

## Black Rock Forest

**Site name:** Black Rock Forest, NY

**Domain:** Northeast

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**Web page:** [www.blackrockforest.org](http://www.blackrockforest.org)

**Lat long:** 41.398, 74.002

### **Descriptive text-**

**History of site-** Typical land clearing in 1800s for timber, firewood and farm development, farm abandonment and conversion to successional hardwood forest starting in late 1800s, protection early in 20<sup>th</sup> century, establishment as experimental forest in 1929, donation to Harvard University in 1949, purchase of forest by William T. Golden in 1989, easement for scientific and educational use only. Management/operation of the watershed and the entire 1530 hectare Black Rock Forest since 1989 by the diverse Black Rock Forest Consortium (Columbia University, AMNH, and 18 other academic institutions) as a research/educational field station, suitable for experimental studies and manipulations.

**Location within domain-** central location in Northeastern domain, moderate climate regime.

**Key contribution to the domain and continent-** Native wildland, representative oak-dominated forest with significant atmospheric impact including that from nearby (85 km) major urban center (New York City), long-term scientific records and studies since 1930 including productivity, biogeochemistry, ecophysiology, floristic and taxonomic surveys and biodiversity studies, characteristic Highlands topography with complete watershed configuration, controlled access and long-term ownership by stable, pro-science private foundation.

**Key vegetation, soil characteristics, aquatic systems-** Native mixed deciduous forest, oak dominated, mesic but locally drought-sensitive, heavy acidic/nitrogen deposition, periodic high ozone episodes, complete research watershed configuration (2<sup>nd</sup> order, 135 hectare), shallow acidic soils, streams and forested wetlands (ponds nearby), all watersheds draining into Hudson River (2 km), intermediate level of invasion by exotic biota.

**Existing infrastructure relevant to NEON-** Steam gauging/aquatic sensor station at base of watershed with continuous 9-year record including stream chemistry, second and third upstream measurement/sample stations, forest mensuration plots since 1985 (nearby long-term plots since 1930), nearby West Point meteorology station with precipitation and temperature records to early 1800s, US Geologic Survey NADP station with records since 1979, prior co-located NOAA Dry Deposition station, current co-located USGS Mercury (MDN) station (new), new snow monitoring station and other met stations nearby in the forest, canopy access towers, Bowen ratio tower (unused since 2002), nearby access to line power, natural gas, high-resolution Digital Elevation Model and digital orthophotos to 1994.

**Eddy towers, Bowen ratios, others-** No eddy tower, Bowen ratio tower 1999-2002, stream station with 120-degree v-notch weir, continuous pressure transducer discharge records since 1998.

**Weather stations, rain gauges-** Three environmental monitoring stations at surrounding locations in the forest, linked by radiotelemetry network, West Point climate station 10 km to the south with long-term precipitation and temperature records since the early 1800s.

**Sensor systems-** Five stations and two repeater stations in automated environmental network linked by radiotelemetry, full suite of weather sensors with soil temperature at 2 depths, soil moisture, PAR and global solar radiation sensors, net radiometer (energy balance), snowpack mass (snow pillow), snowpack temperature profile sensors, stream discharge (pressure transducer) with dissolved oxygen, pH, conductivity and temperature sensors. Turtles are PIT-tagged; raccoons were previously radio-collared.

**Facilities-** Controlled, gated gravel road access to the watershed and to low and high elevation areas within watershed. No buildings in watershed. Nearby in forest is 18,000 square feet of lab, classroom and lodging space, but these are already heavily used. NEON might require additional facilities which could be constructed on site. Lodging is available in the surrounding area and high-quality labs are located 40 km away at Lamont-Doherty Earth Observatory (Palisades, NY).