

Supplementary file for: Boulanger-Lapointe N., Lévesque E., Baittinger C. & Schmidt N.M. 2016. Local variability in growth and reproduction of *Salix arctica* in the High Arctic. *Polar Research* 35. Correspondence: Noémie Boulanger-Lapointe: Department of Geography, University of British Columbia, 1984 West Mall, Vancouver, British Columbia V6T 1Z4, Canada. E-mail: noemie.boulanger-lapointe@geog.ubc.ca

**Supplementary Table S1.** Average snow depth (m), average end of snow melt (DOY), soil moisture (% vol) and nutrient content ( $\mu\text{g}/10\text{ cm}^2/\text{day}$ ) in four plant communities at Zackenberg, north-east Greenland in 2005 (plateau, snowbed and heath; n/plant community = 7) and 2010 (Fell-field, n = 10).

	Plateau	Snowbed	Heath	Fell-field
Soil moisture	$4.0 \pm 1.7$	$34.4 \pm 7.8$	$40.9 \pm 11.7$	$19.8 \pm 3.5$
Early summer				
Late summer	$6.1 \pm 2.2$	$21.8 \pm 5.6$	$32.2 \pm 10.5$	$14.3 \pm 2.8$
Snow depth (m) – late March <sup>a</sup>	0.7	1.5	1.1	1.6
End of snow melt (DOY) <sup>b</sup>	NA	167	163	148
Soil nutrient availability				
NO <sub>3</sub> -N	$0.48 \pm 0.12$	$0.10 \pm 0.001$	$0.11 \pm 0.02$	$0.18 \pm 0.13$
NH <sub>4</sub> <sup>+</sup> -N	$0.11 \pm 0.03$	$0.10 \pm 0.04$	$0.12 \pm 0.07$	$0.01 \pm 0.02$
PO <sub>4</sub> <sup>3-</sup>	$0.02 \pm 0.01$	$0.03 \pm 0.04$	$0.01 \pm 0.002$	$0.02 \pm 0.01$
K <sup>+</sup>	$0.71 \pm 0.25$	$0.66 \pm 0.37$	$0.76 \pm 0.22$	$0.30 \pm 0.05$
Ca <sup>2+</sup>	$32.56 \pm 6.12$	$25.65 \pm 6.65$	$17.60 \pm 8.07$	$25.50 \pm 5.02$
Mg <sup>2+</sup>	$7.77 \pm 1.20$	$10.70 \pm 3.05$	$5.74 \pm 2.81$	$3.98 \pm 1.00$
S <sup>2-</sup>	$2.18 \pm 0.18$	$4.48 \pm 2.01$	$1.90 \pm 0.05$	$1.05 \pm 0.40$
Fe <sup>3+</sup>	$0.13 \pm 0.02$	$0.43 \pm 0.27$	$0.11 \pm 0.02$	$0.10 \pm 0.02$

<sup>a</sup> Data from Gacitua et al. (2013). <sup>b</sup> Data from Tamstorf et al. (2007).

**Supplementary Table S2.** Mean cover of vascular plants (s.e.) measured on the abrasion plateau, the fell-field, the *Cassiope* heath and the *Salix* snowbed communities in 2010 at Zackenberg, north-east Greenland. Vegetation cover was assessed within 3 10 m x 10 m plots using 30 random 70 cm x 70 cm quadrats and Domin-Krajina modified cover classes. The asterisks indicate standard error  $\leq 0.05$ .

Sites	Plateau n = 3 $\bar{x}$ (s.e.)	Snowbed n = 3 $\bar{x}$ (s.e.)	Heath n = 3 $\bar{x}$ (s.e.)	Fell-field n = 3 $\bar{x}$ (s.e.)
<b>Asteraceae</b>				
<i>Arnica alpina</i> (L.) Olin				$\leq 0.1^*$
<b>Brassicaceae</b>				
<i>Draba</i> sp.	$\leq 0.1^*$		$\leq 0.1^*$	$\leq 0.1^*$
<i>Draba arctica</i> J. Vahl	$\leq 0.1^*$			
<i>Draba subcapitata</i> Simm.				$\leq 0.1^*$
<i>Cardamine bellidifolia</i> L.			$\leq 0.1^*$	
<b>Caryophyllaceae</b>				
<i>Arenaria pseudofrigida</i> (Ostenf. & Dahl) Steffen				$\leq 0.1^*$
<i>Cerastium arcticum</i> Lange			$\leq 0.1^*$	$\leq 0.1^*$
<i>Minuartia rubella</i> (Wahlenb.) Hiern.				0.2*
<i>Silene acaulis</i> (L.) Jacq.		0.2*		$\leq 0.1^*$
<i>Silene sorensenis</i> (Boivin) Bocquet	$\leq 0.1^*$			$\leq 0.1^*$
<i>Stellaria longipes</i> Goldie		$\leq 0.1^*$	$\leq 0.1^*$	
<b>Cyperaceae</b>				
<i>Carex nardina</i> Fr.				$\leq 0.1^*$
<i>Kobresia myosuroides</i> (Vill.) Fiori	$\leq 0.1^*$			
<b>Ericaceae</b>				
<i>Cassiope tetragona</i> (L.) D. Don		0.2*	62 (9)	
<i>Vaccinium uliginosum</i> L.			$\leq 0.1^*$	

**Supplementary Table S2.** Continued.

Sites	Plateau n = 3 $\bar{x}$ (s.e.)	Snowbed n = 3 $\bar{x}$ (s.e.)	Heath n = 3 $\bar{x}$ (s.e.)	Fell-field n = 3 $\bar{x}$ (s.e.)
<b>Juncaceae</b>				
<i>Luzula confusa</i> Lindeb.		0.5 *	0.7*	
<i>Luzula nivalis</i> (Laest.) Beurling		≤0.1*	≤0.1*	
<b>Lycopodiaceae</b>				
<i>Huperzia selago</i> (L.) Bernh. Ex Mart. & Schrank			≤0.1*	
<i>Lycopodium annotinum</i> L.		0.3*		
<b>Orobanchaceae</b>				
<i>Pedicularis hirsuta</i> L.		≤0.1*	≤0.1*	
<b>Papaveraceae</b>				
<i>Papaver radicum</i> Rottb.			≤0.1*	≤0.1*
<b>Poaceae</b>				
<i>Alopecurus magellanicus</i> Lam.		≤0.1*	≤0.1(0.08)	
<i>Anthoxanthum monticola</i> ( <b>Bigelow</b> )			≤0.1*	
<b>Veldkamp</b>				
<i>Arctagrostis latifolia</i> ( <b>R. Br.</b> ) Griseb.		≤0.1*	0.2*	
<i>Festuca vivipara</i> (L.) Sm.				≤0.1*
<i>Poa abbreviata</i> R. Br.	≤0.1*			
<i>Poa arctica</i> R. Br.		0.5(0.2)	≤0.1*	
<i>Poa glauca</i> Vahl				0.3(0.2)
<b>Polygonaceae</b>				
<i>Bistorta vivipara</i> (L.) Delarbre		2 (1.3)	≤0.1*	0.2(0.1)
<i>Oxyria digyna</i> (L.) Hill		≤0.1*		
<b>Rosaceae</b>				
<i>Dryas octopetala</i> L.	0.7 (0.2)	0.9 (0.8)	0.3(0.08)	0.3(0.3)

<i>Potentilla sp.</i>	≤0.1*	≤0.1*		0.4(0.2)
<b>Supplementary Table S2.</b> Continued.				
Sites	Plateau n = 3 $\bar{x}$ (s.e.)	Snowbed n = 3 $\bar{x}$ (s.e.)	Heath n = 3 $\bar{x}$ (s.e.)	Fell-field n = 3 $\bar{x}$ (s.e.)
Species				
<b>Salicaceae</b>				
<i>Salix arctica</i> Pall.	0.4(0.3)	58 (11)	10 (1.6)	4 (1)
<i>Salix herbacea</i> L.		≤0.1*		
<b>Saxifragaceae</b>				
<i>Saxifraga cernua</i> L.				≤0.1*
<i>Saxifraga oppositifolia</i> L.				≤0.1*
Total plant cover (%)	1*	62 (2)	74 (23)	6 (0.2)
Species richness	8	16	18	18

