# CABO 2018-2019 Leaf-Level Spectra v2

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## Contents

This EcoSIS submission contains data meant to support two manuscripts:

1. *Plant spectra as integrative measures of plant phenotypes* by Kothari & Schweiger (2022), *Journal of Ecology* DOI: 10.1111/1365-2745.13972. The relevant component of this manuscript is the analysis of the major dimensions of variation in leaf reflectance spectra (Section 4.2).
2. *Predicting leaf traits across functional groups using reflectance spectroscopy* by Kothari et al. (2023), *New Phytologist* DOI: 10.1111/nph.18713. In this manuscript, we build and validate partial least-squares regression (PLSR) models to estimate leaf traits across a wide variety of functional groups and ecosystems.

Details concerning how the spectral and trait data were processed can be found in the second manuscript, as well as in the EcoSIS metadata for this submission. The processing code itself can be found on GitHub or as an archived version on Zenodo (DOI: 10.5281/zenodo.7796673).

This EcoSIS submission contains the same spectral data as a previous submission (DOI: 10.21232/44vxHorW) and should be considered to supersede the previous one for all purposes except for reproducing the analyses in the manuscripts above. The differences will be documented in a forthcoming correction to the *New Phytologist* paper, but in brief they include: (1) a change in the calculation of equivalent water thickness (EWT) to be based on field fresh mass rather than rehydrated mass; (2) improved geolocations; and (3) an update in some taxonomic assignments.

## Data specifications

Besides this README, the submission contains four files:

- ref_spec.csv: reflectance spectra and associated trait data
- trans_spec.csv: transmittance spectra and associated trait data
- abs_spec.csv: absorptance spectra and associated trait data
- metadata_fields.csv: details about metadata columns, including traits and their units

The spectra are in samples (rows) × variables (columns) format. The order of samples (rows) is the same in the three .csv files containing spectra, but the files should be downloaded individually. The variables (columns) include traits and wavelength bands. The spectral data are always in units of reflectance in decimal terms.

## Questions

Shan Kothari (shan.kothari [at] umontreal [dot] ca) maintains this submission. Please reach out with any questions.