Supporting information

Appendix S1   Data sources

Journals

- Biotropica

- Biodiversidad Neotropical

- Biota Colombiana

- Caldasia

- Acta Biológica Colombiana

- Revista de Biología Tropical

- Revista Colombiana de Ciencia Animal

Databases

- Universidad Nacional de Colombia library `http://www.sinab.unal.edu.co/`

- Universidad de Antioquia `http://biblioteca.udea.edu.co/`

- Universidad del Valle `http://biblioteca.univalle.edu.co/`

- Universidad Industrial de Santander `http://tangara.uis.edu.co/biblioweb/pags/cat/conbas.jsp`

Appendix S2   Statistical Model Structure

We present the R formula for the models that best explain the data (i.e. after stepwise selection using AIC). Species richness (number of species) when compositional intactness using Sørensen similarity index (See Magurran, 2004) was used as response variables. Studies (SS), blocks within studies (SSB) were considered as random effects. Different factor levels of land use (LU) were considered as explanatory variables; see Figure 2 for LU classes used in compositional intactness.

$$\text{Compositional Intactness} \leftarrow lmer(S\o rensen \sim LU + (1|SS) + (1|SSB))$$

Source	Species richness	Abundance	N sites	Taxa	MLE(m)	PV	MSV	ISV	YSV	Pas	Plan	Crop	Urb
				Andes									
Gutiérrez-Lemus, Serrano & Ramírez-Pinilla (2004)	8	179	2	Chordata	300	✓					✓		
	10	352	2	Chordata	300	✓					✓		
Armbrecht, Perfecto & Silverman (2006)	24	171	12	Arthropoda	94		✓				✓		
	29	136	12	Arthropoda	94		✓				✓		
	32	210	12	Arthropoda	94		✓				✓		
	19	133	12	Arthropoda	94		✓				✓		
Smith-Pardo & Gonzales (2007)	39	718	12	Arthropoda	424	✓			✓	✓			
	262	8,416	12	Arthropoda	424	✓			✓	✓			
	47	165	12	Arthropoda	424	✓			✓	✓			
	204	6,208	12	Arthropoda	424	✓			✓	✓			
Higuera & Wolf (2010)	17	(biomass)	6	Tracheophyta	42	✓			✓				
Arbeláez-Cortés, Rodríguez & Restrepo (2011)	75	671	3	Chordata	2,500		✓		✓				
Isaacs & Urbina-Cardona (2011)	8	251	6	Chordata			✓			✓			
Noriega *et al.* (2012)	13	779	3	Arthropoda	270	✓				✓	✓		
Poveda *et al.* (2012)	334	8,270	17	Arthropoda	23							✓	
	270	12,123	17	Arthropoda	23							✓	
Rey-Velasco & Miranda-Esquivel (2013)	21	997	7	Arthropoda	300	✓	✓			✓	✓		
Rosselli & Stiles (2012a,b)	115	(occurrence)	19	Chordata	774	✓							
Cabra-García *et al.* (2012)	290	6,765	39	Arthropoda	71	✓	✓			✓		✓	
				Orinoco									
Noriega, Realpe & Fagua (2007)	22	2,358	3	Arthropoda	270		✓	✓	✓				
Parra & Nates-Parra (2007)	21	144	26	Arthropoda	193	✓		✓		✓		✓	✓
				Caribbean									
Dominguez & Armbrecht (2011)	82	4,219	13	Arthropoda	101		✓	✓	✓				
Navarro *et al.* (2011)	26	7,496	2	Arthropoda		✓				✓			
				Amazonian									
López-Quintero *et al.* (2012)	405	18,017	11	Basidiomycota Ascomycota	51	✓	✓	✓	✓			✓	
	619	836	10	Tracheophyta	52	✓	✓	✓	✓			✓	
Otavo, Parrado-Rosselli & Noriega (2013)	92	593	3	Arthropoda	1,708		✓	✓	✓				
Total	2,582												

Table S1: Description of the studies collated in the current research. Sources in grey were used in the compositional similarity analysis. Sources of information were divided where necessary into studies (defined as having sampled a list of taxa in a number of sites using the same sampling method). Species richness values correspond to the number of unique taxon names within each study; note that 2,582 is the number of unique taxon names overall data set, not the sum of the row values (which is 3,085) as some taxa are in multiple studies. Abundance values represent the summed of individuals of all species at a site (n.b. two studies reported measures other than counts of individuals, as indicated). Maximum linear extent (MLE) corresponds to the longest distance between any two sampling points in a site. PV= Primary vegetation, MSV= Mature secondary vegetation, ISV= Intermediate secondary vegetation, YSV= young secondary vegetation, Pas= Pastures, Plan= Plantation, Crop= Cropland, Urb= Urban

Land Use	Minimum	Light	Intense	Cannot decide	Total
Primary vegetation	33	2	2	12	49
Mature secondary vegetation	31	1	1	0	33
Intermediate secondary vegetation	12	1	0	3	16
Young secondary vegetation	16	1	3	18	38
Pasture	5	3	9	10	27
Plantation forest	16	13	12	0	41
Cropland	0	34	8	8	50
Urban	0	0	0	11	11

Table S2: Number of sites per combination of land-use LU and land-use intensity LUUI class for all the collated sources

	d.f.	VIF	GVIF
LU	5	1.41	1.04
logHPD	1	1.46	1.21
logdistRd	1	1.75	1.32

Table S3: Variance inflation factors (VIF) for the variables used to model site-level compositional intactness. GVIF is the generalized variance inflation factor calculated as $VIF^{1/(2*d.f.)}$, which gives an indication of how much the standard errors are likely to be in inflated due to collinearity between explanatory variables. VIF was calculated using the corvif function of Zuur *et al.* (2009)
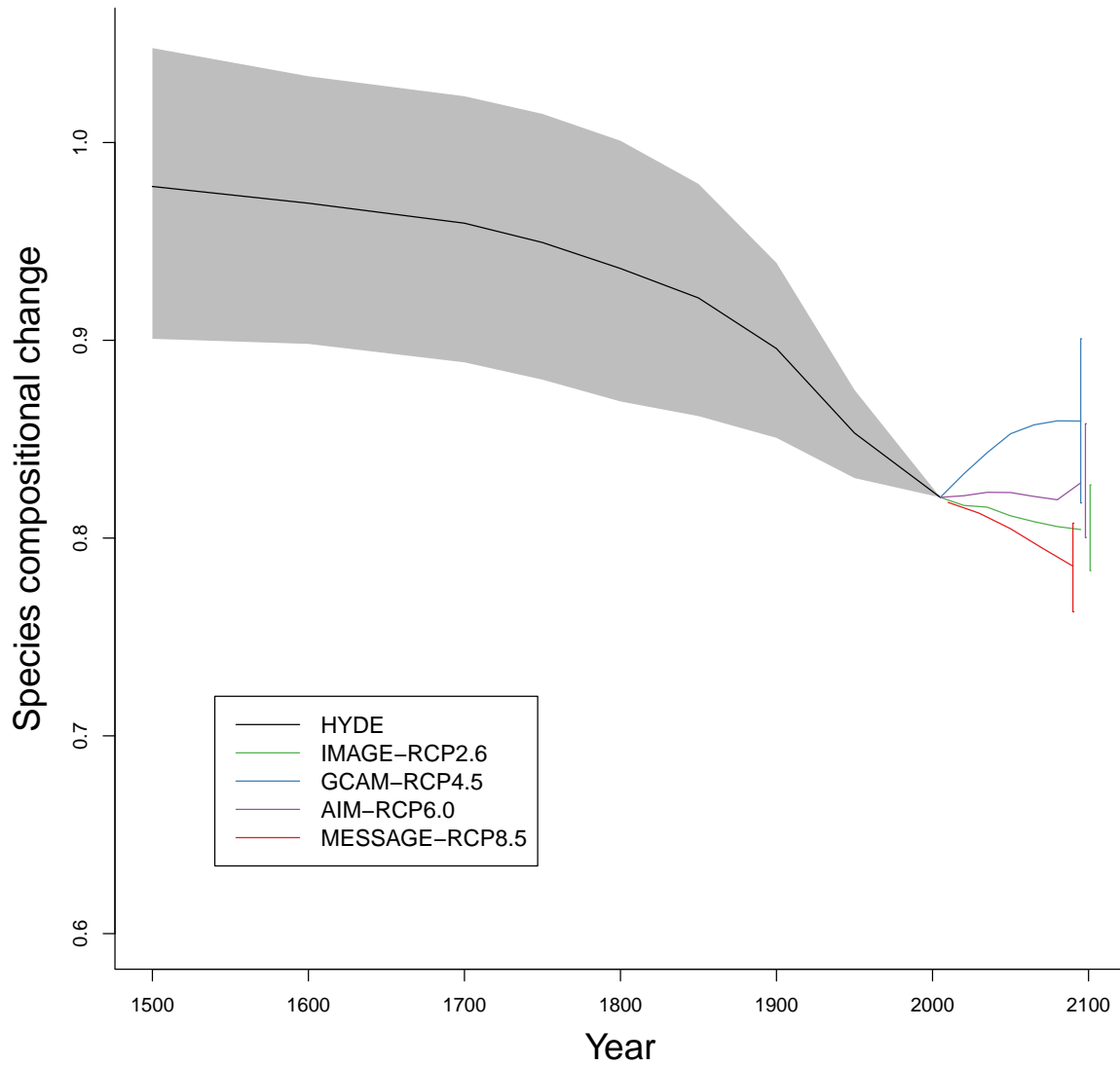
Figure S1: Projected global net change in compositional intactness from 1500 to 2095 in Colombia. Grey shading (historical) and error bars (future) show $\pm$ 95% confidence intervals. Future projections are based on the four RCP scenarios (Table 2). Uncertainty estimates are based only on the modeled coefficients. Estimates of uncertainty were not available for the land-use projections
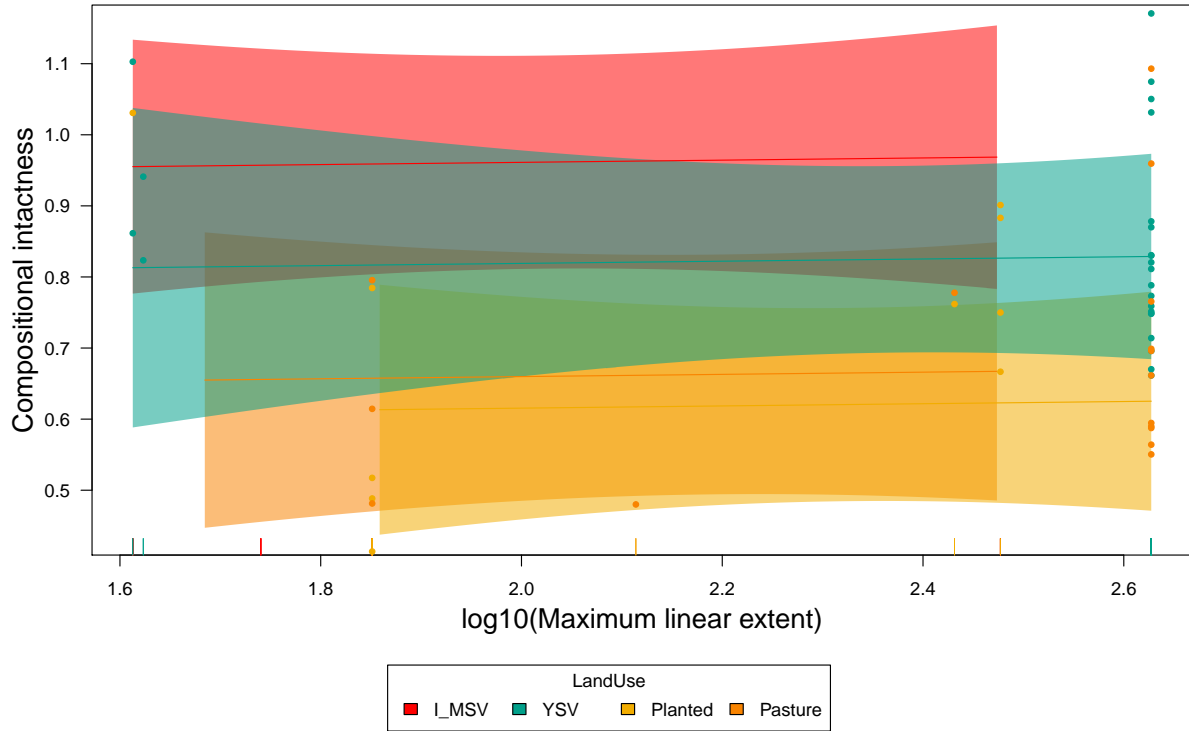
Figure S2: Relationship between maximum linear extent (MLE) and study-level difference in compositional intactness. Shading indicates ± 95% confidence intervals. Rugs along the x axes in the line graphs show the values of the explanatory variables represented in the data set used for modelling. For clarity, data points are also included.
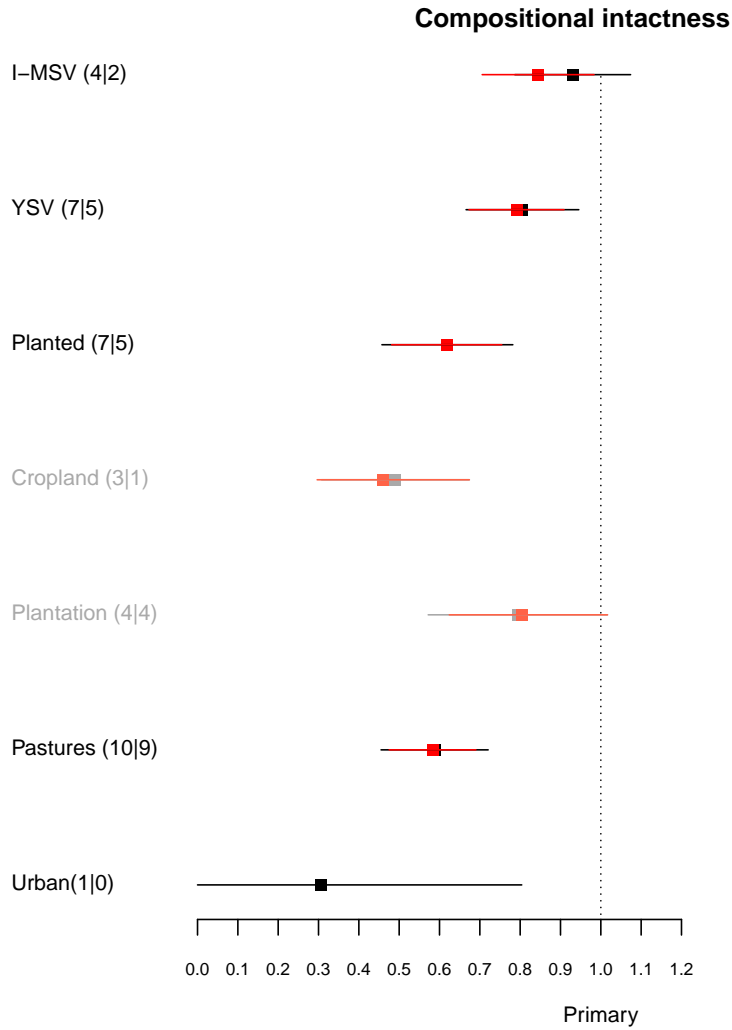
Compositional intactness

Figure S3: : Influence of studies with differences in site size on community intactness. Black and grey lines correspond to the original estimates (see Figure 2). Red lines represent the estimates when three studies (two in López-Quintero *et al.*, 2012 and one in Parra & Nates-Parra, 2007), with differences in maximum linear extent among sites, are removed. The main error bars show model coefficients estimates ± 95% CI. Values in brackets represent the number of studies used in the original vs the sensitivity analysis. YSV= Young secondary vegetation, I-MSV = Intermediate and mature secondary vegetation combined, Planted= Cropland and plantation.