Plant presence and percent cover (DP1.10058.001)

Measurement

Presence and percent cover of plant species and ancillary variables.

Collection methodology

Data results from observations in square, multi-scale, 400m^2 plots. At least once per year, the presence and percent cover of species and ancillary variables are documented in 1m^2 subplots. Every other year, species presence is also documented in 10m^2 subplots and 100m^2 subplots, which can be combined to reflect the presence of species across the entire 400m^2 plot. Included information: Taxonomic identification, taxonomic uncertainty when appropriate, nativity, and plot location.
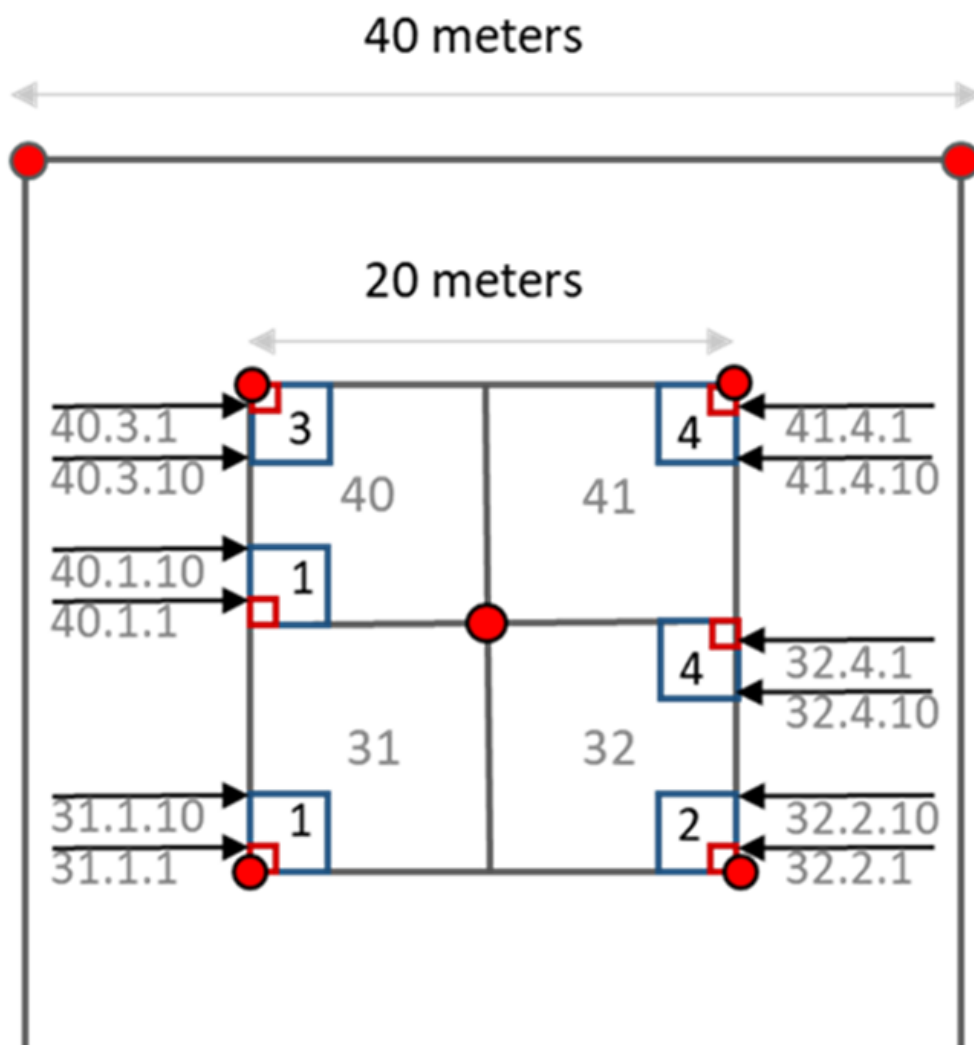
For information about disturbances, land management activities, and other incidents that may impact data at NEON sites, see the Site management and event reporting (DP1.10111.001) data product.

The square, multi-scale plot used to record plant species composition and cover. The plot includes nested subplots at specific locations within the plot. The 100m^2 subplot naming (e.g., 31, 32, 40, 41) corresponds to the point identification (see for point identification logic and description) in the southwest corner of the subplot. The 100m^2 subplot corners are numbered counter clockwise starting in the southwest corner. The 100m^2 subplot identifier, the subplot corner, and the scale of observation name the 1 and 10m^2 subplots. Subplot 32.2.1, for example, is the 1m^2 subplot in corner 2 of 100m^2 subplot 32.

subplotID	full list contained in:
31.1.10	31.1.10 + 31.1.1
31.4.10	34.4.10 + 34.4.1
31	31.1.10 + 31.1.1 + 34.4.10 + 34.4.1
32.2.10	32.2.10 + 32.2.1
32.4.10	32.4.10 + 32.4.1
32	32.2.10 + 32.2.1 + 32.4.10 + 32.4.1
40.1.10	40.1.10 + 40.1.1
40.3.10	40.3.10 + 40.3.1
40	40.1.10 + 40.1.1 + 40.3.10 + 40.3.1
41.1.10	41.1.10 + 41.1.1
41.4.10	41.4.10 + 41.4.1
40	41.1.10 + 41.1.1 + 41.4.10 + 41.4.1
entire 400m² plot	31.1.10 + 31.1.1 + 34.4.10 + 34.4.1 + 32.2.10 + 32.2.1 + 32.4.10 + 32.4.1 + 40.1.10 + 40.1.1 + 40.3.10 + 40.3.1 + 41.1.10 + 41.1.1 + 41.4.10 + 41.4.1

Complete lists of the presence of plant species at subplots larger than 1m^2 and the 400m^2 plot scale require joining of the div_1m2Data and div_10m2Data100m2Data tables and aggregating nested subplots. The Aggregation must occur according to specific nesting as described herein and in Figure 1. Prior to the 2019 and for all subsequent sampling, the nested subplots at the center of the plot were discontinued. Subplots 31.4.1, 31.4.10, 41.1.1, and 41.1.10 are no longer sampled.

Data package contents

div_1m2Data: Plant species identifications and cover, and cover of abiotic variables within 1 square meter subplots
div_geneticarchive: Genetic archive samples
div_voucher: Voucher specimens
div_morphospecies: Diversity morphospecies resolution data
div_10m2Data100m2Data: Plant species identifications within 10 square meter and 100 square meter subplots
variables: Description and units for each column of data in data tables
readme: Data product description, issue log, and other metadata about the data product
validation: Description of data validation applied at the points of collection and ingest

Data quality

Uncertainty in taxonomic identification is recorded in the identificationQualifier fields in each table. If identification to species is not possible, identification to a higher taxonomic rank is recorded, and indicated in the taxonRank field. The measuredBy field records the staff member who made the identification, to enable analyses of observer effects.

Standard calculations

For wrapper functions to download data from the API, and functions to merge tabular data files across sites and months, see the neonUtilities R package.

Species-specific cover observed in 1m^2 subplots is directly available in the table div_1m2Data. Subplots at which observations were made are identified by the subplotID field (e.g., 31.1.1, 40.3.1), and are associated with specific plots (identified d by the plotID field, e.g., HARV_001) within the site (Figure 1).

Presence or incidence of species is available at 1m^2 scale and can be derived for larger subplots and the plot scale. The 1m^2 presence data is available in the table div_1m2Data with observations associated with subplots and plots as described above (Figure 1). Data from the 10m^2 and 100m^2 subplots is available in the table div_10m2Data100m2Data. Complete lists of the presence of species at larger – 10m^2 and 100m^2 – subplots and the 400m^2 plot must be aggregated from nested subplot observations. For example, the presence of species in the 10m^2 subplot 32.2.10 must reflect observations reported at the nested 1m^2

subplot 32.2.1 and the 10m^2 subplot 32.2.10. Presence of species at the 100m^2 subplot 32 must aggregate species reported in all nested subplots – 32.2.1, 32.2.10, 32.4.1, 32.4.10 – and those reported in subplot 32 (Figure 1).

Specific subplot lists that need to be aggregated can be found in Figure 2, and additional directions for combining data across tables are included in the NEON User Guide to Plant Presence and Percent Cover data product user guide.

The eventID field in tables div_1m2Data and div_10m2Data100m2Data can be used to match surveys representing the same sampling event.

Table joining

Table 1	Table 2	Join by field(s)
div_1m2Data	div_10m2Data100m2Data	Direct join not recommended. See Standard calculations.
div_geneticarchive	Any other table	Join not recommended. Data resolution does not match other tables.
div_morphospecies	Any other table	Join not recommended. Data resolution does not match other tables.
div_voucher	Any other table	Join not recommended. Data resolution does not match other tables.

Documentation

TOS Science Design for Plant Diversity
NEON.DOC.000912vC | 662.4 KiB | PDF

NEON Standard Operating Procedure: HRB – Plant Pressing, Mounting, and Labeling (Herbarium Techniques)
NEON.DOC.003564vF | 1.7 MiB | PDF

TOS Protocol and Procedure: DIV – Plant Diversity Sampling
NEON.DOC.014042vM | 1.8 MiB | PDF

📄 NEON User Guide to Plant Presence and Percent Cover (DP1.10058.001)
NEON_plantDiv_userGuide_vE | 474 KiB | PDF

For more information on data product documentation, see:
https://data.neonscience.org/data-products/DP1.10058.001

Citation

To cite data from Plant presence and percent cover (DP1.10058.001), see citation here:
https://data.neonscience.org/data-products/DP1.10058.001
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https://www.neonscience.org/data-samples/guidelines-policies/citing