Supplementary Information

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Appendix S1. Methods for reconstruction of DBH

For each core, DBH can be reconstructed outside-in (based on recent DBH, subtracting growth recorded in tree rings) or inside-out (summing Δr from the inside out). We generally gave precedence to the outside-in approach. Specifically, when DBH was taken at the time of coring,
At some of our sites where DBH was not taken at the time of coring (*SCBI*,), DBH measurements taken before or slightly after the time of coring could be used. (see issue #19 in ForestGEO_dendro) If before, ... If after... For all outside-in reconstructions, if a negative DBH was predicted...

When there were more than one cores for a tree, the DBH reconstructions from each core were averaged to produce a single estimate of the tree's DBH through time. When the start or end dates of the records from the cores differed, we extrapolated growth of the shorter core to match the years covered by the longer core. Specifically, to fill in years at the more recent end, we assumed that the average growth rate of the ten years prior to the missing records applied to the missing years. To fill in years at the beginning of the tree's lifespan, we likewise assumed that the ten years adjacent to the missing record applied to the missing years; however, if this yielded a negative DBH estimate for the earliest year in the reconstruction, we divided the existing minimum DBH by number of years missing and applied that value to each year. We note that these reconstructed growth records were used only for the reconstruction of DBH and were not included as response variables in any of our analyses.

In either case we need bark thickness–ideally allometries describing the relationship between DBH and bark thickness. This is especially critical for thick-barked species When bark thickness data were available, we generated allometries ... lognormal model with intercept forced to zero: lm(bark_depth.mm ~ -1 + log(dbh_no_bark.cm+1):bark_species, data = bark) (issue #8 in ForestGEO_dendro)

Appendix S2. Methods for comparing

(**ISSUE #35 in ForestGEO-climate-sensitivity

Table S1. List of species analyzed

Site	Code	Species	leaf type	n trees	n cores	bark
SCBI	LITU	Liriodendron tulipifera	BD	NA	NA	NA

** Table S2- allometric equations for bark thickness **

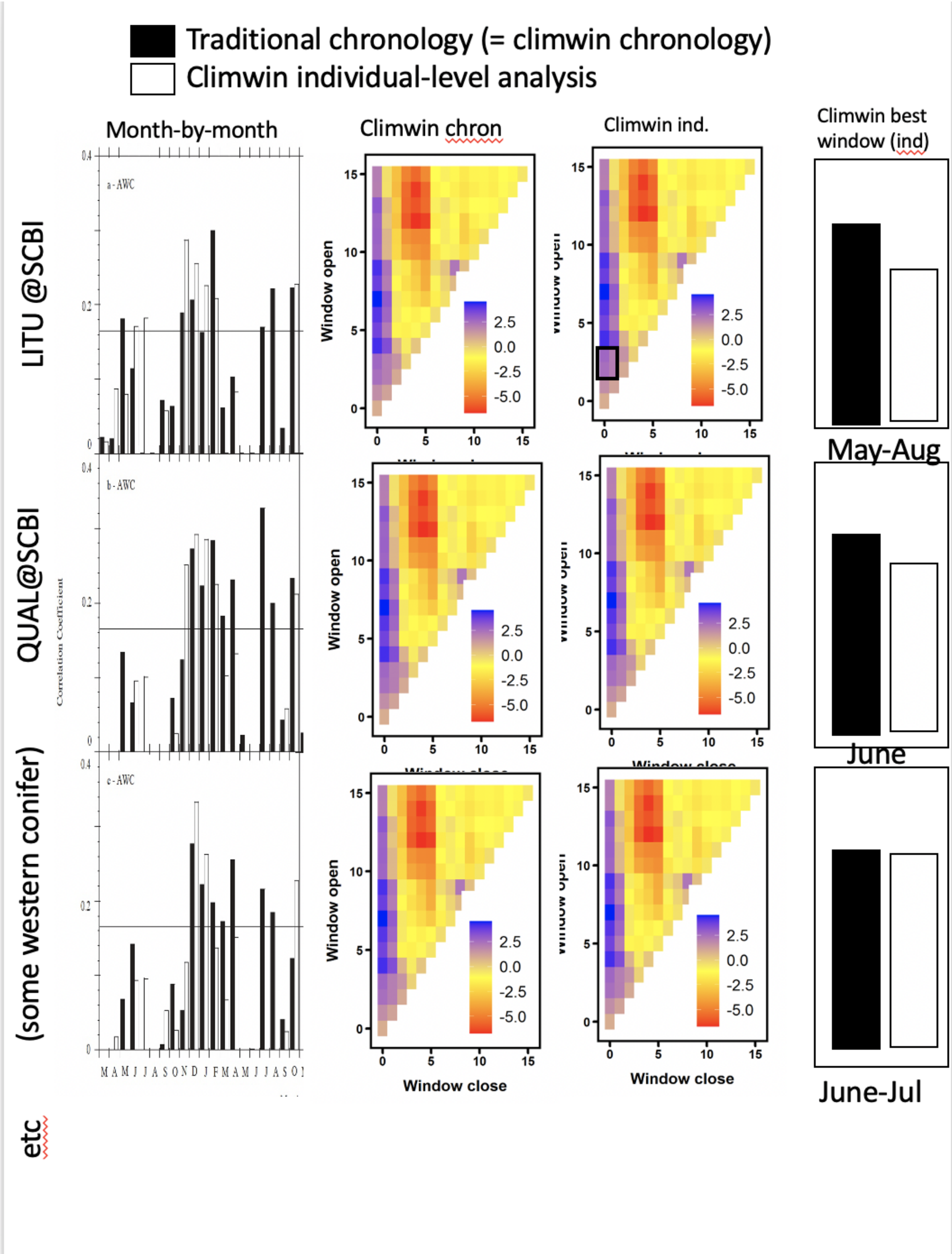

Figure S1 | (Comparison of traditional approaches with ours). (THIS FIGURE IS JUST A MOCK-UP TO SHOW VALENTINE WHAT I HAVE IN MIND.)

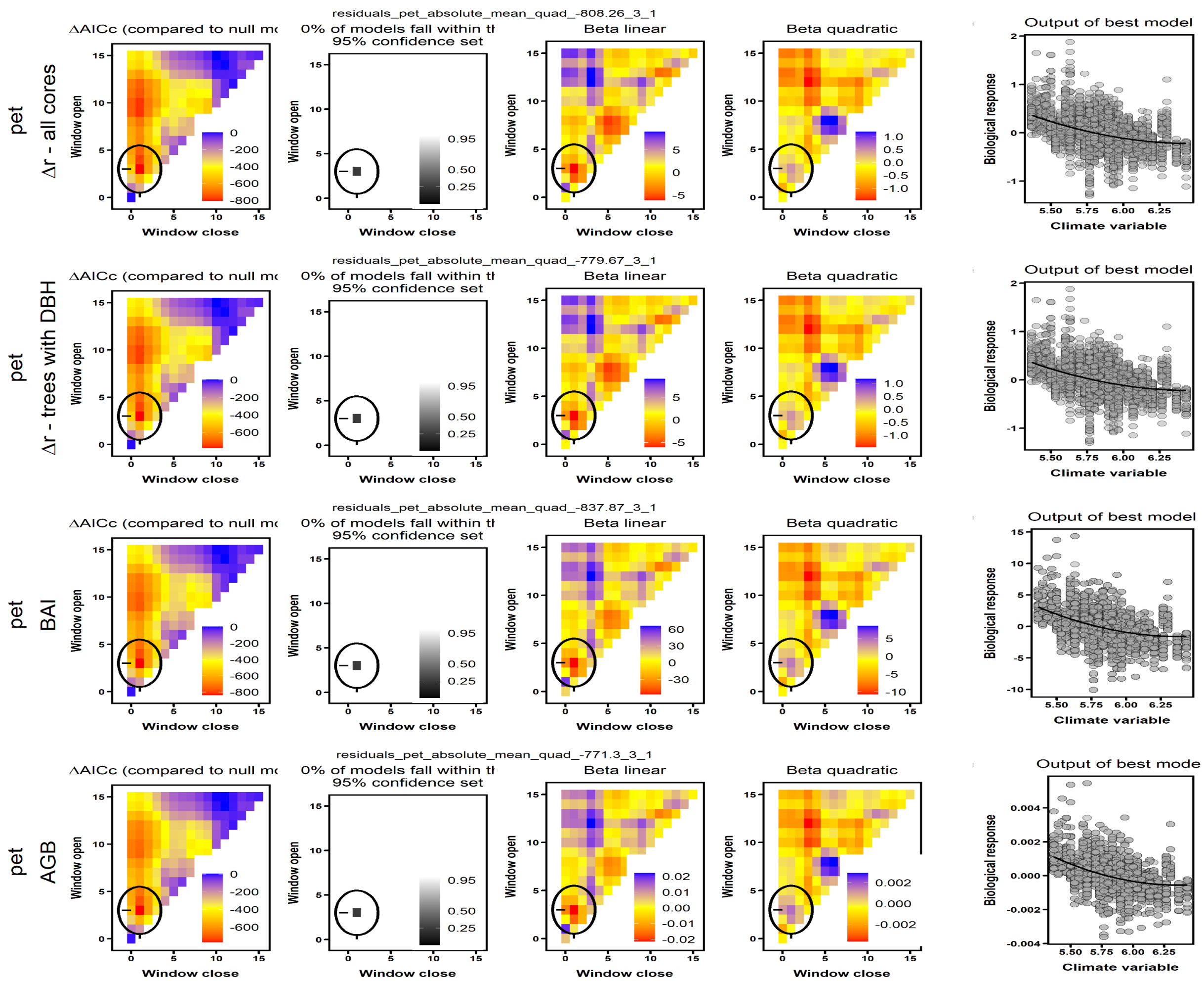

Figure S2 | Example comparison of climwin output for temperature variable group responses across growth metrics at Little Tesque, New Mexico. Here, *climwin* identified potential evapotranspiration (PET) as the strongest climate variable across all three metrics of growth.)

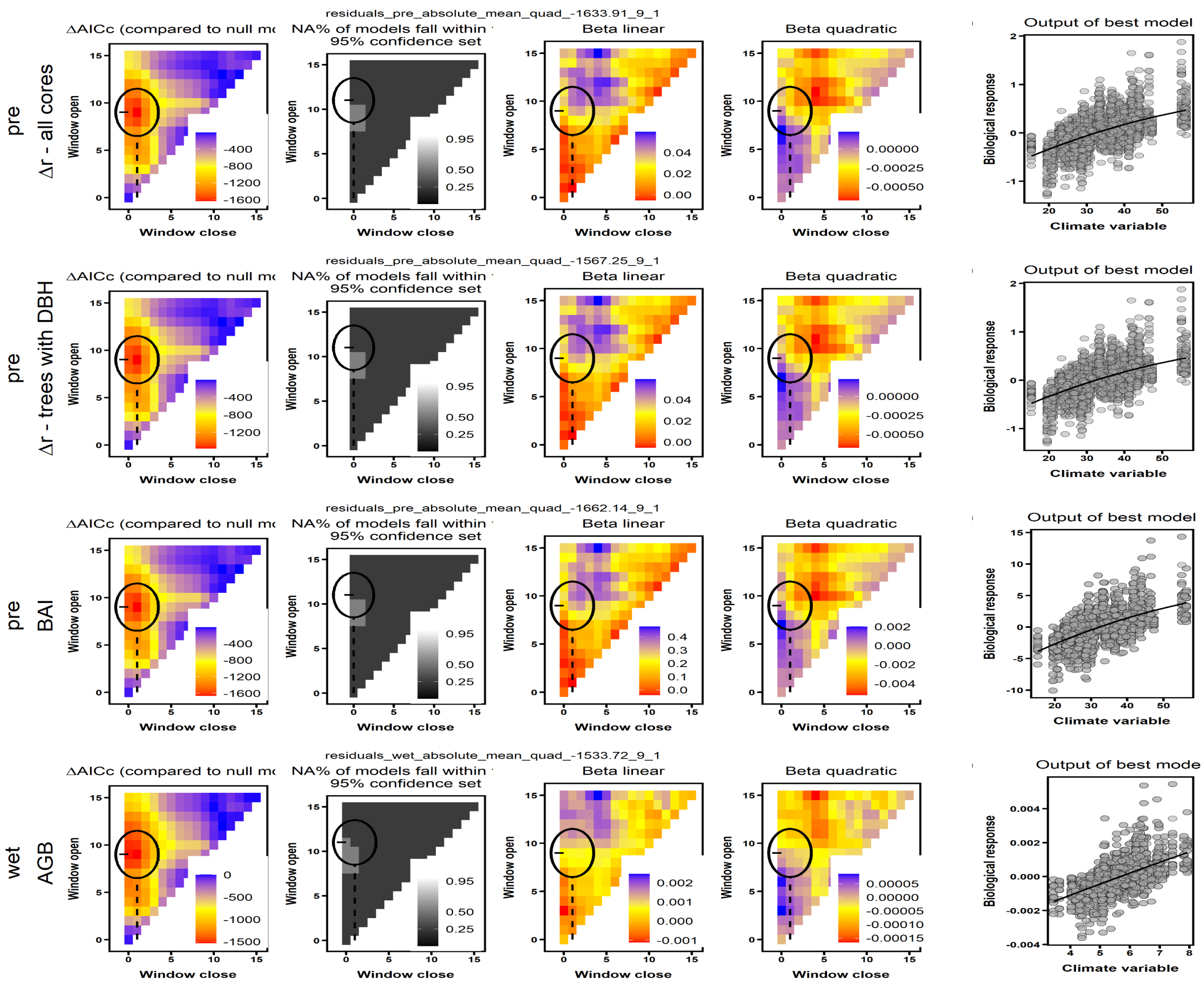

Figure S3 | Example comparison of climwin output for precipitation variable group responses across growth metrics at Little Tesque, New Mexico. Here, *climwin* identified precipitation (PRE) as the strongest climate variable for Δr and BAI, but number of precipitation days (WET) as the strongest climate variable for ΔAGB.