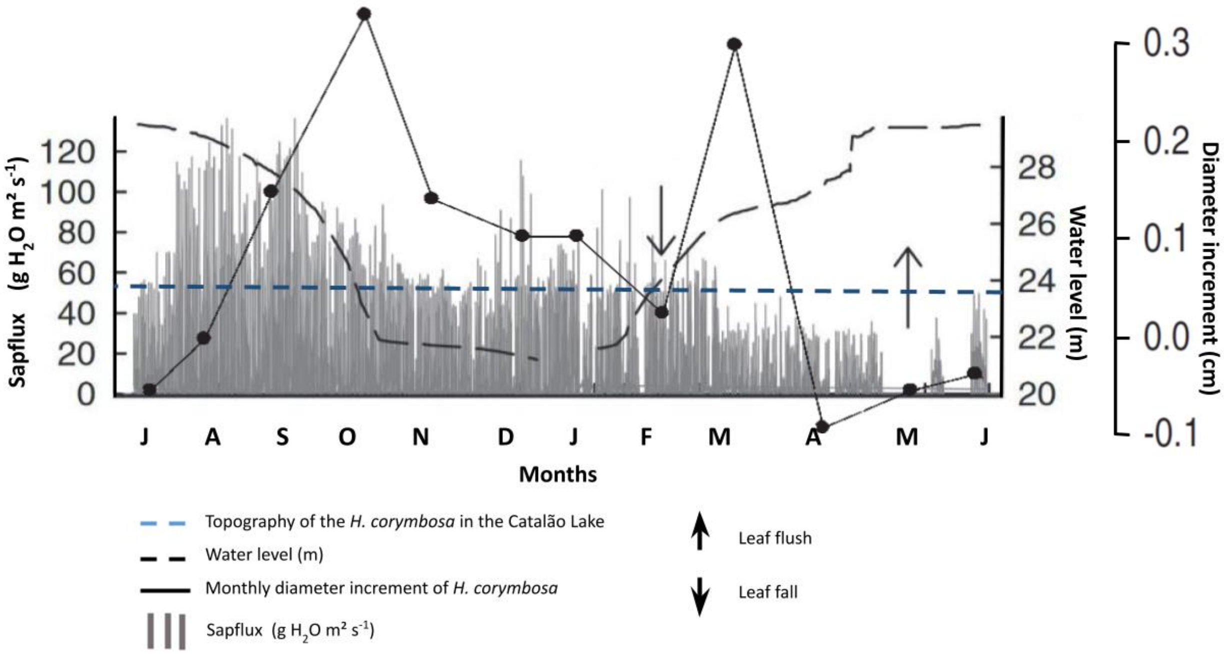
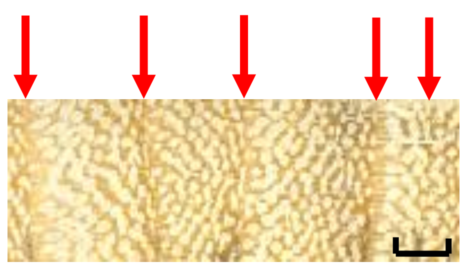
Supplementary Material

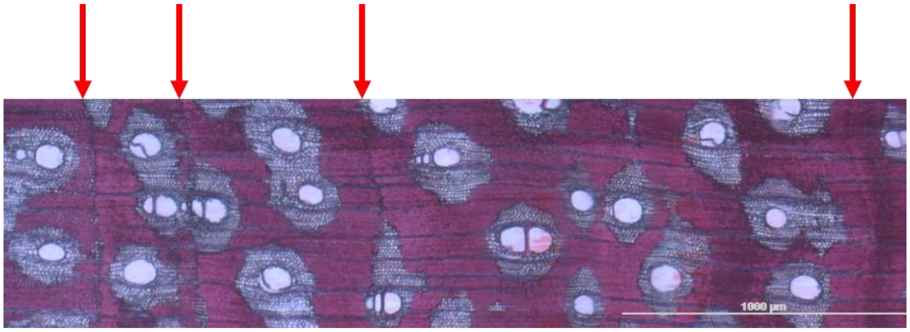
1. Supplementary Figures



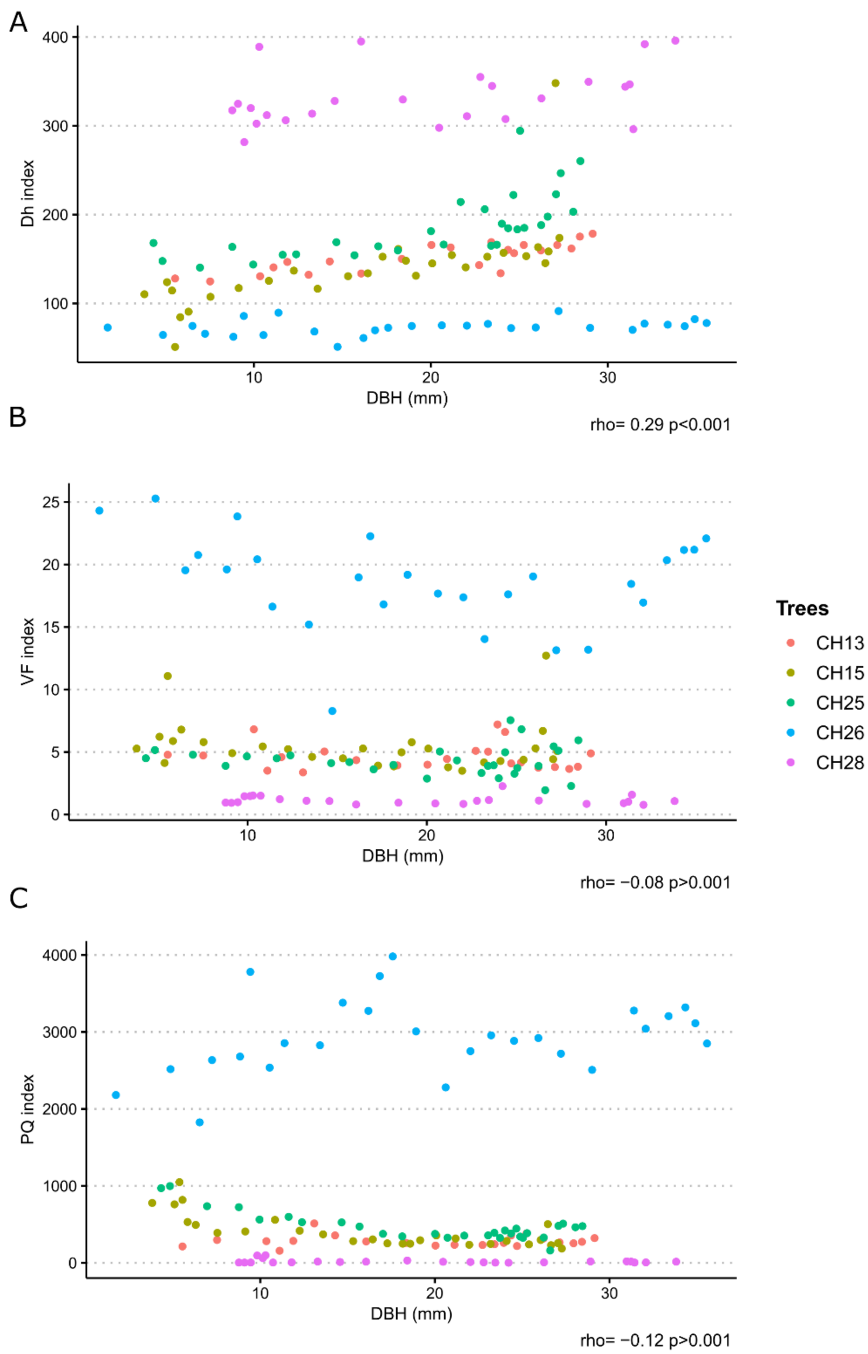
Supplementary Figure 1. The growth (cm), sapflux (g H_2O $m^2 s^{-1}$) and leaf phenology of the species *Hydrochorea corymbosa* (adapted from Schöngart et al., 2022 and Horna et al. 2010).



Supplementary Figure 2. Macroscopic photo of the species *Hydrochorea corymbosa*, sample CH13 (cross-sectional view). Vessels with paratracheal axial parenchyma and density growth rings (red arrows) (scale in mm);



Supplementary Figure 3. Photo of the microanatomy of *Hydrochorea corymbosa* (4x magnification), sample CH13 (red arrows indicate the growth rings) (scale in micrometers).



Supplementary Figure 4. Spearman correlations between DBH(mm) and the anatomy variables index. A- Dh index; B- VF index; C- PQ index.

Supplementary 5: Active xylem area equation to estimate the number of tree rings active per year

Method:

The annual active xylem area was calculated using the equation developed by Horna et al. (2010) (eq. 1) for the same species in an area approximately 11km from the area of the present study. In the linear regression model ($R^2 = 0.81$) the tree radius is the independent variable and the active xylem area is the dependent variable. From the diameter at breast height (DBH) measured in the field and measurements of the widths of the anatomical rings, it was possible to reconstruct the DBH in each year throughout the time series. With the estimate of DAP in each year, it was possible to determine the trunk radius and apply it to the equation and estimate the annual active xylem area of each individual. The first years of life of trees maintaining a minimum DBH of 10 cm were excluded from this analysis, in accordance with the minimum DBH those Horna et al. (2010) used to construct the equation. The number of active rings per year was determined by adding the basal area of the outermost rings until reaching the active xylem area estimated for the individual in the given year. Sometimes only a proportion of the oldest ring participated in this area and this was accounted for by calculating how much area was still missing to complete the active xylem area.

$$\text{Active Xylem (cm}^2) = 0.143 * Radius^{1.1352} \quad \text{(Supplementary Equation 1)}$$

Results:

Annual active xylem area was calculated for the 17 trees in the chronology for the period from 1992 to 2019 (28 years). The estimated average active xylem area/year was 155.81±27.31 cm² and ranged from 122.15 to 210.59 cm². It was possible to recognize 1 to 13 active rings per year throughout the life of the trees, with an average of 4.8±2.1 rings/year.