The code can run on R (v4.2.1), and the script depends on the following packages: ape, vegan, ieggr, lme4, linkET, effsize, iCAMP, dplyr, tidyr, ggplot2, ggsci, randomForest, rfPermute.

Installation guide: The R software can be download at <https://cran.r-project.org/mirrors.html>. The Comprehensive R Archive Network is available at the above URLs, and you can choose a location close to you when downloading.

The typical install time on a desktop computer: about Half an hour.

Any required non-standard hardware: It is recommended to have at least 8GB of memory and a dual-core processor.

Demo: Sample files are provided on GitHub. The results in the main text can be obtained by running the code simultaneously through these files.

Expected output: data frame or figures.

Expected run time: For each result, it will probably take at most a few minutes to run.

How to run the code: Download the code and file to the same folder, set this folder as the path in R, and you can run it according to the code provided in GitHub.

Note: in some demo files, the res (restoration ) represents undegraded, and the bare represents degraded.