

## HUBBARD BROOK MONTHLY April 2021 issue

### Recent Publications

Torresan, C, MB Garzón, M O'Grady, TM Robson, G Picchi, P Panzacchi, E Tomelleri, M Smith, JD Marshall, L Wingate, R Tognetti, LE Rustad, and DD Kneeshaw. 2021. A new generation of sensors and monitoring tools to support climate-smart forestry practices. *Canadian Journal Of Forest Research*.

<https://doi.org/10.1139/cjfr-2020-0295>

Waide, RB and SE Kingsland. 2021. *The Challenges of Long Term Ecological Research: A Historical Analysis*. Springer International Publishing.

<https://doi.org/10.1007/978-3-030-66933-1>

Zarnetske, PL, J Gurevitch, J Franklin, PM Groffman, CS Harrison, JJ Hellmann, FM Hoffman, S Kothari, A Robock, S Tilmes, D Vioni, J Wu, L Xia, C Yang. 2021. Potential ecological impacts of climate intervention by reflecting sunlight to cool Earth. *Proceedings of the National Academy of Sciences of the United States of America*.

<https://doi.org/10.1073/pnas.1921854118>

If your publication is missing from this list, please let us know:

[sciencelinks@hubbardbrookfoundation.org](mailto:sciencelinks@hubbardbrookfoundation.org)

### Hubbard Brook in the News

Ecological impacts of solar geoengineering are highly uncertain

[Ars Technica](#)

Ice Out: How N.H.'s rite of spring has become a symbol of climate change

[Christian Science Monitor](#)

### Hubbard Brook Data Report

In the list of datasets below, you will find Hubbard Brook's first publication of a scanned document dataset—in this case, we preserve field notes that are typically only accessible on site, and at risk of loss or damage. Keep this in mind as you prepare your datasets—if you have field notes that should be preserved, this might be a good option. Within the week, you will find the core 15 min precipitation data and derived data products (daily and watershed-level) updated through April 15, 2021. All Hubbard Brook data are available at the DATA tab on <https://hubbardbrook.org>.

For questions about Hubbard Brook data, please contact:

[nina.lany@usda.gov](mailto:nina.lany@usda.gov)—for questions about data collected by the US Forest Service

[mary.martin@unh.edu](mailto:mary.martin@unh.edu)—for questions and instructions on submitting your data

### New and updated datasets:

Did you know.....that Hubbard Brook technicians have recorded daily hand-written weather observations since the mid-1970's? This record also includes weekend observations from technicians' nearby home towns of Thornton, Campton, and Plymouth. These observations contain information that is not recorded elsewhere at Hubbard Brook, including precipitation type (hail, sleet), fog, ground frost, hoar frost, named tropical storms/hurricanes, and air quality (smoke, pollen). There are also notations describing elevational differences, (valley fog, snow at elevation), Mirror Lake ice in/out dates, and phenology.

The weather observation sheets have been scanned from 1990-2019, and are now in the EDI data repository - a step that protects this information in the event of damage/loss of paper records, and gives us all easy access to the information. The scanned files are large, but the data package includes quick access to an example of a weekly observation

sheet to give you a preview to what is in the zipped 5-year record bundles.

- Hubbard Brook Watershed Ecosystem Record (HBWatER). 2021. Hubbard Brook field weather notes 1990-2019 ver 1. Environmental Data Initiative.  
<https://doi.org/10.6073/pasta/dbe0583cf988f12477794954724fbc1d>

This dataset includes the raw data files for the ground-based canopy LiDAR profiles measured on the Ice Storm Experiment (ISE) plots. An analysis of these data was recently published in CJFR as Fahey et al. Effects of an experimental ice storm on forest canopy structure <http://dx.doi.org/10.1139/cjfr-2019-0276>. This dataset marks the 12th in a series of data submitted to the EDI repository from work on ISE.

- Fahey, R.T. 2021. Ice Storm Experiment (ISE) Canopy Structure Data, 2015-present ver 1. Environmental Data Initiative.  
<https://doi.org/10.6073/pasta/834eb91736ed5f4a5e080494622354a3>

## Outreach and Education Update

On April 8, Sarah Thorne presented "Invasive Species Monitoring at Doublehead Preserve" to the UNH Cooperative Extension's [New Hampshire Invasives Academy](#).

On April 21, Eric Kelsey presented "Musings on Energy and Water Flows in a Temperate Mixed-Hardwood Forest" to the University of Utah Department of Atmospheric Science Seminar Series, introducing the Hubbard Brook Experimental Forest and exploring how the various energy and water flows through the watersheds are measured. The talk assessed energy and water budgets, explored potential missing flows, and described the synoptic scale patterns associated with high evapotranspiration fluxes and their mechanistic linkages.

<https://atmos.utah.edu/about/seminars.php>

On April 23, Lindsey Rustad told a personal science story about the Ice Storm Experiment for Nepris: "A Near Miss...Lessons Learned from an Extreme Climate Experiment." The virtual presentation, targeted at middle and high school classrooms, was part of Nepris's Earth Week series.

<https://nepris.com/sessions/session/detail/85347>

The "Going to Extremes at HBEF" 360° virtual tour is now live on the Northeast Climate Hub website. Don't miss the embedded interviews with Pam Templer and Heidi Asbjornsen!

<https://www.climatehubs.usda.gov/hubs/northeast/project/going-extremes-hbef>

"#IfThenSheCan – The Exhibit," an exhibit of life-sized, 3D printed statues of more than 120 AAAS IF/THEN Ambassadors (including Hubbard Brook's own Lindsey Rustad!) debuts at NorthPark Center in Dallas, TX on May 15, 2021 and will run through October 2021. The exhibit will feature the most statues of women ever assembled in one location at one time.

<https://ifthenexhibit.org/>

Tyler Edwards, an undergraduate researcher in the [Bernhardt Lab at Duke University](#) and a participant in HBRF's *Young Voices of Science* program, received the 2021 Richard Merritt Jr. Memorial Award for Excellence in Science Communications for an episode of her podcast "Gather, Share, Teach" that introduces listeners to Gene Likens and the origins of the Hubbard Brook Ecosystem Study. Congratulations, Tyler!

<https://pratt.duke.edu/merrittaward>

## New or Proposed Research

The Research Approval Committee (RAC) recently approved five new projects including the following listed with title and lead PI:

**Remeasuring effects from beech sapling removal** (Elizabeth Haney, RIT). Elizabeth will be remeasuring vegetation and light in plots she set up for her PhD work 24 years ago. Welcome back, Elizabeth!

**Effects of a lengthening green season on the diet of insectivorous forest songbirds** (Sara Kaiser, Cornell). This project will expand work with black-throated blue warblers and ovenbirds in the bird area west of WS6 to test new hypotheses about how changing growing season effects food availability and foraging behavior.

**Effects of artificial light at night (ALAN) on caterpillar parasitism and predation pressures** (Sara Kaiser, Cornell). This new experiment will compare insect abundance and caterpillar parasitism and predation on plots lighted at night vs. control plots over two lunar cycles.

**Improving catchment-scale model representations of critical zone water transport** (James Knighton, UConn). New monitoring of water isotopes in soil water and tree xylem in and around WS3 will take models of water flow through the catchments to a new level, yielding new insights into subsurface water flowpaths and residence times. Welcome to Hubbard Brook, James!

**A High-Fidelity Forest Observatory to Improve Prediction of Future Forests** (Mark Green, Case Western). A proposal was recently submitted to NSF Mid-scale Infrastructure Program that would make WS3 perhaps the most intensively monitored headwater catchment in the world. The project includes extending line power to weir 3, construction of a walk-up tower to facilitate full-watershed drone flyovers, a streamside analytical lab, and deployment of distributed above- and below-ground sensors throughout WS3 to provide high spatial and temporal resolution data. Educational and outreach activities will engage students from the Cleveland, Ohio school district and bring high school students to Hubbard Brook. Over three dozen scientists are involved with the project. More discussions are planned with the Hubbard Brook community and further connections with other Hubbard Brook projects are encouraged.

### **Hubbard Brook DEI Committee Updates**

All members of the LTER community who self-identify as a member of a group that is underrepresented in the network, their site, or their professional spaces are invited to join a monthly conversation group via Zoom. The next session will take place on **May 11** and focus on Urban Ecosystems. Register at the following link:

[https://ucsb.zoom.us/meeting/register/tZMldeGsQTgoGNd4K6Q23y\\_xN-nwM0m\\_8RIT](https://ucsb.zoom.us/meeting/register/tZMldeGsQTgoGNd4K6Q23y_xN-nwM0m_8RIT)

The LTER DEI Committee's highlighted diversity, equity, inclusion, accessibility resource of the month is: "Promoting inclusion in ecological field experiences: Examining and overcoming barriers to a professional rite of passage."

<https://doi.org/10.1002/bes2.1742>

Hubbard Brook will be offering Step UP training at the beginning of the field season, prioritizing those who will be on site this summer. Step UP: Think. Care. Act. is an approach to help people learn how to take positive action to reduce harm. It's a reminder that your voice matters, and you have the power to show up and make a difference.

#### **Program Goals**

- Increase knowledge of helping behaviors
- Increase motivation to take action
- Develop skills and confidence when responding to problems or concerns related to bias, discrimination, and prejudice.
- Identify resources that are available to report issues of bias, discrimination, and harassment at Hubbard Brook

We will be sending out more information about Step UP in the coming days. If you are interested, you can contact [Linda.Pardo@usda.gov](mailto:Linda.Pardo@usda.gov).

More information at: <https://www.uvm.edu/health/stepup>

### **Announcements**

We want YOU...for the 2021 Hubbard Brook Community Showcase (aka talent show)!

Anthea Lavalley and Maribeth Rubenstein are hosting this first-time-ever event during this year's Cooperators' week. It promises to be lots of fun and an opportunity for us to get to know each other outside of our traditional project roles. After Day 1 of the Cooperators' research presentations, we will allow time for meeting attendees to stretch their legs, grab a drink and a snack, and log back into Zoom for a fascinating peek at the hidden (and possibly obscure) talents of the Hubbard Brook community. Your talent can be live or recorded. Up to five minutes in length (negotiable). One Zoom rehearsal date (TBD) will be organized.

Email [alavalley@hubbardbrookfoundation.org](mailto:alavalley@hubbardbrookfoundation.org) and/or [rubensteinm@caryinstitute.org](mailto:rubensteinm@caryinstitute.org) by **June 1st** to participate!

Thanks for reading!