**SPRUCE Fresh Peat ITS DNA community analysis for South End Locations: June 2013 & September 2013**

**Summary:**

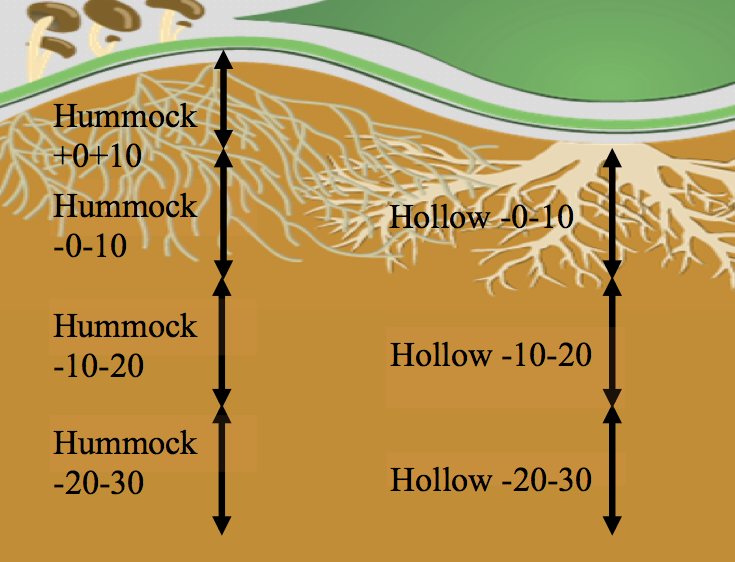
This data set provides ITS fungal communities via DNA at the time of peat coring at the South End bog in 2013. These samples were collected outside the experimental enclosures and are pre-treatment with no experimental manipulation. These are part of the Spruce and Peatlands Under Changing Environments (SPRUCE) experiment.

**Sampling Details:**

Samples were collected from six replicate locations.

Cores were split into 10 cm increments. Samples were collected from the hollow and hummock topography. See Figure 1 for depth description.

**Figure 1:**



**June and September 2013:** Cores were harvested from all plots using a Russian corer. Samples were collected at 0-30 cm from the hollows (Lo), in 10 cm increments. Samples collected from the hummocks (Hi) were taken from the surface of the hummock to 30 cm below the hollow surface. See image above for description.

**SPRUCE Sponsor**

Research sponsored by the [Office of Biological and Environmental Research](http://science.energy.gov/ber) within the [U.S. Department of Energy’s Office of Science](http://science.energy.gov/).

The SPRUCE experiment is a multi-year cooperative interaction among scientists of the [Oak Ridge National Laboratory](http://www.ornl.gov/) operated by UT-Battelle, LLC and the U.S. Forest Service, [Northern Research Station](http://www.nrs.fs.fed.us/), [Marcell Experimental Forest](http://www.nrs.fs.fed.us/ef/locations/mn/marcell/).

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**1. Data Set** **Overview:**

This data set provides the peat fungal community composition via DNA sequence analysis at the time of peat. See above for sampling dates.

Samples were extracted using a Qiagen Power Soil Kit according to manufactor protocols.

Sequencing was completed at Argonne National Lab Environmental Sample Preparation and Sequencing Facility (<https://www.anl.gov/bio/environmental-sample-preparation-and-sequencing-facility>), following the protocol for Earth Microbiome described by Caporaso, J. et al 2012.

**2. Data** **Characteristics:**

**Spatial Coverage**

All measurements were made at the 8.1-ha S1 bog forest site in northern Minnesota, 40 km north of Grand Rapids, in the USDA Forest Service Marcell Experimental Forest (MEF). These coordinates are the central location of the S1 bog.

**Site boundaries:** Latitude and longitude given in decimal degrees.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Site (Region)** | **Westernmost Longitude** | **Easternmost Longitude** | **Northernmost Latitude** | **Southernmost Latitude** | **Elevation (meters amsl)** | **Geodetic Datum** |
| S1 Bog, Marcell Experimental Forest | -93.48283 | -93.48283 | 47.50285 | 47.50285 | 418 | WGS84 |

**Data File Description:**

Multiple files are associated with these data. File descriptions listed below. Each file includes the identified information for all samples. Also included is a Metadata.csv file for sample identification and information. See “Data Directory” for details and information on metadata column headers.

**Metadata\_SPRUCE-ITS\_SE-Peat.xlsx/.csv**

**Variable Naming Conventions** – Naming conventions are described in the Data Dictionary.

**Missing values** – Missing values are represented by blank cells.

**Sample Files-** two files for every sample for forward and reverse sequence data of ITS amplicon.

**Data Dictionary:**

See Data-Dictionary.txt for column header information.

**3.** **Applications and Derivation:**

To understand fungal communitites in the S1 bog. These data will serve to know the composition of the site before experimental warming and elevated CO2 treatments are applied.

**4. Data Acquisition, Materials, and** **Methods:**

**Site Description:**

The site is the 8.1-ha S1 bog, a *Picea mariana* [black spruce] – Sphagnum spp. ombrotrophic bog forest in northern Minnesota, 40 km north of Grand Rapids, in the USDA Forest Service Marcell Experimental Forest (MEF). The S1 bog was harvested in successive strip cuts in 1969 and 1974 and the cut areas were allowed to naturally regenerate. The 1974 strips are characterized by medium density of 3-5 meter black spruce and larch trees with an open canopy. The 1969 harvest strips are characterized by a higher density of 3-5 meter black spruce and larch trees with a generally closed canopy.

**5.** **References:**

Hanson, P.J., Riggs, J.S., Nettles, W.R., Phillips, J.R., Krassovski, M.B., Hook, L.A., Gu, L., Richardson, A.D., Aubrecht, D.M., Ricciuto, D.M., Warren, J.M., Barbier, C., 2016. **Attaining Whole-Ecosystem Warming Using Air and Deep Soil Heating Methods with an Elevated CO2**; Atmosphere. Biogeosciences Discussions, 1-48.

Hanson, P.J., Riggs, J.S., Nettles, W.R., Krassovski, M.B., and Hook, L.A. 2015. **SPRUCE Deep Peat Heating (DPH) Environmental Data, February 2014 through July 2105**. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy, Oak Ridge, Tennessee, U.S.A. <http://dx.doi.org/10.3334/CDIAC/spruce.013>

Caporaso, J. Gregory, et al. "Ultra-high-throughput microbial community analysis on the Illumina HiSeq and MiSeq platforms." The ISME journal 6.8 (2012): 1621-1624.