# Altitudinal zonation of green algae biodiversity in the French Alps

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## *Supplementary Material*

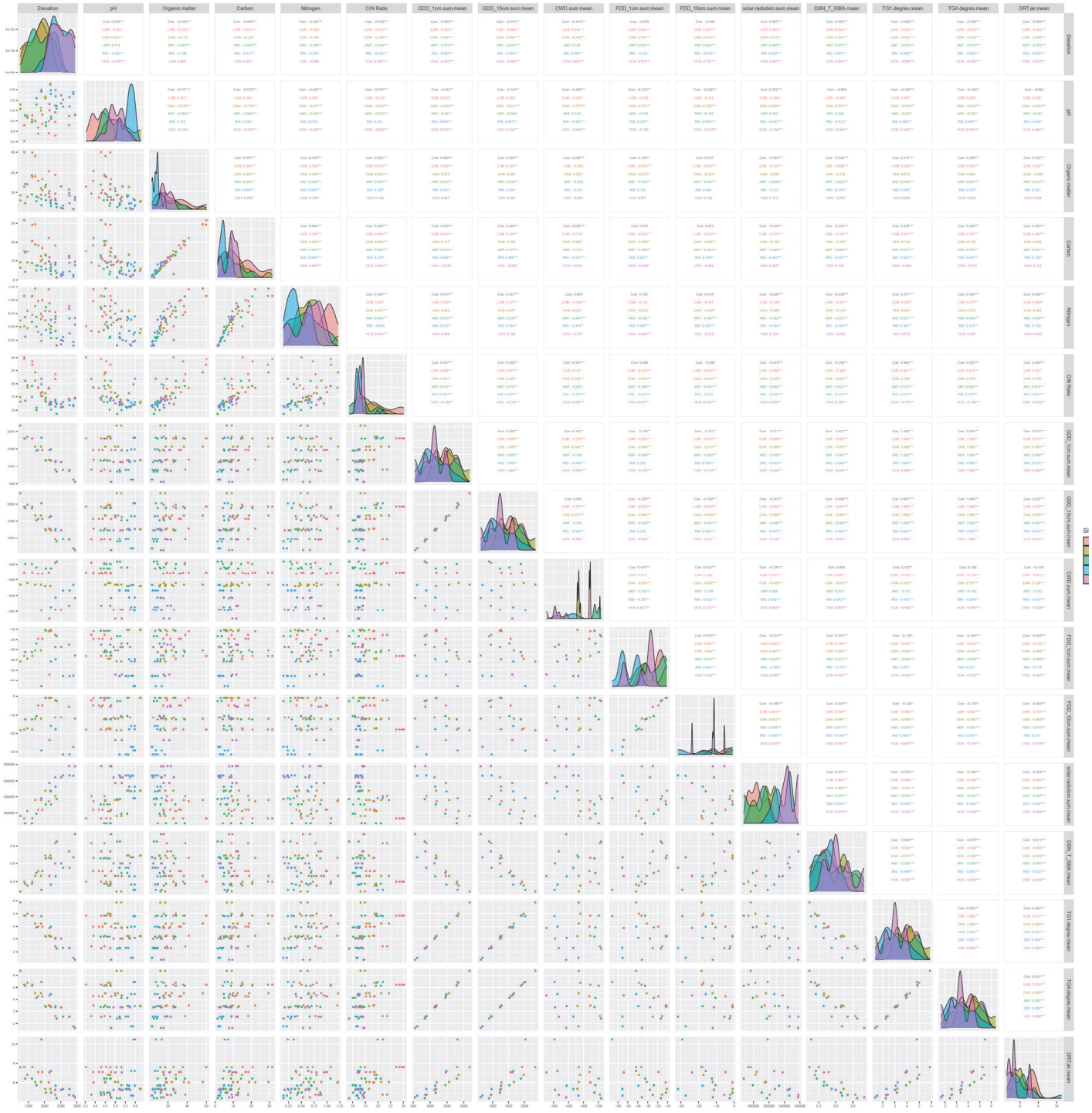


**Figure S1**. Distributions of environmental variables and their relationships. The density diagrams on the diagonal show the distribution of each variable across the different sampling sites. The scatter plots in the lower triangle of the matrix show the relationships between the variables, and the panels in the upper triangle summarize the linear correlations between the variables. The colors are related to the sampling site and the correlation panels provide their relationship to the sampling sites.

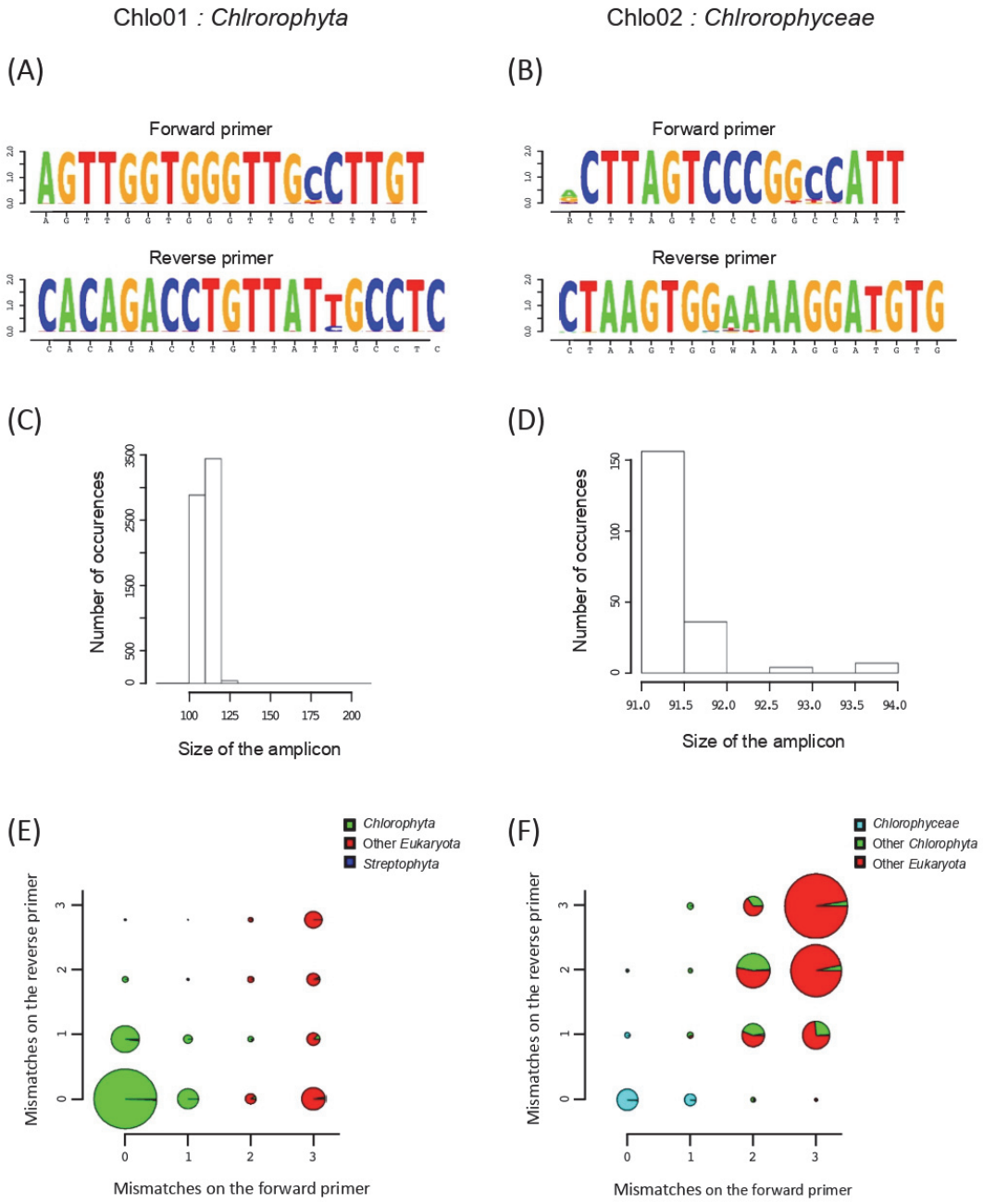


**Figure S2.** Markers for *Chlorophyta* (Chlo01) and *Chlorophyceae* (Chlo02) for metabarcoding. A, C, E: *Chlorophyta*. B, D, F: Chlorophyceae marker. A, B: Primer sequences. The size of the letters represents the degree of conservation across tested algae sequences. C, D: amplicon size and their respective occurrence across tested algae sequences. E, F: Proportion of target vs non-target taxa amplified depending on the number of mismatches allowed on primer sequences.

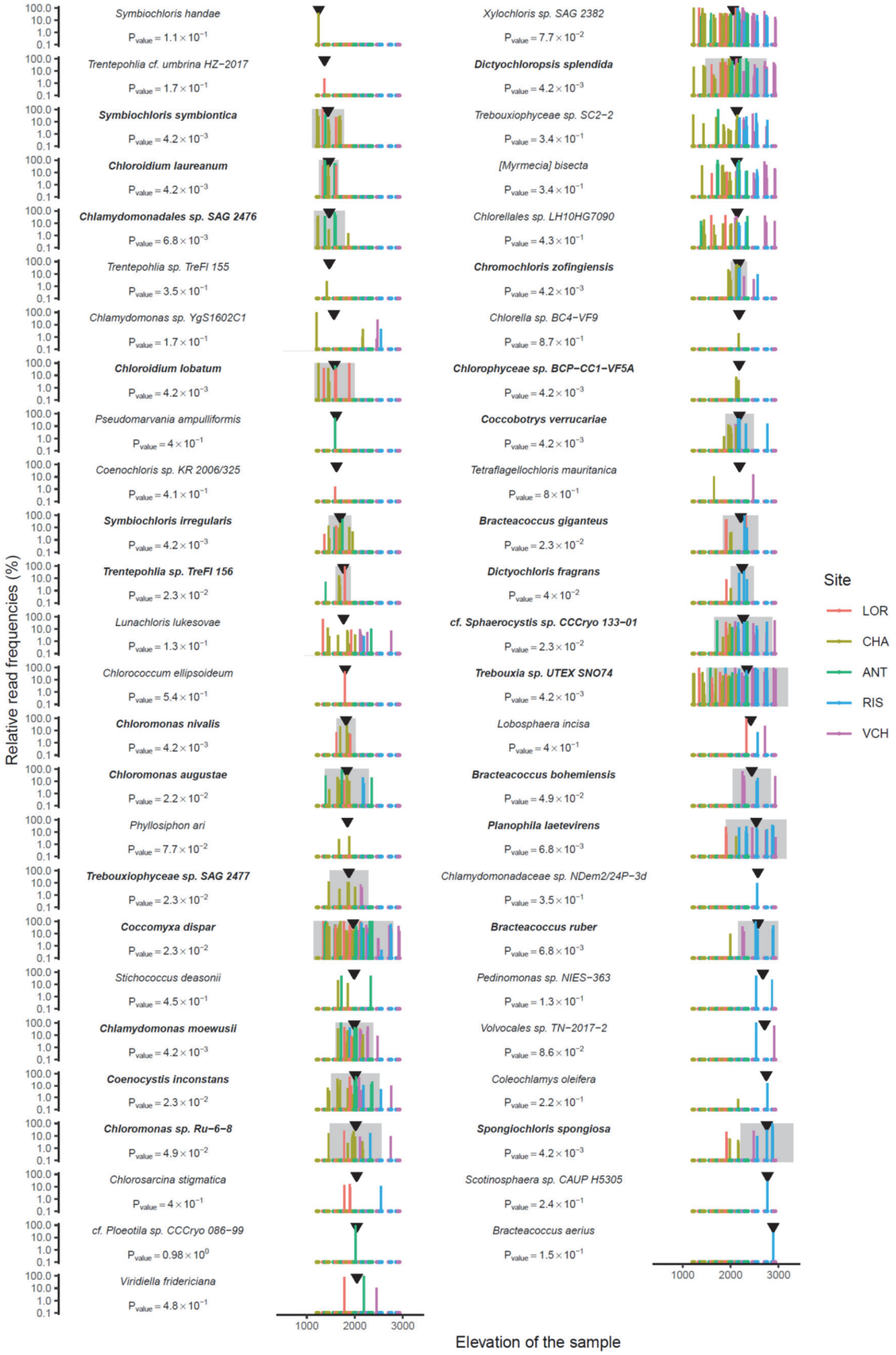


**Figure S3.** Distribution of species along elevation gradient.

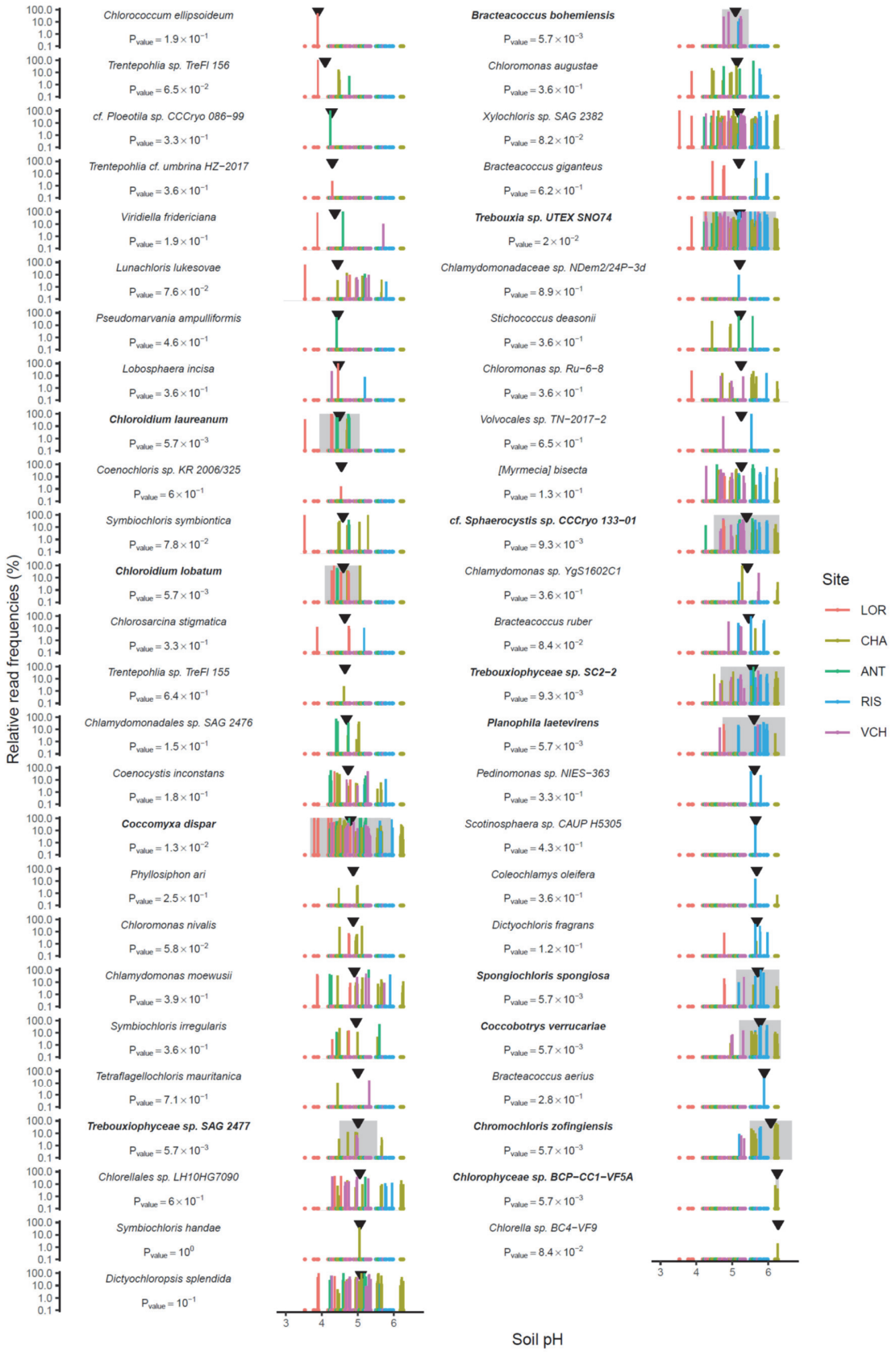


**Figure S4.** Distribution of species along pH gradient.

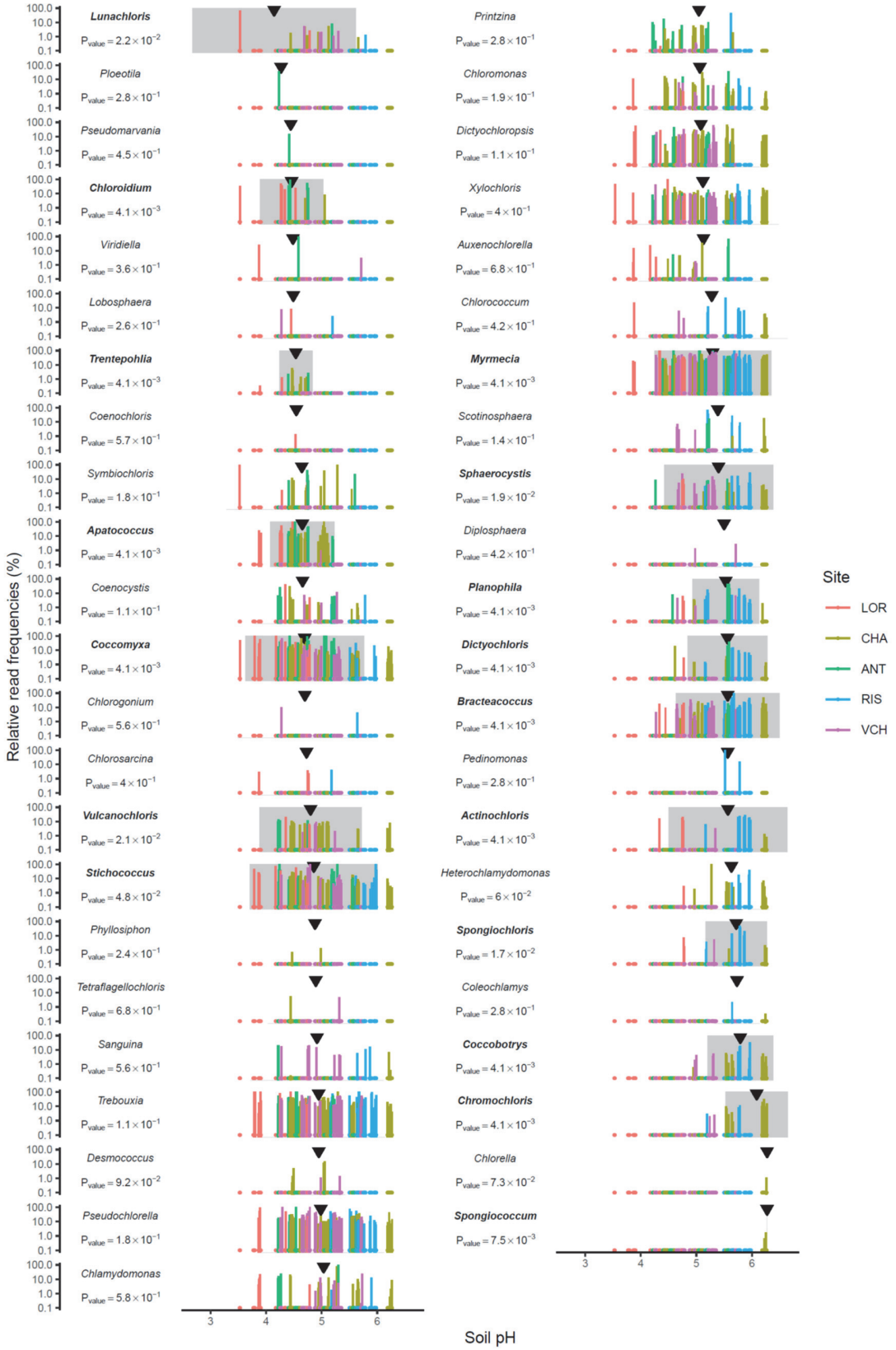


**Figure S5.** Distribution of genera along pH gradient.

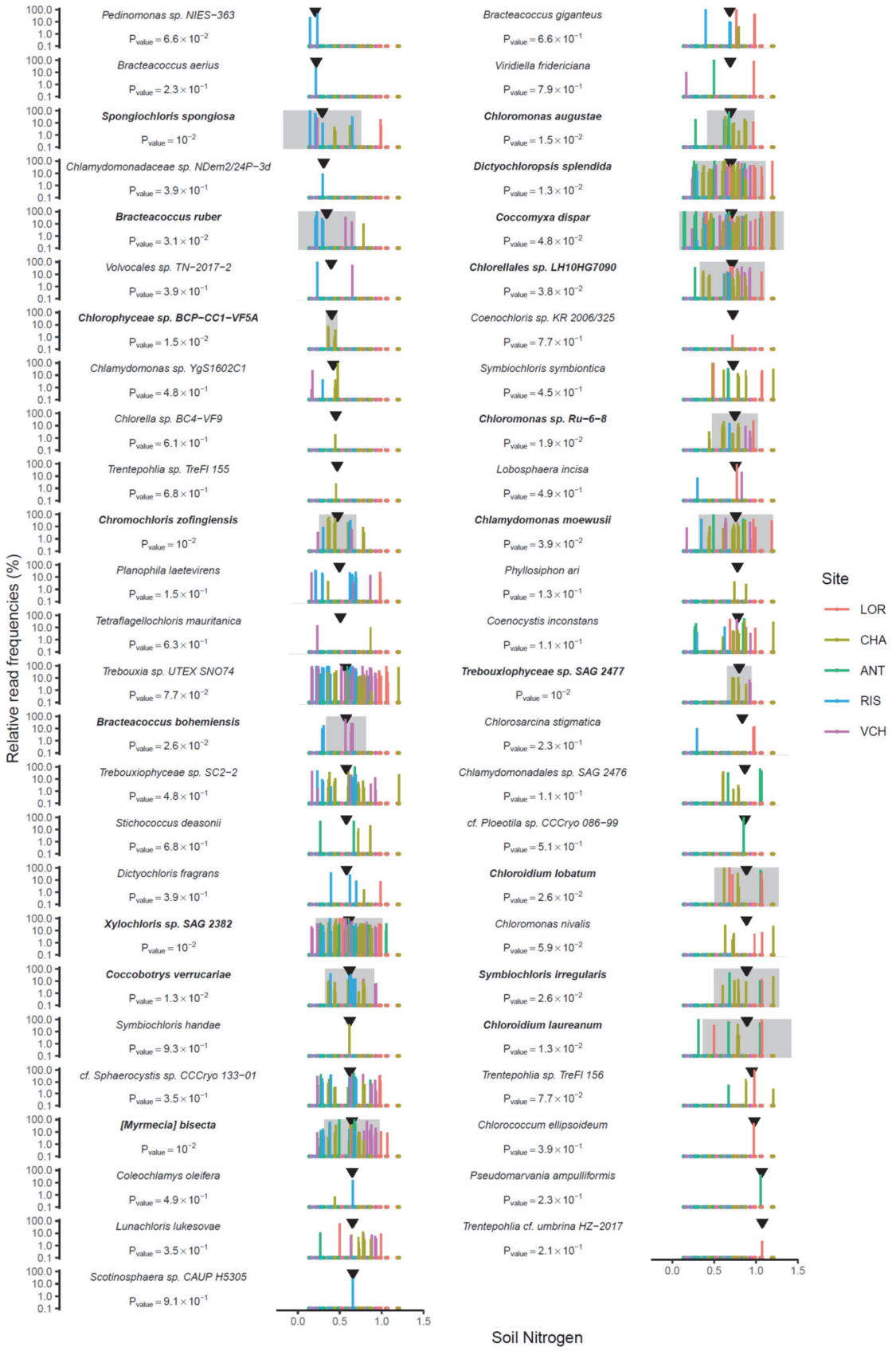


**Figure S6.** Distribution of species along Nitrogen gradient.

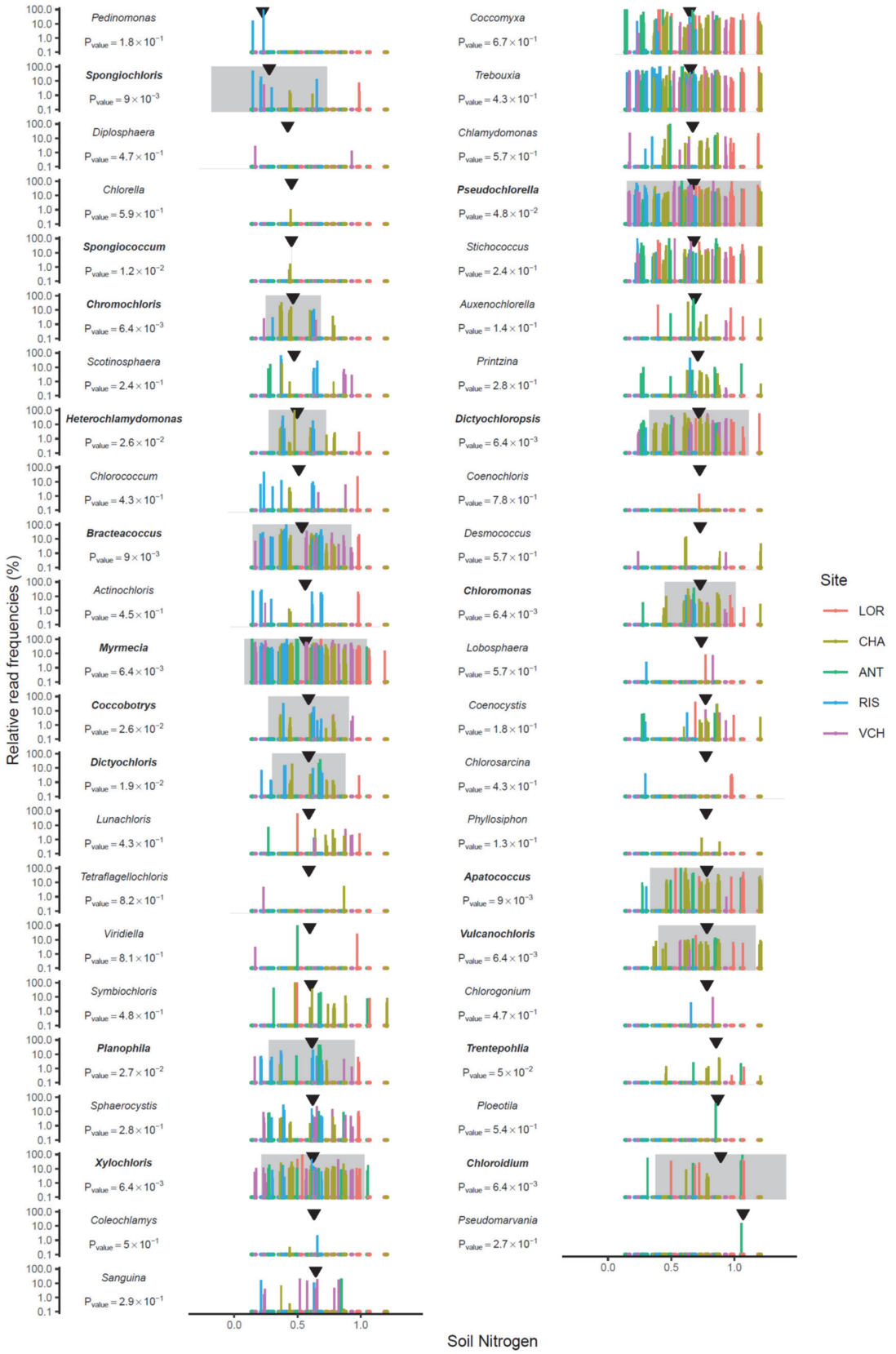


**Figure S7.** Distribution of genera along Nitrogen gradient.

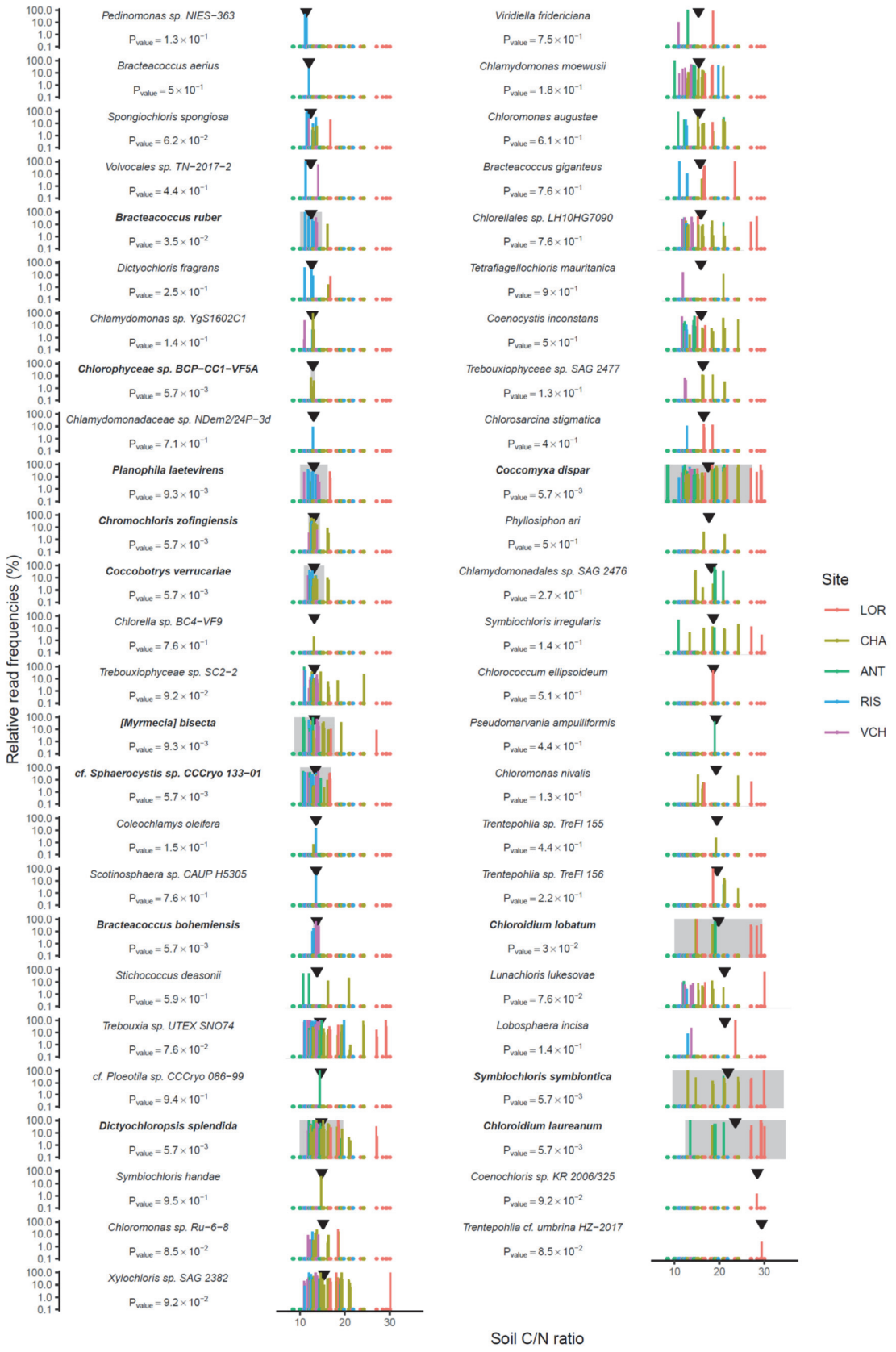


**Figure S8.** Distribution of species along C/N ratio.

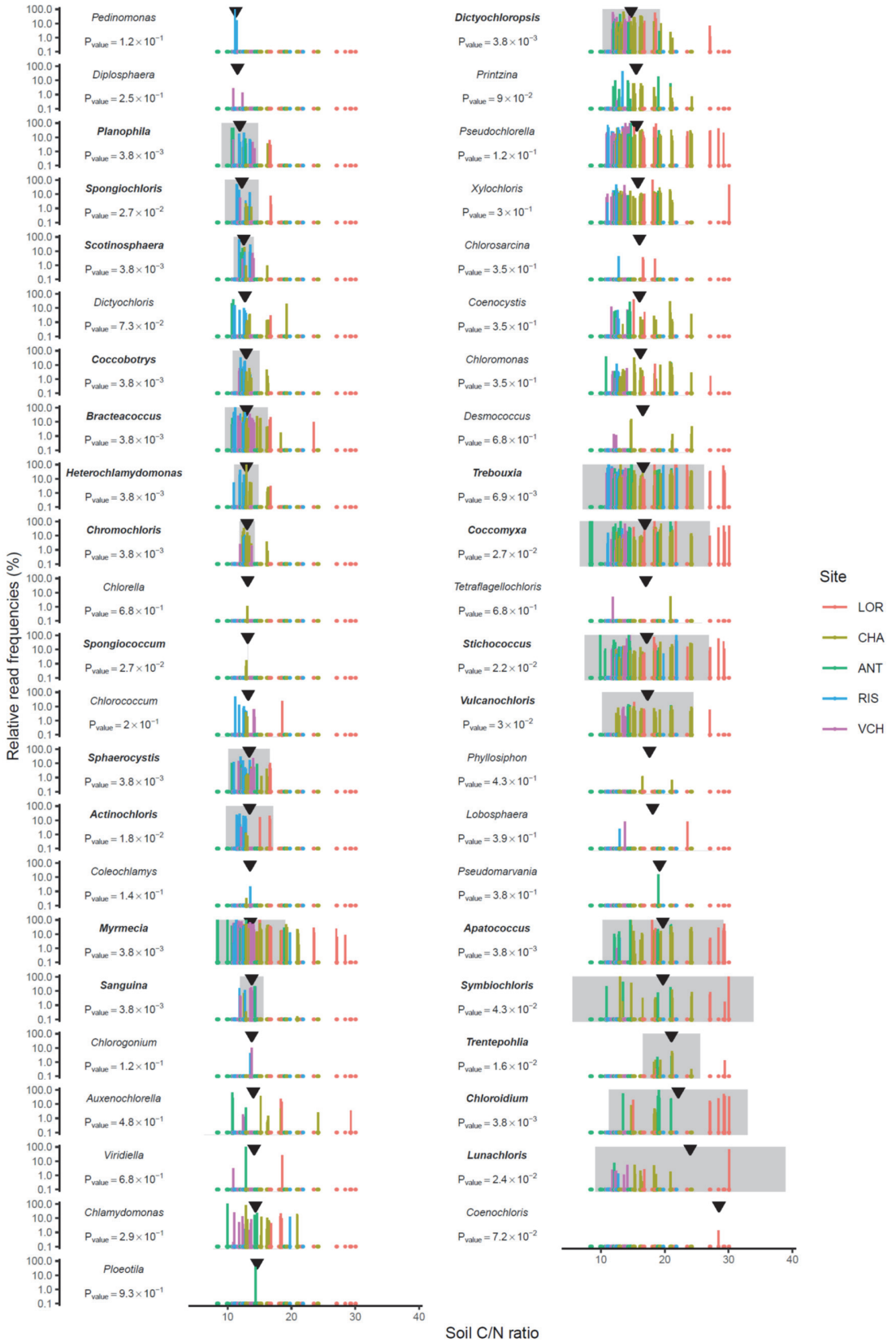


**Figure S9.** Distribution of genera along C/N ratio.

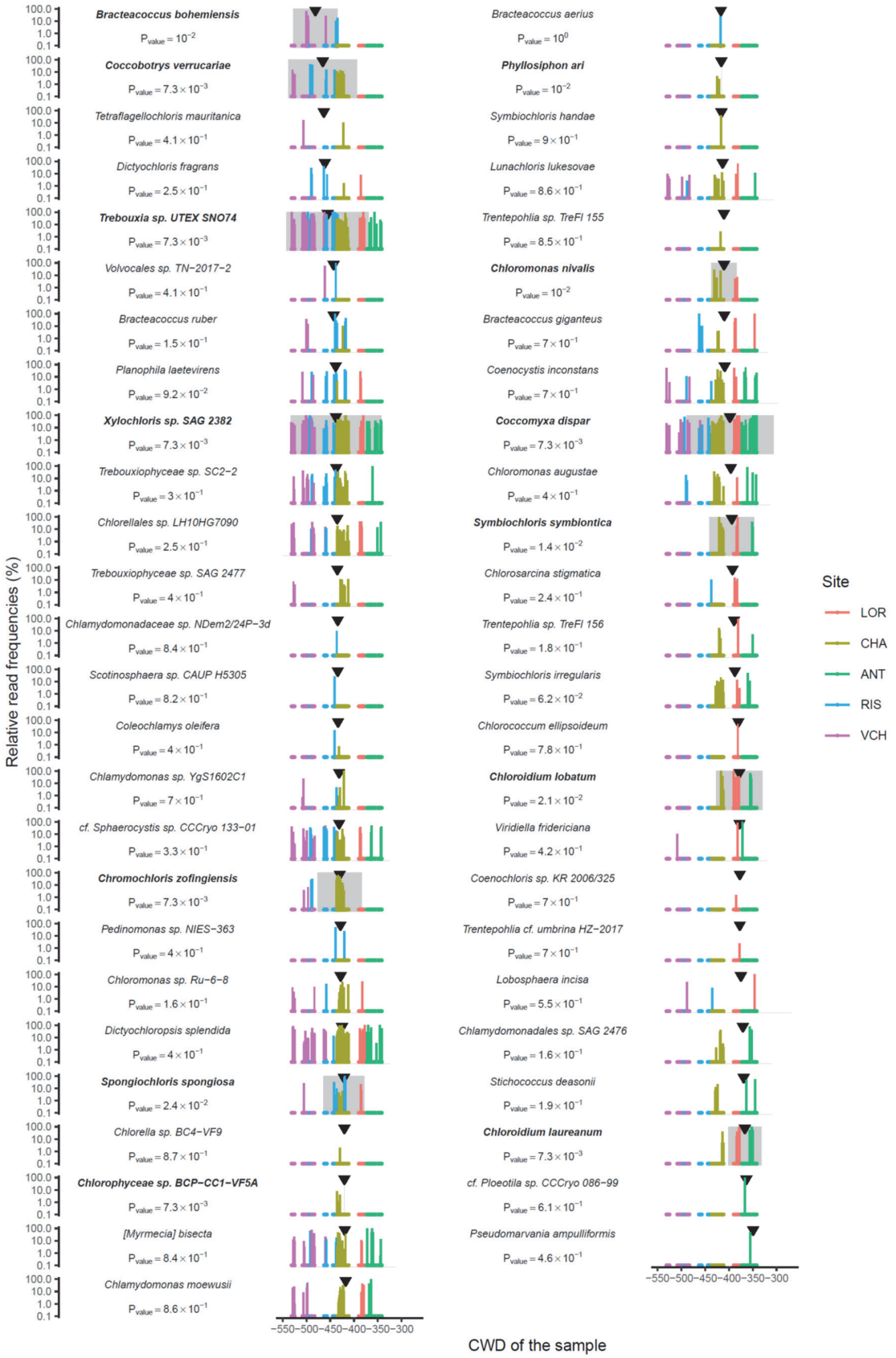


**Figure S10.** Distribution of species along CWD gradient.

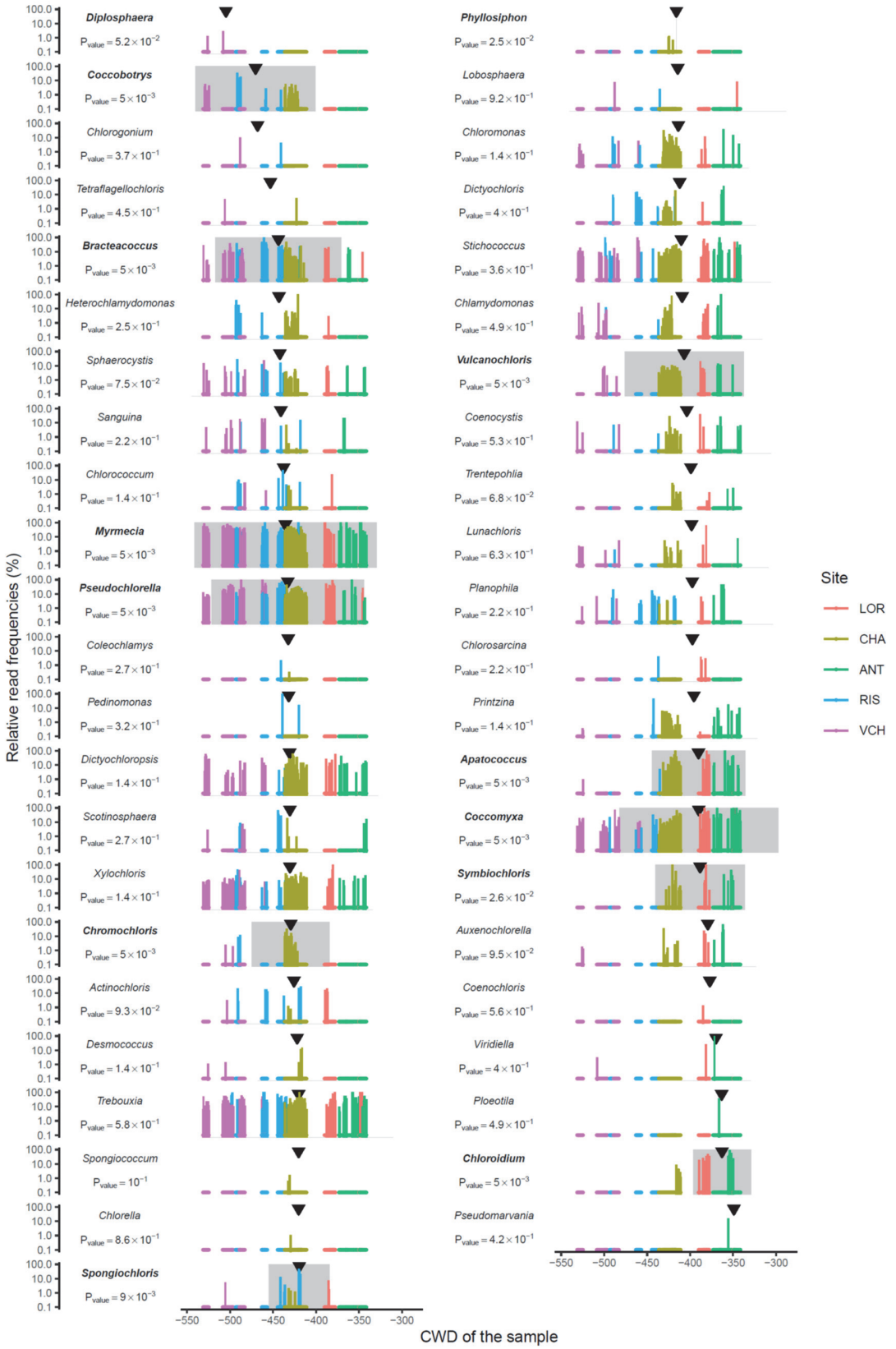


**Figure S11.** Distribution of genera along CWD gradient.

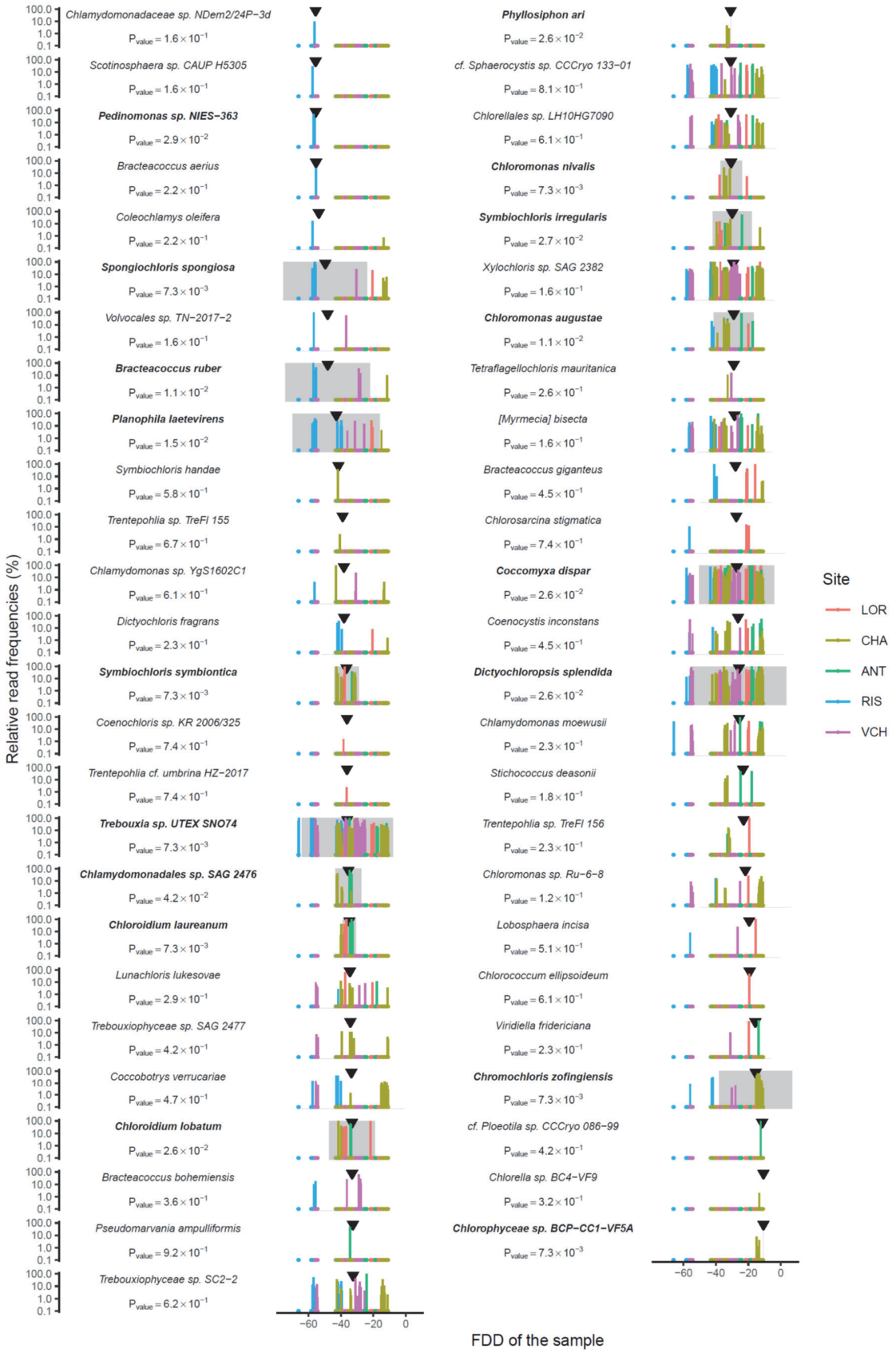


**Figure S12.** Distribution of species along FDD gradient.

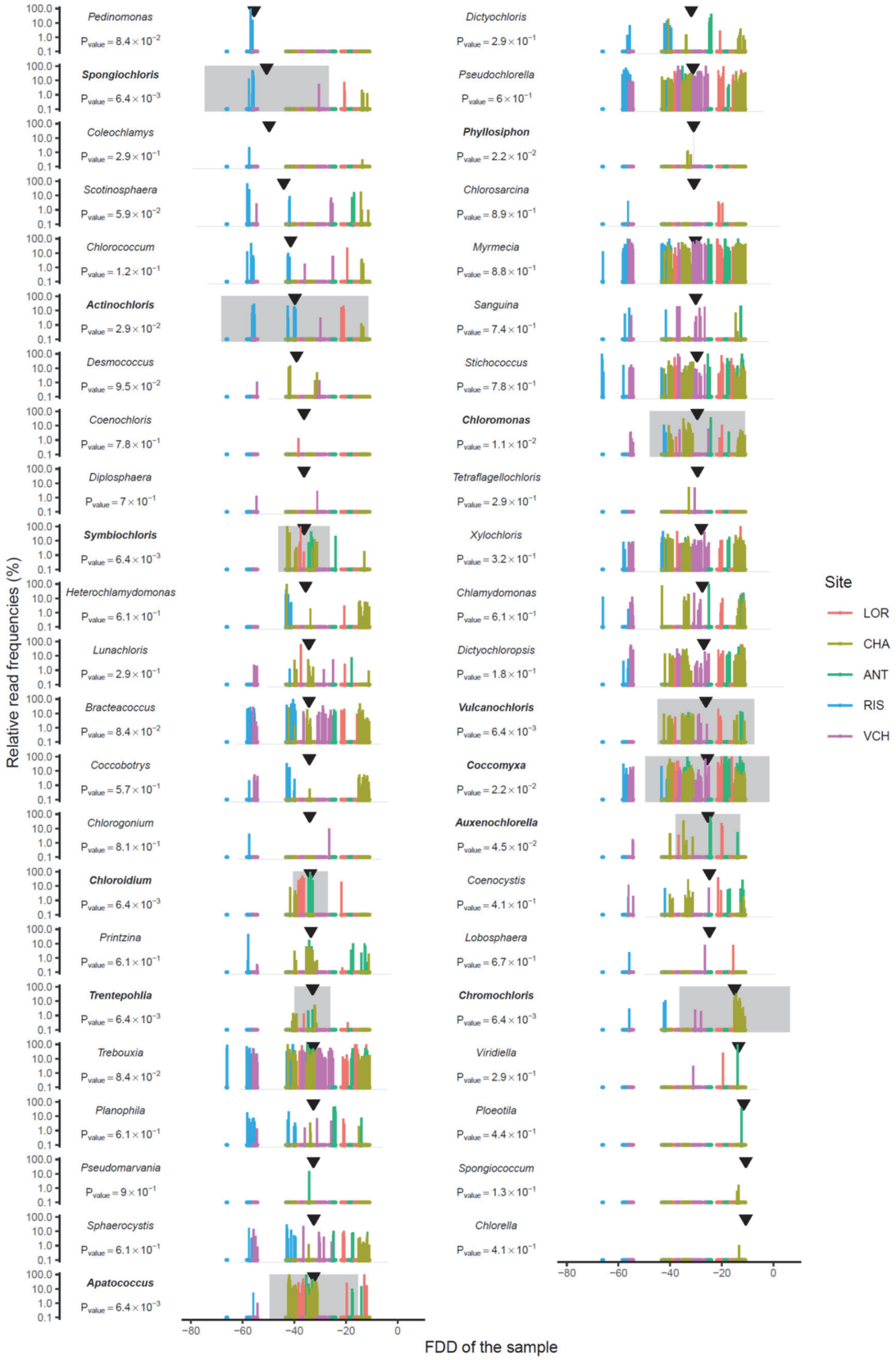


**Figure S13.** Distribution of genera along FDD gradient.

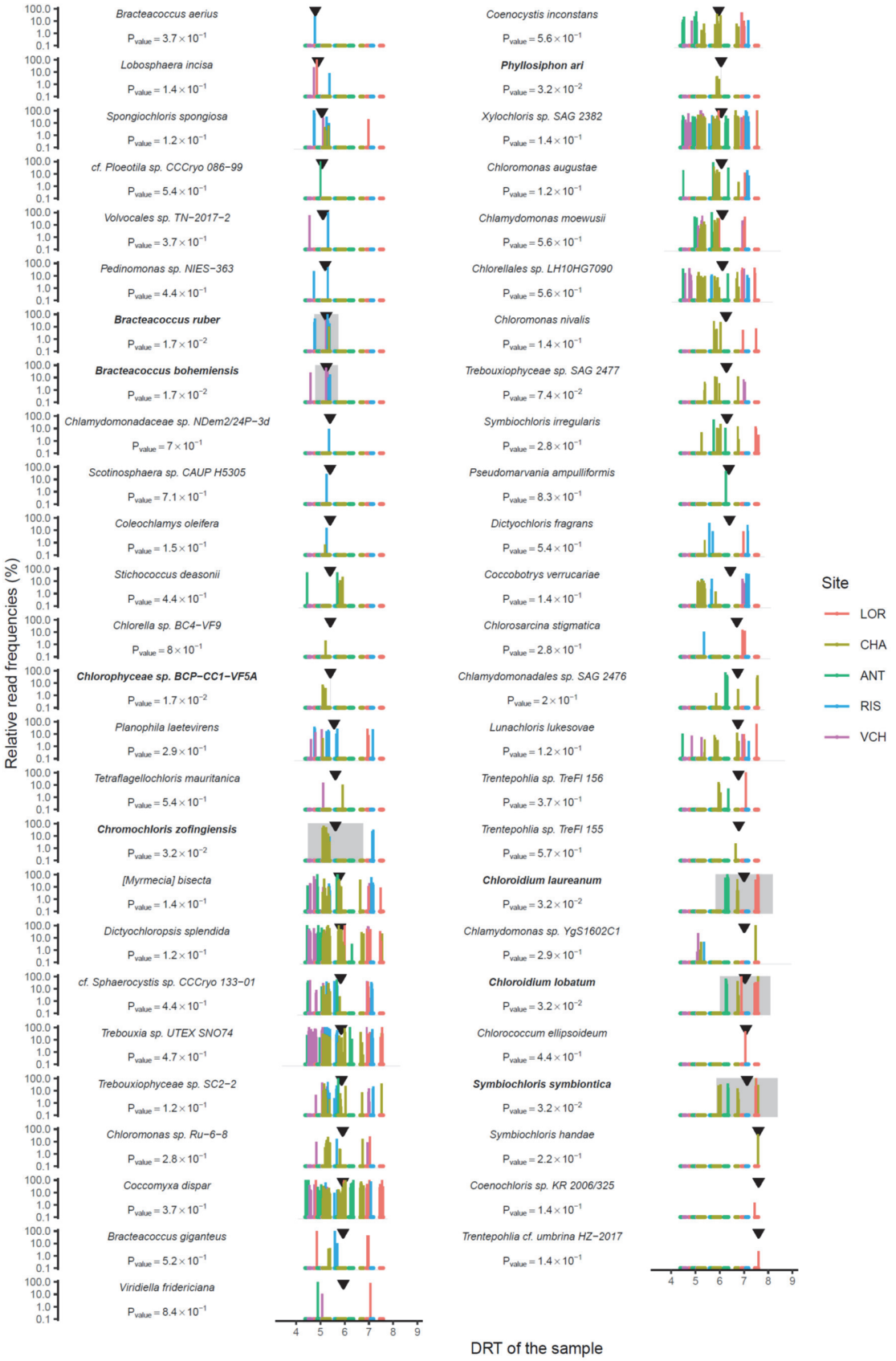


**Figure S14.** Distribution of species along DRT gradient.

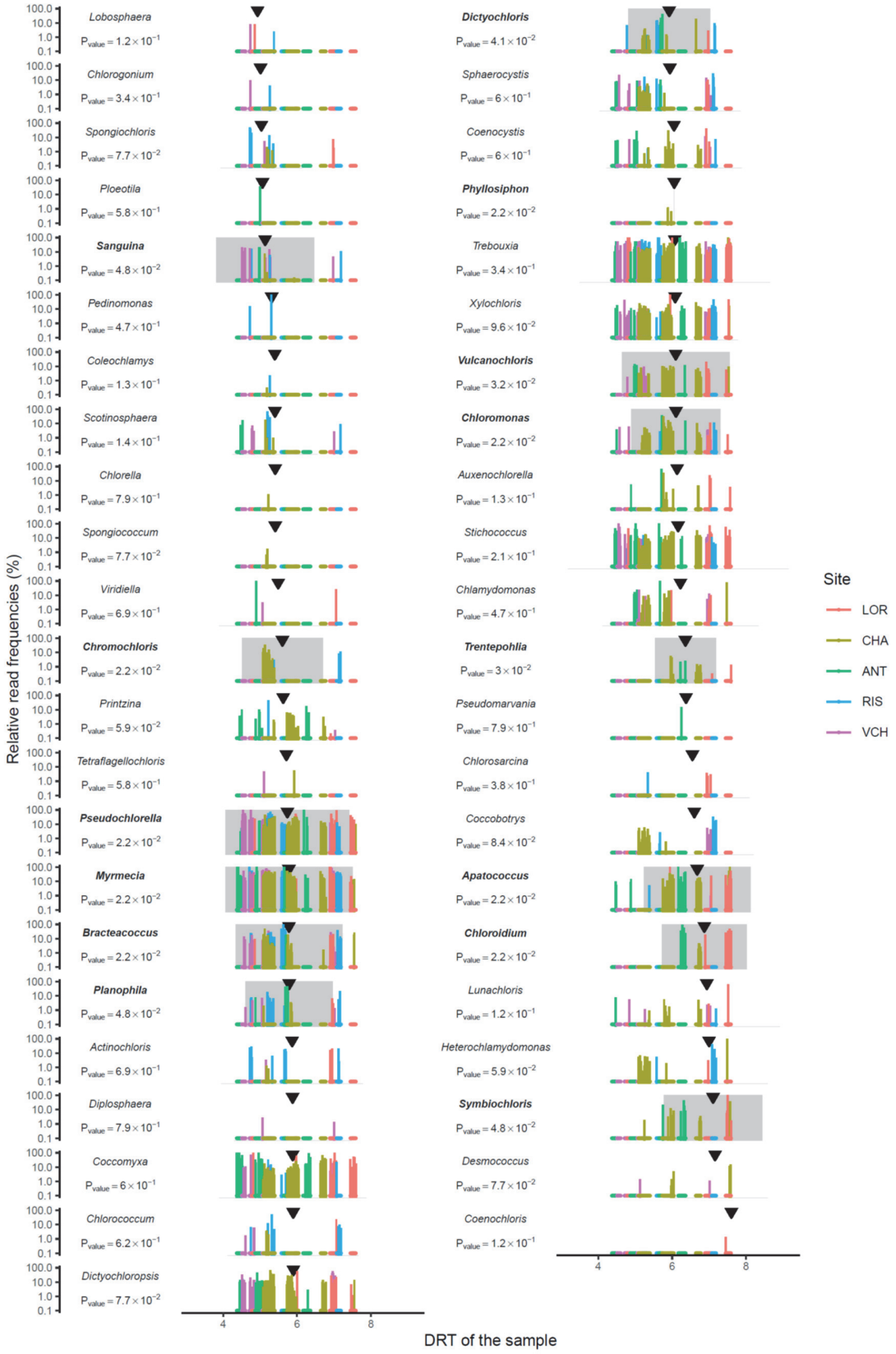


**Figure S15.** Distribution of genera along DRT gradient.

Table S1. Roscoff Culture collection (RCC) green microalgae selected as controls for the present study; Concentrations and quantity of DNA added to the Positive control Mix in PCRs for metabarcoding are indicated below resulting in a two-fold serial dilution.

| RCC ID | Taxid | Taxon | Euka03 | Chlo01 | Chlo02 | DNA quantity (ng) |
|---|---|---|---|---|---|---|
| RCC 7 | 133490 | *Picochlorum atomus* | + | + | - | 8000 |
| RCC 443 | 3052 | *Chlamydomonas sp* | + | + | + | 4000 |
| RCC 130 | 3165 | *Tetraselmis striata* | + | + | - | 2000 |
| RCC 6 | 3047 | *Dunaliella tertiolecta* | + | + | + | 1000 |
| RCC 537 | 114055 | *Chlorella vulgaris* | + | + | - | 500.0 |
| RCC 581 | 41880 | *Pycnococcus provasoli* | + | + | - | 250.0 |
| RCC 891 | 41891 | *Coccomyxa sp* | + | + | + | 125.0 |
| RCC 1055 | 29646 | *Stichococcus sp* | + | + | - | 62.50 |
| RCC 1563 | 34154 | *Tetraselmis convolutae* | + | + | - | 31.25 |
| RCC 2501 | 36882 | *Pyramimonas sp* | + | + | - | 15.63 |
| RCC 2960 | 188557 | *Acrochaete sp* | + | + | - | 7.813 |
| RCC 3402 | 88271 | *Picocystis salinarum* | + | + | - | 3.906 |
| RCC 4743 | 1418015 | *Pseudochloris* sp | + | + | - | 1.953 |