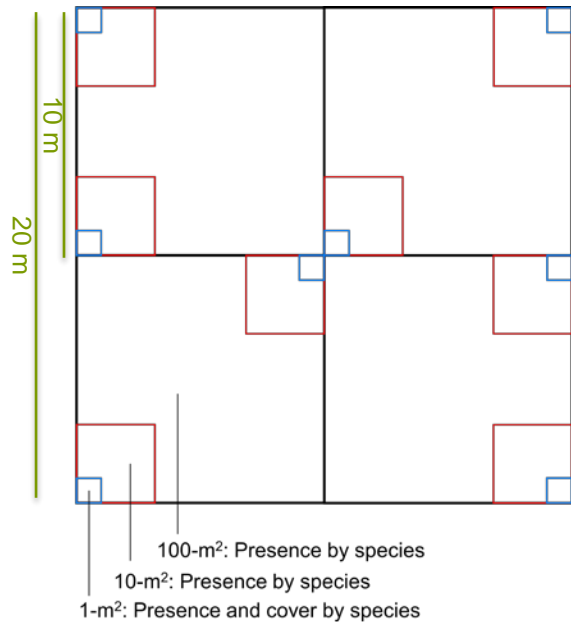


Plant species composition, abundance, functional traits of select species, and material for genetic analysis will be observed, measured, collected, and archived for thirty years at sixty sites across the United States.

Plot-based sampling



Data available

All data collected will be freely available to the public and science community:

- Abundance of herbaceous species at 1-m²
- Presence of species at multiple scales
- Alpha diversity (plot)
- Beta diversity (multiple indices)
- Gamma diversity (site)
- Nativity and location of invasive species
- Archived collection of species
- Material for genetic analysis

Functional trait diversity

A subset of plant species at each site will be the focus of biomass, productivity, phenology, distribution, and biogeochemistry measures to provide comprehensive information regarding changing patterns and processes. Many of these measures will reflect functional diversity:

- Woody species: height
- Foliage: leaf fresh and dry mass, leaf mass per area, specific leaf area, leaf dry matter content, chemistry, chlorophyll, lignin, isotopes
- Plant phenology

Link to remote sensing

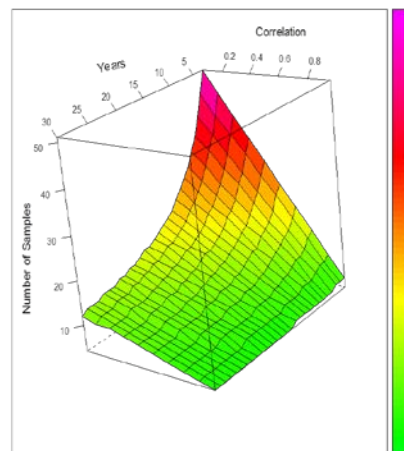
Integration of plot-based data with NEON remote sensing imagery will facilitate methods for observing diversity across large spatial extents, including:

- Species-specific observations through isolation of unique spectral signatures
- Calibration of sensor returns and associated algorithms with plot-based measures of diversity
- Diversity metrics that rely on the principle components of the hyperspectral data



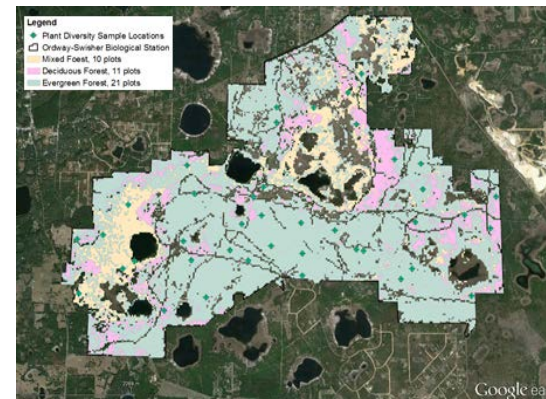
Keith Krauss collection.

Sample size



- Sample with intensity sufficient to detect change
- Initial test: Detection of differences in trend magnitude between sites
- Linear mixed effects model with repeat measures

Sample allocation



- Stratify by vegetation
- Sample dominant vegetation types (>5%)
- Sample more plots in larger vegetation types
- Standardize sampling to facilitate comparison across sites by sampling to the asymptote of the species accumulation curve

