Complete Tree Species of Panama

Condit, Richard, University of California, Santa Cruz, https://orcid.org/0000-0003-4191-1495

Pérez, Rolando, Smithsonian Tropical Research Institute

Aguilar, Salomón, Smithsonian Tropical Research Institute

conditr@gmail.com, perezro@si.edu, AguilarS@si.edu

Publication date: July 7, 2020

Publisher: DataONE

https://doi.org/10.15146/R3M97W

Citation

Condit, Richard; Pérez, Rolando; Aguilar, Salomón (2020), Complete Tree Species of Panama, v2, Dataset, https://doi.org/10.15146/R3M97W

Abstract

1 June 2020

This data archive presents a complete compilation of the tree species of Panama, including the full geographic range and local abundance of each. The species list is based on the most recent monographs, especially the Flora Mesoamericana, along with herbarium records, especially those online at the Missouri Botanic Garden, and our tree census plots, mostly in the forests around the Panama Canal, including the 50 ha plot at Barro Colorado. The full set of occurrence records was collected from the BIEN database and from Tropicos (Missouri Botanical Garden), plus our tree plots, and a geographic range was calculated as the minimum convex polygon around all occurrences. Details of methods can be found in Condit et al. (2020), and that paper includes a complete bibliography of the taxonomic literature consulted.

Species were included based if they root in the ground as free-standing woody plants, and reach a height of at least 3 m as reproductives. Epiphytes, lianas, and herbs were excluded. Species were included broadly, thus even if only occasionally terrestrial and free-standing while usually not; this aspect forces a loose gray area between trees and non-trees. The category

shrub or descriptor shrubby were never considered, as they are poorly defined and used in inconsistent ways. An online version of the database (http://conditdatacenter.tech/PanamaTrees/) includes range maps and notes on growth form for marginal species. Tables of all coordinates from BIEN and Tropicos used in the estimates of range size can be downloaded from http://conditdatacenter.tech/TreeMap/txt.

References

- Condit, R., Perez, R., Aguilar, S. 2020. Tree species of Panama: a complete checklist with every geographic range. In press.
- Condit, R., Engelbrecht, B. M. J., Pino, D., Pérez, R., and Turner, B. L. 2013. Species distributions in response to individual soil nutrients and seasonal drought across a community of tropical trees. Proceedings of the National Academy of Sciences 110:5064–5068. pdf http://conditdatacenter.org/pdfs/ConditEtAlPNAS2013.pdf
- Condit, R., Chisholm, R. A., and Hubbell, S. P. 2012. Thirty years of forest census at Barro Colorado and the importance of immigration in maintaining diversity. PLoS ONE 7:e49826. pdf http://conditdatacenter.org/pdfs/ConditChisholmHubbell2012.pdf
- Condit, R., Pérez, R., Aguilar, S., Lao, S., and Hubbell, S. P. 2017. Demographic trends and climate over 35 years in the Barro Colorado 50 ha plot. Forest Ecosystems 4:1–13. pdf http://conditdatacenter.org/pdfs/Condit_et_al-2017-Forest_Ecosystems.pdf
- Davidse, G. M.; Sousa, M. S.; Knapp, S.; Chiang, F. & Ulloa, C. U. (Eds.) 1994-2018. Flora Mesoamericana (6 Volumes).

Methods

The data was initiated with the published checklist from the Missouri Botanical Garden, then expanded and corrected from published monographs. Details are provided in Condit et al. (2020).

Usage Notes

Table 1. PanamaTreeSpecies.tsv. A tab-delimited ascii table including a record for 3045 tree species we consider native to Panama. Taxa in the table are identified by the Family, Latin name, and taxonomic authority, and include the following columns of data:

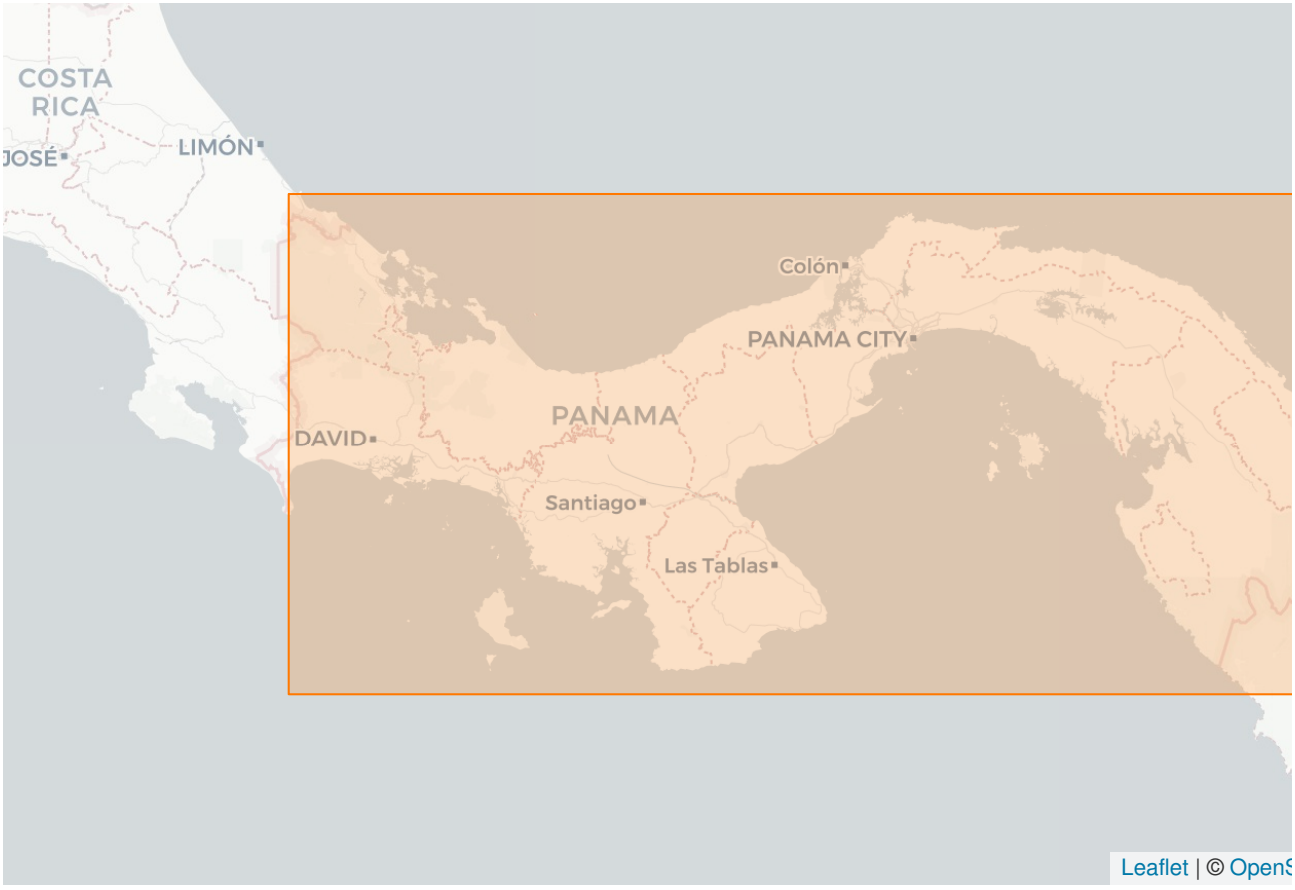
- countries -- Number of countries observed, ostensibly in a natural state (countries)
- minLat -- Minimum latitude of species occurrences

- maxLat -- Maximum latitude
- minLong -- Minimum longitude
- maxLong -- Maximum longitude
- Npan -- Number of those records in Panama
- N -- Total number of records in combined BIEN and Tropicos databases, counting only unique locations
- range -- Extent of range, in thousands of square km, calculated as minimum convex polygon around BIEN records
- plots -- Number of our tree plots in Panama in which the species was observed
- dens -- Mean density in the plots (including zeroes)
- inventories -- Number of our tree inventories in Panama in which the species was observed
- maxht -- Maximum height in meters according to taxonomic monographs

Table 2. PanamaTreeNameLookup.tsv. A tab-delimited ascii table including a record for 4497 Latin names which we found to be associated with the native tree species of Panama, including the 3045 currently accepted names plus 1452 alternate names. These are the most relevant recent synonyms, those appearing in recent treatments, at BIEN, or at Tropicos. For the 3045 current names, the column ValidLatin matches the column Latin. For the other 1452, the name in the column Latin is not valid in Panama and should be replaced by ValidLatin throughout the country. The column Scope applies to those 1452 cases: where Scope = everywhere, Latin should be replaced by ValidLatin everywhere the species is found, and Latin is now an obsolete name. In the remained 62 cases, where Scope = only Panama, the name Latin is misused in Panama and should be replaced there, but not elsewhere.

Table 3. PanamaTreeBIENError.tsv. A tab-delimited ascii table including 1035 tree species names appearing incorrectly in the BIEN database with records in Panama. All of these are based either on erroneous records, ie in the wrong country, or misidentified, or are based on cultivated specimens of species not native to Panama.

Location



SW 7.079088, -82.880859 NW 9.730714, -77.145996

Files

3 files for this dataset

PanamaTreeBIENError.tsv	45.27 kB	text/tab-separated-values
PanamaTreeNameLookup.tsv	304.41 kB	text/tab-separated-values
PanamaTreeSpecies.tsv	322.52 kB	text/tab-separated-values

License