Table S1. The results of multivariate multinomial logistic model for the proportion of dioecious, monoecious, and hermaphrodite individuals in woody flowering plants. Dioecy is set as the baseline. M and H represent monoecy and hermaphrodite, respectively. The region effects were coded in reference to Tropical Africa. P values indicate the significance of the z test. β's are the coefficients of the multinomial logistic regression model given in the main text.

Explanatory variables		Coefficient (SE)		P (>|z|) value	
		M (β_2)	H (β_3)	M	H
Intercept		-2.822 (0.018)	0.130 (0.013)	**<2.2e-16**	**<2.2e-16**
Region	Europe	7.808 (0.099)	2.448 (0.101)	**<2.2e-16**	**<2.2e-16**
	Neotropical	-0.174(6.95e-3)	0.220 (4.39e-3)	**<2.2e-16**	**<2.2e-16**
	North America	1.766 (0.012)	-0.367 (9.43e-3)	**<2.2e-16**	**<2.2e-16**
	Oceania	-0.324 (8.76e-3)	-1.020 (5.93e-3)	**<2.2e-16**	**<2.2e-16**
	Temperate Asia	-0.043 (6.84e-3)	0.055 (4.21e-3)	**8.92e-13**	**<2.2e-16**
	Tropical Asia	-0.054 (6.27e-3)	-0.099 (4.16e-3)	**<2.2e-16**	**<2.2e-16**
Island		0.295 (5.35e-3)	-0.134 (3.85e-3)	**<2.2e-16**	**<2.2e-16**
Mean species age		0.978 (0.017)	0.753 (0.012)	**<2.2e-16**	**<2.2e-16**
Elevation		0.213 (7.13e-3)	0.541 (5.09e-3)	**<2.2e-16**	**<2.2e-16**
MAP		0.926 (8.03e-3)	0.589 (5.78e-3)	**<2.2e-16**	**<2.2e-16**
PET		-0.437 (0.010)	0.933 (7.75e-3)	**<2.2e-16**	**<2.2e-16**
Precipitation of driest month (BIO14)		0.945 (0.014)	-0.424 (0.010)	**<2.2e-16**	**<2.2e-16**
Precipitation seasonality (BIO15)		2.900 (0.017)	-0.296 (0.013)	**<2.2e-16**	**<2.2e-16**

Figure S1. The relationships between the proportion of flowering plants with different sexual systems and elevation. (a), (c) and (e) are for the proportion of species, and (b), (d), and (f) are for the proportion of the individual. D, M, and H represent dioecy, monoecy, and hermaphrodite, respectively. The blue is the multinomial logistic model that only includes elevation as the explanatory variable (no other variables are included). The red curves are the fitted proportions based on the best selected model, i.e., the model presented in Table 1 and S1 for species and individuals, respectively. R^2 values associated with the models only including elevation are given in each panel.
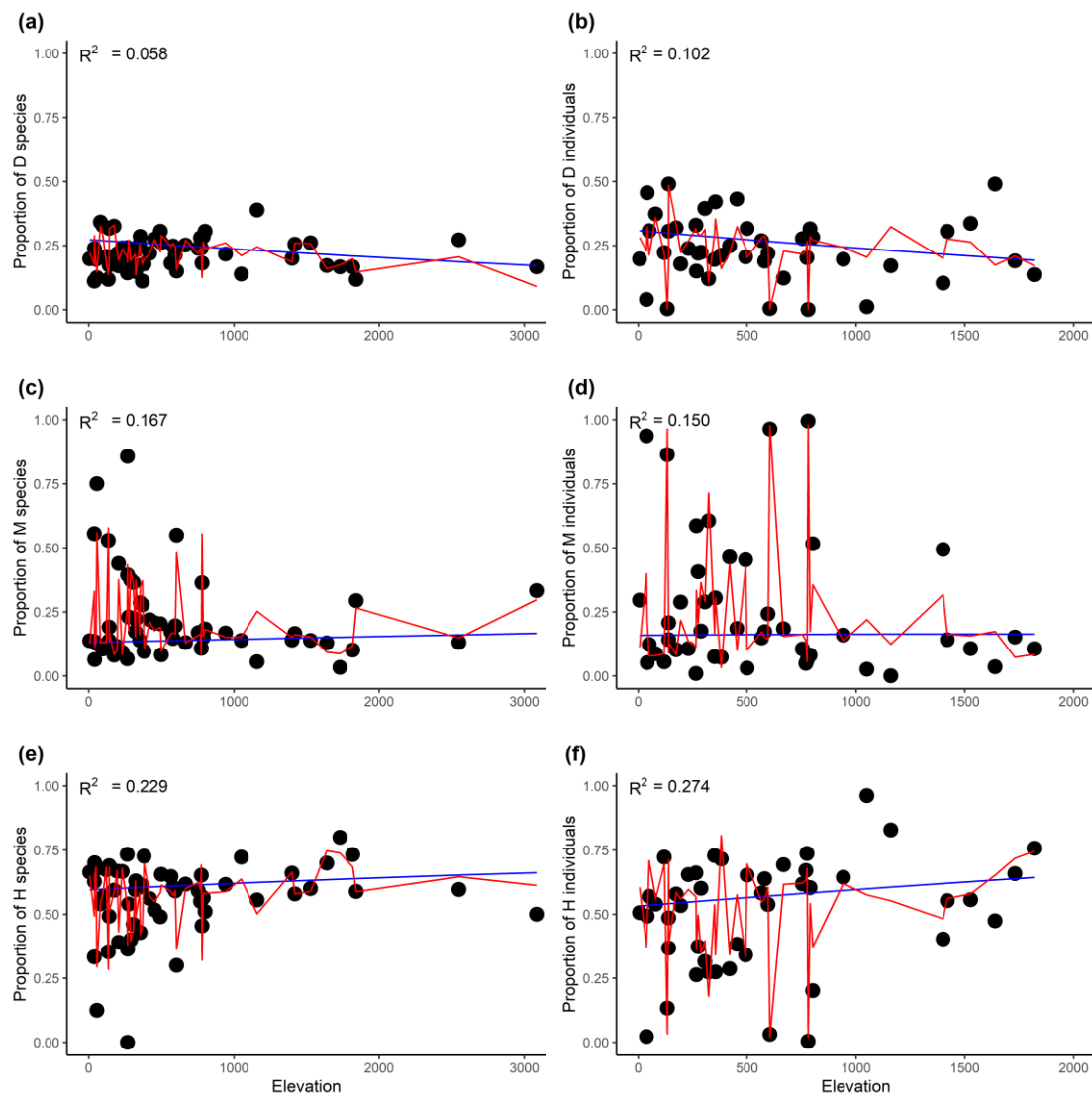
Figure S2. Phylogenetic distribution of sexual systems (D for dioecy, H for hermaphrodite, M for monoecy) in woody flowering plants of the 55 plots.
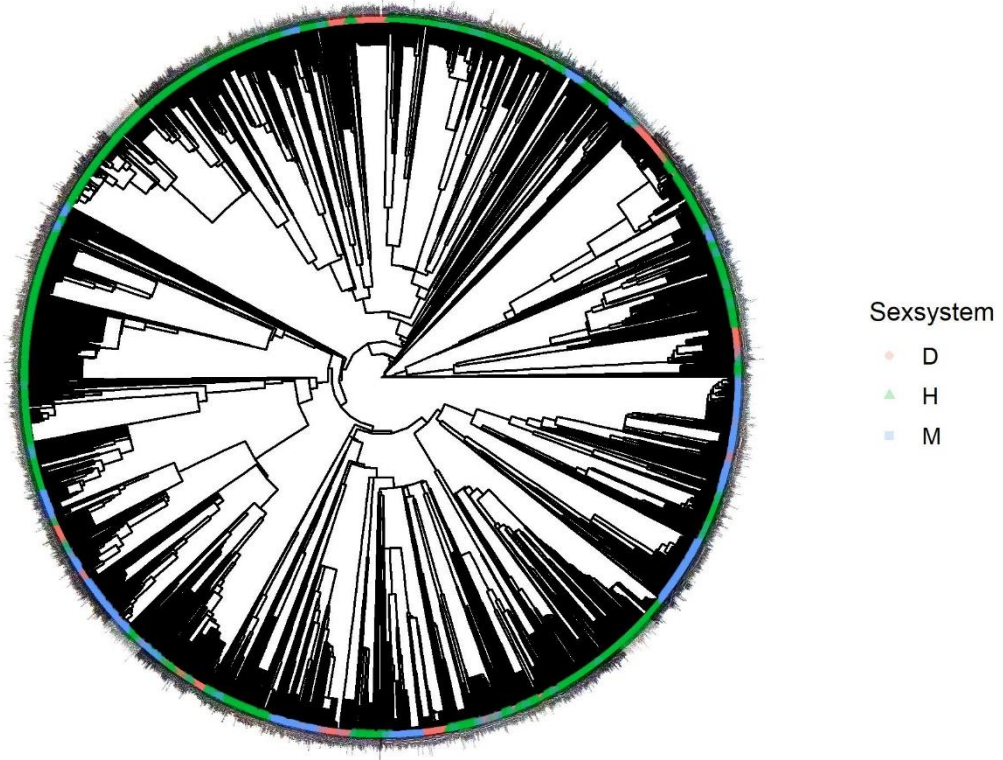
Figure S3. The relationships between the proportion of flowering plants with different sexual systems and phylogenetic signal (lambda). (a), (c) and (e) are for the proportion of species, and (b), (d), and (f) are for the proportion of the individual. D, M, and H represent dioecy, monoecy, and hermaphrodite, respectively. The blue line is the multinomial logistic model that only includes lambda as the explanatory variable (no other variables are included). The red curves are the fitted proportions based on the best selected model, i.e., the model presented in Table 1 and S1 for species and individuals, respectively. R^2 values associated with models only including lambda are given in each panel.
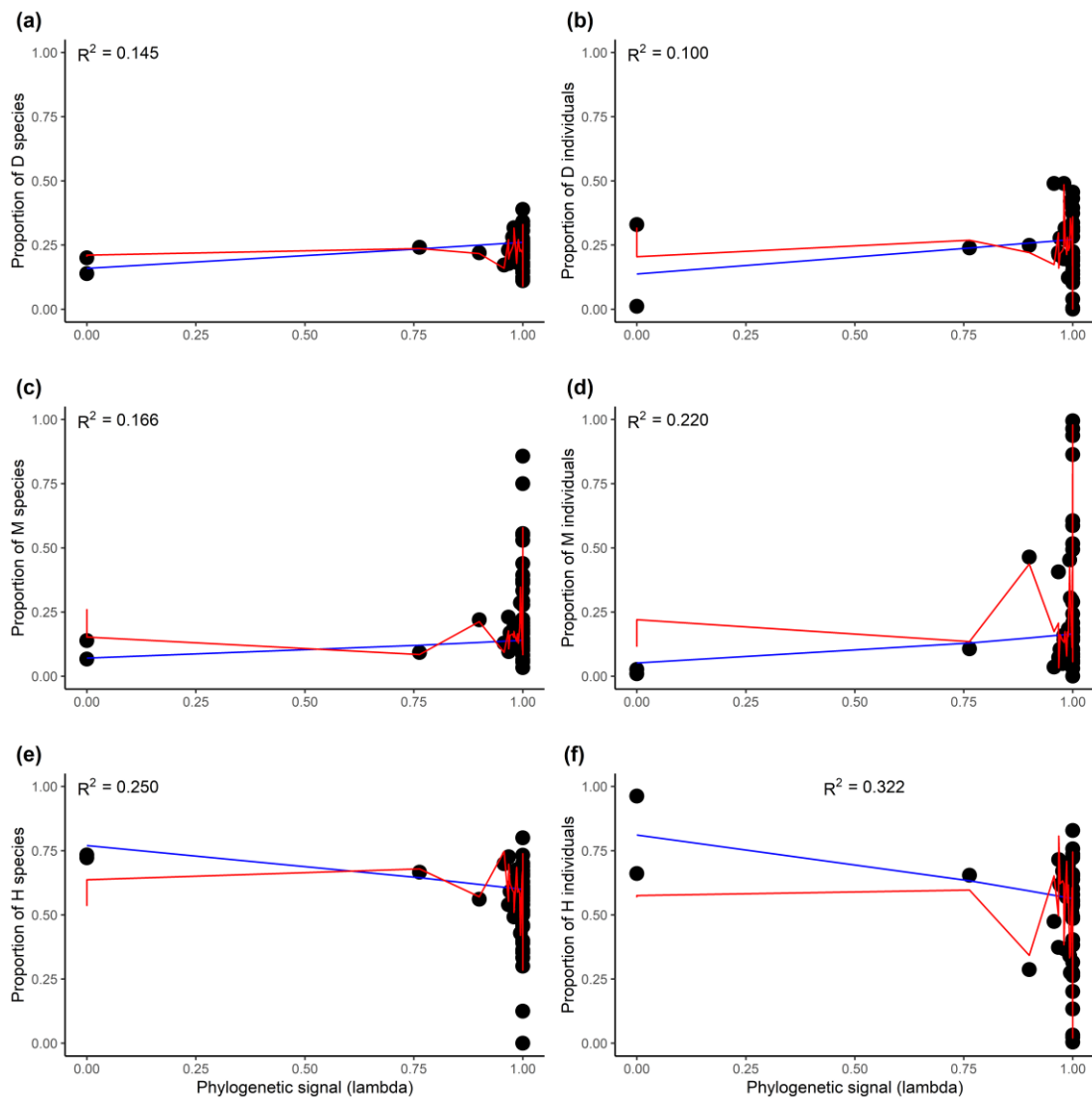
Figure S4. The relationships between the proportion of flowering plants with different sexual systems and precipitation of driest month. (a), (c) and (e) are for the proportion of species, and (b), (d), and (f) are for the proportion of the individual. D, M, and H represent dioecy, monoecy, and hermaphrodite, respectively. The blue line is the multinomial logistic model that only includes precipitation of driest month as the explanatory variable (no other variables are included). The red curves are the fitted proportions based on the best selected model, i.e., the model presented in Table 1 and S1 for species and individuals, respectively. R^2 values associated with models only including precipitation of driest month are given in each panel.
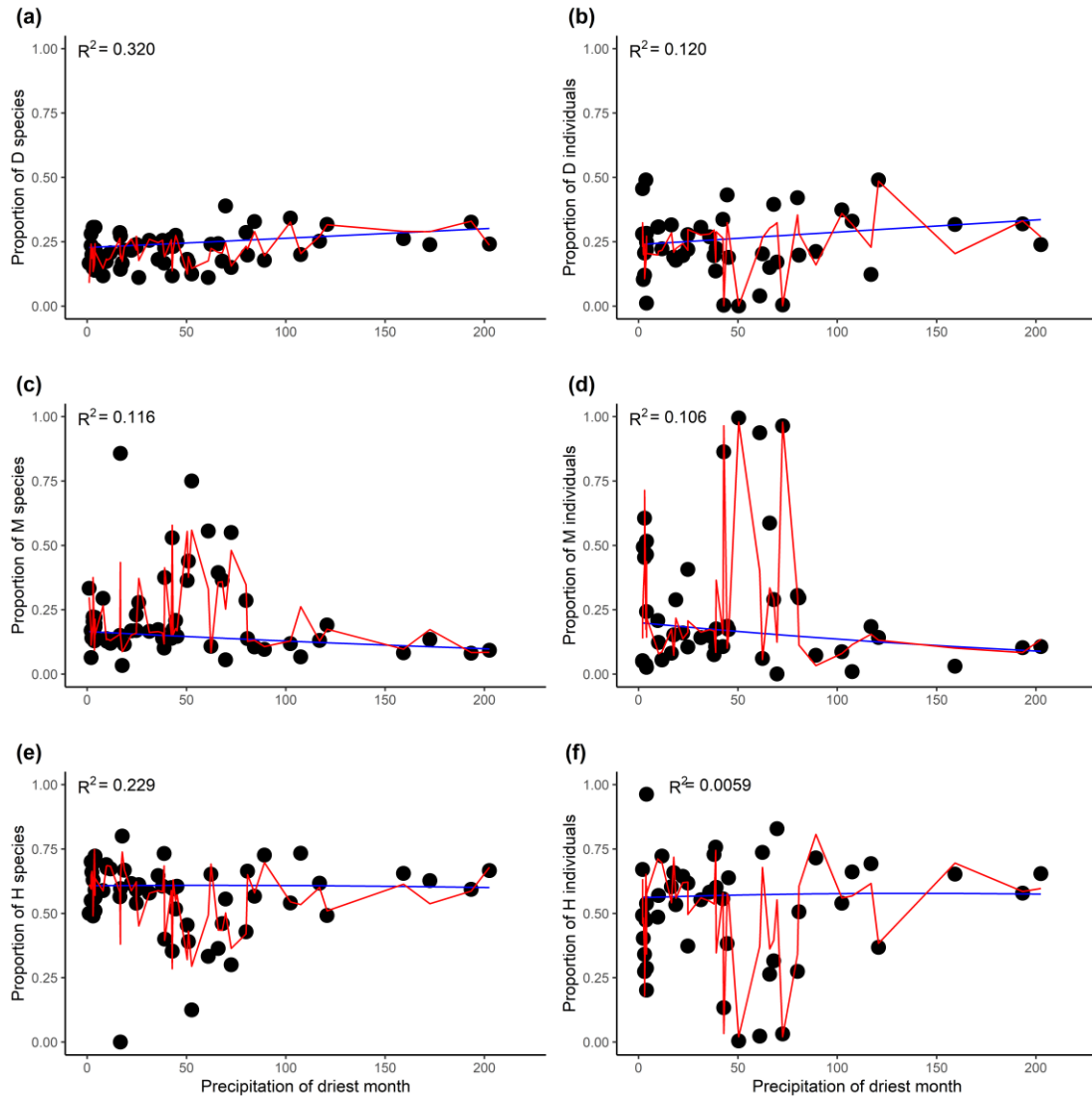
Figure S5. The relationships between the proportion of flowering plants with different sexual systems and precipitation seasonality. (a), (c) and (e) are for the proportion of species, and (b), (d), and (f) are for the proportion of the individual. D, M, and H represent dioecy, monoecy, and hermaphrodite, respectively. The blue line is the multinomial logistic model that only includes precipitation seasonality as the explanatory variable (no other variables are included). The red curves are the fitted proportions based on the best selected model, i.e., the model presented in Table 1 and S2 for species and individuals, respectively. R^2 values associated with models only including precipitation seasonality are given in each panel.