SI Table 1
Summary of the Main Soil Groups and number of soil horizons for the 169 sites by Ordnance Survey Zone

OS Zone	n	Main Soil Groups	2-Hzn	3-Hzn	4-Hzn	5-Hzn	6-Hzn	7-Hzn	8-Hzn
HU	2	Peat 1, Gley 1	2						
HY	2	Gley 1, Podzol 1		1	1				
NB	5	Peat 5	3	2					
NC	14	Peat 10, Gley 1, Podzol 1, Ranker 1, Brown Soil 1	2	6	5	1			
ND	5	Peat 2, Gley 2, Podzol 1		2	2		1		
NF	1	Peat 1			1				
NG	7	Peat 1, Gley 3, Podzol 3		3	1	3			
NH	18	Peat 6, Gley 4, Podzol 7, Ranker 1		2	10	3	3		
NJ	18	Peat 2, Gley 3, Podzol 10, Brown Soil 2, Alluvial Soil 1	1	6	3	5	3		
NK	2	Gley 1, Brown Soil 1		1			1		
NM	7	Gley 3, Podzol 2, Ranker 1, Regosol 1	1	1	3	2			
NN	21	Peat 7, Gley 6, Podzol 3, Ranker 2, Brown Soil 2, Alluvial Soil 1	3	5	8	3	1		1
NO	15	Peat 3, Gley 1, Podzol 6, Brown Soil 4, Alluvial Soil 1		2	7	2	3	1	
NR	5	Peat 2, Gley 1, Podzol 2	1	4					
NS	15	Peat 3, Gley 4, Podzol 2, Brown Soil 5, Alluvial Soil 1	1	7	7				
NT	20	Peat 2, Gley 6, Podzol 5, Ranker 1, Brown Soil 6	1	10	4	3	2		
NX	9	Peat 2, Gley 2, Podzol 1, Brown Soil 3, Alluvial Soil 1		5	4				
NY	3	Brown Soil 3		2	1				
All	169	Peat 47, Gley 39, Podzol 44, Ranker 6, Brown Soil 27, Alluvial Soil 5, Regosol 1	15	59	57	22	14	1	1

N.B. In addition: six ‘anomalous’ sites – NB, Peat, 3-Hzn; NF, Peat, 4-Hzn; NG, Gley, 3-Hzn; NH, Peat, 4-Hzn; NJ, Podz, 3-Hzn; NM, Podz, 5-Hzn.

SI Table 2
Soil horizon nomenclature

Soil Horizon	Description
L	Fresh annual litter, normally loose, original plant structures obvious
F	Decomposed litter, only some of the original plant structures obvious
H	Well-decomposed organic matter formed under aerobic conditions. Plant structures not visible. May be mixed with some mineral matter. (Mor humus).
O	Peaty material formed under wet, anaerobic conditions.
A	Mineral horizon formed at or near the surface that shows an accumulation and incorporation of organic matter, or which has morphology acquired by soil formation but lacks the properties of E or B horizons.
E	Eluvial horizon underlying an H, O or A horizon from which it can normally be differentiated by a lower content of organic matter and lighter colour, particularly when dry. Usually shows a concentration of sand and silt fractions with a large component of resistant minerals resulting from a loss of clay, iron or aluminium.
B	Mineral horizon in which there is little or no obvious rock structure and having one or both of the following: (i) alteration of the original material involving solution and removal of carbonates; formation, liberation or residual accumulation of silicate clays or oxides; formation of granular, crumb, blocky or prismatic peds; or (normally) some combination of these; (ii) illuvial concentration of silicate clay or iron, aluminium or humus.
C	Mineral horizon of unconsolidated material from which the solum is presumed to have formed.
R	Underlying consolidated bedrock sufficiently coherent when moist to make hand digging with a spade impracticable.

Sub-horizons or qualifiers: b - buried (e.g. bA); f - sharply defined thin iron pan; g - horizon with gley features; h - accumulation of organic matter in a mineral horizon (e.g. Ah or Bh); m - a cemented horizon, other than a thin iron pan. Often used in conjunction with another symbol (e.g. Bmh for a horizon cemented with organic matter); p - disturbed by ploughing; s - accumulation of sesquioxide material; t - accumulation of illuvial clay; w - alteration in situ in accordance with description (i) of the B horizon; x - indurated layer, compacted but not cemented.

SI Table 3

Mean and median $^{206}Pb/^{207}Pb$ ratio data for mineral top and mineral bottom soil horizons by OS Zone

OS Zone	Soil Horizon	Mean $^{206}Pb/^{207}Pb$ Top	Median	Mean $^{206}Pb/^{207}Pb$ Bottom	Median
HU	A	1.186 ± 0.004 (1)	1.186	-	-
	B	-	-	1.305 ± 0.005 (1)	1.305
	All	1.186 ± 0.004 (1)	1.186	1.305 ± 0.005 (1)	1.305
HY	A	1.202 ± 0.005 (1)	1.202	-	-
	BC	-	-	1.188 ± 0.002 (1)	1.188
	C	-	-	1.206 ± 0.004 (1)	1.206
	All	1.202 ± 0.005 (1)	1.202	1.197 ± 0.013 (2)	1.197
NB	-	-	-	-	-
NC	A	1.184 ± 0.006 (1)	1.184	-	-
	E	-	-	1.156 ± 0.004 (1)	1.156
	B	-	-	1.182 ± 0.041 (3)	1.169
	BC	-	-	1.171 ± 0.040 (2)	1.171
	C	-	-	1.194 ± 0.003 (1)	1.194
	All	1.184 ± 0.006 (1)	1.184	1.177 ± 0.032 (7)	1.169
ND	A	1.195 ± 0.006 (1)	1.195	1.277 ± 0.001 (1)	1.277
	B	-	-	1.176 ± 0.006 (1)	1.176
	C	-	-	1.196 ± 0.026 (2)	1.196
	All	1.195 ± 0.006 (1)	1.195	1.211 ± 0.047 (4)	1.196
NF	-	-	-	-	-
NG	A	1.171 ± 0.004 (2)	1.171	-	-
	B	-	-	1.246 ± 0.006 (1)	1.246
	BC	-	-	1.220 ± 0.027 (4)	1.230
	C	-	-	1.168 ± 0.002 (1)	1.168
	All	1.171 ± 0.004 (2)	1.171	1.222 ± 0.025 (6)	1.230
NH	A	1.170 ± 0.003 (1)	1.170	-	-
	E	1.190 ± 0.003 (1)	1.190	1.324 ± 0.005 (1)	1.324
	B	-	-	1.203 ± 0.036 (3)	1.198
	BC	-	-	1.275 ± 0.055 (6)	1.271
	C	-	-	1.255 ± 0.041 (5)	1.262
	All	1.180 ± 0.014 (2)	1.180	1.257 ± 0.053 (15)	1.256
NJ	A	1.193 ± 0.019 (10)	1.189	-	-
	BC	-	-	1.218 ± 0.021 (6)	1.213
	C	-	-	1.225 ± 0.033 (11)	1.226
	All	1.193 ± 0.019 (10)	1.189	1.223 ± 0.029 (17)	1.223

NK	A	1.169 ± 0.004 (1)	1.169	-	-
	C	-	-	1.179 ± 0.019 (2)	1.179
	All	1.169 ± 0.004 (1)	1.169	1.179 ± 0.019 (2)	1.179
NM	A	1.177 ± 0.025 (4)	1.170	-	-
	B	-	-	1.231 ± 0.066 (3)	1.217
	C	-	-	1.172 ± 0.025 (3)	1.167
	All	1.177 ± 0.025 (4)	1.170	1.201 ± 0.055 (6)	1.186
NN	A	1.174 ± 0.008 (4)	1.173	-	-
	E	-	-	1.174 ± 0.006 (1)	1.174
	B	-	-	1.226 ± 0.071 (5)	1.192
	BC	-	-	1.220 ± 0.043 (5)	1.224
	C	-	-	1.218 ± 0.053 (6)	1.212
	All	1.174 ± 0.008 (4)	1.173	1.219 ± 0.052 (17)	1.199
NO	A	1.174 ± 0.008 (8)	1.174	-	-
	B	1.177 ± 0.003 (1)	1.177	1.168 ± 0.003 (1)	1.168
	C	-	-	1.189 ± 0.011 (12)	1.192
	All	1.174 ± 0.008 (9)	1.177	1.187 ± 0.012 (13)	1.191
NR	B	1.174 ± 0.004 (1)	1.174	1.253 ± 0.034 (2)	1.253
	C	-	-	1.147 ± 0.003 (1)	1.147
	All	1.174 ± 0.004 (1)	1.174	1.218 ± 0.066 (3)	1.229
NS	A	1.165 ± 0.005 (10)	1.165	-	-
	B	-	-	1.196 ± 0.090 (2)	1.196
	BC	-	-	1.182 ± 0.009 (4)	1.184
	C	-	-	1.183 ± 0.009 (6)	1.181
	All	1.165 ± 0.005 (10)	1.165	1.185 ± 0.029 (12)	1.182
NT	A	1.175 ± 0.005 (11)	1.177	-	-
	BC	-	-	1.194 ± 0.007 (7)	1.194
	C	-	-	1.197 ± 0.020 (11)	1.194
	All	1.175 ± 0.005 (11)	1.177	1.196 ± 0.006 (18)	1.194
NX	A	1.168 ± 0.006 (5)	1.168	-	-
	C	-	-	1.188 ± 0.008 (7)	1.186
	All	1.168 ± 0.006 (5)	1.168	1.188 ± 0.008 (7)	1.186
NY	A	1.167 ± 0.003 (3)	1.172	-	-
	C	-	-	1.180 ± 0.010 (3)	1.177
	All	1.167 ± 0.003 (3)	1.172	1.180 ± 0.010 (3)	1.177
Total	A	1.176 ± 0.014 (63)	1.173	1.277 ± 0.001 (1)	1.277
	E	1.190 ± 0.003 (1)	1.190	1.218 ± 0.092 (3)	1.174
	B	1.176 ± 0.003 (2)	1.176	1.217 ± 0.056 (22)	1.208
	BC	-	-	1.216 ± 0.043 (35)	1.202
	C	-	-	1.200 ± 0.033 (72)	1.193
	All	1.176 ± 0.014 (66)	1.174	1.208 ± 0.042 (133)	1.196

SI Table 4
Mean and median Pb concentration data (mg kg^{-1}) for organic top, organic bottom, mineral top and mineral bottom soil horizons by OS Zone

OS	Organic Top			Organic Bottom			Mineral Top			Mineral Bottom		
Zone	n	mean	med	n	mean	med	n	mean	med	n	mean	med
HU	1	112	112	1	5.7	5.7	1	27	27	1	6.9	6.9
HY	1	7.3	7.3	-	-	-	1	17	17	2	13	13
NB	5	38	38	5	4.4	3.5	-	-	-	-	-	-
NC	13	24	24	7	2.9	3.1	1	15	15	7	8.8	7.1
ND	4	54	56	1	3.5	3.5	1	22	22	4	23	18
NF	1	34	34	1	4.5	4.5	-	-	-	-	-	-
NG	5	27	26	1	2.6	2.6	2	61	61	6	5.8	5.3
NH	16	31	24	3	3.6	2.2	2	10	10	15	6.7	4.0
NJ	8	65	33	1	5.8	5.8	10	49	18	17	8.7	8.5
NK	1	74	74	-	-	-	1	20	20	2	74	74
NM	3	87	68	1	22	22	4	15	15	6	11	6.1
NN	17	124	59	4	13	12	4	83	63	17	12	11
NO	6	94	57	2	4.1	4.1	9	30	20	13	19	9.7
NR	4	114	114	2	8.8	8.8	1	17	17	3	27	7.9
NS	5	178	147	3	9.9	8.1	10	57	38	12	12	11
NT	9	140	146	2	4.1	4.1	11	31	29	18	14	13
NX	4	78	74	2	30	30	5	55	46	7	9.7	9.4
NY	-	-	-	-	-	-	3	41	43	3	9.2	8.8
All	103	77	43	36	7.5	4.3	66	41	27	133	13	8.5

SI Table 5
Mean and median $^{206}Pb/^{207}Pb$ ratio data for organic top and organic bottom soil horizons by OS Zone

OS Zone	Soil Horizon	Mean $^{206}Pb/^{207}Pb$ Top	Median	Mean $^{206}Pb/^{207}Pb$ Bottom	Median
HU	O	1.165 ± 0.004 (1)	1.165	1.180 ± 0.006 (1)	1.180
HY	O	1.167 ± 0.004 (1)	1.167	-	-
NB	O	1.163 ± 0.007 (5)	1.165	1.172 ± 0.030 (5)	1.173
NC	O	1.163 ± 0.015 (13)	1.162	1.186 ± 0.023 (7)	1.189
ND	O	1.164 ± 0.005 (4)	1.165	1.177 ± 0.004 (1)	1.177
NF	O	1.161 ± 0.006 (1)	1.161	1.142 ± 0.003 (1)	1.161
NG	H	1.155 ± 0.003 (1)	1.155	-	-
	O	1.158 ± 0.010 (4)	1.159	1.168 ± 0.005 (1)	
	All	1.157 ± 0.009 (5)	1.155	1.168 ± 0.005 (1)	1.168
NH	LF-FH	1.138 ± 0.007 (5)	1.137	-	-
	H	1.166 ± 0.015 (2)	1.166	-	-
	O	1.155 ± 0.016 (9)	1.157	1.170 ± 0.012 (3)	1.174
	All	1.151 ± 0.016 (16)	1.146	1.170 ± 0.012 (3)	1.174
NJ	LF-FH	1.132 ± 0.016 (5)	1.137	-	-
	H	1.142 ± 0.004 (1)	1.142	-	-
	O	1.168 ± 0.005 (2)	1.168	1.178 ± 0.006 (1)	1.178
	All	1.142 ± 0.020 (8)	1.143	1.178 ± 0.006 (1)	1.178
NK	O	1.130 ± 0.005 (1)	1.130	-	-
NM	H	1.152 ± 0.004 (1)	1.152	-	-
	O	1.164 ± 0.023 (2)	1.164	1.190 ± 0.002 (1)	1.190
	All	1.160 ± 0.018 (3)	1.152	1.190 ± 0.002 (1)	1.190
NN	LF-FH	1.133 ± 0.012 (6)	1.130	-	-
	H	1.151 ± 0.003 (1)	1.151	-	-
	O	1.163 ± 0.016 (10)	1.162	1.163 ± 0.015 (4)	1.161
	All	1.152 ± 0.017 (17)	1.158	1.163 ± 0.015 (4)	1.161
NO	LF-FH	1.132 ± 0.005 (5)	1.134	-	-
	O	1.170 ± 0.003 (1)	1.170	1.183 ± 0.004 (2)	1.183
	All	1.139 ± 0.016 (6)	1.135	1.183 ± 0.004 (2)	1.183
NR	H	1.163 ± 0.004 (1)	1.163	-	-
	O	1.164 ± 0.004 (3)	1.166	1.172 ± 0.004 (2)	1.172

	All	1.164 ± 0.003 (4)	1.165	1.172 ± 0.004 (2)	1.172
NS	O	1.171 ± 0.005 (5)	1.172	1.169 ± 0.006 (3)	1.167
NT	LF-FH	1.148 ± 0.005 (3)	1.150	-	-
	H	1.140 ± 0.004 (2)	1.140	-	-
	O	1.169 ± 0.004 (4)	1.169	1.183 ± 0.004 (2)	1.183
	All	1.156 ± 0.014 (9)	1.152	1.183 ± 0.004 (2)	1.183
NX	H	1.163 ± 0.004 (1)	1.163	-	-
	O	1.164 ± 0.008 (3)	1.162	1.184 ± 0.003 (2)	1.184
	All	1.164 ± 0.007 (4)	1.163	1.184 ± 0.003 (2)	1.184
NY	-	-	-	-	-
Total	LF-FH	1.135 ± 0.011 (24)	1.136	-	-
	H	1.154 ± 0.012 (10)	1.154	-	-
	O	1.163 ± 0.011 (69)	1.164	1.175 ± 0.018 (36)	1.177
	All	1.156 ± 0.016 (103)	1.159	1.175 ± 0.018 (36)	1.177

SI Table 6

Mean anthropogenic Pb inventories for sites with organic top, Ap mineral top and other A mineral top soil horizons by OS Zone

OS Zone	**Sites with Organic Top Soil Horizon** **Pb (g m^{-2})**	**Sites with Ap Mineral Top Soil Horizon** **Pb (g m^{-2})**	**Sites with A Mineral Top Soil Horizon** **Pb (g m^{-2})**	**Mean Anthrop. Pb Inventory for Zone** **Pb (g m^{-2})**
HU	2.3 (1)	-	1.7 (1)	2.0 ± 0.5 (2)
HY	0.3 (1)	1.5 (1)	-	0.9 ± 0.3 (2)
NB	1.0 ± 0.7 (5)	-	-	1.0 ± 0.7 (5)
NC	1.0 ± 0.5 (13)	-	0.6 (1)	1.0 ± 0.5 (14)
ND	2.1 ± 0.9 (4)	0 (1)	-	1.7 ± 1.3 (5)
NF	1.5 (1)	-	-	1.5 (1)
NG	0.7 ± 0.3 (5)	- [1]	0.5 (1)	0.6 ± 0.3 (6)[1]
NH	1.4 ± 1.1 (16)	2.8 (1)	0.7 (1)[2]	1.4 ± 1.1 (18)
NJ	2.5 ± 1.8 (8)	2.0 ± 2.0 (8)[3]	2.2 (1)	2.2 ± 1.8 (17)[3]
NK	1.9 (1)	1.6 (1)	-	1.7 ± 0.2 (2)
NM	2.6 ± 1.4 (3)	1.0 (1)	1.2 ± 0.9 (3)	1.8 ± 1.2 (7)
NN	2.6 ± 1.9 (16)[4]	6.1 (1)	5.9 ± 0.4 (3)	3.3 ± 2.2 (20)[4]
NO	4.9 ± 3.0 (6)	3.0 ± 1.1 (7)[5]	3.4 (1)[6]	3.8 ± 2.2 (14)[5,6]
NR	3.1 ± 0.9 (4)	12.1 (1)	-	4.9 ± 4.1 (5)
NS	6.4 ± 5.2 (5)	5.9 ± 3.0 (5)[7]	4.8 ± 1.6 (4)	5.8 ± 3.5 (14)[7]
NT	6.1 ± 3.0 (9)	3.2 ± 2.4 (7)[8]	2.0 ± 1.7 (3)	4.3 ± 3.0 (19)[8]
NX	7.1 ± 4.7 (4)	10.1 (1)	4.3 ± 0.8 (4)	6.2 ± 3.6 (9)

NY	-		5.0 ± 1.2	(2)[9]	-		5.0 ± 1.2	(2)[9]
HU-NM	1.5 ± 1.2	(58)	1.7 ± 1.7	(13)	1.2 ± 0.7	(8)	1.5 ± 1.2	(79)
NN-NY	4.5 ± 3.3	(44)	4.6 ± 3.0	(24)	4.2 ± 0.7	(15)	4.5 ± 3.0	(83)

[1] Excluding a value of 18.5; [2] E incorporated as A; [3] excluding a value of 67.6; [4]excluding a value of 24.2; [5] excluding a value of 21.8; [6] estimated by extrapolation; [7] excluding a value of 42.9; [8] excluding a value of 29.8; [9] excluding a value of 17.3.