Global Forest Biodiversity Study

This research project is aimed at mapping global forest diversity. The main objective is to calculate alpha-, beta-, and gamma-diversity in terms of tree species, based on forest inventory data, and extrapolate the point data to map the forested regions across the world.

There seems to be no study on this topic at the global scale, and following two recent publications on this topic (Liang et al. 2016, *Science 354*; Crowther et al. 2015, *Nature*: *525,201-205*), our study will utilize Global Forest Biodiversity Initiative (GFBI) data to help answer the key questions on how many tree species there are in the world's forests and what their geographic distribution is. We are developing a manuscript based on this study for a top journal such as *Nature* or *Science*.

Data Guidelines
We are collecting forest inventory data from all permanent sample plots around the world. The only criteria are listed below.

Mandatory attributes
1. All the sample plots must have geographic coordinates (latitude and longitude, in decimal degrees-World Geodetic System 1984 (WGS84));
2. Plot size (in hectare) and shape (e.g. square, spherical, etc.);
3. The time (year) when the current inventory was performed;
4. The cut-off diameter threshold (cm);
5. Tree-level attributes: species, DBH, and status (live, dead, etc.)

Optional attributes
- Age- Stand age in years
- The number of endangered or threatened species (both plants and animals). Please see http://www.iucnredlist.org/ for a detailed list. Put the endangered/threatened species names in the notes
- Other plot attributes such as elevation, slope, age, management history, etc.

For remeasurment data from the same plots, enter all the data as if they are from different plots, but keep PlotID the same, and enter the corresponding inventory year.

Please compile your data in the GFB2 template (see a screenshot in the following page). The template in Excel format can be downloaded from the following webpage (the last item under QUICK LINKS):
http://www.gfbinitiative.org/data

Collaboration and Co-authorship:

1. We (the GFB team) invite all the individuals who have contributed over 100 plots to participate in the development of all the GFB papers, and all who have contributed to the development and writing will be entitled to a co-authorship in the corresponding paper. The contribution of other collaborators would be acknowledged in our publications.

2. The above threshold (100 plots) can be relaxed for those with a compelling reason (e.g. regions with low data coverage such as Africa, high risk countries such as Syria, high cost plots such as those tropical plots with over 100 species, etc.).

3. The rank of the data contributor in the coauthor list will depend on the quantity and quality of the data, as well as his/her contribution to the paper.

4. The above threshold (100 plots) can be relaxed for those with a compelling reason (e.g. high risk countries such as Syria, high cost plots such as those tropical plots with over 100 species, etc.).

5. We will adhere to your data policy and data use protocol. Upon the publishing of our papers, all the collaborators are expected to adhere to the publisher's data policy.

Data and Results Deposition:

- For datasets smaller than 5MB, please send them by email to Jingjing Liang (jiliang@mail.wvu.edu).

- For datasets larger than 5MB, please email Jingjing Liang (jiliang@mail.wvu.edu) a notice of your data size and region, and a Dropbox link will be sent to you with instructions for data deposition.

References

Crowther, T., H. Glick, K. Covey, C. Bettigole, D. Maynard, S. Thomas, J. Smith, G. Hintler, M. Duguid, and G. Amatulli, etc. 2015. Mapping tree density at a global scale. *Nature* 525:201-205.

Liang, J., T. W. Crowther, N. Picard, S. Wiser, M. Zhou, G. Alberti, E.-D. Schulze, A. D. McGuire, F. Bozzato, H. Pretzsch, S. de-Miguel, A. Paquette, B. Hérault, M. Scherer-Lorenzen, C. B. Barrett, H. B. Glick, G. M. Hengeveld, G.-J. Nabuurs, S. Pfautsch, H. Viana, A. C. Vibrans, C. Ammer, P. Schall, D. Verbyla, N. Tchebakova, M. Fischer, J. V. Watson, H. Y. H. Chen, X. Lei, M.-J. Schelhaas, H. Lu, D. Gianelle, E. I. Parfenova, C. Salas, E. Lee, B. Lee, H. S. Kim, H. Bruelheide, D. A. Coomes, D. Piotto, T. Sunderland, B. Schmid, S. Gourlet-Fleury, B. Sonké, R. Tavani, J. Zhu, S. Brandl, J. Vayreda, F. Kitahara, E. B. Searle, V. J. Neldner, M. R. Ngugi, C. Baraloto, L. Frizzera, R. Bałazy, J. Oleksyn, T. Zawiła-Niedźwiecki, O. Bouriaud, F. Bussotti, L. Finér, B. Jaroszewicz, T. Jucker, F. Valladares, A. M. Jagodzinski, P. L. Peri, C. Gonmadje, W. Marthy, T. O'Brien, E. H. Martin, A. R. Marshall, F. Rovero, R. Bitariho, P. A. Niklaus, P. Alvarez-Loayza, N. Chamuya, R. Valencia, F. Mortier, V. Wortel, N. L. Engone-Obiang, L. V. Ferreira, D. E. Odeke, R. M. Vasquez, S. L. Lewis, and P. B. Reich. 2016. Positive biodiversity-productivity relationship predominant in global forests. *Science* 354.

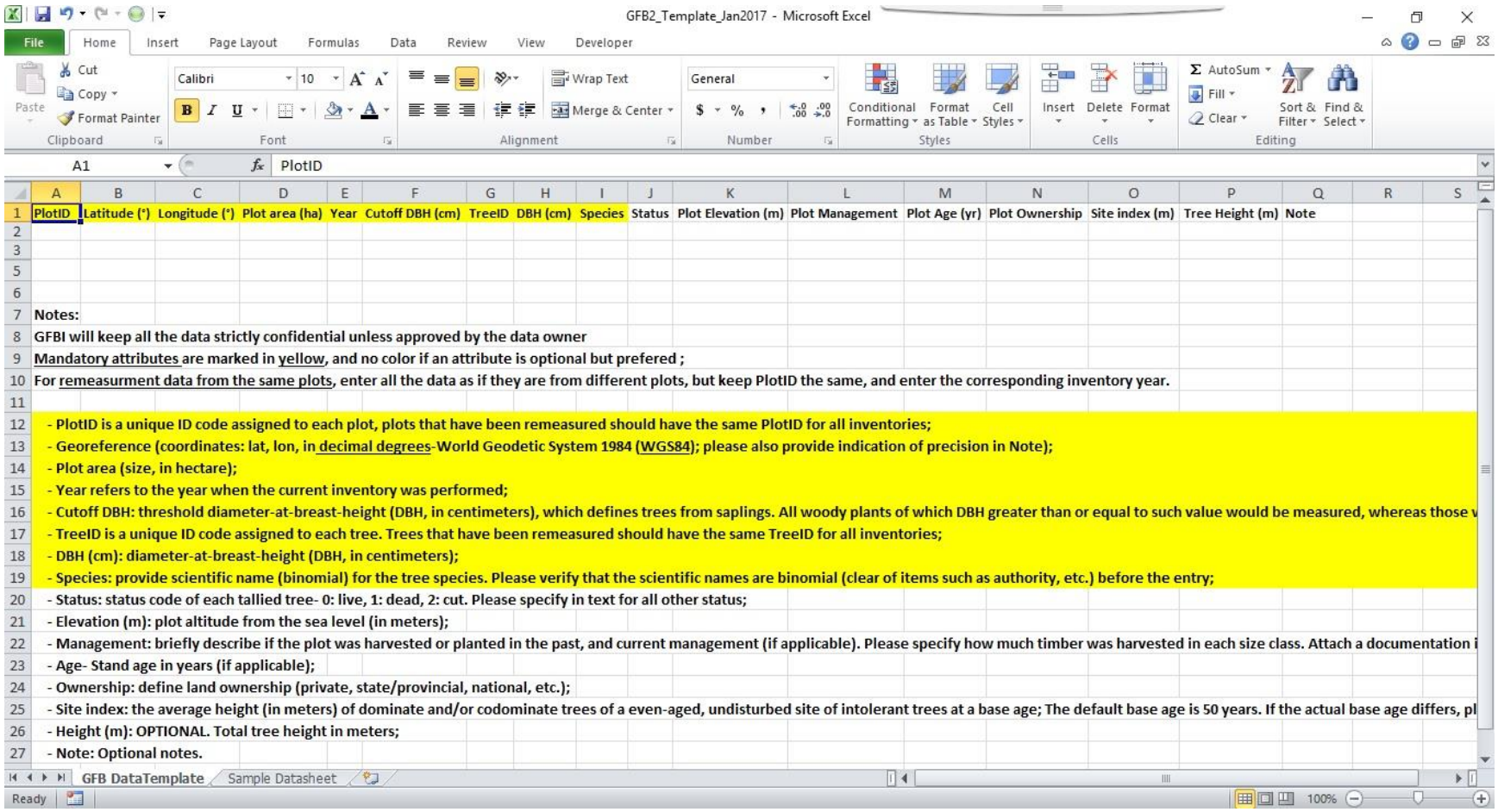

Figure 1 A Screenshot of GFB2 template (see a screenshot in the following page). The template in Excel format can be downloaded from the following webpage (under Data Contribution): http://www.gfbinitiative.org/data