Supplemental Table I. Complete raw data.

Sample ID	Valley	Latitude	Longitude	HCl-extractable P (g/kg)	$NaHCO_3$-extractable P (mg/kg)	pH	Electrical conductivity (µS/cm)	ASTER slope (degree)	ASTER elevation (masl)	Soil color	clay (%)	silt (%)	sand (%)
LBD1	Taylor	-77.72507	162.31468	0.27	1.16	9.15	392	7.48	111.62		5.46	4.96	89.58
LBD2	Taylor	-77.73709	162.33408	0.44	0.46	9.85	66.2	7.71	350.01		1.99	1.5	96.51
LBW1	Taylor	-77.72507	162.31468	0.36	0.74	9.05	50.8	7.48	111.62		2.49	2	95.51
LBW2	Taylor	-77.73242	162.32173	0.46	2.76	8.91	59.6	10.30	248.79		10.97	10.97	78.06
RH BB-01	Taylor	-77.73692	162.3371	0.53	0.64	8.59	171.4	12.24	351.10	2.5Y 6/3	4.97	2.98	92.04
RH BB-02	Taylor	-77.73333	162.32512	0.47	0.53	8.28	358	9.94	256.15	2.5Y 6/2	4.97	2.98	92.04
RH BB-03	Taylor	-77.73048	162.31982	0.30	0.43	8.33	316	13.01	209.13	2.5Y 6/2	2.98	0	97.02
RH BB-04	Taylor	-77.72614	162.31311	0.39	2.12	8.18	7310	14.27	112.72	2.5Y 6/3	15.89	13.9	70.21
F6 VP1	Taylor	-77.61602	163.27603	0.95	2.87	9.16	587	3.01	56.27		6.98	4.49	88.53
F6 VP2	Taylor	-77.61501	163.26840	0.88	1.20	10.09	279.8	1.22	41.93		3.48	1	95.52
F6 VP3	Taylor	-77.61669	163.26749	0.92	1.76	10.13	418	3.26	45.53		4.98	1.49	93.52
F6 VR2	Taylor	-77.61226	163.26440	1.63	3.13	8.98	1255	6.48	30.09		3.5	2	94.5
F6 VR3	Taylor	-77.61573	163.27420	1.68	1.77	10.23	174.1	10.32	54.90		2.49	1	96.52
F6 VR4	Taylor	-77.61488	163.26761	1.79	3.74	8.68	1351	2.51	42.26		5.48	2.99	91.53
F6 VR5	Taylor	-77.61646	163.26727	2.41	5.08	9.78	753	3.46	45.74		6.5	5	88.51
LF BP1	Taylor	-77.61538	163.26794	1.09	4.82	10.07	425	2.88	42.47		5.98	3.99	90.03
LF BP2	Taylor	-77.61563	163.26947	0.92	1.22	10.11	119	6.21	44.62		2.98	3.97	93.05
LF BR1	Taylor	-77.61538	163.26794	1.43	7.62	9.1	2817	2.88	42.47		9.93	10.93	79.14
LF BR2	Taylor	-77.61563	163.26947	1.31	11.65	8.3	3470	6.21	44.62		26.92	55.83	17.25
LFD1	Taylor	-77.60946	163.25285	1.20	9.65	10.3	865	4.89	25.29				
LFD2	Taylor	-77.64145	163.34129	0.69	2.58	8.96	40.1	27.13	398.50				
LFD3	Taylor	-77.63911	163.32462	0.52	0.90	9.22	33.6	18.38	227.36				
LFW1	Taylor	-77.60929	163.25441	1.43	2.77	9.12	36.1	7.70	28.65				
LFW3	Taylor	-77.63911	163.32462	0.68	3.39	8.48	13.68	18.38	227.36				
RH BT-01	Taylor	-77.62842	163.37781	0.54	1.17	9.31	39.7	25.24	293.18	2.5Y 4/3			
RH BT-02	Taylor	-77.62908	163.37231	0.58	1.65	9.9	98.2	21.97	264.81	2.5Y 4/3			
RH BT-03	Taylor	-77.62989	163.36629	0.61	0.81	9.97	78	26.12	274.28	2.5Y 4/3			
RH BT-04	Taylor	-77.62907	163.36118	0.62	0.94	9.95	96.4	19.52	213.19	2.5Y 4/3			
RH BT-05	Taylor	-77.62808	163.36644	0.59	1.15	10.19	123.5	19.73	208.29	2.5Y 4/3			
RH BT-06	Taylor	-77.62714	163.37184	0.61	0.84	9.57	86.7	17.39	211.60	2.5Y 4/2			
RH BT-07	Taylor	-77.62606	163.36861	0.62	1.06	10.14	172.50	10.98	183.73	2.5Y 4/2			
RH BT-08	Taylor	-77.62721	163.36227	1.15	1.49	9.17	303	10.13	179.92	2.5Y 4/3			
RH BT-09	Taylor	-77.62845	163.35567	0.68	1.82	10.18	337	16.68	172.07	2.5Y 4/2			
RH BT-10	Taylor	-77.62767	163.35187	0.69	1.13	10.02	120.8	10.27	155.79	2.5Y 4/3			
RH BT-11	Taylor	-77.62657	163.35614	0.61	0.52	9.27	52	8.94	155.12	2.5Y 5/3			
RH BT-12	Taylor	-77.625397	163.361831	0.68	0.69	9.9	114.4	8.47	149.42	2.5Y 4/2			
RH BT-13	Taylor	-77.62384	163.35611	0.70	1.27	10.26	394	5.20	124.68	2.5Y 5/3			
RH BT-14	Taylor	-77.622814	163.30105	0.81	6.20	10.07	1121	2.13	86.01	2.5Y 5/4			
RH BT-15	Taylor	-77.62151	163.29471	0.99	7.70	9.66	1179	6.24	90.18	2.5Y 6/2			
RH BT-16	Taylor	-77.61852	163.28342	1.02	3.98	9.92	490	6.78	68.02	2.5Y 6/2			
RH CR-01	Taylor	-77.60422	163.32787	1.35	6.86	8.93	3590	6.94	40.86	2.5Y 6/2			
RH CR-02	Taylor	-77.60403	163.32816	1.79	14.11	9.96	332	1.71	42.59	2.5Y 6/2			

Sample ID	Valley	Latitude	Longitude	HCl-extractable P (g/kg)	$NaHCO_3$-extractable P (mg/kg)	pH	Electrical conductivity (µS/cm)	ASTER slope (degree)	ASTER elevation (masl)	Soil color	clay (%)	silt (%)	sand (%)
RH CR-03	Taylor	-77.60369	163.32794	2.01	1.31	8.94	717	7.16	41.76	5Y 6/2			
RH CR-04	Taylor	-77.60374	163.32588	1.40	1.50	9.59	342	7.66	41.26	5Y 5/2			
RH CR-05	Taylor	-77.60395	163.32603	1.51	5.84	8.53	4680	5.48	41.54	5Y 6/2			
RH CR-06	Taylor	-77.60421	163.32628	1.24	1.05	9.56	143.1	3.32	42.11	2.5Y 4/3			
RH KP-01	Taylor	-77.6069	163.26801	1.02	6.38	8.69	2790	1.77	14.58	5Y 6/2			
RH KP-02	Taylor	-77.6069	163.26801	1.35	1.39	9.97	185.7	1.77	14.58	5Y 6/1			
RH KP-03	Taylor	-77.60345	163.29279	1.56	4.31	8.9	3190	3.17	20.45	GLEY1 7/N			
RH KP-04	Taylor	-77.60345	163.29279	1.16	3.74	10.15	1245	3.17	20.45	5Y 5/2			
RH KP-05	Taylor	-77.59895	163.28108	1.56	2.89	9.44	550	7.46	21.64	5Y 6/2			
RH KP-06	Taylor	-77.59895	163.28108	1.04	2.58	8.1	3190	7.46	21.64	2.5Y 4/2			
RH LR-01	Taylor	-77.61555	163.28458	2.15	1.40	8.82	1873	4.98	59.68	5Y 7/3	5.48	2.99	91.53
RH LR-02	Taylor	-77.61577	163.28474	1.21	1.07	10.14	229.3	1.93	58.01	5Y 7/2	2.99	1.99	95.01
RH LR-03	Taylor	-77.61605	163.28488	1.09	3.70	9.6	1546	2.62	58.04	2.5Y 7/2	7.45	7.45	85.1
RH LR-04	Taylor	-77.61389	163.31091	1.55	1.68	8.67	947	14.72	85.55	5Y 7/2	8.45	5.96	85.59
RH LR-05	Taylor	-77.61388	163.31526	1.05	31.85	9.44	2031	2.29	85.23	2.5Y 6/2	21.92	8.47	69.61
RH LR-06	Taylor	-77.6121	163.32281	1.97	1.75	9.29	700	2.07	84.17	5Y 6/2	8.45	4.47	87.07
RH LR-07	Taylor	-77.6123	163.323331	1.30	5.22	10.23	3290	2.48	84.50	5Y 4/2	12	12	76.01
RH LR-08	Taylor	-77.6123	163.32333	1.10	1.12	10.17	202.6	2.48	84.50	2.5Y 7/2	2.49	1.99	95.51
RH LR-09	Taylor	-77.611606	163.346261	2.04	1.86	9.47	724	4.94	90.18	5Y 7/2	7.99	8.98	83.03
RH LR-10	Taylor	-77.61138	163.34732	1.16	30.61	9.97	1669	3.41	90.83	2.5Y 6/2	12.98	7.99	79.04
RH LR-11	Taylor	-77.61061	163.35275	2.47	1.04	8.41	1673	17.70	92.07	5Y 6/2	5.49	3	91.51
RH LR-12	Taylor	-77.61087	163.35345	1.32	1.55	9.48	34.2	22.26	98.68	5Y 6/1	3.49	2.5	94.01
RH LR-13	Taylor	-77.61095	163.35388	0.90	1.65	10.2	192.3	23.83	95.11	2.5Y 5/3	1.49	0.99	97.51
RH MD-01	Taylor	-77.59908	163.2789	1.72	4.88	9.8	600	2.82	18.65	5Y 4/1			
RH MD-02	Taylor	-77.59882	163.28119	1.48	4.95	8.7	2446	7.70	18.47	2.5Y 6/3			
RH MD-03	Taylor	-77.5984	163.28377	1.60	13.51	10.15	557	5.95	24.30	5Y 5/1			
RH MD-04	Taylor	-77.62052	163.33882	0.93	1.59	8.53	456	6.27	105.20	2.5Y 6/2			
RH MD-05	Taylor	-77.61974	163.33458	1.00	1.00	9.95	86.6	6.46	98.55	2.5Y 5/2			
RH MD-06	Taylor	-77.61909	163.32909	0.85	2.16	9.92	205.9	8.67	99.46	2.5Y 5/3			
TV01 SP	Taylor	-77.62208	163.35286	0.72	1.43	9.7	154.5	3.10	115.55				
TV02 SP	Taylor	-77.62208	163.35286	0.66	2.33	9.88	601	3.10	115.55				
TV03 SP	Taylor	-77.62208	163.35286	1.42	2.63	8.66	273.5	3.10	115.55				
TV04 SP	Taylor	-77.62268	163.35719	1.08	4.84	8.67	4210	5.25	120.65				
TV05 SP	Taylor	-77.62268	163.35719	0.71	0.95	9.23	93.2	5.25	120.65				
TV06 SP	Taylor	-77.62268	163.35719	0.66	0.71	9.67	75.8	5.25	120.65				
TV07 SP	Taylor	-77.61955	163.34314	0.63	1.19	9.74	82.2	5.67	99.57				
TV08 SP	Taylor	-77.61955	163.34314	0.79	1.83	10.25	269.3	5.67	99.57				
TV09 SP	Taylor	-77.61955	163.34314	0.75	1.09	9.88	245.1	5.67	99.57				
RH GW-01	Garwood	-78.0306	164.16144	1.74	1.19	9.55	184.9	4.01	57.96	5Y 5/2			
RH GW-02	Garwood	-78.03107	164.16696	2.39	1.75	9.55	276.3	9.93	69.14	GLEY1 5/N			
RH GW-03	Garwood	-78.03185	164.16519	1.73	1.06	9.67	138.2	9.97	69.13	5Y 4/2			
RH GW-04	Garwood	-78.03275	164.16866	1.96	3.03	9.26	1989	3.61	64.36	2.5Y 4/2			
RH GW-05	Garwood	-78.03312	164.16824	1.98	1.69	9.7	211.7	5.60	67.88	5Y 5/1			

Sample ID	Valley	Latitude	Longitude	HCl-extractable P (g/kg)	$NaHCO_3$-extractable P (mg/kg)	pH	Electrical conductivity (µS/cm)	ASTER slope (degree)	ASTER elevation (masl)	Soil color	clay (%)	silt (%)	sand (%)
RH GW-07	Garwood	-78.03439	164.1568	1.16	1.02	9.16	91.9	10.43	79.62	2.5Y 6/2			
RH GW-08	Garwood	-78.03448	164.1483	1.25	2.19	8.83	164.3	19.94	116.72	2.5Y 4/2			
RH GW-09	Garwood	-78.03436	164.14421	0.86	0.68	9.48	81.8	21.66	116.88	2.5Y 5/2			
RH GW-10	Garwood	-78.03413	164.14034	0.98	2.45	8.68	384	30.15	134.60	2.5Y 6/3			
RH GW-11	Garwood	-78.03359	164.13632	0.81	1.42	8.52	186.4	23.87	145.55	2.5Y 6/3			
RH GW-12	Garwood	-78.03111	164.14218	1.06	1.04	9.54	161.1	23.16	55.37	2.5Y 5/2			
RH GW-13	Garwood	-78.03111	164.14218	1.20	1.35	9.5	213.2	23.16	55.37	2.5Y 5/2			
RH GW-14	Garwood	-78.02896	164.14679	0.86	0.25	9.39	35.1	2.02	15.68				
RH GW-15	Garwood	-78.0286	164.14835	0.97	0.19	8.99	27.52	5.73	17.16				
RH GW-16	Garwood	-78.02837	164.15036	0.76	0.25	9.27	27.37	4.29	15.46				
RH HH-01	Hjorth	-77.50763	163.69614	1.11	3.63	9.49	154.9	3.99	378.67	2.5Y 4/3			
RH HH-02	Hjorth	-77.50704	163.69606	1.29	2.92	8.66	33.4	4.14	381.15	2.5Y 4/2			
RH HH-03	Hjorth	-77.50627	163.69579	1.20	4.67	9	3320	4.68	386.36	2.5Y 4/2			
RH HH-04	Hjorth	-77.5064	163.69382	0.86	2.02	9.88	244.9	6.16	379.03	2.5Y 4/3			
RH HH-05	Hjorth	-77.50695	163.69173	0.99	1.15	9.43	173.6	11.33	375.79	2.5Y 4/2			
RH HH-06	Hjorth	-77.50771	163.69046	1.17	1.95	9.45	373	4.82	386.19	2.5Y 4/2			
RH HH-07	Hjorth	-77.51741	163.6611	1.02	1.48	10.23	262.7	21.05	379.67	2.5Y 4/2			
RH HH-08	Hjorth	-77.51785	163.66429	1.06	1.45	9.97	239.5	31.48	350.85	2.5Y 4/3			
RH HH-09	Hjorth	-77.51816	163.66666	1.18	0.96	9.05	115.7	12.53	335.71	2.5Y 4/2			
RH HH-10	Hjorth	-77.51855	163.66882	1.21	2.02	9.43	651	15.15	333.72	2.5Y 4/3			
RH HH-11	Hjorth	-77.52618	163.69029	1.27	1.79	9.66	225.3	10.70	222.93	2.5Y 4/2			
RH HH-12	Hjorth	-77.52654	163.6945	1.08	1.18	9.36	114.8	11.13	223.08	2.5Y 5/1			
RH HH-13	Hjorth	-77.52902	163.69472	1.32	3.68	10.28	499	3.89	213.55	2.5Y 4/2			
RH HH-14	Hjorth	-77.5301	163.70033	1.21	1.65	8.6	3360	12.49	206.54	2.5Y 5/3			
RH HH-15	Hjorth	-77.52679	163.70192	1.09	0.68	8.63	49.3	9.60	231.40	2.5Y 5/1			
RH Miers 01	Miers	-78.10423	164.1781	1.43	4.42	9.47	1538	10.11	176.04	2.5Y 6/3			
RH Miers 02	Miers	-78.1049	164.16852	1.55	2.14	8.92	2015	8.85	173.13	2.5Y 7/3			
RH Miers 03	Miers	-78.10555	164.16696	1.71	1.27	9.98	323	5.60	169.26	2.5Y 6/3			
RH Miers 04	Miers	-78.10563	164.16478	1.85	1.24	9.58	198.2	10.01	167.95	2.5Y 6/2			
RH Miers 05	Miers	-78.10513	164.15807	1.23	8.82	8.6	6500	3.55	173.68	2.5Y 6/3			
RH Miers 06	Miers	-78.10667	164.14902	1.68	0.87	9.72	158	15.99	154.10	2.5Y 5/2			
RH Miers 07	Miers	-78.107292	164.146189	1.84	0.96	9.79	88.3	9.88	149.12	2.5Y 5/2			
RH Miers 08	Miers	-78.10223	164.16203	1.59	0.71	9.26	103.8	24.06	232.33	2.5Y 5/1			
RH Miers 09	Miers	-78.10183	164.16898	1.52	1.97	8.36	99.9	22.60	228.63	2.5Y 4/1			
RH Miers 10	Miers	-78.102	164.17139	1.66	0.99	9.28	310	22.49	225.06	5Y 5/1			
RH Miers 11	Miers	-78.10151	164.17416	1.73	1.10	9.28	185.4	30.46	238.55	5Y 5/2			
RH Miers 12	Miers	-78.102064	164.175406	1.60	1.74	10.53	325	15.39	213.26	2.5Y 4/2			
RH Miers 13	Miers	-78.106	164.19458	1.81	1.23	8.83	814	4.25	137.90	2.5Y 5/2			
RH Miers 14	Miers	-78.106575	164.197325	1.88	3.68	10.02	503	15.67	125.19	5Y 5/2			
RH Miers 15	Miers	-78.10757	164.19998	1.90	1.28	10.17	202.9	10.13	114.92	2.5Y 3/2			
RH Miers 16	Miers	-78.10757	164.19998	1.82	2.66	10.07	1281	10.13	114.92	2.5Y 3/2			
RH Miers 17	Miers	-78.10757	164.19998	2.04	5.39	9.83	871	10.13	114.92	2.5Y 3/2			
RH Miers 18	Miers	-78.10757	164.19998	1.76	2.76	10.06	571	10.13	114.92				

Sample ID	Valley	Latitude	Longitude	HCl-extractable P (g/kg)	$NaHCO_3$-extractable P (mg/kg)	pH	Electrical conductivity (µS/cm)	ASTER slope (degree)	ASTER elevation (masl)	Soil color	clay (%)	silt (%)	sand (%)
NH02 SP	Taylor	-77.57920	163.51266	1.36	0.97	9.57	244	2.94	13.00				
NH03 SP	Taylor	-77.57920	163.51266	1.18	1.77	8.82	407	2.94	13.00				
NH04 SP	Taylor	-77.58372	163.49188	1.22	0.98	10.14	180.9	3.47	46.18				
NH05 SP	Taylor	-77.58372	163.49188	1.20	3.72	10.13	243.7	3.47	46.18				
NH06 SP	Taylor	-77.58372	163.49188	1.26	2.11	9.34	855	3.47	46.18				
NH07 SP	Taylor	-77.58447	163.48976	1.18	1.12	9.72	171	5.55	51.64				
NH08 SP	Taylor	-77.58692	163.46971	1.27	2.88	9.44	651	13.08	79.20				
NH09 SP	Taylor	-77.58692	163.46971	1.09	1.59	9.85	242.4	13.08	79.20				
NH10 SP	Taylor	-77.58692	163.46971	1.73	3.15	9.77	494	13.08	79.20				
NH11 SP	Taylor	-77.58665	163.47307	1.30	1.67	9.9	167.1	2.74	76.67				
NH12 SP	Taylor	-77.58665	163.47307	1.24	1.22	9.67	216	2.74	76.67				
NH13 SP	Taylor	-77.58665	163.47307	1.53	2.58	9.75	758	2.74	76.67				
MP-1 SP	Taylor	-77.70055	162.70717	0.90	4.56	8.34	6540	14.03	742.77				
MP-2 SP	Taylor	-77.70058	162.70752	0.64	0.85	8.65	2083	15.08	741.62				
P1 SP	Taylor	-77.65407	162.90950	0.76	0.61	9.76	117.8	9.06	318.39				
P2 SP	Taylor	-77.65410	162.90956	0.73	1.52	9.91	122.3	9.29	318.12				