Forest Inventory and Analysis:
Two hundred years of soil monitoring

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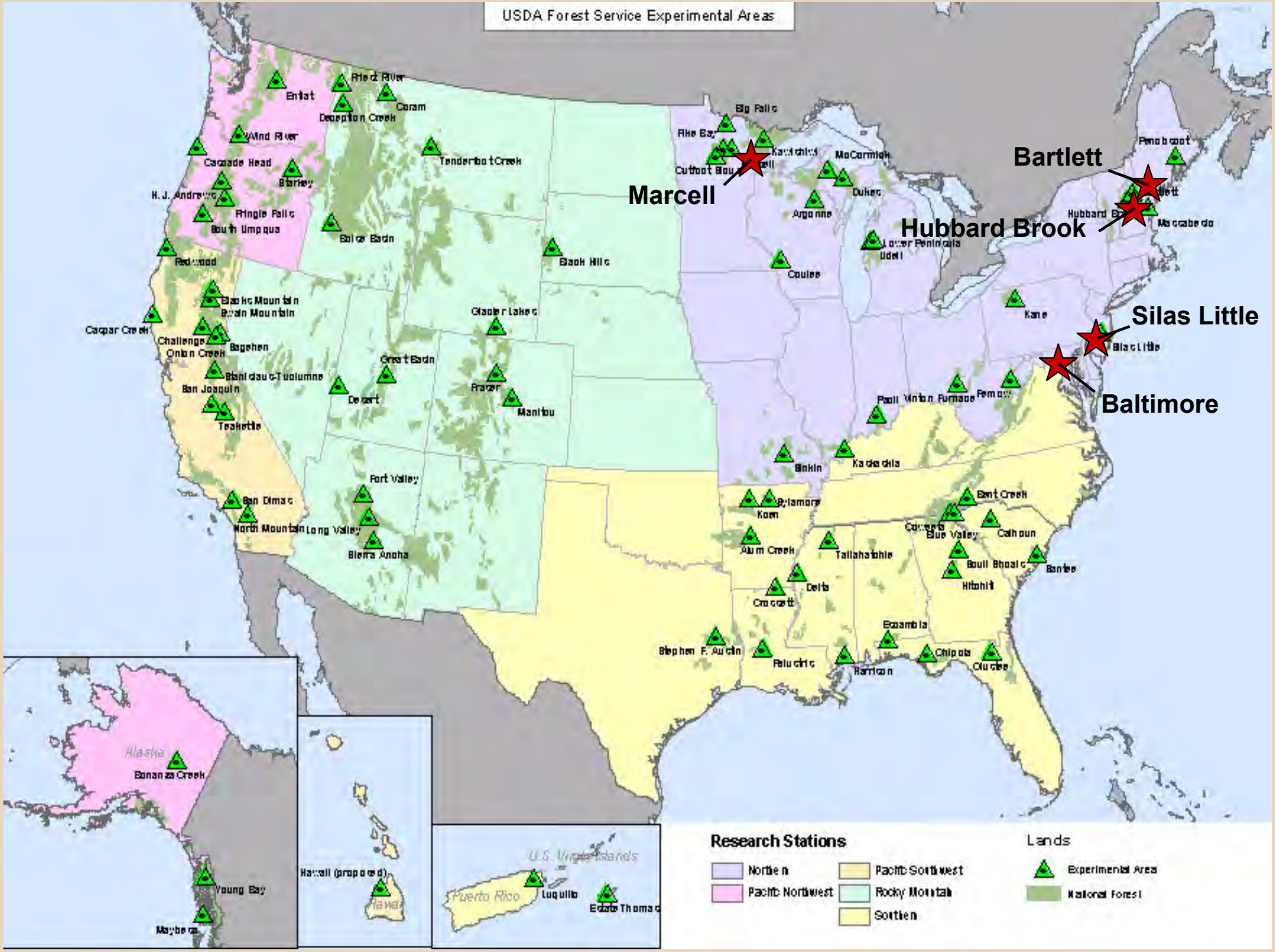
Forest Inventory and Analysis

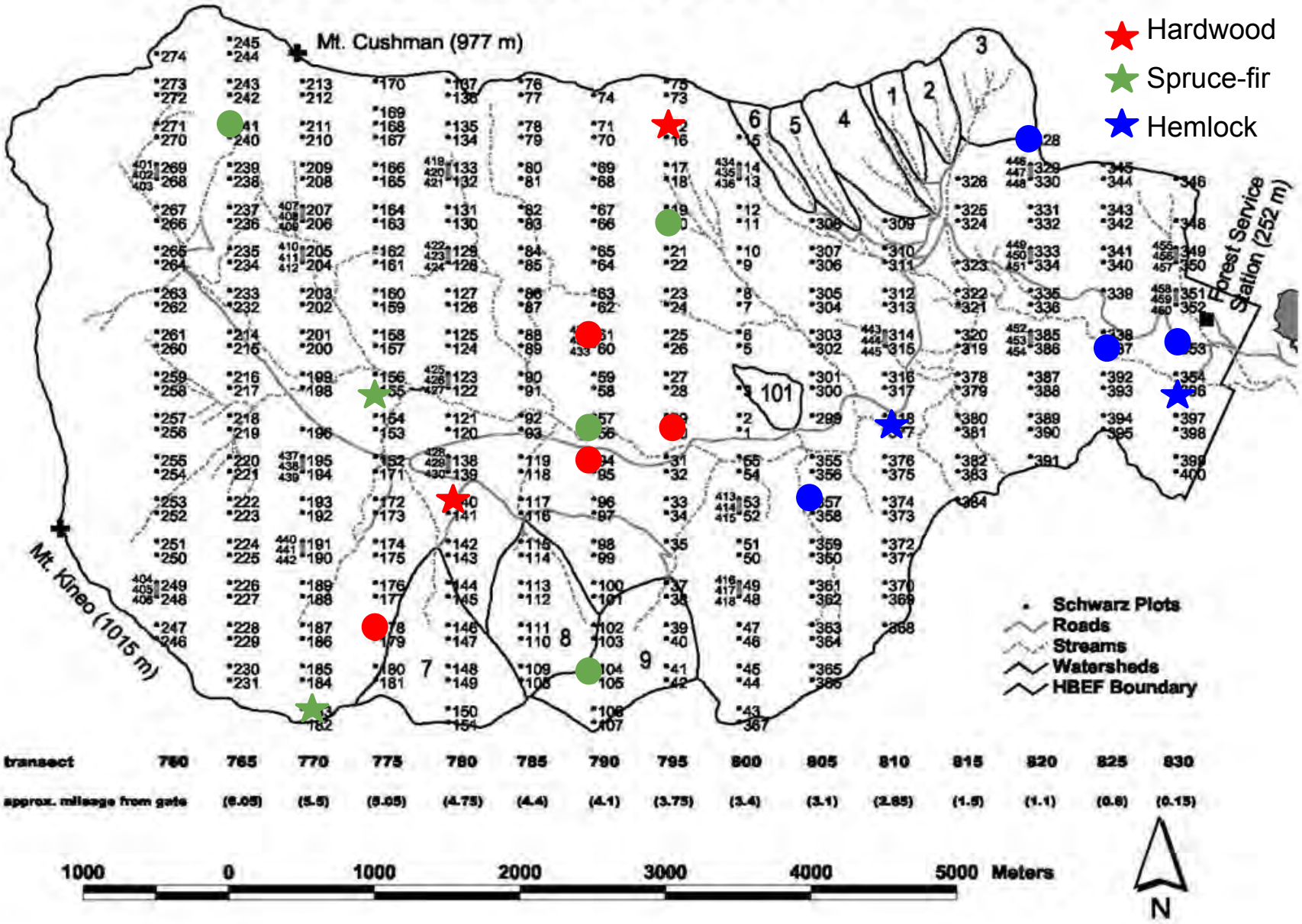
- USDA Forest Service National Program
- FIA collects, analyzes, reports, and distributes data about the Nation's forests
  - inventories carbon stores of vegetation, dead wood, and soil
- ~405,000 plots nationwide
- ~2,500 plots monitoring soil


USDA Forest Service Experimental Areas
Marcell
Bartlett
Hubbard Brook
Silas Little
Baltimore
Research Stations
Northern
Pacific Northwest
Pacific Southwest
Rocky Mountain
Southern
Lands
Experimental Area
National Forest

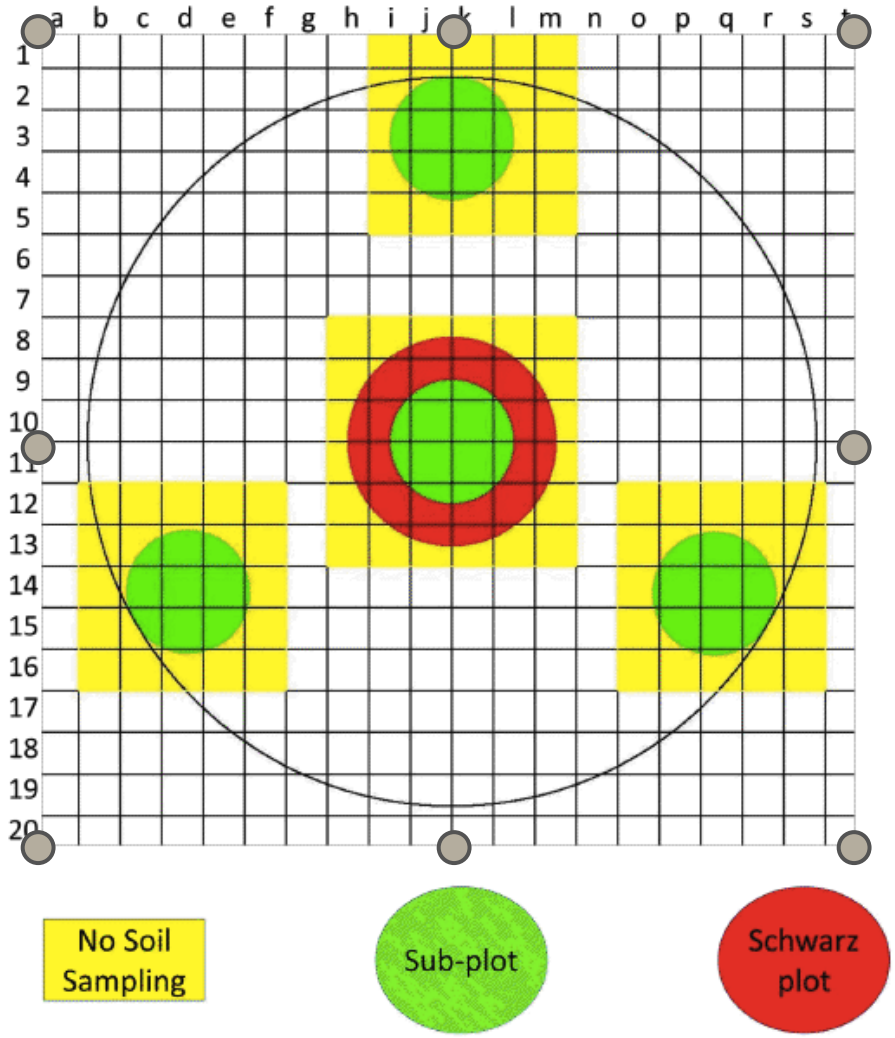
FIA at Hubbard Brook

- How do native forests respond to changes in environmental conditions?
- How will species migration due to climate change affect soils? (oak)
- How will species loss affect soils? (hemlock, ash)
- Why has live tree biomass stopped accumulating?
- What are long-term trends in carbon accumulation?

Hubbard Brook Experimental Forest



FIA grid-plot design



- 100x100 m grid
- 5x5 m individual sampling cells
- Grid edges and cells monumented with etched fiberglass poles
- buried magnet marks soil pits

Plot cell

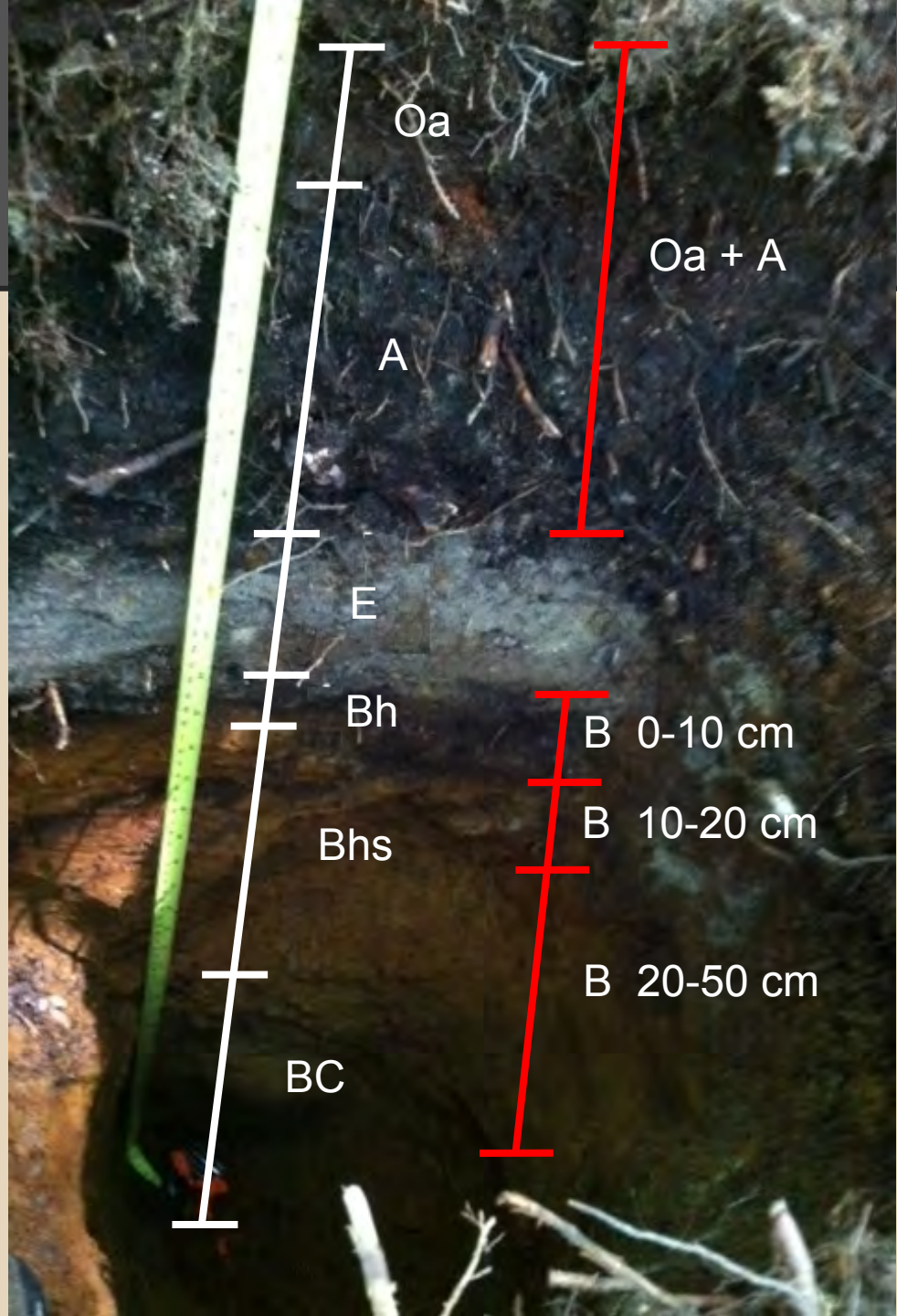
- elevation
- aspect
- percent slope
- physiography

Soil Horizon

- depth
- texture
- color
- structure
- consistence
- root content

Collection Methods

- Genetic horizons
- Depth increments



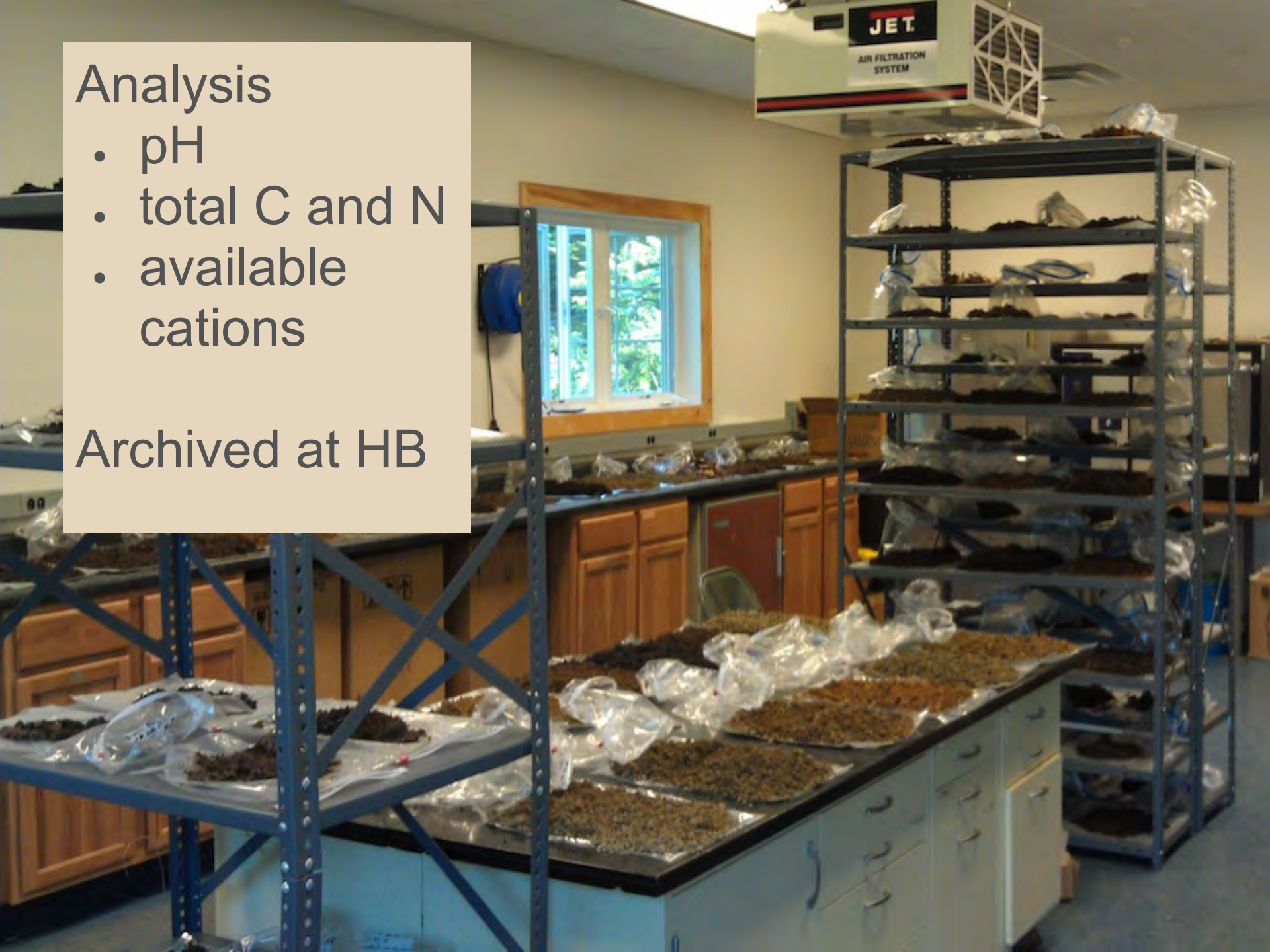
Collection Methods

Pinblock

- Volumetric
- Sample Oi, Oe, Oa, A
- Specific to HBEF

Microclimate monitoring

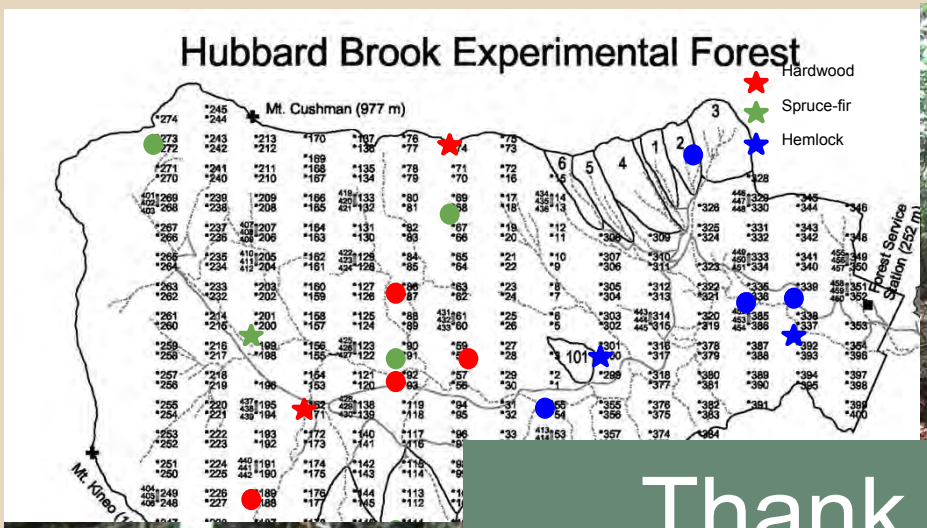
- 10, 20, 30, 50 cm
  - Soil temperature
  - Volumetric water content
  - 15 minute intervals
- Air temperature 1 m above ground
- Data available online through HB real-time system



Analysis

- pH
- total C and N
- available cations

Archived at HB


Hubbard Brook Experimental Forest
Hardwood
Spruce-fir
Hemlock
Mt. Cushman (977 m)
Forest Service Station (252 m)
Mt. Kineo (1

Thank You!