

Appendix

TABLE A1. Geographical details and characterization of a soil profile at the Glas Maol study site.

Slope, Aspect, Altitude:	9°, NW, 1037 m
Climate:	Extremely humid lower Oroarctic
Vegetation:	<i>Carex bigelowii</i> – <i>Racomitrium lanuginosum</i> moss-heath
Soil drainage:	Free (moist to slightly moist soil)
Major soil subgroup:	Alpine or Oroarctic podzol
Rock type:	Schist and Gneiss
Rooting:	Common (H, E and Bs horizons) to many (Bh) very fine roots
Horizons & depths (cm):	L (0-2); H (2-4); E (4-12); Bh (12-21); Bs (21-34); C (34-60)

TABLE A2. Means and standard errors of mean (SE) of carbon and nutrient fluxes in a leaching experiment with soil cores collected near (a) and away from (b) a snow fence and exposed to five different freezing-thawing treatments (Fig. 3). Fluxes are expressed as net amounts in leachate and per unit soil in cores. Water leaching rate is expressed in % of the applied water. Replication = 5 cores per treatment and origin.

a) Near fence (*Dicranum* community)

Treatments	0S		1S		3S		0L		1L	
Amounts in										
leachate	Mean	SE	Mean	SE	Mean	SE	Mean	SE	Mean	SE
DOC (mg)	0.188	0.052	0.400	0.067	1.034	0.164	0.526	0.082	0.969	0.264
NH ₄ ⁺ (mg)	0.009	0.002	0.041	0.015	0.109	0.038	0.013	0.007	0.108	0.055
NO ₃ ⁻ (mg)	0.009	0.002	0.111	0.043	0.172	0.083	0.036	0.026	0.064	0.007
DON (mg)	0.007	0.002	0.023	0.002	0.064	0.013	0.023	0.004	0.043	0.009
SRP (µg)	0.10	0.04	2.50	2.34	7.80	6.90	0.50	0.03	13.50	12.95
DOP (µg)	1.10	0.17	1.70	0.37	4.10	2.05	1.40	0.45	6.20	45.10
Amounts per unit										
soil										
DOC (mg g ⁻¹)	0.008	0.003	0.015	0.004	0.046	0.012	0.022	0.005	0.039	0.015
NH ₄ ⁺ (µg g ⁻¹)	0.333	0.054	1.927	1.165	5.034	2.286	0.537	0.272	4.676	2.892
NO ₃ ⁻ (µg g ⁻¹)	0.321	0.079	3.600	1.159	8.593	5.227	1.718	1.352	2.400	0.407
DON (µg g ⁻¹)	0.282	0.110	0.832	0.158	2.741	0.694	0.961	0.234	1.699	0.533

SRP ($\mu\text{g g}^{-1}$)	0.003	0.001	0.065	0.058	0.452	0.415	0.018	0.001	0.660	0.642
DOP ($\mu\text{g g}^{-1}$)	0.042	0.008	0.068	0.024	0.202	0.129	0.057	0.019	0.290	0.228
H ₂ O leaching										
rate	84.5%	1.5%	87.0%	1.6%	82.5%	1.4%	74.4%	2.0%	84.8%	1.1%

b) Away from fence (*Racomitrium* community)

Treatment	0S	1S	3S	0L	1L					
Amounts in										
leachate										
DOC (mg)	0.307	0.075	0.761	0.106	1.082	0.255	0.902	0.100	1.193	0.106
NH ₄ ⁺ (mg)	0.022	0.009	0.171	0.072	0.096	0.032	0.024	0.008	0.133	0.027
NO ₃ ⁻ (mg)	0.168	0.093	0.215	0.085	0.198	0.035	0.244	0.146	0.109	0.022
DON (mg)	0.015	0.006	0.094	0.066	0.079	0.023	0.033	0.007	0.106	0.035
SRP (μg)	0.20	0.07	1.00	0.41	1.60	0.97	0.80	0.30	3.80	2.10
DOP (μg)	0.80	0.11	2.30	0.33	2.10	0.83	1.50	0.70	3.80	1.31
Amounts per unit										
soil										
DOC (mg g^{-1})	0.012	0.005	0.049	0.016	0.044	0.015	0.046	0.009	0.058	0.012
NH ₄ ⁺ ($\mu\text{g g}^{-1}$)	0.921	0.421	14.632	9.184	3.969	1.673	1.131	0.406	6.630	1.929
NO ₃ ⁻ ($\mu\text{g g}^{-1}$)	7.358	4.243	16.498	10.164	7.785	1.961	12.840	8.228	4.888	1.161
DON ($\mu\text{g g}^{-1}$)	0.621	0.303	9.648	8.526	3.267	1.253	1.714	0.484	5.348	2.056

SRP ($\mu\text{g g}^{-1}$)	0.006	0.003	0.051	0.018	0.073	0.048	0.043	0.018	0.213	0.128
DOP ($\mu\text{g g}^{-1}$)	0.033	0.009	0.132	0.031	0.092	0.043	0.083	0.041	0.209	0.096
H ₂ O leaching rate	84.1%	1.0%	84.4%	1.3%	80.4%	0.8%	75.7%	1.5%	79.8%	0.8%

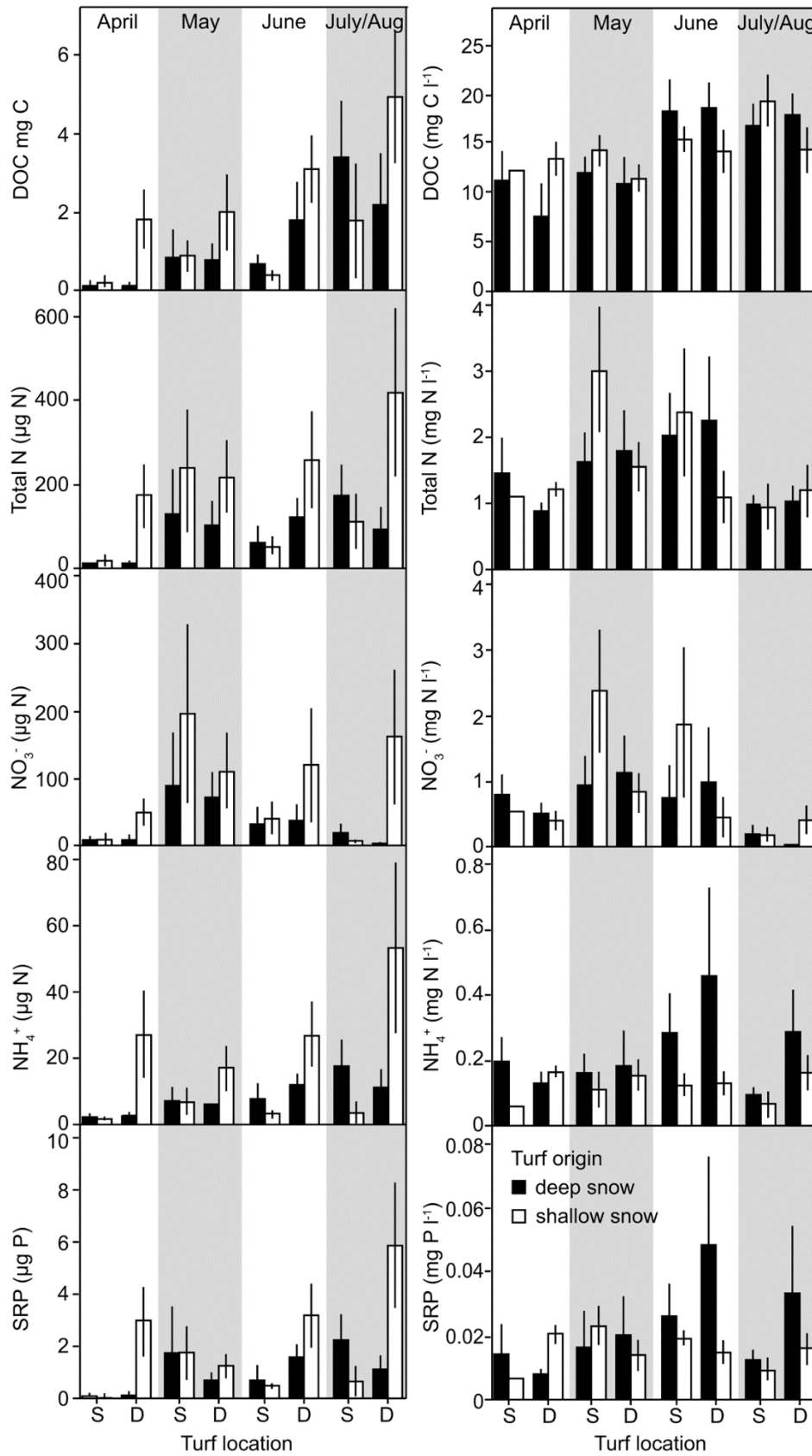


FIG. A1. Fluxes (left column) and concentrations (right column) of DOC and nutrients in soil water in a monolith transplant experiment between locations with either deep and persistent, or shallow and intermittent snow conditions near (deep snow; D) or away (shallow snow; S) from a snow fence. The soil water was trapped with passive lysimeters in monthly intervals (installed April 10, sampled May 7, June 1, July 9, and August 17, 2007).