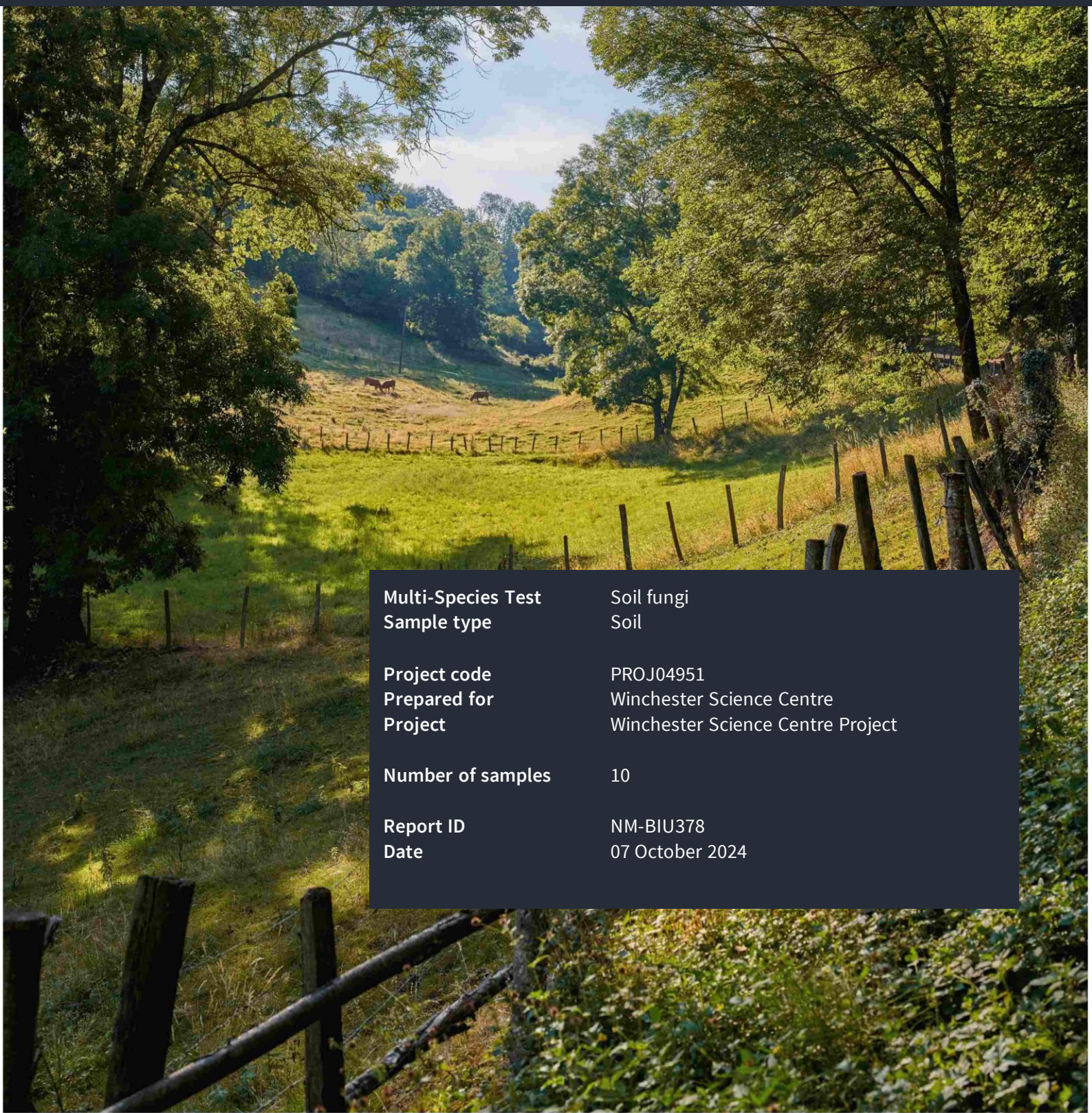
NATURE METRICS
DNA-BASED MONITORING

Environmental DNA Report
Soil fungi



Multi-Species Test	Soil fungi
Sample type	Soil
Project code	PROJ04951
Prepared for	Winchester Science Centre
Project	Winchester Science Centre Project
Number of samples	10
Report ID	NM-BIU378
Date	07 October 2024

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Welcome to your report

Your report consists of:

This document: Providing you with our world class insights and metrics.

Data Tables: Accompanying spreadsheet with results at the individual sample level: species detected, metrics and quality control: NM-BIU378 - PROJ04951 - Terrestrial soil fungi - Results.xlsx

- Data Description
- Species Data Table: Percentages
- Species Data Table: Read Counts
- Metrics by Sample Table
- Quality Control Table

If you have purchased metrics and they are not featured in this document, please see the 'Metrics by Sample Table' tab of the Data Tables spreadsheet.

OTU: Throughout the report you'll see reference to 'OTU'. This stands for Operational Taxonomic Unit; an OTU is broadly equivalent to a species in most cases.

Executive Summary

Field Samples submitted:	10
Field Samples reported:	10
Field Blanks submitted:	0
Species Richness:	339
Average Species Richness per sample:	73
Total number of CHEGD OTUs:	39
Total number of IUCN Red List Species:	0
Total number of Invasive Species:	0

Reported samples are those that passed Quality Control and are included in the Species Data Table

Please be careful when sharing this report, it contains biodiversity information that may be sensitive, particularly with respect to endangered or protected species. Please share responsibly. If the report is shared, we kindly ask that the report is shared in its entirety - to limit the possibility of any information being taken out of context.

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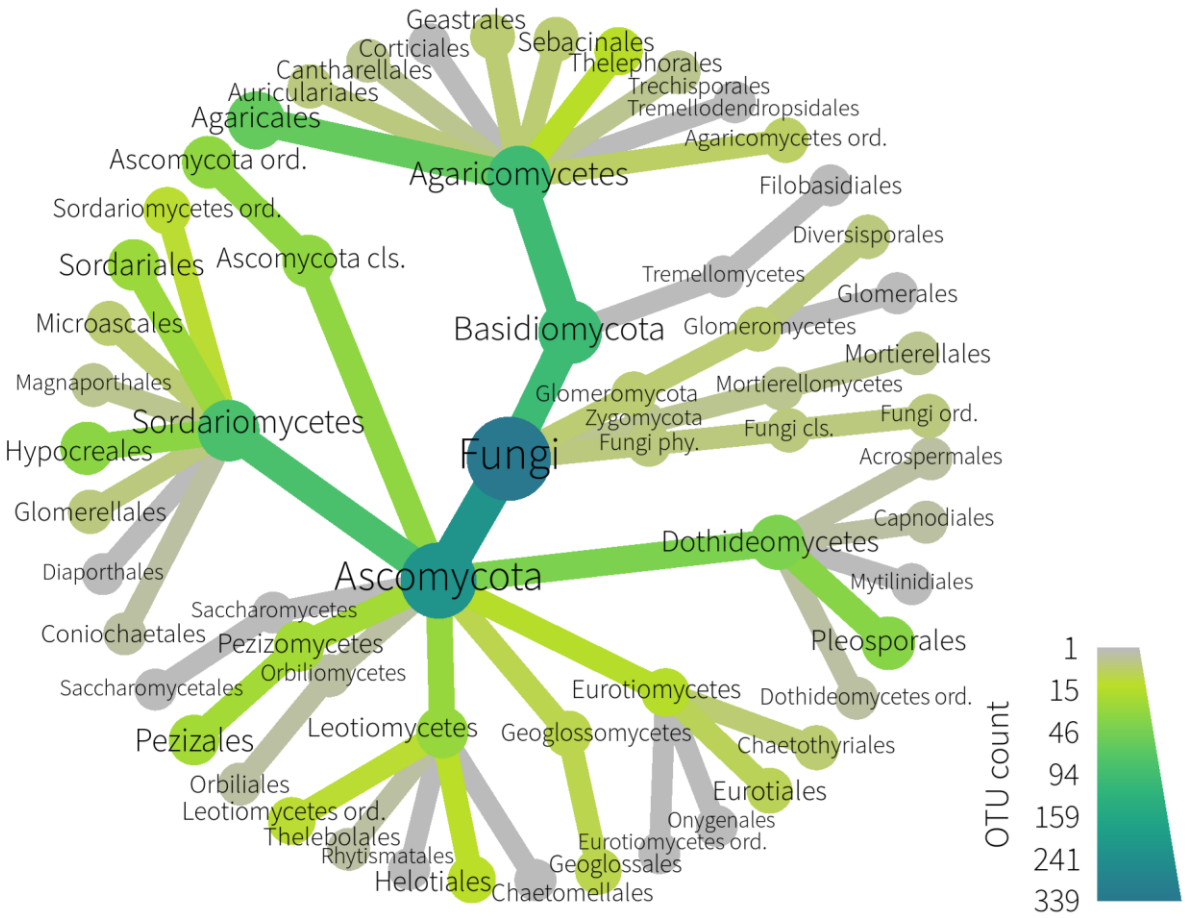
Something exciting or unexpected that you'd like to discuss further, our team of experts are looking forward to speaking with you: www.naturemetrics.com/contact

REPORT

Taxonomic Composition

This chart provides a view of the species detected in your samples and their taxonomic relationship, (names on the same branch are more similar than those on different branches). The chart is structured with the highest taxonomic rank at the centre (e.g., kingdom, phylum, class), moving through the ranks of order, family, genus, species as you move to the outer edge. Note that the centre and outer ranks will change depending on the test applied and the number of species detected. The legend in the bottom right of the chart indicates how to relate the colour in the branches to the number of species. The colour scale goes from grey - indicating very few species, to blue - indicating a lot of species.



Taxonomic Resolution

This table provides the number of OTUs detected and the percentage of OTUs identified to each taxonomic level.

> Depending on completeness of reference databases for the region where you sampled, some OTUs may not match to a reference at species level. Global DNA reference databases contain millions of barcodes, but gaps remain, particularly in regions and taxonomic groups that are more diverse and less studied. Coverage is expected to improve over time and data tables can be updated to include new information at a future date.

Number of OTUs	Phylum	Class	Order	Family	Genus	Species
339	98.82%	89.97%	80.83%	68.44%	38.94%	15.63%

Want to increase the number of species named to species level? If you have specimens of species you have identified, we can sequence the DNA and add the species to our reference databases. We will then be able to enhance the reference library and report if the species is detected. Please contact us about this service and we can send you our barcoding kits, but note that we only offer these kits for fish and amphibians.

IUCN Red List Species

These are the IUCN (International Union for Conservation of Nature) Red List species detected in your samples. These are detected species that are designated as one of the IUCN Red List Threatened Categories (Vulnerable, Endangered and Critically Endangered). An increase in the number of threatened species is generally associated with a positive trend in biodiversity or habitat condition.

No species designated Vulnerable, Endangered or Critically Endangered were detected in the samples.

CHEGD Species

This is a summary of the CHEGD (*Clavariaceae*, *Hygrophoraceae*, *Entolomataceae*, *Geoglossaceae*, and *Dermoloma*) fungi detections. CHEGD fungi are of conservation interest as indicators of grassland soil health; the frequency of their detection is a reliable indicator of grasslands that have not been heavily modified or degraded.

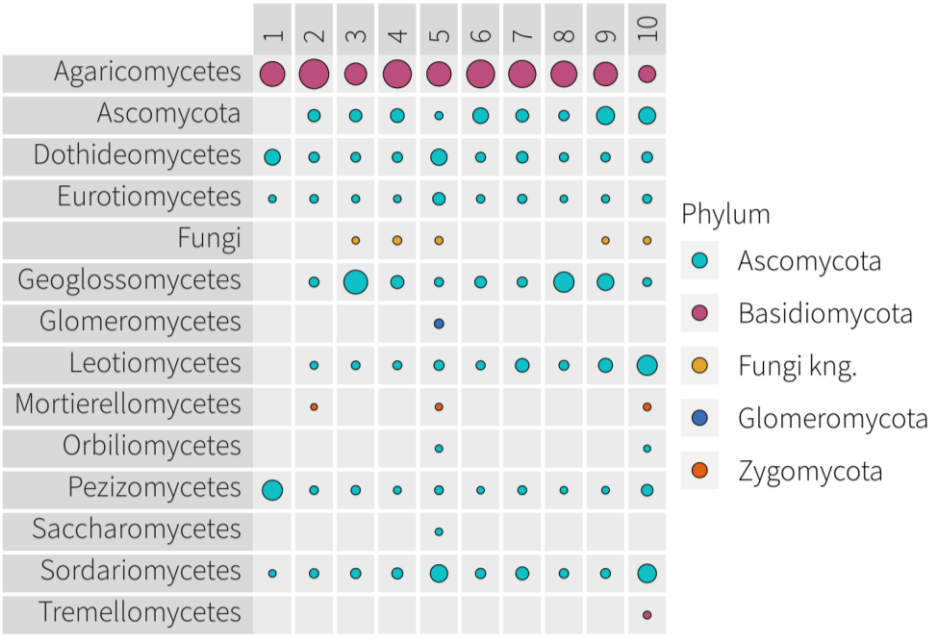
There was a total of 39 CHEGD fungi detected. Of these, 13 were named at species level.

Species	CHEGD Fungal Group	CHEGD Group common name
unclassified Geoglossum	Geoglossoid fungi	Earthtongues
Trichoglossum variabile	Geoglossoid fungi	Earthtongues
unclassified Trichoglossum	Geoglossoid fungi	Earthtongues
unclassified Geoglossaceae	Geoglossoid fungi	Earthtongues
Clavaria asperulospora	Clavarioid fungi	Clubs, corals and spindles
Clavaria flavostellifera	Clavarioid fungi	Clubs, corals and spindles
Clavaria stellifera	Clavarioid fungi	Clubs, corals and spindles
Clavaria tenuipes	Clavarioid fungi	Clubs, corals and spindles
unclassified Clavaria	Clavarioid fungi	Clubs, corals and spindles
unclassified Hodophilus	Clavarioid fungi	Clubs, corals and spindles
unclassified Ramariopsis	Clavarioid fungi	Clubs, corals and spindles
unclassified Clavariaceae	Clavarioid fungi	Clubs, corals and spindles
Cuphophyllus virgineus	Hygrocybe	Waxcaps
unclassified Cuphophyllus	Hygrocybe	Waxcaps
Hygrocybe acutoconica	Hygrocybe	Waxcaps
Hygrocybe conica	Hygrocybe	Waxcaps
unclassified Hygrocybe	Hygrocybe	Waxcaps
unclassified Hygrophoraceae	Hygrocybe	Waxcaps
Dermoloma bellerianum	Dermoloma	Crazed caps, fanvaults and meadowcaps
Dermoloma cuneifolium	Dermoloma	Crazed caps, fanvaults and meadowcaps
Dermoloma pseudocuneifolium	Dermoloma	Crazed caps, fanvaults and meadowcaps
unclassified Dermoloma	Dermoloma	Crazed caps, fanvaults and meadowcaps
Entoloma asterosporum	Entoloma	Pinkgills
Entoloma incanum	Entoloma	Pinkgills
unclassified Entolomataceae	Entoloma	Pinkgills
Number of OTUs		39

Community Composition

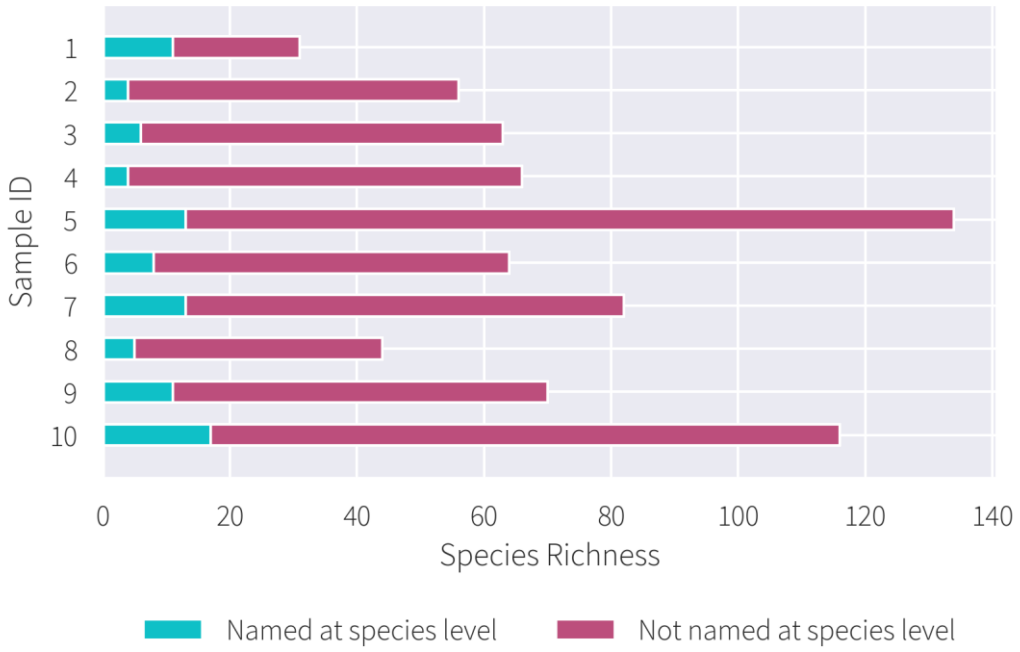
This chart lists the species found in each sample. The presence of a bubble means a species was detected in that sample. The chart displays at species level, unless the number of species detected is too great to display clearly in the document. In these cases, the chart displays at a higher taxonomic level. The full species level chart is provided as an appendix.

The size of the bubbles represents the proportion of DNA sequences within a sample. A larger bubble size can indicate a stronger eDNA signal. This signal may be linked to abundance of species in the environment but should be interpreted only as a coarse measure because the signal is also impacted by biological (e.g., biomass, life stage, activity, body condition), environmental (e.g., temperature, pH, salinity, conductivity), and technical factors (e.g., primer bias, PCR stochasticity).



Species Richness

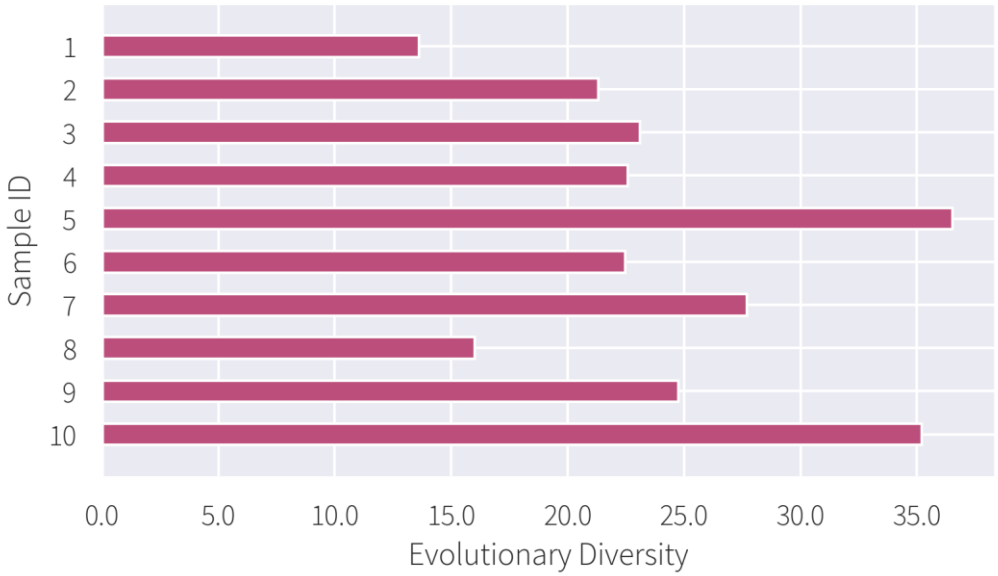
This is the total count of OTUs detected in each sample. The blue portion of each bar indicates the number of OTUs identified to a species.



High Species Richness generally indicates a healthier and functioning ecosystem and is the simplest biodiversity metric that is consistently reported in biodiversity monitoring.

Evolutionary Diversity

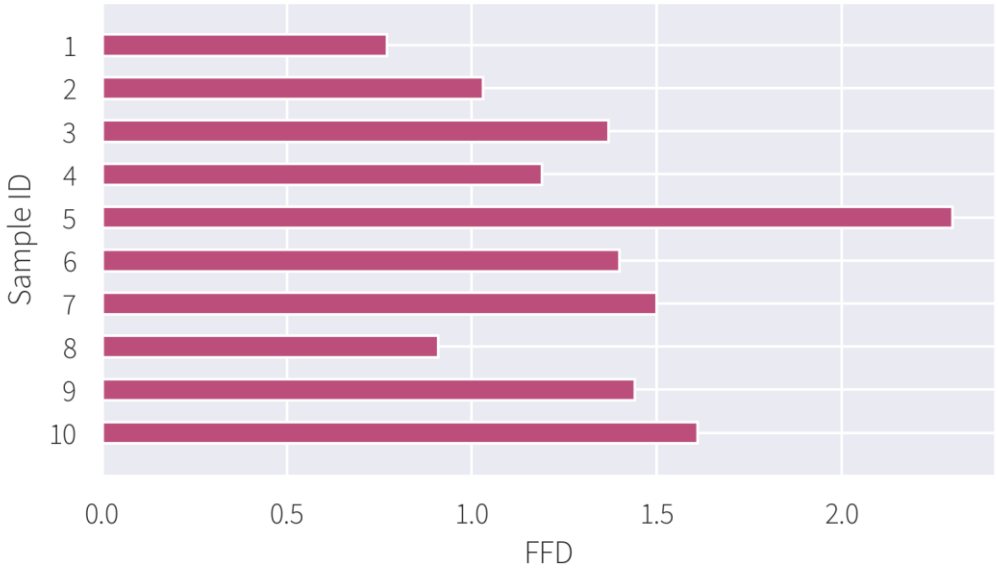
Evolutionary Diversity calculated for each sample. This is a measure of the variety of species types that occurred in your samples.



Evolutionary Diversity is a strong complementary indicator of biodiversity progress alongside Species Richness. Increasing Evolutionary Diversity can indicate an increasing resilience of the community.

Fungi: Fungal Functional Diversity

Fungal Functional Diversity (FFD) calculated for each sample. This is an overall measure of the different functions performed by all the fungal species detected in a sample.



The breadth of functions that fungal species perform in ecosystems, such as nutrient cycling, decomposition, and symbiotic interactions. Greater functional diversity indicates a more resilient and stable ecosystem.

Looking for something more?

We also offer comparative reporting. This includes statistical comparison of metrics and communities according to categories that you define. For instance, these might include waterbody, Site, Management Regime, or anything else that is a focus of your project. Please contact us for further details.

END OF REPORT

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