

Figure 1 Tree species relative abundance across an elevation transect in SW Colorado (bottom figure). Bar plots show the mean basal area of live (colored) and recently dead (black: dead <6yrs) trees (top row) and mean seedling/sapling density (middle row) of three focal species (*P. ponderosa*, *P. tremuloides*, *A. lasiocarpa*) at three locations in their respective elevational ranges – lower elevation range margin, mid range, and upper elevational range margin.

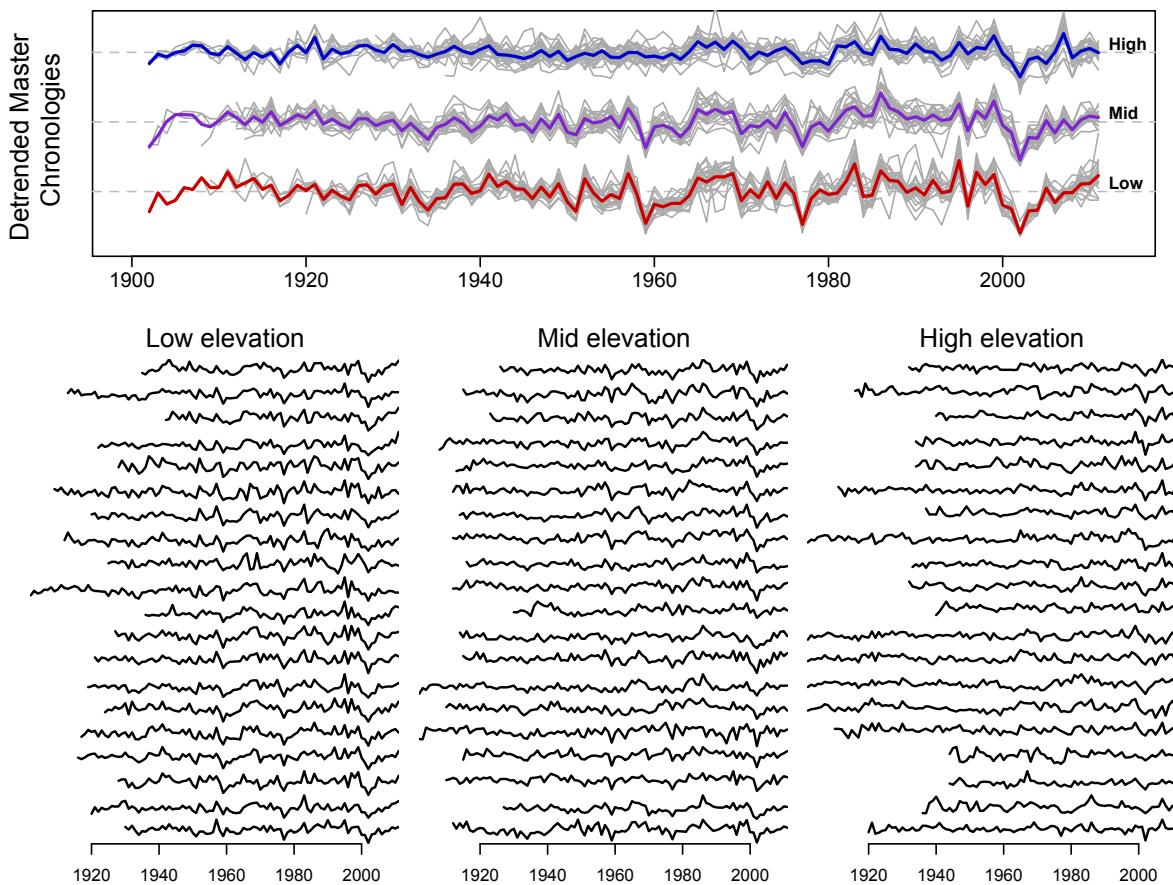


Figure 2 Tree core ring width chronologies (detrended using a cubic spline) from the high elevation range boundary, mid elevation range center, and low elevation range boundary of *Pinus ponderosa*, illustrating increasing growth variability and synchronicity of variation going from high to low elevation. Upper panel shows master chronologies (colored line) constructed from 20-24 individual tree chronologies (gray lines). Sparkplots below highlight variation in the individual tree chronologies used to construct the elevational master chronologies.

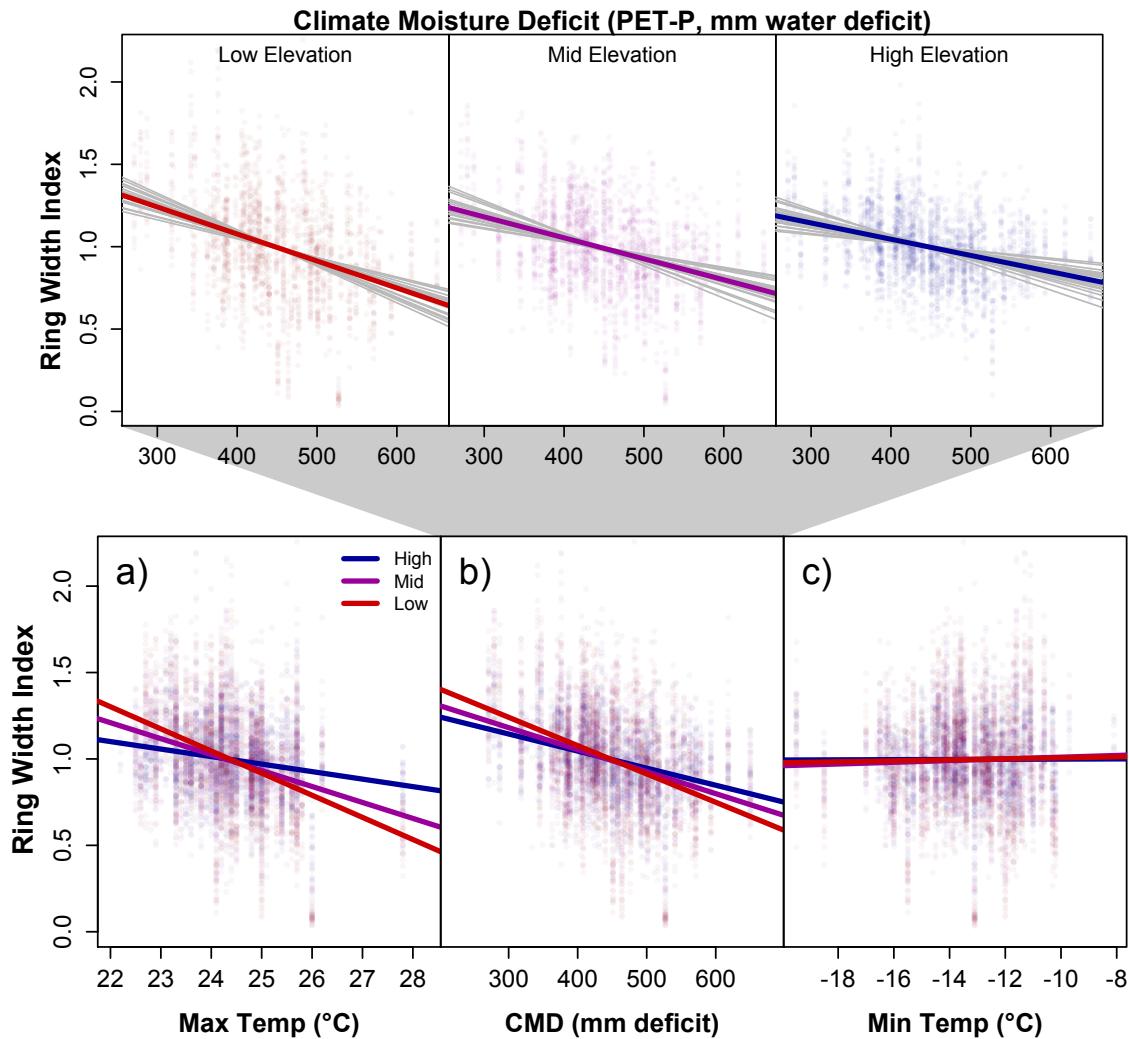


Figure 3 Sensitivity of tree ring width index (RWI: a unit-less index created by detrending tree ring width chronologies) to annual climate variables at three elevations spanning the elevation range of *P. ponderosa* in southwestern Colorado. Points indicate growth anomaly of a single individual for a single year (derived from 20-24 tree chronologies per elevation). Colored lines illustrate, for each elevation, the linear regression of RWI against maximum summer temperature (a), annual climate moisture deficit – annual potential evapotranspiration minus annual precipitation (b) and minimum winter temperature (c). Expanded panel shows the variation of individual tree sensitivities to climate (gray lines) around the average sensitivity (colored line) for each elevation. Trees show increasing growth sensitivity to high temperature and drought at low elevations, and no sensitivity to minimum temperatures at any elevation.

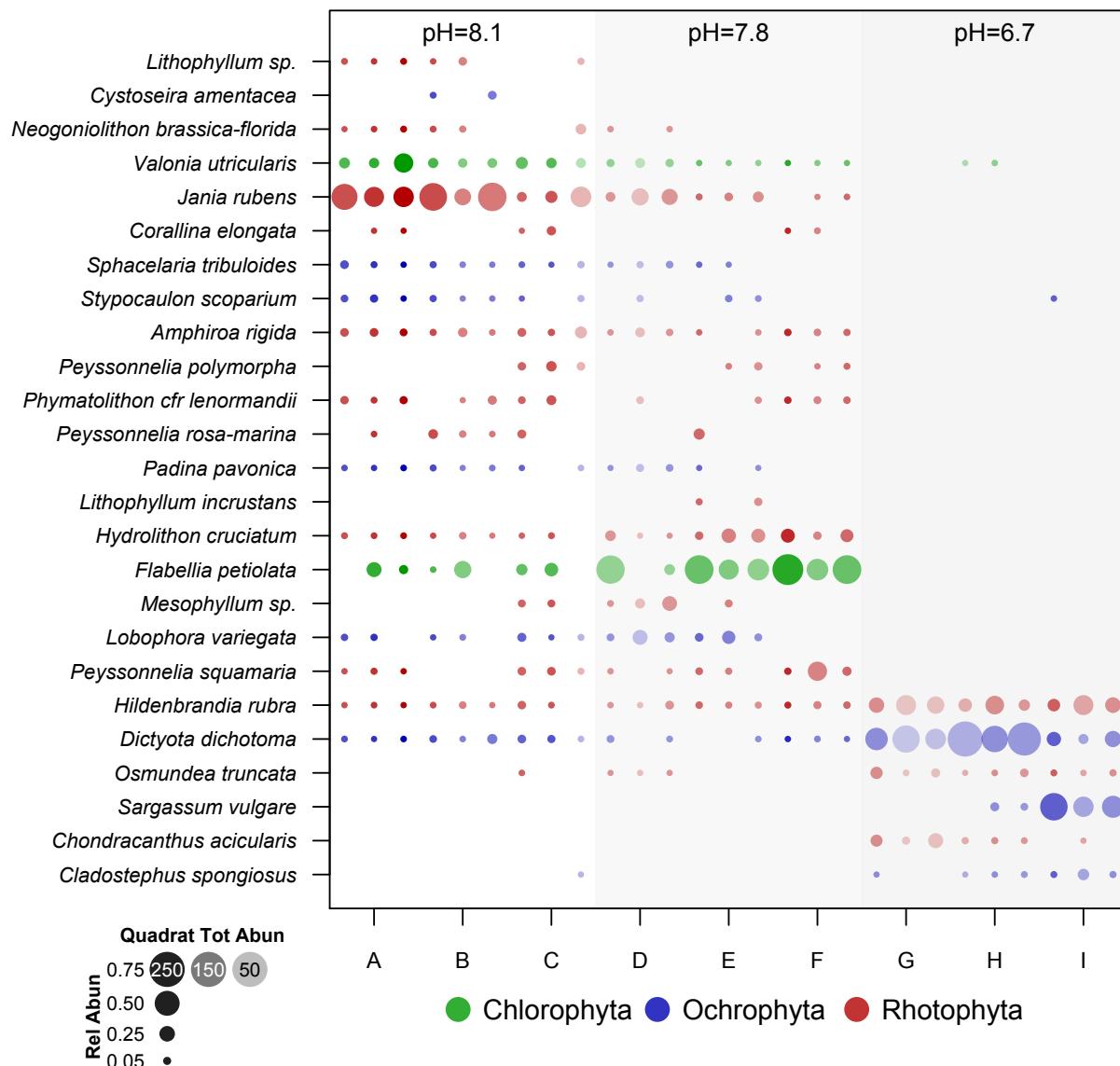


Figure 4 Diagram showing the distribution of the most abundant Chlorophyta, Ochrophyta, and Rhophyta macroalgal species (>3% coverage) in 27 20x20 cm quadrats taken along a pH gradient. Dot size represents species relative abundance in each quadrat, while intensity of color indicates the total abundance of all macroalgae in a quadrat. Algal communities were dominated by one to three species at each pH level, but the identity of the dominant species changed with pH. Total abundance and species richness decreased with decreasing pH. Data are taken from Porzio et al. 2011