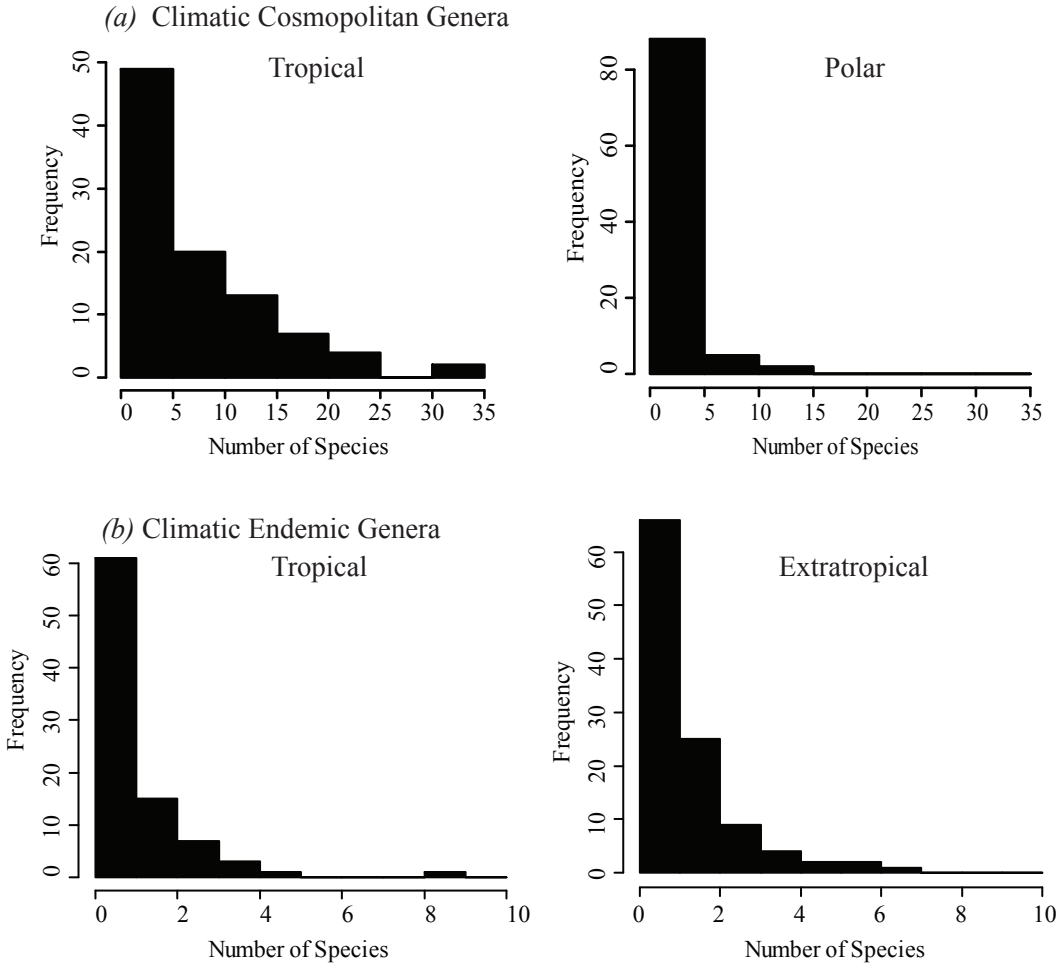
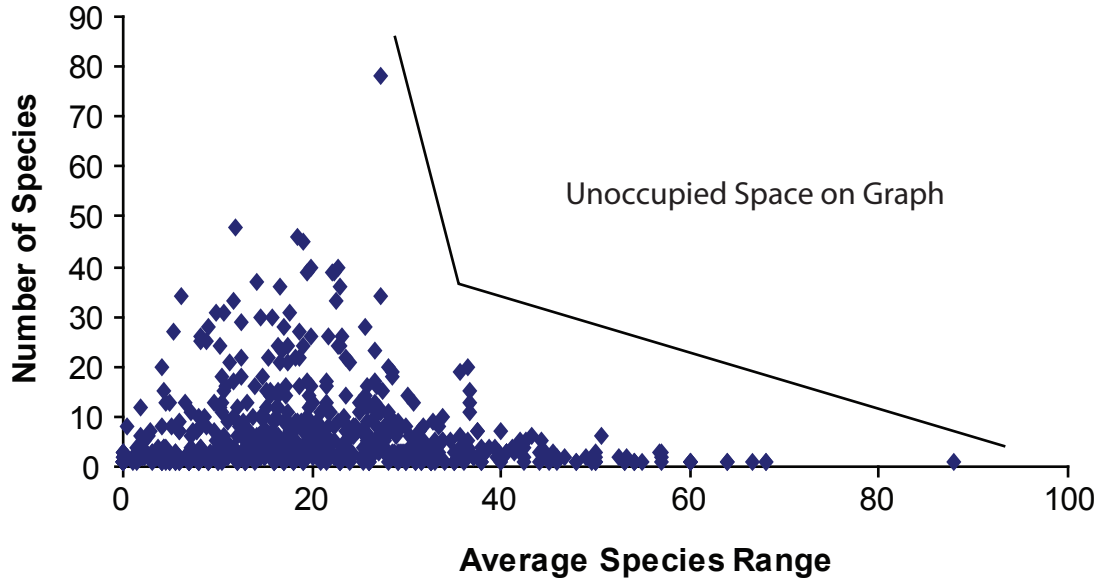
Electronic Supplementary Material

ESM Figure 1. Global map showing the localities (red dots) contained in the database of living marine bivalves. Nine Antarctic localities not shown. Size of dots chosen only to maximize visibility on map, so that regions with more finely resolved localities contain smaller dots.



ESM Figure 2. Distribution of species among genera within climate zones for (a) climatic cosmopolitans and (b) climatic endemics. Because no genera are endemic to the polar region, the distribution of tropical endemic genera is compared to genera that are exclusively extratropical. 4% of the species within climatic cosmopolitans range from tropical to polar zones. These species should serve to make the distributions more similar, whereas the KS test finds them to be significantly different. This result is therefore conservative.



ESM Figure 3. The average latitudinal range of species within a genus plotted against the number of species within that genus. Note that wide ranging species tend not to be contained in species-rich genera, though correlations between the two variables are weak.

Linear Regression	R	R^2	*p*
Age vs Richness	.383	.144	$< 2.2\ e^{-16}$
Range vs. Richness	.618	.382	$< 2.2\ e^{-16}$
[Age + Range] vs. Richness	.657	.432	$< 2.2\ e^{-16}$

ESM Table 1. Results of bivariate and multiple regressions between the variables genus age, genus latitudinal range, and species richness (N=769 genera). Data were log-transformed prior to analysis. While both age and range are significantly correlated with richness, range explains more of the variance in richness than does age. Further, regressing age and range simultaneously against richness explains only slightly more of the variation in species richness than does range independently.