DRIVERS OF SOC STOCK IN NATURALLY RESTORED SUBTROPICAL FORESTS AND MONOCULTURES OF NON-NATIVE TREES

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Supplementary Material

Table S1. Species list in naturally restored subtropical forests (NF1 and NF2) in Southern Brazil.

Família	Espécie	NF1	NF2
ANNONACEAE	*Annona emarginata* (Schltdl.) H.Rainer	X	X
AQUIFOLIACEAE	*Ilex paraguariensis* A.St.-Hil.		X
ARECACEAE	*Syagrus romanzoffiana* (Cham.) Glassman	X	
ASTERACEAE	*Dasyphyllum spinescens* (Less.) Cabrera		X
BIGNONIACEAE	*Jacaranda puberula* Cham.		X
BORAGINACEAE	*Cordia americana* (L.) Gottschling & J.S.Mill.	X	
	Cordia ecalyculata Vell.		X
CANNABACEAE	*Celtis brasiliensis* (Gardner) Planch.	X	X
CELASTRACEAE	*Monteverdia ilicifolia* (Mart. ex Reissek) Biral	X	
ELAEOCARPACEAE	*Sloanea hirsuta* (Schott) Planch. ex Benth.	X	
ERYTHROXYLACEAE	*Erythroxylum deciduum* A.St.-Hil.	X	
EUPHORBIACEAE	*Gymnanthes klotzschiana Müll.Arg.*	X	X
	Manihot grahamii Hook.	X	
	Sapium glandulosum (L.) Morong	X	
FABACEAE	*Sebastiania brasiliensis* Spreng.	X	X
	Albizia edwallii (Hoehne) Barneby & J.W.Grimes	X	
	Apuleia leiocarpa (Vogel) J.F.Macbr.	X	
	Ateleia glazioveana Baill.		X
	Calliandra foliolosa Benth.	X	X
	Dalbergia frutescens (Vell.) Britton		X
	Machaerium paraguariense Hassl.	X	
	Muellera campestris (Mart. ex Benth.) M.J. Silva & A.M.G. Azevedo	X	X
	Parapiptadenia rígida (Benth.) Brenan	X	X
LAMIACEAE	*Vitex megapotamica* (Spreng.) Moldenke	X	
LAURACEAE	*Cinnamomum verum* J.Presl	X	
	Cryptocarya aschersoniana Mez	X	X
	Nectandra lanceolata Nees	X	X
	Nectandra megapotamica (Spreng.) Mez	X	X
	Ocotea diospyrifolia (Meisn.) Mez	X	
	Ocotea puberula (Rich.) Nees	X	X
	Ocotea pulchella (Nees) Mez	X	
LOGANIACEAE	*Strychnos brasiliensis* (Spreng.) Mart.	X	
MALVACEAE	*Luehea divaricata* Mart. & Zucc.	X	X
MELIACEAE	*Trichilia elegans* A. Juss.	X	
MYRTACEAE	*Blepharocalyx salicifolius* (Kunth) O.Berg	X	
	Campomanesia guazumifolia (Cambess.) O.Berg.	X	X
	Campomanesia xanthocarpa O.Berg	X	X
	Cryptocarya moschata Nees & Mart. ex Nees	X	
	Eugenia ramboi D.Legrand	X	
	Eugenia uniflora L.	X	
	Myrcia glomerata (Cambess.) G.P.Burton & E.Lucas	X	
	Myrcianthes pungens (O.Berg) D. Legrand	X	

	Myrciaria tenella (DC.) O. Berg	X	
	Plinia peruviana (Poir.) Govaerts		X
PINACEAE	*Pinus elliottii* Engelm.	X	
PRIMULACEAE	*Myrsine coriacea* (Sw.) R.Br.	X	
	Myrsine loefgrenii (Mez) Imkhan.	X	
RHAMNACEAE	*Hovenia dulcis* Thunb.	X	X
ROSACEAE	*Eriobotrya japonica* (Thunb.) Lindl.	X	
	Prunus myrtifolia (L.) Urb.	X	X
RUBIACEAE	*Guettarda uruguensis* Cham. & Schltdl.		X
	Helietta apiculata Benth.		X
RUTACEAE	*Zanthoxylum petiolare* A. St.-Hil. & Tul.		X
	Zanthoxylum rhoifolium Lam.	X	
SALICACEAE	*Banara tomentosa* Clos		X
	Xylosma prockia (Turcz.) Turcz. (Folha grande)	X	
SAPINDACEAE	*Allophylus edulis* (A.St.-Hil., Cambess. & A. Juss.) Radlk.	X	X
	Allophylus guaraniticus (A. St.-Hil.) Radlk.		X
	Allophylus puberulus (Cambess.) Radlk.	X	X
	Cupania vernalis Cambess.		X
	Diatenopteryx sorbifolia Radlk.	X	
	Matayba elaeagnoides Radlk.	X	X
SOLANACEAE	*Cestrum intermedium* Sendtn.		X
STYRACACEAE	*Styrax leprosus* Hook. & Arn.	X	

Table S2. Chemical characteristics, clay, and pH of the soil, under the native areas (NF1 and NF2) and of *Eucalyptus grandis* (EM) and *Pinus elliottii* (PM) forests, with 0-5 cm depth. Mean ± standard deviation. N= 6. Different letters show the differences between areas.

	NF1	**NF2**	**EM**	**PM**
Clay, %	12.67 ± 0.52a	18.67 ± 2.50a	32.50 ± 10.82b	52.33 ± 8.07c
pH	6.03 ± 0.05a	5.77 ± 0.05a	5.20 ± 0.37b	5.27 ± 0.40b
P, mg dm^{-3}	6.77 ± 1.82a	4.03 ± 0.69b	3.83 ± 0.56b	3.42 ± 2.05b
K, mg dm^{-3}	242.33 ± 53.91ab	281.50 ± 36.08a	200.00 ± 15.94b	99.33 ± 49.18c
O.M., %	8.12 ± 0.22a	5.67 ± 0.43b	4.93 ± 1.11bc	4.43 ± 0.27c
Ca, mg dm^{-3}	16.22 ± 1.07a	10.20 ± 1.19b	7.05 ± 2.65bc	6.12 ± 2.66c
Mg, mg dm^{-3}	5.95 ± 0.58a	3.33 ± 0.14b	3.28 ± 1.08b	2.22 ± 1.17b
S, mg dm^{-3}	19.00 ± 1.26a	14.33 ± 1.21a	16.67 ± 6.98a	12.15 ± 6.37a
Zn, mg dm^{-3}	13.33 ± 2.58a	14.67 ± 0.82a	9.52 ± 1.74b	4.90 ± 2.33c
Cu, mg dm^{-3}	1.38 ± 0.29a	5.18 ± 0.53b	8.92 ± 2.05c	5.15 ± 2.38b
B, mg dm^{-3}	1.23 ± 0.08a	0.95 ± 0.05a	0.58 ± 0.13a	12.60 ± 29.59a
Mn, mg dm^{-3}	53.00 ± 7.64a	73.50 ± 3.02a	79.17 ± 35.85a	66.67 ± 10.21a
CTC, $cmol_c$ dm^{-3}	25.98 ± 1.37a	18.10 ± 0.95b	20.02 ± 1.03b	18.93 ± 1.81b
Bases	87.67 ± 1.63a	78.67 ± 3.27ab	54.50 ± 19.58b	46.83 ± 23.79c

P – phosphorus; K – potassium; O.M. – organic matter; Ca – calcium; Mg – magnesium; S – sulfur; Zn – zinc; Cu – copper; B – boron; Mn – manganese; CTC – cation exchange capacity.

Table S3. Selection of the best models using the Akaike information criterion (AIC). All models with $\Delta \leq 4$. AICwi = Akaike information criterion weight.

Models	logLik	AICc	Δ	AICwi
Forest age + litter C:N ratio	-83.35	183.63	0.00	0.26
Species richness	-85.21	183.76	0.12	0.24
Forest age + species richness	-84.26	185.46	1.82	0.1
Forest age + litter C:N ratio + lignin content	-82.48	185.96	2.32	0.08
Litter C:N ratio	-86.59	186.5	2.87	0.06
Lignin content + species richness	-84.79	186.52	2.89	0.06
Forest age + lignin content + species richness	-83.11	187.22	3.59	0.04
Litter production + species richness	-85.16	187.26	3.63	0.04
Litter C:N ratio + species richness	-85.18	187.3	3.67	0.04
Null model	-88.68	187.46	3.83	0.04
Forest age + litter C:N ratio + species richness	-83.24	187.49	3.85	0.04

Table S4. PERMANOVA results from the ordination of forest age, species richness, C:N ratio, Litter amount, litter production and SOC variables.

Area's pair	F model	R^2	P value
NF1 and NF2	13.57	0.58	0.003
NF1 and EM	32.52	0.76	0.002
NF1 and PM	65.61	0.87	0.006
NF2 and EM	23.92	0.70	0.003
NF2 and PM	45.34	0.82	0.004
EM and PM	41.65	0.81	0.006