To define an iteration parameter for sparcc correlation networks, we ran the algorithm for 8 representative habitats with 50 different seeds each, varying the iterations. We employed cosine similarity to evaluate the differences between the matrices of each iteration. We found that the differences between the matrices became minimal after 6000 iterations for all tested habitats and that further iterations beyond this threshold would not yield significant gains (see supplementary panel x). Therefore, to avoid unpredictability, we chose 10,000 iterations as the baseline parameter for the entire program's analysis.

Once the minimum iteration criterion was defined, we ran sparcc for all occurrence matrices of our habitats. To assess the reliability of the correlations found, we compared each of our correlation matrices with 250 synthetic correlation matrices using the toolkit provided by fastspar. From this, we obtained the p-value for each correlation and assigned a value of zero to all correlations with a p-value less than 0.01. These filtered correlation matrices, excluding spurious correlations, were the inputs for the LIASP algorithm.