Request to Conduct Research on the Bartlett Experimental Forest

I. Investigator(s) Name(s), Affiliation(s), E-mail address, and if you've worked at BEF: add additional lines if necessary

Name	Affiliation	E-mail address	Prior BEF work (y/n)
Dave Tazik (P.I.)	NEON Inc.	dtazik@neoninc.org	No
Yuri Springer	NEON Inc.	yspringer@neoninc.org	No
David Hoekman	NEON Inc.	dhoekman@neoninc.org	No
Kate Thibault	NEON Inc.	kthibault@neoninc.org	No
Eve-Lyn Hinckley	NEON Inc.	ehinckley@neoninc.org	No
Courtney Meier	NEON Inc.	cmeier@neoninc.org	No
Katie Jones	NEON Inc.	kjones@neoninc.org	No
Dave Barnett	NEON Inc.	dbarnett@neoninc.org	No
Jennifer Everhart	NEON Inc.	jeverhart@neoninc.org	No
Holly Abercrombie	NEON Inc.	habercrombie@neoninc.org	No
Julia Spencer	NEON Inc.	jspencer@neoninc.org	No
Kali Blevins	NEON Inc.	kblevins@neoninc.org	No

II. Proposal Information

Title: NEON FSU Site Characterization Sampling
Major hypotheses: To quantify the impacts of climate change, land use, and biological invasions on terrestrial ecology by sampling key groups of sentinel taxa.

Funding sources (please indicate both pending or currently available sources):

National Science Foundation (currently available funding)

Proposed study start date: June 1, 2013

Estimated duration of study: June-September 2013

III. Type of system involved/work proposed: Please address items a-c:

a. System (check all that apply):

☒ Terrestrial ☐ Aquatic ☐ Watershed ☐ Atmosphere ☐ Other _____

b. Type of work proposed:

☐ Large-scale manipulation (e.g., compartment/watershed treatment of vegetation/site)

☐ Small-scale manipulation (e.g., plot level treatment of vegetation/site)

☒ Large/small-scale non manipulative measurements

Type of sampling proposed:

- ☐ * Non-destructive sampling
- ☒ * Destructive sampling
- ☐ * Long-term monitoring
- ☐ * Other _____

c. Key words – check any descriptors that apply to your proposal:

☒ Forestry	☐ Hydrology	☒ Community ecology	☐ Autecology
☐ Wildlife	☐ Remote Sensing	☒ Population biology	☐ Physical ecology
☒ Soils	☐ Physics	☒ Biogeochemistry	☐ Other _____
☐ Chemistry	☐ Geology	☐ Ecosystem ecology	☐

List the types of organisms or substances you intend to study (e.g., trees, amphibians, mammals, soils, etc)

Trees, plants
Soil core samples
Invertebrates (ticks, mosquitoes, beetles)

IV. In which Bartlett compartments would you like to work?

NEON has allocated sampling plots across all of the BEF compartments. The plots vary based on the type of sampling to occur. I have attached an additional map to display the NEON plot locations in relation to the Bartlett compartments.

Have you discussed these sites with either Bill Leak/Mariko Yamasaki? No

If so when? N/A

V. What Bartlett ongoing research or publications are related to your proposed research?

The proposed research is related to the NEON relocatable tower and research project being conducted in the Bartlett Experimental Forest in cooperation with the U.S. Forest Service.

VI. Proposal abstract (or a brief description of your proposed research attached to this form):

The purpose of collecting beetles is to identify variation in abundance and diversity, especially for beetles belonging to the family Carabidae.

The purpose of collecting ticks is to capture variation in abundance, phenology, and pathogen infection prevalence.

The purpose of collecting mosquitos is to capture variation in abundance, diversity, phenology, species distribution and pathogen infection prevalence.

The purpose of sampling soil cores across the location is to analyze the soil biogeochemisty and soil microbes. The soil core results would provide topographic, geomorphologic, chemical and physical property analysis. The cores would also provide GIS data and digital elevation models to result in detailed soil maps for the site.

VII. Proposed field methods and sampling procedures with sufficient information to determine potential disturbance and sampling impacts

- Bird Diversity and Abundance: no active sampling would occur at this time. NEON would compile species lists and abundance data. Staff would like to communicate with local researchers and USFS natural resource specialists, this could include onsite visits.

- Ground Beetle Diversity and Abundance: pit fall traps would be embedded below the soil surface. The cup would be 7 cm deep and 11 cm in diameter. The trap would preserve the insects in non-toxic propylene glycol. Traps will have an elevated cover to prevent precipitation and other material from entering. The traps will be checked and emptied by NEON personnel. Collected invertebrates will be shipped back and sorted in the laboratory. This sampling would occur June 15-22, 2013.

- Mosquito Diversity, Abundance and Phenology, and Disease: CO2 baited traps would be used to capture live mosquitoes for collection and subsequent identification and analysis. The mosquitoes would be collected, and shipped frozen back to Boulder, CO. This sampling would occur June 15-22, 2013.

- Plant Productivity, Diversity and Phenology: within the tower airshed, staff would collect plant abundance and diversity data, and create a stem map. If possible, NEON would like to mark trees, using either plain or aluminum nails. Specific dates have not been identified at this time.

- Tick borne disease: Tick drag sampling would be performed by staff walking in 20-50 m transects dragging a 1 m sq. piece of flannel cloth. The ticks would be collected, shipped back to NEON and will be sorted in the laboratory. An estimated 150 ticks would be collected. Site disturbance would be minimal. This sampling would occur June 15-22, 2013. Nymphal and adult-stage ticks would be collected, stored in propylene glycol, and shipped back to Boulder, CO.

- Soil biogeochemistry: up to a maximum of 120 soil cores would be sampled across the Bartlett Experimental Forest. Cores would be approximately 5 cm in diameter and would be taken to a maximum depth of 1 meter, and would be backfilled based on U.S. Forest Service preference. Insects may be collected within the core sample. Specific dates have not been identified at this time.

VIII. Safety-The USFS is committed to increasing safety awareness among its employees and research cooperators. The WMNF and the Bartlett Experimental Forest occur on rugged terrain with severe weather patterns throughout the year and appropriate preparations are necessary prior to engaging in field work. Please provide us with a description of your safety guidelines for personnel working in both the field and in the lab. For example, your check in/check out procedures, job hazard analysis, relevant training, safety equipment.

Special considerations – If the proposed research involves potentially hazardous techniques (e.g., shotgun sampling, tree/tower climbing) provide specific information about the techniques and materials, including justifications for use, potential problems and concerns, and any statements on necessary precautions and safety factors that will be utilized in the process.

NEON employees will adhere to NEON policy and procedures, along with OSHA safety requirements and training. Any employees operating in the field are required to have completed Field Safety Training and First Aid/ CPR Training. Employees conducting field work are required to travel and work in pairs. Field work responsibilities have been analyzed for job hazards and are continually reviewed by NEON EHS. Employees performing work off-site are required to complete and submit a Journey Management Plan.

Some degree of NEPA assessment on the part of the researcher will be required for any of the following manipulative treatments that use contaminating materials (e.g., isotopes, introduced plants or animals, fertilizers, insecticides, and herbicides). At a minimum, a scoping letter describing the proposed experiment will be sent to all BEF abutters and WMNF for comment and a letter to the file as a categorical exclusion will be needed. A determination of the degree and extent of assessment required will be made at the time of the proposal by the Project Leader. See this link for more information: **http://www.fs.fed.us/emc/nepa/**

Research Stipulations: If you are granted permission to work at BEF: (1) any plots you establish within compartments will need to be geo-referenced and a plot data file will need to be provided as soon as possible for our records; and (2) all researchers will be required to remove all field sampling material and equipment from plots and laboratory site at the conclusion of their work. All GIS data shall be in the following format:

Projection – NH State Plane, NAD83 Ft. **Coordinates** – Decimal Degrees

Attached is a PDF map with the plot locations defined based on the sampling proposed and an Excel file with the coordinates defined by the type of sampling that would occur at the plot location.

E-mail or mail this form to:

Mariko Yamasaki, Silviculture/Wildlife Team Leader
U. S. Forest Service, Northern Research Station
Forest Sciences Lab
271 Mast Road
Durham, NH 03824
Email: myamasaki@fs.fed.us

NEPA requirements have been reviewed and approved as follows:

☐ This project can proceed without further assessment.

☐ This manipulative project can proceed as a categorical exclusion after completing a scoping letter to the public and a letter to the file.

☐ This manipulative project will require further environmental assessment work before approval.

Approved by:

_____

Project Leader

Date: _____