

File Code: 2700
Date: April 28, 2022

Ruth D. Yanai
SUNY Department of Forest and Natural Resources Management
College of Environmental Science
105 Marshall Hall
1 Forestry Drive
Syracuse, NY 13210

Dear Dr. Yanai:

Thank you for contacting us about your continued work on the Multiple Element Limitation in Northern Hardwood Ecosystems (MELNHE) Project on the White Mountain National Forest. This project is designed to investigate the relative importance of nitrogen versus phosphorus limitation of plants and soil microbes and has been ongoing since 2004 (soil characterization and tree inventory), with fertilization treatments commencing in 2011. This letter replaces your previous letters and authorizes your work as follows (see record for maps):

- Continue to fertilize annually, as you have since 2011, by applying 30 kg N/ha/yr as ammonium nitrate on the “N” plots, 10 kg P/ha/yr as monosodium phosphate on the “P” plots, and both applications on the “N+P” plots.
- Remeasure diameters of all 10+ cm trees every four years (last completed in 2015).
- Periodically take soil cores for measurements of N and P availability and mineralization metrics from marker subplots.
- Collect litterfall in laundry baskets three times annually.
- Collect foliar samples, using a shotgun, from a subset of sites annually (in late July or early August) for analysis of nutrient ratios and carbon isotope ratios (see additional instruction below).
- Measure water use with Granier sapflow sensors at a subset of sites to assess treatment effects in target study species (pending funding).
- Measure nutrient uptake rates for fine roots of different species and mycorrhizal types (pending funding).
- Collect downed wood samples, using a chainsaw, by cutting disks ~5-10cm thick from each new occurrence of species by decay class (approximately 10-20 samples per site).

Plot corners and internal 10 x 10cm grids may continue to be marked with color-coded ½” PVC stakes labeled with aluminum tags and other measurement locations (soil cores) with pin flags.

When planning to conduct annual foliar sampling and downed wood sampling, your staff must coordinate with White Mountain National Forest district staff to alert them you will be using shotguns and chainsaws in the area. For the Jeffers Brook plots, contact the Pemigewasset Ranger District at 603-536-6100 and, for the Bartlett plots, contact the Saco Ranger District at 603-447-5448. Before sampling, be sure to survey for any wildlife or nests, particularly large stick nests, in and around the sample tree and do not sample where any are at risk of being hit. In



addition, please contact the Forest Botanist, Dan Sperduto (603-536-6225), if any rare or unusual plant species are encountered in the project area.

We have determined that a special use permit is not required for this activity. However, we do require that all research materials (i.e., flagging, pins, etc.) be removed from the study area, as well as holes filled, when the study is complete. This authorization is valid only through December 2022. The White Mountain National Forest plans to update its protocols for reviewing and approving research projects during the winter of 2022-3. Please contact us when your approval expires if you want to continue this work and we will work with you through the new process.

You assume any risks associated with your work. During the current pandemic, you must ensure your operations are consistent with the applicable Centers for Disease Control and Prevention guidelines and comply with applicable state and local requirements. Before operating, you are asked to develop and implement COVID-19 best practices for your work consistent with applicable federal, state, and local requirements. These best practices do not need to be submitted for approval or acceptance.

Carry a copy of this letter on your person when performing research on the Forest. We look forward to reviewing your results. Please forward us any future publications that involve this research. We appreciate your efforts, any information you can provide us will help us make better decisions on forest management in the future.

Please contact Erica Roberts, Forest Research Coordinator (603-536-6230, erica.roberts@usda.gov), if you have any further questions.

Sincerely,

X

For

DEREK J.S. IBARGUEN
Forest Supervisor