



Northeast Climate Hub
U.S. DEPARTMENT OF AGRICULTURE

USDA Northeast Climate Hub

FY23 PROJECT CATALOGUE

A brief introduction from USDA Northeast Climate Hub Director, Dr. Lindsey Rustad.

Hello and welcome. If you are new to the Climate Hubs, let me share some background. The USDA Climate Hubs were established by the USDA in 2014 in response to then President Obama's Climate Action Plan. The creation of the ten regional Climate Hubs recognizes that climate change affects different parts of the country in distinct ways. For instance, what works in the Northeast to address increased rainfall may not be useful in the Southwest, which often grapples with prolonged droughts and extreme heat.

Each Hub is tasked with addressing the unique climate challenges and opportunities of its region, while also working with other regional Climate Hubs to develop and share information. Our common goal is to reduce the risks of climate change on working lands and communities, both at regional and national levels. Together, the Climate Hubs embody a collaborative effort across various USDA mission areas and agencies, including the Forest Service, the Agricultural Research Service, the Natural Resources Conservation Service, and others, working together as "OneUSDA."

The USDA Northeast Climate Hub includes the twelve Northeastern States plus the District of Columbia. We foster collaborations throughout USDA, universities, non-profit organizations, and state and private partners. Our team includes a Director, Coordinator, Digital Content Manager, five Co-leads, four post-doctoral fellows, professional staff, and many collaborators. We currently have over 20 active projects that focus on various areas such as agriculture, forestry, weather/climate, agroforestry, climate education, and climate equity.

Respectfully, Lindsey Rustad



USDA Northeast Climate Hub group photo at Grey Towers in Milford, PA. | November 2022

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Mission & Vision

MISSION



Develop and deliver science-based, region-specific information and technologies to agricultural and natural resource managers, and communities to enable climate-smart decision making and knowledge and technology implementation.

VISION



Robust and healthy agricultural production and natural resources under increasing climate variability and climate change.

Priorities, Interests & Methods

PRIORITIES



We aim to 1.) enhance climate resilience, 2.) build climate awareness, 3.) exchange climate mitigation knowledge and 4.) facilitate assessments.

INTERESTS



We look to 1.) promote projects with environmental justice and climate equity outcomes, 2.) partner across regions to pursue issues relevant to natural resource management under a changing climate across the country, while keeping regional outcomes in focus, 3.) engage with tribal nations, and 4.) support youth education and outreach initiatives.

METHODS



1.) information synthesis, 2.) technology exchange, 3.) tool development, 4.) stakeholder education, 5.) stakeholder engagement, and 6.) implementation assistance,

Focus Areas

CLIMATE LITERACY



Increasing understanding of climate change science, impacts, and adaptation and mitigation strategies amongst natural resource managers, agricultural producers, and technical service providers.

SMART TECHNOLOGY



Incorporation of data science, artificial intelligence, environmental sensor networks, and other new technologies to address adaptation and mitigation.

EXTREME WEATHER



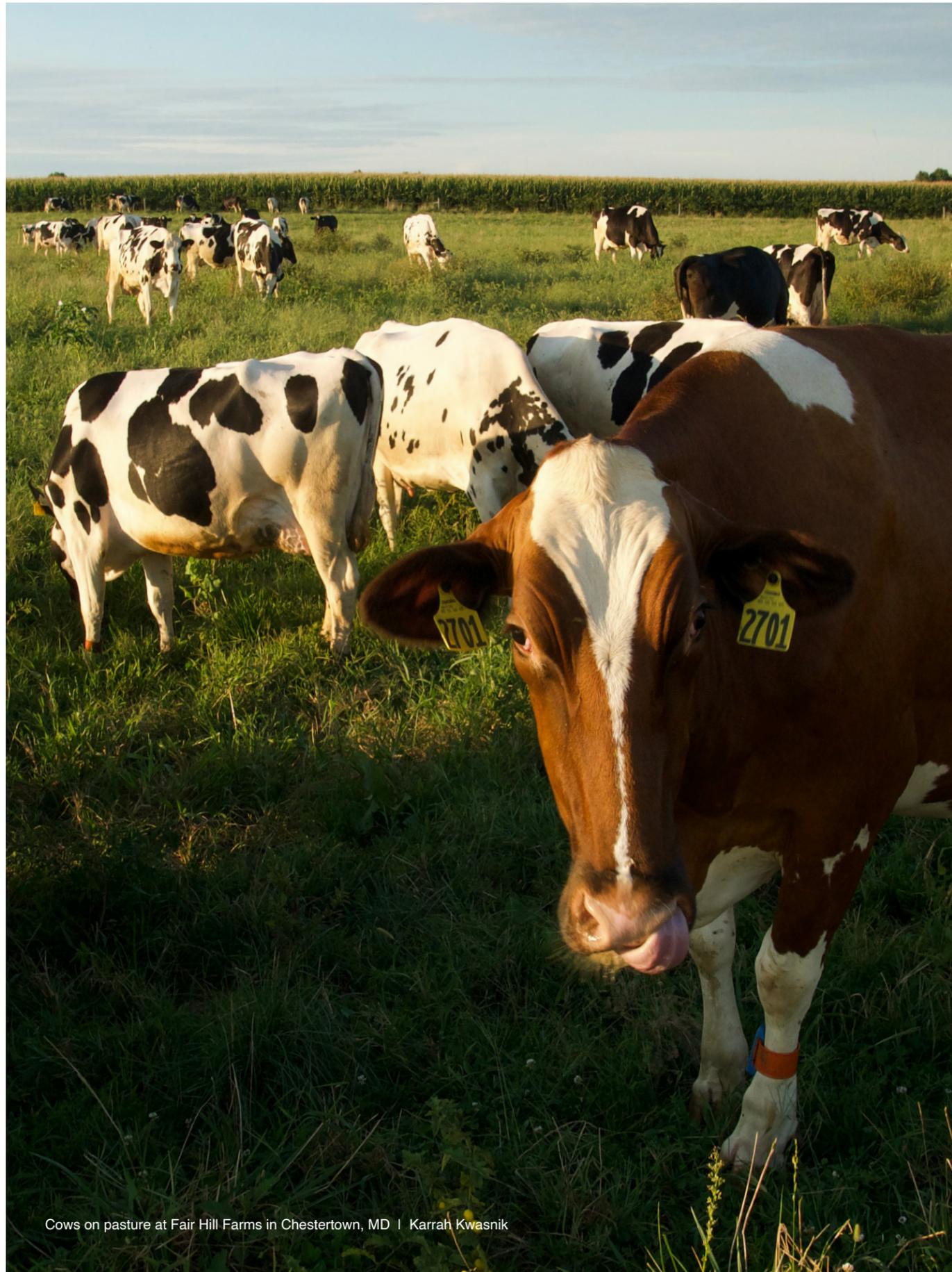
Investigating the potential for and impacts of extreme weather events caused by climate change. This might include the effects of climate change on rainfall patterns, including drought and snowfall.

CARBON CYCLE SCIENCE



Including effects of land management on the carbon cycle, and carbon sequestration strategies for mitigation.

Project Catalogue



Cows on pasture at Fair Hill Farms in Chestertown, MD | Karrah Kwasnik



CLIMATE LEARNING FORUM

Goals: The Forum seeks to share information with Agricultural service providers (ASPs) in the Northeast about climate change effects and adaptation/mitigation strategies in order to increase their capacity to support farmers and foresters experiencing climate impacts.

Outputs: Implement climate adaptation and mitigation related peer-to-peer educational programming for agricultural service providers.

Partners: Cooperative extension; USDA Natural Resources Conservation Service state offices; contractors working with USDA NRCS; USDA NRCS districts; agricultural, forestry and agroforestry consultants



CLIMATE-SMART TOOLS FOR SOIL CLIMATE AND ANALYSIS NETWORK AND ENGAGE WITH TRIBAL SCAN (TSCAN)

Goals: This project seeks to engage with producers, tribes, and conservation planners to develop climate-smart tools built on data from Soil Climate and Analysis Network (SCAN) and Tribal Soil Climate and Analysis Network (TSCAN) meteorological stations.

Outputs: 1.) Collaboratively develop new tools to assist farmers and forest landowners with climate-smart decision-making, and 2.) provide educational and outreach materials to strengthen visibility of climate-smart tools, and iterate tools with stakeholders.

Partners: Cornell University, Northeast Regional Climate Center



CONNECTION WITH NORTHEAST REGION NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

Goals: Create a better understanding among USDA state level leadership of USDA Climate Hub work and improve the feedback loop on what the Northeast States need from the Climate Hub.

Outputs: Representatives of the Northeast Climate Hub will be attending state technical meetings in Northeast states in 2023 in order to explain the objectives and projects of the Hub.

Partners: USDA NRCS



CONTRIBUTION TO THE NORTHEAST CHAPTER OF THE NATIONAL CLIMATE ASSESSMENT 5 (NCA5)

Goals: The Fifth National Climate Assessment (NCA5) is a major product of the US Global Change Research Program. NCA5 integrates and summarizes research on climate impacts, risks, and vulnerability with the intent to support decision-making. The USDA Northeast Climate Hub is contributing to authorship on the Northeast Chapter.



DAIRY CLIMATE ADAPTATION AND MITIGATION FELLOWSHIP (DAIRY CAMF)

Goals: The Dairy CAMF program will assist dairy farmers and agricultural advisors who are interested in learning about climate change, and experimenting with adaptation strategies.

Outputs: 1.) Support dairy farmers in implementing both climate adaptation and mitigation practices, 2.) expand the CAF dairy curriculum to include climate mitigation, 3.) implement a peer-to-peer learning program, and 4.) support development of outreach events and products to encourage climate adaptation and mitigation practices.

Partners: Cornell University, University of Maine



DISSEMINATION AND PROMOTION FOR DOCUMENTARY FILM, DELMARVA AND THE GROUND FOR CHANGE

Goals: FY23 funding efforts for USDA Northeast Climate Hub's documentary film, *Delmarva and the Ground for Change* (2022) will focus on disseminating the film to national and regional audiences to build climate awareness, promote climate smart farming practices, educate and inspire audiences, and ignite confidence in the ability of more farmers to cultivate resilient soils.

Outputs: Increases in: 1.) awareness around how climate change impacts agriculture from the farmer perspective, 2.) interest in climate smart practices and natural climate solutions, and 3.) hope concerning the climate crisis through the transfer of knowledge of solution-based practices available at the farm-scale.

Partners: University of New Hampshire and University of Delaware Cooperative Extension



FOREST CARBON MARKETS

Goals: The details of how carbon offset markets work, and how they quantify change remains difficult to access. Researchers at Pennsylvania State University have studied the validity of forest carbon offset credits and offset programs and alternative solutions for incentivizing carbon sequestration.

Outputs: 1.) Researchers present their findings to large groups of forestry practitioners across the Northeast to increase awareness on the topic, and 2.) further work will include public facing factsheets and webinars to raise awareness on this topic.

Partners: Pennsylvania State University



GRADUATE STUDENT CLIMATE ADAPTATION AND MITIGATION PARTNERS (GradCAMP)

Goals: GradCAMP seeks to create a network of graduate students centering climate equity in their research on climate adaptation and mitigation. GradCAMP will provide a forum for climate scholars to deep dive into equity issues and explore how these issues relate to their own research as well as provide opportunities for stakeholder engagement, networking, peer feedback, and professional development.

Outputs: 1.) Cohort of 15-20 climate scholars, 2.) Webinar series published to USDA Northeast Climate Hub website, and 3.) Culminating stakeholder workshop/conference.

Partners: West Virginia State University



HYDROLOGIC AND HYDRAULIC PERFORMANCE OF NOVEL SHALLOW WELLS FOR AGRICULTURAL WATER USE IN MAINE

Goals: Evaluate the hydrological performance of novel shallow wells (i.e. the well's ability to meet agricultural users' needs), including response to pumping in years characterized by varied climatic conditions (i.e. drought of various degrees of intensity and duration).

Outputs: Evaluation of water quality and safety of shallow wells, including microbial and chemical safety.

Partners: University of Maine



LONG-TERM ECONOMICS OF SOIL HEALTH

Goals: There is limited information on the impacts on economic performance of adopting practices that improve soil health. Farmers need this type of information to make informed decisions, therefore, this project will conduct economic analyses of soil health building practices (e.g. cover crops, reduced tillage, perennial crops) using data from Long Term Research (LTR) sites.

Outputs: The data will be distributed by way of scholarly articles, case studies, and other materials more easily accessible to farmers and the public.

Partners: North Carolina State University



SALT WATER INTRUSION IN FORESTS: MAPPING FOR THE MID ATLANTIC

Goals: Investigate the impacts of climate change on coastal forests in the Northeast as salt water intrusion is a growing concern and more research is needed on possible effects.

Outputs: 1.) Conduct a spatial analysis on the Mid-Atlantic coastal forests' most vulnerable areas to sea level rise, 2.) factsheet to provide accessible information to foresters and other community members, and 3.) tutorial video of mapping tool.

Partners: Rutgers University



SIGHTLINE: FORESTS, CLIMATE AND A CHANGING MARKETPLACE

Goals: Build awareness within the forestry community and forest products industries of the Science Based Targets Initiative (SBTi) and “ESG” (Environmental, Social, and Governance) systems. Sightline seeks to foster discussion of how ESG and SBTi efforts may impact the forestry community.

Outputs: Develop and share information that will increase understanding of the implication of measuring and disclosing climate-related risks and opportunities. This includes the creation of four reports and accompanying webinars.



THE METEOROLOGICAL DRIVERS OF DROUGHT AND FLASH DROUGHT IN THE NORTHEAST

Goals: Due to a lack of knowledge about drought patterns and its effects in the changing climate, this project seeks to investigate the changing drought landscape of the region.

Outputs: 1.) Determine how causes of drought have changed and will continue to change to help farmers and foresters adapt to changing moisture regimes, 2.) provide a regional synthesis of results to be used by stakeholders, and 3.) communicate results to researchers, decision makers, extension personnel and producers via factsheets, webinars, and outreach activities.

Partners: National Drought Mitigation Center, NOAA/National Integrated Drought Information System (NIDIS)



THE PULSE

Goals: Provide timely access to information for State Foresters, state forestry agency personnel, and other natural resource professionals and related communities. The project provides an array of current and emerging policy, economic, scientific, social, and technical issues relating to climate change and energy.

Outputs: 1.) Media-based content that will reflect a balanced variety of perspectives, and 2.) engage regularly with State Foresters and/or their staff to discern topics of interest or concern for the community.



THE QUARTERLY HARVEST

Goals: Share updates, stories and information concerning climate science and solution-based practices to subscribers that promote climate-informed decision making on Northeast farms and forests.

Outputs: Digital newsletter

Partners: University of New Hampshire

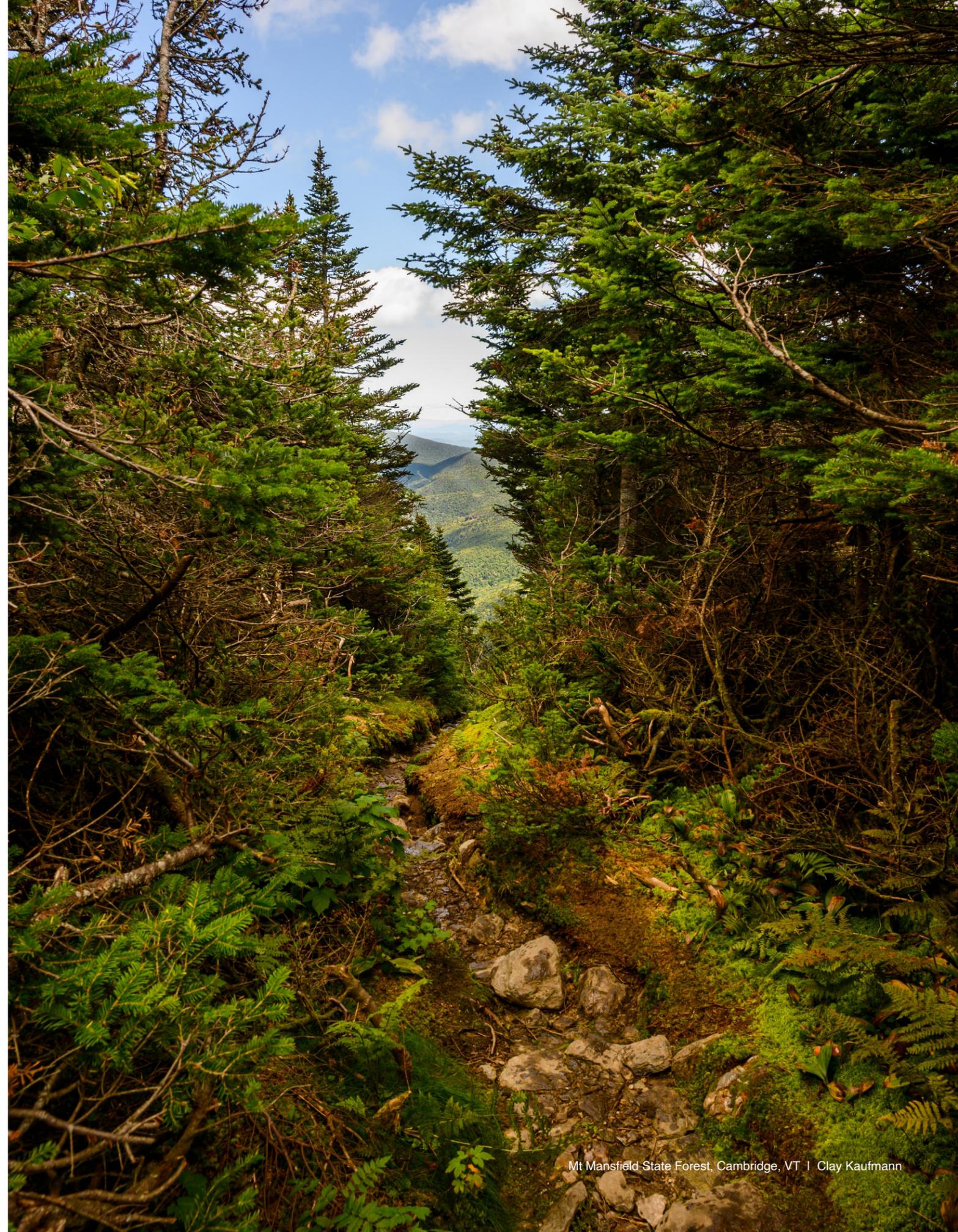


WOOD VAULTS FOR CARBON MITIGATION

Goals: Test, advance and share ideas about “Wood Vaults,” or the storage of waste wood under anoxic conditions to achieve low-cost, long-term carbon mitigation. Wood Vaults may satisfy carbon mitigation issues of permanence, additionality, scalability, and rural economic development.

Outputs: 1.) Promote collaboration amongst scientists and practitioners, and 2.) potential to create new Wood Vault conservation practices for NRCS.

Partners: University of Maryland, Carbon Lockdown Project, USDA Forest Service Forest Products Lab



Added Team Capacity



Alison Berry

CONTRACTOR

Alison Berry is a research consultant and the owner of Woodland Resources with more than 20 years of experience in forestry and natural resources. She leads *The Pulse*, a weekly, digital newsletter that provides timely updates about scientific, economic, policy, and social issues concerning climate change and how they intersect with natural resources and the forest products industry. Alison is also a regular contributor to *Northern Logger Magazine*. Her writing has also been published in *The Journal of Forestry*, *Northern Woodlands*, and the *Wall Street Journal*.



Sarah Crow

CONTRACTOR

Sarah Crow is a recognized thought leader on forests, sustainability, and technical strategy. She is the founder and Principal of New March, a woman-owned consulting firm that specializes in helping organizations navigate and respond to complex forest sustainability and climate issues, programs, and laws. Sarah is excited to be the lead on a new reporting series called, *Sightline*, which aims to unpack the changing marketplace, rules, and regulations between forests and climate.



Jennifer Evans

ORISE FELLOW

Jennifer Evans will engage in research and collaboration for two projects focused on climate equity. The first project will focus on identifying climate equity issues within the region. The second project she will lead in partnership with West Virginia State University is the Graduate Student Climate Adaptation and Mitigation Program. The program will form a valuable network of emerging climate leaders with a focus on climate equity and justice.



Suzy Hodgson

UNIVERSITY OF VERMONT

Suzy Hodgson has worked for the University of Vermont Extension's Center for Sustainable Agriculture since 2013. Through USDA funding, Suzy leads the Climate Learning Forum. Suzy will convene climate listening and learning sessions to share approaches to program delivery, information, and resources among Agricultural Service Providers including USDA NRCS, Cooperative Extension, and other entities.



Sara Kelemen

ORISE FELLOWS

Sara Kelemen aids in project management and also leads the project, Dairy Climate Adaptation and Mitigation Fellowship. In collaboration with Cornell University, this unique program seeks to investigate ways in which to reduce greenhouse gas emissions in dairy farming, while also supporting dairy farmers towards implementing climate adaptation and mitigation practices on the ground.



Carmen Quintos

USDA FOREST SERVICE RESOURCE ASSISTANTS PROGRAM (RAP) INTERNSHIP

Carmen Quintos, joined the USDA Northeast Climate Hub for an 8-month internship in June 2023. She recently completed her Bachelor of Arts degree in Geography from Macalester College. Carmen will assist in communication efforts to highlight existing products and help to explore new story-based approaches.



Dr. Kathryn White

AGRICULTURAL RESEARCH SERVICE (ARS) FELLOWSHIP

Dr. Kathryn White, contributes to the Hub's project, [Long-term Economics of Soil Health](#). Her work involves evaluating the costs and benefits of soil health practices in agriculture in the Northeast. Dr. White is also 1) working to expand understanding of soil carbon and nitrogen dynamics in agricultural soils using on-going long-term ARS cropping systems studies, 2) conducting experimental research testing and validating process-based soil and crop models using long-term ARS data to identify and evaluate improved management practices adapted to predict climate driven stressors, and 3) exploring avenues to make ARS data more accessible to NRCS and other end users.



Ripe strawberry ready for picking | Preston Keres

Contact Us



Lindsey Rustad
DIRECTOR

Email: Lindsey.Rustad@USDA.gov
Phone: 603-397-7406



Erin Lane
COORDINATOR

Email: Erin.D.Lane@USDA.gov
Phone: 603-393-0372



Curt Dell
ARS CO-DIRECTOR

Email: Curtis.Dell@USDA.gov
Phone: 814-863-0984



Lynn G. Knight
NRCS CO-DIRECTOR

Email: Lynn.Knight@USDA.gov
Phone: 802-528-5121



Karrah Kwasnik
DIGITAL CONTENT MANAGER

Email: Karrah,Kwasnik@UNH.edu

