AGB book chapter for BCI book

Potential figures and tables

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Table of published estimates of AGB stocks and fluxes

Figure: Sensitivity of the patterns to details of the allometry used and the correction procedures

* Panel set (one row?) on AGB allometries
  + Individual tree AGB allometries: AGB on y vs. dbh on x, with separate lines for a few alternative allometric equations for one tree of a given wood density? Or two trees of different wood densities?
    - Allometric equations to include
      * Chave 2014 equation with diameter and wood density and E
      * Chave 2014 equation with diameter, height, and wood density combined with a height-diameter allometry
        + Martinez-Cano et al. paper species-specific equations where available, generic others
        + Martinez-Cano et al. generic height equation?
      * Chave et al. 2005 equation for moist forests
      * Any other older equations? See for example the equations used in Chave et al. 2003
    - Include error bars for each equation to show the uncertainty at the individual tree level – this is available for the 2014 equations, but maybe not for earlier ones? Need to check…
  + AGB stocks at the plot level (y axis) vs. census year (x axis) with different lines for the different allometric equations or ways of applying them
    - One line for each of the allometric equations treated in the first panel
    - Uncertainties propagated and shown as error bars – which exactly?
      * BIOMASS package propagates error from allometric equations and more
      * Sampling uncertainty based on bootstrapping over subplots.
* Panel set (one row?) on correction procedures
  + Individual tree dbh example data and correction alternatives
    - Y axis includes points for dbh measurements of a single tree, x axis is census interval, lines of different colors show alternative correction options?
    - Can we find one tree that is a good example of the decisions that have to be made
    - What are the problems to handle
      * HOM changes
        + Just use as is
        + Taper correction
        + Something else?
      * Really large positive or large negative diameter changes that are not really realistic…
        + Just use as is
        + Substitute with mean growth (of diameter, of AGB..) for class (size class or what…)
        + Substitute with interpolation or extrapolation based on other measurements of same stem?
  + (Implications for AGB over time for that tree)
  + AWP (AGB productivity) on y vs. census interval on x with different lines for different correction procedures
    - What do we do about confidence intervals on these? How do we propagate uncertainty?

Figure or table on contributions of different functional types and/or size classes to AGB stocks and fluxes

* Different breakdowns of the data
  + Size classes
  + Stature functional types (emergent, T canopy, M midstory, U understory, S shrub, H hemiepiphyte)
  + Fast-slow x stature functional types (Ruger et al. )
  + Fast-slow axis definition of types (which one!)
* Average over different censuses and census intervals, so one response
* Preferred format - Scatterplot
  + X axis proportion contribution to AGB
  + Y axis proportion contribution to AWP
  + One point per group
  + One panel per way of defining groups
  + Can use log axis if necessary to enable seeing very small and vary large contributions on same figure.
* Or just a table?
* Stacked bar option
  + Y axis – stacked bars, proportional contribution (adding up to 100% in each case)
  + X axis - separate bars for
    - AGB
    - AWP
    - Anything else? Mortality flux? Should average out with productivity in long run…
  + Panels -different ways to define gropus

Figure illustrating spatial variation in AGB stocks and fluxes across the plot?

* Maps – previous work
  + Ledo et al. show a maps of the quadrat-level values of 2005 AGB – not very informative, just very noisy
  + Mascaro et al. 2011 RSE show maps of crown-distributed AGB, which is better, but still hard to see much of anything
* What about productivity mapped across the plot? Either in quadrats, or crown-distributed – would that show clearer patterns?
* What about mean AGB across censuses (from 1990 to 2015)? Perhaps that would be less messy… (especially if large strangler figs were reduced in diameter…)