Woodwell Climate Research Center

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Month in Review • April 2026
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Turning up the volume

George Woodwell was never shy about speaking his mind.

I can't help but smile as I write that sentence. If you knew George, I suspect you are smiling too, recognizing that it is a significant understatement.

George founded this organization to do cutting edge science, and then to apply that knowledge to influence policy and decisionmaking. In other words, to make a difference. He understood instinctively that a finding locked away in a journal, accessible only to specialists, was a finding that wouldn't change the world—at least not quickly enough. Science had to travel. It had to reach the people making decisions, shaping policy, and holding the purse strings of both governments and philanthropies. It had to matter beyond the confines of the ivory tower.

George's original vision continues to guide us today.

But vision requires execution. And execution, in our moment, requires something George could not have fully anticipated when he founded Woodwell more than forty years ago: the ability to compete for attention in an era of relentless noise. Science has never been more urgent. There are more ways than ever to communicate, yet the challenge of being heard has never been greater. These realities have led us to make two investments I am excited to share with you.

First, I am thrilled to announce that Dave Nagel has joined Woodwell as our new Vice President of Marketing and Communications. Dave has spent most of his career in the private sector, and now brings the skills he developed there to Woodwell. His charge is ambitious: to significantly expand the reach of our work, connecting our science to policymakers, business leaders, engaged citizens, and philanthropists.

That last category matters enormously, now more than ever. Woodwell's ability to do the work George envisioned—rigorous, independent, urgent—depends increasingly on philanthropic support as government support dwindles. We are sustained by people who believe, as George did, that science in service of the planet is worth fighting for. Growing that community has never been more important—it is essential to allow us to boldly follow the path George charted more than four decades ago. Dave's leadership will be central to that effort, and I could not be more pleased to have him on board.

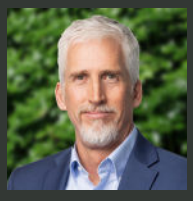
Second, I want to introduce you to a project that is bursting with potential: Woodwell's first podcast, *Not a Climate Scientist*. Hosted by Dr. Heather Goldstone, the show engages everyday people whose lives and livelihoods are being impacted by climate change in surprising ways. Not climate scientists, but people like firefighters and therapists and ranchers—people who are confronting climate change not because they choose to but because they have to. In the process, they demonstrate that sometimes the most important ways to become involved are simply to do more of what you do best. You can find *Not A Climate Scientist* on YouTube, Spotify, Apple, iHeart and Amazon Music. So please give it a listen, and share it with your networks.

Taken together, Dave's arrival and Heather's podcast represent something I think George would recognize immediately: a refusal to be satisfied with good work that goes unheard. He didn't found this place to whisper. He built it to be heard.

The science we produce has never been more consequential. The news coming out of DC has never been more threatening for science or for climate action, and the window for action has never been narrower. And so, with a nod to the man who never had any trouble making himself heard, we are turning up the volume.

I think he'd approve.

Onward.



Max

Dr. Max Holmes
President & CEO

George Woodwell, second from right, speaks during a Workshop on Global Climate Change, held in Woods Hole, MA, September 1988. / Woodwell Climate archives

Not a Climate Scientist podcast provides an inside look at how climate change is transforming our lives

New podcast from Woodwell Climate will feature interviews with professionals from all walks of life... except climate science

Katherine Sele Senior Associate, 90 West

On Earth Day, Woodwell Climate Research Center launched a podcast for everyone who is not a scientist, but is worried about the effects of climate change and wants to understand how others are taking action in their daily work and lives. As the consequences of the climate crisis increasingly impact our economy, infrastructure, public health, and communities, *Not a Climate Scientist* will provide listeners with a window into how industry leaders and everyday individuals are working to adapt and plan for the future.

"Science provides critical information about how fast our climate is changing, what's driving that, and how we can change course. But scientists alone can't solve this problem," said Dr. R. Max Holmes, President and CEO of Woodwell Climate Research Center. "Climate action is for everyone, whatever your passion or profession. Not a Climate Scientist provides examples of people who have figured that out, and can help others find their first step."

New episodes will be released every other week on YouTube, Spotify, Apple, Amazon, and iHeartRadio. The first three episodes are available now and feature:

- Fire Chief John Butler of Fairfax County, Virginia Fire Rescue Department, who says climate change is an unavoidable part of daily conversations for those who respond to natural disasters
- Therapist Leslie Davenport, author of Grist's "Ask a Climate Therapist" column, who used her own personal climate crisis to develop an approach that can help others cope with climate anxiety and grief
- Rancher Jim Howell, CEO of Grasslands, LLC, who pushes back on blaming cows for climate change and says ranches can be climate solutions

The podcast is hosted by Dr. Heather Goldstone, Senior Fellow at Woodwell Climate. Goldstone joined Woodwell Climate in 2020 after nearly a decade at GBH, where she founded and hosted a weekly science-focused radio show, Living Lab Radio. Her science and environmental reporting has appeared in a range of outlets, including the *Cape Cod Times*, *Commercial Fishery News*, NPR's *Morning Edition*, *The Takeaway*, and *PBS NewsHour*.

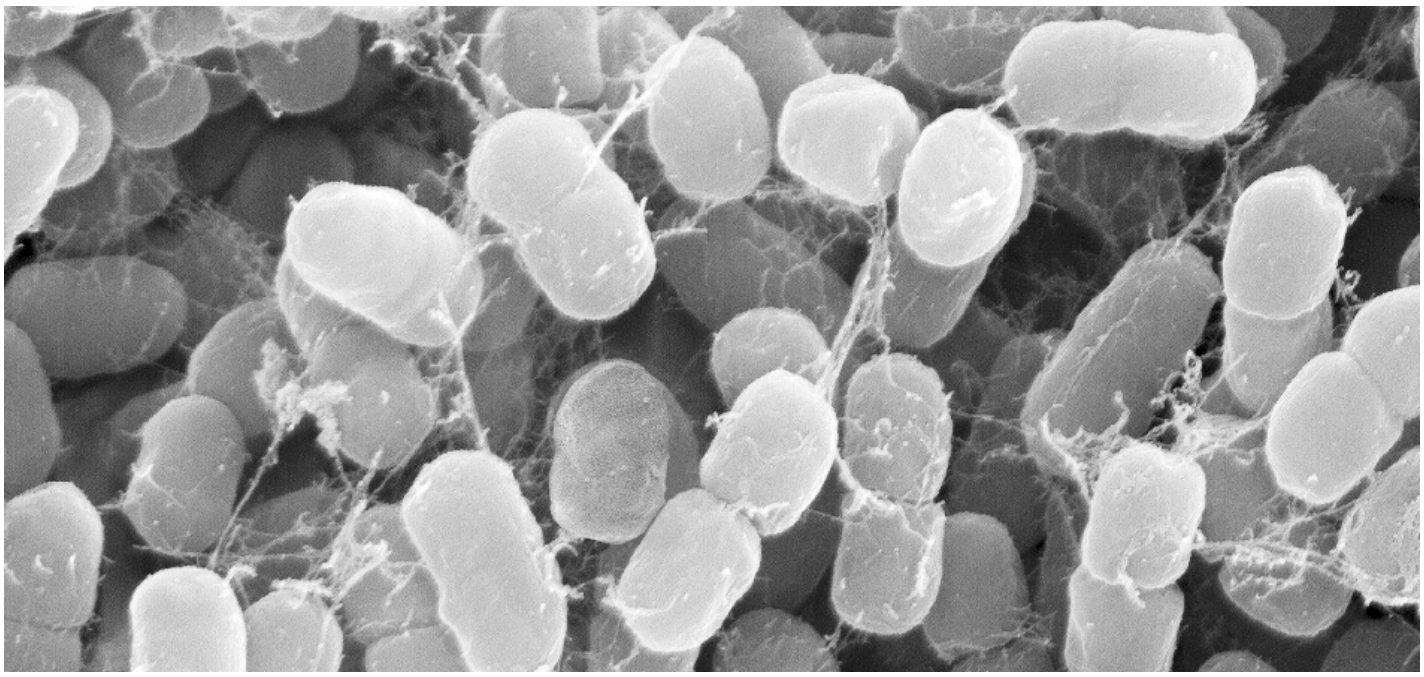
"Climate change is not just a distant threat or political flash point, it's a reality that is showing up in people's lives and jobs across the U.S. on a daily basis," said Goldstone, executive producer and host of Not a Climate Scientist. "The vast majority of Americans are worried about climate change, but relatively few are talking about it. This podcast brings this looming issue down to earth and opens up conversations that are personal, relatable, and actionable—an antidote to the doom and gloom so many people are trying to avoid."

For 40 years, Woodwell Climate Research Center has led groundbreaking scientific research and solutions to help leaders, communities, and policymakers across the world respond to the climate crisis. *Not a Climate Scientist* will notably talk to everyone except climate scientists, highlighting the ways in which we all, regardless of profession, geography, or socioeconomic status, can be part of shaping a more positive climate future.

DIG DEEPER

Learn more about the podcast, subscribe and follow links to listen at: notaclimatescientist.org

top-to-bottom: Fire Chief John Butler, Climate Therapist Leslie Davenport, Rancher Jim Howell

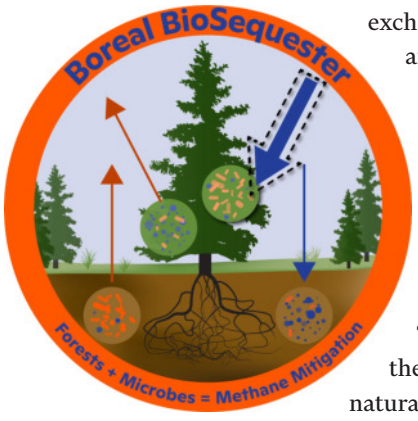


These tiny organisms could be unsung climate heroes

From forest to field, Woodwell researchers are studying how microbes help remove and store atmospheric carbon

Kristen Pope Freelance Contributor

While natural and managed ecosystems like wetlands, forests, and agricultural fields often receive credit for emitting or absorbing carbon, there is an equally important yet largely overlooked contributor, acting within these ecosystems. Microbes, tiny single-celled organisms that live everywhere on Earth, are a powerhouse of carbon exchange, capable of absorbing and storing greenhouse gases like carbon dioxide and methane. Woodwell Climate researchers are studying both forests and fields to understand how natural microbial communities might be optimized into "climate heroes," enhancing the carbon absorption capacity of natural and managed ecosystems.



One project leading the charge on this is Boreal Biosequester. Led by Associate Scientist Dr. Jennifer Watts and Senior Research Scientist Kathleen Savage along with collaborators at Arizona State University and the University of Maine Orono, this project is studying a particular class of microbe that "eats" methane, called methanotrophs.

Methane is 80 times as adept at trapping heat in the atmosphere as carbon dioxide. Today, atmospheric methane is around 2.6 times higher than during pre-industrial times. While some of these emissions are due to human sources, such as landfills and fossil fuels, around one-third of global methane emissions come from wetlands, and approximately 20–35% of wetlands are found in boreal and northern temperate forests. As a potent greenhouse gas, removal of atmospheric methane is a key natural climate solution that would help mitigate climate warming. The Boreal Biosequester team seeks to optimize the power of methane-eating microbes present in and on trees to turn methane-emitting landscapes into methane absorbers.

With funding from CarbonFix, a philanthropic organization dedicated to funding potential climate solutions, the Boreal Biosequester team has begun the first phase of the project: identifying microbial species present in the tree bark and foliage of Maine's Howland Research Forest and studying their behavior. The researchers are investigating how trees in this northern forested wetland absorb and emit methane and how

Methylomonas methanica, a type of methanotroph found in water and soil. / photo by Dennis Kunkel Microscopy (Science Photo Library)

this capacity changes with environmental conditions like light, soil moisture, acidity, and temperature, to determine optimal environmental conditions for methane absorption.

Much of this data is gathered from 30 meter-tall towers in the Howland Research Forest that measure methane and other gases being emitted and absorbed from this northern forest landscape. Howland boasts one of the longest global records of carbon dioxide and methane fluxes; these tower observations are paired with data collected directly from tree trunks and canopies to complete a comprehensive picture of microbial methane activity across the landscape.

“The different types of organisms that are in the trees absorbing methane have different sensitivities to temperature and how much nitrogen or sulfur or other [nutrients are] available to them,” says Watts. “What we really don’t know is: How do they live in the same space? Are there shared resources? We want to know what those preferences are.”

Boreal Biosequester team member Dr. Hinsby Cadillo-Quiroz, a professor of ecology of microorganisms and ecosystems at Arizona State University, is leading the effort to isolate and study methanotrophs, sequencing their RNA and DNA to learn more about who they are and where they “like to live” in the forest.

“Plant surfaces host methanotrophs undoubtedly, although at low apparent density, so a critical question in this project is to figure out where, when, and how plant methanotrophs have the highest activity and potential to maximize their work,” says Cadillo-Quiroz. He is currently testing this question in sites around the world, including Howland.

The next phase of the Boreal Biosequester project will apply the knowledge gained from this early work to look at how the identified optimal environmental conditions can be “harnessed” to maximize methane absorption from trees using controlled greenhouse experiments.

“With greenhouse experiments, we can manipulate their environments and different tree species and then see how those microbes respond, so we can get a better sense of what those microbes like versus not, and how to optimize their behavior,” Savage says.

The final research phase of this project focuses on inoculating a forested wetland with “hardy” natural versions of these methane-eating microbes and tracing the response in landscape methane uptake. “If we can start to cultivate them successfully in the lab, we can start to select populations through natural selection,” Watts says. “We don’t want to do any direct genetic modification, but [we want to] grow the microbes that are a little bit more hardy.”

This work could yield natural climate solutions that are cost-effective and scalable for use by governments and land

(top) Kathleen Savage installs tree stem methane flux chambers in Howland Research Forest, Maine. / photo by Jenny Watts
(bottom) Mossy ground cover at Howland. / photo by Miles Grant

managers, and provide multiple benefits for carbon removal in restored or regenerating forests.

“If we understand what drives the natural activity of methanotrophs, it can inform the industry practices and plans,” Cadillo-Quiroz says.

Microbes could also be a powerful natural climate “ally” in other human-managed systems, like agricultural fields. Microbes in agricultural fields function as active climate engines by converting plant-derived carbon into stable carbon in soil, a process that could be optimized by using different land-management practices. According to Research Scientist Dr. Taniya RoyChowdhury, a soil microbial ecologist and biogeochemist, properly managed croplands have the potential to become major carbon sinks.

“Global croplands have the theoretical capacity to sequester up to 2.6 gigatonnes of CO_2 (carbon dioxide) annually,” RoyChowdhury says. “The research being pursued at Woodwell Climate is the critical link in the chain, providing the data needed to shift soil carbon storage from a ‘theoretical’ possibility into a ‘verifiable’ climate solution.”

RoyChowdhury is studying how regenerative agriculture practices like cover cropping could enhance a process called “necromass formation,” where carbon absorbed from the atmosphere by plants is consumed by soil microbes that then die. This carbon-rich “necromass” is then stored more permanently in the soil. This process is unique to microbes, so RoyChowdhury wants to understand how altering agricultural management practices, like cover cropping, could alter microbial activity in our favor.

“We’re trying to look at what the cover crop actually does to the microbial community. We’re genetically sequencing the microbial community in its totality and also looking at their functions,” says RoyChowdhury.

She says that working with microbes could also have co-benefits beyond carbon removal.

“Nature-based solutions [like microbes] are critical because they are the only tools we have that address the triple crisis of climate change, biodiversity loss, and food insecurity simultaneously,” says RoyChowdhury.

The other benefit of using natural climate solutions like microbes across ecosystems, RoyChowdhury says, is that once they are established, they manage themselves.

“Rightly managed natural systems are self-sustaining; once a wetland is restored or a forest is established, it continues to remove or sequester carbon and provide ecosystem services with minimal human intervention, making it a suitable strategy for long-term planetary stability,” RoyChowdhury says.

(top) A test plot at an agricultural soil site in Iowa. / photo by Taniya RoyChowdhury
(bottom) Dr. Taniya RoyChowdhury preparing a soil sample for testing in Woodwell's lab. / photo by Dee Sullivan/MinFin Photography

Woodwell Fund for Climate Solutions

$1 invested internally generates $6.48 in external research funding.

Since its launch in 2018, the Fund for Climate Solutions has funded 80+ projects that push the boundaries of scientific knowledge, influence decision makers, and attract additional funding for critically important work.

Multiply your impact even more with a gift to the Fund for Climate Solutions—through June 30, for every $3 contributed, an additional $1 will be unlocked by an anonymous donor, up to $250,000.

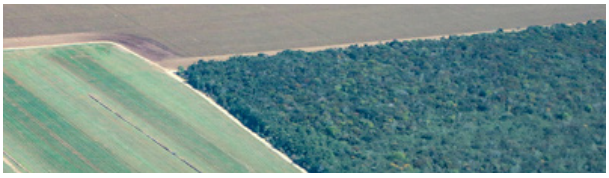
Woodwell Climate Conversations

from the frontlines of climate action

sponsored by Chris and Lisa Kaneb

Healing the Earth from the ground up: How farms can fight climate change

MAY 27 ▪ 5-7 pm



Join us for an engaging conversation on the hidden power of croplands and how regenerative farming practices that restore soil health can store carbon, strengthen resilience, and protect our planet.

Learn more:
woodwellclimate.org/healing-the-earth

Selected news coverage

Dr. Linda Deegan was a guest on CAI's *The Point* to talk about the return of river herring, and the habitat restoration helping to bring back the species. MIT Sea Grant also published an article on a recent paper by Dr. Zhongqi Chen and Deegan, which investigated how computer vision and deep learning are helping to monitor river herring populations.

Dr. Chris Neill was a guest on the *Climate Reveal* podcast to discuss the ongoing loss of biodiversity, why it matters, and how we should be thinking about it moving forward.

In an article about restoring retired cranberry bogs, *Associated Press* quoted Neill on why wetland restoration is important for fighting climate change. The article was syndicated to over 100 different outlets.

The Boston Globe quoted Dominick Dusseau about how sea level rise and powerful rainfall are pushing some homeowners to forego home insurance.

A *Bloomberg* article about the U.S. Southeast heat wave quoted Dr. Jen Francis about how these unprecedented weather events "may be the new abnormal" under climate change, due to both global heating and how that heating affects the jet stream. She also spoke to CNN about how the record low Arctic sea ice is another symptom of our climate troubles. And, a *USA Today* article about chaotic March weather included quotes of Francis from our March briefing for meteorologists.

In an article covering the disputes between nations about the timeline for the next IPCC working group reports, *Carbon Brief* quoted Dr. Matti Goldberg about how a 2028 deadline is already late for the reports to be meaningfully considered in the global stocktake process.

BU Institute of Sustainability published a recap of their first "Convergent Conversations" event series, which featured Dr. Frances Seymour speaking about scaling nature-based solutions for economic development. A recording of the event is also available.

In an article about a binational conference on climate change and the Amazon in Cruzeiro do Sul, *O Alto Acre* highlighted Dr. Foster Brown's participation and emphasized his call for different sectors of society to work together to confront the effects of climate change.

In an article on how the Roadless Rule protects vulnerable parcels of forest in the Eastern U.S., *Grist* quoted Dr. Rich Birdsey about how those forests are at an age where they are optimally taking carbon out of the atmosphere.

The National Center for Ecological Analysis and Synthesis interviewed Dr. Anna Liljedahl for an article about the Permafrost Discovery Gateway, and how AI and machine learning are advancing Arctic science.

cover: Dr. Heather Goldstone, *Not a Climate Scientist* podcast host, in her recording studio. / photo by Dee Sullivan/MinFin Photography

Donations play an important role in securing the future of Woodwell Climate Research Center's work—and help safeguard the health of our planet for generations to come.

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