Supplementary Materials

Table S1. Distribution of plots per habitat type.

Valley	Forests	Grasslands	Total
Rhêmes	16	9	25
Savaranche	21	22	43
Orco	22	18	40
Soana	11	3	14
Total	70	52	122

Table S2. Distribution of eDNA samples per layer.

	Valle Orco	Valle di Rhemes	Valsavaranche	Total
0-10 cm	13	25	42	80
10-20 cm	13	23	40	76
Total	26	48	82	156

Table S3. Effects of environmental features of forests in the CCA analysis (** = p <0,05).

	Conditional Effects			
Cod.	Var.N	LambdaA	P	F
MixD	7	0.31	0.002 **	9.52
Cveg	22	0.11	0.002 **	3.60
AB	19	0.06	0.030 **	2.05
Altitude	11	0.05	0.032 **	1.92
SHN	21	0.06	0.016 **	2.15
D.mull	23	0.06	0.020 **	1.95
C2	16	0.04	0.048 **	1.70
C1	15	0.04	0.124	1.52
Esp	12	0.04	0.132	1.47
SD	20	0.04	0.120	1.43
M.mull	24	0.04	0.080	1.63
OH	17	0.03	0.196	1.34
Reg	3	0.03	0.284	1.18
Slope	13	0.02	0.340	1.10
OLOF	18	0.03	0.570	0.88
H.moder	25	0.02	0.498	0.95
MixC	6	0.02	0.482	0.93
Cambi	1	0.03	0.462	0.98
Pdzl	2	0.02	0.452	1.02
Larix	5	0.02	0.648	0.81
Umbrisols	4	0.02	0.730	0.72
pH	14	0.02	0.674	0.79

Cod.				
D.moder	26	0.02	0.776	0.62

Table S4. Effects of environmental features of grasslands in the CCA analysis (** = p<0,05; *= p<0,1.).

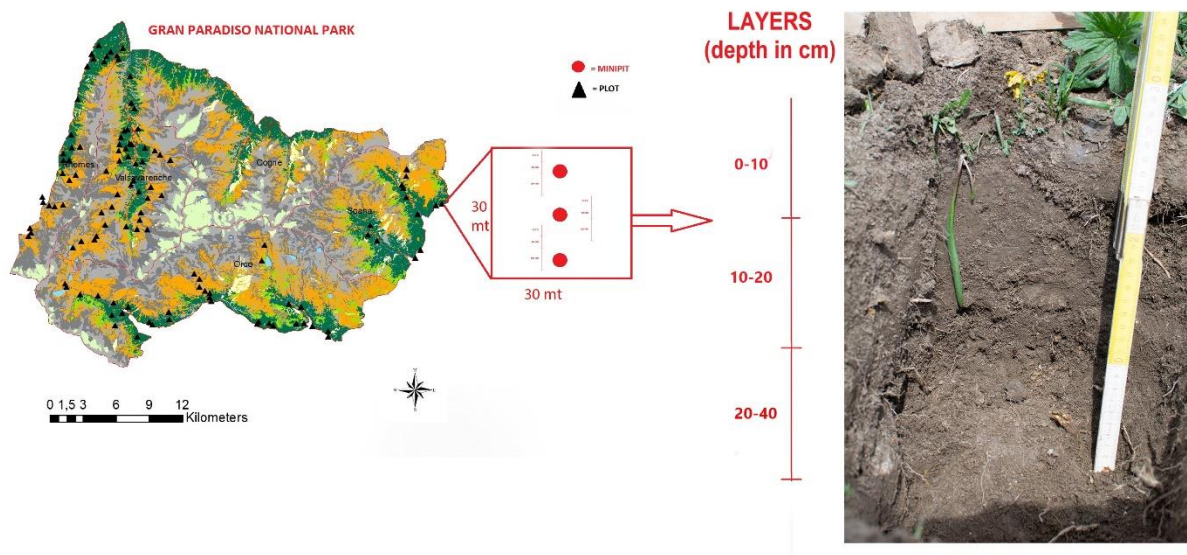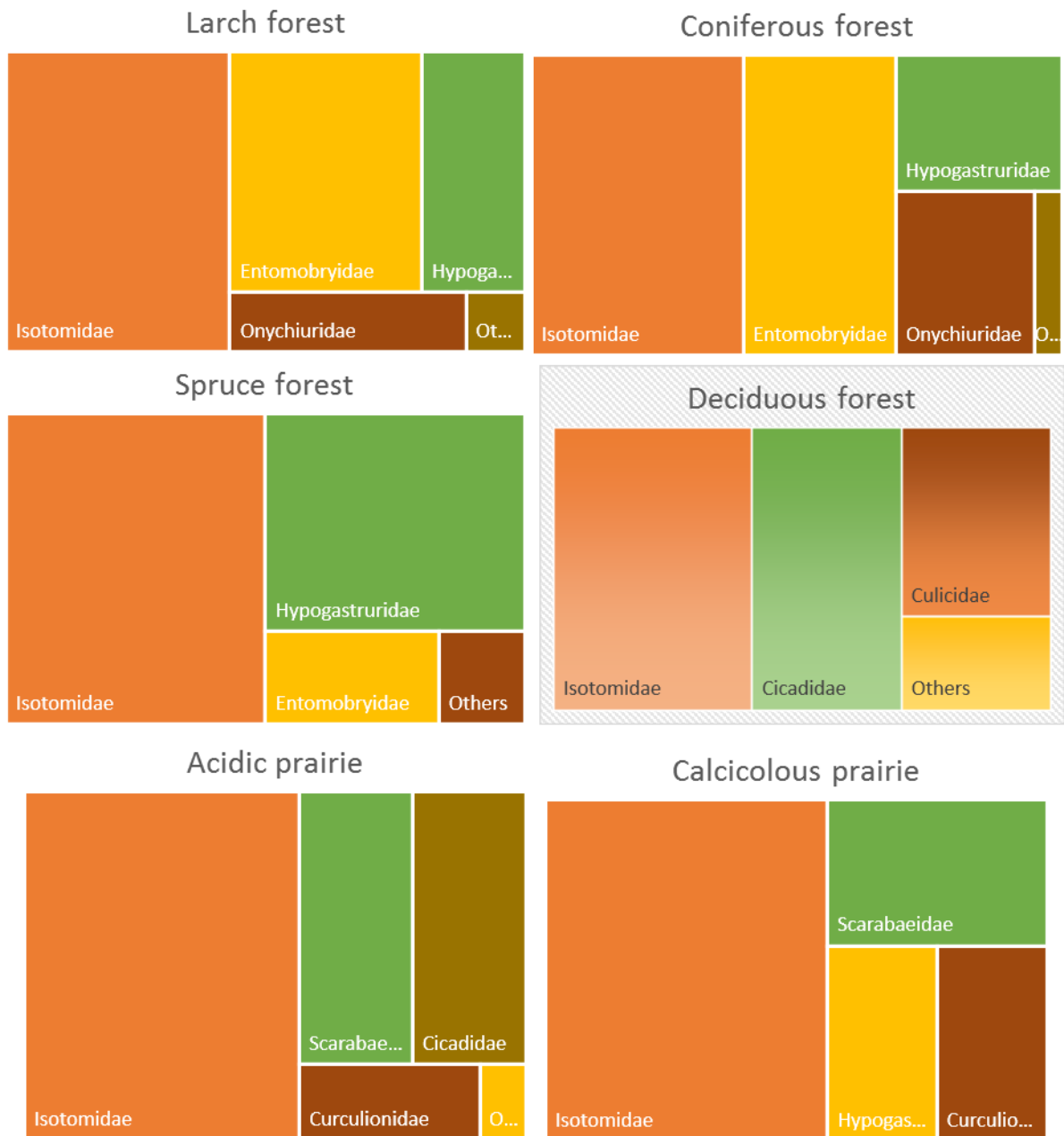| Conditional Effects				
Cod.	Var.N	Lambda A	P	F
Altitude	7	0.19	0.002 **	3.52
pH	10	0.13	0.004 **	2.57
Cambi	1	0.12	0.004 **	2.57
C2	14	0.11	0.018 **	2.25
Slope	9	0.10	0.020 **	2.11
Umbrisols	4	0.08	0.084 *	1.90
P_a	5	0.07	0.130	1.56
Esp	8	0.07	0.120	1.53
Pdzl	2	0.06	0.094	1.59
C1	13	0.07	0.136	1.50
Reg	3	0.05	0.194	1.32

Figure S1. Soil sampling scheme.

Figure S2. Community composition of Arthropods (primer ARTH02) for each habitat investigated with eDNA metabarcoding.
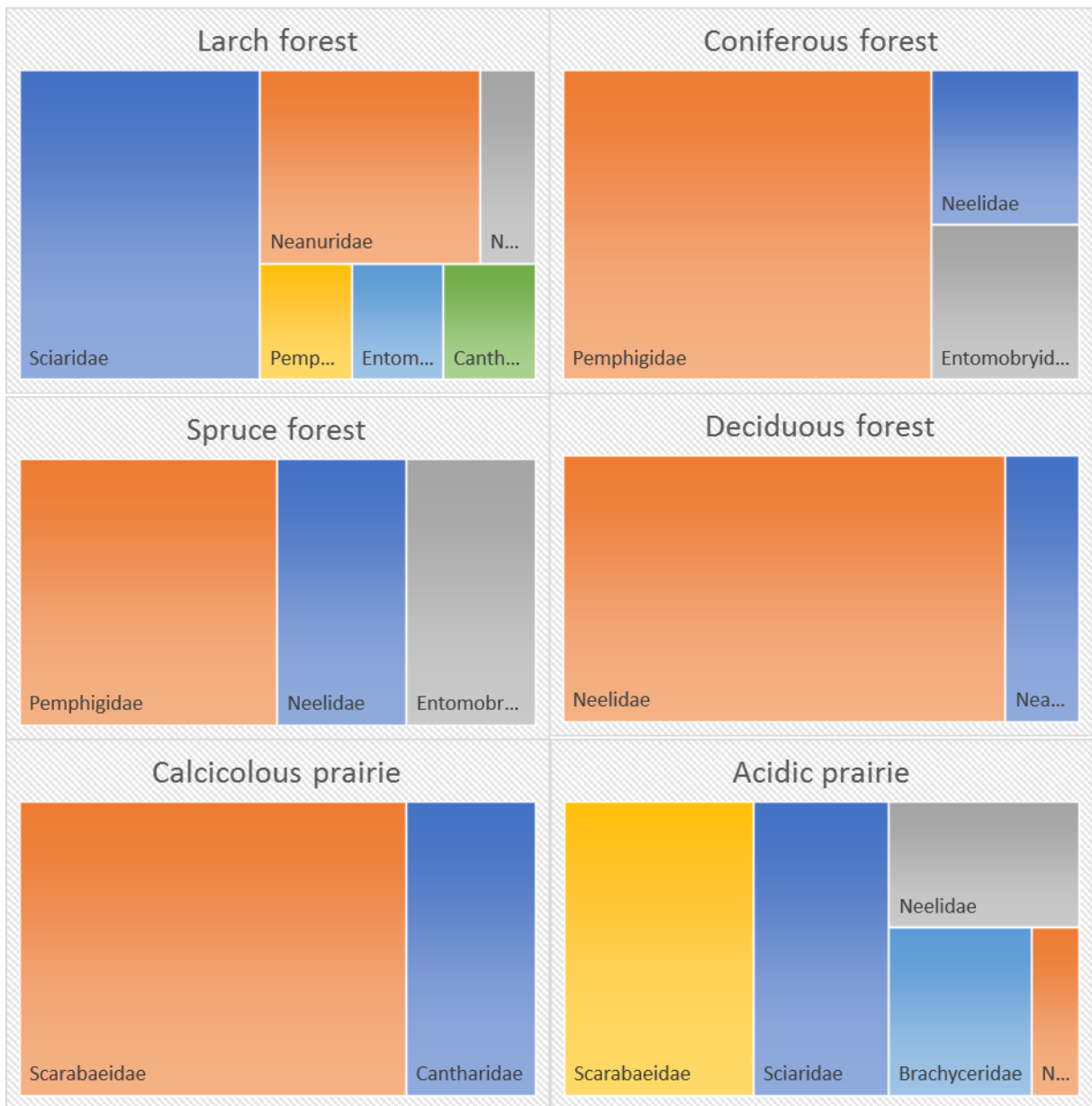
Figure S3. Community composition of Arthropods (primer INSE02) for each habitat investigated with eDNA metabarcoding,.
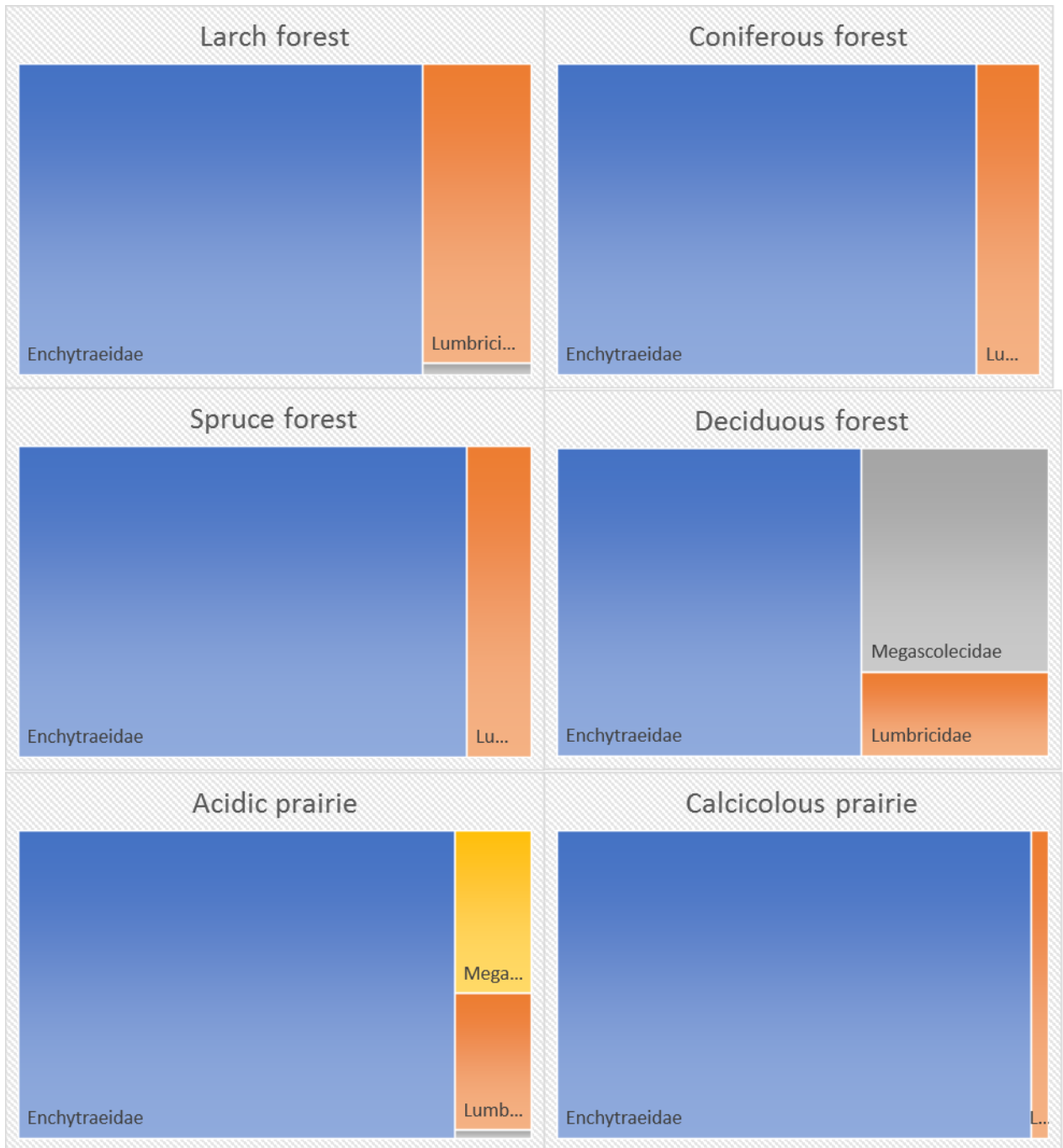
Figure S4. Community composition of Anellida for each habitat investigated with eDNA metabarcoding.