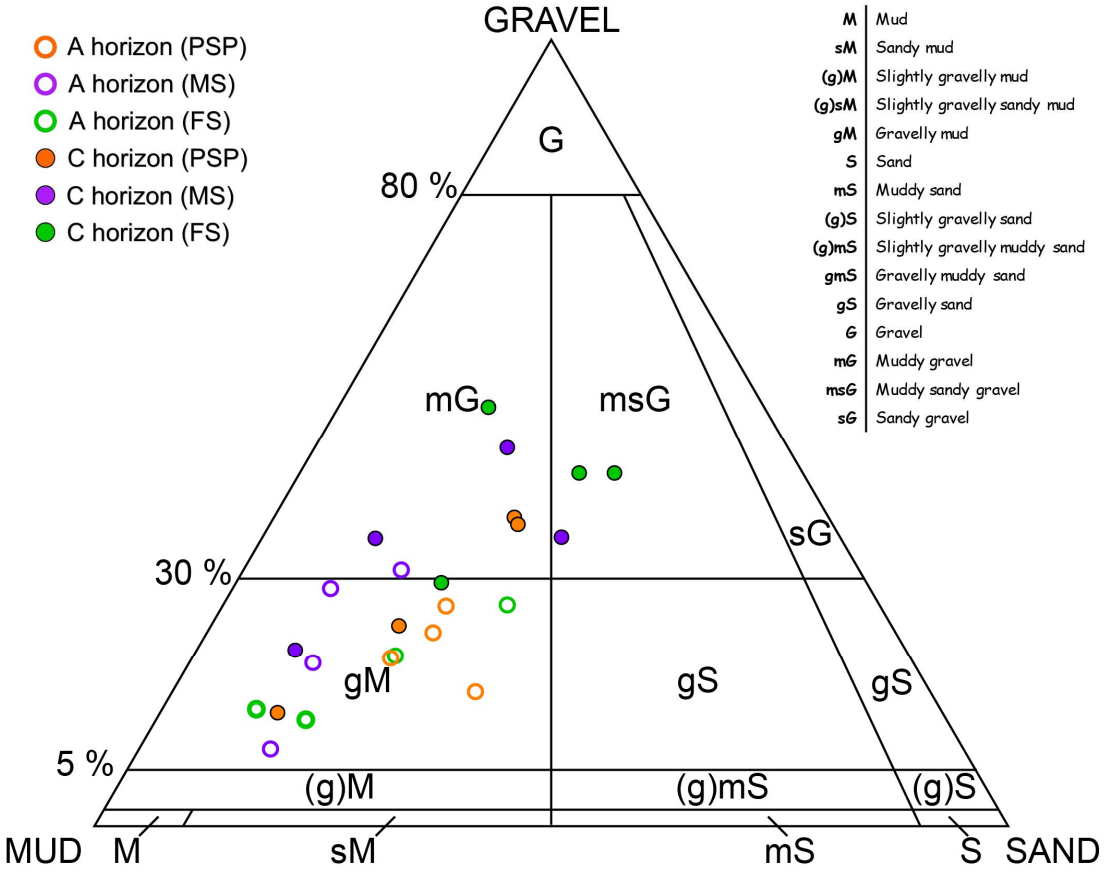

Figure S1. Particle size distribution of studied soils according to Folk classification [54].

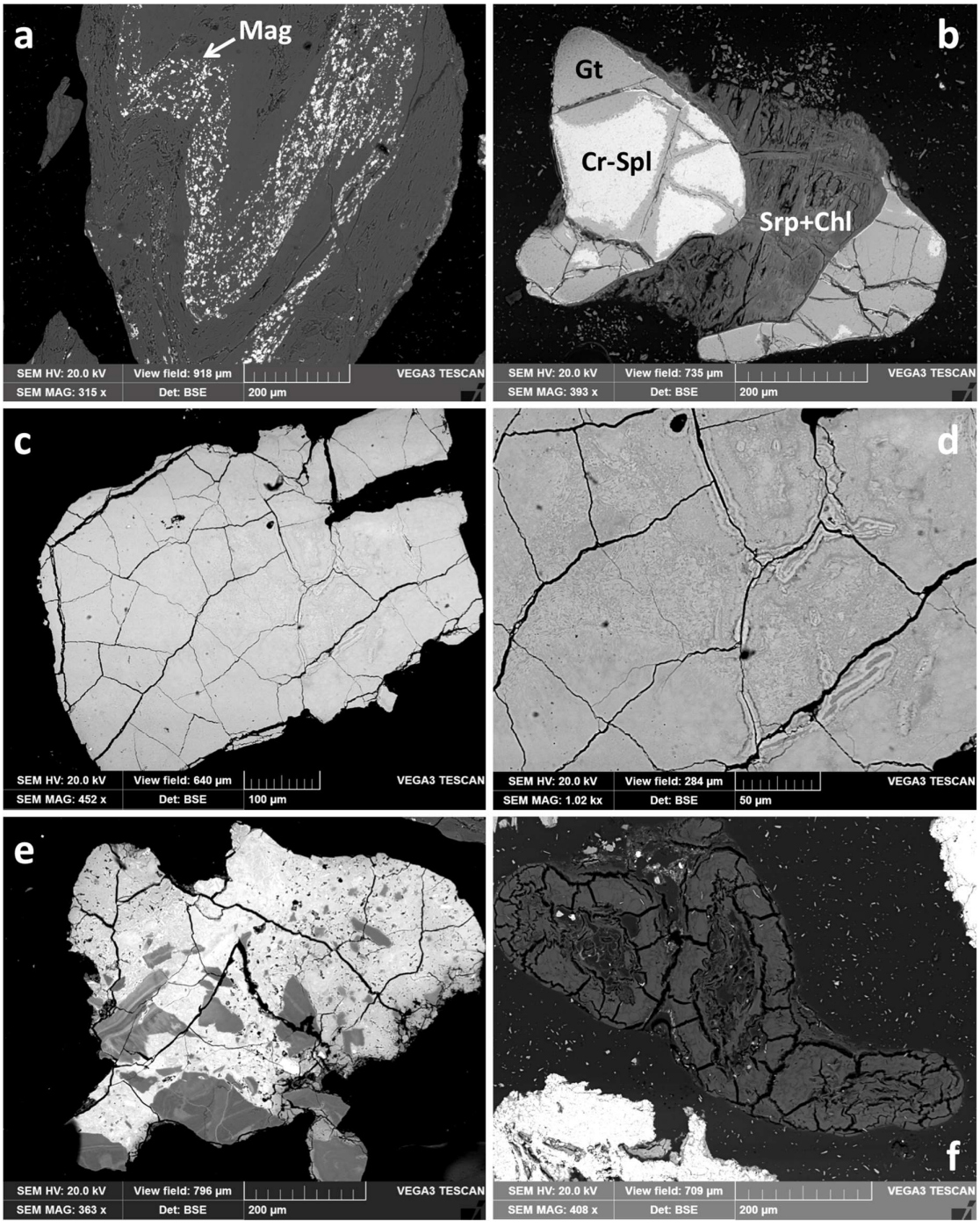

Figure S2. a): lithorelic in soil on FS bedrock with a micrometric fold marked by unaltered microcrystalline magnetite alignement [54]; b): alterorelic in soil on PSP bedrock composed by partially altered Cr-spinel within a serpentine + chlorite matrix; c): alteromorph in soil on MS bedrock composed by completely weathered magnetite aggregates pseudomorphically replaced by cryptocrystalline Fe-oxyhydroxides; d): enlarged detail of figure S2c; e) iron crust in soil on PSP bedrock (light gray areas are composed by cryptocrystalline Fe-oxyhydroxides whereas dark gray areas are composed by clay minerals or iddingsitic mixtures); f) iddingsitic nodules in soils on PSP bedrock. Mineral abbreviations after [66].

Table S1. Geographical information of the studied sites (PSP = partially serpentinized peridotite; MS = massive serpentinite; FS = foliated serpentinite).

Site	Coordinates (WGS84)	Altitude (m a.s.l.)	Slope Exposition	Bedrock
S1	44°29'12.0"N, 8°30'51.5"E	585	S	FS
S2	44°29'10.0"N, 8°30'51.0"E	580	S	MS
S3	44°31'31.6"N, 8°36'06.7"E	380	S	FS
S4	44°29'46.9"N, 8°35'10.4"E	668	ESE	FS
S5	44°28'56.1"N, 8°35'45.4"E	580	SW	MS
S6	44°26'53.1"N, 8°25'32.4"E	433	SE	MS
S7	44°30'10.1"N, 8°32'32.3"E	626	SW	PSP
S8	44°30'10.2"N, 8°32'32.5"E	620	SW	PSP
S9	44°30'10.4"N, 8°32'32.7"E	628	SW	PSP
S10	44°30'11.0"N, 8°32'32.9"E	619	SW	PSP
S11	44°26'02.3"N, 8°25'27.7"E	576	SSE	MS
S12	44°31'02.7"N, 8°37'22.8"E	418	W	FS

Table S2. Colors code of the soil profiles according to Munsell® Soil Color Charts [53].

Site	Horizon	Bedrock	Munsell	Color
S1	A	FS	10 YR 4/6	Dark Yellowish Brown
S1	C	FS	5 Y 7/2	Light Gray
S2	A	MS	10 YR 4/3	Brown
S2	C	MS	7.5 YR 5/4	Brown
S3	A	FS	2.5Y 5/4	Light Olive Brown
S3	C	FS	2.5Y 6/4	Light Yellowish Brown
S4	A	FS	Gley 1 5/5 GY	Dark Greenish Gray
S4	C	FS	Gley 1 6/5 GY	Light Greenish Gray
S5	A	MS	10YR 4/3	Brown
S5	C	MS	10YR 5/4	Yellowish Brown
S6	A	MS	10YR 3/4	Dark Yellowish Brown
S6	C	MS	10YR 5/4	Yellowish Brown
S7	A	PSP	7.5YR 5/4	Brown
S7	C	PSP	2.5YR 5/4	Reddish Brown
S8	A	PSP	7.5YR 5/6	Strong Brown
S8	C	PSP	2.5YR 5/3	Reddish Brown
S9	A	PSP	7.5YR 5/6	Strong Brown
S9	C	PSP	2.5YR 5/3	Reddish Brown
S10	A	PSP	7.5YR 5/4	Brown
S10	C	PSP	2.5YR 5/2	Weak red
S11	A	MS	10YR 3/3	Dark Brown
S11	C	MS	10YR 5/4	Yellowish Brown
S12	A	FS	10 YR 4/6	Dark Yellowish Brown
S12	C	FS	Gley 1 5/1 GY	Greenish Gray

Table S3. Representative analyses of the main silicates.

Mineral	Antigorite			Chlorites			Enstatite	
Soil type	**PSP**	**MS**	**FS**	**PSP**	**MS**	**FS**	**PSP**	**PSP**
SiO_2	39.98	41.68	42.18	31.28	31.51	30.94	54.69	55.05
TiO_2	n.d.	0.03	0.02	0.01	n.d.	0.01	0.13	0.21
Al_2O_3	0.99	1.47	1.67	17.66	16.52	16.84	3.87	3.97
Cr_2O_3	n.d.	0.33	0.30	0.52	0.01	0.57	0.77	0.93

FeOtot	10.38	6.23	4.99	3.16	7.16	7.36	6.53	5.13
MgO	34.33	36.29	37.68	31.60	30.63	32.52	33.30	34.15
MnOtot	0.09	0.10	0.11	0.15	0.10	0.08	0.14	0.09
CaO	0.07	0.02	0.01	0.03	0.04	0.03	0.71	0.50
Na_2O	n.d.	0.02	0.02	0.02	0.01	n.d.	0.02	0.01
K_2O	n.d.	n.d.	0.01	0.01	n.d.	0.01	0.01	0.01
NiO	0.41	0.24	0.13	0.28	0.03	0.14	n.d	0.05
V_2O_5	0.02	0.01	0.02	0.03	n.d.	0.01	0.01	0.03
CoO	n.d.	0.02	0.02	0.04	n.d.	0.02	n.d	0.01
ZnO	0.06	0.04	0.07	0.04	0.01	0.09	n.d	0.01
Sum	86,31	*86.49*	*87.20*	*84.81*	*86.01*	*88.61*	100.23	*100.15*
Formulas calculated on the basis of n oxygens (see below)								
	n = 14			***n = 28***			***n = 6***	
Si	3.939	3.997	3.982	6.055	6.124	5.882	1.886	1.890
Ti	n.d.	0.002	0.001	0.001	n.d.	0.002	0.003	0.005
Al	0.114	0.166	0.186	4.029	3.784	3.774	0.157	0.161
Cr	n.d.	0.025	0.022	0.080	0.001	0.086	0.021	0.025
Fe^{2+}_{tot}	0.855	0.500	0.394	0.511	1.164	1.171	0.188	0,147
Mg	5.041	5.184	5.302	9.115	8.875	9.213	1.712	1.747
Mn^{2+}_{tot}	0.008	0.008	0.009	0.024	0.016	0.012	0.004	0.003
Ca	0.007	0.001	0.001	0.006	0.008	0.006	0.026	0.018
Na	0.000	0.002	0.001	0.008	0.004	n.d.	0.002	0.001
K	0.000	n.d.	0.001	0.003	n.d.	0.001	0.001	0.001
Ni	0.032	0.019	0.010	0.043	0.005	0.021	n.d	0.001
V	0.001	0.001	0.001	0.012	n.d.	0.005	n.d	0.001
Co	n.d.	0.001	0.001	0.008	n.d.	0.003	n.d	0.001
Zn	0.004	0.001	0.003	0.008	0.002	0.016	n.d.	0.001
Sum	*10*	*9.91*	*9.91*	*19.90*	*19.99*	*20.19*	3.990	*4.002*

Abbreviations: n.d.: not detected.

Table S4. Representative analyses of the spinel-group minerals.

Mineral	**Fe–Chr**	**Cr–Mag**		**Magnetite**	
Soil type	**PSP**	**PSP**	**MS**	**FS**	**MS**	**FS**
SiO_2	0.03	0.13	0.30	0.04	0.09	0.06
TiO_2	0.44	0.48	0.59	0.67	0.12	0.22
Al_2O_3	5.18	0.40	0.17	0.08	0.07	0.04
Cr_2O_3	31.79	23.75	24.59	25.72	1.75	3.44
FeOtot	55.64	68.36	66.89	66.19	91.10	90.08
MgO	2.15	0.75	1.48	1.53	0.25	0.33
MnOtot	1.57	0.45	1.56	1.69	0.09	0.19
NiO	0.23	0.30	0.31	0.30	0.27	0.21
V_2O_5	0.15	0.27	0.11	0.08	0.06	0.09
CoO	0.14	0.16	0.10	0.13	0.15	0.13
ZnO	0.74	0.37	0.43	0.34	0.12	0.09
Sum	*98.06*	*95.41*	*96.52*	*96.76*	*94.07*	*94.89*
Formulas calculated on the basis of 3 cations						
Si	0.001	0.005	0.008	0.001	0.003	0.002
Ti	0.012	0.014	0.016	0.019	0.003	0.006

Al	0.217	0.018	0.007	0.004	0.003	0.002
Cr	0.901	0.710	0.723	0.755	0.053	0.095
Fe^{2+}	0.822	0.946	0.867	0.862	0.976	0.972
Fe^{3+}	0.848	1.217	1.215	1.196	1.927	1.881
Mg	0.115	0.042	0.082	0.085	0.014	0.017
Mn^{2+}	0.048	0.015	0.049	0.053	0.003	0.006
Ni	0.007	0.009	0.009	0.009	0.008	0.006
V^{5+}	0.004	0.007	0.003	0.002	0.001	0.002
Co	0.004	0.005	0.003	0.004	0.005	0.004
Zn	0.019	0.010	0.012	0.009	0.002	0.002
Charge	7.997	7.997	7.995	7.999	7.999	7.997

Abbreviations: n.d.: not detected; Fe-Chr: Ferrichromite; Cr-Mag: Chromian Magnetite.
Fe^{2+} and Fe^{3+} calculated on the basis of charge balance criteria