Supplementary Material



Supplementary Figure SF1: Soil pH of surface horizons across the three studied landscapes. Regressions for Ong Valley horizon 2, Mount Achernar Horizon 2, and Dominion Range horizon 1 are significant (p < 0.05).

Supplementary Table ST1: Example soil profiles within soil units.

|  |  |  |  |
| --- | --- | --- | --- |
| **Typical soil profile** (Dominion Range and Mount Achernar) | | **Typical soil profile** (Ong Valley) | |
| **Map unit A:**  *1:* 0-4 cm; light yellowish brown (2.5 Y 6/3) slightly gravelly, silty fine to coarse sand; over massive ice. | *Location:* S 85°16.091  E 164°39.510  Glacic Haploturbel | **Map unit E:**  *1:* 0-1 cm; (5Y 6/2) stony, cobbley, gravelly, slightly silty fine to coarse sand;  *2:* 1-15 cm; light yellowish brown (2.5Y 6/3) gravelly, silty fine sand;  *3:*15+ cm; massive ice. | **20101224-113942_IMG_3420.jpg**  *Location:* S 83°13.995  E 157°40.213  Glacic Haploturbel |
| **Map unit B:**  *1:* 0-2 cm; light gray (2.5 Y 7/2) slightly cobbley, gravelly fine to medium sand;  *2:* 2-13 cm; gray (2.5 Y 6/1) very fine gravelly, slightly silty very fine to medium sand;  *3: ­*13+ cm; massive ice. | *Location:* S 84°11.773  E 161°13.394  Glacic Haplorthel | **Map unit F:**  *1:* 0-0.5 cm; pale yellow (2.5Y 7/3) slightly boulder, stony, cobbley, very gravelly medium sand;  *2:*0.5-13 cm; pale yellow (2.5Y 7/3) fine to coarse gravelly, fine and medium sand, soft;  *3:* 13-60 cm; pale yellow (2.5Y 7/3) fine to coarse gravelly, fine and medium sand, loose;  *4:* 60+ cm; massive ice. | **20101223-130906_IMG_3380.jpg***Location:* S 83°15.027  E 157°43.701  Glacic Anhyorthel |
| **Map unit C:**  *1:* 0-5 cm; pale yellow (2.5 Y 7/3) slightly stony, slightly cobbley, gravelly very fine to coarse sand, moderately hard and massive;  *2:* 5-60 cm; pale yellow (2.5 Y 7/3) slightly cobbley, slightly fine gravelly very fine to medium sand;  *3:* 60+ cm; massive ice. | *Location:* S 84°13.199  E 161°11.861  Glacic Haploturbel | **Map unit G:**  *1:* 0-4 cm; light yellowish brown (2.5 Y 6/3) slightly boulder, cobbley, very gravelly medium to coarse sand, loose;  *2:* 4-30 cm; light yellowish brown (2.5Y 6/3.5) gravelly fine to coarse sand, soft;  *3:* 30-80+ cm;light yellowish brown (2.5Y 6/3.5) slightly gravelly fine to medium sand, soft; | *20101225-171555_IMG_3476.jpgLocation:* S 83°15.896  E 157°37.947  Typic Anhyturbel |
| **Map unit D:**  *1:* 0-1 cm; light gray (2.5 Y 7/2) slightly cobbley, very gravelly fine to coarse sand, slightly hard and platy;  *2:* 1-10 cm; pale yellow (2.5 Y 7/3) slightly cobbley fine to coarse sand;  *3:* 10-60 cm; light brownish gray (2.5 Y 6/2) slightly fine gravelly, silty, very fine to medium sand;  *4:* 60 + cm; massive ice. | **20110102-170538_IMG_3917.jpg***Location:* S 85°15.989  E 164°53.703  Glacic Haplorthel | **Map unit H:**  *1:* 0-1 cm; light yellowish brown (2.5 Y 6/3) very gravelly coarse sand;  *2:* 1-4 cm; pale yellow (2.5Y 7/4) slightly gravelly silt, soft;  *3:* 4-35 cm; pale yellow (2.5Y 7/4) gravelly, silty fine sand, soft;  *4:* 35-80+ cm; light yellowish brown (2.5 Y 6/3) slightly boulder slightly stony, slightly cobbley, very gravelly, silty fine sand, soft. | **20101226-124726_IMG_3490.jpg**  *Location:* S 83°16.263  E 157°37.493  Typic Anhyorthel |
|  |  | **Map unit I:**  *1:* 0-4 cm; greyish brown (2.5Y 5/2) slightly boulder, slightly stony, slightly cobbley, very gravelly coarse sand, loose;  *2:* 4-38 cm; pale yellow (2.5Y 7/4) slightly cobbley, gravelly medium to coarse sand, loose;  *3:* 38-44 cm; light yellowish brown (10YR 6/4) cobbley, gravelly fine to coarse sand, soft;  *4:* 44-70+ cm; light yellowish brown (2.5Y 6/4) slightly bouldery, slightly stony, slightly cobbley, very fine gravelly fine to coarse sand, soft; | **20101225-124558_IMG_3461.jpg**  *Location:* S 83°16.422  E 157°36.107  Typic Anhyorthel |

**Supplementary Table ST2:** Chemical and physical properties of Mount Achernar site soil horizons.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Map unit** | | | | **A** | | **B** | **C** | | | | | **D** |
|  | | | | **Ach 3** | **Ach 4** | **Ach 8** | **Ach 9** | **Ach 7** | **Ach 6** | **Ach 5** | **Ach 1** | **Ach 2** |
| **Distance from ice edge (m)** | | | | 550 | 800 | 1500 | 2200 | 2900 | 3600 | 4200 | 5300 | 5500 |
|  |  | | **Horizon** |  |  |  |  |  |  |  |  |  |
| **Moisture Content (% dry weight)** | | | **1** | 2.85 | 2.91 | 3.01 | 2.20 | 2.25 | 1.99 | 1.79 | 1.23 | 0.89 |
| **2** | 3.15 | 3.57 | 4.35 | 2.07 | 1.89 | 2.37 | 1.69 | 2.24 | 1.83 |
| **3** |  |  |  | 2.52 | 1.90 |  |  | 2.33 | 1.96 |
| **4** |  |  |  |  |  |  |  |  | 2.75 |
| **pH** | | | **1** | 8.19 | 8.26 | 8.07 | 8.16 | 8.15 | 8.16 | 8.26 | 8.36 | 8.96 |
| **2** | 8.63 | 8.53 | 8.56 | 7.87 | 8.15 | 8.22 | 8.22 | 7.94 | 8.15 |
| **3** |  |  |  | 8.21 | 8.33 |  |  | 7.97 | 8.13 |
| **4** |  |  |  |  |  |  |  |  | 8.22 |
| **EC (dS/m)** | | | **1** | 0.56 | 0.62 | 1.31 | 1.95 | 2.24 | 2.75 | 2.30 | 0.26 | 0.36 |
| **2** | 0.30 | 0.21 | 0.62 | 2.89 | 2.10 | 1.64 | 1.47 | 3.60 | 3.77 |
| **3** |  |  |  | 1.27 | 0.97 |  |  | 2.34 | 4.39 |
| **4** |  |  |  |  |  |  |  |  | 1.70 |
| **Total C (%)** | | | **1** | 0.27 | 0.63 | 0.54 | 0.18 | 0.13 | 0.24 | 0.13 | 0.30 | 0.26 |
| **2** | 0.33 | 0.71 | 0.73 | 0.35 | 0.22 | 0.38 | 0.34 | 0.33 | 0.33 |
| **3** |  |  |  | 0.83 | 0.42 |  |  | 1.97 | 0.31 |
| **4** |  |  |  |  |  |  |  |  | 1.71 |
| **Total N (%)** | | | **1** | 0.04 | 0.04 | 0.07 | 0.04 | 0.04 | 0.08 | 0.05 | 0.01 | 0.01 |
| **2** | 0.03 | 0.03 | 0.05 | 0.07 | 0.09 | 0.05 | 0.04 | 0.08 | 0.07 |
| **3** |  |  |  | 0.07 | 0.04 |  |  | 0.13 | 0.16 |
| **4** |  |  |  |  |  |  |  |  | 0.11 |
| **Water soluble cations (mg/kg)** | **Na** | | **1** | 109 | 54 | 193 | 173 | 248 | 360 | 523 | 134 | 257 |
| **2** | 159 | 95 | 425 | 261 | 303 | 372 | 184 | 796 | 554 |
| **3** |  |  |  | 179 | 204 |  |  | 667 | 635 |
| **4** |  |  |  |  |  |  |  |  | 312 |
| **Mg** | | **1** | 29 | 12 | 49 | 55 | 67 | 96 | 118 | 11 | 13 |
| **2** | 8 | 5 | 12 | 136 | 110 | 42 | 30 | 184 | 111 |
| **3** |  |  |  | 30 | 43 |  |  | 102 | 95 |
| **4** |  |  |  |  |  |  |  |  | 31 |
| **K** | | **1** | 24 | 12 | 25 | 11 | 13 | 8 | 14 | 7 | 6 |
| **2** | 13 | 11 | 18 | 18 | 19 | 10 | 6 | 12 | 8 |
| **3** |  |  |  | 13 | 15 |  |  | 14 | 5 |
| **4** |  |  |  |  |  |  |  |  | 3 |
| **Ca** | | **1** | 249 | 109 | 494 | 650 | 1050 | 1110 | 1130 | 79 | 69 |
| **2** | 73 | 65 | 186 | 1170 | 756 | 426 | 375 | 1540 | 1600 |
| **3** |  |  |  | 259 | 342 |  |  | 681 | 953 |
| **4** |  |  |  |  |  |  |  |  | 184 |
| **Water soluble anions (mg/kg)** | **Cl** | | **1** | 79 | 107 | 141 | 103 | 72 | 121 | 69 | 45 | 193 |
| **2** | 127 | 78 | 63 | 258 | 191 | 103 | 100 | 377 | 474 |
| **3** |  |  |  | 252 | 140 |  |  | 625 | 398 |
| **4** |  |  |  |  |  |  |  |  | 734 |
| **SO4** | | **1** | 322 | 444 | 1400 | 3790 | 3760 | 4410 | 3600 | 506 | 227 |
| **2** | 81 | 107 | 677 | 5630 | 1490 | 2270 | 2690 | 2790 | 4160 |
| **3** |  |  |  | 1070 | 1150 |  |  | 2370 | 2490 |
| **4** |  |  |  |  |  |  |  |  | 388 |
| **NO3-N** | | **1** | 91 | 171 | 323 | 142 | 269 | 577 | 432 | 26 | 69 |
| **2** | 97 | 38 | 109 | 473 | 795 | 397 | 237 | 605 | 754 |
| **3** |  |  |  | 409 | 231 |  |  | 750 | 1560 |
| **4** |  |  |  |  |  |  |  |  | 640 |
| **Particle size distribution of < 2 mm fraction** | | **% Sand (63-2000 um)** | **1** | 72.7 | 61.6 | 92.7 | 78.2 | 89.7 | 85.7 | 68.5 | 86.7 | 82.3 |
| **2** | 69.8 | 73 | 49.6 | 62.8 | 86.9 | 81.6 | 86.6 | 95.8 | 94.4 |
| **3** |  |  |  | 68.7 | 83.7 |  |  | 77.6 | 79 |
| **4** |  |  |  |  |  |  |  |  | 85.2 |
| **% Silt (3.9-63 um)** | **1** | 14 | 21.3 | 5.1 | 10.4 | 7.2 | 7.9 | 19.4 | 9.9 | 9.4 |
| **2** | 19.5 | 18.3 | 28 | 19.4 | 9.4 | 12.7 | 7.6 | 3.1 | 3.8 |
| **3** |  |  |  | 15.6 | 9.5 |  |  | 14.2 | 16 |
| **4** |  |  |  |  |  |  |  |  | 11.6 |
| **% Clay (0.06-3.9 um)** | **1** | 12.8 | 16.6 | 2.3 | 11.3 | 3.1 | 6.4 | 11.8 | 3.4 | 8.3 |
| **2** | 10.7 | 8.7 | 21.9 | 17.4 | 3.7 | 5.8 | 5.7 | 1.1 | 1.8 |
| **3** |  |  |  | 15.2 | 6.8 |  |  | 8.1 | 5 |
| **4** |  |  |  |  |  |  |  |  | 3.2 |
|  | |  |  |  |  |  |  |  |  |  |  |  |

Supplementary Table ST3: Chemical and physical properties of Ong Valley site soil horizons.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Map unit** | | | | **E** | **F** | **G** | **H** | **I** |
|  | | | | **Ong 2** | **Ong 1** | **Ong 5** | **Ong 6** | **Ong 4** |
| **Distance from ice edge (m)** | | | | 1500 | 3600 | 4800 | 5500 | 5700 |
|  |  | | **Horizon** |  |  |  |  |  |
| **Moisture Content (% dry weight)** | | | **1** | 1.26 | 0.59 | 0.34 | 1.96 | 0.40 |
| **2** | 1.60 | 0.65 | 0.47 | 3.03 | 0.67 |
| **3** |  | 0.64 | 0.40 | 3.12 | 0.89 |
| **4** |  |  |  | 2.18 | 0.45 |
| **pH** | | | **1** | 8.82 | 8.59 | 8.70 | 8.37 | 8.25 |
| **2** | 9.13 | 8.50 | 8.56 | 8.31 | 8.42 |
| **3** |  | 8.57 | 8.58 | 8.44 | 8.44 |
| **4** |  |  |  | 8.43 | 8.80 |
| **EC (dS/m)** | | | **1** | 0.28 | 0.81 | 0.48 | 2.38 | 0.04 |
| **2** | 0.17 | 1.93 | 2.10 | 7.39 | 2.60 |
| **3** |  | 1.41 | 1.62 | 5.20 | 2.80 |
| **4** |  |  |  | 3.21 | 1.04 |
| **Total C (%)** | | | **1** | 0.08 | 0.08 | 0.02 | 0.07 | 0.01 |
| **2** | 0.08 | 0.06 | 0.02 | 0.21 | 0.01 |
| **3** |  | 0.09 | 0.03 | 0.16 | 0.02 |
| **4** |  |  |  | 0.11 | 0.02 |
| **Total N (%)** | | | **1** | 0.00 | 0.01 | 0.00 | 0.06 | 0.00 |
| **2** | 0.00 | 0.06 | 0.03 | 0.30 | 0.04 |
| **3** |  | 0.03 | 0.02 | 0.24 | 0.03 |
| **4** |  |  |  | 0.14 | 0.02 |
| **Water soluble cations (mg/kg)** | **Na** | | **1** | 53 | 169 | 38 | 470 | 55 |
| **2** | 68 | 528 | 348 | 3630 | 852 |
| **3** |  | 260 | 224 | 2010 | 326 |
| **4** |  |  |  | 812 | 91 |
| **Mg** | | **1** | 24 | 27 | 12 | 112 | 4 |
| **2** | 9 | 79 | 50 | 578 | 103 |
| **3** |  | 84 | 44 | 716 | 95 |
| **4** |  |  |  | 404 | 18 |
| **K** | | **1** | 33 | 53 | 42 | 67 | 19 |
| **2** | 23 | 78 | 98 | 299 | 137 |
| **3** |  | 71 | 75 | 313 | 175 |
| **4** |  |  |  | 178 | 47 |
| **Ca** | | **1** | 137 | 477 | 400 | 1480 | 13 |
| **2** | 61 | 752 | 1140 | 2760 | 1230 |
| **3** |  | 779 | 1190 | 1810 | 1560 |
| **4** |  |  |  | 1060 | 126 |
| **Water soluble anions (mg/kg)** | **Cl** | | **1** | 22 | 44 | 16 | 151 | 21 |
| **2** | 32 | 108 | 49 | 679 | 86 |
| **3** |  | 80 | 50 | 551 | 82 |
| **4** |  |  |  | 443 | 74 |
| **SO4** | | **1** | 267 | 1460 | 898 | 3160 | 25 |
| **2** | 146 | 1800 | 1880 | 2820 | 3670 |
| **3** |  | 1240 | 2220 | 123 | 4000 |
| **4** |  |  |  | 83 | 1760 |
| **NO3-N** | | **1** | 39 | 81 | 8 | 560 | 3 |
| **2** | 17 | 702 | 289 | 3850 | 509 |
| **3** |  | 285 | 121 | 2390 | 249 |
| **4** |  |  |  | 1280 | 203 |
| **Particle size distribution of < 2 mm fraction** | | **% Sand (63-2000 um)** | **1** | 64.9 | 84.2 | 94.4 | 94.8 | 89.5 |
| **2** | 64.1 | 91 | 96.1 | 92.3 | 56.9 |
| **3** |  | 86.3 | 94.5 | 91.6 | 64.9 |
| **4** |  |  |  | 93.6 | 75.3 |
| **% Silt (3.9-63 um)** | **1** | 25.2 | 11.6 | 5.5 | 5.2 | 9.3 |
| **2** | 28.2 | 8.2 | 3.9 | 7.6 | 35.5 |
| **3** |  | 12.4 | 5.3 | 8 | 27.1 |
| **4** |  |  |  | 6.1 | 19.5 |
| **% Clay (0.06-3.9 um)** | **1** | 9.9 | 4.2 | 0.1 | 0 | 1.1 |
| **2** | 7.7 | 0.8 | 0 | 0.1 | 7.6 |
| **3** |  | 1.3 | 0.2 | 0.3 | 8 |
| **4** |  |  |  | 0.2 | 5.2 |

Supplementary Table ST4: Chemical and physical properties of Dominion Range site soil horizons.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Map unit** | | **A** | | | | | **B** | | | | | | | | | | **D** | |
|  |  | **Dom 2** | | **Dom 3** | | **Dom 4** | | **Dom 5** | | **Dom 6** | | **Dom 7** | | **Dom 8** | | **Dom 1** | | **Dom 9** | |
| **Distance from ice edge (m)** | | 750 | 1250 | | 1550 | | 1850 | | 2100 | | 2500 | | 2650 | | 2870 | | 3300 | |
| **Moisture Content (% dry weight)** | | 4.04 | 2.25 | | 2.13 | | 1.87 | | 1.66 | | 1 | | 1.68 | | 1.26 | | 1.96 | |
| **pH** | | 9.22 | 9.08 | | 8.77 | | 8.57 | | 8.59 | | 8.93 | | 8.65 | | 8.55 | | 8.37 | |
| **EC (dS/m)** | | 0.09 | 0.51 | | 0.97 | | 1.57 | | 1.49 | | 1.29 | | 2.23 | | 1.63 | | 3.86 | |
| **Total C (%)** | | 0.08 | 0.07 | | 0.13 | | 0.25 | | 0.12 | | 0.17 | | 0.19 | | 0.18 | | 0.96 | |
| **Total N (%)** | | 0.02 | 0.02 | | 0.02 | | 0.05 | | 0.05 | | 0.04 | | 0.06 | | 0.04 | | 0.12 | |
| **Water soluble cations (mg/kg)** | **Na** | 64 | 415 | | 738 | | 504 | | 503 | | 570 | | 885 | | 357 | | 1000 | |
| **Mg** | 3 | 14 | | 49 | | 155 | | 50 | | 62 | | 149 | | 74 | | 438 | |
| **K** | 13 | 11 | | 13 | | 21 | | 9 | | 9 | | 15 | | 6 | | 27 | |
| **Ca** | 41 | 57 | | 137 | | 289 | | 159 | | 149 | | 420 | | 196 | | 1460 | |
| **Water soluble anions (mg/kg)** | **Cl** | 33 | 52 | | 46 | | 241 | | 325 | | 395 | | 307 | | 483 | | 656 | |
| **SO4** | 1 | 611 | | 1550 | | 1680 | | 1600 | | 998 | | 1230 | | 1690 | | 3780 | |
| **NO3-N** | 2 | 73 | | 122 | | 441 | | 492 | | 404 | | 486 | | 540 | | 740 | |
| **% Sand (63-2000 um)** | | 66.2 | 80.7 | | 79.3 | | 82.1 | | 87.8 | | 96 | | 89.4 | | 93.8 | | 89.6 | |
| **% Silt (3.9-63 um)** | | 16.6 | 11.7 | | 11 | | 10.3 | | 7 | | 2.6 | | 5.6 | | 4.2 | | 7.4 | |
| **% Clay (0.06-3.9 um)** | | 16.8 | 7.6 | | 9.6 | | 7.7 | | 5.2 | | 1.4 | | 5.1 | | 1.9 | | 3.1 | |

Supplementary Table ST5: Relative clast abundances of Mount Achernar site soil horizons.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Soil profile (glacier to leftmost of profile sequence)** | | | | | | | | | | | |
| **Map unit** | | | **A** | | **B** | **C** | | | | | **D** |
|  | | | **Ach 3** | **Ach 4** | **Ach 8** | **Ach 9** | **Ach 7** | **Ach 6** | **Ach 5** | **Ach 1** | **Ach 2** |
| **Distance from ice edge (m)** | | | 550 | 800 | 1500 | 2200 | 2900 | 3600 | 4200 | 5300 | 5500 |
|  |  | **Horizon** |  |  |  |  |  |  |  |  |  |
| **Depth (cm)** | | **1** | 0-2.5 | 0-1 | 0-2 | 0-2 | 0-4 | 0-5 | 0-5 | 0-0.5 | 0-0.5 |
| **2** | 2.5-8.5 | 1-8 | 2-15 | 2-8 | 4-30 | 5-70 | 5-60 | 0.5-4 | 0.5-5 |
| **3** | - | - | - | 8-65 | 30-100+ | - | - | 4-65 | 5-10 |
| **4** | - | - | - | - | - | - | - | - | 10-51 |
| **Relative clast abundance** | **Boulders (>63 cm)** | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **3** | - | - | - | 0 | 0 | - | - | 0 | 0 |
| **4** | - | - | - | - | - | - | - | - | 0 |
| **Stones (20-63 cm)** | **1** | 0 | \* | 0 | \* | \* | \* | \* | 0 | 0 |
| **2** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | \* | 0 |
| **3** | - | - | - | 0 | 0 | - | - | 0 | 0 |
| **4** | - | - | - | - | - | - | - | - | 0 |
| **Cobbles (7.6-20 cm)** | **1** | \*\* | \* | \* | \* | \* | \*\* | \* | 0 | 0 |
| **2** | 0 | 0 | 0 | 0 | 0 | 0 | \* | \* | 0 |
| **3** | - | - | - | 0 | 0 | - | - | \* | 0 |
| **4** | - | - | - | - | - | - | - | - | \* |
| **Gravels (2-76 mm)** | **1** | \*\* | \*\*\* | \*\* | \*\* | \*\* | \*\* | \*\* | \*\* | \*\* |
| **2** | \*\* | \*\* | \*\* | \*\* | \*\* | \*\* | \* | \*\* | \*\* |
| **3** | - | - | - | \*\* | \*\* | - | - | \*\* | \*\* |
| **4** | - | - | - | - | - | - | - | - | \*\* |
| Clast abundance estimates, eg: \* slightly gravelly - 15-30%; \*\* gravelly - 35-60%; \*\*\* very gravelly - 60+ % | | | | | | | | | | | |

Supplementary Table ST6: Relative clast abundances of Ong Valley site soil horizons.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Soil profile (glacier to leftmost of profile sequence)** | | | | | | | |
| **Map unit** | | | **E** | **F** | **G** | **H** | **I** |
|  |  |  | **Ong 2** | **Ong 1** | **Ong 5** | **Ong 6** | **Ong 4** |
| **Distance from ice edge (m)** | | | 1500 | 3600 | 4800 | 5500 | 5700 |
|  |  | **Horizon** |  |  |  |  |  |
| **Depth (cm)** | | **1** | 0-1 | 0-0.5 | 0-4 | 0-1 | 0-4 |
| **2** | 1-15 | 0.5-13 | 4-30 | 1-4 | 4-38 |
| **3** | - | 13-70 | 30-80+ | 4-35 | 38-44 |
| **4** | - | - | - | 35-80+ | 44-70+ |
| **Relative clast abundance** | **Boulders (>63 cm)** | **1** | 0 | \* | \* | 0 | \* |
| **2** | 0 | 0 | 0 | 0 | 0 |
| **3** | - | 0 | 0 | 0 | 0 |
| **4** | - | - | - | \* | \* |
| **Stones (20-63 cm)** | **1** | \*\* | \*\* | 0 | 0 | \* |
| **2** | 0 | 0 | 0 | 0 | 0 |
| **3** | - | 0 | 0 | 0 | 0 |
| **4** | - | - | - | \* | \* |
| **Cobbles (7.6-20 cm)** | **1** | \*\* | \*\* | \*\* | 0 | \* |
| **2** | 0 | 0 | 0 | 0 | \* |
| **3** | - | 0 | 0 | 0 | \*\* |
| **4** | - | - | - | \* | \* |
| **Gravels (2-76 mm)** | **1** | \*\* | \*\*\* | \*\*\* | \*\*\* | \*\*\* |
| **2** | \*\* | \*\* | \*\* | \* | \*\* |
| **3** | - | \*\* | \* | \*\* | \*\* |
| **4** | - | - | - | \*\*\* | \*\*\* |
| Clast abundance estimates, eg: \* slightly gravelly - 15-30%; \*\* gravelly - 35-60%; \*\*\* very gravelly - 60+ % | | | | | | | |