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*Supplement of*

## **Forest conversion to poplar plantation in a Lombardy floodplain (Italy): effects on soil organic carbon stock**

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Table S1. Soil profile descriptions at poplar plantation (PP) and natural forest (NF) sites. Taxonomy of soil profiles according to IUSS Working Group WRB, 2007.

Legend for structure and roots: vf: very fine; f: fine; m: medium; c: coarse; vc: very coarse.

Profiles	Horizons	Colour (moist)	Mottles	Rock fragments	Structure	Roots
a) PP						
1 Haplic Regosol (Humic, Eutric, Siltic)	Ap1 (0-12 cm)	2.5Y 3.5/2		few, vf-f	granular, f	many, vf
	Ap2 (12-44 cm)	2.5Y 4/2	7.5YR 4/6, common	few, vf-f	massive	few, vf-f
	C (44-60 cm)	2.5Y 4.5/3		few, vf-f	massive	few, vf
2 Haplic Regosol (Eutric, Siltic)	Ap1 (0-11 cm)	2.5Y 3.5/2		absent	granular, m	many, vf-f
	Ap2 (11-45 cm)	2.5Y 4/2		absent	massive	few, vf-m
	Ap3 (45-55 cm)	2.5Y /2	7.5YR 4/6, common	absent	massive	few, vf
3 Haplic Regosol (Eutric, Endoskeletal, Arenic)	C (55-62 cm)	2.5Y 5/3.5		absent	massive	absent
	Ap1 (0-18 cm)	2.5Y 3.5/2		absent	granular, m	common, vf-f
	Ap2 (18-45 cm)	2.5Y 4/2		absent	massive	few, f
4 Haplic Arenosol (Eutric)	C1 (45-65 cm)	2.5Y 6/4		absent	single grain	few, f
	C2 (65-70 cm)	2.5Y 6/4		many, vf-f	single grain	absent
5 Haplic Regosol (Humic, Eutric, Arenic)	Ap1 (0-12 cm)	2.5Y 4/2		common, vf-f	single grain	common, vf-f
	Ap2 (12-47 cm)	2.5Y 4/2.5		common, f-m	single grain	few, m
	C (47-65 cm)	2.5Y 6/3.5		common, f-m	single grain	few, m
b) NF						
5 Haplic Regosol (Humic, Eutric, Arenic)	A1 (0-8 cm)	10YR 2/2		absent	granular, m	many, vf-f
	A2 (8-13 cm)	10YR 3/2		absent	subang. blocky, vc	common, vf-f
	CA (13-32 cm)	2.5Y 4.5/4		absent	single grain	few, vf-m
	C (32-62 cm)	2.5Y 5/4		absent	single grain	few, vf-m
6 Haplic Regosol (Humic, Eutric, Arenic)	A1 (0-8 cm)	10YR 3/2		absent	granular, f	common, vf-c
	A2 (8-25 cm)	10YR 3.5/2		absent	subang. blocky, m	common, vf-c
	C (25-60 cm)	2.5Y 6/3.5		absent	single grain	few, vf-c
7 Haplic Regosol (Eutric, Arenic)	A1 (0-10 cm)	10YR 3.5/2		absent	granular, c	common, vf-f
	A2 (10-20 cm)	2.5Y 4/3		absent	subang. blocky, m	few, vf-f
	C (20-60 cm)	2.5Y 5.5/4		absent	single grain	few, f-c
8 Haplic Regosol (Humic, Eutric, Arenic)	A1 (0-6 cm)	10YR 3/1.5		absent	granular, m	many, vf-f
	A2 (6-17 cm)	10YR 4/2.5		absent	subang. blocky, m	many, vf-f
	CA (17-41 cm)	2.5Y 4.5/3		absent	massive	few, vf-f
	C (41-60 cm)	2.5Y 5/3		absent	single grain	few, vf-m
9 Haplic Regosol (Humic, Eutric, Arenic)	A (0-4 cm)	10YR 3.5/2		absent	granular, m	common, vf-f
	AC (4-25 cm)	2.5Y 4/4		absent	subang. blocky, c	few, f-c
	CA (25-42 cm)	2.5Y 4.5/4		absent	single grain	few, f-c
	C (42-60 cm)	2.5Y 5/4		absent	single grain	few, f-vc

Table S2. Soil properties at a) poplar plantation (PP) and b) natural forest (NF) sites. Taxonomy of soil profiles according to IUSS Working Group WRB, 2007.

Profiles	Horizons	pH <sub>w</sub>	Organic C [g kg <sup>-1</sup> ]	Total N [g kg <sup>-1</sup> ]	C:N	Bulk density [g cm <sup>-3</sup> ]	Sand 2–0.05 mm [%]	Silt 0.05–0.002 mm [%]	Clay <0.002 mm [%]	Text. class	CEC [cmol(+) kg <sup>-1</sup> ]
a) PP											
1 Haplic Regosol (Humic, Eutric, Siltic)	Ap1 (0-12 cm)	6.3	14.3	1.3	10.8	1.11	51.3	37.9	10.8	L	7.54
	Ap2 (12-44 cm)	5.8	9.0	0.8	11.3	1.23	22.4	62.5	15.1	SiL	9.89
	C (44-60 cm)	5.6	-	0.6	16.4	1.24	30.8	56.9	12.3	SiL	8.06
2 Haplic Regosol (Eutric, Siltic)	Ap1 (0-11 cm)	6.5	15.2	1.2	12.5	1.07	32.8	55.8	11.4	SiL	7.91
	Ap2 (11-45 cm)	6.2	6.1	0.7	8.6	1.32	28.7	57.7	13.0	SiL	6.58
	Ap3 (45-55 cm)	6.3	5.8	0.5	13.3	1.36	16.8	69.1	14.1	SiL	7.96
	C (55-62 cm)	6.3	3.7	0.5	8.9	1.39	6.4	80.4	14.0	SiL	7.89
3 Haplic Regosol (Eutric, Endoskeletal, Arenic)	Ap1 (0-18 cm)	6.3	11.3	1.0	11.0	1.18	54.1	34.8	11.1	SL	7.08
	Ap2 (18-45 cm)	6.1	4.2	0.3	13.3	1.39	76.5	16.3	7.2	LS	5.36
	C1 (45-65 cm)	6.8	0.9	0.0	-	1.49	93.2	3.9	2.9	S	2.19
4 Haplic Arenosol (Eutric)	Ap1 (0-12 cm)	7.0	6.4	0.4	15.0	1.36	86.1	9.7	4.2	LS	2.07
	Ap2 (12-47 cm)	6.4	2.2	0.2	13.3	1.46	82.5	14.5	3.0	LS	1.85
	C (47-65 cm)	7.0	0.9	-	-	n.d.	98.0	2.0	0.0	S	2.61

Profiles	Horizons	pH <sub>w</sub>	Organic C [g kg <sup>-1</sup> ]	Total N [g kg <sup>-1</sup> ]	C:N	Bulk density [g cm <sup>-3</sup> ]	Sand 2–0.05 mm [%]	Silt 0.05–0.002 mm [%]	Clay <0.002 mm [%]	Text. class	CEC [cmol(+) kg <sup>-1</sup> ]
b) NF											
5	A1 (0-8 cm)	5.5	48.4	2.9	16.6	1.01	52.8	36.4	10.8	SiL	17.09
Haplic Regosol (Humic, Eutric, Arenic)	A2 (8-13 cm)	4.6	11.3	0.8	13.8	1.34	66.7	24.4	8.9	SiL	6.03
	CA (13-32 cm)	4.7	4.9	0.3	18.5	1.50	78.3	15.5	6.2	L	3.61
	C (32-62 cm)	5.9	0.8	0.1	11.1	1.58	88.2	8.4	4.0	S	3.31
	6	A1 (0-8 cm)	5.6	34.9	2.6	13.5	1.10	46.8	42.0	11.2	L
Haplic Regosol (Humic, Eutric, Arenic)	A2 (8-25 cm)	4.7	13.2	1.1	11.8	1.35	54.6	35.2	10.2	SL	5.11
	C (25-60 cm)	6.3	1.0	0.1	11.1	1.58	92.9	4.0	3.1	LS	2.78
	7	A1 (0-10 cm)	5.8	34.7	2.6	13.5	1.10	22.4	60.8	16.8	S
Haplic Regosol (Eutric, Arenic)	A2 (10-20 cm)	5.5	7.3	0.7	9.5	1.47	54.9	35.7	9.4	SiL	2.87
	C (20-60 cm)	6.5	1.2	0.1	6.7	1.58	90.7	6.3	3.0	SiL	2.13
8	A1 (0-6 cm)	6.2	49.8	3.2	15.6	0.99	26.2	59.5	14.3	L	15.02
Haplic Regosol (Humic, Eutric, Arenic)	A2 (6-17 cm)	5.5	25.3	2.0	12.5	1.14	31.2	55.7	13.1	S	10.09
	CA (17-41 cm)	5.8	8.2	0.7	11.4	1.45	39.1	48.9	12.0	L	3.95
	C (41-60 cm)	6.5	1.8	0.2	10.0	1.56	90.8	6.1	3.1	SL	3.34
	9	A (0-4 cm)	4.9	103.1	7.6	13.6	0.62	43.1	44.1	12.8	LS
Haplic Regosol (Humic, Eutric, Arenic)	AC (4-25 cm)	4.5	21.3	1.7	12.3	1.20	46.8	46.0	7.2	S	9.44
	CA (25-42 cm)	5.3	2.9	0.2	14.0	1.54	78.5	16.3	5.2	SiL	4.12
	C (42-60 cm)	5.7	1.1	0.0	-	1.58	91.0	6.9	2.1	SiL	1.67