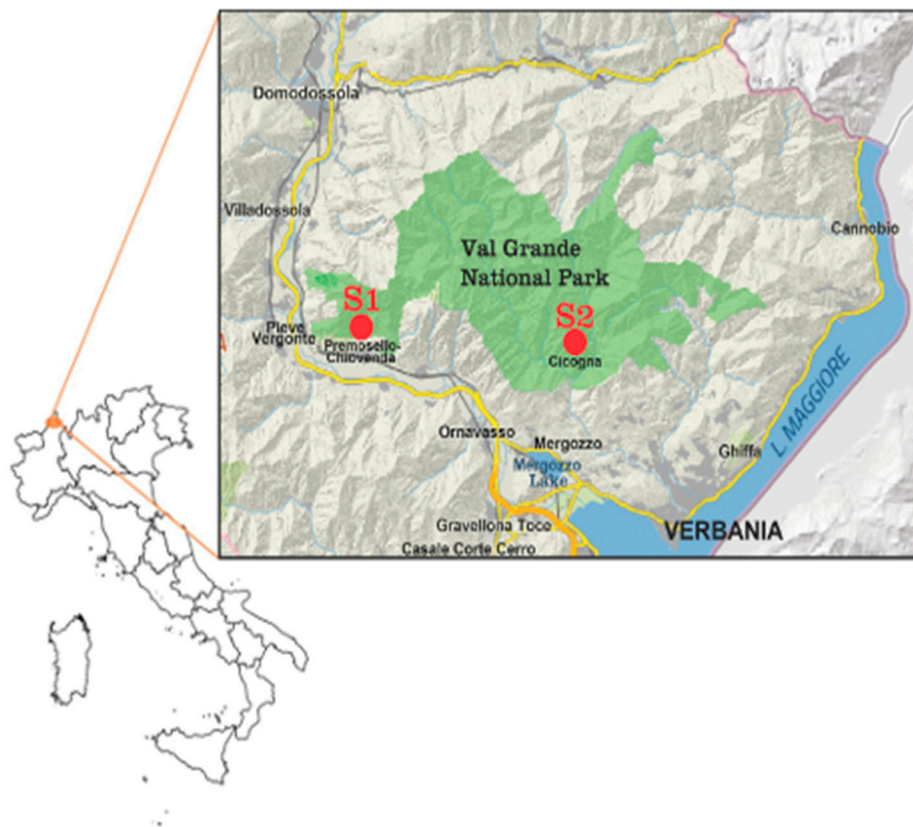
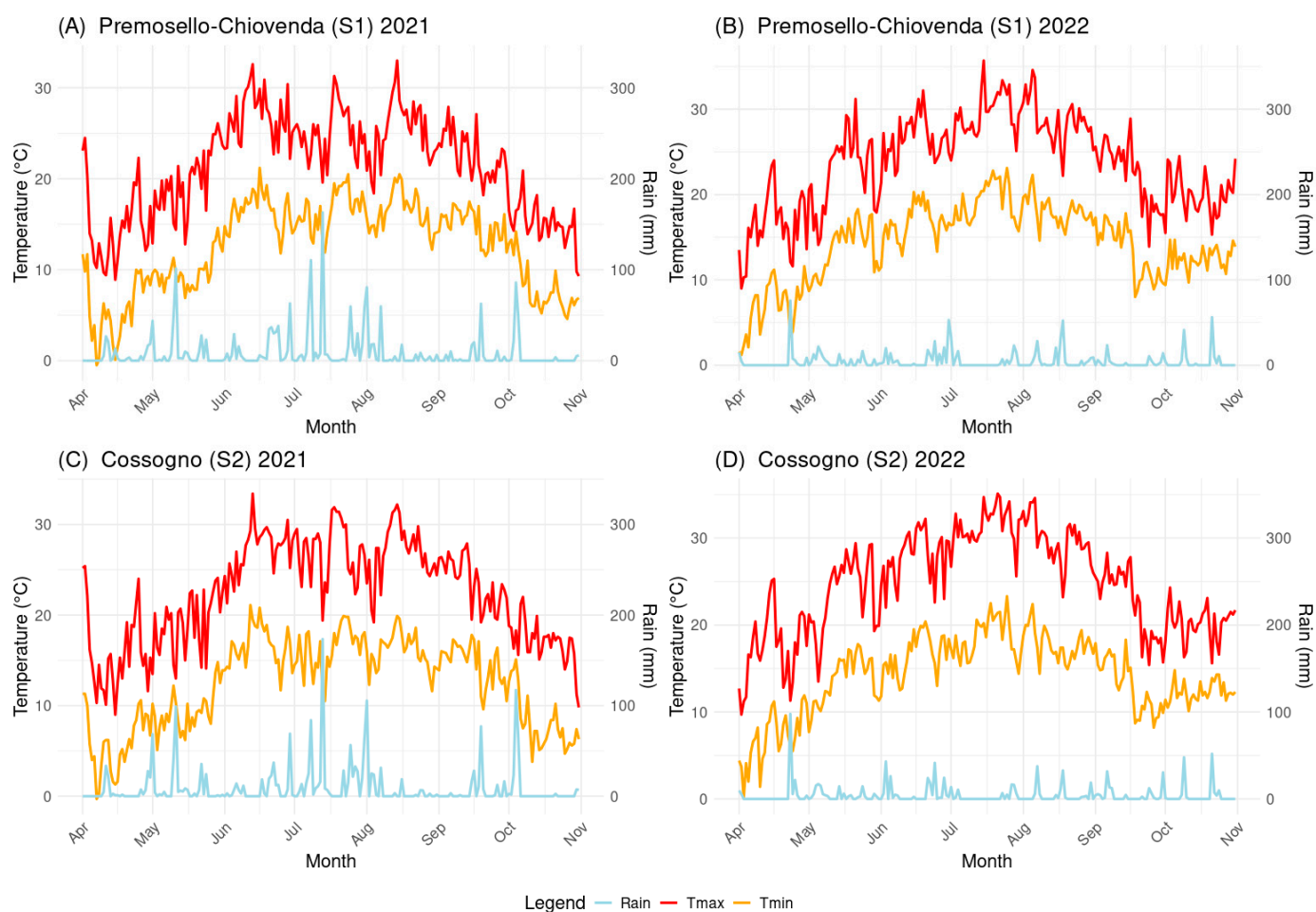


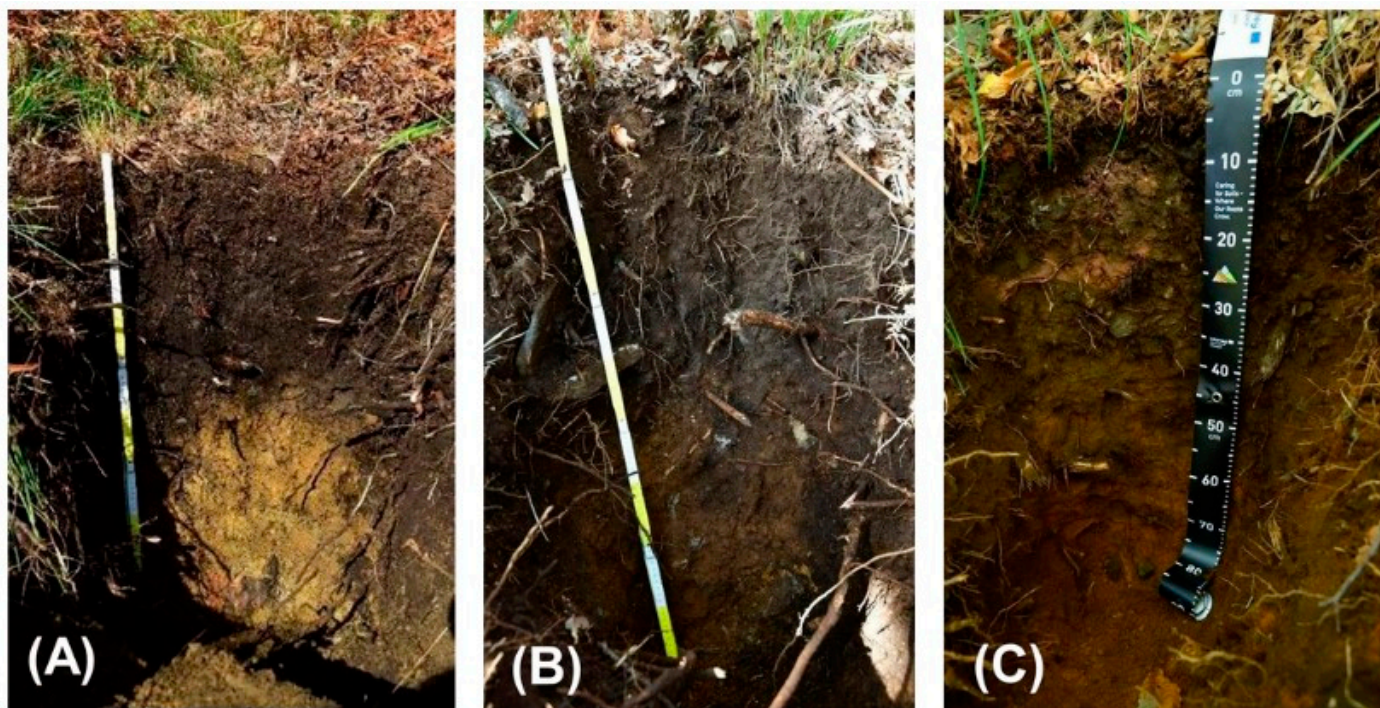
Diversity in the Herpetobiont Ground Beetle Assemblage (Coleoptera, Carabidae) in the Val Grande National Park, Italy – Supplementary Materials



Supplementary Figure S1. Location of the investigated areas, positioned in the Val Grande National Park (Piedmont, NW Italy). S1 corresponds to the studied area in the municipality of Premosello-Chiovenda, while S2 coincides with the sampled zone in the municipality of Cossogno (map created with QGIS 3.16).



Supplementary Figure S2. Meteorological data recorded in the municipality of Premosello-Chiovenda (S1) in 2021 (A) and in 2022 (B) and in the municipality of Cossogno (S2) in 2021 (C) and in 2022 (D). Data of maximum and minimum temperature (°C, in red and orange), and precipitation (mm/day, in light blue) of the sampling period (Source: 3Bmeteo database).



Supplementary Figure S3. Photos of soil profiles for three locations within the study areas. Profile of Coa1 (A) in the municipality of Premosello-Chiovenda (S1), and profiles of P1 (B) and P2 (C) in Cossogno (S2).

Supplementary Table S1. Location and main environmental features of the profiles observed in the municipality of Premosello-Chiovenda (S1) and in the municipality of Cossogno (S2).

Profile Name and Vegetation Habitat	Location	Elevation m a.s.l.	Vegetation/Land Cover	Lithology	Slope Steepness /Landform	WRB Classification [24]	Humus Type [59]
Co0 S1	Premosello-Chiovenda	496	Chestnut forest, unmanaged	LGM glacial till on gneiss	20%, Pleistocene kame terrace	Cambic Umbrisol (Loamic, Densic) Skeletic	Dysmoder
Coa1 S1	Premosello-Chiovenda	507	Chestnut forest, unmanaged	LGM glacial till	20%, linear slope	Cambic Umbrisol (Loamic, Densic, Fragic)	Dysmoder
Cob S1	Premosello-Chiovenda	510	Chestnut forest, coppice	Peridotite/gneiss	50%, stabilised talus slope	Cambic Umbrisol (Loamic, Hyperhumic, Pachic)	Dysmoder
P1 S2-Grassland	Cossogno	723	Grazed grassland	Granulite/gneiss	5%, Pleistocene kame terrace	Cambic Umbrisol (Loamic, Hyperhumic, Pachic)	Dysmoder
P2 S2-Chestnut	Cossogno	750	Chestnut forest, unmanaged	Granulite/gneiss	20%, Pleistocene kame terrace	Cambic Umbrisol (Loamic, Hyperhumic)	Dysmoder
P3 S2-Wood	Cossogno	710	Chestnut with mixed broadleaf species	Granulite/gneiss	20%, Pleistocene kame terrace	Cambic Umbrisol (Loamic, Hyperhumic)	Dysmoder

Supplementary Table S2. Simplified table of the main morphological properties of the observed soil profiles. Codes are from IUSS Working Group [24].

Profile	Horizon	Upper-Lower Boundary (cm)	Colour	Structure (Shape-Dimension)	Consistence	Roots (Abundance Class, Dimension)	Stones (% Volume, Dimension and Shape, Weathering Stage)
Coa0	Oi	0–0.5					0
Coa0	Oe	0.5–1		SS	LO		0
Coa0	Oa	1–4	10YR 2/2	SS	LO	C, FI	0
Coa0	AE	4–20	10YR 3/2	SS	FR	F, FI-CO	0
Coa0	A/Bh	20–48	7.5YR 2.5/2	BS-CO, GR-FI	FR	C, FI-CO	30, CB, S
Coa0	Bw/Bsm	48–75	10YR 3/4	BS-ME	VI	F, CO	25, SB, F
Coa0	Cd	75–100	2.5Y 5/4, 10YR 3/3	PL-CO	VI	N	40, SB, F
Coa1	Oi	0–2					
Coa1	Oe	2–5		SS	LO		
Coa1	Oa	5–9	7.5YR 3/2	SS	LO	C, FI	0
Coa1	AE	9–12	10YR 3/2	SS	VF	F, FI-CO	60 MB, M
Coa1	Ah1	12–20	10YR 2/2	GR-FI	VF	C, FI-CO	40, MB, M
Coa1	ABh	20–45	7.5YR 2/1	BS-CO, GR-FI	FR	C, FI-CO	30, SB, M
Coa1	BA	45–62	10YR 3/4	BS-FI	FR	C, FI-CO	30, SB, S
Coa1	Bw	62–90	7.5YR 4.5/6	BS-ME	FR	C, CO	60, SB, FA
Coa1	Bx	90–125	2.5Y 6/3, 10YR 5/4, 7.5YR 5/4	PL-CO	EI	N	50, SB, F
Coa1	Cd	125–150	2.5Y 4/3	PL-CO	EI	N	50, SB, F
Cob	Oi	0–3					
Cob	Oa	3–6	7.5YR 3/2	matted		C, FI	0
Cob	Ah1	6–15	7.5YR 2/2	GR-FI	LO	M, FI	0
Cob	Ah2	15–40	7.5YR 2.5/2	GR-FI	FR	C, FI-CO	5, MB, M
Cob	ABh	40–65	7.5YR 3/2	BS-FI	FR	C, FI-CO	20, CB, M
Cob	Bw	65–100	7.5YR 3/4	BS-ME	FR	VF, CO	60, SB, M
P1	Oi	0–2					
P1	Oe	2–5	7.5YR 3/2	SS	LO	F	0
P1	Oa/Ah1	5–10	10YR 2.5/2	GR-VF	FR	C, FI	0
P1	Ah2	10–25	10YR 2.5/2	GR-VF	FR	C, FI	0
P1	AE	25–33	10YR 3/1	MW	FR	F, FI-CO	5, CA, S
P1	Bh	33–75	7.5YR 2/1	BS-CO	FR	F, FI-CO	5, CA, S
P1	Bw	75–110	7YR 4.5/4	BS-ME	FR	N	50, SA, S
P2	Oi	0–1					
P2	Oe	1–2	7.5YR 3/2		LO		0
P2	Oa	2–10	10YR 2.5/2	matted		C, FI	0

P2	Ah2	10–16	7.5YR 2.4/1	GR-VF		M, FI-CO	0
P2	Bh	16–55	7.5YR 2/1	BS-VC	FR	F, FI	30, SA, S
P2	Bw	55–68	10YR 3/4	BS-FI	FR	V, FI	60, SA, M
			10YR 5/4;				
P2	Cg	68–88	10YR 5/2; 7.5YR 5/4	SR	LO	N	90.SA, F
P3	Oi	0–1					
P3	Oa	1–6	10YR 2.5/2	SS	LO	C, FI	0
P3	Ah	6–21	10YR 2/2	GR-VF	LO	M, FI	15, MA, S
P3	Bh	21–52	7.5YR 2/2	BS-VC	FR	C, FI-CO	40, MA, S
P3	Bw	53–85	10YR 3/4	BS-ME	FR	V	40, SA, M
			10YR 3/6,				
P3	BCg	85–100	10YR 5/2	SR	LO	N	70, SA, F

Supplementary Table S3. Main chemical properties of the analysed soil profiles in the municipality of Premosello-Chiovenda (S1).

		pH	BD g/cm ³	Ntot %	Corg %	C/N	Caex cmol/kg	Alox g/kg	Pols mg/kg	A %	TXT
CO0	OH	5.2	0.11	1.25	21.93						
	AE	4.5	0.57	0.69	9.88	14.37	0.26	5.53	8.92	1.67	SL
	A/Bh	4.7	0.76	0.37	5.94	15.99		8.93			
	Bw	5.1	1.15	0.15	2.14	14.36		8.14		2.20	SL
	Bwm	5.2		0.13	1.90	14.53		6.03			
	C	5.5			0.81						
COa1	OL-OF	4.4	0.08								
	OH	5.2	0.11	1.36	24.75						
	AE	4		0.25	4.89	19.48	0.19	4.24	3.69	2.75	SL
	A1	5.1		0.31	5.10	16.21	1.23	6.44	2.83		
	A2	5.2		0.25	3.78	15.43		8.09		1.26	SL
	BA	5.2	0.77	0.16	2.57	15.73		8.87			
	Bw	5.2		0.11	1.29	11.92		6.54		2.66	SL
	Bx	5.26		0.05	0.71	14.34		3.65		1.18	SL
	Bmd	5.6			0.27			2.65			
	Cd	6.03		0.01	0.14	12.07		0.94			
COb	OL	5.2	0.02	2.25	40.52						
	OH	4.9	0.16	1.79	26.72						
	A1	4.6	0.52	0.97	12.99	13.34	2.64		8.63	1.71	SL
	A2	5	0.83	0.46	6.26	13.61	0.36		2.30	1.71	SL
	AB	5.3	0.98	0.22	2.96	13.43					
	Bw	5.5		0.10	1.06	10.64				0.61	SL

Supplementary Table S4. Main chemical properties of the analysed soil profiles in the municipality of Cossogno (S2).

		pH	BD g/cm ³	Ntot %	Corg %	C/N	CEC cmol/kg	Caex cmol/kg	Alox g/kg	Pols mg/kg	A %	TXT
P1	A1/OH	4.1	0.42	0.98	11.28	11.5	35.91	0.18	7.9			
	A2	4.3	0.51	0.57	7.34	12.9	31.92	0.03	10.2	5.62	0.30	SL
	Bh	4.7	0.56	0.47	7.21	15.3	27.37	0.02	12.2		0.10	SL
	Bw	5.0	1.10	0.16	2.32	14.5	13.23	0.04	14.8		4.40	SL
P2	A1	4.0	0.47	0.86	11.05	12.8	36.27	0.34				
	A2	4.1	0.53	0.85	10.72	12.6	38.68	0.17	7.9	13.81	3.80	SL
	Bh	4.6	0.66	0.48	6.6	13.8	28.44	0.03	14.3		4.20	SL
	Bw	5.3	1.10	0.12	1.63	13.6	12.6	0.03	15.7		5.10	SL
P3	A	4.1	0.51	0.74	11.3	15.3	36.77	0.35	8.0	14.31	6.40	SL
	Bh	4.4	0.68	0.67	9.63	14.4	33.61	0.09	11.9		3.80	SL
	Bw	5.0	1.10	0.21	2.99	14.2	17.19	0.26	17.0		3.80	SL