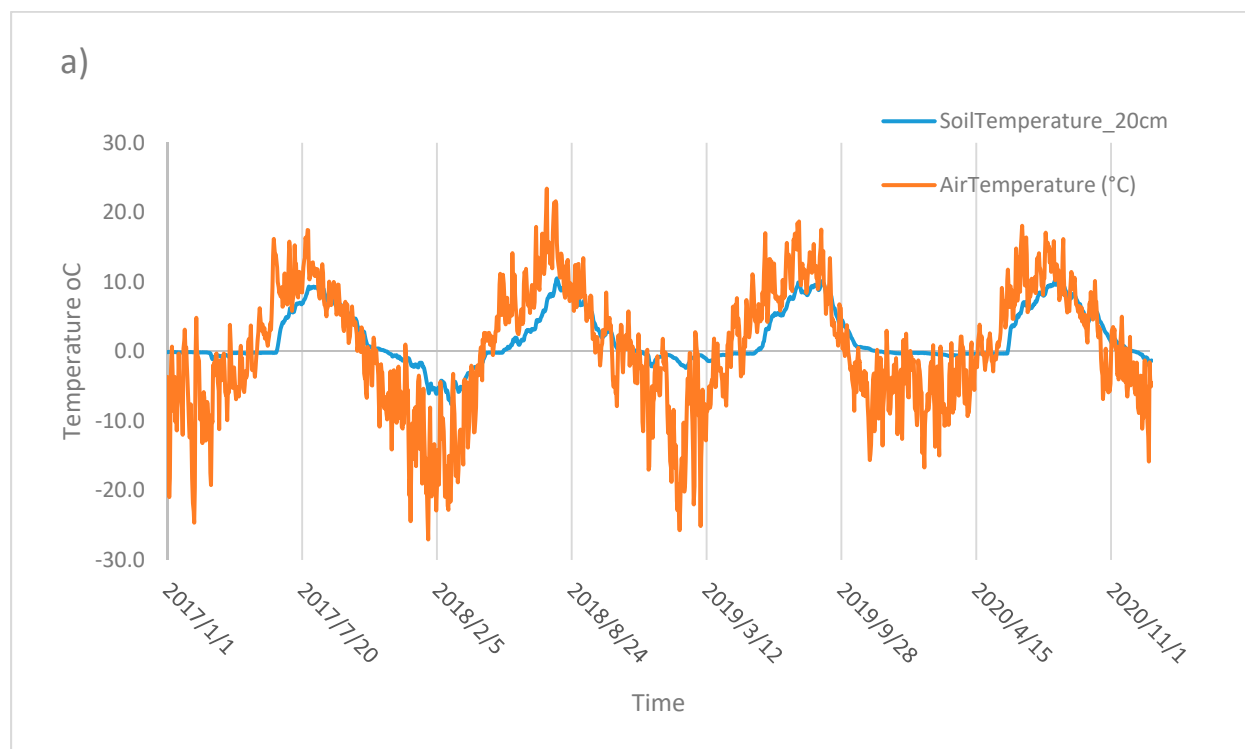




Supplementation information



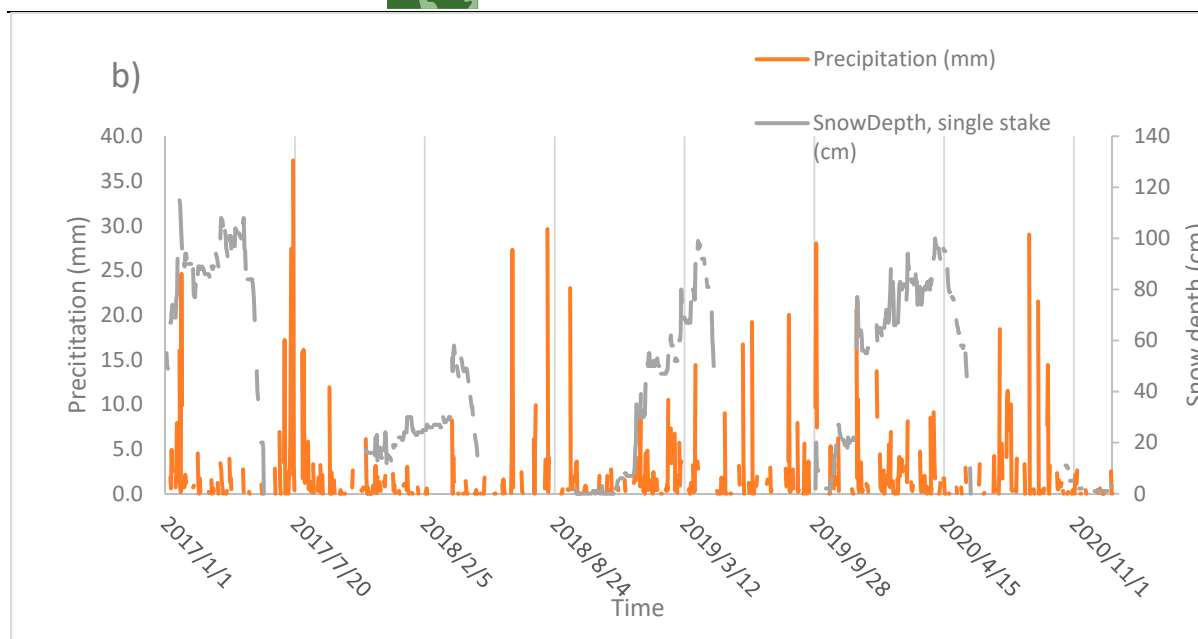


Figure S1. Air and soil temperature a) and precipitation and snow depth b) data from Abisko Research Station (located within 5 km of the study site) for the study period.

Table S1: confusion matrix of supervised vegetation classification for Tourist St..

n = 77		validation									User accuracy	
predicted		Anthropogenic	Water bodies	Rock outcrop	Shadows	Sparse birch forest	Forest wetland	Raised palsa	Willow wetland	Sphagnum wetland		Sedge wetland
	Anthropogenic	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA
	Water bodies	NA	3	NA	NA	0	0	0	0	0		0



Rock outcrop	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Shadows	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sparse birch forest	NA	0	NA	NA	1	0	0	0	0	0	100.0
Forested wetland	NA	0	NA	NA	0	1	1	3	0	0	20.0
Raised palsa	NA	0	NA	NA	0	0	33	0	0	0	100.0
Willow wetland	NA	0	NA	NA	0	0	2	5	0	0	71.4
Sphagnum wetland	NA	0	NA	NA	0	0	5	0	11	1	64.7
Sedge wetland	NA	0	NA	NA	0	0	1	0	1	9	81.8
Producer accuracy	NA	100.0	NA	NA	100.0	100.0	78.6	62.5	91.7	90.0	81.82

Table S2: Confusion matrix of supervised vegetation classification for Storflaket.

n = 114		validation									User accuracy
predicted	Anthropogenic	Water bodies	Rock outcrop	Shadows	Sparse birch forest	Forested wetland	Raised palsa	Willow wetland	Sphagnum wetland	Sedge wetland	
	Anthropogenic	2	0	1	NA	NA	0	0	0	0	66.7
	Water bodies	0	7	0	NA	NA	0	1	1	1	58.3
	Rock outcrop	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA



Shadows	0	0	0	NA	NA	0	0	1	1	0	NA
Sparse birch forest	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Forested wetland	0	0	0	NA	NA	2	0	0	1	1	50.0
Raised palsa	0	0	0	NA	NA	0	60	1	1	6	88.2
Willow wetland	0	0	0	NA	NA	0	3	4	0	1	50.0
Sphagnum wetland	0	0	0	NA	NA	0	1	0	6	2	66.7
Sedge wetland	0	0	0	NA	NA	0	2	0	3	3	37.5
Producer accuracy	100.0	100.0	NA	NA	NA	100.0	89.6	57.1	46.2	20.0	73.68

Table S3: Confusion matrix of supervised vegetation classification for Stordalen

n = 197		validation										User accuracy
predicted		Anthropogenic	Water bodies	Rock outcrop	Shadows	Sparse birch forest	Forested wetland	Raised palsa	Willow wetland	Sphagnum wetland	Sedge wetland	
Anthropogenic		4	0	0	NA	0	0	0	0	1	0	80.0
Water bodies		0	5	0	NA	0	0	1	0	9	0	33.3
Rock outcrop		1	0	2	NA	0	0	0	0	0	0	66.7
Shadows		0	0	0	NA	0	0	0	0	0	0	NA
Sparse birch		0	0	0	NA	1	0	0	0	1	0	50.0



forest											
Forested wetland	0	0	0	NA	0	8	2	3	0	2	53.3
Raised palsa	0	0	0	NA	0	0	56	0	7	1	87.5
Willow wetland	0	0	0	NA	0	2	6	11	0	4	47.8
Sphagnum wetland	0	0	0	NA	0	0	7	0	36	0	83.7
Sedge wetland	0	0	0	NA	0	0	7	4	2	14	51.9
Producer accuracy	80.0	100.0	100.0	NA	100.0	80.0	70.9	61.1	64.3	66.7	69.54



Table S4: Surface level range and SE during snow-free period and standard error of surface level range during snow-free period of 2017 and 2020 for the Tourist St., Storflaket and Stordalen sites. *Anthropogenic statistics have been calculated for areas outside of the wetland to inform surface stability.

	Tourist station (cm)		Storflaket (cm)		Stordalen (cm)	
2017						
Anthropogenic*	0.81	(0.025)	0.81	(0.018)		
Raised palsa	0.79	(0.032)	0.97	(0.012)	0.95	(0.0109)
Sphagnum wetland	0.87	(0.043)	0.91	(0.049)	0.95	(0.0166)
Sedge wetland	0.8	(0.046)	0.97	(0.016)	0.87	(0.0141)
Willow wetland			0.85	(0.034)	0.91	(0.013)
Forested wetland	0.89	(0.019)	0.95	(0.029)	0.92	(0.013)
2020						
Anthropogenic*	0.77	(0.022)	0.80	(0.016)		
Raised palsa	0.85	(0.032)	0.87	(0.011)	1.1	(0.016)
Sphagnum wetland	0.78	(0.033)	0.84	(0.060)	1.2	(0.021)
Sedge wetland	0.79	(0.035)	0.90	(0.015)	1.2	(0.024)
Willow wetland			0.86	(0.036)	1.2	(0.023)
Forested	0.81	(0.021)	0.88	(0.027)	1.1	(0.020)