

## SUPPLEMENTARY MATERIALS<sup>1</sup>

**Appendix S1.** Instructions sent to participants to collect dwarf birch samples in the summer 2014

### Circumpolar variation in antibrowsing defense in *Betula nana* and *B. glandulosa*

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**Aim.** Determine the level of antibrowsing defense in dwarf birches at a global scale

**Methods.** We will collect samples from *B. nana* and *B. glandulosa* across the Arctic regions of the world and assess the samples for total N and C, total phenols, condensed tannins and triterpenes.

**Protocol.** For each site (area of ~ 10m radius), collect top shoots (branch with leaves) from 10 individuals in one paper bag and additional leaves from the same 10 individuals in a second paper bag.

For each *Betula* individual collect:

- Height (in cm)
- 10 top shoots (the top 10 cm of the long shoots (Fig. 1) – keep the leaves attached to the branch)
- An additional sample of appr. 50 leaves from the leaves of short shoots (clusters of 4 leaves directly attached to the main stem, see fig. 1).

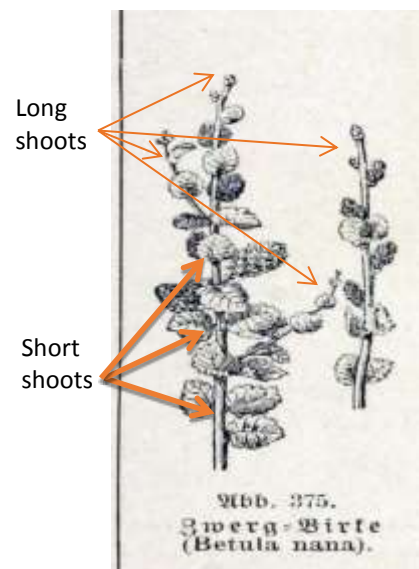
Individual samples should be combined per site, resulting in 2 bags per site – a top shoot sample and a leaf sample.

	N per individual	N per site (final bags)
Top shoots	10	100
Leaves	~50	~500

Provide a rough description of the site, including:

- GPS location and altitude
- Collection date
- Dominant species/vegetation type
- Whether the site is dry or wet
- If possible, take a picture
- Report presence and signs of herbivory at the site (browsing, faeces, observations etc.)
- List the major herbivores that you think are important at the site.

Allow the samples to dry at air temperature. If possible collect in 2 (or more) contrasting habitats at each location, for example wet vs. dry tundra or in different study areas, if applicable.



**Figure 1.** *Betula* makes 2 kinds of shoots, long shoots and short shoots. Long shoots elongate during the season, with younger and smaller leaves towards the top. Short shoots do not elongate and are made up of a cluster of usually 4 leaves that are all of the same age. It is the top 10 cm of the long shoots we are interested for the top shoot samples, and the short shoot leaves that we are interested in for the additional leaf sample (Source: www.biolib.de).

<sup>1</sup> Supplementary Materials for an article accepted for publication in Polar Biology published by Springer. Publisher policy allows this work to be made available in this repository; The final publication is available at Springer via <https://doi.org/10.1007/s00300-017-2139-7>



**Appendix S2.** List of locations (ordered by taxon, from higher to lower latitude), indicating taxon of dwarf birch sampled and year of sampling (corresponding to the three sampling protocols: 2008-2013, 2014 and 2015). Location characteristics (**Table S2.1**) and herbivory measurements (**Table S2.2**) are shown, first three columns are common to both tables. Separate rows are provided for locations sampling more than one birch taxa or sampled in different years.

**Table S2.1.** Characteristics of locations including collection date (day-of-year) and number of sites and leaves sampled per location, geographical position (latitude and longitude in degrees) and climatic variables (July temperature and precipitation for the year of sampling).

Location	Taxon	Sampling year	Collection date	Number of sites / leaves	Latitude (°N)	Longitude (°E)	July temperature (°C)	July precipitation (mm)
Herschel Island	<i>B. glandulosa</i>	2014	209	1/100	69.60	-139.90	8.7	19.8
Trail Valley Cr	<i>B. glandulosa</i>	2014	208	2/200	68.74	-133.50	12.7	50.9
Fairbanks	<i>B. glandulosa</i>	2014	192	2/195	64.90	-147.95	16.0	136.3
Deception Bay	<i>B. glandulosa</i>	2014	191	2/200	62.10	-74.31	8.5	43.1
Pika Camp	<i>B. glandulosa</i>	2014	205	5/500	61.21	-138.28	9.6	91.2
Narsarsuaq	<i>B. glandulosa</i>	2014	234	1/100	61.16	-45.38	7.9	57.6
Kluane	<i>B. glandulosa</i>	2014	191	2/200	61.00	-138.40	8.3	68.9
Churchill	<i>B. glandulosa</i>	2014	208	3/300	58.74	-93.83	13.5	67.7
Kytalyk	<i>B. n. exilis</i>	2014	204	3/300	70.83	147.48	10.5	68.0
Lena Delta	<i>B. n. exilis</i>	2014	222	3/300	72.37	126.34	10.4	59.1
Tit Ary	<i>B. n. exilis</i>	2014	221	1/100	71.97	127.10	10.9	57.5
Toolik B	<i>B. n. exilis</i>	2014	184	3/300	68.96	-150.25	7.9	109.4
Toolik A	<i>B. n. exilis</i>	2014	178	5/1679	68.64	-149.57	9.8	36.9
Toolik A	<i>B. n. exilis</i>	2015	212	9/871	68.64	-149.57	7.3	106.1
Fairbanks	<i>B. n. exilis</i>	2014	158	1/100	64.87	-147.86	16.1	126.1
Beringowskij	<i>B. n. exilis</i>	2010	221	1/263	62.70	178.90	10.6	29.0
Beringa Island	<i>B. n. exilis</i>	2009	259	1/92	55.20	166.00	8.6	58.0
Svalbard	<i>B. n. nana</i>	2009	210	1/94	78.90	16.00	5.8	15.0
Zackenber	<i>B. n. nana</i>	2014	218	4/400	74.47	-20.58	5.3	40.7
Nordkapp	<i>B. n. nana</i>	2009	223	1/180	71.20	25.80	9.8	66.0
Seiland	<i>B. n. nana</i>	2014	190	2/200	70.51	23.53	14.7	12.4
Varanger	<i>B. n. nana</i>	2014	195	16/1600	70.44	27.46	14.5	15.4
Ifjordfjellet	<i>B. n. nana</i>	2014	195	3/300	70.29	29.00	14.6	16.8
Mordy-Yakha	<i>B. n. nana</i>	2014	199	1/100	70.10	68.35	4.7	42.4
Njallavaara	<i>B. n. nana</i>	2015	231	5/1490	70.05	27.60	10.2	26.9
Kevo A	<i>B. n. nana</i>	2014	191	1/100	70.02	27.93	15.2	23.9
Ailigas	<i>B. n. nana</i>	2015	224	5/1619	69.89	27.07	10.2	26.9
Ailigas	<i>B. n. nana</i>	2014	192	1/100	69.82	27.01	15.2	23.9
Kevo B	<i>B. n. nana</i>	2009	221	1/242	69.80	27.00	12.5	33.0
Joatka	<i>B. n. nana</i>	2014	195	6/600	69.75	24.00	14.5	45.7
Reisa	<i>B. n. nana</i>	2014	228	5/500	69.53	29.32	16.0	23.2
Kilpisjärvi	<i>B. n. nana</i>	2014	202	2/200	69.04	20.86	14.0	61.1
Murmansk A	<i>B. n. nana</i>	2013	229	1/500	68.90	33.70	12.6	39.0
Murmansk A	<i>B. n. nana</i>	2015	222	3/1047	68.87	34.54	10.0	42.0
Tobseda	<i>B. n. nana</i>	2014	204	3/300	68.59	52.32	7.9	20.5
Ostojeaggi	<i>B. n. nana</i>	2014	219	1/100	68.48	19.74	14.5	46.5
Kärkevagge	<i>B. n. nana</i>	2014	239	1/100	68.41	18.32	12.0	39.5
Abisko	<i>B. n. nana</i>	2014	237	1/100	68.34	18.82	12.9	39.5
Tavva	<i>B. n. nana</i>	2014	208	1/100	68.34	21.18	14.7	97.8
Paddus	<i>B. n. nana</i>	2014	163	5/500	68.32	18.86	12.9	39.5
Erkuta	<i>B. n. nana</i>	2014	215	1/100	68.23	69.15	9.0	49.8

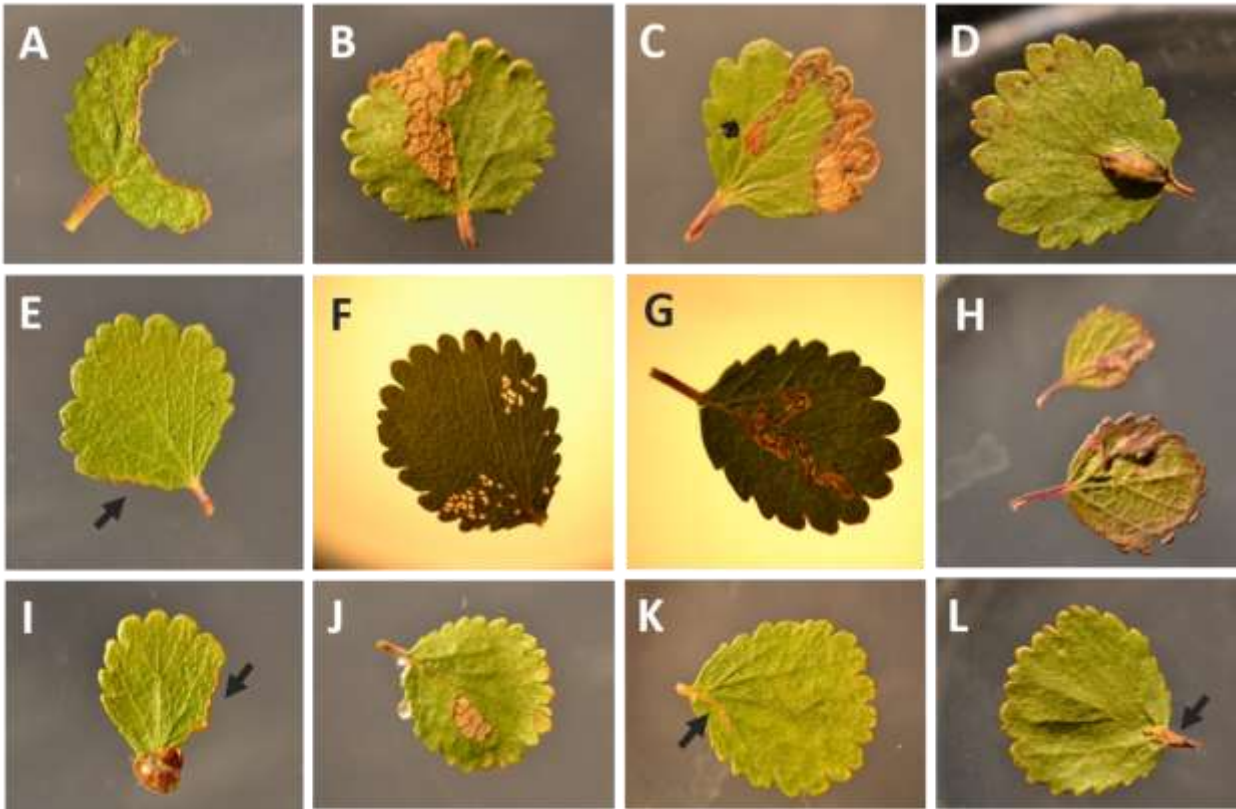
Erkuta	<i>B. n. nana</i>	2015	216	5/1801	68.23	69.15	10.7	62.7
Latnjajaure	<i>B. n. nana</i>	2015	216	1/369	68.21	18.29	6.9	79.8
Lovozero	<i>B. n. nana</i>	2013	216	1/300	67.90	34.40	13.6	40.0
Ritsem	<i>B. n. nana</i>	2014	229	6/600	67.77	17.54	11.5	60.9
Laborovaya	<i>B. n. nana</i>	2009	226	1/248	67.70	67.60	14.3	36.0
Naryan-Mar	<i>B. n. nana</i>	2013	216	1/200	67.60	53.10	13.3	36.0
Igarka	<i>B. n. nana</i>	2014	221	1/100	67.50	-63.75	6.7	25.2
Padjelanta	<i>B. n. nana</i>	2015	213	5/1633	67.31	16.69	7.5	90.1
Padjelanta	<i>B. n. nana</i>	2014	181	3/300	67.27	16.66	13.0	47.7
Kangerlussuaq	<i>B. n. nana</i>	2014	201	2/200	67.13	-50.15	9.9	10.8
Nanoq	<i>B. n. nana</i>	2014	181	3/300	67.10	50.29	10.3	48.9
Labytnangi	<i>B. n. nana</i>	2014	200	1/100	66.85	66.30	10.6	91.5
Ammarnäs	<i>B. n. nana</i>	2014	220	4/400	66.02	16.02	15.5	85.6
Usinsk	<i>B. n. nana</i>	2014	216	1/100	66.00	57.67	11.0	28.7
Theistareykir	<i>B. n. nana</i>	2015	213	5/1566	65.90	-17.08	7.9	45.8
Audkuluheidi	<i>B. n. nana</i>	2015	215	5/1551	65.13	-19.67	7.4	26.3
Dovre	<i>B. n. nana</i>	2014	230	2/200	62.30	9.62	11.9	80.4
Sångfjället	<i>B. n. nana</i>	2014	195	9/900	62.29	13.49	15.5	90.2
Långfjället	<i>B. n. nana</i>	2014	208	11/1100	62.10	12.26	16.7	83.8
Setesdal	<i>B. n. nana</i>	2014	192	2/200	59.05	7.16	16.0	83.5

**Table S2.2** Measurements of herbivory at each location (percentage of leaves damaged, percentage of leaf area affected and average damage) for all herbivores and different feeding guilds separately (defoliators, miners and gallers). When more than one site was sampled at each location, means and SE are provided.

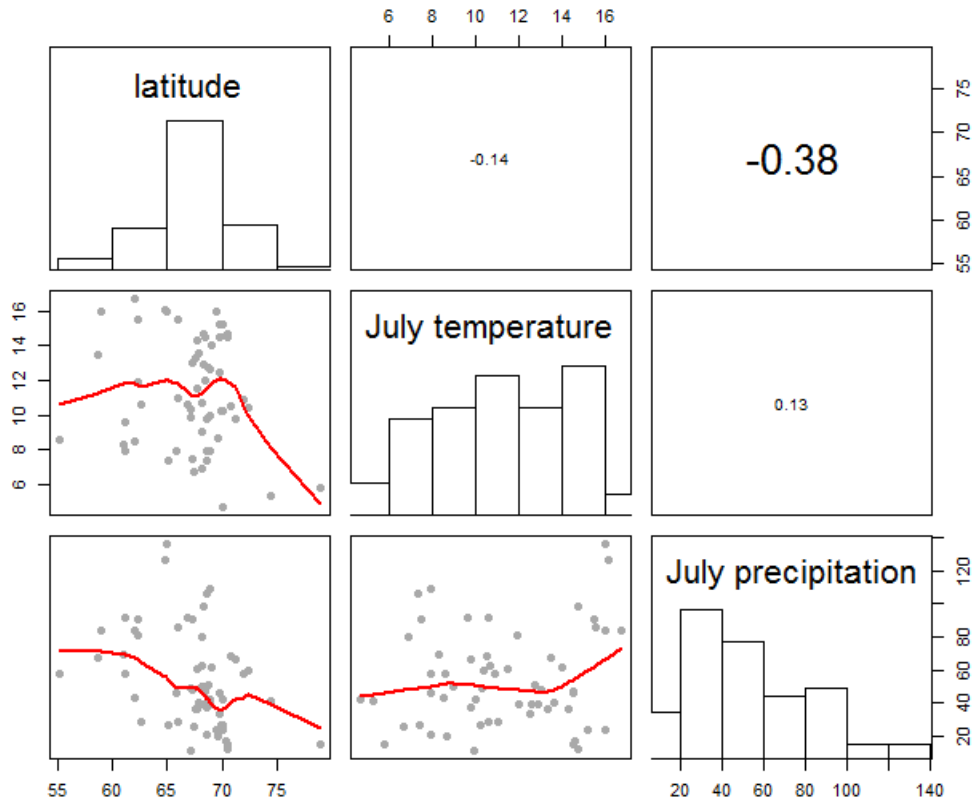
Location	Taxon	Sampling year	all herbivores			defoliators			miners		gallers	
			percentage leaves	percentage leaf area	average damage	percentage leaves	percentage leaf area	average damage	percentage leaves	percentage leaf area	percentage leaves	percentage leaf area
Herschel Island	<i>B. glandulosa</i>	2014	2.00	0.04	1.75	2.00	0.04	1.75	0.00	0.00	0.00	0.00
Trail Valley Cr	<i>B. glandulosa</i>	2014	12.50±2.50	0.68±0.19	5.37±0.47	9.5±0.5	0.65±0.16	7.01±2.11	0.00±0.00	0.00±0.00	3.00±3.00	0.03±0.03
Fairbanks	<i>B. glandulosa</i>	2014	10.34±3.34	1.09±0.05	11.91±4.37	9.84±3.84	1.01±0.02	12.02±4.48	0.5±0.5	0.08±0.08	0.00±0.00	0.00±0.00
Deception Bay	<i>B. glandulosa</i>	2014	1.50±0.50	0.34±0.19	20.62±5.62	1.5±0.5	0.34±0.19	20.62±5.62	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Pika Camp	<i>B. glandulosa</i>	2014	19.4±5.28	1.84±0.67	8.73±1.06	18.4±5.04	1.78±0.62	9.07±1.03	0.60±0.40	0.06±0.06	0.40±0.40	0.00±0.00
Narsarsuaq	<i>B. glandulosa</i>	2014	31.00	5.61	18.08	31.00	5.61	18.08	0.00	0.00	0.00	0.00
Kluane	<i>B. glandulosa</i>	2014	28.5±5.5	3.56±0.18	12.85±1.85	28±5	3.49±0.11	12.79±1.91	0.50±0.50	0.08±0.08	0.00±0.00	0.00±0.00
Churchill	<i>B. glandulosa</i>	2014	16.33±2.33	1.20±0.24	7.22±0.71	15.67±2.4	0.99±0.23	6.41±1.22	0.33±0.33	0.00±0.00	0.33±0.33	0.21±0.21
Kytalyk	<i>B. n. exilis</i>	2014	9.33±2.33	1.99±0.64	20.76±3.14	9.33±2.33	1.99±0.64	2.38±0.96	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Lena Delta	<i>B. n. exilis</i>	2014	4.00±1.53	0.11±0.07	2.38±0.96	4±1.53	0.11±0.07	22.50	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Tit Ary	<i>B. n. exilis</i>	2014	3.00	0.68	22.50	3.00	0.68	20.76±3.14	0.00	0.00	0.00	0.00
Toolik B	<i>B. n. exilis</i>	2014	5.00±1.53	0.8±0.65	12.41±8.84	3.33±1.45	0.73±0.61	14.19±9.27	1.67±0.67	0.07±0.04	0.00±0.00	0.00±0.00
Toolik A	<i>B. n. exilis</i>	2014	6.25±0.98	0.65±0.13	11.69±2.31	5.2±1.04	0.53±0.14	11±2.13	0.67±0.47	0.02±0.01	0.38±0.26	0.1±0.07
Toolik A	<i>B. n. exilis</i>	2015	3.69±0.61	0.63±0.18	17.42±5.05	3.45±0.69	0.52±0.17	15.26±4.84	0.12±0.08	0.03±0.02	0.12±0.12	0.08±0.08
Fairbanks	<i>B. n. exilis</i>	2014	3.00	0.45	15.00	3.00	0.45	15.00	0.00	0.00	0.00	0.00
Beringowskij	<i>B. n. exilis</i>	2010	14.45	2.90	20.05	14.45	2.90	20.05	0.00	0.00	0.00	0.00
Beringa Island	<i>B. n. exilis</i>	2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Svalbard	<i>B. n. nana</i>	2009	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Zackenbergl	<i>B. n. nana</i>	2014	3.75±1.49	0.32±0.16	5.82±2.23	3±1.47	0.31±0.16	8.66±3.3	0.75±0.48	0.00±0.00	0.00±0.00	0.00±0.00
Nordkapp	<i>B. n. nana</i>	2009	6.67	0.66	9.88	6.67	0.66	9.88	0.00	0.00	0.00	0.00
Seiland	<i>B. n. nana</i>	2014	13.50±1.50	3.51±1.31	25.21±6.92	13.5±1.5	3.51±1.31	25.21±6.92	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Varanger	<i>B. n. nana</i>	2014	4.75±1.68	0.50±0.22	6.1±1.72	4.38±1.68	0.48±0.22	6.5±1.92	0.38±0.15	0.02±0.02	0.00±0.00	0.00±0.00
Ifjordfjellet	<i>B. n. nana</i>	2014	8.67±3.18	1.06±0.57	9.55±3.78	8.33±3.48	1.06±0.57	9.83±3.5	0.33±0.33	0.00±0.00	0.00±0.00	0.00±0.00
Mordy-Yakha	<i>B. n. nana</i>	2014	3.00	0.56	18.50	3.00	0.56	18.50	0.00	0.00	0.00	0.00
Njallavaara	<i>B. n. nana</i>	2015	17.38±2.67	2.62±0.57	14.64±1.43	17.11±2.71	2.58±0.57	14.72±1.52	0.27±0.13	0.04±0.04	0.00±0.00	0.00±0.00
Kevo A	<i>B. n. nana</i>	2014	8.00	2.63	32.94	8.00	2.63	32.94	0.00	0.00	0.00	0.00
Ailigas	<i>B. n. nana</i>	2015	21.34±3.59	1.29±0.15	6.70±1.22	21.02±3.59	1.28±0.15	6.78±1.27	0.31±0.02	0.01±0.01	0.00±0.00	0.00±0.00
Ailigas	<i>B. n. nana</i>	2014	3.00	0.21	7.00	3.00	0.21	7.00	0.00	0.00	0.00	0.00
Kevo B	<i>B. n. nana</i>	2009	3.72	0.15	4.00	3.72	0.15	4.00	0.00	0.00	0.00	0.00
Joatka	<i>B. n. nana</i>	2014	21.33±4.57	3.4±0.91	15.14±1.39	20±4.51	3.3±0.94	15.59±1.86	1.17±0.65	0.03±0.02	0.17±0.17	0.06±0.06
Reisa	<i>B. n. nana</i>	2014	10.40±1.75	0.88±0.24	7.76±1.61	3.4±0.68	0.23±0.09	6.64±2.62	7.00±1.38	0.66±0.2	0.00±0.00	0.00±0.00

Kilpisjärvi	<i>B. n. nana</i>	2014	39.50±9.5	5.06±0.6	13.21±1.64	39.5±9.5	5.06±0.6	13.21±1.64	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Murmansk A	<i>B. n. nana</i>	2013	2.60	0.84	32.31	2.60	0.84	32.31	0.00	0.00	0.00	0.00
Murmansk A	<i>B. n. nana</i>	2015	46.00±9.93	7.87±3.3	14.88±2.88	46±9.93	7.87±3.30	14.88±2.88	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Tobseda	<i>B. n. nana</i>	2014	4.00±0.58	0.3±0.05	7.56±0.42	4±0.58	0.3±0.05	7.56±0.42	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Ostojeaggi	<i>B. n. nana</i>	2014	17.00	1.82	10.74	17.00	1.82	10.74	0.00	0.00	0.00	0.00
Kärkevagge	<i>B. n. nana</i>	2014	10.00	1.55	15.55	8.00	1.54	19.31	2.00	0.01	0.00	0.00
Abisko	<i>B. n. nana</i>	2014	6.00	0.10	1.75	6.00	0.10	1.75	0.00	0.00	0.00	0.00
Tavva	<i>B. n. nana</i>	2014	23.00	1.59	6.91	23.00	1.59	6.91	0.00	0.00	0.00	0.00
Paddus	<i>B. n. nana</i>	2014	4.80±1.24	0.87±0.36	13.75±5.63	4.8±1.24	0.87±0.36	13.75±5.63	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Erkuta	<i>B. n. nana</i>	2014	16.00	1.60	10.03	16.00	1.60	10.03	0.00	0.00	0.00	0.00
Erkuta	<i>B. n. nana</i>	2015	15.04±3.49	1.86±0.36	12.98±1.54	14.54±3.62	1.68±0.42	11.69±2.06	0.11±0.07	0.04±0.03	0.40±0.25	0.13±0.10
Latnjajaure	<i>B. n. nana</i>	2015	5.96	1.05	17.64	5.96	1.05	17.64	0.00	0.00	0.00	0.00
Lovozero	<i>B. n. nana</i>	2013	11.33	2.81	24.79	11.33	2.81	24.79	0.00	0.00	0.00	0.00
Ritsem	<i>B. n. nana</i>	2014	12.17±4.64	1.59±0.45	15.81±2.06	5±1.57	0.89±0.27	19.66±5.32	7.17±5.04	0.69±0.51	0.00±0.00	0.00±0.00
Laborovaya	<i>B. n. nana</i>	2009	33.06	2.03	6.13	33.06	2.03	6.13	0.00	0.00	0.00	0.00
Naryan-Mar	<i>B. n. nana</i>	2013	3.50	0.20	5.71	3.50	0.20	5.71	0.00	0.00	0.00	0.00
Igarka	<i>B. n. nana</i>	2014	34.00	2.42	7.10	32.00	2.36	7.36	2.00	0.06	0.00	0.00
Padjelanta	<i>B. n. nana</i>	2015	14.30±3.78	2.66±0.76	18.42±1.93	14.17±3.83	2.57±0.78	17.82±1.71	0.13±0.13	0.08±0.08	0.00±0.00	0.00±0.00
Padjelanta	<i>B. n. nana</i>	2014	5.33±0.88	0.33±0.05	6.17±0.32	5±0.58	0.32±0.05	6.46±0.24	0.33±0.33	0.00±0.00	0.00±0.00	0.00±0.00
Kangerlussuaq	<i>B. n. nana</i>	2014	5.00±1.00	0.12±0.08	2.23±1.1	5±1	0.12±0.08	2.23±1.10	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Nanoq	<i>B. n. nana</i>	2014	5.67±1.45	1.29±0.96	18.19±10.94	5.67±1.45	1.29±0.96	18.19±10.94	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Labytnangi	<i>B. n. nana</i>	2014	4.00	0.19	4.75	4.00	0.19	4.75	0.00	0.00	0.00	0.00
Ammarnäs	<i>B. n. nana</i>	2014	11.5±3.01	1.19±0.34	10.95±2.94	9.5±3.30	0.98±0.40	11.02±2.78	2±0.71	0.20±0.17	0.00±0.00	0.00±0.00
Usinsk	<i>B. n. nana</i>	2014	13.00	0.28	2.19	11.00	0.25	2.27	2.00	0.04	0.00	0.00
Theistareykir	<i>B. n. nana</i>	2015	0.96±0.36	0.12±0.04	21.69±11.45	0.96±0.36	0.12±0.04	21.69±11.45	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Audkuluheidi	<i>B. n. nana</i>	2015	3.90±1.21	0.73±0.24	16.24±4.74	3.9±1.21	0.73±0.24	16.24±4.74	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Dovre	<i>B. n. nana</i>	2014	3.00±0.00	0.21±0.00	7.00±0.00	3.00±0.00	0.21±0.00	7.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00	0.00±0.00
Sångfjället	<i>B. n. nana</i>	2014	8.89±2.35	1.12±0.35	11.93±2.61	7.56±2.04	0.95±0.34	11.9±2.51	1.11±0.42	0.03±0.01	0.22±0.22	0.14±0.14
Långfjället	<i>B. n. nana</i>	2014	13.91±2.58	1.78±0.35	13.98±2.15	13.45±2.64	1.76±0.35	14.51±2.27	0.45±0.21	0.01±0.01	0.00±0.00	0.00±0.00
Setesdal	<i>B. n. nana</i>	2014	11.5±0.5	1.76±1.40	14.76±11.58	10±1	1.71±1.42	15.84±12.62	1.50±0.50	0.04±0.02	0.00±0.00	0.00±0.00

**Appendix S3.** Leaf damage on dwarf birch (*Betula glandulosa-nana* complex) leaves caused by invertebrate herbivores: external leaf feeders (chewing (A, E, I) or skeletonized (B, F, J), leaf miners (C, G, K) or galls (D, H, L).



**Appendix S4.** Correlations between continuous predictor variables included in the study: latitude ( $^{\circ}$ N), mean July temperature ( $^{\circ}$ C) in the year of sampling, and mean July precipitation (mm) in the year of sampling. Pearson correlation coefficients are presented in the upper right diagonal (size corresponds to the magnitude of the correlation coefficient). Histograms for each variable are also included, as well as pairwise plots showing the relationships between pairs of variables, with a LOESS line to aid visual interpretation.





**Appendix S5.** Identification of leaf mines from the 2015 sampling. Leaf miner taxa were identified by Erik van Nieukerken, based on mine morphology and larval remains when present. Damage classes correspond to visual estimates of leaf area damaged: 0: intact leaves, 1: 0.01-1, 2: 1-5, 3: 5-25, 4:25-50, 5: 50-75, and 6: 75-100%.

Location	Latitude (°N)	Longitude (°E)	Dwarf birch taxon	Collection date	Number of leaves	Damage class	Miner identification
Ailigas	69.8953	27.0665	<i>B. n. nana</i>	2015-08-13	1	1	<i>Stigmella tristis</i>
Ailigas	69.8949	27.0640	<i>B. n. nana</i>	2015-08-13	1	3	<i>Stigmella tristis</i>
Ailigas	69.8953	27.0665	<i>B. n. nana</i>	2015-08-13	1	1	<i>Stigmella tristis</i>
Ailigas	69.8943	27.0716	<i>B. n. nana</i>	2015-08-13	1	1	<i>Stigmella tristis</i>
Ailigas	69.8935	27.0695	<i>B. n. nana</i>	2015-08-13	1	1	<i>Stigmella tristis</i>
Erkuta	68.2267	69.1509	<i>B. n. nana</i>	2015-08-05	1	4	<i>Phyllonorycter</i> sp.
Erkuta	68.2267	69.1509	<i>B. n. nana</i>	2015-08-05	1	4	<i>Coleophora</i> sp.
Njallavaara	70.0462	27.6040	<i>B. n. nana</i>	2015-08-20	1	1	<i>Stigmella tristis</i>
Njallavaara	70.0467	27.6015	<i>B. n. nana</i>	2015-08-20	2	1	<i>Stigmella tristis</i>
Njallavaara	70.0483	27.6046	<i>B. n. nana</i>	2015-08-20	1	5	<i>Phyllonorycter</i> sp.
Toolik A	68.6434	-149.5706	<i>B. n. exilis</i>	2015-08-01	1	3	<i>Coleophora</i> sp.
Toolik A	68.6426	-149.5753	<i>B. n. exilis</i>	2015-08-01	1	4	<i>Stigmella</i> sp.