

**HUBBARD BROOK ECOSYSTEM STUDY**  
**59<sup>th</sup> ANNUAL COOPERATORS' MEETING**  
**Plymouth State University, Merrill Place Conference Center**  
**Plymouth, NH**

<b>Day 1: Wednesday, July 13, 2022</b>		
<b>7:30-8:30</b>		<b>Breakfast, Lobby - Merrill Place Conference Center</b>
<b>8:30-8:45</b>		Welcome & Announcements
<b>8:45-9:30</b>	<b>SESSION 1: Creatures Great and Small. Moderator: Nina Lany</b>	
8:45-8:55	Lynn Christenson	Activity and occurrence of wildlife at Hubbard Brook
8:55-9:00	Miranda Zammarelli	Habitat selection and density dependence of nesting migratory songbirds
9:00-9:02	Pooja Panwar	Using automated recording units for long-term bird monitoring at Hubbard Brook Experimental Forest
9:02-9:04	Frances HurstBrubaker	Macroinvertebrate biodiversity and abundance in an aging forest ecosystem
9:04-9:14	John Deitsch	Artificial light at night increases top-down pressure on caterpillars: experimental evidence from a light-naïve forest
9:14-9:16	Avery Cox	High resolution imaging of ectomycorrhizal fungi
9:16-9:21	Renata Ontman	Surprising relationships between soil pH and microbial biomass and activity in a northern hardwood forest
9:21-9:30		<b>Discussion, Session 1</b>
<b>9:30-9:45</b>		<b>Introductions</b>
<b>9:45-10:15</b>		<b>Break</b>
<b>10:15-11:00</b>	<b>SESSION 2: Nuts about Nitrogen. Moderator: Emily Bernhardt</b>	
10:15-10:25	Emma Conrad-Rooney	Trends in urban and rural deposition from the National Atmospheric Deposition Program Network
10:25-10:35	Peter Groffman	Evidence, causes, and consequences of declining nitrogen availability in terrestrial ecosystems
10:35-10:40	Pamela Templer	Changing seasonality and changing nitrogen in the northern hardwood forest
10:40-10:50	Christy Goodale	Feeling gassy? Delving into controls on N gas losses from Hubbard Brook
10:50-11:00		<b>Discussion, Session 2</b>
<b>11:00-11:45</b>	<b>SESSION 3: Engagement within &amp; beyond HBEF. Moderator: Geoff Wilson</b>	
11:00-11:05	Anthea Lavallee	The view from the Foundation: HBRF updates, progress, and plans
11:05-11:15	Sarah Garlick	Linking science and policy in the Northern Forest: examples from the Northeastern States Research Cooperative (NSRC) and the Northern Border Regional Commission (NBRC)
11:15-11:20	Raisa Kochmaruk	Communications and Community Development at Hubbard Brook
11:20-11:22	denise burchsted	Hubbard Brook Land Acknowledgement
11:22-11:24	JP Gannon	Data visualization and analysis web apps by undergraduate capstone students
11:24-11:34	Mary Martin	Information Management at Hubbard Brook - the year in review
11:34-11:36	Alex Young	Visualizing the data stream of long-term records for the online book
11:36-11:45		<b>Discussion, Session 3</b>
<b>11:45-12:50</b>		<b>Group Photo, then Lunch – Prospect Dining Hall</b>
<b>1:00-2:00</b>	<b>SESSION 4: Going with the Flow. Moderator: Angela Possinger</b>	
1:00-1:02	Emily Bernhardt	The Watershed Report: updates from the Hubbard Brook Watershed Ecosystem Record
1:02-1:07	Audrey Thellman	Moving beyond anecdotes: Measuring and understanding algae at Hubbard Brook
1:07-1:09	Jessee Steele & Misaki Foster	Stream moss biogeochemistry and impact on aquatic insect abundance

1:09-1:14	Emma Rosi	An update on stream macroinvertebrates in Hubbard Brook watersheds
1:14-1:24	denise burchsted	The multiple channels of Hubbard Brook, restored by natural dams
1:24-1:34	Jessica Lawton	The Most Unusually Usual Brook
1:34-1:39	Jeff Pu	Uncertainty in stream loads?
1:39-1:44	Ruth Yanai	Less than obvious: How should we treat concentrations below detection limits
1:44-1:49	Tristan Coffey	Groundwater hydrology in fractured bedrock beneath the Mirror Lake watershed
1:49-2:00		<b>Discussion, Session 4</b>
<b>2:00-2:45</b>	<b>SESSION 5: VIBs of HBEF: Black Throated Blue Warblers. Moderator: Matt Ayres</b>	
2:00-2:10	Lindsey Forg	DNA metabarcoding reveals within-season variation in the diet of the insectivorous black-throated blue warbler
2:10-2:20	Alicia Brunner	The timing of breeding completion impacts fall departure date and migration rate of Black-throated Blue Warblers
2:20-2:25	Stella Hao	Variation in female breast feather coloration in the black-throated blue warbler
2:25-2:27	Sara Kaiser	Variation in female resistance to oxidative stress as a predictor of double-brooding
2:27-2:29	Amaya Bechler	Changes in gut microbiota from breeding to molt
2:29-2:31	August Davidson-Onsgard	Signaling function of the female supercilium
2:31-2:33	Jackson Hutchison	Post-fledging movements, survival and habitat use of juveniles
2:33-2:35	Sophie Rabinowicz	Effect of nest visitation on flight initiation distance of incubating females
2:35-2:37	Eryn Woernley	Timing of breeding effects on post-fledging parental care and survival
2:37-2:45		<b>Discussion, Session 5</b>
<b>2:45-3:30</b>		<b>Break</b>
<b>3:30-4:25</b>	<b>SESSION 6: Vegging Out. Moderator: Ashley Lang</b>	
3:30-3:40	Matthew Vadeboncoeur	How does white ash affect stand-scale biogeochemistry and ecohydrology in northern hardwoods?
3:40-3:42	Charlie Polanco	Ash tree coring and dendrochronology
3:42-3:47	Liz Studer	The loss of ash may result in reduced diversity and homogenization of subcanopy vegetation
3:47-3:49	Roxanna Gates, Ashley Mercado, Myron Huang & Malik Caston-Donatien	Tree growth phenology across a climate gradient at Hubbard Brook
3:49-3:51	Jackie Matthes	Pushing the envelope: Red oak seedling survival at the center and edge of the species range
3:51-3:53	Robert Fahey	Canopy structure and forest growth response in the Ice Storm Experiment
3:53-4:03	John Battles	The dead wood cycle: Insights from the birdline monitoring transects
4:03-4:13	Nat Cleavitt	Ode to Tom Siccama: Life and death on the B-lines
4:13-4:15	Sophie Harris	Contributions of drought, beech bark disease, landscape, and calcium treatment in inducing individual beech mortality
4:15-4:17	Ana Suppe	Sugar maple regeneration at Hubbard Brook
4:17-4:22	William Keeton	Remnant old trees enhance large woody debris loading in low-order streams at the Hubbard Brook Experimental Forest
4:22-4:30		<b>Discussion, Session 6</b>
<b>4:30-4:35</b>		<b>Announcements</b>
<b>6:00-10:00</b>		<b>Cook-out and Tent Dance, Pleasant View Farm</b>

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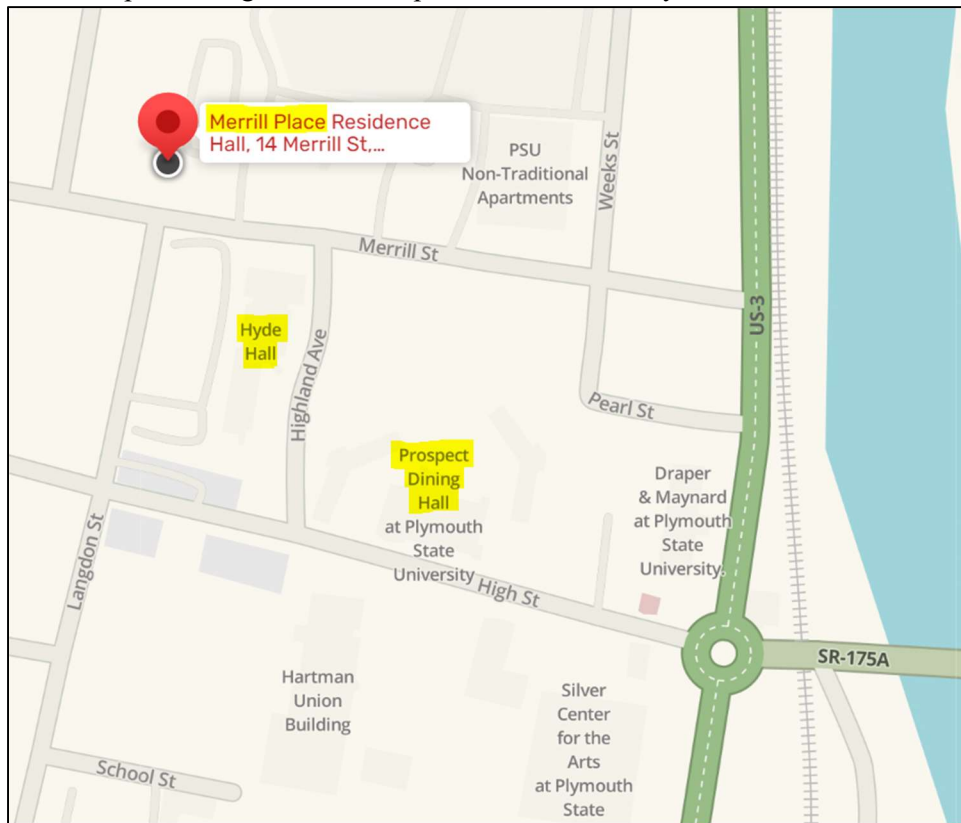
<b>Day 2: Thursday, July 14, 2022</b>		
<b>7:30-8:30</b>	<b>Breakfast, Lobby - Merrill Place Conference Center</b>	
<b>8:30-8:40</b>	Announcements	
<b>8:40-9:35</b>	<b>SESSION 7: Something's in the Air: Climate Change &amp; Deacidification. Moderator: Colin Fuss</b>	
8:40-8:50	Charles Driscoll	Ecosystem response to climate change at LTER sites
8:50-8:55	Torsten Berger	Soil recovery from acid rain between 1995 and 2022, manipulated by additions of Ca and Al
8:55-9:00	Chris Johnson	Forest floor mass and chemistry on W1 and W6
9:00-9:10	Decheng Xu	Long-term stream chemical response to watershed calcium silicate treatment
9:10-9:20	Nicholas LoRusso	Stoichiometry of cations and low molecular weight organic acids (LMOAs) in calcium-treated and reference watersheds.
9:20-9:22	Kaura Reyes	The role of nanoparticles and low molecular weight organic acids in the development of Hubbard Brook Experimental Forest
9:22-9:27	Connor Olson	Analysis of trace metal cycling at Hubbard Brook Experimental Forest
9:27-9:32	John Campbell	A recent unexplained increase in the concentration of dissolved organic carbon in precipitation
9:32-9:45	<b>Discussion, Session 7</b>	
<b>9:45-10:15</b>	<b>Break</b>	
<b>10:15-11:00</b>	<b>SESSION 8: What the flux is up with ecosystems? Energy &amp; Carbon. Moderator: Jenny Bower</b>	
11:00-11:02	Dan Evans	Instrumentation progress at the Hubbard Brook Flux Tower Intensive Monitoring Station
11:02-11:07	Mark Green	Exploring advective heat flux in the Hubbard Brook energy budget
11:07-11:12	Eric Kelsey	Synoptic scale patterns associated with evapotranspiration and carbon flux in HBEF
11:12-11:17	Andrew Ouimette	A below canopy eddy covariance system at Hubbard Brook
11:17-11:19	Hennecys Perez Castro	Soil respiration
11:19-11:24	Alix Contosta	Vanishing winters, lengthening springs, and growing-season soil carbon fluxes
11:24-11:34	Angela Possinger	Symptoms of a changing carbon cycle: Exploring environmental controls on soil respiration at Hubbard Brook
11:34-11:45	<b>Discussion, Session 8</b>	
<b>11:00-11:50</b>	<b>SESSION 9: Beyond the limits: multiple element interactions. Moderator: Ruth Yanai</b>	
11:00-11:10	Jenna Zukswert	The latest on leaves in MELNHE: Nutrients and stomates
11:10-11:15	Scott Dai	What's up with herbs? Response of the herbaceous layer to long term NxP fertilization
11:15-11:20	Finley O'Connor	Rootin' around in the MELNHE plots: root:shoot ratios in the herbaceous layer
11:20-11:25	Jacob Beidler	Location, location, location: mapping stems to evaluate the neighborhood
11:25-11:30	Sandip Rijal	A satellite-eye view of growing-season length under nutrient addition
11:30-11:35	Tiantian Zhu	Does soil moisture, not temperature, explain long-term increases in soil respiration?
11:35-11:40	Erin Cornell	The 40-year search for N fixation at Hubbard Brook
11:40-11:50	<b>Discussion, Session 9</b>	
<b>11:50-12:00</b>	<b>Announcements</b>	
<b>12:00-1:00</b>	<b>Lunch – Prospect Dining Hall</b>	
<b>Afternoon</b>	<b>Informal Field Trips at Hubbard Brook</b>	

**Meeting location: Merrill Place Conference Center at Plymouth State University  
14 Merrill St., Plymouth, NH**

The meeting and both breakfasts will be held at the Merrill Place Conference Center, shown with the red marker below.

Those with cars will be required to park at Hyde Parking Lot #304.

Lunches will occur at the Prospect dining hall, and the photo will occur at Hyde Hall.



For remote viewers of the meeting, **the Zoom link is:**

[https://us02web.zoom.us/j/87498325457?pwd=BtFeWIsztanRE\\_2yjdXm865fNfh0ET.1](https://us02web.zoom.us/j/87498325457?pwd=BtFeWIsztanRE_2yjdXm865fNfh0ET.1)

Meeting ID: 874 9832 5457

Passcode: 694180

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