

Effects of tree diversity and stand structure on above-ground carbon storage in evergreen broad-leaved and deciduous forests in Southeast Vietnam

Supplementary Material

Table S1. Number of plots sampled per vegetation type and species composition with regards to importance value index (IVI). Note that IVI is computed using relative frequency, relative dominance and relative density, and it varies between 0 and 300

Forest types	Number of plots	Species composition
Evergreen broadleaf rich forest (EBR)	19	<i>Syzygium cumini</i> (L.) Skeels (103.23%), <i>Litsea cambodiana</i> Lecomte (73.43%), <i>Lagerstroemia speciosa</i> Pers. (66.28%), <i>Irvingia malayana</i> Oliv. ex A.W.Benn (62.5%), <i>Millettia ichthyochtona</i> Drake (51.75%), <i>Schrebera swietenoides</i> Roxb. (49.72%), <i>Cratoxylon formosum</i> (Jacq.) Benth. & Hook.f. ex Dyer (45.59%), <i>Machilus odoratissima</i> Benth. (44.52%), <i>Bridelia balansae</i> Tutchter (39.47%), <i>Mallotus pallidus</i> (Airy Shaw) Airy Shaw (39.36%), others (42 species).
Evergreen broadleaf medium forest (EBM)	30	<i>Syzygium cumini</i> (L.) Skeels (116.33%), <i>Dipterocarpus obtusifolius</i> Teijsm.ex Miq. (58.44%), <i>Millettia ichthyochtona</i> Drake (57.13%), <i>Dipterocarpus tuberculatus</i> Roxb. (53.01%), <i>Litsea cambodiana</i> Lecomte (49.59%), <i>Cratoxylon formosum</i> (Jacq.) Benth. & Hook.f. ex Dyer (49.29%), <i>Bridelia balansae</i> Tutchter (45.54%), <i>Neonauclea sessilifolia</i> (Roxb.) Merr. (45.15%), <i>Catunaregam tomentosa</i> (Blume ex DC.) Tirveng (42.23%), <i>Strychnos nux-blanda</i> A.W.Hill (42.13%), others (79 species)
Evergreen broadleaf poor forest (EBP)	47	<i>Syzygium cumini</i> (L.) Skeels (113.38%), <i>Vitex ajugiflora</i> Dop (60.43%), <i>Catunaregam tomentosa</i> (Blume ex DC.) Tirveng (52.91%), <i>Litsea cambodiana</i> Lecomte (52.26%), <i>Cratoxylon formosum</i> (Jacq.) Benth. & Hook.f. ex Dyer (51.3%), <i>Neonauclea sessilifolia</i> (Roxb.) Merr. (50.43%), <i>Millettia ichthyochtona</i> Drake (48.62%), <i>Spondias pinnata</i> (L. f.) Kurz (45.56%), <i>Mallotus pallidus</i> (Airy Shaw) Airy Shaw (45.53%), <i>Machilus odoratissima</i> Benth. (43.17%), others (65 species)
Evergreen broadleaf regrowth forest (EBG)	24	<i>Syzygium cumini</i> (L.) Skeels (105.19%), <i>Terminalia franchetii</i> Gagnep. (50.00%), <i>Grewia nervosa</i> (Lour.) Panigrahi (44.37%), <i>Parinari annamense</i> Hance (40.41%), <i>Vitex ajugiflora</i> Dop (37.26%), <i>Lagerstroemia speciosa</i> Pers. (35.96%), <i>Ormosia pinnata</i> (Lour.) Merr. (30.07%), <i>Cratoxylon formosum</i> (Jacq.) Benth. & Hook.f. ex Dyer (25.13%), <i>Pterospermum diversifolium</i> Blume (24.82%), <i>Dillenia SP</i> (24.48%), others (52 species)
Deciduous forest (DF)	17	<i>Dipterocarpus tuberculatus</i> Roxb. (121.41%), <i>Dipterocarpus obtusifolius</i> Teijsm.ex Miq. (118.31%), <i>Shorea roxburghii</i> G. Don (116.42%), <i>Careya aborea</i> Roxb. (59.81%), <i>Syzygium cumini</i> (L.) Skeels (57.44%), <i>Terminalia calamansanay</i> Rolfe. (56.89%), <i>Baccaurea ramiflora</i> Lour. (53.41%), <i>Xylia xylocarpa</i> (Roxb.) Taub. (35.58%), <i>Cratoxylon formosum</i> (Jacq.) Benth. & Hook.f. ex Dyer (26.61%), <i>Madhuca pasquieri</i> (Dubard) H.J.Lam (23.82%)

Table S2. Pearson's correlation matrix of taxonomic diversity and forest structure attributes raw for all pooled data. Variables shown are Shannon index (H'), species richness (S), Pielou's evenness index (J'), coefficient of variation in DBH ($CvDBH$), stand basal area (BA), Maximum diameter ($MaxDBH$), and stem density (SD)

	BA	CvDBH	MaxDBH	SD	S	J'	H
BA							
CvDBH	0.21						
MaxDBH	0.67	0.66					
SD	0.33	-0.27	-0.26				
S	0.20	-0.19	-0.12	0.61			
J'	-0.23	0.18	0.15	-0.51	0.06		
H	0.14	-0.07	0.02	0.32	0.89	0.44	

$r > 0.6$ is shown in bold.

Table S3. Model comparison results of multiple linear mixed models predicting the log response ratio of above-ground carbon storage in all pooled data. Listed are the five top models. Standardized regression coefficient (Beta) for each predictor is given. Selected optimal models are highlighted in grey color

Model	(Int)	SD	F	MaxDBH	J'	H'	df	logLik	AICc	Delta	Weight
1	3.820	0.146	+	0.254	-0.042		12	-25.675	77.9	0	0.980
2	4.049		+			0.012	10	-33.579	88.9	11.04	0.004
3	4.066		+	0.017		0.022	11	-32.421	89.0	11.09	0.004
4	4.031		+				9	-34.870	89.2	11.29	0.003
5	4.025	0.005	+				10	-34.439	90.6	12.76	0.002

("+": with forest types in model; Int: Intercept; SD: Stem density; F: forest types; MaxDBH: Maximum diameter; J': Pielou's evenness index; H': Shannon diversity; df: the degrees of freedom; logLik: the log-likelihood and K is the number of parameters in each model; AICc: the corrected Akaike Information Criterion for small sample size; Delta: the difference between the model AICc and the lowest AICc for the model set; Weight (AICc weight): the relative likelihood of each model).