SUPPORTING INFORMATION FOR

How much of the world is woody?

Richard G. FitzJohn[†,1,2], Matthew W. Pennell[†,3,4], Amy E. Zanne[5,6], Peter F. Stevens[7,8], David C. Tank[3], and William K. Cornwell[9,10]

† *These authors contributed equally*
1 *Biodiversity Research Centre & Department of Zoology, University of British Columbia*
2 *Department of Biological Sciences, Macquarie University*
3 *Department of Biological Sciences & Institute for Bioinformatics & Evolutionary Studies, University of Idaho*
4 *National Evolutionary Synthesis Center*
5 *Department of Biological Sciences, George Washington University*
6 *Center for Conservation & Sustainable Development, Missouri Botanical Garden*
7 *Department of Biology, University of Missouri*
8 *Missouri Botanical Garden*
9 *Department of Systems Ecology, VU University*
10 *Evolution & Ecology Research Centre, School of Biological, Earth & Environmental Sciences, University of New South Wales*

rich.fitzjohn@gmail.com, mwpennell@gmail.com

Appendix S1: Survey details

The survey we created is included as a Supplementary figure to this paper (see S.8 and S.9). We distributed the survey to the community via several electronic mailing lists with wide circulation among biologists: *EvolDir*, *ECOLOG*, *r-sig-phylo*, *Taxacom*, *Herbaria*, as well as local lists. We also posted links on the social–networking platforms Google+, Twitter and Facebook to reach a broad audience. In order to increase representation of survey responses from Latin America, we translated the survey into Portuguese and distributed it to Brazilian biology Facebook groups and university mailing lists.

To analyse the survey data, we used linear regression on logit–transformed percent woodiness as (see Warton & Hui, 2011) and treated the self–reported level of botanical familiarity and education as factors. We converted country of training to coarse latitude using shapefiles from the GBIF dataportal[1], and converted these into "tropical" and "temperate" using an absolute latitude of $23^\circ\ 26'$. All analyses were conducted with R version 3.0.2 (R Development Core Team, 2013).

[1] http://code.google.com/p/gbif-dataportal/wiki/ConfiguringGeoserver

SUPPLEMENTARY FIGURES

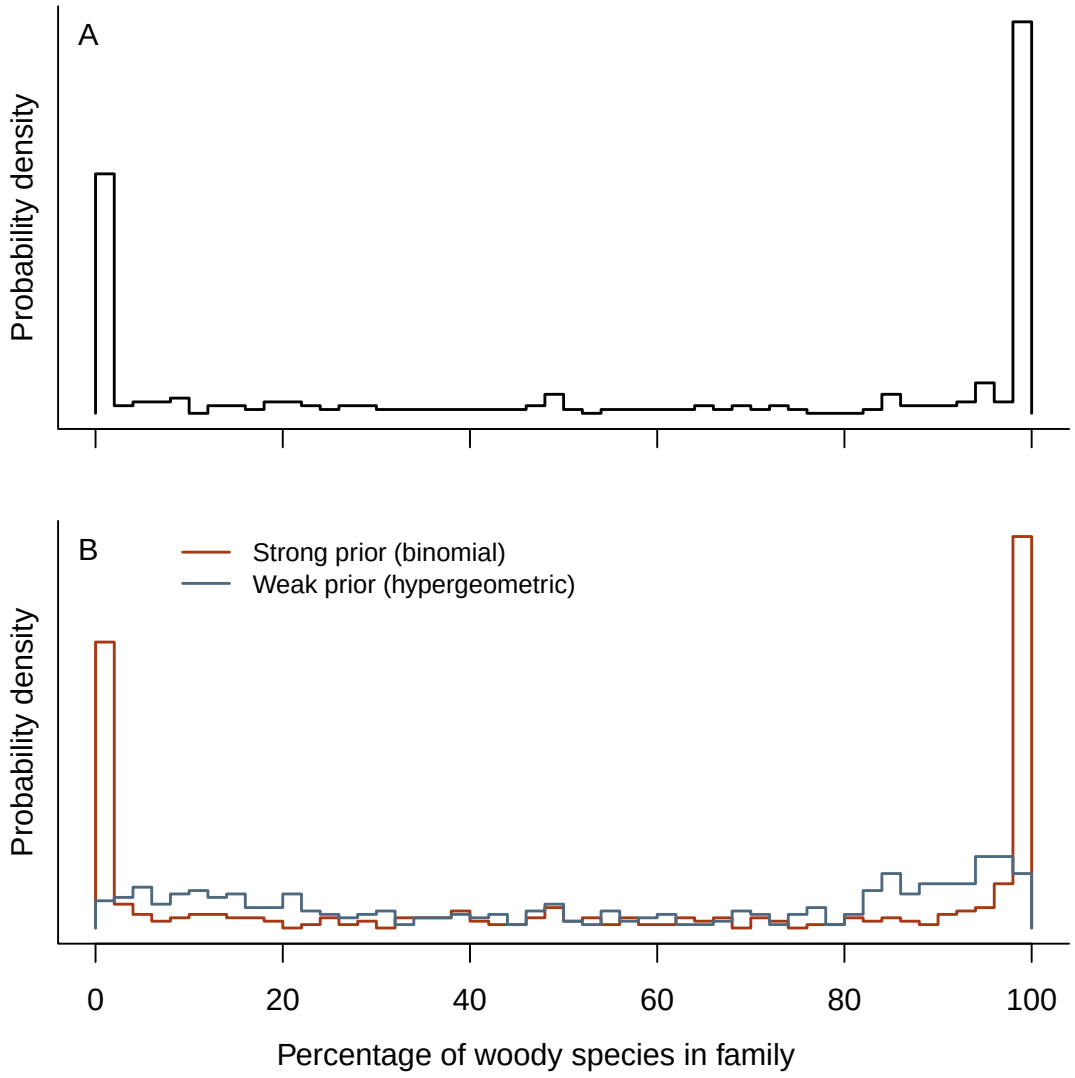


FIGURE S.1: Distribution of the percentage of woodiness among families. The distribution of the percentage of species that are woody within a family is strongly bimodal among families (panel A), though less strongly bimodal than among genera. The two different sampling approaches generate distributions that differ in their bimodality (panel B). Using the weak prior approach generates a broad distribution with many polymorphic genera (blue line), while using the strong prior approach generates a strongly bimodal distribution (red line).

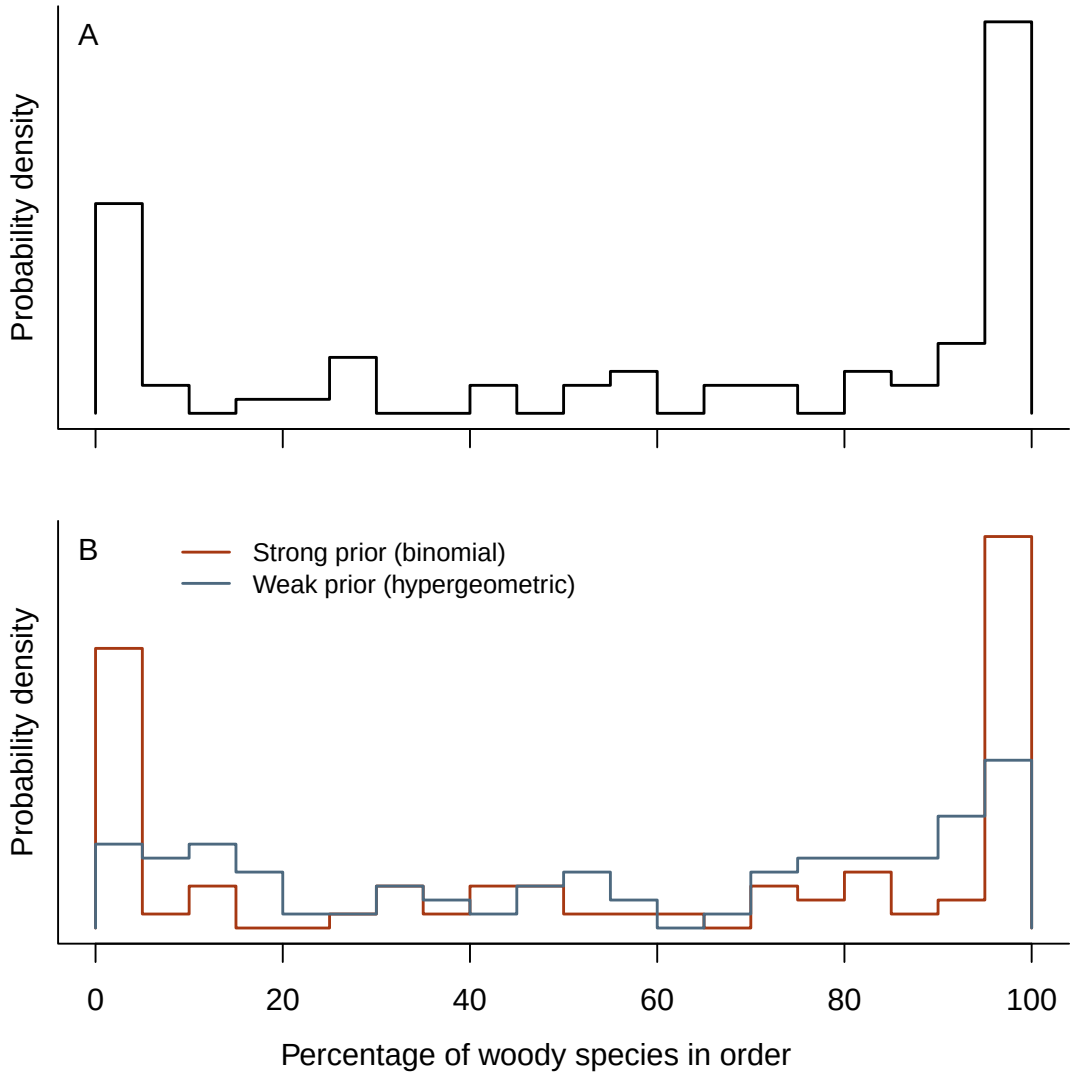


FIGURE S.2: Distribution of the percentage of woodiness among orders. The distribution of the percentage of species that are woody within an order is bimodal among orders (panel A), though less strongly bimodal than among both genera and families. The two different sampling approaches generate distributions that differ in their bimodality (panel B). Using the weak prior approach generates a broad distribution with many polymorphic genera (blue line), while using the strong prior approach generates a strongly bimodal distribution (red line).

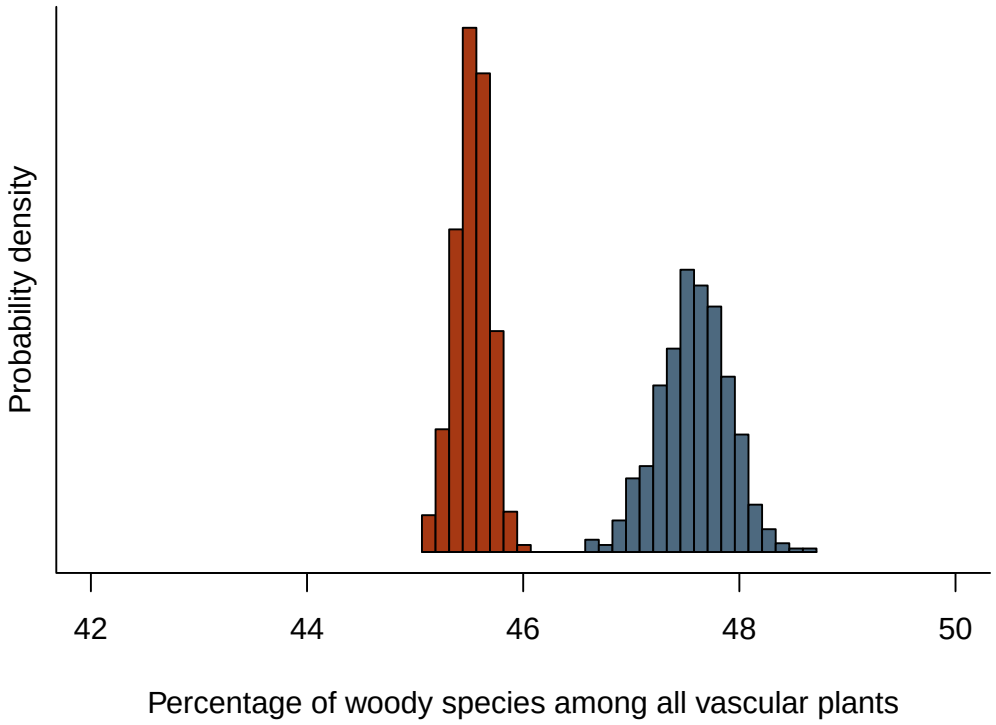


FIGURE S.3: The posterior probability distribution for the proportion of the world's flora that is woody, using our two sampling approaches. The red (left) distribution samples missing species using the strong prior approach (binomial distribution), while the blue distribution (right) samples missing species using the weak prior approach (hypergeometric distribution).

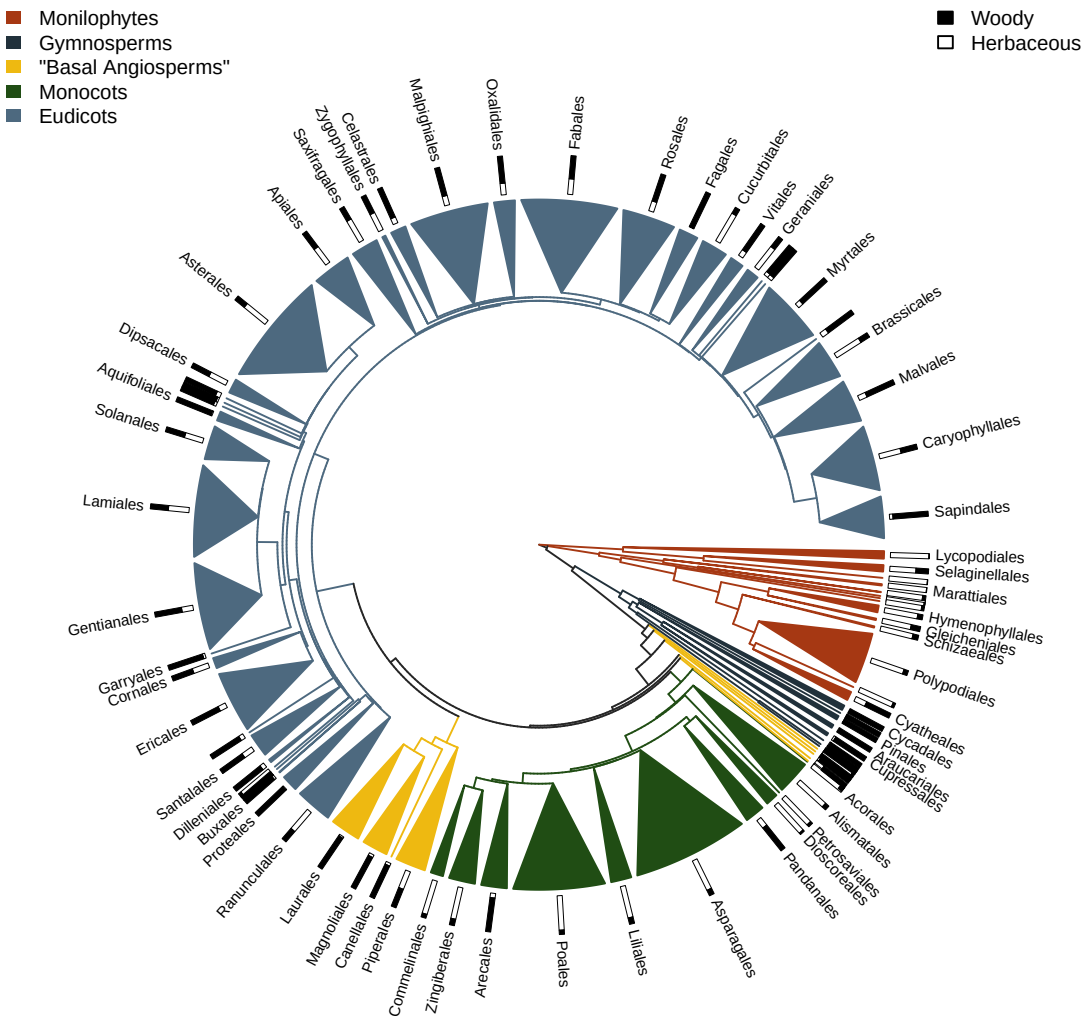


FIGURE S.4: *This is Fig. 2 using the alternative sampling approach.* Distribution of the fraction of woodiness among orders of vascular plants. Each tip represents an order, with the fraction of circumference proportional to the square root of the number of recognised species in that order (data from accepted names in The Plant List (2014)). The bars around the perimeter indicate the percentage of woody (black) and herbaceous (white) species, estimated using the "weak prior" (hypergeometric) approach. Using the "strong prior" (binomial) approach generally leads to an estimated percentage that is further away from 50% (see main text Figs. 1 and 2). Phylogeny from Zanne *et al.* (2014) (available on Dryad; doi:10.5061/dryad.63q27/3). Orders not placed by APG III (The Angiosperm Phylogeny Group, 2009) are not displayed.

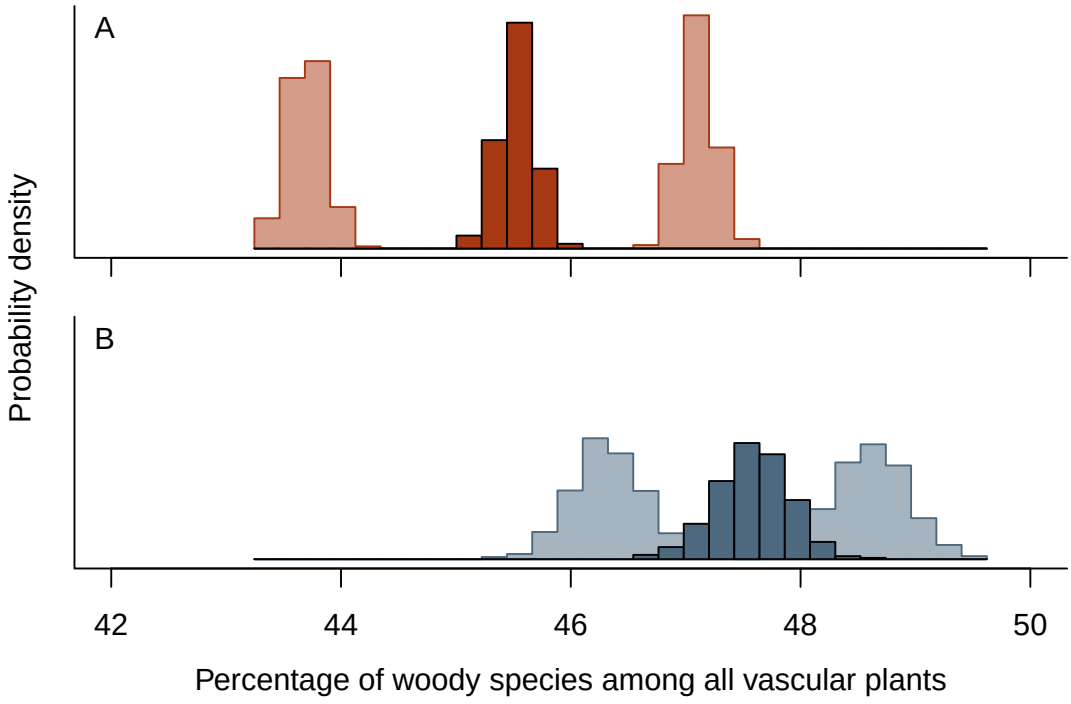


FIGURE S.5: The effect of different coding on estimates of the fraction of species that are woody, under the strong prior approach (binomial; panel A) and weak prior approach (hypergeometric; panel B). The dark distributions are the results from our main analysis (Fig. S.3). Distributions to the left (with lower estimates of woodiness) code all species with any record of herbaceousness or variability as herbaceous. Similarly, distributions to the right (with higher estimates of woodiness) code all species with any record of woodiness or variability as woody.

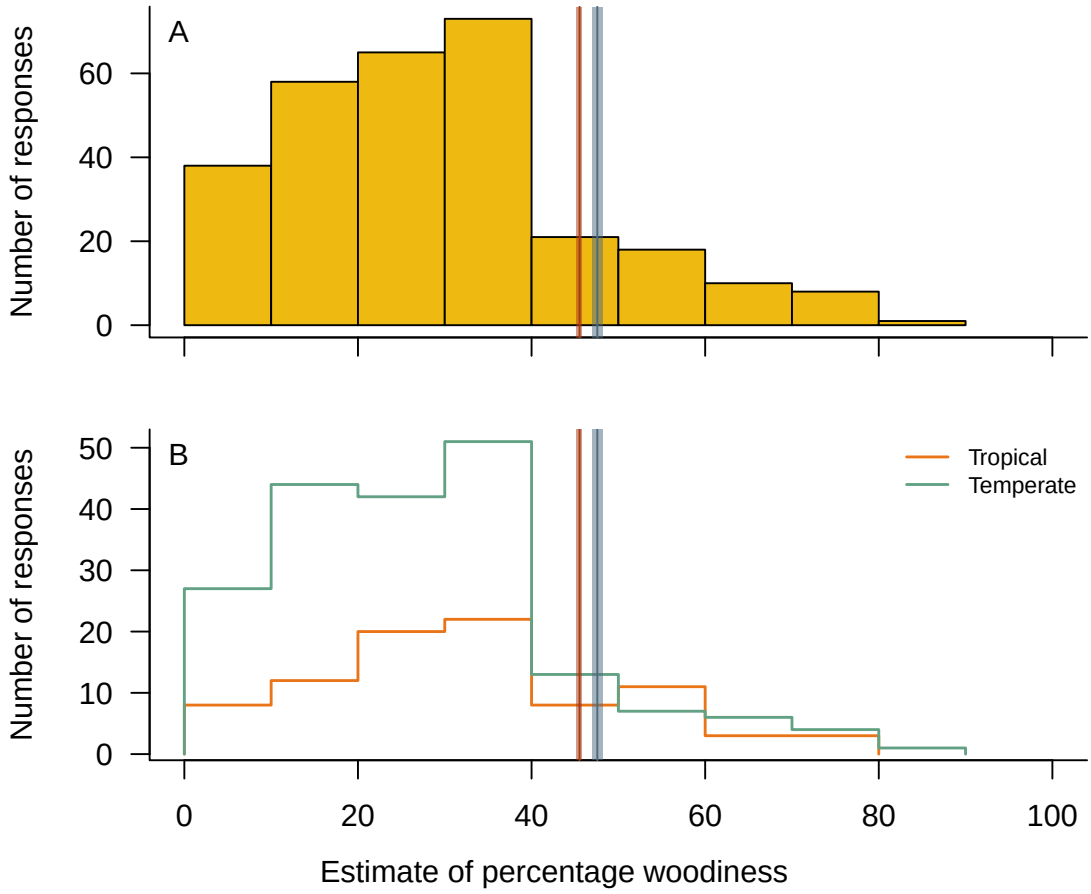


FIGURE S.6: Distribution of all responses to the survey question "What percentage of the world's vascular plant species are woody?". The mean and 95% confidence intervals for our estimates of the proportion of woody species from the empirical data are depicted by the horizontal shaded rectangles; the blue rectangle corresponds to the "weak prior" approach and the red rectangle corresponds to the "strong prior" approach (see Appendix for details). Panel A includes all 292 responses. In panel B, the 282 responses that indicated country are shown separated into "tropical" (orange distribution) and "temperate" (teal). Estimates from tropical countries were slightly, but significantly, higher than those from temperate countries (p =0.02, r^2=0.02).

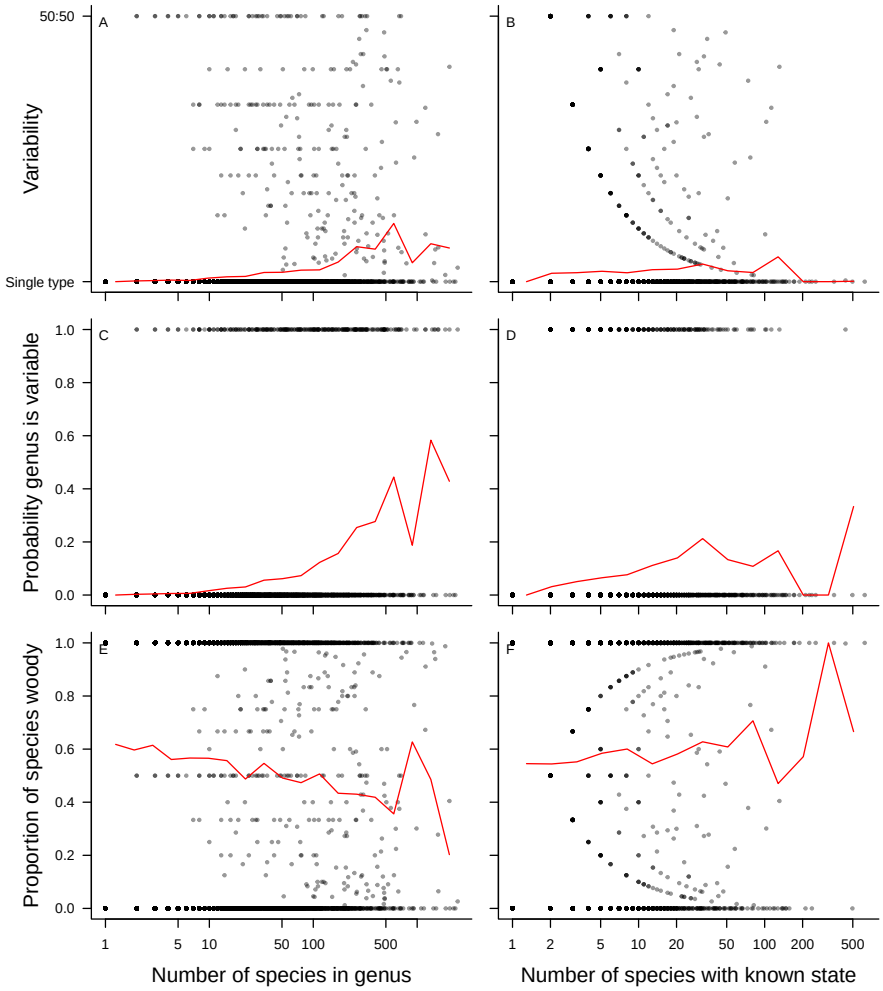
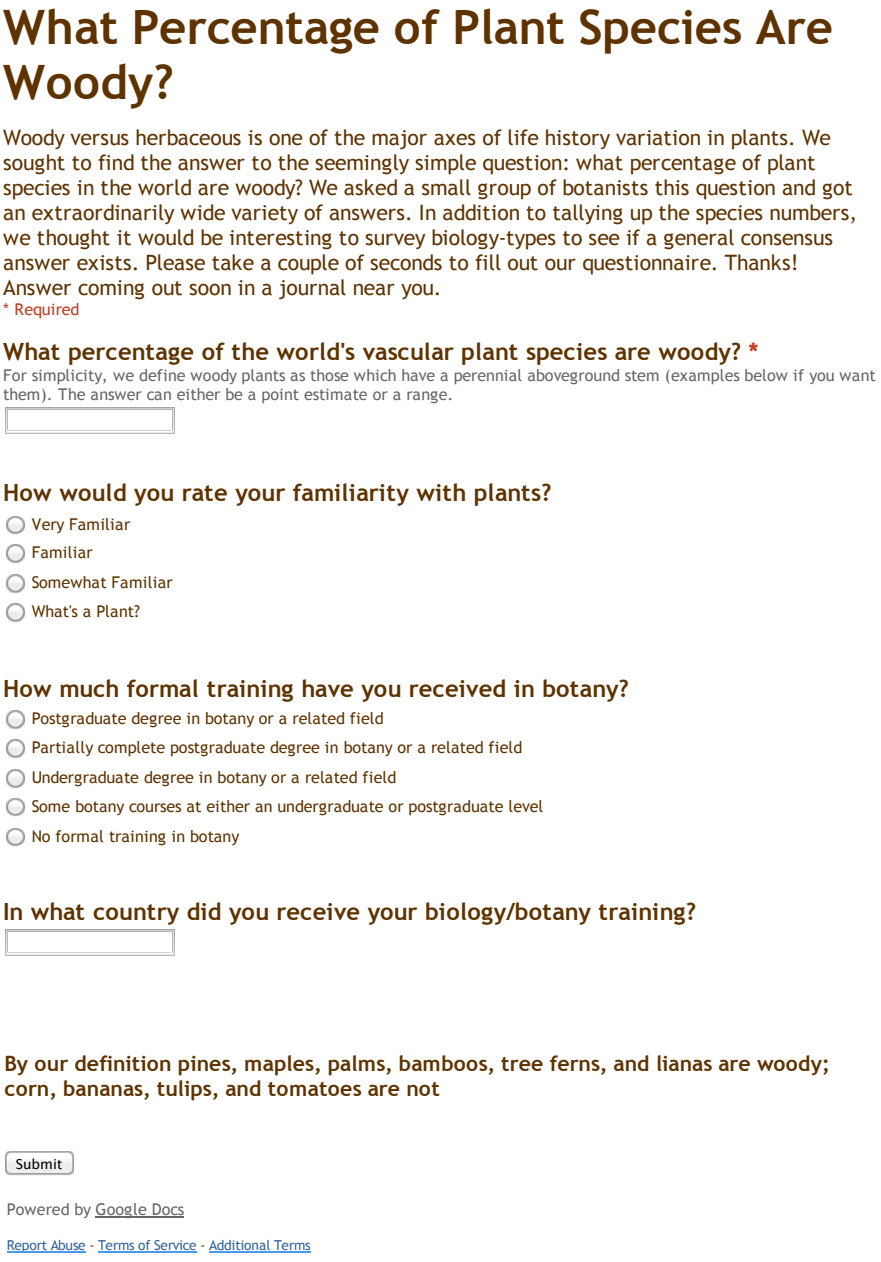


FIGURE S.7: The relationship between the size of a genus and its chance of being "variable" for woodiness. We plotted the relationship between the level of variablitiy in the dataset (from all of a single–type to equal numbers of woody and herbaceous species) against the number of species in a genus (panel A) and the number of species with known state (panel B). Larger genera tend to be more variable although this pattern is not strong. We then coded all genera as being either variable or all of a single–type and examined the relationship between this binary characterization and the number of species per genus (panel C) and the number for which we have known states (panel D). Using the binary characterization, it is clear that large genera have a higher probability of being variable, even if few species actually vary (compare with panels A and B). Though there is a great deal of scatter, larger genera also tend to be more herbaceous than woody genera (panel E) but the genera for which we have more data tend to be more woody (panel F). This shows that the available data is generally biased towards woody species. In all panels, the red line is a moving average over 20 (left column) of 15 (right column) equally spaced bins on this log axis.



What Percentage of Plant Species Are Woody?

Woody versus herbaceous is one of the major axes of life history variation in plants. We sought to find the answer to the seemingly simple question: what percentage of plant species in the world are woody? We asked a small group of botanists this question and got an extraordinarily wide variety of answers. In addition to tallying up the species numbers, we thought it would be interesting to survey biology-types to see if a general consensus answer exists. Please take a couple of seconds to fill out our questionnaire. Thanks!
Answer coming out soon in a journal near you.
* Required

What percentage of the world's vascular plant species are woody? *
For simplicity, we define woody plants as those which have a perennial aboveground stem (examples below if you want them). The answer can either be a point estimate or a range.

How would you rate your familiarity with plants?
- Very Familiar
- Familiar
- Somewhat Familiar
- What's a Plant?

How much formal training have you received in botany?
- Postgraduate degree in botany or a related field
- Partially complete postgraduate degree in botany or a related field
- Undergraduate degree in botany or a related field
- Some botany courses at either an undergraduate or postgraduate level
- No formal training in botany

In what country did you receive your biology/botany training?

By our definition pines, maples, palms, bamboos, tree ferns, and lianas are woody; corn, bananas, tulips, and tomatoes are not

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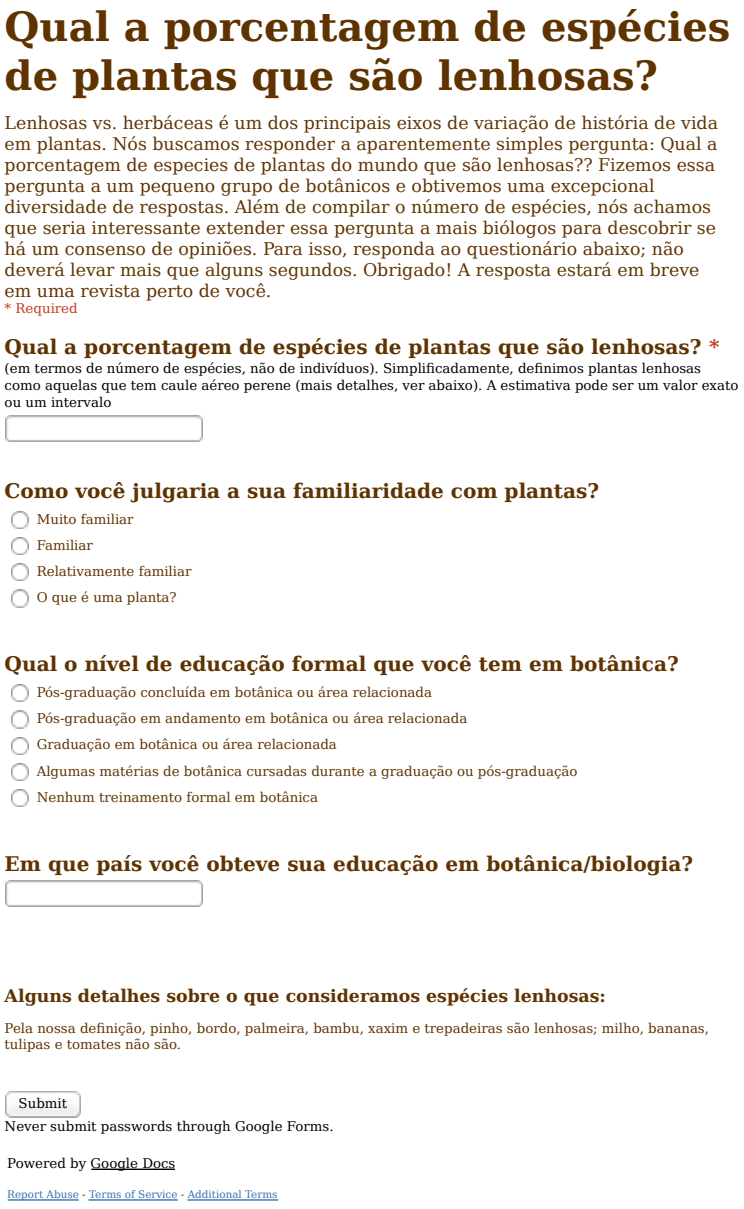
FIGURE S.8: English–language version of the survey we distributed



Qual a porcentagem de espécies de plantas que são lenhosas?

Lenhosas vs. herbáceas é um dos principais eixos de variação de história de vida em plantas. Nós buscamos responder a aparentemente simples pergunta: Qual a porcentagem de especies de plantas do mundo que são lenhosas?? Fizemos essa pergunta a um pequeno grupo de botânicos e obtivemos uma excepcional diversidade de respostas. Além de compilar o número de espécies, nós achamos que seria interessante extender essa pergunta a mais biólogos para descobrir se há um consenso de opiniões. Para isso, responda ao questionário abaixo; não deverá levar mais que alguns segundos. Obrigado! A resposta estará em breve em uma revista perto de você.

* Required

Qual a porcentagem de espécies de plantas que são lenhosas? *

(em termos de número de espécies, não de indivíduos). Simplificadamente, definimos plantas lenhosas como aquelas que tem caule aéreo perene (mais detalhes, ver abaixo). A estimativa pode ser um valor exato ou um intervalo

Como você julgaria a sua familiaridade com plantas?

- Muito familiar
- Familiar
- Relativamente familiar
- O que é uma planta?

Qual o nível de educação formal que você tem em botânica?

- Pós-graduação concluída em botânica ou área relacionada
- Pós-graduação em andamento em botânica ou área relacionada
- Graduação em botânica ou área relacionada
- Algumas matérias de botânica cursadas durante a graduação ou pós-graduação
- Nenhum treinamento formal em botânica

Em que país você obteve sua educação em botânica/biologia?

Alguns detalhes sobre o que consideramos espécies lenhosas:

Pela nossa definição, pinho, bordo, palmeira, bambu, xaxim e trepadeiras são lenhosas; milho, bananas, tulipas e tomates não são.

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FIGURE S.9: Portuguese–language version of the survey we distributed

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