

**Effects of forest structure on litter production,  
soil chemical composition and litter-soil interactions**

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**S01.** Species survey in the lower and upper stratum of the two forest fragments (FN1 and FN2).

Family/Species	FN1		FN2	
	Lower	Upper	Lower	Upper
<b>ANACARDIACEAE</b>				
<i>Schinus terebinthifolius</i> Raddi	2	-	-	-
<b>ANNONACEAE</b>				
<i>Annona neosalicifolia</i> H.Rainer	8	5	7	4
<b>AQUIFOLIACEAE</b>				
<i>Ilex brevicuspis</i> Reissek	2	-	1	-
<i>Ilex paraguariensis</i> A. St.-Hil.	-	-	-	1
<b>ARECACEAE</b>				
<i>Syagrus romanzoffiana</i> (Cham.) Glassman	-	2	1	-
<b>ASTERACEAE</b>				
<i>Dasyphyllum spinescens</i> (Less.) Cabrera	10	-	11	1
<b>BIGNONIACEAE</b>				
<i>Jacaranda puberula</i> Cham.	-	-	-	2
<b>BORAGINACEAE</b>				
<i>Cordia americana</i> (L.) Gottshling & J.E.Mill.	1	2	-	-
<i>Cordia ecalyculata</i> Vell.	1	-	-	1
<b>CANNABACEAE</b>				
<i>Celtis brasiliensis</i> (Gardner) Planch.	11	2	1	1
<b>CELASTRACEAE</b>				
<i>Maytenus dasyclada</i> Mart.	5	-	-	-
<i>Maytenus muelleri</i> Schwacke	9	1	2	-
<i>Schaefferia argentinensis</i> Spig.	14	-	1	-
<b>ELAEOCARPACEAE</b>				
<i>Sloanea monosperma</i> Vell.	2	1	2	-
<b>ERYTHROXYLACEAE</b>				
<i>Erythroxylum cuneifolium</i> (Mart.) O.E.Schultz	17	-	-	-
<i>Erythroxylum deciduum</i> A.St.-Hil.	3	3	-	-
<b>EUPHORBIACEAE</b>				
<i>Actinostemon concolor</i> (Spreng.) Müll.Arg.	5	-	-	-
<i>Manihot grahamii</i> Hook.	5	1	9	-
<i>Sapium glandulosum</i> (L.) Morong	-	5	-	-
<i>Sebastiania brasiliensis</i> Spreng.	13	12	1	1
<i>Sebastiania commersoniana</i> (Baill.) L.B. Sm. & Downs	19	13	1	3
<b>FABACEAE</b>				
<i>Albizia edwallii</i> (Hoehne) Barneby & J.Grimes	1	2	4	-
<i>Apuleia leiocarpa</i> (Vogel) J.F.Macbr.	-	2	-	-
<i>Ateleia glazioviana</i> Baill.	8	-	19	5
<i>Bauhinia forficata</i> Link	-	-	16	-
<i>Calliandra foliolosa</i> Benth.	13	5	12	3
<i>Dalbergia frutescens</i> (Vell.) Britton	13	-	12	2
<i>Inga vera</i> Willd.	1	-	-	-
<i>Lonchocarpus campestris</i> Mart. ex Benth.	7	2	7	12
<i>Machaerium paraguariense</i> Hassl.	14	2	2	-
<i>Parapiptadenia rigida</i> (Benth.) Brenan	11	2	1	2
<b>LAMIACEAE</b>				
<i>Vitex megapotamica</i> (Spreng.) Moldenke	-	1	-	-
<b>LAURACEAE</b>				
<i>Cinnamomum amoenum</i> (Nees) Kosterm.	1	2	-	-
<i>Cryptocarya aschersoniana</i> Mez	1	2	8	2
<i>Cryptocarya moschata</i> Nees & Mart. ex Nees	-	1	-	-
<i>Nectandra lanceolata</i> Nees	2	3	1	1
<i>Nectandra megapotamica</i> (Spreng.) Mez	20	7	1	17
<i>Ocotea diospyrifolia</i> (Meisn.) Mez	1	1	2	-
<i>Ocotea puberula</i> (Rich.) Nees	8	5	1	4
<i>Ocotea pulchella</i> (Nees) Mez	14	8	4	-



S01. Cont.

Family/Species	FN1		FN2	
	Lower	Upper	Lower	Upper
LOGANIACEAE				
<i>Strychnos brasiliensis</i> (Spreng.) Mart.	15	4	1	-
MALVACEAE				
<i>Luehea divaricata</i> Mart. & Zucc.	2	1	2	7
MELIACEAE				
<i>Cedrela fissilis</i> Vell.	1	-	-	-
<i>Trichilia elegans</i> A. Juss.	19	3	1	-
MYRTACEAE				
<i>Blepharocalyx salicifolius</i> (Kunth) O.Berg	8	1	13	-
<i>Calyptanthes concinna</i> DC.	12	1	-	-
<i>Campomanesia guazumifolia</i> (Cambess.) O.Berg.	11	8	7	2
<i>Campomanesia xanthocarpa</i> O.Berg	11	1	6	2
<i>Eugenia ramboi</i> D.Legrand	9	2	2	-
<i>Eugenia uniflora</i> L.	8	1	-	-
<i>Myrceugenia miersiana</i> (Gardner) D. Legrand & Kausel	1	-	-	-
<i>Myrcianthes pungens</i> (O.Berg) D. Legrand	7	2	-	-
<i>Myrciaria tenella</i> (DC.) O. Berg	17	11	-	-
<i>Plinia peruviana</i> (Poir.) Govaerts	-	-	1	1
PHYTOLACCACEAE				
<i>Seguiera aculeata</i> Jacq.	-	-	2	-
<i>Seguiera americana</i> L.	1	-	-	-
PINACEAE				
<i>Pinus elliottii</i> Engelm.	-	1	-	-
PRIMULACEAE				
<i>Myrsine coriacea</i> (Sw.) R.Br.	5	4	3	-
<i>Myrsine loefgrenii</i> (Mez) Imkhan.	6	1	1	-
<i>Myrsine umbellata</i> Mart.	-	-	2	-
PROTEACEAE				
<i>Roupala brasiliensis</i> Klotzsch	1	-	-	-
RHAMNACEAE				
<i>Hovenia dulcis</i> Thunb.	1	1	9	4
ROSACEAE				
<i>Eriobotrya japonica</i> (Thunb.) Lindl.	12	2	-	-
<i>Prunus myrtifolia</i> (L.) Urb.	17	1	2	2
RUBIACEAE				
<i>Coussarea contracta</i> (Walp.) Müll.Arg.	1	-	-	-
<i>Rudgea parquoides</i> (Cham.) Müll.Arg.	2	-	-	-
RUTACEAE				
<i>Citrus</i> sp.	2	-	-	-
<i>Helietta apiculata</i> Benth.	5	-	-	1
<i>Pilocarpus pennatifolius</i> Lem.	5	-	-	-
<i>Zanthoxylum petiolare</i> A. St.-Hil. & Tul.	4	-	1	1
<i>Zanthoxylum rhoifolium</i> Lam.	5	1	1	-
SALICACEAE				
<i>Banara tomentosa</i> Clos	5	-	4	2
<i>Casearia decandra</i> Jacq.	5	-	6	-
<i>Xylosma prockia</i> (Turcz.) Turcz.	-	3	-	-
<i>Xylosma schroederi</i> Sleumer ex Herter	-	-	1	-
SAPINDACEAE				
<i>Allophylus edulis</i> (A.St.-Hil., Cambess. & A. Juss.) Radlk.	17	5	14	7
<i>Allophylus guaraniticus</i> (A. St.-Hil.) Radlk.	20	-	37	1
<i>Allophylus puberulus</i> (Cambess.) Radlk.	18	10	18	14
<i>Cupania vernalis</i> Cambess.	20	-	8	2
<i>Diatenopteryx sorbifolia</i> Radlk.	11	1	1	-
<i>Matayba elaeagnoides</i> Radlk.	19	10	1	9



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**S01.** Cont.

Family/Species	FN1		FN2	
	Lower	Upper	Lower	Upper
<b>SAPOTACEAE</b>				
<i>Sapotaceae</i> sp.	1	-	-	-
<i>Chrysophyllum gonocarpum</i> (Mart. & Eichler) Engl.	5	-	-	-
<i>Chrysophyllum marginatum</i> (Hook. & Arn.) Radlk.	3	-	-	-
<b>SOLANACEAE</b>				
<i>Brunfelsia cuneifolia</i> J.A.Schmidt	1	-	3	-
<i>Cestrum intermedium</i> Sendtn.	5	-	8	1
<i>Solanum sanctaecatharinae</i> Dunal	1	-	-	-
<b>STYRACACEAE</b>				
<i>Styrax leprosus</i> Hook. & Arn.	13	8	1	-
NI	1	-	-	-

NI = not identified

**S02.** Seasonal variation in leaf litter macro and micronutrients concentration in forest fragments (FN1 and FN2) located in Southern Brazil.

Element/Stations	FN1	FN2	p (FN1 x FN2)
<b>N %</b>			
Summer	1.64 ± 0.35 ab	1.95 ± 0.25 a	0.0003
Autumn	1.30 ± 0.79 b	2.02 ± 0.34 a	0.04
Winter	1.87 ± 0.33 ab	1.62 ± 0.74 ab	0.36
Spring	1.64 ± 0.25 ab	1.95 ± 0.25 a	0.02
<b>P mg dm<sup>-3</sup></b>			
Summer	0.08 ± 0.009 a	0.10 ± 0.02 ab	0.009
Autumn	0.10 ± 0.02 ab	0.08 ± 0.02 a	0.03
Winter	0.12 ± 0.01 b	0.12 ± 0.01 b	0.99
Spring	0.09 ± 0.02 ab	0.12 ± 0.01 b	0.05
<b>K mg dm<sup>-3</sup></b>			
Summer	0.25 ± 0.06 a	0.42 ± 0.19 a	0.007
Autumn	0.39 ± 0.07 a	0.39 ± 0.15 a	0.96
Winter	0.44 ± 0.08 ab	0.64 ± 0.15 b	0.003
Spring	0.39 ± 0.09 a	0.62 ± 0.21 b	0.006
<b>Ca mg dm<sup>-3</sup></b>			
Summer	1.23 ± 0.16 a	1.59 ± 0.64 a	0.11
Autumn	1.85 ± 0.18 ab	1.85 ± 0.53 ab	0.99
Winter	2.37 ± 0.53 b	2.30 ± 0.53 b	0.74
Spring	1.78 ± 0.62 ab	1.83 ± 0.19 ab	0.74
<b>Mg mg dm<sup>-3</sup></b>			
Summer	0.27 ± 0.06 a	0.28 ± 0.02ab	0.72
Autumn	0.44 ± 0.12 b	0.31 ± 0.09 a	0.04
Winter	0.44 ± 0.10 b	0.39 ± 0.07 ab	0.28
Spring	0.44 ± 0.18 b	0.34 ± 0.04 ab	0.16
<b>S mg dm<sup>-3</sup></b>			
Summer	0.10 ± 0.01 a	0.12 ± 0.01 ab	0.007
Autumn	0.14 ± 0.01 b	0.11 ± 0.03 a	0.01
Winter	0.13 ± 0.01 b	0.14 ± 0.01 ab	0.11
Spring	0.14 ± 0.01 b	0.13 ± 0.01 a	0.62
<b>Cu mg dm<sup>-3</sup></b>			
Summer	8.00 ± 1.69 a	12.60 ± 1.77 b	0.0001
Autumn	9.50 ± 2.91 a	11.00 ± 3.43 bc	0.24
Winter	8.10 ± 1.19 a	11.90 ± 2.37 c	0.002
Spring	10.00 ± 2.16 a	12.80 ± 1.39 bc	0.002
<b>Zn mg dm<sup>-3</sup></b>			
Summer	23.10 ± 5.83 a	31.30 ± 5.88 abc	0.01
Autumn	38.00 ± 8.17 bc	22.40 ± 8.69 b	p<0.0001



**S02.** Cont.

Element/Stations	FN1	FN2	p (FN1 x FN2)
Winter	30.70 ± 5.43 abc	37.10 ± 5.05 bc	0.05
Spring	32.90 ± 8.27 abc	34.10 ± 8.08 c	0.76
Fe mg dm <sup>-3</sup>			
Summer	149.80 ± 19.44 a	275.30 ± 182.18 ab	0.05
Autumn	147.30 ± 70.06 a	210.50 ± 82.18 ab	0.06
Winter	232.80 ± 58.26 ab	473.80 ± 608.54 b	0.24
Spring	169.90 ± 73.28 ab	366.40 ± 144.00 ab	0.01
Mn mg dm <sup>-3</sup>			
Summer	165.70 ± 109.84 a	185.50 ± 91.54 a	0.71
Autumn	292.80 ± 231.41 a	252.30 ± 84.45 a	0.64
Winter	226.00 ± 147.71 a	247.30 ± 54.18 a	0.69
Spring	241.40 ± 180.88 a	186.90 ± 48.85 a	0.31
B mg dm <sup>-3</sup>			
Summer	46.70 ± 3.26 a	47.40 ± 4.64 a	0.28
Autumn	63.30 ± 8.56 b	71.30 ± 13.72 b	0.11
Winter	48.20 ± 7.58 a	48.70 ± 8.53 a	0.88
Spring	44.40 ± 4.83 a	44.70 ± 5.94 a	0.91

The p-values correspond to t test between the forest fragments and different letters indicate differences between the areas and seasons for the same nutrient (n =10).

