyd by a police officer in Minneapolis in 2020.

> ***"This is the first day of Native American Heritage Month. In the Village of Waunakee, it's not just a month."***
>
> — Casey Brown, Ho-Chunk Nation Public Relations Officer

Waunakee launched community wide discussions about racial awareness and a campaign to tell individual stories of community members and learn how differences can unite a community in an effort to better understand how race and identity shape the quality of life.

Around this same time, the Village of Waunakee looked toward celebrating 150 years as a village in 2021. While a cause for celebration, the significant milestone prompted officials to deepen their understanding that Waunakee stands on land that is not theirs but that of the Ho-Chunk Nation of

Wisconsin. The Hoocagra (Ho-Chunk Nation), People of the Sacred Voice, have been stewards of their ancestral lands and waters, Teejop, since time immemorial.

The partnership with UCY was aimed at building on those efforts to realize transformational change.

During the November 1 ceremony, Village President Chris Zellner acknowledged that Waunakee strives to be welcoming and inclusive to everyone and that raising the Ho-Chunk Nation flag is an important part of that effort.

"I'm so proud of our community and our growth as an inclusive community," Zellner said. "I've always said I want Waunakee to be a welcoming place to everyone. This is one of those steps in doing that."

Partnership impacts

As a result of the UCY partnership, Waunakee's Village Board unanimously approved a land acknowledgement statement on Sept. 20, 2021. The statement recognizes that Waunakee is located on land that is part of the ancestral territory of the Ho-Chunk people, cites atrocities imposed on them and pledges that the village will "advocate for a shared future" through "relationship building, education, and action."

Schmidt read the statement during the flag raising ceremony.

"There was a time when these sorts of agreements were thought of by Native Nations as 'bad paper' because one side didn't uphold the words," Schmidt said. "We in Waunakee don't intend for this to exist as bad paper."

"I give a lot of credit to Waunakee for acknowledging it had work to do on making their community one that's welcoming of all people. This partnership shows what's possible when the university listens to what communities need and get them to the right people at UW–Madison," UniverCity Alliance Managing Director Gavin Luter said. "So many community partners — from the Ho-Chunk Nation to the public schools to the senior center — were involved in making these projects possible. We're grateful to Waunakee for trusting us enough to engage in a partnership about this very sensitive and incredibly important topic."

Read more about the partnership, including a recent award that Waunakee received.

Top: Ho-Chunk Nation public relations officer Casey Brown (center) installs an emblem on one of the Village of Waunakee's "Welcome to the Only Waunakee In the World" entry signs. Middle: The permanent emblems on the village's welcome signs further build on the efforts of the Village of Waunakee to recognize and celebrate the Ho-Chunk Nation. Bottom: On Nov. 1, officials raised the Ho-Chunk Nation of Wisconsin flag outside of the Waunakee Village Hall to mark the beginning of Native American Heritage Month. Photos by Abigail Becker

Climate Influencers and the Politics of Attention

How youth climate activists strategically leverage attention to gain institutional influence while navigating its uneven distribution across geographies.

Youth activists at the COP22 UN climate talks hold an impromptu press conference in 2016. Photo by John Englart

By Mark Ortiz

From the earliest rounds of global climate negotiations three decades ago, young people have been active participants, raising their voices and pointing out the intergenerational injustice of climate change. Severn Cullis-Suzuki, 12 at the time of the Rio Earth Summit in 1992, gave her famous speech at the gathering that called on adult decisionmakers to prioritize the rights of young people and future generations. Since 2009, young people have even had a formal constituency within the U.N. climate negotiations process — YOUNGO — which is meant to represent global youth in a policy process whose consequences span generations.

Transnational youth climate movements which coordinate in-person and online have grown rapidly in both scope and visibility in the past half decade. Fridays for Future, which organizes the school strikes for climate which have taken place in over 125 countries, is undoubtedly the best known of these global networks. Searching the hashtag #FridaysForFuture on Twitter reveals a multifarious and geographically expansive movement, despite mainstream media coverage often reducing this broad wave of activism into individual figures such as Greta Thunberg. Traditional media's emphasis on individual narratives of heroism creates a mistaken impression that climate activism is isolated to or concentrated in the Global North.

Growing youth movements around climate change have resulted in more opportunities for certain youth organizers to engage in high-level climate policy discussions. Activists involved with Fridays for Future, generally of a younger age and different generation than those engaged with YOUNGO for the last decade plus, are now increasingly involved in the U.N. climate arena alongside the constituency.

> ***"The attention of social media and the benefits derived for youth movements were spreading in a dramatically uneven fashion across the emerging transnational networks."***

Meanwhile, in the broader milieu, an emerging cadre of climate "influencers"—individuals who produce multimedia content about climate change for social media platforms—have garnered substantial followings. To visualize the scale, simply

type in the hashtag #climatechange on the social media app TikTok and you'll see reams of short video content with nearly 3 billion aggregate views.

I come to this work as someone who has been an organizer and activist in student and youth movements surrounding labor and workers' rights and environmental and climate justice for nearly a decade now. My experiences as an undergraduate student organizer ultimately led me to become a scholar-activist to better understand the histories, possibilities, and contemporary landscape of youth movement building.

Through methods including ethnographic fieldwork at U.N. meetings, interviews with about 50 youth activists from 30 countries, and digital storytelling approaches, my PhD research characterized the various pathways to influence that youth activists are creating in adult-dominated institutions and on social media. My dissertation also describes how youth movements are dealing with the uneven impacts of climate change by centering the voices of those most affected and contesting dominant media representations which frame climate change as a future issue. As I watched youth movements become more visible and talked about, I began to attend to the dynamics of internet celebrity which were starting to become an integral feature of these movements and their public image.

The Politics of Attention

Taken together, the growth of youth movements, celebrity of certain youth leaders, and increasing cultural discussion of climate change on social media suggests the need to take seriously and critically examine the climate politics unfolding across what sociologist Zeynep Tufekci calls the "digitally-networked public sphere." In the book *Twitter and Tear Gas*, Tufekci reflects on how activists and movements navigate this sphere on social media platforms. With movement hashtags that travel widely, and the capacities of regular people to create viral content with just a smartphone in hand, online and offline politics intermesh in new and significant ways in this media ecosystem.

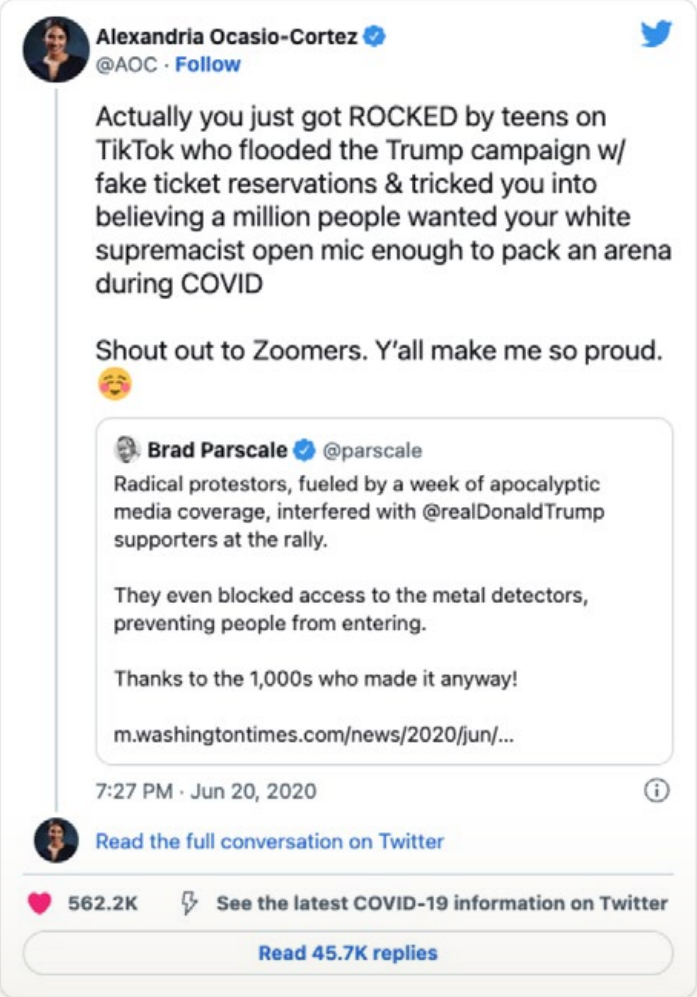
Tufekci's book illustrates the importance of turning critical attention to attention itself. Understood as a resource, it becomes possible to look at how attention is distributed, who does and does not have access to it, and the extent to which social media platforms change that equation. Climate activists, movements, and influencers alike are all seeking attention, whether that be public attention which pressures a government or institution towards adopting climate justice policies or the attention which elevates an internet personality into a profitable and recognizable brand.

Social media platforms provide novel and powerful pathways

YOUNGO activists work together to have their voices heard at the COP25 UN conference. Photo by UNClimateChange

for young people to obtain attention for their movements and moments alike. In my interview with four youth activists involved with Fridays for Future's Most Affected Peoples and Areas (MAPA) constituency, they described how social media had provided a space to link together their climate activism in their home contexts of Balochistan, Mexico, Bangladesh, and the Philippines. These platforms have also created a means to devise digital campaigns to highlight their regions' struggles to a transnational audience, a useful tool in pressuring local and national decision makers.

These affordances are a critical part of the story of social media and movements and speak to how movements can strategically capitalize on organized moments of "digital disruption." The offline and the online have a new proximity in the institutional politics of many contemporary issues. Youth movements recognize this nexus as an important terrain of political influence. After all, this is a moment in which "Tik Tok Teens and K-Pop Stans" are credited with successfully embarrassing former President Trump by creating the illusion of a significant turnout for a campaign rally via clever digital organizing.



Tactics of digital disruption, encompassing humor, satire, drama, and other genres of performance, now form critical elements in the repertoires of youth climate movements. The Sunrise Movement, a U.S. youth climate organization perhaps best known for propelling the notion of the Green New Deal into the national spotlight, specializes in this type of digital disruption, dramatizing moments of generational dissensus on the topic of climate on social media. One such moment occurred when Senator Dianne Feinstein dismissed a group of young people affiliated with the Bay Area organization Youth vs. Apocalypse and Sunrise Movement. The incident was widely shared on social media and picked up on major news outlets, including Trevor Noah's *The Daily Show*. Coverage of the incident cast activists in a generally sympathetic light while Senator Feinstein figured as an out of touch gerontocrat.

This type of buzz, while possibly appearing less consequential than legislation, is an important part of shifting the politics of the possible over time. In a context shaped by climate movements' digital disruption, productive ideas can take flight and go viral. As Leah Thomas, author of *The Intersectional Environmentalist*, states in describing the origins of her book: "Take it from me: I truly didn't think one post on social media — one small moment of resistance — would catapult intersectional environmentalism into existence and allow me to dedicate my life to environmental education."

But, as I began to identify during my PhD research with youth climate movements, the attention of social media and the benefits derived for youth movements were spreading in a dramatically uneven fashion across the emerging transnational networks. While many activists from the most impacted regions were unable to attend U.N. meetings altogether, some of the influencers newly invited to U.N. events to share space with A-list celebrities seemed to me to have little connection to grounded activist movements for climate justice. For institutions like the U.N., this emergent intergenerational politics looked to be quickly morphing into a celebrity-driven populism bound together by the common currency of status and recognition, breathing new vitality into a set of arcane processes and, dare I say, making them appear the cool place to be.

Racism, Youthwashing, and Erasing the Present

Shifting critical attention to attention itself, I was left wondering: which children and young people in this sprawling transnational movement network were being noticed, and who was being erased or actively unwritten from the global collage of youth climate activism?

It quickly became clear that, despite the opportunities social media platforms engender for transnational organizing, the flow of attention in these digital worlds is shaped by dimen-

A student poster on Bascom Hill during the climate strike on Dec. 6, 2019. Photo by Norma Behrend-Martinez.

sions of race, class, gender, ability, and geography among other factors. The attention contemporary youth climate movements have managed to magnetize and translate into increased presence in institutional climate politics carries its own exclusions.

This is perhaps nowhere more evident than at the annual United Nations Conference of Parties (COP) climate negotiations. The annual COP meetings comprise far more than the technical or political negotiations alone. COPs are defined by performative interventions, protests engulfing conference halls and host cities, political theater and drama, and all manner of counter-meetings and negotiations staged to represent alternatives to politics-as-usual.

As Fridays for Future climate and environmental activist Disha Ravi points out in a piece for *Al Jazeera*, COPs are inherently exclusive and exclusionary events: "COP 26 in Glasgow, Scotland, was an event where less than .0004 percent of the global population met to negotiate our lives." Ravi notes the restrictive visa issuances, global vaccine inequities, and media's erasure of Global South activists as key issues shaping both the attendance of COP as well as its public image and reception.

Beyond the difficulties in even making it to the costly summits, youth participation in multilateral, liberal institutions like the U.N. is circumscribed by dominant imaginaries of global childhood and youth citizenship, contributing to what Laura Bullon-Cassis calls the "structural (in)visibility of BIPOC youths in global climate summits." Building on Rebekah Sheldon's book *The Child to Come*, my research shows how enduring representations of certain children and young people as "the future" shape political and emotional responses to climate change. Adults script youth climate activists through particular narratives, often as figures of hope and inspiration. Many youth activists who take part in climate negotiation events feel tokenized, like part of a "youthwashing" scheme, and not listened to. These representations also contribute to the ways certain (primarily white) youth activists are lauded by adult decisionmakers as representing the voice of the future, the moral conscience of tomorrow, while having constrained political influence in the present. Many youth activists point to the extractive and disempowering nature of this dynamic, a quality parodied in the meme below:

Spatial Attention Deficits and Climate Reparations

Geographical unevenness, neocolonial relations, and persistent emphases on "white childrens' futures" rather than "Black, Brown and Indigenous childrens' presents" combine to make COP and the institutional politics of climate change it represents a space in which "the reality of the climate situation in the Global South is blurred," in Ravi's words. She calls for framings of climate change, and material politics of climate, which prioritize the "Global South's present."

Similarly, pointing to the dynamics of media erasure, the Indigenous and environmental rights defender Helena Gualinga tweeted the following in reference to the coverage of protests at the Glasgow COP 26 climate negotiations last November: "Honestly, so disappointed at media. The Amazonian youth from Brazil and Ecuador lead the entire march today in Glasgow and were up on the main stage for almost 30 minutes. Frontline people at the FRONT LINE. Yet no coverage. This is what invisibilization looks like. #COP26." The issue of invisibilization is persistent. Even when youth from MAPA do participate in institutional climate politics their participation is often erased. Ugandan youth climate activist Vanessa Nakate has been cropped out of media pool photos featuring herself alongside white youth climate activists on several occasions, an experience of mediated erasure she writes about in her book *A Bigger Picture*.

Interrogating and resisting such spatial attention deficits is a critical part of building transnational and intergenerational solidarity for climate justice in the context of this social media ecosystem. The reality is that while certain youth activists are celebrated and lauded with international platforms, others are criminalized, incarcerated, and killed. Media depictions of climate crisis and youth activism grounded in senses of whiteness as futurity — the "Global North's future" rather than the "Global South's present," to quote Ravi — serve to reinforce geographies in which certain places and people exist as sacrifice zones. The youth climate activists that I interviewed told me that in their home countries and territories of the Philippines, Balochistan, Bangladesh and Mexico, activists and frontline environmental defenders are being branded as "terrorists" and detained, disappeared, and murdered as a result.

The San Francisco Youth Climate Strike took to the streets to voice their concerns. Photo courtesy of Wikimedia Commons, 2019.

A Sunrise Movement Hunger Strike, Washington, D.C. Photo courtesy of Mark Ortiz

International youth networks such as Fridays for Future through its MAPA constituency are beginning to address these spatial attention deficits and the broader patterns of what Olufemi Táíwò terms "global racial empire" in his book *Reconsidering Reparations*. The campaign hashtags associated with Fridays for Future's most recent marches — #UprootTheSystem, #PeopleNotProfit — speak to an intersectional and transnational climate movement which locates the long roots of climate crisis in histories of racial capitalism, colonialism, and extractivism. MAPA youth activists such as Mitzi Jonelle Tan are calling for climate reparations "for the historical injustices rooted in colonialism, profit-oriented plunder and planetary degradation that has led to the climate crisis." Climate reparations, as Olúfémi Táíwó argues, must involve "no less than the reordering of the globe" in ways which move against intensifying "eco-apartheid."

As the media attention surrounding youth climate activism seems poised to continue growing, and institutions like the U.N. seek ways to more meaningfully involve young people, it is critical to consider what messages and experiences are being highlighted, which experiences are being erased or excluded, and what opportunities exist to build coalitions of accountability that meaningfully embody principles of climate justice grounded in the perspectives of those most impacted by climate change. In short, climate justice demands grounding individual concerns and platforms in broader senses of obligation to particular communities. This, I hope, will lead to critically thinking about how to use and move the attention that having such platforms generates, even if this means in some cases falling back in some cases to platform others with messages from the frontlines of climate injustice. Those who are benefiting from climate celebrity must be conscious of the structural conditions which enable it, and that attention is finite, unevenly distributed, and, at worst, a mechanism through which systemic injustice can reinforce itself.

This story was originally published by the Center for Culture, History, and Environment (CHE)'s Edge Effects *magazine. Learn how you can support* Edge Effects *and stories like this.*

Commuter Community

UW–Madison recognized by Dane County Climate Champions for employee commuting.

Bicyclists use the bike lane on University Avenue during rush hour. Photos by Jeff Miller/UW-Madison (2)

By Lauren Hawley, Transportation Services

UW–Madison has been recognized for employee commuting by the Climate Champions program, operated by the Dane County Office of Energy and Climate. With this recognition, UW–Madison joins Dane County government agencies, schools, businesses, and nonprofits working on projects to advance sustainability practices on a local level.

Approximately 40 percent of UW–Madison employees use active transportation modes to get to and from campus most or all of the time, according to a recent campus survey on multimodal commutes. Active transportation modes include buses, bikes, walking, scooters, carpools, and vanpools, while multimodal commutes combine different modes of transportation. Active and multimodal commutes significantly reduce the number of single-occupancy vehicle trips to campus.

The Dane County Climate Champions program recognizes sustainability practices in 10 categories, with up to four stars per category. UW–Madison received two stars for employee commuting.

"Reducing the number of single-occupancy vehicles on campus is a top priority for Transportation Services, and we are pleased to offer programs to make it easier and more appealing to drive to campus less often," said Patrick Kass, assistant vice chancellor of UW Transportation Services.

UW Transportation Services supports UW–Madison's population of active commuters with Commuter Solutions programs designed to reduce barriers to choosing an active commute, such as cost of use, safety concerns, and infrastructure constraints. Initiatives like the employee bus pass and Emergency Ride Home programs reduce the costs of an active commute. Other services like personalized route planning and classes at the University Bike Resource Center offer knowledge and resources to make active commuting a more viable option. The Climate Champions achievement is one of several recent accreditations UW-Madison has earned that consider employee commute patterns as an important factor in the university's goal to build and operate a sustainable campus.

UW–Madison is also recognized as one of the na-

A commuter bike is parked outside South Hall.

tion's Best Universities for Commuters and a Platinum Bike-Friendly University. The university's support for active and multimodal commuting also contributed to its silver rating by STARS, an assessment tool that evaluates the full spectrum of campus sustainability initiatives. Most recently, Transportation Services was also recognized as a distinguished Accredited Parking Organization, which looks at sustainability as part of an overall system of responsible parking management.

"Active commuting has such a positive impact on our campus climate," said Cindy Torstveit, Associate Vice Chancellor of Facilities Planning & Management. "We at FP&M are pleased to know that the university's commuter programs and ongoing improvements to the multimodal transportation infrastructure are lining up with Dane County's climate goals."

The Climate Champions recognition and other recent achievements serve as a report card, identifying areas where the university is meeting sustainability goals, as well as areas where more development is needed.

"Research developed at UW–Madison informs our knowledge about the intersections between fossil fuel emissions, public health and education," said Missy Nergard, Director of the Office of Sustainability. "Operationalizing that knowledge through our campus practices empowers our community with alternate modes of transportation and drives further inquiry. It's an inspiring application of a circular knowledge economy."

For Transportation Services, this means pursuing initiatives to further reduce barriers to active commuting. One initiative, scheduled to be installed this fall, is the addition of real-time, solar-powered bus trackers at campus bus shelters. The solar-powered bus shelter project, the result of a campus collaboration between the Office of Sustainability, Transportation Services and two student-led organizations, will improve the campus commute experience while reducing reliance on the electrical grid.

UW–Madison also received recognition from the Dane County Climate Champions in the Building Energy Use category for Signe Skott Cooper Hall, home of the UW School of Nursing. Cooper Hall is approximately 25 percent more energy efficient than similar buildings, and uses centrally supplied steam and chilled water to heat and cool the building.

This story was originally published by Transportation Services, a division of the UW Facilities Planning & Management (FP&M). The Nelson Institute, FP&M, and the Office of Sustainability work together to teach, explore, and implement sustainable practices on campus.

"Research developed at UW–Madison informs our knowledge about the intersections between fossil fuel emissions, public health and education."

— Missy Nergard, Director of the Office of Sustainability

Snowshoe hare. Photo by Taylor Peltier/Pauli Lab, UW-Madison

What's Stressing Wisconsin's Wildlife?

Wisconsin wildlife are stressed by climate change, a WICCI report shows.

By Dea Larson Converse, Wisconsin Initiative on Climate Change Impact

Wisconsin is world-renowned for its diversity of wildlife. Our outdoor recreation and tourism economy, which is vital to rural communities, depends on access to this diversity of species. To Tribal Nations that live within our state boundaries, wildlife and subsistence hunting and gathering are essential to their spiritual, cultural, and physical well-being.

The recently published report from the Wisconsin Initiative on Climate Change Impacts (WICCI) shows that warmer winters, less snow, and new pests are stressing iconic Wisconsin species. The last two decades have been the warmest on record in Wisconsin and the past decade has been the wettest.

Climate change is leading to earlier springs, milder winters, and delayed falls. Many species are shifting their historic ranges and migration patterns in response to these changes. Not all species are able to adapt, however, leading to a mismatch between habitats and the migratory species that depend on them. Reducing barriers to wildlife movement and creating resilient habitat spaces will be key for wildlife species as they try to adjust to climate change.

Impacts to a few keystone species illustrate how a warming climate is stressing Wisconsin wildlife. Ruffed grouse and snowshoe hares that depend on a snow-covered landscape to survive Wisconsin winters are increasingly at-risk as winters warm and the period of snow cover

An adult loon with chick. Photo by Jeremy Cohen

"Climate impacts are increasing the risk and harm to wildlife already stressed by habitat loss and degradation, pollution, and disruptions from non-native species. Aligning restorations and habitat management can help species adapt to changing climate conditions."

— WICCI Wildlife Working Group

The Wisconsin Department of Natural Resources expects a varied wild rice outlook across the state. Photo courtesy of the Wisconsin DNR

shortens. Warmer air and water temperatures, along with extreme fluctuations in lake levels, have disrupted loon reproduction by changing the availability of nesting habitat and increasing the risk of black fly outbreaks during the breeding season. Warmer waters, extreme rains, and rapid lake level fluctuations are impacting wild rice beds that are important to Ojibwe tribes in Wisconsin and the wildlife species that use them.

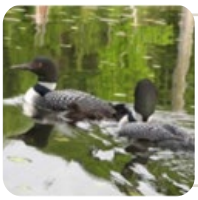
But there is hope. The WICCI Wildlife Working Group recommends activities to help wildlife as the climate continues to warm, including adjusting harvest regulations for climate-vulnerable species. There is hope for the future, but it's up to us.

Support WICCI

The Wisconsin Initiative on Climate Change Impacts (WICCI) is a statewide collaboration of scientists and stakeholders formed as a partnership between UW–Madison's Nelson Institute for Environmental Studies and the Wisconsin Department of Natural Resources. WICCI's goals are to evaluate climate change impacts on Wisconsin and foster solutions. Gifts to the WICCI Program Fund provide general, discretionary program support and enhance and expand WICCI's teaching, research, and public service roles. Gifts also support partnership-building activities, including faculty, staff, and student recruitment, retention, and morale.

This article is part of a series highlighting the contribution from each WICCI Working Group for the 2021 WICCI Assessment Report. Next month, learn about the Infrastructure Working Group.

Wildlife Working Group



Does climate change threaten the common loon in Wisconsin?

Ruffed grouse need diverse forest habitat

Climate impacts to the winter wildlife community

The Best Laid Plans

In teaching students from the farthest reaches of Alaska about adaptability and change, Tim Lindstrom and Cathy Middlecamp learned a lesson or two themselves.

The welcome sign for Utqiaġvik (Barrow) sits among whale bones. Photo by Middlecamp

By Chelsea Rademacher

"The story usually starts with carbon."

"An awful lot of people drop in and drop out. They check a box that they've been up there. It's the people who go back that can make the difference."

— Cathy Middlecamp

This is what students learn in Tim Lindstrom Environmental Studies 126 class — a legendary course taught until 2017 by the legendary Cathy Middlecamp, who took it over from the legendary Cal DeWitt in 2013. To learn about carbon, students play the "carbon cycle game," a dice game created by Kata Dosa — like Lindstrom, one of Middlecamp's former grad students. But where to start when it comes to one's own carbon cycle? "Breakfast," says Middlecamp.

If the story usually starts with carbon, and carbon starts with breakfast, then this story starts with a bowl of plain Cheerios topped with sliced bananas and pears.

Middlecamp looks up from her cereal, taking note of Lindstrom's outfit of the day. "You have the Alaska look," she cajoles. In his green-gray full-zip fleece and yellow cap, complete with a large, black headset, Lindstrom does rather look like he could be piloting an Alaskan sea plane. "It's just stamped on for all eternity now," he shrugs.

Lindstrom and Middlecamp take in the view during the 2019 camp. Photo by Lindstrom

The student-becomes-the-colleague duo are referring to Utqiaġvik (oot-kee-AWG-vihk), also known as Barrow, a town of just under 5,000 on Alaska's north slope. Lindstrom and Middlecamp have spent several summers there teaching a pre-college STEM camp at Iḷisaġvik (ill-ee-SAWG-vihk) College, the only tribal college in the state. This summer was no different — they headed to Utqiaġvik to teach two weeklong camps, Arctic Perspectives in Climate Change and Sustainability for high schoolers and The Science of the Invisible for middle schoolers. In late July, they packed their bags and flew from Madison to Minneapolis to Anchorage, where they hopped an Alaska Air jet to the Utqiaġvik airport (home of the town's only paved road … the runway). The next leg of the journey was an even smaller plane to an even smaller town: Point Hope (population 674), which sits seven feet above sea level and a mere 150 miles from Russia.

Lindstrom and Middlecamp's successful flight to Utqiaġvik in 2019. Photo by Middlecamp

At least … that's how it was supposed to happen. But things don't go according to plan during a pandemic, and they certainly don't go according to plan when your destination is a remote corner of an enormous state.

Plan C … and D, E, F

From Anchorage, there's one flight a day to Utqiaġvik. "During the summer, clouds often are quite low, fog is thick, and if it's thick enough, planes won't land," Lindstrom regales. You can imagine where this part of the story is going — as their two-hour flight descends into Utqiaġvik, the runway in sight, "the plane just pulls up and starts going back up into the sky," Lindstrom says. Middlecamp sets down her cereal bowl to model the flight path with her hands — down, down, down, pause, up, up, up.

"When that happens, they fly to Fairbanks, they refuel, and then they fly back down to Anchorage," Lindstrom explains. "You basically are treated to a six-hour round trip flight where you wind up the exact same place that you left, never having gotten off the plane."

But as Lindstrom said, this sort of thing happens often. It's why their itinerary had them arriving in Utqiaġvik several days before the camp starts. They were rebooked for a Monday departure … same story. "Down, down, down, down, down; up, up, up, up; turn around, refuel, go back," Middlecamp gestures again with a smile.

Back in Anchorage, they were offered a Wednesday rebook, but with the camp already under way — all students and the three other instructors having made it safely and on time — Lindstrom and Middlecamp called an audible and did what they could through Zoom. "At the tribal college in Barrow," Cathy says, "You don't need a plan B — you need a plan C."

On Friday, they landed back in Madison. Not 24 hours later, they were both sick. "Our parting gift was a nice dose of COVID," Lindstrom says as Cathy laughs. The two shrug off their harrowing adventure like seasoned pros. "You just roll with the punches," Lindstrom says nonchalantly. "The folks who live and work up there, they just have a different way of doing things. Things happen a little more slowly than we in the lower 48 are comfortable with."

"And this is not our first rodeo," Middlecamp adds. It would have been her fourth summer teaching at Iḷisaġvik College; Lindstrom's third. "Why is somebody from Wisconsin going all the way up to teach in Utqiaġvik, when you could have people a lot closer doing this?" Middlecamp suggests. "One thing leads to another," she says. "There's no short version of it … but I'll try."

Iḷisaġvik is both Alaska's only tribally controlled college and the United States' northernmost accredited college. Photos by Lindstrom (2)

One Thing Leads to Another

Middlecamp, a chemist by degree, has been a member of the American Chemical Society since 1976. That's how she met Larry Duffy, a chemistry professor at the University of Alaska Fairbanks. The two also work together on Science Education for New Civic Engagements and Responsibility — or SENCER — a national curriculum reform program. ("Teaching as if people in the planet mattered," Middlecamp quips.) After helping Duffy with a grant proposal, he thanked her by inviting her to teach a summer camp at Iḷisaġvik College.

"I was enthralled, entranced, taken by the students, the tribal college, everything," Middlecamp recalls. While there, she met one of Duffy's students, Linda Nicholas-Figueroa. Middlecamp went on to become one of Nicholas-Figueroa's PhD advisors, and Nicholas-Figueroa went on to become Iḷisaġvik's only science faculty member — a post she holds today.

"And Tim, how did I enlist you to come back with me?" Middlecamp asks. "I was just the fortunate beneficiary of being your grad student!" he responds. "And what Tim's not saying," Middlecamp interjects, "is he's a *really* good teacher. He and I taught in Environmental Studies 126 together for more years than I can count."

Environmental Studies 126: Principles of Environmental Science is a core class for the Nelson undergraduate major, taught in a large lecture hall in a large building on a large campus in a large city. Lindstrom and Middlecamp's summer class, which focuses on largely the same concepts, is taught in a small classroom with a window that looks out onto icebergs floating in the Arctic Ocean. It might seem like it'd be hard to translate the UW course to Iḷisaġvik, but it's not — not if the place is the teacher.

Place-Based

The concept of place-based education has been around since — well, forever — but the term wasn't coined until the 1990s. The idea is simple: learn using what's around you. It's a method that Middlecamp incorporated into ENVIR ST 126 when she took over after Cal DeWitt's retirement in 2013. "The Nelson Institute doesn't have any dedicated lab space with a stockroom, beakers, test tubes, microscopes or anything else," she explains. "The campus was going to have to be my laboratory." Middlecamp — with the help of Lindstrom, Dosa, Travis Blomberg and Tom Bryan — turned 126 into a fully place-based course. "How's that expression go," Middlecamp asks, "necessity is the mother of invention? The same was true up at Iḷisaġvik College."

> ***"That was my first experience really being able to integrate the science that we were doing with traditional ecological knowledge and Indigenous perspectives."***
>
> — Tim Lindstrom

In ENVIR ST 126, students visit the unions and residence halls to learn about food and waste. At Iḷisaġvik, they use the Arctic's beaches and washed-up trash to learn about pollution. Both classes learn about energy and local infrastructure: in Madison at the Charter Street Heating & Cooling Plant; and in Utqiaġvik at the Barrow Utilities and Electrical Cooperative, Inc.

In Utqiaġvik, Lindstrom and Middlecamp also take their students to the tundra, National Oceanic and Atmospheric Administration (NOAA) research stations, and the Iñupiat Heritage Center, which they often visit with local elders

A student and an elder explore the Iñupiat Heritage Center during the 2019 camp.

who have been invited to speak at the camps. Interacting with the elders gives students a firsthand look into their communities have changed in just one lifetime. "[The elders] can speak to things like how the sea ice has changed over the years," Lindstrom says. "There are all these differentiations between 'young ice' and 'old ice,' and there's more young ice than there used to be, and that affects their ability to hunt."

For Lindstrom, working with the Iñupiat elders left a lasting impression. "That was my first experience really being able to integrate the science that we were doing with traditional ecological knowledge and Indigenous perspectives. I've tried to integrate that more into my own teaching here in Madison," he says acknowledging that the UW campus sits on ancestral Ho-Chunk land. "For me, that began in Barrow — or at least being woken up to the fact that science is one way of interpreting and explaining what's going on, but it's complemented with traditional ecological knowledge."

Full (Arctic) Circle

Neither Lindstrom nor Middlecamp underplay the reciprocal nature of teaching at Iḷisaġvik College. For them, the lessons learned and friendships earned are well worth the occasional COVID-19–laden travel nightmare. "I had a lot to learn," Middlecamp says of her first trip. "By the time I came back several times, I started understanding how food got in and out, how water got around, how energy was extracted from the ground, how the ocean was to be respected."

Though Utqiaġvik is largely devoid of roads, Lindstrom and Middlecamp have paved a unique two-way street. "A three-way street," Middlecamp corrects. "We learned from them, they learned from us, and they learned from each other," she says. "Being able to learn from the students is probably one of the more gratifying aspects," Lindstrom adds.

One of Middlecamp's most gratifying moments is hearing students ask, "Are you going to come back?" "An awful lot of people drop in and drop out," she says. "In other words, they check a box that they've been up there. It's the people who go back that can make the difference. And there's a group of us who are willing to go back and go back, and I think that's important."

So … are they going back? "I'd be really surprised if Tim and I and the rest of our Alaskan co-conspirators didn't do this again," Middlecamp teases. Lindstrom agrees — but adds a condition for their next visit.

"I want to see a polar bear," he says, matter of fact. "I'm mildly disappointed that we haven't seen one in the three weeks I've been up there." "That's because Tim runs faster than me," Middlecamp jokes with a warm smile. "The bear would get me, and Tim would get away."

L-R: Larry Duffy, Tim Lindstrom, and Linda Nicholas-Figueroa. Photo by Middlecamp

Filet au Deforestation

Despite commitments, Brazil's beef sector tainted by purchases from protected lands in Amazon basin.

"Protected areas are the cornerstone of Brazil's conservation efforts … That meatpackers are continuing to buy from properties in areas that are under strict protection is alarming."

— Holly Gibbs

By Will Cushman, University Communications

Depending on where it's from, your next steak could come with a side of illegal deforestation.

That's because despite improvements by meatpackers to keep their supply chains free of cattle grazed on protected or illegally deforested lands, many slaughterhouses in Brazil — the world's top beef exporter — continue to purchase illegally pastured animals on a large scale.

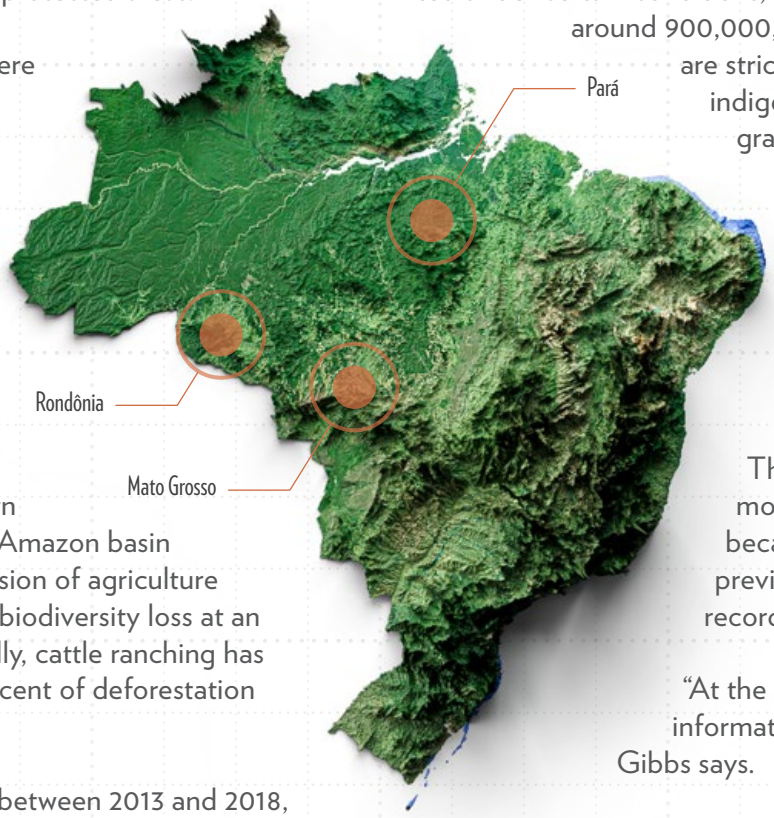
A new study published Oct. 18 in the journal *Conservation Letters* underscores the depth of the problem. Researchers from the University of Wisconsin–Madison and Vrije University Amsterdam found that over a 5-year period, millions of cattle slaughtered for beef spent at least part of their lives grazing in protected areas of the Brazilian Amazon, including on indigenous lands.

"Protected areas are the cornerstone of Brazil's conservation efforts and are arguably the most effective way that we have to conserve forests and the biodiversity inside of them," says Holly Gibbs, a UW–Madison professor of geography and senior author of the study. "That meatpackers are continuing to buy from properties in areas that

are under strict protection is alarming."

Ranchers and slaughterhouses in Brazil are required to share information about where animals are transported, primarily for the purpose of monitoring their health. When coupled with property records, this information is also useful for identifying where cattle have grazed, including if they grazed inside protected areas.

Gibbs and her colleagues were able to reveal the tainted beef supply by tying animal movement data to property records that they then cross-referenced with maps of protected areas in the Brazilian states of Mato Grosso, Pará and Rondônia.



These three states form a crescent around the southern and eastern portions of the Amazon basin — a region where the expansion of agriculture is fueling deforestation and biodiversity loss at an accelerating pace. Historically, cattle ranching has been linked to about 80 percent of deforestation in the Amazon basin.

The researchers found that between 2013 and 2018, more than 1 million cattle were sold directly from protected areas within the three states to slaughterhouses, despite meatpackers' highly publicized commitments to avoid such purchases.

Another 2.2 million were indirectly linked to protected areas, meaning the animals spent a portion of their lives in protected zones before meatpackers purchased them. Often these cattle grazed in protected areas and then were transported to fattening farms outside of those areas before the meatpackers purchased them.

While a majority of these cattle were tied to "sustainable-use" areas where ranching is sometimes permitted under certain conditions, more than a quarter, or around 900,000, were tied to regions that are strictly protected, including indigenous lands. Commercial grazing is illegal in these areas. Additionally, about half of the ranches in protected areas tied to commercial grazing were at least partially deforested in the last several years.

The analysis of cattle movements ends in 2018 because it depends on Brazil's previously transparent public recordkeeping.

"At the start of 2019, this critical information became less available," Gibbs says.

Meanwhile, satellite imagery analyzed by the Brazilian space agency indicates that deforestation rates increased by nearly 50 percent from 2018 to 2020, with nearly three-quarters of the loss occurring in the states covered in this study.

While the state of Pará continues to make cattle move-

Cattle grazing grass on the Cerrado in rural Mato Grosso, Brazil. Photo courtesy of Lisa Rausch

ment data within its borders publicly available, a more holistic accounting of illegal cattle grazing in the Amazon basin will remain elusive as long as Brazil's federal government keeps a lid on the nationwide data, Gibbs says.

This rollback in transparency hampers efforts by slaughterhouses to monitor their indirect suppliers, says Lisa Rausch, a co-author of the paper and scientist at UW–Madison's Nelson Institute for Environmental Studies, where Gibbs holds a joint appointment.

"Many slaughterhouses have gotten the message that being associated with deforestation is bad for their business, but they cannot address this issue without increased availability of information about their suppliers," says Rausch.

Similarly, public audits of slaughterhouse compliance that go beyond the state of Pará, currently the only state with audits, could help distinguish between companies that are trying to improve and those that are not, according to Rausch.

"There is an appetite among retailers and investors — the parts of the value chain that slaughterhouses are responsive to — for more information about slaughterhouses' performances, but right now that information is lacking," she says.

At the same time, the lack of public data could make it easier for slaughterhouses to continue breaking their commitments to avoid cattle pastured in protected areas. Gibbs says making cattle movement data transparent once again is critical for ensuring Brazilian slaughterhouses can continue to make progress toward their public commitments.

"This is further evidence that we need more demand by investment banks, retailers and consumers for improved cattle traceability, transparency and accountability," Gibbs says.

This story was originally published by UW–Madison.

Drone aerial view of deforestation in the amazon rainforest. Trees cut and burned illegally to open land for agriculture and livestock in the Jamanxim National Forest, Para, Brazil. Photo by Paralaxis/iStock

Tracey Holloway Elected to National Academy of Medicine

Holloway was chosen for her leadership in initiatives to connect climate with health.

Tracey Holloway. Photo courtesy of U.S. Department of Energy

By Chris Barncard, University Communications

Tracey Holloway, atmospheric scientist and professor in the University of Wisconsin–Madison's Nelson Institute for Environmental Studies, has been elected a member of the National Academy of Medicine in recognition of her leadership in initiatives to connect climate with health.

Holloway, the Jeff Rudd and Jeanne Bissell Professor of Energy Analysis and Policy, is among 100 new members announced this week. They were elected by the Academy's current members in acknowledgment of major contributions to the advancement of the medical sciences, health care, and public health.

"This extraordinary class of new members is comprised of exceptional scholars and leaders who have been at the forefront of responding to serious public health challenges, combatting social inequities, and achieving innovative discoveries," said National Academy of Medicine President Victor J. Dzau. "Their expertise will be vital to informing the future of health and medicine for the benefit of us all. I am truly honored to welcome these esteemed individuals to the National Academy of Medicine."

At least one-quarter of NAM's newly elected members are selected from fields outside the health professions —fields like law, engineering, social sciences and the humanities.

Holloway is representative of that diversity of talent, with more than 20 years of research at the intersection of air quality, energy, climate, and public health. Her laboratory uses information from satellites and ground sensors to model air quality and its effects on public health, and applies their models to understand the health benefits of changes in energy production and policy.

"This is a tremendous honor," Holloway said. "It's especially exciting to be recognized for my work connecting atmospheric science and climate solutions with public health."

Since 2012, Holloway has held roles with NASA groups organizing researchers around that agency's satellite data on atmospheric contaminants. In 2016, she became leader of NASA's Health and Air Quality Applied Sciences Team, which helps public agencies make use of NASA's wealth of air quality data to solve real-world public health problems.

Her work has been supported by the Environmental Protection Agency, NASA, the National Science Foundation, the Department of Energy and the National Institutes of Health, among others.

> ***"This is a tremendous honor. It's especially exciting to be recognized for my work connecting atmospheric science and climate solutions with public health."***
>
> — Tracey Holloway

Holloway is also a co-founder and the first president of the Earth Science Women's Network, which works to increasing diversity across the geosciences — where women and people of color are underrepresented among scientists — and started ESWN's annual Science-A-Thon social media celebration. She is a Science Mom, and was the first-ever recipient of the MIT C3E (Clean Energy Education & Empowerment Awards) award in Education and Mentoring, a Stanford University Leopold Leadership Fellow, an American Association for the Advancement of Science Leshner Leadership Fellow, and was awarded the 2018 UW–Madison Undergraduate Research Student Mentoring Award.

This story was originally published by UW–Madison.

Fortifying Farmland

Nelson Institute researchers have seen the future for farmland in America — but it's not too late to save millions of acres.

Arlington Research Station (farmland shot), Photo courtesy of CALS

By Chelsea Rademacher

Anyone who's driven through rural Wisconsin — or had their eye pressure checked — is familiar with the idyllic picture of the Midwest: rolling pastures leading to a little red farmhouse. But a recent study by the American Farmland Trust shows that we're well on our way to losing that landscape — and at our own doing.

Tyler Lark

Led by Tyler Lark and Yanhua Xie, researchers in the Nelson Institute's Center for Sustainability and Global Environment, the study projects that the amount of American farmland is on a dangerous decline. The study was a group effort, Lark says. "It combined the deep expertise of American Farmland Trust, technical support from Conservation Science Partners, and our team's experience mapping and modeling agricultural land use to reveal new insights about the threats and challenges facing our nation's farmland and rural landscapes."

"It's a perfect example of how the research we do right here at the Nelson Institute and the UW can make an immediate impact."

— Tyler Lark

To start, Lark and Xie looked at past trends: they found that in the past 15 years, 11 million acres of farm or ranch land were developed: paved over, built up, or otherwise adapted. Using that data to look forward, the models they developed project that, by 2040, 18.4 million more acres of farmland will be converted if current practices continue. That's roughly the size of South Carolina.

This is a figure that should alarm more than just those whose income relies on farming and agriculture. "Farmland and ranchland do so much more than just feed us," the study reads. "With good stewardship, these lands can also sequester carbon in the soil, protect water quality, and provide habitat for diverse wildlife and native species."

The most farmland in the U.S. that's being lost is in major metropolitan areas. As Midwestern cities such as Indianapolis, Minneapolis, and of course, Madison

grow, "Where does that new land come from? Well, we're right in the heart of the corn belt. It's often our best lands that are getting paved over and developed," Lark said in a recent radio segment on Wisconsin Public Radio (WPR).

Land is, naturally, the biggest resource needed for farming. And while new developments are necessary to support the growing population, "the real key is doing that in a smart way," Lark said. "Smart growth is this concept that can help provide some guiding principles, essentially trying to embrace zoning and growth in a compact manner: preserve as much of that farmland, those valuable natural areas, as we can, and then build a little bit more densely or efficiently."

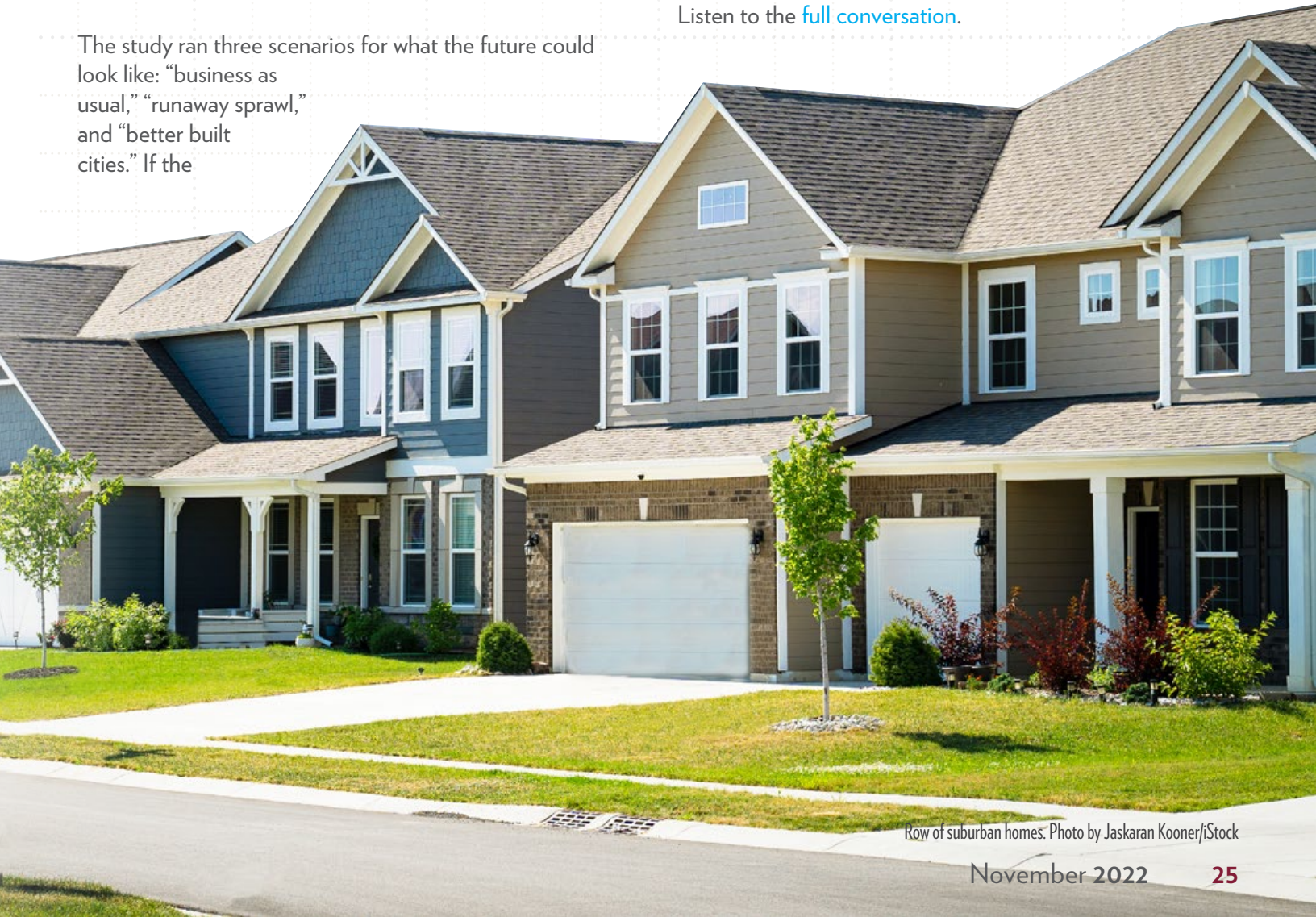
Yanhua Xie

For Xie, what makes this trend so dangerous is that it creates an irreversible problem. "If a farmland is converted, it is very unlikely converted back," Xie says. "That's why we focus on this very irreversible pressure that urban development will have on farmland."

The study ran three scenarios for what the future could look like: "business as usual," "runaway sprawl," and "better built cities." If the business-as-usual trend continues, we'll see the 18.4 million acres of farmland disappear by 2040. In the runaway-sprawl scenario — inefficient new developments, far-flung rural housing, and large lot sprawls — that figure increases by 50 percent. But in the better-built-city model, where support from policymakers and land-use planners results in more efficiently, densely built communities, we can reduce the conversion rate from 18.4 percent to 9.2 percent.

On WPR, Lark stressed that the key to mitigating an irreversible loss of agricultural land is to proactively take action, which is exactly what the study aims to do. "By working together, we were able to produce actionable science that is now being used to guide conservation policymaking and land use planning across the country," Lark says. "It's a perfect example of how the research we do right here at the Nelson Institute and the UW can make an immediate impact that helps support our agricultural industry, protect our open spaces and environment, and provide safeguards for society by ensuring critical land resources remain available for the next generation."

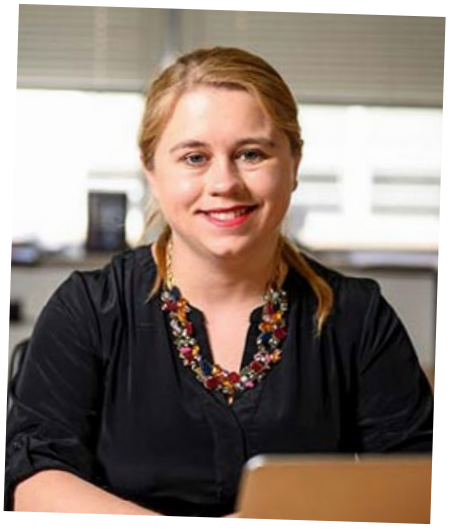
Xie and Lark recently sat down for a Q & A facilitated by Wisconsin Public Radio's Kate Archer Kent. Listen to the full conversation.



Row of suburban homes. Photo by Jaskaran Kooner/iStock

From the Desk of Andrea Hicks

A monthly column from Andrea Hicks, director of sustainability education and research, an associate professor in the Department of Civil and Environmental Engineering, and the Hanson Family Fellow in Sustainability



Why do we need sustainability?

At one point in the not too distant past, environmental degradation was seen as the cost of doing business — at times, it was even celebrated because it meant a thriving economy. The Cuyahoga River in Ohio, which regularly caught fire, is one example among many. Now we are dealing with yesterday's solutions to yesterday's problems which have caused today's problems. DDT is another famous example; it was used as an insecticide to prevent malaria, the problem of the day, starting in the 1940s. But DDT was itself an environmental pollutant that could impact both animal and human health, and its widespread use brought about Rachel Carson's book *Silent Spring* and the beginning of the environmental movement. The Haber Bosch process, developed in the early 1900s, allowed for the fixation of atmospheric nitrogen, solving the problem of the day of feeding a growing world population by generating inexpensive synthetic fertilizer. Unfortunately, this solution worked too well and has led to issues such as the hypoxic zone in the Gulf of Mexico due to an overabundance of limiting nutrients.

Sustainability allows us to examine how we solve today's pressing problems without inadvertently creating other problems for future generations to solve. And we have plenty of problems right now: a global pandemic, climate changes, and plastic pollution, to name a few. How we approach these problems today will set the course for future generations.

As we strive for solutions, it's critical to consider how we can mitigate not just environmental or economic impacts, but societal ones. The National Environmental Policy Act of 1969, often called the Magna Carta of federal environmental laws, recognized anthropogenic impacts of humans on their environment and stated that the policy of the federal government was "to use all practicable means and measures ... to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations." Similarly, the Brundtland Commission's 1987 definition of sustainable development articulated a holistic understanding of the concept: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

This is a crucial expansion of how we address "environmental" issues like pollution and scarcity because it points toward how we can create a society where everyone — not just the privileged few — can participate in solutions and reap the benefits. After all, it is hard for a person to think about stewarding environmental resources in a steadfast manner for the future when they do not have enough to eat or monetary resources to care for their family and themselves. It is not possible for a society to be sustainable without adequately considering all three of the paradigms of sustainability: environment, economy, and society.

Although working towards a more sustainable world may seem hopeless at times, this is my charge to all of you: to not sit idly by and watch the world as it burns, although that would be easier. Take the harder road less traveled and fight the good fight. Because isn't our world worth saving?

Ankur Desai Honored with Mid-Career Award

Desai, a researcher in the Center for Climatic Research, was awarded the 2022 AGU Joanne Simpson Medal for Mid-Career Scientists.

Ankur Desai, an affiliate of the Nelson Institute Center for Climatic Research and professor of atmospheric and oceanic sciences (AOS) in the College of Letters and Science, was recently awarded the American Geophysical Union's (AGU) 2022 Joanne Simpson Medal for Mid-Career Scientists — one of the highest honors bestowed by AGU. Desai, who will also be conferred as an AGU fellow, was honored by the global Earth and space sciences community for his dedication to advancing Earth and space sciences.

Ankur Desai. Photo by Jeff Miller/University Communications

During his 15 year career at the UW, Desai has made scientific advances in broad areas of biogeosciences, atmospheric sciences, and global environmental change, demonstrating strong leadership through field projects, including as principal investigator of the recent CHEESEHEAD19 experiment; promoting collaborations across a wide range of sub-disciplines; developing practices that advance diversity, equity and inclusivity in the department; and providing outstanding service through professional organizations, editorial duties, and communicating science to the public. He is currently department chair of AOS, an editor for AGU's Journal of Geophysical Research-Biogeosciences, and holds the Reid Bryson Professorship in Climate, People, and Environment.

"Nothing in our science to better understand the Earth system and climate is done by one individual or by any one discipline," Desai says. "This award reflects the privileges I had so that I could have landed here in company of amazing collaborators and colleagues who, along with students and staff of the ecometeorology lab that I mentor, continually push me to generate and act on new ideas and build a supportive community."

Desai joins other scientists, leaders, educators, journalists, and communicators from around the world who have made outstanding achievements and contributions by pushing forward the frontiers of science. The criteria for Joanne Simpson Medal for Mid-Career Scientists — named for Joanne Simpson, the first woman in the U.S. to earn a PhD in meteorology — is excellence and impact of the candidate's scientific contributions, along with leadership in the discipline. AGU will formally recognize this year's recipients during #AGU22 Fall Meeting this December in Chicago and online everywhere.

"The amazing collaborators and colleagues, along with students and staff of the ecometeorology lab, continually push me to generate and act on new ideas and build a supportive community."

— Ankur Desai

Environmental Advocacy in Action

Undergraduate student pairs passion for environmental advocacy with Community Environmental Scholars Program.

Kendi Aaron. Photo courtesy of Blen Wondimu

By Anica Graney

"Madison in the summer is beautiful," says undergraduate Kendi Aaron. "That's the one thing I will die on a hill for." The winters? Now, that's a different story.

Aaron came to the UW from Maryland. She's majoring in conservation biology and environmental studies but started off as an astronomy and biology student. "I ended up taking an environmental studies class my freshman year, and it just switched my perspective on life and how I interact with science in general," Aaron said.

She doesn't consider herself particularly outdoorsy, but she soon realized that doesn't particularly matter with environmental studies. "There's so much diversity in the definition of environment and how people can interact with that," Aaron said.

The environmental studies major offers unique opportunities for undergraduate students to broaden their studies through interdisciplinary coursework related to the environment, the program website says. Paired with another major, students not only learn about current environmental issues, but also how to link environmental science, policy, and humanistic approaches to another chosen field of study.

Her majors are similar — she often jokes with others that she's only taking one major because of how much they overlap — but Aaron notes that her environmental studies classes are more geared toward the intersection between human and environmental interaction, including those taught by Lisa Naughton, a Nelson Institute affiliate and professor of geography.

With Naughton, Aaron has taken a seminar course and Environmental Conservation — her "favorite classes ever." The classes focused on the nuances of conservation projects in various parts of the world, including analyses of how social, historical, and economic context shapes how those projects take form. For Aaron, these topics only strengthened her interest in environmental conservation, which she attributes to Naughton's skill. "I really appreciate her as professor. If you haven't taken a class by her, I highly recommend it," Aaron said.

Aaron is interested in environmental advocacy, which she has built upon through the Community Environmental Scholars Program (CESP), an opportunity designed for students who want to link their passion for the environment with their commitment to community, according to the program website. The program partners undergraduate students with community-based environmental organizations where they

Above left: Aaron (front) and her friend kayaking on Lake Wingra. Photo courtesy of Kendi Aaron; Above upper right: Emma Donohue (back) and Aaron (front) spent the summer sampling water quality and greenhouse gas emissions from stormwater ponds around Dane County, Wisconsin. Photo courtesy of Adrianna Gorsky; Above lower right: Aaron measures fruit transpiration at a cranberry research station in Millston, Wisconsin. Photo courtesy of Pedro Rojas Barros

can obtain hands-on practice while fostering some good in the world.

Aaron first heard about CESP her freshman year and applied for the program her junior year after CESP faculty associate Rob Beattie encouraged her to apply. "And then I got in, which I was really surprised about," Aaron said.

In her first CESP year, Aaron worked with the Food Recovery Network on campus where she helped with social media along with procuring and serving food. As her senior year starts, Aaron is now partnered with the UW Divestment Coalition and will start to get involved as the school year continues.

Along with her studies and involvement with CESP, Aaron has worked for the UW's Center for Limnology and the horticulture department over the course of her undergraduate career. At the Center for Limnology, Aaron visited urban ponds throughout Dane County, measured water quality, and analyzed aquatic species and their greenhouse gas emissions. For the Department of Horticulture, she measured the calcium concentrations of Wisconsin's cranberry bogs to determine what will produce the firmest fruits.

Through CESP, Aaron takes what she learns in her environmental studies classes into the communities that she works with. While she puts forward her passion for environmental advocacy, her environmental prowess strengthens. "Many of the things that I am interested in now are because of people from CESP," Aaron said. "It's just a really great community of how to be better when we go back out into the real world."

She emphasized that the environmental studies major has only enhanced her conservation biology degree and believes it can do the same with any other major. "There's something for everyone. I think you can bring environmentalism into any discipline. Everything is interconnected."

Aaron will graduate in the spring of 2023 and is interested in applying to graduate school. She hopes her future connects her with communities she cares about ... and she looks forward to escaping Wisconsin winters.

Learn more about the environmental studies major and how you can support the program.

Back in Bangladesh, EC Alumna Uses New Skills

Environmental conservation alumna Sumaiya Firoze applies skills learned in graduate program to home country of Bangladesh.

By Anica Graney

Sumaiya Firoze. Photos courtesy of Sumaiya Firoze (2)

Traveling from the opposite side of the world, Sumaiya Firoze came to the Nelson Institute determined to grow her conservation knowledge and skills to help her home country of Bangladesh. "When I saw the curriculum of the master's program, it was really something that I was looking for," said Firoze, who graduated in 2017.

After completing her undergraduate degree in Bangladesh, Firoze took returned to her position with the U.S. Agency for International Development (USAID) in Bangladesh where she could follow her passion for conservation and working with vulnerable communities affected by climate change and environmental degradation.

Soon, Firoze knew she needed more tools to be successful. "I started to become more involved in project design and management, and that's when I realized I wanted to build more technical and management skills," Firoze said.

She discussed it with her supervisor Dr. Karl Wurster, former deputy director, Global Climate Change Team, USAID/Bangladesh. She then met Nelson Institute Professor Emerita Janet Silbernagel at a conference where the two discussed the curriculum of the environmental conservation program. Furthermore, guidance from Dr. Wurster and his wife, Olivia, helped Fiorze's decision to join the program as Firoze realized it had a perfect mix of technical and applied management skills course.

The environmental conservation master's program is a 15-month degree that teaches students how to apply practical, interdisciplinary skillsets to a broad range of conservation careers. Students learn relevant ecological, social, and professional skills to facilitate more effective decision making and better collaboration which ultimately leads to stronger environmental outcomes.

Firoze (far left) speaking at a Q & A with government, community conservation volunteers and civil society about the importance of ecosystems and its role in building resilience.

Firoze appreciated the uniqueness of each course in the environmental conservation curriculum and the ability to tailor her classes to her interests. Nelson Institute faculty including Arlyne Johnson, Rob

Beattie, Nathan Schulfer, Lisa Naughton, Alberto Vargas, Janet Silbernagel, and Benjamin Zuckerberg, gave Firoze a well-rounded understanding of global environmental issues, as well as the tools needed to combat them at a local level.

Firoze uses those tools today as she continues her position at USAID–Bangladesh as a senior technical specialist for natural resources management and combating wildlife trafficking. For example, when she designs new conservation and wildlife protection projects to protect biodiversity and build local climate resilience, she uses the knowledge she gained from practical experiences in Conservation Planning course with Professor Arlyne Johnson.

Firoze also took Climate Change Ecology with Professor Benjamin Zuckerberg, where she learned how to draft technical assessment reports after having created a species climate vulnerability assessment for the class. "I thought this course was fantastic in terms of providing technical knowledge to students about the science behind climate change, and how population shifts may occur for species. It provided technical management knowledge on what needs to be taken into consideration when we're looking at solutions," Firoze said.

Naughton shared that the class covers the basic physical factors that shape biodiversity and sustainable use, the socioeconomic forces driving deforestation and forest regrowth, and the ecological and social merits of prominent conservation strategies. "In this course students practice writing for different audiences," Naughton said. "For example, Sumaiya wrote a policy brief on The Promise and Limits of Co-Management: Lessons from Protected Areas of Bangladesh. I still share her brief with students today as an excellent example!"

Firoze (fourth from right) discusses with Indigenous leaders about their history, role in conservation and potential for co-management approach. Photo by Obaidul Fattah Tanvi/USAID Ecosystems, Protibesh Activity

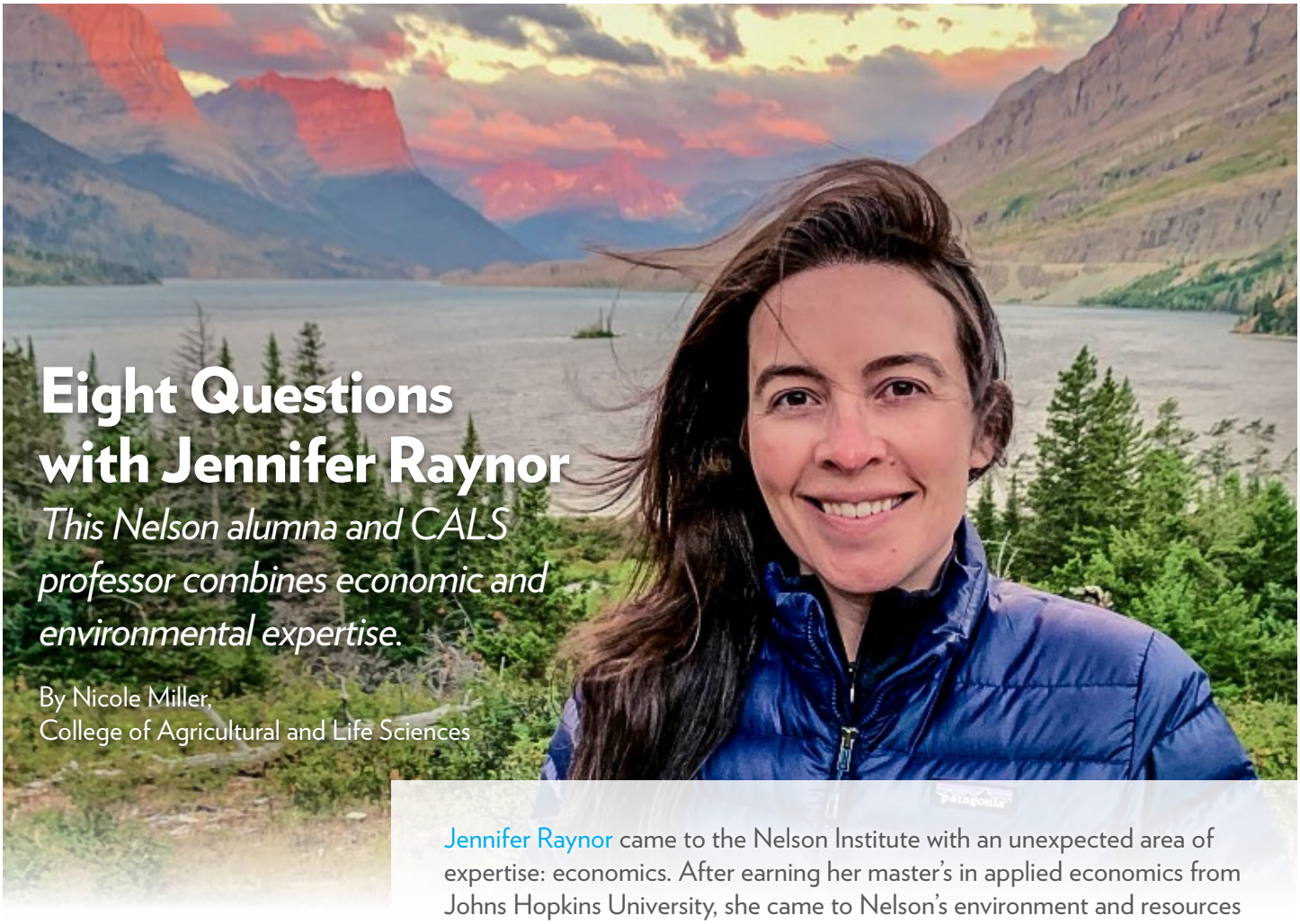
The class focuses on understanding the ecological and conservation implications of modern climate change. Structured in three parts, Zuckerberg teaches the fundamentals of climate change, the ecological responses to climate change, and the case studies surrounding climate change that leads to further class discussion. "My hope is that the students leave the class with a strong foundation of understanding the ecological implications of climate change and a broader sense that conservation agencies and organizations can put forward active solutions," Zuckerberg said.

Faculty Associate Rob Beattie and EPP Program Director Nathan Schulfer taught Firoze conflict resolution and various modes of communication to fit specific groups that she now uses when working with local communities and government entities in Bangladesh. Firoze also took The Tropics: Conservation and Development with Professor Lisa Naughton, which has been extremely useful in her work with environmental governance and co-management of natural resources.

As Firoze continues her work in Bangladesh — promoting environmental and water security, empowering community driven conservation, working with government agencies to address wildlife crimes, providing technical advice for eco-tourism, and incubating climate change — the skills she learned halfway across the world at the Nelson Institute continue to aid her work.

"For me, this program diversified my knowledge and helped me become more open to projects beyond my scope," Firoze said. "It's a multidisciplinary program that combines science and conservation practices. It brings in a diversity of students, so it's really important to utilize this opportunity to interact with each other, learn from each other's experiences and from the professors."

Learn more about the environmental conservation MS and how you can support the program.

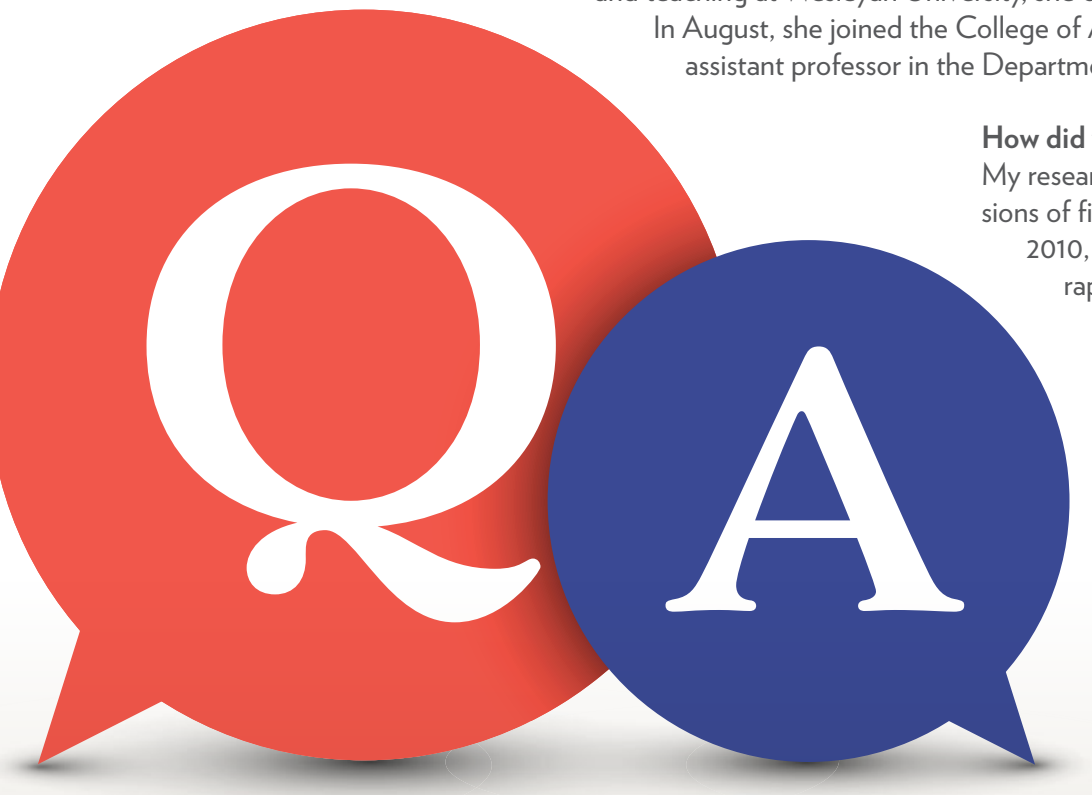


Eight Questions with Jennifer Raynor

This Nelson alumna and CALS professor combines economic and environmental expertise.

By Nicole Miller,
College of Agricultural and Life Sciences

Jennifer Raynor came to the Nelson Institute with an unexpected area of expertise: economics. After earning her master's in applied economics from Johns Hopkins University, she came to Nelson's environment and resources program, graduating in 2016. Today she is a natural resource economist with expertise in fisheries and wildlife management, and after researching at NOAA and teaching at Wesleyan University, she came back to Madison and the UW. In August, she joined the College of Agricultural and Life Sciences as an assistant professor in the Department of Forest and Wildlife Ecology.



How did you get into your field of research?
My research focuses on the economic dimensions of fish and wildlife management. Around 2010, I came across an article about the rapid decline of bluefin tuna around the world. The article discussed some economic policies that were designed to help the species recover. A lightbulb turned on for me, and I began to realize that economic incentives are both the cause of – and solution to – environmental problems. I registered for a non-credit masters course in environmental and natural resource economics to learn more about these ideas, and I have never looked back.

What are the main goals of your current research and outreach programs?
My goal is to build a research portfolio that both advances the academic literature and informs timely, on-the-ground decision-making among natural resource managers.

What attracted you to UW–Madison?
My work is very interdisciplinary, combining fields like wildlife ecology, remote sensing/GIS, and limnology with economics. This kind of work is encouraged and rewarded in my department and the campus more broadly, and research synergies across the campus are outstanding. I am thrilled to be surrounded by such high caliber colleagues doing such exciting work.

"My work is very interdisciplinary, combining fields like wildlife ecology, remote sensing/GIS, and limnology with economics. I am thrilled to be surrounded by such high caliber colleagues doing such exciting work."

— Jennifer Raynor

What was your first visit to campus like?
Since I did my MS and PhD at UW–Madison, my first time back [for the faculty position] was like coming home.

What's one thing you hope students who take a class with you will come away with?
I'm excited for the opportunity to show students that economics isn't just the source of many environmental problems — it is also the solution!

Photos courtesy of CALS (2)

How does your work relate to the Wisconsin Idea?
I am passionate about doing work that affects real-world decision-making. To that end, I have worked closely with natural resource managers at both the state and federal level to design and evaluate policies that benefit people and the broader natural world. It is amazing to be in an institution that values these kinds of collaborations.

Raynor recently collaborated on a study with researchers from the University of Hawaii, which "finds that carefully placed no-fishing zones like Papahānaumokuākea can help restore tuna and other large fish species."

— *Popular Science*

What's a fun fact from your area of expertise?
Wolves generate millions of dollars of economic value in Wisconsin every year by reducing vehicle collisions with deer.

What are your hobbies and other interests?
I enjoy backpacking, paddling, sailing and snowboarding.

A longer version of this story was originally published by ECALS.

Speed networking event accelerates

NELSON CONNECTIONS

Thank you to the 22 Nelson Institute alumni who joined our Leveling Up: Short and Snappy events on October 12 and 13! In these virtual, drop-in sessions, alumni had six-minute speed conversations with current students to help them hone interviewing and networking skills. The Leveling Up series offers career resources and events for Nelson students.

Thank you to the alums who participated this year:

Kelsey Abad
Tim Asplund
Kai Brito
Breana Collins
Kat Friedrich
Greg Friese
Katrina Gilbank
James Jedibudiah
Lauren Jorgensen
Cassy Krueger
Laura Miller
Michael Miller
Betsy Otto
Betsy Parker
Alina Prahl
Renata Solan
Christa Trushinsky
Sarah Unz
Glenda Valdez
Steve Ventura
Randall Wade
Danielle Wood

Want to help current students? Contact Emily Reynolds for alumni opportunities.

KEEP UP TO DATE ABOUT UPCOMING ENVIRONMENTAL EVENTS

Nelson Video Library

If you missed a Nelson Institute hosted event or lecture, you can view recordings on demand in our video library.

Fill the Hill

24 hours | 31 donors | $4,825 | $1,000 matching gift from Caterpillar

Thanks for helping Nelson Fill the Hill! Thanks to Badgers and friends everywhere, Fill the Hill 2022 was a smashing success. In just 24 hours, the university received more than **2,700** gifts totaling more than **$421,000**. Thank you, Nelson community, for investing in our future!

Margaret Anders • Lauri & Corbin Asbury • Tracy Benton • Thomas & Sandra Blumenberg • Judith Carlson Kelley • Annabelle Collins • Sonnet & Christopher Edmonds • Daniel Fallon • Brian & Susan Foster • Rochelle Habeck & Howard Hunt • Eileen Hanneman & Lawrence Sromovsky • Bridget Killberg • Thomas Kimmerer • Jennifer Losaw & Robert Owen • Vera Martinovich • Cynthia McCallum • Robert Nightingale • Ashley Parker • Elizabeth Popelka Massnick & Thomas Massnick • Nancy Rebholz • James & Susan Rink • Paul Robbins & Sarah Moore • Andrew Rohn • Robert & Constance Sigrist • Susan Stemper & Peter Lieberwirth • Diane Stojanovich & Gerald Hinz • Sandra Svec Christian • Ann & Craig Swenson • Robert Tafelski • Kyle & Lynn Tanger • Paul Wilson & Laura Nagus

Support NELSON

Interested in supporting the Nelson Institute? There are many ways to contribute to the Nelson Institute — participating in our events, mentoring our students, providing connections to your personal networks, and making financial gifts.

All of these are necessary and important to us, and we invite you to invest in our community in the way that makes the most sense to you. Learn more about all of the great academic programs, research centers, and public programs we offer.

Gifts in any amount are needed and appreciated!

A Successful Sustainability Symposium

At the UW–Madison Sustainability Symposium, presenters address "a potential existential crisis."

Ian Aley, Green Fund Program Manager at the Office of Sustainability, presents a flash talk at the UW–Madison Sustainability Symposium. Photo by Nathan Jandl.

By Marek Makowski, Office of Sustainability

At the inaugural UW–Madison Sustainability Symposium, Josh Arnold presented a major pilot project that could allow UW–Madison to generate more renewable energy.

"Our students, staff, faculty, and alumni — including many in this room — are demanding bold climate action now," said Arnold, the campus energy advisor for the Office of Sustainability. "Producing electricity using renewable energy such as solar panels is an important way to advance climate goals. As a result, we're seeing more solar projects throughout Wisconsin."

"How might we plan a solar and agriculture project with the Wisconsin Idea top of mind?" he continued. "How might we center people-based resilience and equity while creating a unique research-based laboratory for faculty and students? And how might we accomplish these lofty goals with a zero-dollar project budget?"

The answer is "Badgervoltaics," a pilot project that will install solar panels at the nearly 300-acre Kegonsa Research Campus (KRC) near Stoughton, a short drive from the Madison campus. Badgervoltaics will involve students and faculty in studying agrivoltaics, a rapidly growing field that joins agriculture with solar energy production. At KRC, there is the potential, "at this time next year," to "produce enough energy to power more than 450 homes per year." In addition, the project may serve as a model for addressing farmers' and other residents' concerns about solar installations on agricultural land.

> ***"We need you, and we all need to figure out what we can do to help create a world that can sustain itself."***
>
> — Chancellor Mnookin, closing remarks

Arnold's presentation came during the flash talks portion of the Sustainability Symposium hosted on October 26 at the Discovery Building. The Office of Sustainability and the Nelson Institute for Environmental Studies co-organized the event so that students, faculty, and staff members could share their research about sustainability, inspire participation in future research, and solicit ideas. Presenters each spoke for five minutes about a variety of topics relating to sustainability, including carbon conversion technologies, battery chemistry, sustainable inputs for carbon-nitrogen bond formation, and polylactic acid cup disposal on cam-

pus. A poster session following the flash talks allowed for networking and conversation about even more topics.

Mikhaila Calice, a PhD candidate in the Department of Life Sciences Communication, discussed two workshops she created to learn more about opinions on community energy management across the state.

Andrea Hicks (left) and Chancellor Mnookin chat during a break between sessions. Photos by Bailey Kestner (2)

"There have been a lot of … recent efforts around the state and by the state government to deal with clean energy in Wisconsin, such as the Sustainability and Clean Energy Office and the Clean Energy Plan that was introduced this past spring," she said. "But, in Wisconsin, less than a quarter of our energy comes from clean energy resources."

"Will Wisconsin become a leader of the clean energy transition? If so, what would that look like for the state of Wisconsin? More specifically, what would that mean for local communities throughout the state?"

Calice's workshops, funded by Holtz Center, brought together a range of community members in different areas of the state, students, employees for energy nonprofits, private industry workers, and researchers. Participants voiced support for energy technologies, a belief in the responsibility of local governments to address climate change, and "mixed views" that their communities have the resources to combat the climate crisis.

"Because the energy transition and climate change are such intersectional issues, a range of community members need to be engaged throughout the entire process," Calice said.

In her keynote address, Andrea Hicks, the director of sustainability education and research for the Office of Sustainability, and Nelson Institute Hanson Family Fellow in Sustainability, spoke about the kind of collaboration Calice mentioned.

"We have a myriad of cascading issues relating to climate change," Hicks said. "So we really need to think carefully about how we're solving these and what the potential impacts are to what we're doing. And that's really where sustainability comes in."

Hicks summarized the history of sustainability efforts on campus, which began with the We Conserve campaign in 2006 and led to former Chancellor Biddy Martin to announce the UW–Madison Sustainability Initiative in 2010. That year, the Sustainability Task Force recommended the creation of the Office of Sustainability; in March 2012 it materialized, with Craig Benson and Faramarz Vakili serving as codirectors. In recent years, the Nelson Institute created the undergraduate sustainability certificate, while the Office of Sustainability has developed the UW Zero Waste Initiative, founded the Sustainability Advisory Council, and benchmarked university progress through self-reported STARS assessments.

While UW–Madison has maintained its silver level status

Office of Sustainability interns Mark Boeve and Hannah Schilling pose in front of their poster at the UW-Madison Sustainability Symposium.

through the STARS report, it still ranks in the bottom three in sustainability among peer universities, as detailed in a recent *Cap Times* article.

"I think often the question is, why is there opposition?" Hicks said in response to an audience question about overcoming opposition to sustainability efforts. "Understanding what the challenge is and seeing where we can have situations where there are wins for multiple people. Sometimes it's taking the walk in the other person's shoes: understanding what is the challenge and are they opposed, or is it something else?"

Sometimes, though, ideas and proposals can be rejected, and another "challenge is that often university progress is slow," so "it's kind of hard to see the long view of that progress when your time on campus is very, very short."

In her closing comments, Chancellor Jennifer Mnookin suggested sympathy and possibly a greater willingness to accelerate sustainability projects on campus.

"I just want to emphasize that I think this work is incredibly important. It's incredibly important for our world; it's also important for our university," she said.

Mnookin previously served as dean of the School of Law at UCLA, which holds a gold STARS rating. She appeared to carry that initiative into her presence at Wednesday's symposium, as she spoke about the need to act quickly, on campus and in the world, to advance sustainability against climate change and its "disproportionate effect" on the most vulnerable communities and communities of color."

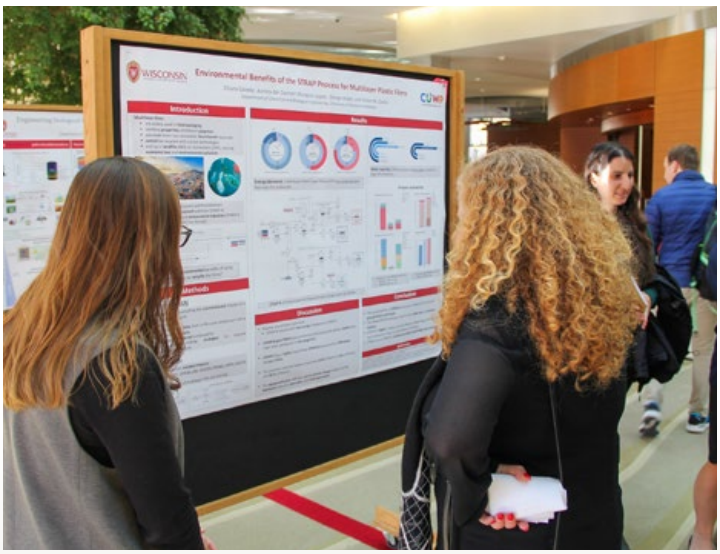
"This is a potential existential crisis, maybe even more than potential," she said, lowering her voice, not reading from her prepared remark and looking directly at the audience. "Here we are in a world that is quickly at risk of becoming unsustainable for the means of existence that we've in many ways taken for granted. And it feels very, very hard to figure out what to do about it fast enough, deeply enough, and effectively enough to bring about change."

"And in the face of that you are not being resigned, or quiescent. You are finding ways to move forward and make a difference and to pull people together collaboratively to engage around these issues of sustainability. We need that, we need you, and we all need to figure out what we can do to help create a world that can sustain itself."

This story was originally published by the Office of Sustainability.

More than 50 students, staff, and faculty presented posters during the Sustainability Symposium. Photos by Bailey Kestner (3)

Undergraduate Logan McQuade discusses the findings of a UW Green Fund project that's helping UW Grounds to transition away from gas- and diesel-powered equipment.



Chancellor Mnookin (right) learns about multilayer plastics films from postdoctoral research associate Aurora del Carmen Munguia-Lopez.

Recap: Everyone's Earth

Everyone's Earth lecture discusses enslaved people's mobility.

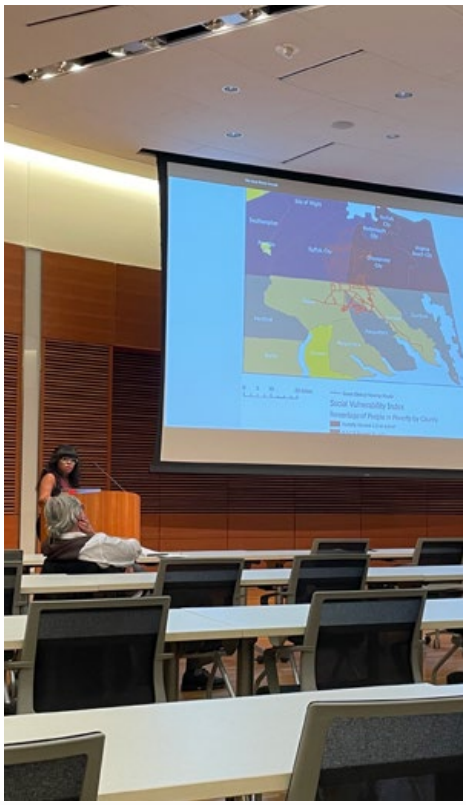
On November 2, the Nelson Institute's Everyone's Earth lecture series hosted Dr. Christy Hyman, assistant professor of human geography at Mississippi State University, where she spoke on the intersections of the social, political, and economic costs of enslaved freedom seekers and their journey to liberation.

Everyone's Earth: Conversations on Race and Environment is a lecture series conducted one or more times a year. The series highlights the intersection of diversity and environmental justice with the goal of raising public awareness around diversity and inclusion issues across the environmental spectrum.

Dean Paul Robbins welcomed attendees, and Gaylord A. Nelson Distinguished Chair in Integrated Environmental Studies and Associate Professor Monica White introduced Hyman, whose research focuses on human and landscape resource exploration of African Americans in the antebellum era. Using Geographic Information Systems, Hyman examines the human experience and oppressive systems that threaten sustainable futures.

In her talk, Hyman discussed the ways enslaved people of the Antebellum Era interacted with and observed their landscape to predict a coming storm, an animal predator, or a slave militia. The lecture, entitled The Material Elements of Enslaved People's Mobility — The Way to Freedom, focused on the Black history of the Great Dismal Swamp located in southeastern Virginia and northeastern North Carolina.

If you missed this year's event, you can check out a recording of Hyman's talk. Learn more about Everyone's Earth and how you can support the lecture series.



Top: Dean Paul Robbins welcomes attendees. Middle: Gaylord A. Nelson Distinguished Chair Monica White introduces Dr. Christy Hyman. Bottom: Dr. Christy Hyman presents "The Material Elements of Enslaved People's Mobility – The Way to Freedom." Photo credits: Anica Graney

CPEP Series

Each semester the Climate, People, and the Environment Program (CPEP) hosts a weekly seminar featuring lectures by visiting speakers as well as presentations by CPEP faculty, scientists, and students. CPEP seminars take place from 4–5 p.m. on Tuesdays at 811 Atmospheric, Oceanic, and Space Sciences Building, starting September 27. The presentations are held in conjunction with the Department of Atmospheric and Oceanic Sciences and are open to the public.

Featured Seminar:
November 29: Tropospheric Ozone Concentrations at Eddy Covariance Towers: Monitoring and studying tropospheric ozone with ecosystem carbon and water fluxes
Anam Khan, Research Assistant/PhD Student, UW-Madison

Learn more about this lecture and others in the series. Past lecture recordings are available for viewing.

Weston Roundtable Series

The Weston Roundtable Series is designed to promote a robust understanding of sustainability science, engineering, and policy through weekly lectures co-sponsored by the Center for Sustainability and the Global Environment (SAGE), the Department of Civil and Environmental Engineering, and the Office of Sustainability. Lectures take place from 4:15–5:15 p.m. every Thursday at 1163 Mechanical Engineering Building.

Featured Roundtable:
December 1: WICCI Infrastructure Panel on Climate Change, Sustainability, and Infrastructure
Hear from the Wisconsin Initiative on Climate Change Impacts (WICCI)'s infrastructure working group. WICCI is a statewide collaboration of scientists and stakeholders formed as a partnership between UW–Madison's Nelson Institute for Environmental Studies and the Wisconsin Department of Natural Resources.

Learn more about this lecture and others in the series.

CEE Fall Symposium

Monday & Tuesday, November 28 and 29
Orchard View Room, Wisconsin Institute for Discovery

The keynote address will be given by Mercedes Pascual, professor of ecology and evolution at the University of Chicago. A theoretical ecologist interested in the intersection of numbers and nature, Pascual studies complex systems in ecology and epidemiology to understand and predict patterns of variability and their connection to structure and scale.

Learn more and register.

Info Sessions: UW Environmental Professional MS Programs

Fridays | 10 a.m. | Virtual (Zoom)

Your Nelson career doesn't have to end after undergrad! Learn about the Nelson Institute's environmental conservation (EC) and environmental observation and informatics (EOI) programs. Sessions are structured as an open question-and-answer format. After a short presentation, the hosts will be online and available to answer questions from attendees. Prior registration is required to receive the link to join. Sessions will not be recorded, but frequently asked questions will be posted on our website FAQ page. Register here.

Fall 2022 CHE Environmental Colloquia

The Center for Culture, History, and Environment (CHE) invites you to attend the Fall 2022 CHE Environmental Colloquia series on Wednesdays from 12–1 p.m. in 140 Science Hall.

Upcoming Lectures:

November 16
Hurricanes Amidst the Great Depression: Agrarian Reform and Reconstruction in Puerto Rico, 1928–40
Adrian Bermudez Perez, UW master's student in Latin American, Caribbean, and Iberian studies and CHE graduate associate

December 14
Viral Markets: Economics, the Environment, and Emerging Disease in the Twentieth Century
Richard Keller, UW professor of history and medical history

LEVELING UP

TIPS + ASSISTS FOR YOUR POST-COLLEGE GAME PLAN

nelson.wisc.edu/leveling-up

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in celebrating the Nelson Institute year-round by purchasing branded merchandise, shirts, sweatshirts, jackets, bags, and more!