

Supplementary:

Table S1. Concentration (mg/kg w.w.) of toxic elements in berries, mushrooms, fish, reindeer, and moose from the different sampling sites

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Berries								
Bilberries								
Jordanfoss (Norway) no. of pools mean conc. median conc. min;max conc. n < LOD	69.2093;29.29568	3 0.10 0.10 0.077;0.13 -	3 0.41 0.42 0.30;0.52 -	3 0.0012 0.0012 0.00080;0.0016 -	3 0.0014 0.0014 0.00094;0.0019 -	3 0.000097 0.00014 0;00015 -	3 0.0031 0.0028 0.0024;0.0040 -	3 < 0.005 3
Durvatin (Norway) no. of pools mean conc. median conc. min;max conc. n < LOD	69.61505;30.70556	3 0.72 0.70 0.61;0.83 -	3 0.71 0.78 0.50;0.85 -	3 0.0094 0.0087 0.0075;0.012 -	3 0.0077 0.0074 0.0054;0.010 -	3 0.0011 0.00069 0.00068;0.0018 -	3 0.0033 0.0023 0.0023;0.0053 -	3 < 0.005 3
Gardsjøen (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.71014;30.86115	3 0.32 0.31 0.31;0.36 -	3 0.55 0.53 0.52;0.61 -	3 0.0052 0.0053 0.0048;0.0054 -	3 0.0040 0.0042 0.0032;0.0046 -	3 0.00072 0.00068 0.00067;0.00082 -	3 0.0023 0.0021 0.0020;0.0029 -	3 < 0.005 3
Holmvatn (Norway) no. of pools mean conc. median conc. min;max conc. n < LOD	69.71202;30.75161	3 0.32 0.32 0.31;0.33 -	3 0.57 0.083 0.50;0.66 -	3 0.0060 0.0059 0.0058;0.0064 -	3 0.0042 0.0046 0.0031;0.0047 -	3 0.00052 0.00037 0.00026;0.00092 -	3 0.0030 0.0033 0.0025;0.0033 -	3 < 0.005 3

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Grensa (Norway) no. of pools mean conc. median conc. min;max conc. n < LOD	69.56039;30.93146	3 0.73 0.75 0.65;0.79 -	3 0.44 0.38 0.37;0.57 -	3 0.011 0.012 0.011;0.012 -	3 0.0049 0.0047 0.0035;0.0064 -	3 0.000076 0.00077 0.00073;0.00077 -	3 0.00044 0.00024 0;0.0011 -	3 < 0.005 3
Børsevatn (Norway) no. of pools mean conc. median conc. min;max conc. n < LOD	69.55638;30.58504	3 0.93 0.82 0.75;1.22 -	3 1.0 0.79 0.73;1.58 -	3 0.019 0.018 0.013;0.027 -	3 0.022 0.017 0.014;0.034 -	3 0.0021 0.0011 0.00090;0.0042 -	3 0.012 0.0077 0.0058;0.023 -	3 < 0.005 3
Tromsøya, ref. (Norway) no. of pools Sample conc. n < LOD	69.68977;18.96587	1 0.030 -	1 0.43 -	1 0.0020 -	1 0.00020 -	1 0.00014 -	1 0.0020 -	-
Stålvikbotn Balsfjord, ref. (Norway) no. of pools Sample conc. n < LOD	69.30667;18.86819	1 0.04 -	1 0.56 -	1 0.0010 -	1 0.00030 -	1 0.00030 -	1 0.0020 -	-
Nikel site (Russia) no. of pools Sample conc. n < LOD	69.44544;30.49665	1 1.1 -	1 0.86 -	1 0.038 -	1 0.019 -	1 0.001 -	1 0.013 -	1 < 0.0005 1
North (Russia) no. of pools Sample conc. n < LOD	69.54455;30.92999	1 0.60 -	1 0.32 -	1 0.014 -	1 0.0030 -	1 < 0.0005 1	1 < 0.005 1	1 < 0.0005 1

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
East (Russia) no. of pools Sample conc. n < LOD	69.37252;30.96479	1 0.50 -	1 0.47 -	1 0.013 -	1 0.0020 -	1 < 0.0005 1	1 0.0060 -	1 0.0090 -
South (Russia) n of pools Sample conc. n < LOD	69.22005;30.15659	1 0.50 -	1 0.50 -	1 0.012 -	1 0.0010 -	1 0.0010 -	1 0.0060 -	1 < 0.0005 1
Nellim (Finland) n of pools mean conc. median conc. min;max conc. n < LOD	68.86748;28.39533	3 0.10 0.11 0.081;0.13 -	3 0.81 0.83 0.76;0.83 -	- -	3 0.0010 0.00070 0.00060;0.0017 -	3 0.00059 0.00067 0.00039;0.00071 -	3 < 0.005 3	3 0.00086 0.00090 0.00053;0.00116 -
Lingonberries								
Durvatin (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.61505;30.70556	3 0.87 0.90 0.80;0.92 -	3 0.97 0.90 0.88;1.1 -	3 0.018 0.018 0.016;0.020 -	3 0.0093 0.0093 0.0091;0.0096 -	3 0.00065 0.00070 0.00056;0.00070 -	3 0.0066 0.0071 0.0049;0.0080 -	3 < 0.005 3
Gardsjøen (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.71014;30.86115	3 0.73 0.72 0.66;0.80 -	3 0.81 0.78 0.73;0.93 -	3 0.018 0.018 0.016;0.020 -	3 0.0068 0.0067 0.0057;0.0079 -	3 0.00051 0.00054 0.00037;0.00061 -	3 0.0096 0.0091 0.0082;0.011 -	3 < 0.005 3

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Grensa (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.56039;30.93146	3 1.0 1.0 0.95;1.2 -	3 0.71 0.73 0.63;0.76 -	3 0.025 0.024 0.022;0.029 -	3 0.0088 0.0085 0.0083;0.0097 -	3 0.00043 0.00044 0.00039;0.00047 -	3 0.0029 0.0027 0.0022;0.0037 -	3 < 0.005 3
Børsevatn (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.55638;30.58504	3 1.4 1.5 1.3;1.5 -	3 1.2 1.1 1.1;1.3 -	3 0.038 0.038 0.034;0.041 -	3 0.027 0.028 0.025;0.028 -	3 0.00077 0.00082 0.00062;0.00088 -	3 0.014 0.013 0.012;0.016 -	3 < 0.005 3
Sollia Jarfjord (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.66485;30.19825	3 0.51 0.47 0.37;0.70 -	3 0.68 0.67 0.56;0.81 -	3 0.0096 0.0086 0.0060;0.014 -	3 0.0067 0.0063 0.0054;0.0083 -	3 0.00058 0.00053 0.00046;0.00075 -	3 0.0042 0.0038 0.0032;0.0058 -	3 < 0.005 3
Stålvikbotn Balsfjord, ref. (Norway) n of pools Sample conc. n < LOD	69.30667;18.86819	1 0.030 -	1 0.43 -	1 0.0020 -	1 0.00014 -	1 0.00014 -	1 0.0020 -	-
Nikel site (Russia) n of pools Sample conc. n < LOD	69.44544;30.49665	1 2.3 -	1 0.96 -	1 0.16 -	1 0.042 -	1 0.0010 -	1 0.036 -	1 < 0.0005 1

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
South (Russia) n of pools Sample conc. n < LOD	69.22005;30.15659	1 0.70 -	1 0.60 -	1 0.017 -	1 0.0070 -	1 < 0.0005 1	1 0.038 -	1 < 0.0005 1
East (Russia) n of pools Sample conc. n < LOD	69.37252;30.96479	1 1.2 -	1 0.92 -	1 0.045 -	1 0.010 -	1 0.0010 -	1 0.013 -	1 < 0.0005 1
North (Russia) n of pools Sample conc. n < LOD	69.54455;30.92999	1 1.3 -	1 0.84 -	1 0.11 -	1 0.014 -	1 0.0010 -	1 0.0070 -	1 < 0.0005 1
Inari (Finland) n of pools Sample conc. n < LOD	68.82956;26.6129	1 0.071 -	1 0.84 -	-	1 0.00080 -	1 < 0.00025 1	1 < 0.005 1	1 0.00026 -
Nellim (Finland) n of pools mean conc. median conc. min;max conc. n < LOD	68.848;28.30347	2 0.096 0.096 0.089;0.10 -	2 0.84 0.84 0.83;0.85 -	-	2 0.0013 0.0013 0.0012;0.0013 -	2 0.00033 0.00033 0.00026;0.00040 -	2 < 0.005 2	2 0.00049 0.00049 0.00041;0.00056 -
Cloudberries								
Jarfjord (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.55738;30.84469	3 0.51 0.49 0.45;0.57 -	3 1.2 1.1 1.1;1.4 -	3 0.012 0.012 0.011;0.013 -	3 0.0026 0.0025 0.0024;0.0029 -	3 0.032 0.029 0.024;0.043 -	3 0.0017 0.0013 0.00082;0.0030 -	3 < 0.005 3

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Pasvik (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.37656;29.68486	3 1.4 1.3 1.2;1.6 -	3 1.4 1.6 1.1;1.6 -	3 0.013 0.012 0.012;0.014 -	3 0.0043 0.0043 0.0036;0.0051 -	3 0.017 0.017 0.014;0.019 -	3 0.0017 0.0015 0.0012;0.0023 -	3 < 0.005 3
Pasvik Skogfoss (Norway) n of pools Sample conc. n < LOD	69.3692;29.68718	1 0.59 -	1 0.53 -	1 0.019 -	1 0.0023 -	1 0.0064 -	1 0.0040 -	-
Øvre Pasvik (Norway) n of pools Sample conc. n < LOD	69.08881;28.94608	1 0.17 -	1 0.59 -	1 0.0030 -	1 0.00020 -	1 0.0059 -	1 0.002 -	-
Kjelmøya (Norway) n of pools Sample conc. n < LOD	69.86874;30.0554	1 0.60 -	1 1.7 -	1 0.012 -	1 0.0012 -	1 0.040 -	1 0.0060 -	-
Lakseidet Balsfjord, ref. (Norway) n of pools Sample conc. n < LOD	69.29649;18.95063	1 0.23 -	1 1.3 -	1 0.010 -	1 0.00030 -	1 0.012 -	1 0.0020 -	-
Storsteines, ref. (Norway) n of pools Sample conc. n < LOD	69.24052;19.23586	1 0.12 -	1 1.0 -	1 0.0080 -	1 0.00020 -	1 0.0098 -	1 0.0010 -	-

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Nellim (Finland) n of pools mean conc. median conc. min;max conc. n < LOD	68.86748;28.39533	3 0.36 0.34 0.31;0.44 -	3 1.2 1.4 0.83;1.5 -	-	3 0.0019 0.0014 0.0010;0.0033 -	3 0.021 0.021 0.013;0.028 -	3 <0.005;0.0084 2	3 0.00073 0.00078 0.00045;0.00096 -
Crowberries								
Jordanfoss (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.2093;29.29568	3 0.14 0.13 0.11;0.18 -	3 0.62 0.46 0.43;0.97 -	3 0.0012 0.0017 0.000038;0.0018 -	3 0.0013 0.0012 0.00090;0.0018 -	3 0.00024 0.00011 0.00011;0.00049 -	3 0.0032 0.0026 0.00088;0.0061 -	3 <0.005 3
Durvatin (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.61505;30.70556	3 0.81 0.83 0.64;0.96 -	3 1.3 1.1 0.91;1.8 -	3 0.020 0.020 0.015;0.024 -	3 0.0095 0.011 0.0069;0.011 -	3 0.00054 0.00057 0.00046;0.00061 -	3 0.0088 0.0093 0.0057;0.011 -	3 <0.005 3
Grensa (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.56039;30.93146	3 1.1 1.2 0.98;1.2 -	3 1.1 1.0 0.95;1.4 -	3 0.025 0.026 0.022;0.028 -	3 0.0073 0.0068 0.0065;0.0085 -	3 0.00048 0.00050 0.00043;0.00051 -	3 0.0059 0.0064 0.0047;0.0067 -	3 <0.005 3
Nikel site (Russia) n of pools Sample conc. n < LOD	69.44544;30.49665	1 2.2 -	1 1.6 -	1 0.18 -	1 0.038 -	1 0.0020 -	1 0.063 -	1 0.0010 -

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Bog bilberry								
Nikel site (Russia)	69.44544;30.49665	1 0.78 -	1 0.44 -	1 0.018 -	1 0.017 -	1 0.0078 -	1 0.0094 -	1 < 0.0005 1
Mushrooms								
Orange birch bolete								
Durvatin (Norway)	69.61505;30.70556	3 0.37 0.38 0.33;0.41 -	3 7.6 7.5 7.1;8.2 -	3 0.018 0.018 0.016;0.020 -	3 0.031 0.032 0.028;0.034 -	3 0.40 0.40 0.32;0.49 -	3 0.018 0.018 0.016;0.019 -	3 0.077 0.076 0.069;0.088 -
Grensa (Norway)	69.56039;30.93146	3 0.75 0.74 0.71;0.80 -	3 8.8 8.7 8.0;9.8 -	3 0.041 0.040 0.036;0.047 -	3 0.049 0.051 0.044;0.052 -	3 0.20 0.18 0.18;0.24 -	3 0.014 0.014 0.013;0.014 -	3 0.083 0.076 0.071;0.10 -
Børsevatn (Norway)	69.55638;30.58504	3 1.5 1.4 1.3;1.7 -	3 11.5 11.1 10.3;13.1 -	3 0.090 0.088 0.079;0.10 -	3 0.050 0.046 0.046;0.058 -	3 0.040 0.038 0.036;0.047 -	3 0.037 0.037 0.029;0.045 -	3 0.15 0.15 0.13;0.15 -
Tønsvika, ref. (Norway)	69.74198;19.17172	3 0.28 0.24 0.11;0.50 -	3 3.4 3.8 2.5;3.8 -	3 0.19 0.17 0.099;0.30 -	3 0.025 0.020 0.017;0.036 -	3 0.022 0.020 0.015;0.031 -	3 0.045 0.040 0.014;0.081 -	3 < 0.005 3

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Orange oak bolete								
Nikel site (Russia) n of pools Sample conc. n < LOD	69.44544;30.49665	1 1.4 -	1 6.2 -	1 0.24 -	1 0.15 -	1 0.21 -	1 0.032 -	1 0.051 -
South (Russia) n of pools Sample conc. n < LOD	69.22005;30.15659	1 0.32 -	1 4.9 -	1 0.043 -	1 0.028 -	1 0.14 -	1 0.040 -	1 0.14 -
East (Russia) n of pools Sample conc. n < LOD	69.37252;30.96479	1 0.63 -	1 7.15 -	1 0.063 -	1 0.050 -	1 0.30 -	1 0.042 -	1 0.086 -
North (Russia) n of pools Sample conc. < LOD	69.54455;30.92999	1 0.91 -	1 7.1 -	1 0.070 -	1 0.040 -	1 0.21 -	1 0.0070 -	1 0.12 -
Birch bolete								
Nikel site (Russia) n of pools Sample conc. n < LOD	69.44544;30.49665	1 1.4 -	1 2.4 -	1 0.22 -	1 0.099 -	1 0.18 -	1 0.043 -	1 0.023 -
Gypsy mushroom								
Durvatin (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.61505;30.70556	3 1.0 1.0 0.96;1.1 -	3 9.9 10.3 8.6;10.9 -	3 0.062 0.063 0.054;0.069 -	3 0.047 0.046 0.043;0.052 -	3 1.6 1.5 1.3;1.9 -	3 0.012 0.011 0.010;0.015 -	3 0.017 0.017 0.013;0.021 -

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Gardsjøen (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.71014;30.86115	3 0.79 0.78 0.69;0.90 -	3 7.7 7.5 7.5;8.1 -	3 0.13 0.13 0.12;0.14 -	3 0.015 0.015 0.014;0.016 -	3 1.3 1.2 1.1;1.5 -	3 0.019 0.019 0.019;0.020 -	3 0.047 0.045 0.044;0.053 -
Grensa (Norway) n of pools mean conc. median conc. min;max conc. n < LOD	69.56039;30.93146	3 2.8 2.8 2.8;2.9 -	3 32.7 32.9 30.9;34.3 -	3 0.12 0.12 0.12;0.12 -	3 0.034 0.035 0.032;0.035 -	3 0.91 0.94 0.81;1.0 -	3 0.022 0.021 0.021;0.025 -	3 0.046 0.047 0.039;0.053 -
Sollia Jarfjord n of pools mean conc. median conc. min;max conc. n < LOD	69.66485;30.19825	3 1.8 1.8 1.7;1.9 -	3 6.1 5.8 5.8;6.6 -	3 0.066 0.068 0.058;0.071 -	3 0.024 0.024 0.024;0.024 -	3 0.57 0.54 0.49;0.68 -	3 0.013 0.012 0.011;0.014 -	3 0.020 0.020 0.017;0.022 -
Bearded milkcap								
South (Russia) n of pools Sample conc. n < LOD	69.22005;30.15659	1 0.69 -	1 1.2 -	1 0.049 -	1 0.019 -	1 0.0086 -	1 0.021 -	1 0.0037 -
Rollrim milkcap								
Nikel site (Russia) n of pools Sample conc. n < LOD	69.44544;30.49665	1 15.1 -	1 8.6 -	1 0.91 -	1 0.13 -	1 0.15 -	1 0.20 -	1 0.014 -

Table S1.*Cont.*

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Kuetsjarvi (Russia) n of pools n of fish in a pool Sample conc. n < LOD	69.46907;30.19638	1 5 0.16 -	1 5 0.12 -	1 5 0.039 -	1 5 0.012 -	1 5 0.0020 -	1 5 < 0.005 1	1 5 0.012 -
Rajakoski (Russia) n of pools n of fish in a pool Sample conc. n < LOD	69.02141;29.00452	1 5 < 0.005 1	1 5 0.091 -	1 5 0.0030 -	1 5 0.013 -	1 5 < 0.0005 1	1 5 0.0070 -	1 5 0.042 -
Virtuovoshjarvi (Russia) n of pools n of fish in a pool Sample conc. n < LOD	68.77037;28.82168	1 5 0.028 -	1 5 0.19 -	1 5 0.011 -	1 5 0.065 -	1 5 < 0.0005 1	1 5 0.012 -	1 5 0.11 -
Kochejaur (Russia) n of pools n of fish in a pool Sample conc. n < LOD	68.60266;28.6882	1 5 0.028 -	1 5 0.45 -	1 5 0.0050 -	1 5 0.025 -	1 5 < 0.0005 1	1 5 < 0.0005 1	1 5 0.14 -
Inari (Finland) n of pools n of fish in a pool mean conc. median conc. min;max conc. n < LOD	68.88994;27.62992	3 5 0.0093 0.007 0.005;0.016 -	-	-	-	-	-	-

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Perch								
Tjærebukta (Norway)	69.22725;29.18445	-	-	-	-	-	-	-
n of pools		2	2	2	2	2	2	2
n of single samples		0.0057	0.37	0.0041	0.024	0.00041	0.010	0.52
mean conc.		0.0057	0.37	0.0041	0.024	0.00041	0.010	0.52
median conc.		0.0051;0.0063	0.27;0.46	0.0038;0.0044	0.016;0.032	0.00040;0.00042	0.0077;0.013	0.49;0.56
min;max conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-
Rundvannet (Norway)	69.68162;30.07831	4 + 1 single sample*						
n of pools		5	5	5	5	5	5	5
n of fish in a pool		0.033	0.18	0.0086	0.019	0.0023	0.0055	0.29
mean conc.		0.025	0.17	0.0078	0.019	0.0027	0.0053	0.23
median conc.		<0.011;0.088	0.15;0.24	0.0045;0.015	0.016;0.021	0.0012;0.0030	<0.0018;0.0097	0.044;0.86
min;max conc.		2	-	-	-	-	1	-
n < LOD		-	-	-	-	-	-	-
Ruskebukta (Norway)	69.20794;29.22895	-	-	-	-	-	-	-
n of pools		1	1	1	1	1	1	1
n of single samples		0.016	0.43	0.0084	0.013	0.00082	0.0060	0.22
Sample conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-
Kuetsjarvi (Russia)	69.46907;30.19638	1	1	1	1	1	1	1
n of pools		5	5	5	5	5	5	5
n of fish in a pool		0.035	0.22	0.011	0.012	0.0020	0.0050	0.080
Sample conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-

Table S1.Cont.

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Shuonajarvi (Russia) n of pools n of fish in a pool Sample conc. n < LOD	69.24621;30.01409	1 5 0.020 -	1 5 0.21 -	1 5 0.0050 -	1 5 0.013 -	1 5 0.0020 -	1 5 0.026 -	1 5 0.23 -
Virtuovoshjarvi (Russia) n of pools n of fish in a pool Sample conc. n < LOD	68.77037;28.82168	1 5 0.016 -	1 5 0.23 -	1 5 0.0060 -	1 5 0.017 -	1 5 0.0020 -	1 5 0.024 -	1 5 0.17 -
Kochejaur (Russia) n of pools n of fish in a pool Sample conc. n < LOD	68.60266;28.6882	1 5 0.015 -	1 5 0.26 -	1 5 0.0030 -	1 5 0.0040 -	1 5 0.0010 -	1 5 0.027 -	1 5 0.37 -
Inari (Finland) n of pools n of fish in a pool mean conc. median conc. min,max conc. n < LOD	68.88994;27.62992	2 5 0.045 0.045 0.0090;0.081 -	3 5 0.27 0.22 0.21;0.37 -	- -	3 5 0.014 0.0081 0.0069;0.0257 -	3 5 0.00095 0.0010 0.00075;0.0011 -	3 5 0.0056 0.006 < 0.005;0.0074 1	3 5 0.065 0.056 0.039;0.10 -
Vastusjärvi (Finland) n of pools n of fish in a pool Sample conc. n < LOD	69.07503;27.13353	-	1 5 0.33 -	-	1 5 0.0043 -	1 5 0.0027 -	1 5 0.011 -	1 5 0.057 -

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Pike								
Tjærebukta (Norway)	69.22725;29.18445	-	-	-	-	-	-	1
n of pools		1	1	1	1	1	1	0.18
n of single samples		0.0042	0.28	0.0019	0.019	0.00026	0.0027	-
Sample conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-
Ruskebukta (Norway)	69.20794;29.22895	-	-	-	-	-	-	-
n of pools		1	1	1	1	1	1	1
n of single samples		0.0042	0.19	0.0012	0.079	0.00024	0.0084	0.23
Sample conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-
Kuetsjarvi (Russia)	69.46907;30.19638	1	1	1	1	1	1	1
n of pools		5	5	5	5	5	5	5
n of fish in a pool		0.053	0.098	0.0080	0.027	0.0010	0.0060	0.062
Sample conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-
Rajakoski (Russia)	69.02141;29.00452	1	1	1	1	1	1	1
n of pools		5	5	5	5	5	5	5
n of fish in a pool		0.032	0.20	0.0010	0.012	< 0.0005	0.026	0.51
Sample conc.		-	-	-	-	1	-	-
n < LOD		-	-	-	-	-	-	-
Virtuovoshjarvi (Russia)	68.77037;28.82168	1	1	1	1	1	1	1
n of pools		5	5	5	5	5	5	5
n of fish in a pool		0.061	0.21	0.0030	0.0090	< 0.0005	0.0060	0.099
Sample conc.		-	-	-	-	1	-	-
n < LOD		-	-	-	-	-	-	-

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Kochejaur (Russia) n of pools n of fish in a pool Sample conc. n < LOD	68.60266;28.6882	1 5 0.016 -	1 5 0.17 -	1 5 0.0010 -	1 5 0.0020 -	1 5 0.0030 -	1 5 < 0.005 1	1 5 0.18 -
Inari (Finland) n of pools n of fish in a pool Sample conc. n < LOD	68.88994;27.62992	1 4 0.0040 -	1 4 0.20 -	- -	1 4 0.14 -	1 4 < 0.00025 1	1 4 < 0.005 1	1 4 0.14 -
Arctic char								
Durvatin (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.61076;30.68831	1 10 0.059 -	1 10 0.44 -	1 10 0.038 -	1 10 0.031 -	1 10 0.0035 -	1 10 0.0073 -	1 10 0.16 -
Rabvatn (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.64263;30.46097	1 8 0.088 -	1 8 0.35 -	1 8 0.020 -	1 8 0.044 -	1 8 0.0062 -	1 8 0.18 -	1 8 0.17 -
Holmvatn (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.7147;30.76745	1 8 0.046 -	1 8 0.40 -	1 8 0.028 -	1 8 0.0096 -	1 8 0.0076 -	1 8 0.037 -	1 8 0.043 -

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Shuonajarvi (Russia) n of pools n of fish in a pool Sample conc. n < LOD	69.24621;30.01409	1 5 0.046 -	1 5 0.51 -	1 5 0.018 -	1 5 0.025 -	1 5 0.0030 -	1 5 0.090 -	1 5 0.049 -
Brown trout								
Durvatin (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.61076;30.68831	1 10 0.097 -	1 10 0.55 -	1 10 0.057 -	1 10 0.031 -	1 10 0.0024 -	1 10 0.0063 -	1 10 0.074 -
Gardsjøen (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.70603;30.84589	1 7 0.072 -	1 7 0.32 -	1 7 0.045 -	1 7 0.026 -	1 7 0.0033 -	1 7 0.022 -	1 7 0.097 -
Rabvatn (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.64263;30.46097	1 10 0.11 -	1 10 0.38 -	1 10 0.027 -	1 10 0.042 -	1 10 0.0025 -	1 10 0.037 -	1 10 0.063 -
Holmvatn (Norway) n of pools n of fish in a pool Sample conc. n < LOD	69.7147;30.76745	1 7 0.066 -	1 7 0.32 -	1 7 0.061 -	1 7 0.025 -	1 7 0.0027 -	1 7 0.021 -	1 7 0.14 -

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Kuetsjarvi (Russia)	69.46907;30.19638	-	-	-	-	-	-	-
n of pools		1	1	1	1	1	1	1
n of single samples		0.012	0.672	0.004	0.012	< 0.0005	< 0.005	0.145
Sample conc.		-	-	-	-	1	1	-
n < LOD		-	-	-	-	-	-	-
Game								
Reindeer								
Pasvik (Norway)	69.57331;29.83184	-	-	-	-	-	-	-
n of pools		10	10	10	10	10	10	10
n of single samples		0.0095	2.1	0.0079	0.033	0.0013	0.0028	< 0.005
mean conc.		0.0071	2.1	0.0076	0.032	0.0011	0.0025	-
median conc.		0.0033;0.027	1.6;2.5	0.0052;0.011	0.025;0.048	0.00072;0.0034	0.0016;0.0046	-
min;max conc.		-	-	-	-	-	-	10
n < LOD		-	-	-	-	-	-	-
Paistunturi (Finland)	69.6641;26.28446	-	-	-	-	-	-	-
n of pools		3	3	3	3	3	3	3
n of single samples		0.018	2.2	0.014	0.0047	0.0077	0.0042	-
mean conc.		0.022	2.3	0.014	0.0046	0.0087	0.0039	-
median conc.		0.010;0.023	2.1;2.34	0.013;0.015	0.0042;0.0053	0.0050;0.0093	0.0039;0.0047	-
min;max conc.		-	-	-	-	-	-	-
n < LOD		-	-	-	-	-	-	-
Moose								
Pasvik (Norway)	69.65713;30.28188	-	-	-	-	-	-	-
n of pools		3	3	3	3	3	3	3
n of single samples		0.034	1.6	0.011	0.0076	0.0015	0.12	< 0.005
mean conc.		0.035	1.4	0.011	0.0070	0.0015	0.027	-
median conc.		< 0.011;0.059	1.2;2.0	0.0074;0.015	0.0039;0.012	0.0013;0.0018	0.0066;0.34	-
min;max conc.		1	-	-	-	-	-	3
n < LOD		-	-	-	-	-	-	-

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Russia n of pools n of single samples Sample conc. n < LOD	Unknown	- 1 0.0080 -	- 1 1.3 -	- 1 0.0090 -	- 1 < 0.001 1	- 1 0.0020 -	- 1 0.019 -	- 1 0.0030 -
Kyläjoki (Finland) n of pools n of single samples Sample conc. n < LOD	68.42504;26.64045	- 1 0.014 -	- 1 1.8 -	- 1 0.00060 -	- 1 0.00070 -	- 1 0.034 -	- 1 0.0014 -	- 1 -
Angeli, Kaitavaara (Finland) n of pools n of single samples Sample conc. n < LOD	68.91099;25.65843	- 1 0.0030 -	- 1 1.4 -	- 1 0.00060 -	- 1 0.0019 -	- 1 0.010 -	- 1 0.0019 -	- 1 -
Kuttura, Köysivaara (Finland) n of pools n of single samples Sample conc. n < LOD	68.3717;26.58609	- 1 0.0050 -	- 1 1.6 -	- 1 0.00070 -	- 1 0.0011 -	- 1 0.0078 -	- 1 0.0022 -	- 1 -
Ptarmigan								
Sevettijärvi (Finland) n of pools n of birds in a pool Sample conc. n < LOD	69.50567;28.58221	1 4 0.0070 -	1 4 4.7 -	- 1 0.0030 -	1 4 0.019 -	1 4 < 0.005 1	1 4 < 0.005 1	1 4 0.00066 -

Table S1.*Cont.*

	Coordinates (Lat;Long)	Ni	Cu	Co	As	Cd	Pb	Hg
Utsjoki (Finland)	69.78764;27.80848	2	2	-	2	2	2	2
n of pools		2 and 3	2 and 3		2 and 3	2 and 3	2 and 3	2 and 3
n of birds in a pool		0.0040	5.2		0.0030	0.0084	< 0.005	0.00059
mean conc.		0.0040	5.2		0.0030	0.0084		0.00059
median conc.		0.0030;0.0050	5.2;5.2		0.0028;0.0031	0.0069;0.0099		0.00047;0.0007
min;max conc.		-	-		-	-	2	-
n < LOD								

(Lat = latitude, Long = longitude, Ni = nickel, Cu = copper, Co = cobalt, As = arsenic, Cd = cadmium, Pb = lead, Hg = total mercury, n = number of pools or samples in a pool, min = minimum, max = maximum, < LOD = concentrations below level of detection, ref. = reference site, conc. = concentration). Coordinates are approximate since some are for lakes and grazing regions. Concentrations below LOD were substituted with a numeric value (LOD/ $\sqrt{2}$). These values are included in the calculation of the mean and median.

* 4 pools with 5 individual fish in each pool and one single sample

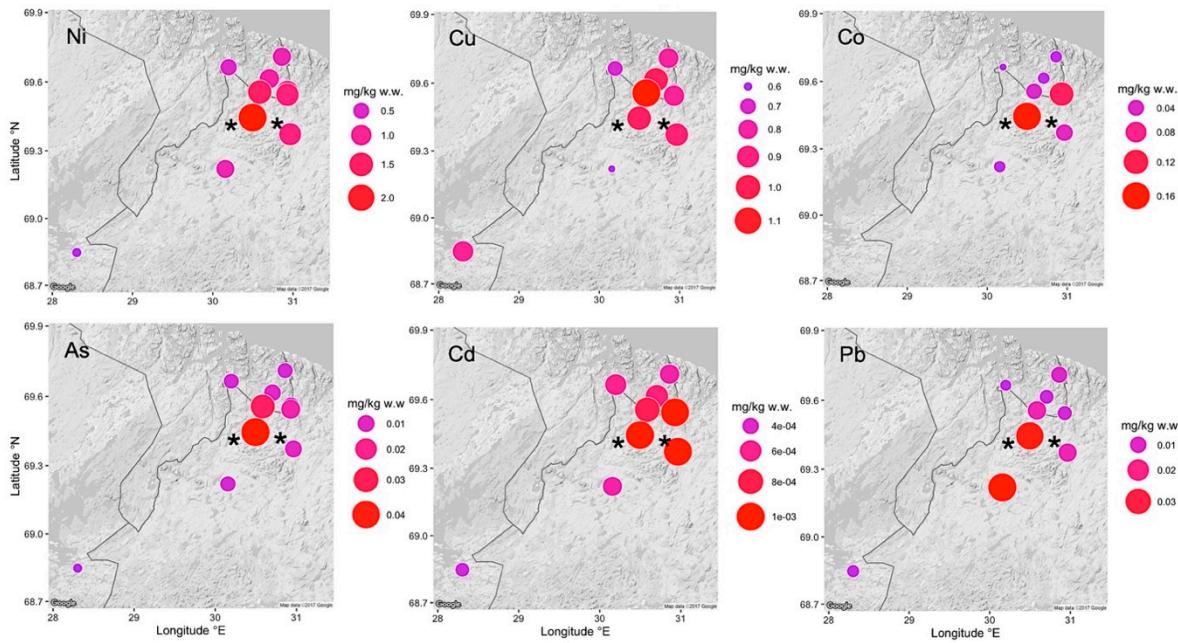


Figure S1. Concentration (mg/kg w.w.) of toxic elements in lingonberries in the border region of Norway, Finland and Russia. The cities Nikel and Zapoljarny are indicated by black stars. Note that concentration scales are different for the different elements.

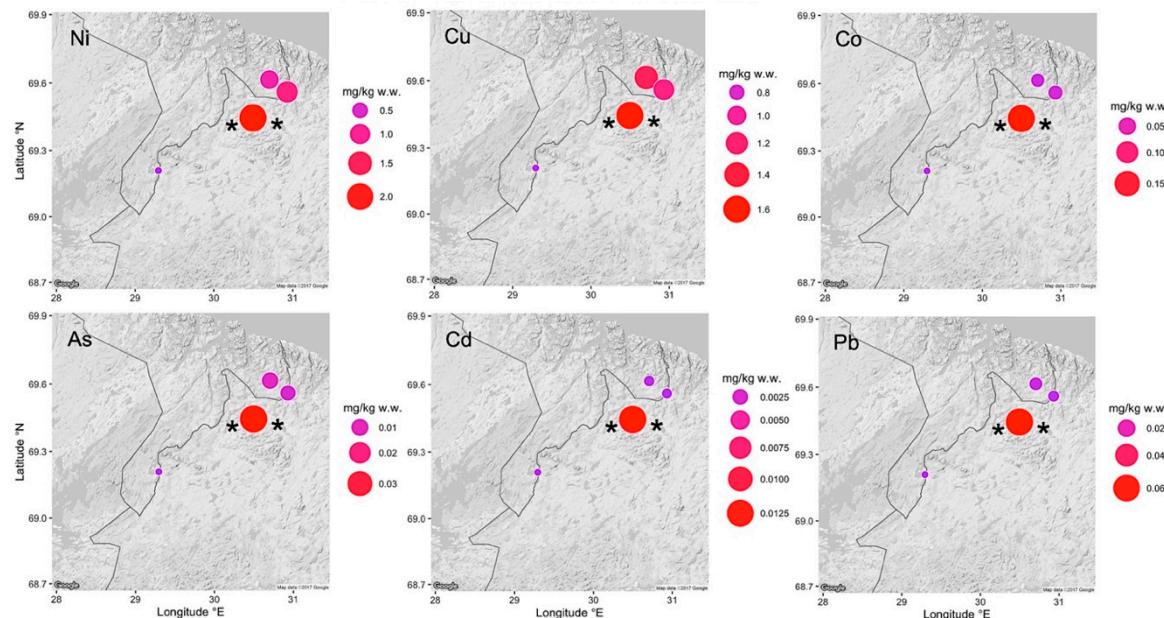


Figure S2. Concentration (mg/kg w.w.) of toxic elements in crowberries in the border region of Norway, Finland and Russia. The cities Nikel and Zapoljarny are indicated by black stars. Note that concentration scales are different for the different elements.

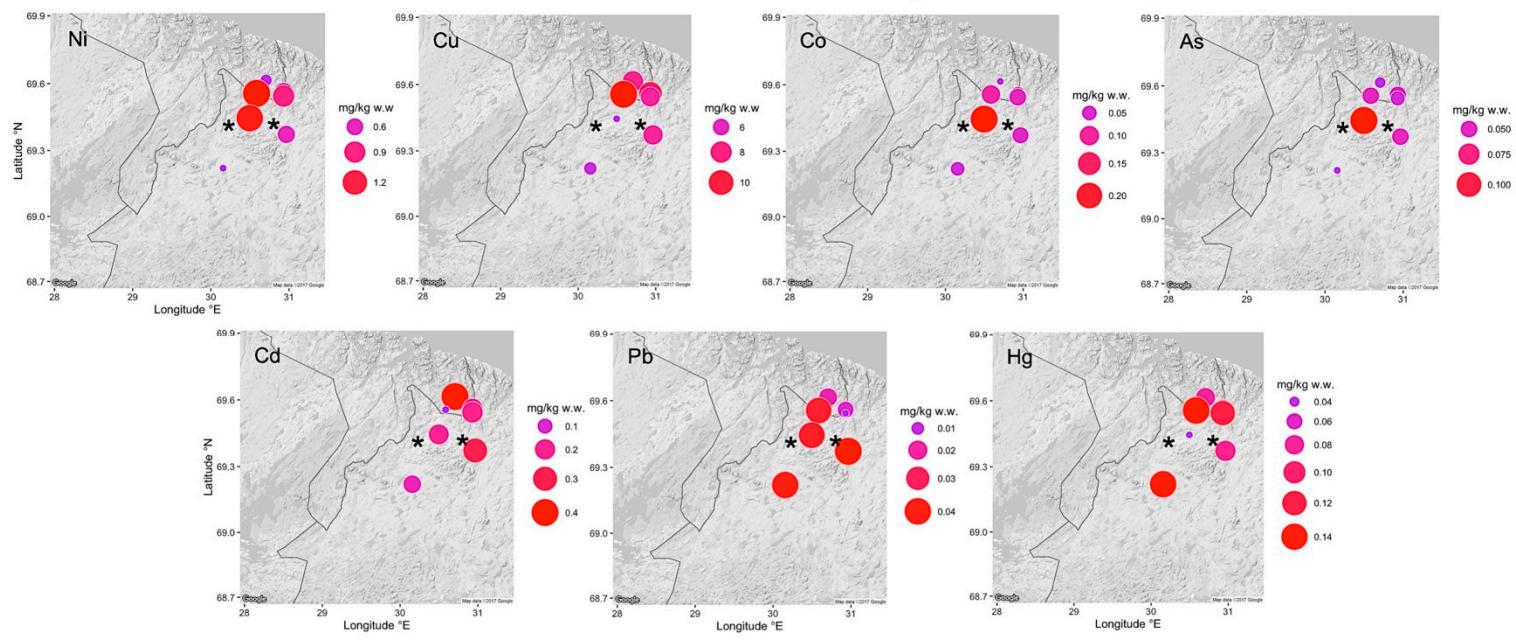


Figure S3. Concentration (mg/kg w.w.) of toxic elements in mushrooms (*Leccinum* genus) in the border region of Norway, Finland and Russia. The cities Nikel and Zapoljarny are indicated by black stars. Note that concentration scales are different for the different elements.

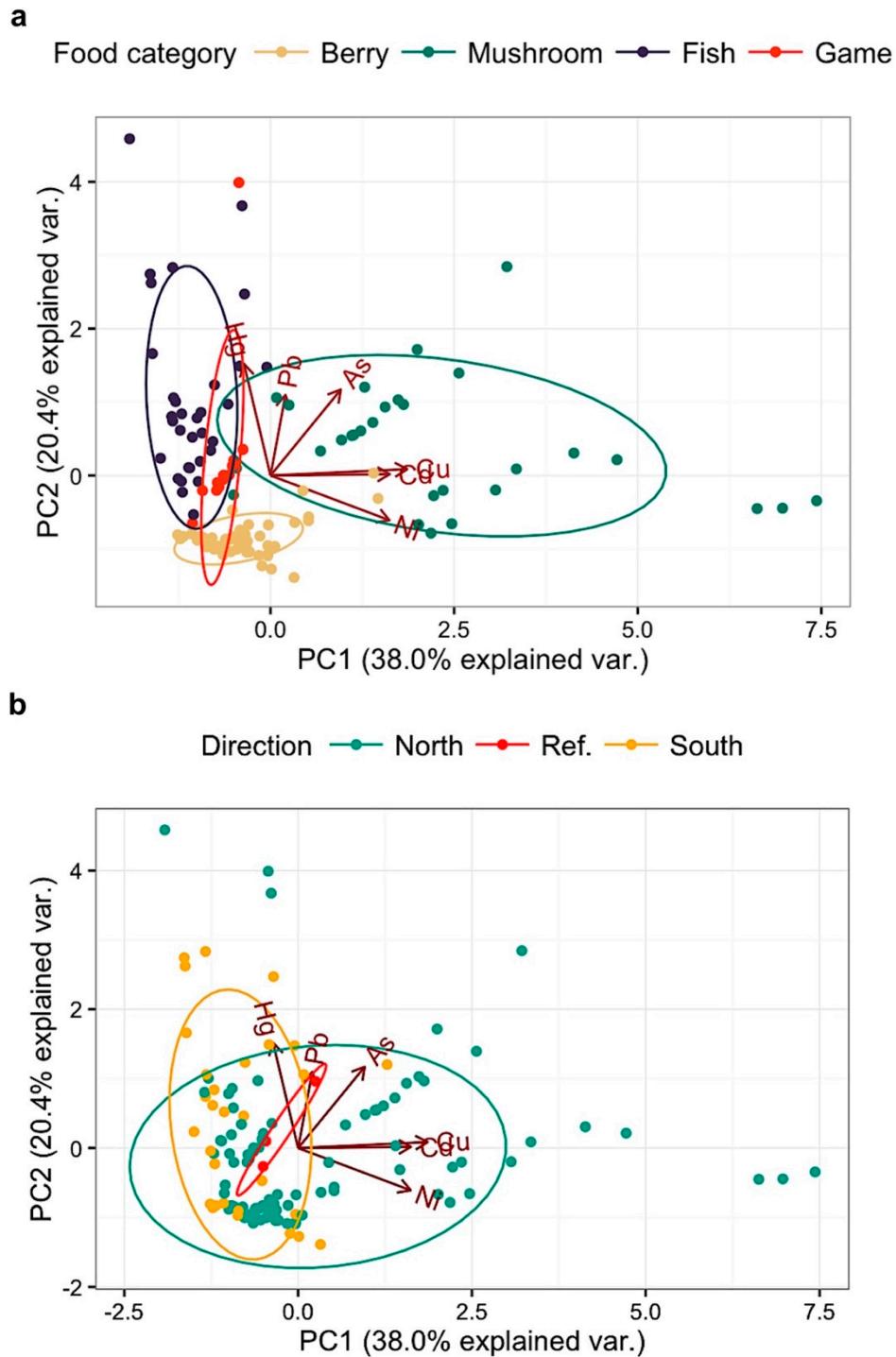


Figure S4. Principal component biplots of **(a)** food groups (berries: yellow, mushrooms: green, fish: purple, and game: red) and **(b)** sample location north of the Ni-Cu smelter (north: green), south of the smelter (south: yellow) or at reference sites (ref.: red) in the projection of principal component 1 (38.0 % explained variance) and principal component 2 (20.4 % explained variance).

Table S2. European Union maximum levels for toxic elements in food items [36-39] compared with results from the present study. w.w. = wet weight.

Maximum levels set by the EU	Observed data				Range of samples > ML	
	Species	Location	n > ML / n _s *			
Lead (mg/kg w.w.):						
Fish muscle	0.30	None exceeded				
Meat †	0.10	Moose	Pasvik (Norway)	1 / 11	0.34	
		Ptarmigan	Russia	1 / 4	0.17	
Berries and small fruit	0.20	None exceeded				
Cadmium (mg/kg w.w.)						
Meat †	0.050	None exceeded				
Fish muscle	0.050	None exceeded				
Fungi	1.0	Gypsy	Gardsjøen (Norway)	3 / 12	1.1 - 1.5	
		mushroom	Durvattn (Norway)	3 / 12	1.3 - 1.9	
Mercury (mg/kg w.w.)						
Fish muscle ‡	0.50	Perch	Tjærebukta (Norway)	1 / 16	0.56	
			Rundvannet (Norway)	1 / 16	0.86	
Pike muscle	1.0	None exceeded				

* n > ML / n_s = number of samples exceeding maximum levels out of the total number of samples of the same species

† of bovine animals, sheep, pig and poultry (excluding offal)

‡ and fishery products