Interactive comment on **"Predicting soil water repellency by hydrophobic organic compounds and their vegetation origin"** *by* **J. Mao et al.**

J. Mao et al.

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Hereby, we thank referee Dr. Esther de Blas for her comments. We are very pleased with the suggestions, which contributed to improve our manuscript.

Response to the specific comments

Comment 1: In section 2.3 it is stated that the severity of SWR is classified according to Bisdom et al., 1993 and Dekker and Ritsem, 1996. However, only log (s) is subsequently used. Taking into account that this first classification is more intuitive when interpreting SWR, I consider it would be suitable to add this information in Table 1 or somewhere in the text.

We agree with the referee and have added the repellency class of our soils to *Table 1* (attached to this reply). Meanwhile, we have added more information at the end of section 2.3: 'The repellency classes of all the soils are presented in Table 1.'

Comment 2: Page 170, line 1: bound on?

Yes, we have changed here to 'bound on' (now Line 457).

Comment 3: References: Rodríguez-Alleres and Benito, 2011 appears in the list of references but is missing in the text.

Thanks for the comment, we have added 'Rodríguez-Alleres and Benito, 2011' to the following text in the introduction:
'For instance, soil under eucalyptus always showed more severe water repellency than under pine during dry periods in northwest Spain (Rodríguez-Alleres and Benito, 2011, 2012).' (now line 65-67)

Table 1. Soil profile and vegetation description.

Profile	Sample label	Sampling depth (cm)	Horizon	pH	TOC (mg g^{-1} soil)[c]	TN (mg g^{-1} soil)	C/N ratio	WDPT (s)	log$_{10}$ WDPT (s)	Repellency class	Vegetation	Vegetation sampled
1	WRC-1[a]	0 – 7	A	8.79	0.76	0.16	4.82	0	-1.00	wettable	*Festuca sp.* (sheep fescue)	Leaves combined with roots
	WRC-2	7 - 14	Ahb[b]	8.33	4.83	0.51	9.54	35	1.55	slight	*Festuca sp.*	
	WRC-3	14 - 20	B	8.72	1.40	0.25	5.66	0.3	-0.48	wettable	*Festuca sp.*	
2	WRC-6	0 – 1	A	8.26	3.47	0.38	9.20	1	0.00	wettable	Algae	None
3	WRC-8	0 – 5	Ah	7.87	5.49	0.49	11.15	148	2.17	strong	*Hypnum Laconosum* (hypmum moss)	Whole moss plants
	WRC-9	5 – 10	B	8.70	1.57	0.25	6.21	2	0.36	wettable	*Hypnum Laconosum*	
4	WRC-10	0 – 10	Ah	6.92	26.80	2.00	13.42	18	1.25	slight	*Hypnum Laconosum*	
5	WRC-13	0 – 16	Ah	5.84	14.98	1.01	14.80	240	2.38	strong	*Pinus nigra* (black pine)	Green needles and roots
6	WRC-14	0 – 9	Ah	7.09	31.08	2.40	12.96	417	2.62	strong	*Crataegus sp.* (hawthorn)	Leaves and roots
	WRC-15	9 – 15	B	7.55	5.02	0.53	9.49	550	2.74	strong	*Crataegus sp.*	
7	WRC-25	0 – 7	Ah	7.66	10.22	0.82	12.47	4786	3.68	extreme	*Hippophae rhamnoides* (sea-buckthorn)	Leaves and roots
	WRC-26	7– 12	B	8.10	4.77	0.45	10.57	331	2.52	strong	*Hippophae rhamnoides*	
8	WRC-30	0 – 2	Ah1	5.76	87.44	6.35	13.77	1905	3.28	severe	*Quercus robur* (common oak)	Leaves and roots
	WRC-31	2 - 4.5	Ah2	5.79	20.71	1.59	13.04	2512	3.40	severe	*Quercus robur*	
	WRC-32	4.5 – 20	B	8.08	2.46	0.27	9.05	14	1.14	slight	*Quercus robur*	

[a] WRC-1 consisted of a top soil, which was formed by wind-blown sand deposition at a grass covered soil.

[b] WRC-2 consisted of a dark brownish Ah horizon with grass roots, which was buried by wind-blown sand deposition.

[c] Soil TOC had a significant positive correlation (r=0.76, p=0.001) with SWR (Mao et al., 2014): $\log_{10}WDPT(s) = 1.96* \log_{10}TOC+ 0.01$