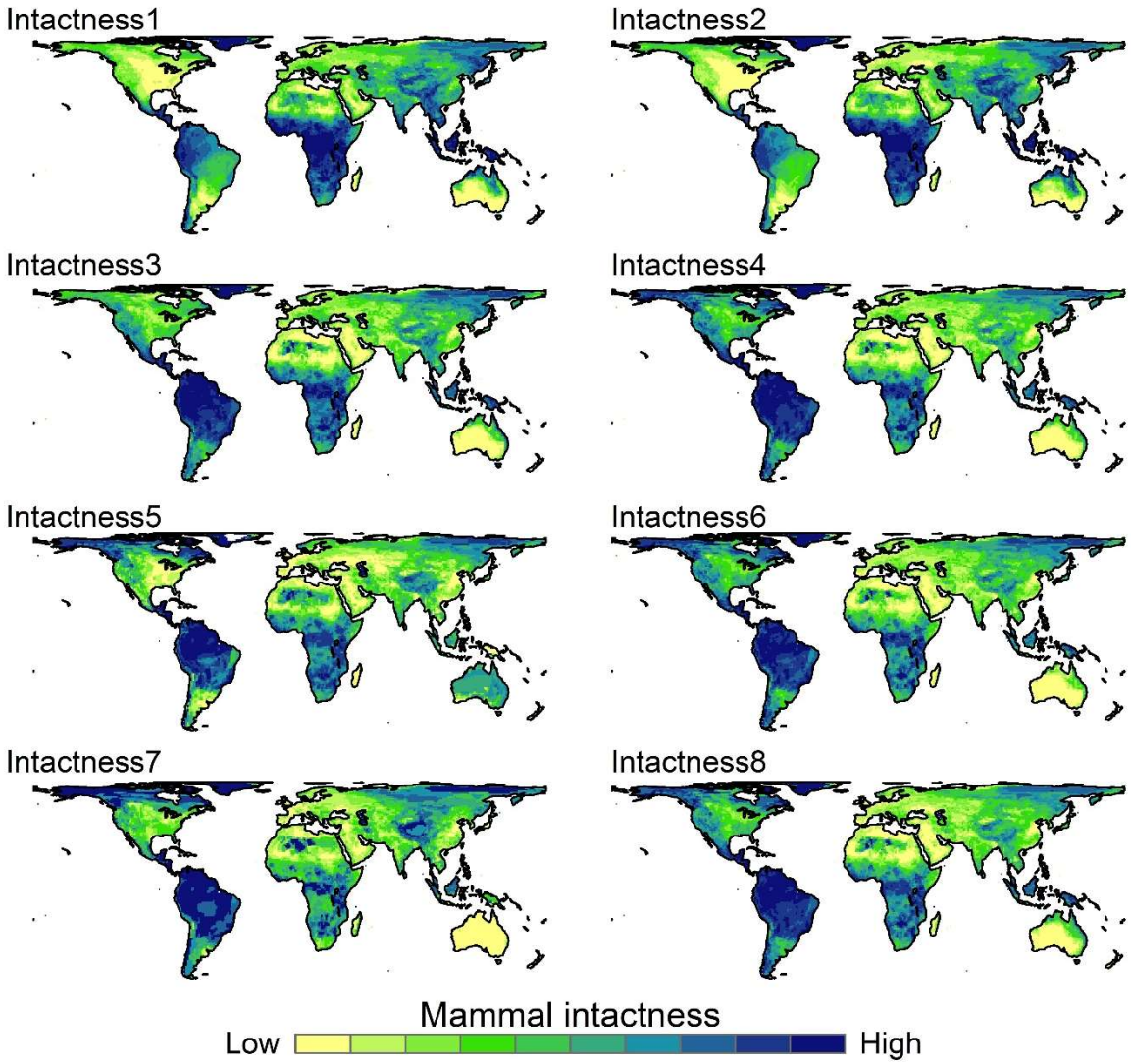


**WebFigure 1.** With any singular index, synthesizing complex patterns of ecological communities (eg species diversity indices or estimates of compositional differences) requires assumptions about which species to include or exclude, and how to weight species in a final calculation. We calculated intactness of mammal species composition in several ways to investigate alternatives to the method upon which we focus. Eight methods for calculating mammal community intactness based on different assumptions, weightings, and omissions are compared here. All rely on the proportion of current to historical locations of mammal species after removing Pleistocene extinctions, the exclusion of which enabled us to focus on species distribution changes likely resulting in recent effects of human activities (as estimated by the human footprint). (a) Intactness1 is the ratio of current to historical richness, including all terrestrial mammal species (removing non-terrestrial marine mammals); (b) Intactness2 is based on Intactness1 but includes mass weightings for each species based on the log of their average

body mass; (c) Intactness3 is based on Intactness1 but excludes global prehistoric extinctions; (d) Intactness4 is the same as Intacness3 but also excludes continental extinctions; (e) Intactness5 is based on Intactness4 but all species <10 kg in average body size were excluded to highlight intactness of larger mammal species composition; (f) Intactness6 is based on Intactness4 but excluded bat species to allow for evaluation of patterns after removing this highly diverse taxonomic order of mammals; (g) Intactness7 is based on Intactness4 but the contribution of each species is weighted to the final index by the log of its average body mass and the estimated proportion of the diet composed of vertebrates, an index that weights carnivorous species more heavily than herbivorous species; and (h) Intactness8 (the focus of the present study) is based on Intactness7 but does not weight diet in the final intactness estimate, and does weight each species contribution by the log of its average body mass and therefore larger-bodied species are more heavily weighted. Correlation coefficients among all pairwise comparisons ranged from 0.58 to 0.97. Maps are projected using WGS 1984 Cylindrical Equal Area.