allodb: Meeting notes

maurolepore@gmail.com

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Contents

Overview

This report provides key information for meeting with Ervan, Krista and Erika about compiling allometric equation for ForestGEO sites.

Meeting goals:

1. Both for tropical and temperate forests, compile tables with variables `<category>` (e.g. `site`) and `equation` (`<category>` should be, at this first stage, a variable for which getting allometric equations is relatively quick);
2. Clarify what can/cannot be shared and discuss alternatives.
3. Other's goals

Background

@

Tropical forests

- site-level allometries are possible; the table below seems to have sufficient data for developing a table with variables `site` and `equation`:

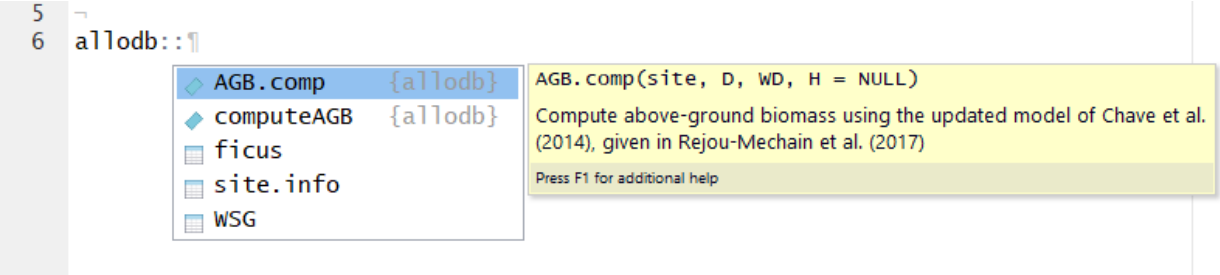

Figure 1:

```
# Source: Ervan

#>        site   genus     species   wsg       E
#>       <chr>   <chr>       <chr> <dbl>   <dbl>
#> 1 amacayacu Abarema barbouriana 0.567 -0.0793
#> 2 amacayacu Abarema     jupunba 0.585 -0.0793
#> 3 amacayacu   Abuta grandifolia 0.450 -0.0793
#> # ... with 8,597 more rows
```

- genus-level allometries are possible

  generic allometric models are ... widely used.

–Ervan

- species-level allometries are not possible

  ... tropical forests are way too diverse to even think about developing specific allometric models (Rutishauser et al. 2013).

–Ervan

Temperate forests:

- taxa-level allometries are possible

  we're compiling taxa-specific allometries (locally developed when possible)

– Krista

What we have

Tropical forests

Ervan provided useful tables and code.

These data seems to be what I need. Can we add a variable `equation` – relating dbh with biomass based on wsg and E?

```
left_join(allodb::site.info, allodb::WSG) %>%
  select(site, genus, species, wsg, E)
#> Joining, by = "site"
#> Warning: Column `site` joining factor and character vector, coercing into
#> character vector
```

```
#> # A tibble: 8,600 x 5

#>        site   genus     species   wsg       E
#>       <chr>   <chr>       <chr> <dbl>   <dbl>
#> 1 amacayacu Abarema barbouriana 0.567 -0.0793
#> 2 amacayacu Abarema     jupunba 0.585 -0.0793
#> 3 amacayacu   Abuta grandifolia 0.450 -0.0793
#> # ... with 8,597 more rows
```

The code seems mature. I think it'd be great to share it. It only seems to need minor edits, some examples, and a bit more documentation. The function's help files are here.

Temperate forests

> I can share with you the allometry table I showed you (one equation per species/per site).

– Erika

> there are (...) "generic" (1) models for [Europe and Northern China]. Unfortunately, I am not aware of any generic (2) allometric model for temperate zones.

– Ervan

Ervan, Am I right in thinking that in (1) you mean *general* and in (2) you mean *taxonomic-genus-level*?

Privacy of wood density data

Please discuss what can and cannot be shared and how to do it.

> The wood density database arise from CTFS and, I guess, isn't aimed to be shared publicly.

– Ervan

(Ervan, are you saying that what can't be shared is your table `WSG`?)

> my initial thought is that the package needs to be open access, and therefore may need to rely on some other source for wood density when the data is not public.

– Krista

Supplementary notes

Let users input customize the allometric equations

> I assume that most PI are using there own "locally" developed allometric model, or could do so using trees harvested in the surrounding area. It's a bit of work, but we could provide assistance here too.

– Ervan

> We (...) need a mechanism by which users can include data that's not public.

–Krista

Details of Ervan's data

A glimpse on each data set contributed by Ervan.

```
glimpse(ficus)
#> Observations: 67
#> Variables: 8
#> $ Mnemonic   <fctr> FICUAB, FICUAL, Ficuamaz, FICUAN, ficutr, FICUBJ, ...
#> $ Genus      <fctr> Ficus, Ficus, Ficus, Ficus, Ficus, Ficus, Ficus, F...
#> $ Species    <fctr> albipila, altissima, amazonica, annulata, aurea, b...
#> $ Subgenus   <fctr> Pharmacosycea, Urostigma, Urostigma, Urostigma, Ur...
#> $ Section    <fctr> Oreosycea, Urostigma, Americana, Urostigma, Americ...
#> $ Subsection <fctr> Pedunculatae, Conosycea, , Conosycea, , Conosycea,...
#> $ Strangler  <fctr> No, Yes, Yes, Yes, Yes, Yes, Yes, Yes, Yes, No, Ye...
#> $ name       <chr> "Ficus albipila", "Ficus altissima", "Ficus amazoni...
```

```
glimpse(site.info)
#> Observations: 63
#> Variables: 12
#> $ id            <dbl> 42.0, 51.0, 52.0, 45.0, 18.0, 53.0, 46.0, 14.0, ...
#> $ Site          <fctr> Amacayacu, Badagongshan, Baotianman, Barro Colo...
#> $ site          <fctr> amacayacu, badagongshan, baotianman, barro colo...
#> $ lat           <dbl> -3.81, 29.46, 33.50, 9.15, 1.35, 42.38, 8.99, 5....
#> $ long          <dbl> -70.3, 110.5, 111.9, -79.8, 103.8, 128.1, -79.6,...
#> $ UTM_Zone      <int> 19, 49, 49, 17, 48, 52, 17, 50, 49, 47, 50, 51, ...
#> $ UTM_X         <fctr> 359223.7022, 453456.2453, 587323.8348, 626783.7...
#> $ UTM_Y         <fctr> 9578870.297, 3259047.312, 3706005.813, 1012114....
#> $ intertropical <fctr> Tropical, Other, Other, Tropical, Tropical, Oth...
#> $ size.ha       <dbl> 25.0, 25.0, 25.0, 50.0, 4.0, 25.0, 4.0, 50.0, 20...
#> $ E             <dbl> -0.07929, 1.01162, 1.19960, 0.04945, -0.08480, 1...
#> $ wsg.site.name <fctr> amacayacu, , , bci, bukittimah, changbai, , , ,...
```

```
glimpse(WSG)
#> Observations: 16,558
#> Variables: 9
#> $ wsg     <dbl> 0.567, 0.585, 0.450, 0.300, 0.657, 0.657, 0.818, 0.819...
#> $ idlevel <chr> "genus", "species", "genus", "genus", "genus", "genus"...
#> $ site    <chr> "amacayacu", "amacayacu", "amacayacu", "amacayacu", "a...
#> $ sp      <chr> "abarbarb", "abarjupu", "abutgran", "acalcune", "aegic...
#> $ genus   <chr> "Abarema", "Abarema", "Abuta", "Acalypha", "Aegiphila"...
#> $ species <chr> "barbouriana", "jupunba", "grandifolia", "cuneata", "c...
#> $ genwood <dbl> 0.567, 0.567, 0.450, 0.300, 0.657, 0.657, 0.819, 0.819...
#> $ famwood <dbl> 0.678, 0.678, 0.545, 0.509, 0.539, 0.539, 0.742, 0.742...
#> $ spwood  <dbl> NA, 0.585, NA, NA, NA, NA, 0.818, NA, 0.427, NA, NA, N...
```

Notes during the meeting