Figure S1. Map of mean annual precipitation on the Australian mainland. We extracted mean annual precipitation data (to nearest mm) for each of the 17,136 grid cells from WorldClim (Hijmans et al., 2005).
Figure S2. Empirical distribution of group size for hunter-gatherer-fishers (data source: Binford, 2001).
Figure S3. Power functions used to predict carrying capacity (individuals/km²) from mean annual precipitation (mm), as estimated by the ten best models. In a power function $\alpha$ serves as a simple scaling factor and $\beta$ governs the rate of growth of carrying capacity with the increase in precipitation.
**Figure S4.** Relationship between carrying capacity parameters. The color of the dots indicates the goodness of fit for the parameter-value combinations evaluated autonomously by the Gibbs sampler, which converge tightly on a log-linear relationship. The two parameters, together, define the carrying capacity in each cell, given the precipitation in the cell.
**Figure S5.** Distribution of the coefficient of determination ($r^2$) between observed and predicted maps of language richness for the 200 best models.
Figure S6. Predictive power of the model when each cell is used as seed cell. (A) Fit index ($f$). (B) Average number of total languages predicted. (C) Average coefficient of determination ($r^2$) between observed and predicted map of language richness. (D) Correlograms based on maps of: fit index (blue line), total number of languages (red) and coefficient of determination (green). The lack of spatial autocorrelation indicates that the predictive power of the model is not sensitive to the seed cell.