

Table S2.1. Plant Functional Types (PFTs) simulated in the study.

PFT	Typical species
BNE Boreal needle-leaved evergreen tree	<i>Picea abies</i>
BINE Boreal needle-leaved shade-intolerant evergreen tree	<i>Pinus sylvestris</i>
IBS Boreal shade-intolerant broad-leaved summergreen tree	<i>Betula pubescens</i> ssp. <i>czerepanovii</i> , <i>Alnus glutinosa</i> , <i>Sorbus aucuparia</i> , <i>Populus tremula</i>
HSS Tall summergreen shrub	<i>Salix</i> spp.
HSE Tall evergreen shrub	<i>Juniperus communis</i>
LSS Low summergreen shrub	<i>Vaccinium myrtillus</i> , <i>Salix hastata</i>
LSE Low evergreen shrub	<i>Empetrum nigrum</i> , <i>Cassiope tetragona</i>
SPDS Prostrate summergreen dwarf shrub	<i>Saxifraga oppositifolia</i>
EPDS Prostrate evergreen dwarf shrub	<i>Arctostaphylos uva-ursi</i>
GRS Boreal C3 graminoids	Gramineae
CLM Cushion-forb-lichen-moss-tunda	Cushion-forming <i>Caryophyllaceae</i> and <i>Saxifragaceae</i> , lichens, mosses

Table S2.2. Parameters for all simulated PFTs.
Empty cells indicate that this parameter is not applied to the PFT while “-” indicates a no-limit value

[illegible]

Table S2.3 - Simulations performed in the study. Please refer to the main text for more information about global climate model (GCM) selection and model experiments

Climate source	Simulation period	Climate scenario*	CO2 scenario**	N-dep scenario**
Historic simulations				
Yang et al. (2011)	1913-2000	Historic	Historic	Historic
Projection Simulations				
Yang et al. (2011)	2000 - 2100	No trend	Constant	Constant
GFDL-ESM2M	2000 - 2100	RCP 2.6	RCP 2.6	RCP 2.6
		RCP 8.5	RCP 8.5	RCP 8.5
HadGEM2-AO	2000 - 2100	RCP 2.6	RCP 2.6	RCP 2.6
		RCP 8.5	RCP 8.5	RCP 8.5
MIROC-ESM-CHEM	2000 - 2100	RCP 2.6	RCP 2.6	RCP 2.6
		RCP 8.5	RCP 8.5	RCP 8.5
Climate change experiment				
GFDL-ESM2M	2000 - 2100	RCP 2.6	Constant	Constant
		RCP 8.5		
HadGEM2-AO	2000 - 2100	RCP 2.6	Constant	Constant
		RCP 8.5		
MIROC-ESM-CHEM	2000 - 2100	RCP 2.6	Constant	Constant
		RCP 8.5		
CO2 experiment				
Yang et al. (2011)	2000 - 2100	No trend	RCP 2.6 RCP 4.5 RCP 6.0 RCP 8.5	Constant
Nitrogen deposition experiment				
Yang et al. (2011)	2000 - 2100	No trend	Constant	RCP 2.6 RCP 8.5 2x Ndep 5x Ndep 7.5x Ndep 10x Ndep
* No trend refers to extended climate dataset with climate sampled randomly from the period 1990-2000. ** Constant refers to values unchanged after year 2000 and throughout the projection period				