

Špulák O, Kacálek D, Balcar V (2019).

Seven spruce species on a mountain site - performance, foliar nutrients and forest floor properties in twenty-year-old stands

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Supplementary Material

Tab. S1 - Properties of forest floor and soil horizons (mean and standard deviation). Asterisks indicate statistically significant differences between Pa and individual non-native spruce species (*t*-test with Holm's adjustment): **p* < 0.05, ***p* < 0.01. BCC – base cation content; BS – base saturation; CEC – cation exchange capacity; Pa – *Picea abies*; Pg – *P. glauca*; Pr – *P. rubens*; Po – *P. omorika*; Pp – *P. pungens*; Ps – *P. sitchensis*; Pm – *P. mariana*.

L+F horizons

Stand	Cox (%)		N (%)		pH/H ₂ O		pH/KCl		BCC (meq/100g)		CEC-BCC (meq/100g)		CEC (meq/100g)		BS (%)		P (mg/kg)		K (mg/kg)		Ca (mg/kg)		Mg (mg/kg)	
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD
Pa	38.41	1.40	1.64	0.11	4.18	0.24	3.08	0.22	23.13	5.79	50.81	6.35	73.94	6.24	31.17	7.13	68.0	14.7	896.6	166.7	2049.8	469.7	457.3	50.7
Pg	37.89	3.09	1.53	0.11	4.17	0.16	3.23	0.17	25.04	9.26	35.54**	9.04	60.58	13.45	41.20	11.25	53.6	8.4	588.7	138.9	1955.3	550.7	472.0	195.4
Pr	38.29	3.63	1.55	0.16	4.05	0.16	3.10	0.18	20.21	8.48	48.63	10.66	68.85	13.46	29.25	9.78	53.3	13.2	598.2	153.8	1804.2	233.0	452.2	137.6
Po	42.34	2.73	1.71	0.08	4.27	0.16	3.52*	0.14	20.86	4.53	31.74**	4.91	52.60*	6.72	39.63	6.02	64.0	20.7	642.4	220.3	2475.6	645.0	401.6	81.3
Pp	39.66	4.11	1.94	0.04	4.16	0.28	3.68**	0.36	32.89	2.53	24.61**	5.14	57.50	3.52	57.53*	6.45	68.0	14.5	991.0	281.1	2929.0	501.7	579.0	97.7
Ps	39.42	7.20	1.43	0.22	4.15	0.20	3.24	0.09	23.58	5.67	41.79	3.57	65.37	6.80	35.68	5.95	50.0	7.3	661.6	213.6	2100.8	291.2	525.2	66.7

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F+H horizons

Stand	Cox (%)		N (%)		pH/H ₂ O		pH/KCl		BCC (meq/100g)		CEC-BCC (meq/100g)		CEC (meq/100g)		BS (%)		P (mg/kg)		K (mg/kg)		Ca (mg/kg)		Mg (mg/kg)	
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD
Pa	31.44	4.24	1.32	0.30	3.80	0.16	2.91	0.10	17.27	10.73	65.30	8.23	82.57	11.34	20.04	10.11	36.0	10.8	389.6	90.3	1519.3	411.7	479.8	264.3
Pg	31.16	4.20	1.39	0.12	3.89	0.18	3.07	0.05	15.17	9.99	45.70**	3.72	60.87*	12.65	23.18	9.44	32.2	8.2	321.3	55.6	1298.4	240.3	390.0	136.3
Pr	29.21	4.69	1.33	0.20	3.96	0.31	3.08	0.24	14.46	11.21	59.20	11.70	73.66	15.85	18.58	11.17	27.8	8.7	304.9	61.1	1638.2	478.8	537.1	223.0
Po	33.76	1.89	1.61	0.10	3.90	0.19	3.06	0.07	19.26	9.10	42.30**	6.20	61.56	10.86	30.07	10.07	31.6	12.0	386.4	91.9	1823.2	524.6	574.4	174.1
Pp	30.03	4.47	1.57	0.19	3.81	0.13	3.17*	0.02	22.11	6.30	41.56**	2.51	63.67	6.84	34.16	6.14	43.6	15.0	379.6	95.0	1743.2	285.9	522.0	99.0
Ps	25.35	6.71	1.07	0.48	3.93	0.24	3.15	0.09	15.13	4.88	44.17**	8.30	59.29*	11.65	25.30	5.75	20.4	3.9	261.2	68.7	1417.6	333.6	416.0	130.5

A horizon

Stand	Cox (%)		N (%)		pH/H ₂ O		pH/KCl		BCC (meq/100g)		CEC-BCC (meq/100g)		CEC (meq/100g)		BS (%)		P (mg/kg)		K (mg/kg)		Ca (mg/kg)		Mg (mg/kg)	
	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD	mean	SD
Pa	15.31	7.15	0.68	0.38	3.89	0.23	3.15	0.09	9.60	4.19	26.77	11.42	36.37	14.87	26.50	6.30	8.4	3.7	113.6	60.3	548.6	110.9	154.0	37.9
Pg	14.34	5.08	0.56	0.23	3.73	0.13	3.16	0.12	6.91	2.61	22.81	3.12	29.72	4.68	22.93	5.39	14.0	4.0	96.2	40.5	497.3	40.4	151.8	74.6
Pr	18.69	6.74	0.75	0.30	3.84	0.16	3.09	0.15	10.40	4.78	31.12	10.60	41.51	13.48	25.28	7.25	10.9	4.4	132.0	45.4	675.3	198.6	226.8	86.7
Po	15.25	5.09	0.86	0.13	3.70	0.18	3.03	0.11	9.00	4.29	26.00	3.14	35.00	3.92	24.97	10.91	12.7	5.7	134.7	40.0	738.0	180.8	213.2	67.9
Pp	14.16	5.55	0.89	0.26	3.70	0.03	3.20	0.08	8.16	2.74	23.27	5.69	31.43	8.29	25.50	3.05	17.0*	4.3	140.6	32.2	760.2	155.5	237.2	60.1
Ps	11.26	5.14	0.41	0.18	3.83	0.06	3.19	0.11	7.35	2.70	20.13	4.45	27.47	4.99	26.88	10.14	12.3	1.4	77.7	28.5	622.7	151.6	151.0	53.4