Aquatic plant, bryophyte, lichen, and macroalgae point counts in wadeable streams (DP1.20072.001)

Measurement

Taxonomic classification and presence at points along a transect of plants, bryophytes, and macroalgae in streams.

Collection methodology

Sampling is conducted three times per year during the aquatic biology bout windows (spring, summer, and fall) at each of the 10 permanently-marked plant transects along the reach. A minimum of 20 points along the wetted width of each transect is sampled using a view bucket. If target taxa is present each of the groups present is recorded. If no target taxa are present then the substratum of the location is recorded by size class. Samples will be collected for taxonomic analysis by an external facility at each transect if they cannot be identified in the field.

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.

Data package contents

apc_taxonomyProcessed: Aquatic plant bryophyte lichen macroalgae point transect identifications by expert taxonomists, desynonimized
apc_taxonomyRaw: Aquatic plant bryophyte lichen macroalgae point transect identifications by expert taxonomists, raw
apc_voucherTaxonomyProcessed: Identifications by expert taxonomists for voucher specimens, desynonimized
apc_perTaxon: Point transect data for each taxon
apc_voucherTaxonomyRaw: Identifications by expert taxonomists for voucher specimens, raw
apc_pointTransect: Stream aquatic plant bryophyte lichen macroalgae point transect field data
apc_morphospecies: Plant morphospecies resolution data
apc_voucher: Plant voucher specimen sample data
apc_identificationHistory: Aquatic plant bryophyte lichen macroalgae identification history for records where identifications have changed
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 indicated by the identificationQualifier field. Taxa that can't be identified in the field are sent for expert identification, as indicated by the expertIdentificationRequired field. Expert identifications can be found in the apc_taxonomyRaw and apc\taxonomyProcessed tables. Use the sampleID field to match taxa in the apc_perTaxon table to the expert identifications. Note that there may be multiple records for a given sampleID in the apc_taxonomyRaw and apc\taxonomyProcessed tables, because in some cases an expert may find that multiple taxa have been sent for identification in a single sample.

Please note that quality checks are comprehensive but not exhaustive; therefore, unknown data quality issues may exist. Users are advised to evaluate quality of the data as relevant to the scientific research question being addressed, perform data review and post-processing prior to analysis, and use the data quality information and issue logs included in download packages to aid interpretation.

Standard calculations

For wrapper functions to download data from the API, and functions to merge tabular data files across sites and months, NEON provides the neonUtilities package in R and the neonutilities package in Python. See the Download and Explore NEON Data tutorial for introductory instructions in both programming languages.

Percent cover calculation from Bowden et al. 2006. Divide the number of observed points in the transect that match a particular taxonomic class type (Ni) by the total number of observed points on the transect (Nt). Multiply the result by 100.

Table joining

Table 1	Table 2	Join by field(s)
apc_perTaxon	apc_taxonomyRaw	sampleID
apc_perTaxon	apc_taxonomyProcessed	sampleID
apc_pointTransect	apc_perTaxon	namedLocation,pointNumber, collectDate
apc_pointTransect	apc_taxonomyProcessed	Requires intermediate table: join via apc_perTaxon table
apc_pointTransect	apc_taxonomyRaw	Requires intermediate table: join via apc_perTaxon table

Table 1	Table 2	Join by field(s)
apc_taxonomyProcessed	apc_taxonomyRaw	Join not recommended. These tables contain identifications of the same samples with possibly differing higher-order taxonomy; see User Guide.
apc_voucher	apc_voucherTaxonomyRaw	sampleID
apc_voucher	apc_voucherTaxonomyProcessed	sampleID
apc_morphospecies	Any other table	Join not recommended. Data resolution does not match other tables.

Documentation

Standard Operating Procedures and Protocols for Aquatic Plant Taxonomic Identification, David Krofanek Botany, Rev 1
`Kofranek_plantTaxonomy_V1 | 1 MiB | PDF`

NEON Aquatic Sampling Strategy
`NEON.DOC.001152vB | 931.8 KiB | PDF`

AOS Protocol and Procedure: APL – Aquatic Plant, Bryophyte, Lichen and Macroalgae Sampling
`NEON.DOC.003039vG | 2.2 MiB | PDF`

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

NEON User Guide to Aquatic Plant, Bryophyte, Lichen, and Macroalgae Point Counts in Wadeable Streams (NEON.DP1.20072)
`NEON_aquaticPointCount_userGuide_vD | 633.5 KiB | PDF`

Standard Operating Procedures and Protocols for Aquatic Plant Taxonomic Identification, University of West Alabama Herbarium, 02 February 2018
`UWA_plantTaxonomy_20180202 | 892.7 KiB | PDF`

For more information on data product documentation, see:
https://data.neonscience.org/data-products/DP1.20072.001

Citation

To cite data from Aquatic plant, bryophyte, lichen, and macroalgae point counts in wadeable streams (DP1.20072.001), see citation here:
https://data.neonscience.org/data-products/DP1.20072.001
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https://www.neonscience.org/data-samples/guidelines-policies/citing

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