Table S1. Parameters used in DO3SE modeling of Boreal species. Values in brackets represent required "dummy" values. A "-" means that this parameter is not required for this species. The T_{max} value is set at 200 °C to simulate the weak response to high temperatures of Norway spruce and birch trees growing under Northern European conditions (stomatal response is instead mediated by high VPD values).

Parameter	Land cover (POD_1SPEC)		
	Norway Spruce	Birch	Grassland
Land cover type	Coniferous	Broadleaf deciduous	Perennial grasslands
(Tree) species	Norway spruce	Silver birch	
g_{max}	125	240	190
f_{min}	0.1	0.1	0.1
light_a	0.006	0.0042	0.01
T_{min}	0	5	10
T_{opt}	20	20	24
T_{max}	200	200	36
VPD_{max}	0.8	0.5	1.75
VPD_{min}	2.8	2.7	4.5
ΣVPD_{crit}	-	-	-
PAW_t	-	-	-
$SWC_{max}{}^{v}$	15	15	-
$SWC_{min}{}^{v}$	1	1	-
SWP_{max}	-	-	-0.1
SWP_{min}	-	-	-1
f_{O3}	-	-	-
A_{start}_FD	2018: 122 [1]	2018: 129 [2]	2018: 159 [3]
	2019: 106 [1]	2019: 130 [2]	2019: 161 [3]
A_{end}_FD	2018: 261 [1]	2018: 261 [1]	2018: 261 [1]
	2019: 274 [1]	2019: 274 [1]	2019: 274 [1]
Time window length			3
Leaf dimension (cm)	0.8	3.0 +/- 0.5 [4]	2 *
Canopy height (m)	13.5 +/- 3 [5]	13.5 +/- 3 [5]	0.2
$f_{phen\ a}$	0.0	0.0	1
$f_{phen\ b}$	(1.0)	(1.0)	1
$f_{phen\ c}$	1.0	1.0	1
$f_{phen\ d}$	(1.0)	(1.0)	1
$f_{phen\ e}$	0.0	0.0	1
$f_{phen\ 1\ FD}$	20	20	-
$f_{phen\ 2\ FD}$	(200)	(200)	-
$f_{phen\ 3\ FD}$	(200)	(200)	-
$f_{phen\ 4\ FD}$	30	30	-
$LIM_{start\ FD}$	(0.0)	(0.0)	-
$LIM_{end\ FD}$	(0.0)	(0.0)	-
LAI_{min}	3.75 [6]	0	2
LAI_{max}	3.75 [6]	3 [6]	2.625 [6]
L_s	1	20	140
L_E	1	30	135

* Not given, set to match wheat (grass species) and potato (forb species, including legumes).

[1] Root of quadratic fit of mean on of MODIS (Aqua/Terra) net photosynthesis data for a 1x1 km patch around Svanvik

[2] Based on temperature data from seNorge.no (5 days-5 degrees rule).

[3] One month after snow melt; First snow-free day for weather station Øvre Neiden in Sør-Varanger (2018, 2019)

[4] Measurements by Ane Vollsnes August 2020

[5] https://www.nina.no/archive/nina/PppBasePdf/oppdragsmelding/829.pdf (p. 52); private communication suggests that there might be trees up to 16 m in the area.

[6] Estimated land use (kartverket.no): 48% grassland, 32.5% deciduous, 12.5% coniferous, 2% urban. Assumed LAI ratios: $f_{con} = 5/4 \cdot f_{dec}$; $f_{gras} = 7/8 \cdot f_{dec}$; MODIS (Aqua/Terra): $<LAI_{max}>= 2.7 \Rightarrow LAI_{max}$ as given.