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Supporting Information for

**Exposure to light elicits a spectrum of chemical changes in soil**

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**Contents of this file**

Dataset containing the individual measurements of biological and chemical properties

## Biological properties

The following tables compile the measured values for the three dark (unexposed) and three light (exposed) replicates of each soil. A dash indicates that no measurement was taken.

### *Flush of DOC released from chloroform fumigation, µg/g soil*

Soil	Dark	Light									
A	19.5	20.4	F	5.8	12.4	K	86.4	139	P	20.4	19.9
	15.1	6.5		5.1	12.9		92.8	126		9.3	39.0
	23.3	33.0		0.4	-2.2		115	114		15.6	24.0
B	28.7	48.7	G	84.3	238	L	25.5	26.0	Q	3.5	10.6
	50.9	40.4		99.2	117		16.4	29.8		4.0	8.8
	36.9	40.7		164	134		29.7	28.4		22.9	9.3
C	7.1	5.6	H	64.8	10.6	M	61.5	106	R	8.3	43.8
	6.5	5.7		58.6	50.6		31.5	58.9		0.7	-21.2
	10.3	22.0		28.3	41.6		66.7	56.6		0.6	36.9
D	17.3	8.5	I	7.2	19.8	N	14.6	47.5	S	5.3	9.4
	20.0	43.7		21.5	13.0		15.1	22.3		-1.0	2.5
	7.7	1.1		10.4	13.4		23.5	29.1		-1.0	30.9
E	26.1	11.2	J	18.2	25.2	O	-8.1	-46.1	T	21.2	46.8
	36.4	61.8		20.4	27.3		-6.7	-5.4		25.2	45.2
	42.7	35.0		19.3	17.9		-9.8	-4.6		17.2	315

### *Fluorescein diacetate (FDA) hydrolyzed, nmol/g soil/hour*

Soil	Dark	Light									
A	73.1	60.2	F	29.0	19.4	K	78.8	59.3	P	68.0	62.3
	72.3	51.9		30.7	20.5		90.1	53.6		71.2	55.9
	76.0	62.5		27.9	16.6		72.5	50.2		74.9	61.3
B	18.9	17.5	G	95.8	56.2	L	52.3	31.2	Q	1.3	1.1
	18.4	17.3		97.3	65.8		43.7	41.4		1.1	1.2
	18.0	17.3		84.2	69.5		44.0	40.3		1.1	1.3
C	5.3	3.3	H	3.0	1.3	M	175	127	R	61.5	33.5
	4.4	3.5		4.6	2.6		143	114		58.2	37.5
	5.9	2.4		4.5	1.8		170	130		62.3	39.6
D	28.5	27.3	I	4.6	4.4	N	10.7	11.8	S	45.9	41.9
	37.4	27.2		4.4	3.7		11.5	12.0		48.0	44.9
	33.3	25.2		5.5	4.4		13.0	11.2		40.8	39.1
E	77.3	58.8	J	5.3	4.3	O	169	141	T	35.5	31.7
	69.8	63.1		5.4	4.6		172	149		36.7	24.6
	67.1	59.4		5.4	4.7		152	121		39.4	26.7

### *Phosphatase: hydrolysis of phosphate ester substrate, µmol/g soil/hour*

Soil	Dark	Light									
A	0.77	0.50	F	0.14	0.08	K	0.89	0.75	P	0.51	0.07
	0.68	0.07		0.18	0.03		0.97	0.78		0.05	0.46
	0.65	0.34		0.18	0.03		1.07	0.77		0.26	0.52
B	0.74	0.54	G	1.04	0.82	L	0.68	0.31	Q	0.22	0.12
	0.57	0.53		1.01	0.84		0.59	0.49		0.06	0.12
	0.70	0.59		1.05	0.84		0.40	0.16		0.04	0.10
C	0.31	0.09	H	0.01	0.02	M	1.10	0.92	R	0.52	0.36
	0.33	0.41		0.01	0.03		1.09	0.89		0.62	0.47
	0.31	0.28		0.01	0.03		1.16	0.93		0.70	0.46
D	0.52	0.57	I	0.07	0.08	N	0.18	0.33	S	0.40	0.18
	0.67	0.51		0.08	0.11		0.17	0.55		0.42	0.31
	0.62	0.63		0.07	0.08		0.40	0.44		0.46	0.19
E	2.98	1.92	J	1.09	1.85	O	2.04	1.74	T	0.34	0.12
	2.01	1.80		1.62	0.81		2.01	1.48		0.27	0.23
	1.83	1.77		1.33	0.65		1.99	1.52		0.32	0.16

*Arginine ammonification,  $\mu\text{g N/g soil/hour}$*

Soil	Dark	Light									
<b>A</b>	4.5	7.0	<b>F</b>	4.6	2.0	<b>K</b>	2.7	7.9	<b>P</b>	3.5	5.9
	0.7	6.2		3.8	3.5		26.3	11.7		7.5	4.3
	4.5	7.2		2.6	2.3		6.7	14.3		4.9	5.1
<b>B</b>	4.2	5.4	<b>G</b>	6.1	13.8	<b>L</b>	7.2	6.9	<b>Q</b>	6.7	2.9
	2.7	4.7		3.8	6.3		1.5	2.6		1.0	1.4
	3.1	3.5		7.3	10.1		3.0	2.8		0.7	1.1
<b>C</b>	2.0	1.3	<b>H</b>	6.0	3.1	<b>M</b>	10.2	8.9	<b>R</b>	5.5	6.1
	6.2	1.4		2.8	4.6		7.3	11.0		5.0	6.8
	2.1	1.1		1.3	3.6		2.1	6.9		4.7	6.3
<b>D</b>	4.9	7.6	<b>I</b>	3.4	1.6	<b>N</b>	4.3	2.7	<b>S</b>	1.0	2.7
	15.3	5.8		2.2	0.4		3.8	6.4		0.9	2.4
	11.3	5.5		1.6	0.7		3.7	2.2		1.4	2.0
<b>E</b>	2.3	8.4	<b>J</b>	1.0	21.1	<b>O</b>	3.0	5.5	<b>T</b>	4.0	1.5
	1.9	8.2		3.0	8.3		2.5	3.5		1.3	1.8
	0.0	9.5		2.6	0.1		1.6	4.8		2.7	2.9

*Nitrification potential: production of  $\text{NO}_2^- + \text{NO}_3^-$ ,  $\mu\text{g N/g soil/hour}$  (measured in the seven soils which showed a significant increase in nitrite + nitrate upon exposure to light)*

Soil	Dark	Light									
<b>A</b>	-	-	<b>F</b>	-	-	<b>K</b>	-	-	<b>P</b>	0.28	0.19
	-	-		-	-		-	-		0.25	0.12
	-	-		-	-		-	-		0.14	0.15
<b>B</b>	-	-	<b>G</b>	-	-	<b>L</b>	-	-	<b>Q</b>	-0.04	0.07
	-	-		-	-		-	-		-0.03	0.00
	-	-		-	-		-	-		-0.03	0.09
<b>C</b>	-0.03	-0.12	<b>H</b>	0.04	-0.03	<b>M</b>	-	-	<b>R</b>	-	-
	0.02	-0.07		-0.02	0.01		-	-		-	-
	-0.05	0.02		0.00	0.06		-	-		-	-
<b>D</b>	-	-	<b>I</b>	-	-	<b>N</b>	0.35	0.16	<b>S</b>	-	-
	-	-		-	-		0.31	0.25		-	-
	-	-		-	-		0.33	0.14		-	-
<b>E</b>	-	-	<b>J</b>	-0.04	-0.05	<b>O</b>	-	-	<b>T</b>	0.12	0.21
	-	-		-0.02	-0.36		-	-		0.01	0.02
	-	-		0.07	-0.07		-	-		0.01	0.01

## Chemical properties

The following tables compile the measured values for the three dark (unexposed) and three light (exposed) replicates of each soil. A dash indicates that no measurement was taken.

### *K<sub>2</sub>SO<sub>4</sub>-extractable C (DOC), µg/g soil*

Soil	Dark	Light									
A	114	201	F	45	110	K	724	869	P	164	253
	111	217		47	116		695	879		169	244
	114	198		51	121		711	923		169	242
B	173	289	G	797	879	L	94	165	Q	57	88
	169	289		756	939		91	171		52	89
	164	288		727	882		91	162		50	88
C	57	119	H	268	329	M	297	428	R	254	496
	54	111		255	302		306	443		258	554
	55	115		268	298		293	451		274	534
D	189	384	I	47	85	N	103	146	S	49	114
	182	372		45	84		100	143		53	121
	184	393		46	85		100	147		52	103
E	290	479	J	82	139	O	332	480	T	186	293
	286	444		82	139		330	443		180	293
	281	431		84	146		328	455		191	292

### *Ammonium N, µg/g soil*

Soil	Dark	Light									
A	9.4	22.2	F	7.0	16.6	K	22.8	33.8	P	10.4	21.2
	14.7	21.4		6.6	15.1		19.6	33.9		11.2	20.9
	10.6	20.7		6.7	15.2		19.5	29.8		11.8	21.5
B	9.9	27.9	G	26.4	37.4	L	5.2	16.0	Q	3.9	18.4
	10.3	25.3		26.3	42.1		5.6	18.5		3.2	19.0
	9.7	27.5		24.7	37.2		4.6	17.5		3.8	20.1
C	5.8	17.6	H	3.2	0.8	M	12.8	27.3	R	1.6	11.2
	4.7	15.9		0.2	1.4		16.3	26.9		1.5	11.7
	4.4	17.9		1.2	3.2		19.4	28.3		2.2	13.2
D	6.3	20.6	I	2.7	10.0	N	4.5	18.6	S	1.6	13.2
	6.3	22.7		4.6	11.4		5.8	17.9		0.8	12.0
	6.9	20.7		5.8	10.6		4.1	19.5		1.1	11.6
E	7.2	24.5	J	13.0	24.9	O	15.3	31.3	T	2.7	17.6
	8.6	21.2		8.5	25.2		17.8	27.9		3.1	17.2
	10.6	24.2		9.1	32.7		15.0	30.1		3.7	16.9

### *Water-extractable Ca, µg/g soil*

Soil	Dark	Light									
A	11.9	13.2	F	4.1	5.3	K	107	127	P	60.9	77.4
	11.5	13.2		3.7	5.7		127	125		54.5	74.6
	11.1	14.1		3.7	6.1		117	159		55.1	74.0
B	10.2	18.4	G	511	514	L	13.2	19.8	Q	0.5	2.1
	11.9	17.1		514	523		12.8	17.5		0.1	1.7
	10.7	16.2		526	530		11.9	19.3		0.5	0.9
C	41.8	51.9	H	54.0	54.0	M	21.1	36.9	R	90.2	176
	39.9	55.1		52.2	54.9		21.5	36.0		92.5	170
	41.3	55.1		55.8	58.6		19.3	34.5		89.6	171
D	50.9	83.7	I	46.7	57.7	N	10.2	18.9	S	232	270
	53.0	86.1		47.6	57.7		9.8	19.3		303	365
	51.4	79.1		50.3	56.8		10.2	19.3		538	238
E	244	275	J	3.3	8.2	O	9.0	13.6	T	5.7	22.9
	254	252		3.3	6.9		9.8	13.2		5.7	22.0
	252	260		3.7	6.1		9.4	11.5		6.5	22.4

*Water-extractable Fe, µg/g soil*

Soil	Dark	Light									
<b>A</b>	1.99	2.22	<b>F</b>	0.43	0.62	<b>K</b>	23.6	20.3	<b>P</b>	2.69	2.03
	1.83	2.26		0.31	0.74		21.4	20.1		3.08	2.10
	1.99	2.57		0.35	0.66		21.8	18.5		2.96	2.18
<b>B</b>	1.56	1.44	<b>G</b>	0.97	0.97	<b>L</b>	0.86	0.97	<b>Q</b>	0.27	<0.05
	1.75	1.75		1.17	0.97		1.01	1.05		0.35	<0.05
	1.95	1.75		0.78	1.17		0.97	0.97		0.31	<0.05
<b>C</b>	0.86	0.78	<b>H</b>	1.25	1.40	<b>M</b>	1.64	1.17	<b>R</b>	0.78	1.13
	0.97	0.74		1.25	1.48		1.79	1.13		0.90	1.17
	0.94	0.74		1.32	1.40		1.91	1.48		0.74	1.21
<b>D</b>	0.70	0.51	<b>I</b>	0.39	0.23	<b>N</b>	<0.05	<0.05	<b>S</b>	0.12	0.19
	0.70	0.51		0.23	0.31		<0.05	<0.05		0.08	0.16
	0.90	1.05		0.39	0.23		<0.05	<0.05		0.12	0.19
<b>E</b>	<0.05	<0.05	<b>J</b>	<0.05	<0.05	<b>O</b>	1.60	0.97	<b>T</b>	1.09	0.23
	<0.05	<0.05		<0.05	<0.05		1.36	0.90		1.05	0.12
	<0.05	<0.05		<0.05	<0.05		1.25	0.97		1.01	0.47

*pH in KCl*

Soil	Dark	Light									
<b>A</b>	6.22	6.30	<b>F</b>	4.68	5.13	<b>K</b>	4.76	4.82	<b>P</b>	7.20	7.25
	6.20	6.26		4.69	4.88		4.75	4.83		7.08	7.07
	6.19	6.24		4.69	4.91		4.76	4.84		7.04	7.19
<b>B</b>	4.90	5.11	<b>G</b>	4.74	4.88	<b>L</b>	6.06	6.13	<b>Q</b>	3.46	3.54
	4.91	5.10		4.76	4.84		5.96	6.12		3.50	3.51
	4.92	5.09		4.78	4.86		5.97	6.14		3.50	3.53
<b>C</b>	7.42	7.42	<b>H</b>	8.82	8.80	<b>M</b>	5.35	5.51	<b>R</b>	6.46	6.43
	7.41	7.41		8.80	8.78		5.35	5.52		6.40	6.42
	7.41	7.43		8.82	8.80		5.34	5.51		6.35	6.43
<b>D</b>	7.09	7.19	<b>I</b>	7.77	8.00	<b>N</b>	5.05	5.11	<b>S</b>	7.38	7.34
	7.09	7.12		7.98	7.99		5.00	5.13		7.34	7.37
	7.14	7.11		7.95	8.02		5.02	5.13		7.29	7.33
<b>E</b>	4.84	5.09	<b>J</b>	4.79	4.87	<b>O</b>	6.19	6.28	<b>T</b>	4.47	4.54
	4.97	5.08		4.78	4.83		6.14	6.29		4.51	4.56
	4.99	5.08		4.76	4.84		6.12	6.30		4.47	4.54

*Mehlich (dilute acid)-extractable Fe, µg/g soil*

Soil	Dark	Light									
<b>A</b>	121	140	<b>F</b>	21.3	30.4	<b>K</b>	1500	1519	<b>P</b>	853	942
	134	141		21.5	31.6		1447	1575		808	830
	128	139		22.1	30.0		1438	1527		696	885
<b>B</b>	34.1	42.6	<b>G</b>	49.8	73.7	<b>L</b>	36.1	44.6	<b>Q</b>	32.9	36.2
	35.7	45.7		47.0	72.6		39.1	35.3		34.3	37.8
	35.4	43.1		51.8	74.5		39.3	40.2		32.7	37.0
<b>C</b>	97.1	99.4	<b>H</b>	2.2	1.3	<b>M</b>	33.7	41.0	<b>R</b>	85.1	108
	90.1	105		1.6	1.0		35.9	44.7		80.8	96.6
	101	96.8		2.1	1.1		34.9	42.3		79.2	99.7
<b>D</b>	40.7	49.8	<b>I</b>	42.5	42.6	<b>N</b>	70.4	81.3	<b>S</b>	54.2	68.4
	44.9	52.6		40.5	43.1		68.9	78.8		50.2	74.4
	44.1	45.7		33.5	56.7		70.8	77.6		51.1	97.9
<b>E</b>	41.0	54.2	<b>J</b>	31.4	33.0	<b>O</b>	279	284	<b>T</b>	110	109
	46.6	57.2		28.8	32.9		325	360		99.7	137
	42.3	49.5		28.7	30.6		308	338		125	118

*Mehlich (dilute acid)-extractable Mn, µg/g soil*

Soil	Dark	Light									
<b>A</b>	166	195	<b>F</b>	33.2	67.0	<b>K</b>	154	148	<b>P</b>	363	361
	166	196		32.7	61.6		158	156		371	374
	161	196		32.7	33.8		165	162		343	364
<b>B</b>	33.8	39.6	<b>G</b>	64.6	95.4	<b>L</b>	69.6	92.7	<b>Q</b>	1.3	2.1
	35.4	40.7		67.0	98.3		75.5	92.1		1.1	1.9
	34.3	40.2		61.6	95.9		76.6	93.2		1.3	1.1
<b>C</b>	91.1	126	<b>H</b>	32.7	33.8	<b>M</b>	510	616	<b>R</b>	120	125
	98.0	123		34.8	33.2		501	624		121	126
	100	96.4		33.5	32.7		493	617		122	129
<b>D</b>	160	220	<b>I</b>	49.8	62.1	<b>N</b>	4.0	4.8	<b>S</b>	123	172
	152	209		48.8	59.5		4.0	4.8		122	160
	173	214		61.1	71.8		5.1	5.1		117	146
<b>E</b>	133	166	<b>J</b>	11.8	15.0	<b>O</b>	209	261	<b>T</b>	58.9	66.4
	131	171		12.3	14.2		236	258		59.5	63.2
	134	154		12.3	13.7		225	258		55.7	73.4

*Phosphorus sorption capacity: phosphate-P sorbed, µg/g soil*

Soil	Dark	Light									
<b>A</b>	61.2	68.0	<b>F</b>	31.0	25.2	<b>K</b>	289	292	<b>P</b>	212	223
	60.0	65.8		19.6	22.8		289	291		214	217
	59.0	61.8		35.4	19.4		289	291		207	215
<b>B</b>	90.2	104	<b>G</b>	184	192	<b>L</b>	61.0	78.4	<b>Q</b>	249	251
	100	94.0		177	189		53.2	73.0		239	254
	96.0	96.8		177	191		49.2	65.8		240	263
<b>C</b>	98.2	111	<b>H</b>	44.4	41.4	<b>M</b>	194	215	<b>R</b>	103	127
	99.6	112		31.8	43.8		189	214		98.9	123
	108	98.8		30.6	30.0		195	213		113	121
<b>D</b>	110	114	<b>I</b>	44.6	48.0	<b>N</b>	490	486	<b>S</b>	84.0	87.4
	116	117		48.2	44.8		486	487		60.0	73.4
	116	118		34.0	43.4		489	490		78.8	87.0
<b>E</b>	1474	1510	<b>J</b>	465	468	<b>O</b>	113	127	<b>T</b>	233	242
	1464	1530		464	469		115	120		227	249
	1509	1509		457	471		108	121		228	246

*Nitrite + nitrate N, µg/g soil*

Soil	Dark	Light									
<b>A</b>	23.2	21.9	<b>F</b>	5.9	5.5	<b>K</b>	16.7	18.5	<b>P</b>	8.0	8.8
	23.1	24.2		5.9	5.3		19.7	19.7		8.2	8.7
	23.7	23.3		6.1	5.2		20.7	20.2		8.3	8.6
<b>B</b>	29.4	29.0	<b>G</b>	239	232	<b>L</b>	7.0	7.1	<b>Q</b>	0.3	0.8
	29.7	29.3		240	236		7.1	7.2		0.4	0.9
	28.9	29.6		232	233		6.7	6.8		0.3	0.9
<b>C</b>	6.0	6.8	<b>H</b>	2.2	2.5	<b>M</b>	9.2	8.4	<b>R</b>	52.0	49.1
	5.9	6.5		2.1	2.4		7.8	7.6		51.5	52.1
	5.8	6.5		2.1	2.3		8.0	10.0		50.0	49.2
<b>D</b>	21.3	23.0	<b>I</b>	3.5	3.7	<b>N</b>	0.4	2.8	<b>S</b>	2.9	3.3
	21.0	21.1		3.1	3.6		0.4	2.7		2.9	3.2
	20.7	21.3		3.7	3.5		0.4	2.8		3.1	3.0
<b>E</b>	132	125	<b>J</b>	5.5	8.1	<b>O</b>	48.8	50.4	<b>T</b>	0.2	0.9
	129	122		5.7	8.3		50.8	51.8		0.2	0.9
	132	123		5.6	7.9		51.9	51.0		0.3	0.9

*Pyrophosphate-extractable C, µg/g soil*

Soil	Dark	Light									
A	2710	2690	F	722	971	K	35730	33500	P	2600	2360
	2830	3050		677	873		37390	35460		2350	2440
	2830	2950		758	823		35270	36900		2200	2560
B	6930	6720	G	16400	16560	L	1600	2540	Q	223	402
	6990	6780		17610	16200		1560	1640		189	265
	6670	6820		16600	16790		1450	1630		237	256
C	622	813	H	601	638	M	5530	5370	R	5310	6050
	605	749		598	596		5510	5540		5430	5630
	580	678		523	601		5410	5760		5260	6320
D	4820	4810	I	237	290	N	682	957	S	649	857
	5100	4960		245	321		669	695		720	740
	4890	5260		240	262		649	777		587	881
E	28790	27710	J	458	534	O	2830	2790	T	3910	3630
	31250	28560		458	537		2610	2910		3170	3590
	32230	26860		523	590		2650	2980		4110	3330

*Mehlich (dilute acid)-extractable Al, µg/g soil*

Soil	Dark	Light									
A	13.2	23.3	F	38.2	44.1	K	247	274	P	107	99.0
	36.9	25.5		37.0	48.8		237	267		82.4	74.1
	19.4	18.8		39.7	46.1		263	227		33.4	127
B	81.2	88.3	G	171	118	L	50.8	53.0	Q	311	302
	51.6	98.6		200	59.7		48.3	52.2		321	397
	65.8	103		185	91.7		49.4	53.6		328	301
C	<5	<5	H	<5	<5	M	546	541	R	346	282
	<5	<5		<5	<5		561	555		193	318
	<5	<5		<5	<5		552	569		267	340
D	<5	<5	I	60.5	89.6	N	352	319	S	70.4	82.4
	<5	<5		48.4	48.8		344	335		77.0	87.5
	<5	<5		79.1	50.8		347	341		85.8	81.6
E	4330	4180	J	117	114	O	<5	<5	T	2050	2100
	4230	4200		116	109		<5	<5		2090	2050
	4320	4310		109	111		<5	<5		2080	2080

*Olsen (bicarbonate)-extractable P, µg/g soil*

Soil	Dark	Light									
A	22.5	22.0	F	2.9	3.0	K	3.5	3.6	P	4.0	3.7
	23.0	22.3		3.3	3.4		3.4	3.2		3.9	3.4
	24.0	22.5		3.1	3.0		3.4	3.4		2.9	3.8
B	21.0	20.9	G	14.0	23.6	L	8.6	9.1	Q	-1.0	-1.1
	22.6	20.5		11.2	23.9		9.0	10.3		-1.2	-1.0
	21.0	21.3		16.3	21.0		9.0	9.1		-1.3	-1.1
C	0.9	0.9	H	3.8	4.6	M	0.5	0.5	R	6.8	6.4
	0.8	1.4		4.0	4.8		0.6	0.7		6.7	6.6
	0.7	0.3		4.0	4.9		0.6	0.7		6.5	6.5
D	6.5	7.4	I	1.4	1.1	N	-1.4	-0.9	S	2.4	3.1
	7.2	7.6		0.9	1.0		-1.2	-0.8		2.7	3.1
	6.5	7.7		0.9	0.9		-1.3	-1.1		2.3	2.6
E	1.6	1.8	J	-0.7*	-0.7	O	2.2	2.5	T	15.4	16.1
	1.3	1.4		-0.8	-0.8		2.3	2.7		16.2	16.7
	1.7	1.2		-0.8	-0.7		2.1	2.5		15.8	15.0

\* The negative values obtained for the soils rich in iron oxides and low in organic matter (soils J, N, Q) simply indicate that the extracts from these soils contained less phosphorus than the extractant itself used as the baseline; i.e. the soil sorbed some of the small amount of phosphorus initially present in the extracting reagent. This sorption was significantly less for the exposed samples of soil N.

*Pyrophosphate-extractable Fe, µg/g soil*

Soil	Dark	Light									
<b>A</b>	214	225	<b>F</b>	80	82	<b>K</b>	6200	6090	<b>P</b>	316	333
	203	223		91	83		6250	6140		315	324
	215	214		77	81		6260	6270		283	317
<b>B</b>	294	284	<b>G</b>	955	1120	<b>L</b>	72	67	<b>Q</b>	82	93
	301	285		1110	1260		70	66		86	86
	300	277		1030	1140		62	72		92	91
<b>C</b>	105	105	<b>H</b>	41	30	<b>M</b>	319	322	<b>R</b>	236	253
	105	105		35	27		321	329		254	256
	103	100		36	30		319	317		235	256
<b>D</b>	282	289	<b>I</b>	14	18	<b>N</b>	16	16	<b>S</b>	54	46
	278	286		15	14		16	15		53	49
	283	290		15	15		16	17		53	54
<b>E</b>	965	939	<b>J</b>	18	19	<b>O</b>	239	271	<b>T</b>	399	412
	986	915		18	23		241	254		407	369
	989	905		21	19		240	270		397	366

*Noncrystalline Fe oxides, µg Fe/g soil*

Soil	Dark	Light									
<b>A</b>	767	820	<b>F</b>	46	56	<b>K</b>	.*	-	<b>P</b>	1580	1540
	747	804		62	57		-	-		1590	1590
	746	803		75	58		-	-		1640	1590
<b>B</b>	105	125	<b>G</b>	952	737	<b>L</b>	262	283	<b>Q</b>	255	237
	92	109		830	649		250	249		208	239
	90	119		837	783		272	276		209	254
<b>C</b>	1290	1360	<b>H</b>	585	532	<b>M</b>	607	610	<b>R</b>	1180	1260
	1230	1280		517	557		609	583		1440	1340
	1240	1270		600	549		668	655		1310	1160
<b>D</b>	710	747	<b>I</b>	304	282	<b>N</b>	963	1000	<b>S</b>	385	444
	701	744		250	266		1000	1040		403	418
	714	733		288	265		967	958		380	439
<b>E</b>	2	2	<b>J</b>	650	664	<b>O</b>	1440	1400	<b>T</b>	376	363
	50	78		689	685		1470	1490		365	410
	-29	95		687	659		1490	1430		379	398

\*Not calculated for soil K, since oxalate-extractable Fe was less than pyrophosphate-extractable Fe.

*Bray (dilute acid-fluoride)-extractable P, µg/g soil*

Soil	Dark	Light									
<b>A</b>	65.3	63.8	<b>F</b>	13.6	16.7	<b>K</b>	15.3	14.2	<b>P</b>	7.0	6.3
	63.2	61.0		13.0	16.1		15.0	13.9		6.7	6.5
	52.1	61.0		11.9	15.8		14.9	13.8		6.8	6.7
<b>B</b>	66.5	67.0	<b>G</b>	158	156	<b>L</b>	47.2	47.3	<b>Q</b>	0.7	0.9
	70.2	68.7		152	145		58.2	54.2		1.2	1.2
	65.7	68.6		158	160		52.1	43.8		0.6	0.9
<b>C</b>	13.9	9.8	<b>H</b>	29.0	25.1	<b>M</b>	4.5	5.0	<b>R</b>	107	105
	13.0	12.0		25.1	31.0		4.4	4.8		109	108
	14.5	10.8		25.2	28.8		4.5	4.7		115	106
<b>D</b>	45.2	36.5	<b>I</b>	13.9	13.2	<b>N</b>	0.1	0.1	<b>S</b>	19.9	18.7
	50.5	46.7		13.3	13.3		0.1	0.1		19.3	17.4
	49.0	48.7		13.9	13.2		0.1	0.1		19.3	18.8
<b>E</b>	2.4	2.8	<b>J</b>	0.3	0.1	<b>O</b>	9.5	10.1	<b>T</b>	201	195
	3.5	2.9		0.2	0.2		8.6	9.9		200	193
	2.4	2.2		0.2	0.2		9.4	9.4		206	201



*Oxalate-extractable Mn, µg/g soil*

Soil	Dark	Light									
A	323	295	F	34	35	K	162	159	P	322	325
	332	311		36	30		156	160		318	318
	349	321		37	32		176	164		323	334
B	46	42	G	446	445	L	207	200	Q	1.7	2.9
	49	41		474	483		205	194		2.1	2.5
	47	45		485	450		204	215		1.7	2.1
C	917	860	H	42	40	M	2540	2550	R	117	109
	908	836		41	39		2460	2470		112	109
	856	798		39	37		2590	2450		111	117
D	431	449	I	112	116	N	8.2	11	S	2340	2710
	399	435		109	123		10	8.2		2780	2700
	426	436		120	116		8.9	7.8		2480	2560
E	443	462	J	19	16	O	494	497	T	105	117
	474	493		19	17		542	522		89	100
	478	464		17	16		518	535		100	107

*Dilute NaOH-extractable carbohydrates (as glucose equivalents), µg/g soil*

Soil	Dark	Light									
A	345	503	F	208	251	K	617	648	P	439	460
	469	546		182	253		833	864		387	444
	395	540		214	230		694	547		387	455
B	740	876	G	948	1840	L	159	239	Q	1	5
	934	904		1070	1240		180	181		9	11
	928	938		1000	1040		226	217		21	3
C	72	100	H	54	67	M	825	910	R	640	694
	119	158		44	58		956	848		601	686
	72	90		56	61		864	933		586	571
D	706	800	I	33	39	N	170	140	S	142	189
	736	692		27	34		167	136		118	145
	669	783		35	50		174	170		106	167
E	470	601	J	80	96	O	512	1130	T	210	281
	547	540		83	102		728	580		207	620
	447	648		87	83		395	679		154	231

*Pyrophosphate-extractable Al, µg/g soil*

Soil	Dark	Light									
A	1550	1450	F	<200	<200	K	4100	4500	P	<200	<200
	1250	1400		<200	<200		4000	4000		<200	<200
	1350	1700		<200	<200		4200	4100		<200	<200
B	5000	4700	G	2800	2350	L	750	700	Q	5600	5800
	5200	4700		2850	2300		800	650		5500	5400
	5100	4600		2450	2400		750	650		5300	5300
C	750	750	H	<200	<200	M	1200	1300	R	<200	<200
	700	800		<200	<200		1250	1250		<200	<200
	600	550		<200	<200		1250	1250		<200	<200
D	1150	1100	I	<200	<200	N	<200	<200	S	350	350
	1200	1100		<200	<200		<200	<200		350	300
	1100	1250		<200	<200		<200	<200		400	350
E	5300	5700	J	<200	<200	O	<200	<200	T	1700	1450
	5400	5500		<200	<200		<200	<200		1400	1500
	5600	5200		<200	<200		<200	<200		1500	1400

*Oxalate-extractable Fe, µg/g soil*

Soil	Dark	Light									
<b>A</b>	981	1044	<b>F</b>	127	138	<b>K</b>	1999	1959	<b>P</b>	1892	1877
	950	1027		153	140		2008	1993		1906	1915
	961	1018		152	139		1932	1999		1922	1903
<b>B</b>	400	410	<b>G</b>	1907	1855	<b>L</b>	334	350	<b>Q</b>	337	330
	393	394		1941	1904		320	315		294	325
	390	396		1870	1922		334	348		301	345
<b>C</b>	1396	1460	<b>H</b>	626	562	<b>M</b>	926	932	<b>R</b>	1417	1512
	1332	1384		552	584		931	912		1696	1592
	1341	1368		636	579		987	972		1546	1411
<b>D</b>	992	1036	<b>I</b>	318	300	<b>N</b>	980	1018	<b>S</b>	438	490
	980	1030		266	279		1018	1054		456	467
	996	1022		303	280		983	975		433	493
<b>E</b>	967	941	<b>J</b>	669	683	<b>O</b>	1674	1671	<b>T</b>	774	775
	1036	993		708	708		1713	1739		772	779
	960	999		708	678		1725	1702		776	763

*Oxalate-extractable Si, µg/g soil*

Soil	Dark	Light									
<b>A</b>	460	479	<b>F</b>	45	32	<b>K</b>	753	740	<b>P</b>	868	919
	479	434		26	51		760	626		843	887
	472	472		38	38		753	760		830	894
<b>B</b>	945	1050	<b>G</b>	664	760	<b>L</b>	255	236	<b>Q</b>	128	128
	1100	1010		664	664		255	243		147	134
	1090	1000		721	696		243	243		140	128
<b>C</b>	740	702	<b>H</b>	645	657	<b>M</b>	274	236	<b>R</b>	1550	1540
	715	683		664	651		262	236		1460	1530
	689	626		626	613		249	262		1400	1580
<b>D</b>	594	568	<b>I</b>	626	536	<b>N</b>	217	191	<b>S</b>	645	594
	606	562		626	568		217	198		632	632
	581	555		568	632		236	211		651	632
<b>E</b>	5160	5270	<b>J</b>	389	383	<b>O</b>	657	638	<b>T</b>	2800	2760
	5310	5250		402	396		689	670		2600	2850
	5250	5040		396	389		657	683		2780	2670

*E4/E6 ratio of humic acid*

Soil	Dark	Light									
<b>A</b>	5.56	5.36	<b>F</b>	5.73	5.53	<b>K</b>	5.76	5.72	<b>P</b>	9.64	9.60
	5.56	5.53		5.74	5.71		5.73	5.72		9.33	10.3
	5.62	5.55		5.59	5.64		5.72	5.73		9.50	9.20
<b>B</b>	5.06	5.32	<b>G</b>	5.94	5.91	<b>L</b>	10.2	10.6	<b>Q</b>	-	-
	5.38	5.38		5.98	5.89		10.9	11.2		-	-
	5.16	5.42		5.97	5.90		10.9	11.2		-	-
<b>C</b>	-	-	<b>H</b>	7.28	6.71	<b>M</b>	7.94	8.13	<b>R</b>	8.26	8.37
	-	-		8.13	7.17		8.07	7.94		8.38	8.43
	-	-		7.76	6.85		8.09	8.08		8.00	8.39
<b>D</b>	7.03	7.20	<b>I</b>	-	-	<b>N</b>	-	-	<b>S</b>	9.00	6.00
	7.16	7.23		-	-		-	-		6.00	5.80
	7.10	7.15		-	-		-	-		7.00	4.50
<b>E</b>	5.08	5.07	<b>J</b>	-	-	<b>O</b>	4.42	4.56	<b>T</b>	5.73	5.35
	5.04	5.05		-	-		4.51	4.58		6.06	6.00
	5.02	5.05		-	-		4.51	4.51		5.67	5.83

*Dilute NaOH-extractable phenolic compounds (4-hydroxybenzoic acid equivalents), µg/g soil*

Soil	Dark	Light									
<b>A</b>	40	50	<b>F</b>	21	18	<b>K</b>	234	257	<b>P</b>	24	20
	55	52		16	17		218	243		22	20
	45	50		14	21		264	253		22	24
<b>B</b>	234	251	<b>G</b>	152	117	<b>L</b>	50	57	<b>Q</b>	157	132
	206	251		119	156		55	53		106	121
	215	243		165	115		49	53		127	136
<b>C</b>	72	77	<b>H</b>	5.6	8.0	<b>M</b>	99	115	<b>R</b>	55	90
	79	76		6.3	8.5		109	109		50	68
	69	53		6.5	8.9		107	124		68	68
<b>D</b>	38	87	<b>I</b>	8.0	6.1	<b>N</b>	42	85	<b>S</b>	60	162
	57	49		50	8.5		58	46		88	114
	52	78		10	6.5		69	50		133	139
<b>E</b>	234	280	<b>J</b>	88	87	<b>O</b>	135	143	<b>T</b>	19	25
	266	268		87	90		102	116		18	20
	276	271		77	84		115	130		25	25

*Water-extractable Si, µg/g soil*

Soil	Dark	Light									
<b>A</b>	101	101	<b>F</b>	3.8	4.8	<b>K</b>	45.7	47.0	<b>P</b>	31.9	30.7
	104	104		3.4	4.5		46.3	47.6		31.3	31.3
	105	102		3.7	4.4		63.3	47.6		31.3	31.3
<b>B</b>	269	274	<b>G</b>	48.2	48.2	<b>L</b>	49.5	48.9	<b>Q</b>	39.5	38.2
	283	266		49.5	47.0		48.9	47.6		43.8	38.2
	282	272		50.7	48.9		52.0	47.6		41.3	38.8
<b>C</b>	78.9	78.3	<b>H</b>	100	99	<b>M</b>	21.9	23.2	<b>R</b>	75.2	81.4
	78.3	76.4		100	100		21.9	21.9		77.7	78.9
	78.3	73.3		102	97		22.5	23.2		73.9	77.0
<b>D</b>	52.0	50.7	<b>I</b>	55.1	55.7	<b>N</b>	7.8	7.8	<b>S</b>	47.6	48.2
	51.4	49.5		58.9	52.0		7.5	7.8		65.1	45.1
	50.1	53.9		55.7	57.0		7.7	8.0		47.0	48.9
<b>E</b>	63.3	63.9	<b>J</b>	13.0	13.5	<b>O</b>	143	142	<b>T</b>	37.6	38.2
	57.6	69.5		13.2	13.3		142	140		38.8	37.6
	61.4	61.4		12.5	13.5		140	144		39.5	37.6

*NH<sub>4</sub>Cl-extractable Ca, µg/g soil*

Soil	Dark	Light									
<b>A</b>	1570	1510	<b>F</b>	82	81	<b>K</b>	4760	3680	<b>P</b>	4570	3810
	1620	1570		82	78		4900	3900		3660	4110
	1580	1590		89	82		3730	4270		3400	3550
<b>B</b>	4620	4620	<b>G</b>	4380	4410	<b>L</b>	1340	1410	<b>Q</b>	16	17
	5610	4520		4410	4460		1320	1420		17	16
	5410	5690		4570	4360		1340	1420		16	16
<b>C</b>	5290	5190	<b>H</b>	-	-	<b>M</b>	1540	1520	<b>R</b>	3130	3320
	5740	5390		-	-		1580	1550		3310	3200
	5690	4430		-	-		1580	1600		3260	3350
<b>D</b>	4520	4500	<b>I</b>	-	-	<b>N</b>	304	310	<b>S</b>	2540	2380
	4570	4640		-	-		306	314		2320	2780
	4040	4220		-	-		323	302		2320	2320
<b>E</b>	3330	3060	<b>J</b>	197	217	<b>O</b>	525	554	<b>T</b>	227	233
	3400	3360		194	200		528	530		209	211
	3080	3100		198	191		510	533		237	223

*Mehlich (dilute acid)-extractable P, µg/g soil*

Soil	Dark	Light									
<b>A</b>	112	111	<b>F</b>	10.0	11.6	<b>K</b>	27.7	28.1	<b>P</b>	60.7	61.3
	112	113		13.8	12.4		26.6	26.8		60.8	58.9
	115	114		9.1	12.0		27.4	28.0		76.5	60.4
<b>B</b>	129	134	<b>G</b>	108	109	<b>L</b>	59.7	59.9	<b>Q</b>	0.3	0.4
	135	130		109	107		67.6	79.0		0.3	0.5
	132	129		109	105		128	93.1		0.7	0.6
<b>C</b>	135	140	<b>H</b>	52.7	44.5	<b>M</b>	4.9	5.7	<b>R</b>	132	133
	138	136		47.8	43.4		4.7	4.5		136	118
	136	128		43.8	41.0		4.5	5.2		128	133
<b>D</b>	126	128	<b>I</b>	110	128	<b>N</b>	0.0	0.1	<b>S</b>	157	159
	127	128		114	104		0.1	0.0		168	158
	129	125		89.4	124		0.1	0.3		169	160
<b>E</b>	5.4	8.3	<b>J</b>	0.9	0.9	<b>O</b>	15.2	18.9	<b>T</b>	116	118
	7.3	8.9		0.8	1.0		15.4	24.9		113	126
	5.1	6.2		0.9	0.7		17.7	19.8		98	113

*Oxalate-extractable Al, µg/g soil*

Soil	Dark	Light									
<b>A</b>	8900	8590	<b>F</b>	1150	1460	<b>K</b>	31450	31030	<b>P</b>	13901	14680
	8590	8120		1040	1040		30610	31450		14060	14060
	8750	8590		1250	1040		31240	30610		14210	13750
<b>B</b>	17180	16240	<b>G</b>	27700	29160	<b>L</b>	5470	5150	<b>Q</b>	16350	16040
	17810	16710		30410	29370		5150	5310		16450	16870
	17020	16560		29570	27910		5150	5310		16770	16350
<b>C</b>	4690	4530	<b>H</b>	11090	10150	<b>M</b>	24470	24730	<b>R</b>	25770	25300
	4530	4530		10310	10000		23950	24210		25300	25150
	4370	3910		9840	9220		23950	23430		24680	25300
<b>D</b>	9220	9220	<b>I</b>	5100	4690	<b>N</b>	13640	13120	<b>S</b>	3910	4690
	9060	9370		5100	4890		14060	13540		4690	4430
	9370	9220		4480	5100		13430	14370		4170	4690
<b>E</b>	208260	197850	<b>J</b>	13120	13430	<b>O</b>	12700	12500	<b>T</b>	55190	56230
	198890	203570		13430	12910		12500	11870		53940	58110
	204090	206700		13430	13330		12500	11870		57480	58310