

Table S1. Final model results and statistics for all main text models. Sample sizes are given as number of observations with number of studies in parentheses. Log-likelihood ratio tests (LRT) and p values in comparison to intercept-only null models are provided. Total model variance (σ^2), total unexplained heterogeneity (I^2) and R^2 are provided. Note that some models had extremely low heterogeneity (particularly Root Biomass), leading to R^2 of 100%. We thus calculated an alternative R^{2*} , which is the proportion of total variance in y explained by moderator (see Methods). Contrasts between factors (e.g., nativeness levels) are provided along with 95% confidence intervals, degrees of freedom, and p-values.

	N articles (n observations)	Random effect	Comparison to intercept-only (LRT, p)	Contrast±95%CIs	Total variance	Unexplained heterogeneity	Explained variance
Ecosystem - Bare Ground							
Africa Comparison	Intact Africa=5(3), Introduced=34(20)	~1 Citation / Observation ID	0.72, 0.398	0.53±[-0.76,1.82], df=21,21, t=0.85, p=0.404	$\sigma_{null}^2 = 0.85$, $\sigma_{model}^2 = 0.82$	$I^2_{null}=89.37$, $I^2_{model}=88.78$	$R^2=3.75$, $R^{2*}=0.09$
Herbivore nativeness	Native=42(16), Introduced=34(20)	~1 Citation / Observation ID	3.06, 0.08	0.45±[0.93,-0.03], df=33,74, t=-1.85, p=0.068	$\sigma_{null}^2 = 0.62$, $\sigma_{model}^2 = 0.52$	$I^2_{null}=86.3$, $I^2_{model}=83.92$	$R^2=8.78$, $R^{2*}=0.27$
Invasive	Native=42(16), Invasive=22(13)	~1 Citation / Observation ID	1.93, 0.165	0.34±[0.81,-0.13], df=26,62, t=-1.46, p=0.149	$\sigma_{null}^2 = 0.42$, $\sigma_{model}^2 = 0.36$	$I^2_{null}=81.91$, $I^2_{model}=79.18$	$R^2=6.89$, $R^{2*}=0.12$
Ecosystem - CO2 Respiration							
Herbivore nativeness	Native=70(7), Introduced=5(3)	~1 Citation / Observation ID, ~Time Series Experiment ID	0.87, 0.35	-0.66±[0.95,-2.28], df=8,8, t=0.95, p=0.372	$\sigma_{null}^2 < 0.01$, $\sigma_{model}^2 < 0.01$	$I^2_{null}<0.01$, $I^2_{model}<0.01$	$R^2=1.36$, $R^{2*}=0.39$
Invasive	Native=70(7), Invasive=5(3)	~1 Citation / Observation ID, ~Time Series Experiment ID	0.87, 0.35	-0.66±[0.95,-2.28], df=8,8, t=0.95, p=0.372	$\sigma_{null}^2 < 0.01$, $\sigma_{model}^2 < 0.01$	$I^2_{null}<0.01$, $I^2_{model}<0.01$	$R^2=1.36$, $R^{2*}=0.39$
Ecosystem - Dead Vegetation							
Herbivore nativeness	Native=152(33), Introduced=47(17)	~1 Citation / Species ID / Observation ID	3.47, 0.062	-0.35±[0.02,-0.71], df=48,48, t=1.89, p=0.064	$\sigma_{null}^2=0.4$, $\sigma_{model}^2=0.37$	$I^2_{null}=73.3$, $I^2_{model}=71.58$	$R^2=5.47$, $R^{2*}=2.23$
Invasive	Native=152(33), Invasive=17(8)	~1 Citation / Species ID / Observation ID	2.02, 0.155	-0.35±[0.14,-0.85], df=39,39, t=1.44, p=0.158	$\sigma_{null}^2 = 0.39$, $\sigma_{model}^2 = 0.37$	$I^2_{null}=73.49$, $I^2_{model}=72.04$	$R^2=2.95$, $R^{2*}=1.59$
Ecosystem - Growth Rates							
Africa Comparison	Intact Africa=35(5), Introduced=20(5)	~1 Citation / Observation ID	2.62, 0.105	0.62±[0.1,2.5], df=8,8, t=2.29, p=0.051	$\sigma_{null}^2 = 0.29$, $\sigma_{model}^2 = 0.15$	$I^2_{null}=59.34$, $I^2_{model}=43.23$	$R^2=37.36$, $R^{2*}=16.58$

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	N articles (n observations)	Random effect	Comparison to intercept-only (LRT, p)	Contrast±95%CIs	Total variance	Unexplained heterogeneity	Explained variance
Herbivore nativeness	Native=129(13), Introduced=20(5)	~1 Citation / Observation ID	3.11, 0.078	0.49±[1,-0.03], df=16,16, t=-2.02, p=0.061	$\sigma_{\text{null}}^2=0.31$, $\sigma_{\text{model}}^2=0.26$	$I^2_{\text{null}}=70.52$, $I^2_{\text{model}}=66.31$	$R^2=9.65$, $R^{2*}=5.84$
Ecosystem - Litter Cover							
Herbivore nativeness	Native=91(28), Introduced=38(15)	~1 Citation / Species ID / Observation ID	3.12, 0.077	-0.4±[0.05,-0.85], df=41,41, t=1.81, p=0.078	$\sigma_{\text{null}}^2=0.5$, $\sigma_{\text{model}}^2=0.45$	$I^2_{\text{null}}=79.34$, $I^2_{\text{model}}=77.37$	$R^2=7.01$, $R^2*=2.97$
Invasive	Native=91(28), Invasive=9(6)	~1 Citation / Species ID / Observation ID	1.76, 0.184	-0.43±[0.22,-1.08], df=32,32, t=1.36, p=0.184	$\sigma_{\text{null}}^2=0.5$, $\sigma_{\text{model}}^2=0.46$	$I^2_{\text{null}}=80.69$, $I^2_{\text{model}}=78.89$	$R^2=3.23$, $R^{2*}=2$
Ecosystem - Microbe Abundance							
Herbivore nativeness	Native=29(7), Introduced=24(4)	~1 Citation / Observation ID	0.19, 0.664	-0.18±[0.72,-1.08], df=9,9, t=0.44, p=0.668	$\sigma_{\text{null}}^2=0.39$, $\sigma_{\text{model}}^2=0.37$	$I^2_{\text{null}}=69.53$, $I^2_{\text{model}}=68.38$	$R^2=2.08$, $R^{2*}=1.63$
Invasive	Native=29(7), Invasive=22(3)	~1 Citation / Observation ID	0.08, 0.773	-0.13±[0.92,-1.19], df=8,8, t=0.29, p=0.777	$\sigma_{\text{null}}^2=0.44$, $\sigma_{\text{model}}^2=0.42$	$I^2_{\text{null}}=71.75$, $I^2_{\text{model}}=71.01$	$R^2=1.05$, $R^{2*}=0.93$
Ecosystem - Root Biomass							
Herbivore nativeness	Native=39(7), Introduced=12(3)	~1 Citation / Observation ID	1.52, 0.218	-0.14±[0.12,-0.41], df=8,8, t=1.23, p=0.253	$\sigma_{\text{null}}^2<0.01$, $\sigma_{\text{model}}^2<0.01$	$I^2_{\text{null}}<0.01$, $I^2_{\text{model}}<0.01$	$R^2=100$, $R^2*=1.24$
Invasive	Native=39(7), Invasive=12(3)	~1 Citation / Observation ID	1.52, 0.218	-0.14±[0.12,-0.41], df=8,8, t=1.23, p=0.253	$\sigma_{\text{null}}^2<0.01$, $\sigma_{\text{model}}^2<0.01$	$I^2_{\text{null}}<0.01$, $I^2_{\text{model}}<0.01$	$R^2=100$, $R^2*=1.24$
Ecosystem - Soil C:N							
Herbivore nativeness	Native=19(9), Introduced=11(5)	~1 Citation / Observation ID	0.13, 0.721	0.09±[0.62,-0.44], df=12,12, t=-0.36, p=0.725	$\sigma_{\text{null}}^2=0.11$, $\sigma_{\text{model}}^2=0.11$	$I^2_{\text{null}}=37.27$, $I^2_{\text{model}}=36.51$	$R^2=1.69$, $R^{2*}=0.4$
Ecosystem - Soil Compaction							
Herbivore nativeness	Native=32(9), Introduced=15(6)	~1 Citation / Observation ID	0.04, 0.838	0.07±[0.8,-0.66], df=13,13, t=-0.2, p=0.841	$\sigma_{\text{null}}^2=0.35$, $\sigma_{\text{model}}^2=0.35$	$I^2_{\text{null}}=68.59$, $I^2_{\text{model}}=68.55$	$R^2=0.31$, $R^{2*}=0.13$

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	N articles (n observations)	Random effect	Comparison to intercept-only (LRT, p)	Contrast±95%CIs	Total variance	Unexplained heterogeneity	Explained variance
Invasive	Native=32(9), Invasive=9(3)	~1 Citation / Observation ID	4.04, 0.045	-0.48±[-0.01,-0.96], df=10,10, t=2.26, p=0.047	$\sigma_{\text{null}}^2=0.15$, $\sigma_{\text{model}}^2=0.09$	$I^2_{\text{null}}=48.71$, $I^2_{\text{model}}=36.34$	$R^2=31.36$, $R^{2*}=11.65$
Ecosystem - Soil K							
Herbivore nativeness	Native=26(9), Introduced=9(4)	~1 Citation / Observation ID	0.13, 0.717	0.1±[0.71,-0.51], df=11,11, t=-0.36, p=0.724	$\sigma_{\text{null}}^2=0.39$, $\sigma_{\text{model}}^2=0.38$	$I^2_{\text{null}}=77.51$, $I^2_{\text{model}}=77.03$	$R^2=0.51$, $R^{2*}=0.36$
Ecosystem - Soil Labile N							
Herbivore nativeness	Native=94(18), Introduced=22(4)	~1 Citation / Observation ID	0.74, 0.389	0.16±[0.55,-0.22], df=20,20, t=-0.9, p=0.381	$\sigma_{\text{null}}^2=0.12$, $\sigma_{\text{model}}^2=0.11$	$I^2_{\text{null}}=62.42$, $I^2_{\text{model}}=60.47$	$R^2=3.61$, $R^{2*}=0.67$
Ecosystem - Soil Mg							
Africa Comparison	Intact Africa=12(3), Introduced=8(4)	~1 Citation / Observation ID	5.5, 0.019	-0.72±[-1.41,-0.03], df=5,5, t=-2.68, p=0.044	$\sigma_{\text{null}}^2=0.34$, $\sigma_{\text{model}}^2=0.22$	$I^2_{\text{null}}=77.35$, $I^2_{\text{model}}=68.79$	$R^2=36.98$, $R^{2*}=27.85$
Herbivore nativeness	Native=30(10), Introduced=8(4)	~1 Citation / Observation ID	3.27, 0.07	-0.56±[0.09,-1.21], df=12,12, t=1.89, p=0.084	$\sigma_{\text{null}}^2=0.37$, $\sigma_{\text{model}}^2=0.32$	$I^2_{\text{null}}=74.84$, $I^2_{\text{model}}=71.25$	$R^2=14.4$, $R^{2*}=9.32$
Ecosystem - Soil Moisture							
Herbivore nativeness	Native=47(15), Introduced=22(8)	~1 Citation / Observation ID	0.97, 0.324	0.36±[1.1,-0.39], df=21,21, t=-1, p=0.331	$\sigma_{\text{null}}^2=0.89$, $\sigma_{\text{model}}^2=0.86$	$I^2_{\text{null}}=84.5$, $I^2_{\text{model}}=83.8$	$R^2=3.14$, $R^{2*}=2.04$
Invasive	Native=47(15), Invasive=13(4)	~1 Citation / Observation ID	0.05, 0.829	0.1±[1.07,-0.87], df=17,17, t=-0.22, p=0.831	$\sigma_{\text{null}}^2=0.89$, $\sigma_{\text{model}}^2=0.89$	$I^2_{\text{null}}=84.01$, $I^2_{\text{model}}=83.85$	$R^2=0.19$, $R^{2*}=0.12$
Ecosystem - Soil Organic C							
Herbivore nativeness	Native=30(10), Introduced=30(4)	~1 Citation / Observation ID	0.01, 0.908	0.03±[0.57,-0.51], df=12,12, t=-0.11, p=0.91	$\sigma_{\text{null}}^2=0.17$, $\sigma_{\text{model}}^2=0.17$	$I^2_{\text{null}}=60.16$, $I^2_{\text{model}}=59.85$	$R^2=0.12$, $R^{2*}=0.03$
Invasive	Native=30(10), Invasive=26(3)	~1 Citation / Observation ID	0.08, 0.776	0.08±[0.72,-0.56], df=11,11, t=-0.29, p=0.781	$\sigma_{\text{null}}^2=0.17$, $\sigma_{\text{model}}^2=0.17$	$I^2_{\text{null}}=61.03$, $I^2_{\text{model}}=60.57$	$R^2=1.02$, $R^{2*}=0.26$

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Ecosystem - Soil Organic Matter							
Herbivore nativeness	Native=22(12), Introduced=16(5)	~1 Citation / Observation ID	0.04, 0.841	0.06±[0.71,-0.58], df=15,15, t=-0.2, p=0.844	$\sigma_{null}^2 = 0.32$, $\sigma_{model}^2 = 0.32$	$I^2_{null}=69.22$, $I^2_{model}=68.85$	$R^2=0.29$, $R^{2*}<0.01$
Ecosystem - Soil Respiration							
Herbivore nativeness	Native=107(8), Introduced=10(4)	~1 Citation / Species ID / Observation ID	1.64, 0.201	-0.49±[0.33,-1.31], df=10,10, t=1.33, p=0.213	$\sigma_{null}^2 = 0.6$, $\sigma_{model}^2 = 0.54$	$I^2_{null}=68.88$, $I^2_{model}=66.11$	$R^2=3.37$, $R^{2*}=0.4$
Invasive	Native=107(8), Invasive=10(4)	~1 Citation / Species ID / Observation ID	1.64, 0.201	-0.49±[0.33,-1.31], df=10,10, t=1.33, p=0.213	$\sigma_{null}^2 = 0.6$, $\sigma_{model}^2 = 0.54$	$I^2_{null}=68.88$, $I^2_{model}=66.11$	$R^2=3.37$, $R^{2*}=0.4$
Ecosystem - Soil Total C							
Africa Comparison	Intact Africa=30(6), Introduced=13(9)	~1 Citation / Species ID / Observation ID	0.02, 0.888	0.04±[-0.54,0.61], df=13,13, t=0.14, p=0.89	$\sigma_{null}^2 = 0.26$, $\sigma_{model}^2 = 0.25$	$I^2_{null}=73.97$, $I^2_{model}=73.93$	$R^2=0.12$, $R^{2*}=0.03$
Herbivore nativeness	Native=119(28), Introduced=13(9)	~1 Citation / Species ID / Observation ID	0.01, 0.919	-0.02±[0.39,-0.44], df=34,130, t=0.1, p=0.919	$\sigma_{null}^2 = 0.21$, $\sigma_{model}^2 = 0.21$	$I^2_{null}=61.69$, $I^2_{model}=61.68$	$R^2=0.02$, $R^{2*}<0.01$
Invasive	Native=119(28), Invasive=7(5)	~1 Citation / Species ID / Observation ID	<0.01, 0.958	0.01±[0.57,-0.54], df=30,124, t=-0.05, p=0.958	$\sigma_{null}^2 = 0.23$, $\sigma_{model}^2 = 0.23$	$I^2_{null}=64.01$, $I^2_{model}=64.01$	$R^2<0.01$, $R^{2*}<0.01$
Ecosystem - Soil Total Ca							
Africa Comparison	Intact Africa=12(3), Introduced=10(4)	~1 Citation / Observation ID	1.51, 0.219	-0.38±[-1.17,0.4], df=5,5, t=-1.26, p=0.265	$\sigma_{null}^2 = 0.42$, $\sigma_{model}^2 = 0.38$	$I^2_{null}=81.06$, $I^2_{model}=79.23$	$R^2=9.21$, $R^{2*}=6.52$
Herbivore nativeness	Native=30(10), Introduced=10(4)	~1 Citation / Observation ID	2.73, 0.099	-0.42±[0.12,-0.96], df=12,12, t=1.69, p=0.118	$\sigma_{null}^2 = 0.37$, $\sigma_{model}^2 = 0.33$	$I^2_{null}=75.09$, $I^2_{model}=72.68$	$R^2=9.18$, $R^{2*}=5.83$
Ecosystem - Soil Total N							
Africa Comparison	Intact Africa=47(9), Introduced=19(10)	~1 Citation / Observation ID	1.26, 0.262	0.24±[-0.2,0.68], df=17,17, t=1.13, p=0.273	$\sigma_{null}^2 = 0.4$, $\sigma_{model}^2 = 0.38$	$I^2_{null}=71.39$, $I^2_{model}=70.24$	$R^2=3$, $R^2*=1.09$

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Herbivore nativeness	Native=173(38), Introduced=19(10)	~1 Citation / Observation ID	0.2, 0.655	0.08±[0.44,-0.28], df=45,190, t=-0.45, p=0.654	$\sigma_{null}^2 = 0.26$, $\sigma_{model}^2 = 0.26$	$I^2_{null}=60.02$, $I^2_{model}=59.88$	$R^2=0.23$, $R^{2*}=0.05$
Invasive	Native=173(38), Invasive=13(7)	~1 Citation / Observation ID	0.33, 0.563	0.13±[0.56,-0.31], df=42,184, t=-0.58, p=0.561	$\sigma_{null}^2 = 0.24$, $\sigma_{model}^2 = 0.23$	$I^2_{null}=56.98$, $I^2_{model}=56.76$	$R^2=0.46$, $R^{2*}=0.09$
Ecosystem - Soil Total P							
Africa Comparison	Intact Africa=46(9), Introduced=13(6)	~1 Citation / Observation ID	0.64, 0.423	-0.19±[-0.66,0.28], df=13,13, t=-0.85, p=0.409	$\sigma_{null}^2 = 0.22$, $\sigma_{model}^2 = 0.21$	$I^2_{null}=62.01$, $I^2_{model}=60.38$	$R^2=2.74$, $R^{2*}=1.12$
Herbivore nativeness	Native=60(14), Introduced=13(6)	~1 Citation / Observation ID	1.06, 0.304	-0.26±[0.25,-0.78], df=18,18, t=1.07, p=0.301	$\sigma_{null}^2 = 0.27$, $\sigma_{model}^2 = 0.25$	$I^2_{null}=65.57$, $I^2_{model}=63.83$	$R^2=3.89$, $R^{2*}=1.7$
Ecosystem - Soil pH							
Africa Comparison	Intact Africa=13(4), Introduced=14(6)	~1 Citation / Observation ID	0.61, 0.436	0.21±[-0.41,0.84], df=8,8, t=0.78, p=0.455	$\sigma_{null}^2 = 0.33$, $\sigma_{model}^2 = 0.32$	$I^2_{null}=70.94$, $I^2_{model}=69.68$	$R^2=3.59$, $R^{2*}=0.15$
Herbivore nativeness	Native=48(14), Introduced=14(6)	~1 Citation / Observation ID	0.23, 0.635	0.25±[1.36,-0.86], df=18,18, t=-0.48, p=0.639	$\sigma_{null}^2 = 1.36$, $\sigma_{model}^2 = 1.34$	$I^2_{null}=88.7$, $I^2_{model}=88.44$	$R^2=0.83$, $R^{2*}=0.22$
Invertebrates - Detritivore Abundance							
Herbivore nativeness	Native=116(17), Introduced=16(4)	~1 Citation / Observation ID	2.71, 0.1	0.96±[2.17,-0.26], df=19,19, t=-1.65, p=0.116	$\sigma_{null}^2 = 0.96$, $\sigma_{model}^2 = 0.93$	$I^2_{null}=88.4$, $I^2_{model}=88.02$	$R^2=9.49$, $R^{2*}=10.23$
Invasive	Native=116(17), Invasive=11(3)	~1 Citation / Observation ID	3.22, 0.073	1.25±[2.72,-0.21], df=18,18, t=-1.8, p=0.089	$\sigma_{null}^2 = 1.08$, $\sigma_{model}^2 = 1.05$	$I^2_{null}=89.8$, $I^2_{model}=89.45$	$R^2=10.66$, $R^{2*}=12.77$
Invertebrates - Herbivore Abundance							
Africa Comparison	Intact Africa=6(3), Introduced=35(5)	~1 Citation / Observation ID	1.12, 0.29	0.38±[-0.45,1.21], df=6,6, t=1.11, p=0.308	$\sigma_{null}^2 = 0.21$, $\sigma_{model}^2 = 0.15$	$I^2_{null}=50.59$, $I^2_{model}=42.32$	$R^2=10.53$, $R^{2*}=6.02$

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Herbivore nativeness	Native=148(20), Introduced=35(5)	~1 Citation / Observation ID	1.03, 0.31	0.33±[0.98,-0.33], df=23,23, t=-1.02, p=0.317	$\sigma_{\text{null}}^2=0.41$, $\sigma_{\text{model}}^2=0.39$	$I^2_{\text{null}}=75.9$, $I^2_{\text{model}}=75.2$	$R^2=4.05$, $R^{2*}=2.87$
Invertebrates - Invertebrate Abundance							
Africa Comparison	Intact Africa=39(9), Introduced=121(13)	~1 Citation / Observation ID	1.2, 0.273	0.2±[-0.18,0.58], df=20,20, t=1.1, p=0.283	$\sigma_{\text{null}}^2=0.15$, $\sigma_{\text{model}}^2=0.14$	$I^2_{\text{null}}=61.14$, $I^2_{\text{model}}=59.62$	$R^2=5.13$, $R^{2*}=0.8$
Herbivore nativeness	Native=511(45), Introduced=121(13)	~1 Citation / Species ID / Observation ID	1.19, 0.276	0.22±[0.62,-0.18], df=56,56, t=-1.1, p=0.278	$\sigma_{\text{null}}^2=0.41$, $\sigma_{\text{model}}^2=0.4$	$I^2_{\text{null}}=80.76$, $I^2_{\text{model}}=80.4$	$R^2=1.79$, $R^{2*}=1.03$
Invasive	Native=511(45), Invasive=54(8)	~1 Citation / Species ID / Observation ID	0.66, 0.416	0.2±[0.7,-0.29], df=51,51, t=-0.82, p=0.418	$\sigma_{\text{null}}^2=0.43$, $\sigma_{\text{model}}^2=0.43$	$I^2_{\text{null}}=82.52$, $I^2_{\text{model}}=82.32$	$R^2=0.81$, $R^{2*}=0.47$
Invertebrates - Invertebrate Diversity							
Africa Comparison	Intact Africa=15(3), Introduced=49(7)	~1 Citation / Species ID / Observation ID	0.01, 0.941	0.01±[-0.34,0.37], df=8,8, t=0.07, p=0.943	$\sigma_{\text{null}}^2=0.06$, $\sigma_{\text{model}}^2=0.06$	$I^2_{\text{null}}=36.85$, $I^2_{\text{model}}=36.61$	$R^2=0.04$, $R^{2*}=0.01$
Herbivore nativeness	Native=111(19), Introduced=49(7)	~1 Citation / Observation ID	0.38, 0.536	0.21±[0.9,-0.48], df=24,24, t=-0.62, p=0.541	$\sigma_{\text{null}}^2=0.52$, $\sigma_{\text{model}}^2=0.52$	$I^2_{\text{null}}=84.76$, $I^2_{\text{model}}=84.59$	$R^2=1.74$, $R^{2*}=0.83$
Invasive	Native=111(19), Invasive=6(3)	~1 Citation / Observation ID	0.01, 0.904	-0.06±[0.95,-1.07], df=20,20, t=0.12, p=0.905	$\sigma_{\text{null}}^2=0.61$, $\sigma_{\text{model}}^2=0.61$	$I^2_{\text{null}}=87.58$, $I^2_{\text{model}}=87.58$	$R^2=0.03$, $R^{2*}=0.01$
Invertebrates - Predator Abundance							
Africa Comparison	Intact Africa=9(3), Introduced=18(6)	~1 Citation / Species ID / Observation ID, ~1 site_id	0.33, 0.567	0.13±[-0.29,0.56], df=7,7, t=0.73, p=0.487	$\sigma_{\text{null}}^2=0.04$, $\sigma_{\text{model}}^2=0.02$	$I^2_{\text{null}}=22.06$, $I^2_{\text{model}}=11.31$	$R^2=18.32$, $R^{2*}=0.22$
Herbivore nativeness	Native=108(18), Introduced=18(6)	~1 Citation / Observation ID	1.18, 0.278	0.2±[0.55,-0.15], df=22,22, t=-1.19, p=0.246	$\sigma_{\text{null}}^2=0.09$, $\sigma_{\text{model}}^2=0.07$	$I^2_{\text{null}}=38.36$, $I^2_{\text{model}}=34.41$	$R^2=6.36$, $R^{2*}=0.66$
Vertebrates - Bird Abundance							
Herbivore nativeness	Native=92(9), Introduced=23(4)	~1 Citation / Species ID / Observation ID	1.07, 0.301	-0.25±[0.28,-0.77], df=11,11, t=1.04, p=0.319	$\sigma_{\text{null}}^2=0.35$	$I^2_{\text{null}}=85.6$, $I^2_{\text{model}}=85.35$	$R^2=2.84$, $R^{2*}=1.78$

Table S1. Final model results and statistics for all main text models. Sample sizes are given as number of observations with number of studies in parentheses. Log-likelihood ratio tests (LRT) and p values in comparison to intercept-only null models are provided. Total model variance (σ^2), total unexplained heterogeneity (I^2) and R^2 are provided. Note that some models had extremely low heterogeneity (particularly Root Biomass), leading to R^2 of 100%. We thus calculated an alternative R^{2*} , which is the proportion of total variance in y explained by moderator (see Methods). Contrasts between factors (e.g., nativeness levels) are provided along with 95% confidence intervals, degrees of freedom, and p-values.

	N articles (n observations)	Random effect	Comparison to intercept-only (LRT, p)	Contrast±95% CIs	Total variance	Unexplained heterogeneity	Explained variance
					$\sigma^2_{model} = 0.34$		
Invasive	Native=92(9), Invasive=19(3)	~1 Citation / Species ID / Observation ID	0.6, 0.44	-0.22±[0.41,-0.85], df=10,10, t=0.78, p=0.455	$\sigma^2_{null} = 0.35$, $\sigma^2_{model} = 0.35$	$I^2_{null}=85.91$, $I^2_{model}=85.84$	$R^2=1.91$, $R^2*=1.23$
Vertebrates - Bird Diversity							
Herbivore nativeness	Native=39(7), Introduced=18(3)	~1 Citation / Observation ID	1.67, 0.196	-0.13±[0.09,-0.36], df=8,8, t=1.37, p=0.209	$\sigma^2_{null} = 0.07$, $\sigma^2_{model} = 0.06$	$I^2_{null}=69.76$, $I^2_{model}=66.78$	$R^2=6.43$, $R^{2*}=1.1$
Vertebrates - Mammal Abundance							
Africa Comparison	Intact Africa=115(5), Introduced=11(3)	~1 Citation / Observation ID	2.96, 0.085	0.73±[-0.25,1.72], df=6,6, t=1.82, p=0.119	$\sigma^2_{null} = 0.36$, $\sigma^2_{model} = 0.28$	$I^2_{null}=65.85$, $I^2_{model}=60.01$	$R^2=13.49$, $R^{2*}=3.94$
Herbivore nativeness	Native=151(14), Introduced=11(3)	~1 Citation / Observation ID, ~Time Series Experiment ID	1.49, 0.222	0.45±[1.23,-0.33], df=15,15, t=-1.23, p=0.236	$\sigma^2_{null} = 0.22$, $\sigma^2_{model} = 0.2$	$I^2_{null}=72$, $I^2_{model}=70.18$	$R^2=4.8$, $R^2*=1.28$
Vertebrates - Small Mammal Abundance							
Africa Comparison	Intact Africa=115(5), Introduced=11(3)	~1 Citation / Observation ID	2.96, 0.085	0.73±[-0.25,1.72], df=6,6, t=1.82, p=0.119	$\sigma^2_{null} = 0.36$, $\sigma^2_{model} = 0.28$	$I^2_{null}=65.85$, $I^2_{model}=60.01$	$R^2=13.49$, $R^{2*}=3.94$
Herbivore nativeness	Native=137(11), Introduced=11(3)	~1 Citation / Observation ID	3.13, 0.077	0.61±[1.34,-0.12], df=12,12, t=-1.81, p=0.095	$\sigma^2_{null} = 0.2$, $\sigma^2_{model} = 0.16$	$I^2_{null}=65.52$, $I^2_{model}=61.14$	$R^2=13.59$, $R^{2*}=2.55$
Vertebrates - Vertebrate Abundance							
Africa Comparison	Intact Africa=121(9), Introduced=37(7)	~1 Citation / Species ID / Observation ID	0.02, 0.874	0.04±[-0.5,0.58], df=14,14, t=0.16, p=0.876	$\sigma^2_{null} = 0.46$, $\sigma^2_{model} = 0.46$	$I^2_{null}=78$, $I^2_{model}=77.66$	$R^2=0.06$, $R^{2*}=0.02$
Herbivore nativeness	Native=251(27), Introduced=37(7)	~1 Citation / Species ID / Observation ID	1.53, 0.216	-0.24±[0.14,-0.61], df=32,32, t=1.29, p=0.206	$\sigma^2_{null} = 0.35$, $\sigma^2_{model} = 0.34$	$I^2_{null}=83.26$, $I^2_{model}=82.81$	$R^2=1.8$, $R^2*=0.62$
Invasive	Native=251(27), Invasive=30(5)	~1 Citation / Species ID / Observation ID	1.15, 0.283	-0.23±[0.19,-0.66], df=30,30, t=1.13, p=0.269	$\sigma^2_{null} = 0.36$, $\sigma^2_{model} = 0.36$	$I^2_{null}=83.69$, $I^2_{model}=83.32$	$R^2=1.46$, $R^{2*}=0.51$

Table S1. Final model results and statistics for all main text models. Sample sizes are given as number of observations with number of studies in parentheses. Log-likelihood ratio tests (LRT) and p values in comparison to intercept-only null models are provided. Total model variance (σ^2), total unexplained heterogeneity (I^2) and R^2 are provided. Note that some models had extremely low heterogeneity (particularly Root Biomass), leading to R^2 of 100%. We thus calculated an alternative R^{2*} , which is the proportion of total variance in y explained by moderator (see Methods). Contrasts between factors (e.g., nativeness levels) are provided along with 95% confidence intervals, degrees of freedom, and p-values.

N articles (n observations)	Random effect	Comparison to intercept- only (LRT, p)	Contrast \pm 95% CIs	Total variance	Unexplained heterogeneity	Explained variance
				$\sigma_{model}^2 = 0.35$		
Vertebrates - Vertebrate Diversity						
Africa Comparison	Intact Africa=14(3), Introduced=19(3)	$\sim 1 $ Citation / Observation ID	1.62, 0.203	-0.28 \pm [-0.9, 0.33], df=4, 4, t=-1.28, p=0.268	$\sigma_{null}^2 = 0.26$, $\sigma_{model}^2 = 0.24$	$I_{null}^2 = 83.47$, $I_{model}^2 = 81.89$
Herbivore nativeness	Native=57(11), Introduced=19(3)	$\sim 1 $ Citation / Observation ID	2.95, 0.086	-0.16 \pm [0.04, -0.36], df=12, 12, t=1.79, p=0.099	$\sigma_{null}^2 = 0.06$, $\sigma_{model}^2 = 0.05$	$I_{null}^2 = 62.62$, $I_{model}^2 = 57.76$