***Electronic supplementary material***

***Human-environment interactions at a short-lived Arctic mine and the long-term response of the local tundra vegetation***

Polar Record

Frigga Kruse1, Gary R. Nobles2, Martha de Jong3, Rosanne M. K. van Bodegom4, G. J. M. (Gert) van Oortmerssen4, Jildou Kooistra4, Mathilde van den Berg5, Hans Christian Küchelmann6, Mans Schepers7, Elisabeth H. P. Leusink8, Bardo A. Cornelder8, J. D. (Hans) Kruijer8, Michael W. Dee9

**1**Kiel University, Institute for Ecosystem Research, Olshausenstr. 75, 24118 Kiel, Germany

**2**Koç University, Research Center for Anatolian Civilizations, İstiklal Cd. No: 181, 34433 Beyoğlu/İstanbul, Turkey

**3**Wingerdhoek 10, 9713 NR, Groningen, Netherlands

**4**University of Groningen, Groningen Institute of Archaeology, Poststraat 6, 9712 ER Groningen, Netherlands

**5**University of Oulu, Pentti Kaiteran katu 1, 90570 Oulo, Finland

**6**Knochenarbeit, Speicherhof 4, 28217 Bremen, Germany

**7**University of Groningen, Centre for Landscape Studies, Oude Boteringestraat 34, 9712 GK Groningen, Netherlands

**8**Naturalis Biodiversity Center, Darwinweg 2, 2333 CR Leiden, Netherlands

**9**University of Groningen, Centre for Isotope Research, Nijenborgh 6, 9747 AG Groningen, Netherlands

Author of correspondance:

Dr. Frigga Kruse

<https://orcid.org/0000-0003-1778-1010>

fkruse@ecology.uni-kiel.de

Tel. +49 (0) 431 880 5009

***Table S1*** *An overview of the faunal assemblage excavated at Advent City. After this preliminary count, part of the assemblage was analysed within the constraints of the project (see Table S2 below). Some remains have not yet been identified to the lowest taxonomic level.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trench** **(context)** | **Class** | **Prelim.** **count** | **Weight (g)** | **Count after****analyses** | **Weight (g)** | **Not** **analysed** |
| M1 (101) | Mammalia | 147 | 1868.2 | 158 | 3559.8 | - |
|  | Aves | 11 | 10.4 | 11 | 10.3 | - |
|  | Pisces | 85 | 9.1 | Not analysed | **-** | 85 |
|  | *Sum M1* | *243* | *1887.7* | *169* | *3570.1* |  |
| M2 (201) | Mammalia | 3635 | 32189.6 | 2132 | 18283.6 | 1503 |
|  | Aves | 163 | 133.4 | Not analysed | **-** | 163 |
|  | Pisces | 504 | 138.7 | Not analysed | **-** | 504 |
|  | *Sum M2* | *4302* | *32471.7* | *2132* | *18283.6* |  |
| Z1 (301) | Mammalia | 24 | 38.7 | 23 | 37.5 | - |
|  | Aves | 161 | 80.4 | 220 | 75.8 | - |
|  | Pisces | 120 | 8 | Not analysed | **-** | 120 |
|  | *Sum Z1* | *305* | *127.1* | *243* | *113.3* |  |
|  | **Sum total** | **4850** | **34486.5** | **2544** | **21967.0** | **2375** |

***Table S2*** *An overview of the analysed faunal remains at Advent City, which comprised a minimum of ten taxa.*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Taxon** | **Common name** | **M1** | **M2** | **Z1** | **Total** |
| **NISP** | **WIS** | **NISP** | **WIS** | **NISP** | **WIS** | **NISP** | **WIS** | **MNI** |
| *Bos taurus* | Cattle | 41 | 1272 | 305 | 9949,3 | 1 | 8.2 | 346 | 11221.3 | 3 |
| *Ovis aries/Capra hircus* | Sheep/goat | 13 | 156.9 | 89 | 828.6 |  |  | 102 | 985.5 | 61 |
| *Ovis aries* | Sheep | 4 | 66 | 8 | 105.1 |  |  | 12 | 171.1 |
| *Sus domesticus* | Pig | 1 | 4 | 103 | 439,4 |  |  | 104 | 443.4 | 52 |
| *Rangifer tarandus platyrhynchus* | Svalbard reindeer | 17 | 269.1 | 30 | 338,2 |  |  | 47 | 607.3 | 3 |
| *Phoca hispida* | Ringed seal | 1 | 1506 |  |  |  |  | 1 | 1506 | 1 |
| *Phoca vitulina* | Common seal | 1 | 17.6 |  |  |  |  | 1 | 17.6 | 1 |
|  | L mammal | 20 | 179.8 | 382 | 3746.4 | 2 | 17.1 | 404 | 3943.3 | n/a |
|  | M-L mammal | 2 | 8.1 | 505 | 1545.2 | 1 | 1.2 | 508 | 1554.5 | n/a |
|  | M mammal | 13 | 48.1 | 704 | 1327.9 |  |  | 717 | 1376 | n/a |
|  | S-M mammal |  |  | 4 | 0.9 | 1 | 0.1 | 5 | 1 | n/a |
|  | Mammal of undet. size | 45 | 32.2 | 2 | 2.6 | 18 | 10.9 | 65 | 45.7 | n/a |
| *Lagopus muta hyperborea* | Svalbard rock ptarmigan |  |  |  |  | 205 | 71 | 205 | 71 | 10 |
| *Uria lomvia* | Brünnich’s guillemot | 4 | 7.6 |  |  |  |  | 4 | 7.6 | 1 |
| *Uria* sp*.* | Guillemot | 6 | 1.7 |  |  |  |  | 6 | 1.7 | 2 |
| *Anser* sp. | Wild or domestic goose |  |  |  |  | 2 | 2.4 | 2 | 2.4 | 1 |
| *Anas* sp*.* | Wild or domestic duck | 1 | 1 |  |  | 3 | 3.7 | 4 | 4.7 | 1 |
|  | Unid. bird |  |  |  |  | 10 | 1.1 | 10 | 1,1 | n/a |

*1For the calculation of MNI, sheep/goat were recognized as one category instead of two because the specimens belonging to sheep/goat could belong to either sheep or goat.*

*2In the case of the pig, age at death was taken into account to an extent. A distinction was made between perinatal/neonatal remains, and juvenile and adult. In total, two foetal piglets and three older individuals were represented.*

***Table S3*** *An overview of pathologies and post-mortem modification in the analysed faunal remains of Advent City.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **M1** | **% M1** | **M2** | **% M2** | **Z1** | **% Z1** |
| **Pathologies** | 1 | 0.6 | 1 | 0.05 | 0 | 0 |
| **Modifications**  |  |  |  |  |  |  |
| Calcinated | 3 | 1.9 | 0 | 0 | 7 | 30.4 |
| Partly burnt | 2 | 1.3 | 0 | 0 | 0 | 0 |
| Black burnt | 1 | 0.6 | 0 | 0 | 0 | 0 |
| *Total* | *6* | *3.9* | *0* | *0* | *7* | *30.4* |
| Slightly gnawed, by rodent | 3 | 1.9 | 0 | 0 | 0 | 0 |
| Chewed, by carnivore | 16 | 10.3 | 4 | 0.2 | 0 | 0 |
| *Total* | *19* | *12.2* | *4* | *0.2* | *0* | *0* |

***Table S4*** *An overview of archaeobotanical macro-remains excavated at Advent City, identified to the lowest possible taxonomic level.*

|  |  |  |
| --- | --- | --- |
| **Taxon** | **Part** | **Trench, context** |
| **M1, 101** | **M2, 201** | **Z1, 301** |
| *Rubus fruticosus* | fruit |  |  | 1 |
| *Corylus avellana* | fruit |  |  | 0.5 |
| *Corylus avellana* | fruit |  |  | 2 |
| *Rosa* | seed |  | 1 |  |
| cf*. Malus* | fruit fragment | x |  |  |
| cf. *Triticeae* | fruit |  |  | 1 |
| *Ranunculus acris/repens* | fruit | 15 | 51 |  |
| *Rumex obtusifolius* | fruit | 3 | 18 |  |
| *Silene flos-cuculi* | seed | 4 | 2 |  |
| *Agrostis* | fruit |  | 1 |  |
| *Alopecurus geniculatus* | fruit | 2 |  |  |
| *Anthoxanthum odoratum* | floret | 4 |  |  |
| *Anthriscus sylvestris* | fruit |  | 1 |  |
| *Bryophyta* | leaf |  | x |  |
| *Calluna vulgaris* | leaf |  | 1 |  |
| *Carex* | fruit |  |  | 21 |
| *Cerastium* | seed |  | 2 |  |
| cf*. Rumex acetosa* | fruit |  | 2 |  |
| cf. *Viola* | fruit | 12 |  |  |
| *Chenopodium album* | fruit |  | 6 |  |
| *Convolvulus arvensis* | fruit |  | 2 |  |
| *Galeopsis* | fruit |  | 2 |  |
| *Glyceria* | fruit |  | 1 |  |
| *Lolium/Festuca* | fruit | 4 |  |  |
| *Papaver* | seed |  | 2 |  |
| *Persicaria lapathifolia* | fruit |  | 1 |  |
| *Poa pratensis/trivialis* | fruit | 11 | 46 |  |
| *Potentilla anserina* | fruit |  | 1 |  |
| *Potentilla erecta* | fruit | 12 | 43 |  |
| *Prunella vulgaris* | fruit | 1 |  |  |
| *Prunus* | fruit |  | 1 |  |
| *Rhinanthus angustifolius/minor* | seed | 21 |  |  |
| *Rumex acetosella* | fruit |  |  | 1 |
| *Spergula arvensis* | seed |  | 2 |  |
| *Stellaria* | seed | 1 |  |  |
| *Stellaria media* | seed |  | 4 |  |
| *Trifolium* | fruit + perianth | 22 | 53 |  |

***Table S5***Relevés with plot features and cover abundances of vascular plants, bryophytes, and lichens classified using the 5-point [Braun-Blanquet](https://en.wikipedia.org/wiki/Josias_Braun-Blanquet) cover-abundance scale (Braun-Blanquet, 1964; table S5a below). Abbreviations and explanation of symbols: Fieldworkers: LL: Liesbeth Leusink, LM: Lydia Messingfeld, BC: Bardo Cornelder; grazed by herbivors: R: reindeer, G: geese; number of droppings: +: few, ++: intermediate, +++: many; scientific names: sp.: species, ssp.: subspecies, var.: variety, agg.: (species) aggregate, affn.: affinity with, cf.: similar to; unidentified species are marked by a number to distinguish them (e.g., unident. sp. 1 is the first unidentified species of an unidentified genus, *Draba* sp. 2 is the second unidentified species in the genus *Draba*); molecular identification or verification is indicated by an asterisk (\*).

*Scapania* sp. 1 belongs to the *S. calcicola* / *gymnostomophila* / *ligulifolia* clade, but could not be identified to the species level.

Lichens and bryophytes were identified by microscopic identification in the laboratory. During the fieldwork, however, a few air-drying lichen collections were blown out of the tent by high winds and have been lost for further examination. These lost lichens are listed as unidentified species and are indicated by a hash (#). They are not included in the counts of species numbers.

The nomenclature follows Elven, Murray, Razzhivin, & Yurtsev (2018) for vascular plants, Damsholt (2002), Hallingbäck *et al.* (2006, 2008) and Hedenäs & Hallingbäck (2014) for bryophytes, and Øvstedal, Tønsberg, & Elvebakk (2009) for lichens.

|  |  |  |
| --- | --- | --- |
|  | **Relevés in Advent City** | **Relevés on reference sites** |
| **Relevé number** | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R11** | **R9** | **R10** |
| Feature / Terrain description | Dung heap | Dung heap | Foot-path to mine | Beside foot-path to mine | Cart trail | Flank of embank-ment beside cart trail | Top of embank-ment beside cart trail | Ash heapZ4 | 1 m below dung heap | Moist slope | Slope below landslide |
| Date in August 2016 | 6 | 7 | 7 | 8 | 8 | 11 | 11 | 11 | 16 | 12 | 12 |
| Fieldworkers | LL, LM | LL, LM | LL, LM | LL, LM | LL, LM | LL, LM | LL, LM | LL, LM | LL, BC | LL, LM | LL, LM |
| Plot length (m) | 1 | 1 | 1 | 1 | 2 | 3 | 3 | 1 | 1 | 1 | 1 |
| Plot width (m) | 1 | 1 | 1,5 | 1 | 1 | 0,5 | 1 | 1 | 1 | 1 | 1 |
| Average vegetation height (cm) | 5 | 3 | 2 | 1 | 1 | 1,5 | 0,5 | 2 | 1 | 2 | 0,5 |
| Maximum vegetation height (cm) | 14 | 12 | 7 | 5 | 17 | 23 | 14 | 11 | 20 | 36 | 2 |
| Grazed by herbivores | R | R | R | R | R | R | R | R | R | R + G | R |
| Number of droppings | +++ | + | +++ | +++ | ++ | ++ | + | +++ | ++ | R: +++ G: + | ++ |
| Total cover (%) | 98 | 98 | 97 | 98 | 99 | 95 | 7 | 90 | 99 | 98 | 98 |
| Cover vascular plants (%) | 90 | 95 | 40 | 50 | 25 | 80 | 5 | 30 | 10 | 25 | 40 |
| Cover bryophytes (%) | 40 | 30 | 50 | 40 | 90 | 15 | 1 | 40 | 97 | 85 | 40 |
| Cover lichens (%) | 0 | 0 | 25 | 25 | 10 | 15 | 1 | 25 | 2 | 15 | 50 |
| Cover droppings (%) | 2 | 1 | 3 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| Number of vascular plant species (total 27) | 9 | 6 | 6 | 6 | 11 | 9 | 12 | 5 | 8 | 6 | 5 |
| Number of moss species (total 50) | 7 | 6 | 7 | 10 | 6 | 15 | 10 | 13 | 11 | 22 | 14 |
| Number of liverwort species (total 14) | 0 | 0 | 5 | 5 | 0 | 1 | 1 | 4 | 0 | 4 | 0 |
| Total number of bryophyte species (total 64) | 7 | 6 | 12 | 15 | 6 | 16 | 11 | 17 | 11 | 26 | 14 |
| Number of lichen species (total 29) | 0 | 0 | 8 | 9 | 8 | 12 | 2 | 5 | 1 | 2 | 7 |
| Total number of species (including *Nostoc* colonies; total 121) | 16 | 12 | 27 | 31 | 25 | 37 | 25 | 28 | 20 | 35 | 27 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Vascular plants** | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R11** | **R9** | **R10** |
| *Bistorta vivipara* | 2a | + | 1 | + | 1 | 1 | + | + |  | 1 |  |
| *Cassiope tetragona* ssp*. tetragona* |  |  |  |  |  |  |  |  |  |  | r |
| *Cerastium alpinum* aggr*.* | + | 1 |  |  | 1 | r | r |  | + |  |  |
| *Cochlearia groenlandica* | 1 | + |  |  |  |  |  |  | + |  |  |
| *Draba glabella* |  |  |  |  |  | + |  |  |  |  |  |
| *Draba nivalis* |  |  |  |  |  | + | r |  |  |  |  |
| *Draba* sp. 1 | + |  |  |  |  |  | r |  |  |  |  |
| *Draba* sp. 2 |  |  |  |  | + |  |  |  |  |  |  |
| *Draba* sp. 3 |  |  |  |  |  |  | r |  |  |  |  |
| *Dryas octopetala* |  |  | 3 | 3 | 2a | 5 | 2m |  |  | 2a | 3 |
| *Equisetum scirpoides* |  |  | 2m | 2m |  |  |  | 2a |  | 2a | 2m |
| *Eriophorum scheuchzeri* ssp. *arcticum* | + |  |  |  |  |  |  |  |  |  |  |
| *Festuca rubra* ssp*. richardsonii* |  |  |  |  | 2m |  |  |  |  |  |  |
| *Luzula confusa* |  |  |  |  | 1 | + | 1 |  |  |  |  |
| *Micranthes nivalis* |  |  |  |  |  |  |  |  | + |  |  |
| *Oxyria digyna* |  |  |  |  | 1 |  |  |  |  |  |  |
| *Pedicularis hirsuta* |  |  | r | r |  |  |  |  |  |  | r |
| *Poa arctica* ssp. *arctica* | 5 | 5 |  |  |  |  | + |  |  | 1 |  |
| *Poa pratensis* ssp. *alpigena* | + | + |  |  | r | + |  | 2a | 2m | + |  |
| *Ranunculus sulphureus* var*. sulphureus* |  |  |  |  |  |  |  |  | + |  |  |
| *Salix polaris* | 1 |  | 2a | 2m | 2a | 2a | 2m | 2b | 2a | 2a | 2b |
| *Salix reticulata* |  |  | 2a |  |  |  |  |  |  |  |  |
| *Saxifraga oppositifolia* ssp. *oppositifolia* |  |  |  | + |  | + | r |  |  |  |  |
| *Saxifraga cespitosa* ssp. *cespitosa* |  |  |  |  | + |  | r |  |  |  |  |
| *Saxifraga* sp. 1 | + | + |  |  |  |  | r |  | + |  |  |
| *Stellaria longipes*  |  |  |  |  |  |  |  | 1 | r |  |  |
| *Trisetum spicatum* |  |  |  |  | 1 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Mosses (Bryophyta)** | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R11** | **R9** | **R10** |
| cf*. Amblystegium serpens* |  |  |  |  |  |  |  |  | r |  |  |
| *Anomodon attenuatus* |  |  | r | r |  |  |  |  |  |  |  |
| cf*. Aplodon wormskioldii* |  |  |  |  |  |  |  |  |  | + |  |
| *Aulacomnium palustre* |  |  |  |  |  |  |  | 2m | 2a | 3 |  |
| *Aulacomnium turgidum* |  |  |  |  | 1 |  |  |  | 2m | 2m |  |
| *Brachythecium albicans* |  |  |  |  |  |  | r |  |  |  |  |
| *Brachythecium glareosum* | 1 | 1 |  |  |  |  |  |  |  | r |  |
| *Brachythecium erythrorhizon* |  |  |  |  |  |  |  | 1 |  |  |  |
| *Bryum pseudotriquetrum* |  |  |  |  |  | 1 |  |  |  |  |  |
| *Bryum wahlenbergii* |  |  |  | 1 |  |  |  |  |  |  |  |
| *Bryum* sp*.* | 2m | 3 | 1 |  |  | 2m | 2m | 2a\* | + |  | 2m |
| *Campylophyllum calcareum* |  |  |  |  |  |  |  |  |  | r |  |
| *Ceratodon purpureus* | 2m | 1 |  |  | 2m | 2m |  |  |  |  |  |
| *Cirriphyllum crassinervum* | 1 |  |  |  |  |  |  |  |  |  |  |
| *Ctenidium molluscum* |  |  |  | 2m |  |  |  |  |  |  |  |
| *Dicranum laevidens* |  |  |  |  |  |  |  |  |  | r |  |
| *Distichium* sp*.* |  |  | 2m | 2m |  | 2m | 2m | 2a |  | 1 | 2m |
| *Ditrichum flexicaule* |  |  | 1 |  |  |  |  |  |  |  |  |
| *Encalypta affinis* |  |  |  |  |  |  | + |  |  |  |  |
| *Encalypta alpina* |  |  |  | 2m |  | 1 | 2m | 2m |  |  |  |
| *Encalypta streptocarpa* |  |  |  | 1 |  |  |  |  |  |  |  |
| *Eurhynchiastrum pulchellum* |  |  |  |  |  |  | 2m |  |  |  |  |
| *Homalothecium lutescens* |  |  | 3 | 3 |  |  |  | + |  | 2a | 2m |
| *Homomallium incurvatum* |  |  |  |  |  |  |  |  |  | + |  |
| *Hylocomium splendens* |  |  |  |  |  | + |  |  |  | r |  |
| *Hypnum recurvatum* |  |  |  |  |  |  | 1 |  |  |  | + |
| *Hypnum revolutum* |  |  |  |  |  | 2m |  |  |  |  | 2m |
| *Isopterygiopsis pulchella* |  |  |  |  |  |  |  |  |  | + |  |
| *Myurella julacea* |  |  |  |  |  |  |  | 2m |  |  | + |
| *Oncophorus wahlenbergii* |  |  |  | + |  | 1 |  |  |  |  | 2m |
| *Philonotis tomentella* |  |  |  |  |  |  |  |  | + |  |  |
| *Plagiomnium curvatulum* | 3 | + |  |  |  |  |  | 2m | + | r |  |
| *Platydictya jungermannioides* |  |  |  |  |  |  |  |  |  | + |  |
| *Pleurozium schreberi* |  |  |  |  |  |  |  |  |  | 2m |  |
| *Pohlia cruda* |  |  |  |  |  | 1 |  | 2m |  | 2m |  |
| *Pohlia* sp. |  |  |  |  |  | 1 | 2m |  |  | 2m |  |
| *Polytrichastrum alpinum* var*. alpinum* | + |  |  |  | 1 |  |  |  |  |  |  |
| *Polytrichastrum sexangulare* |  |  |  |  |  | + |  |  |  |  |  |
| *Polytrichum piliferum* |  |  |  |  |  |  | 1 |  |  |  |  |
| *Racomitrium elongatum* |  |  |  |  | 2m |  |  |  |  |  | 2m |
| *Sanionia uncinata* | 2m | 2m | 2m | 2a | 5 | 2a |  | 2a | 4 | 2a | 3 |
| *Sciuro-hypnum glaciale* |  |  |  |  |  |  |  |  | + |  |  |
| cf. *Splachnum ampullaceum* |  |  |  |  |  |  |  | 2m |  | + | 2m |
| cf. *Splachnum sphaericum* |  |  |  |  |  |  |  |  |  | 2m |  |
| *Syntrichia norvegica* |  | 1 |  |  |  |  |  |  |  |  | 1 |
| *Syntrichia ruraliformis* |  |  |  |  |  | 2m | + |  |  |  |  |
| *Syntrichia ruralis* |  |  | + | 1 | 2m | r |  |  | r |  | 1 |
| cf. *Tetraplodon angustatus* |  |  |  |  |  |  |  |  |  | 2m |  |
| *Timmia austriaca* |  |  |  |  |  | 1 |  | 2a | 1 | 2m | 2m |
| *Tomentypnum nitens* |  |  |  |  |  |  |  | 1 | 2b | 2a | 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Liverworts (Marchantiophyta)** | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R11** | **R9** | **R10** |
| *Barbilophozia hatcheri* |  |  | + |  |  |  |  |  |  |  |  |
| *Barbilophozia kunzeana* |  |  |  |  |  |  |  | + |  |  |  |
| *Barbilophozia* sp*.* 1 |  |  |  |  |  |  |  | r |  |  |  |
| *Blepharostoma trichophyllum* |  |  |  | + |  |  |  |  |  |  |  |
| *Cephalozia ambigua* |  |  |  |  |  |  |  |  |  | + |  |
| *Cephaloziella* sp*.* 1 |  |  | 1 | + |  | 2a | 1\* | 2m |  |  |  |
| *Jungermannia* sp. |  |  |  | + |  |  |  |  |  |  |  |
| *Lophozia obtusa* |  |  |  |  |  |  |  |  |  | 1 |  |
| *Lophozia* cf*. sudetica* |  |  |  |  |  |  |  |  |  | 1 |  |
| *Nardia insecta* |  |  |  |  |  |  |  |  |  | 1 |  |
| *Scapania cuspiduligera* |  |  | 1\* | 1\* |  |  |  |  |  |  |  |
| *Scapania gymnostomophila* |  |  |  | 2m |  |  |  |  |  |  |  |
| *Scapania* sp. 1 |  |  | 1\* |  |  |  |  | r\* |  |  |  |
| *Tritomaria scitula* |  |  | 1\* |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |
| **Lichens** | **R1** | **R2** | **R3** | **R4** | **R5** | **R6** | **R7** | **R8** | **R11** | **R9** | **R10** |
| *Buellia* sp*.* 1 |  |  | + |  |  | + |  |  |  |  | 1 |
| *Caloplaca tetraspora* |  |  |  |  |  | 1 |  |  |  |  |  |
| *Cladonia* cf*. pocillum* |  |  | 2m | 2m | 1 |  |  |  |  |  |  |
| *Cladonia* sp. 1 |  |  |  |  |  |  |  | 2m |  |  |  |
| *Cladonia* sp. 2 |  |  |  |  |  |  |  |  |  |  | 1 |
| *Cladonia* sp. 3 |  |  |  |  | + |  |  |  |  |  |  |
| *Cladonia* sp. 4  |  |  |  |  |  | 2m |  |  |  |  |  |
| *Fulgensia bracteata*  |  |  | 1 | 1 |  |  |  |  |  |  |  |
| *Lecanora epibryon* |  |  | 1 | r |  | 2m |  |  |  |  | 1 |
| *Lecidea ramulosa* |  |  | 2m | 2m |  |  |  |  |  |  |  |
| *Leptogium gelatinosum* |  |  | 2m |  |  |  |  |  |  |  |  |
| *Leptogium lichenoides* |  |  |  | 2m |  |  |  |  |  |  |  |
| *Peltigera aphthosa* |  |  | + |  |  |  |  |  |  | 1 |  |
| *Peltigera canina* |  |  |  |  |  | + |  |  |  |  |  |
| *Peltigera didactyla* |  |  |  | 1 |  |  |  |  |  |  |  |
| *Peltigera rufescens* |  |  |  | r | 2a |  |  | r | 2m | 2b | 1 |
| *Peltigera* cf. *venosa* |  |  |  |  |  | r |  |  |  |  |  |
| *Peltigera* sp. 1 |  |  |  |  |  | r |  |  |  |  |  |
| *Polychidium muscicola* |  |  | 2a | 2m | 1 | 2m | r | 2m |  |  | + |
| *Psoroma* cf. *hypnorum* |  |  |  |  | 2m | 2m | + |  |  |  | 2m |
| affn*. Rinodina* |  |  |  |  |  | 1 |  |  |  |  |  |
| *Stereocaulon* cf*. tomentosum* |  |  |  |  | 1 |  |  |  |  |  | 2a |
| *Stereocaulon* sp. 1 |  |  |  | 2m |  |  |  |  |  |  |  |
| unident. sp. 1 |  |  |  |  |  |  |  | 2a |  |  |  |
| unident. sp. 2 |  |  |  |  |  |  |  | 2a |  |  |  |
| unident. sp. 3 |  |  |  |  | 1 |  |  |  |  |  |  |
| unident. sp. 4 |  |  |  |  |  | + |  |  |  |  |  |
| unident. sp. 5 |  |  |  |  | + |  |  |  |  |  |  |
| unident. sp. 6 |  |  |  |  |  | + |  |  |  |  |  |
| unident. sp. 7# |  |  |  |  |  |  | 2m |  |  |  |  |
| unident. sp. 8# |  |  |  |  |  |  |  |  |  |  | 3 |
| unident. sp. 9# |  |  |  |  |  |  |  |  |  | + | + |
|  |  |  |  |  |  |  |  |  |  |  |  |
| Cyanobacteria | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R11 | R9 | R10 |
| *Nostoc* colonies |  |  | 2a | + |  |  |  | + |  | r | + |

***Table S5a*** *Braun-Blanquet’s (1964) vegetation cover scale. When cover-abundances of species are 5 % or higher, the number of individuals of these species that are present in the vegetation is considered to be irrelevant.*

| **Braun-Blanquet scale number** | **Cover-abundance (%)** | **Number of individuals** |
| --- | --- | --- |
| r | < 5 | very few (1-2) |
| + | < 5 | few (3-20) |
| 1 | < 5 | numerous (21-100) |
| 2m | < 5 | very numerous (> 100) |
| 2a | 5-15 | ̶ |
| 2b | 16-25 | ̶ |
| 3 | 26-50 | ̶ |
| 4 | 51-75 | ̶ |
| 5 | 76-100 | ̶ |

***Table S6*** *An overview of the isotopic results obtained on the Advent City samples. The δ13C and δ15N values have 1σ uncertainty of ± 0.18 and ±0.1‰, respectively.*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Context (Faunal no.)** | **δ13C****(‰, PDB)** | **δ15N (‰, Air)** | **C:N****Ratio** | **Groningen Date Ref. (GrM-)** | **14C Age (yr BP)** |
| **Date** | **±** |
| Plum seed | 201 | -27.2 | n/a | n/a | 10597 | 145 | 17 |
| Sedge seeds | 301 | -23.5 | n/a | n/a | 12261 | 123 | 15 |
| Charred seed | 301 | -25.8 | n/a | n/a | - | - | - |
| Ptarmigan bone | 301 (809) | -21.8 | 2.7 | 3.28 | 10598 | 131 | 17 |
| Ptarmigan bone | 301 (812) | -21.9 | 2.9 | 3.30 | 10599 | 133 | 17 |
| Reindeer bone | 201 (95) | -20.6 | 2.3 | 3.19 | 10590 | 82 | 17 |
| Reindeer bone | 201 (422) | -20.6 | 4.4 | 3.22 | 10592 | 154 | 17 |
| Pig bone | 201 (359) | -21.3 | 9.3 | 3.26 | 10594 | 144 | 17 |
| Guillemot bone | 101 (781) | -18.0 | 14.2 | 3.27 | 10600 | 530 | 18 |
| Guillemot bone | 101 (775) | -17.6 | 13.8 | 3.24 | 10602 | 501 | 18 |
| Seal bone | 101 (760) | -14.7 | 16.3 | 3.24 | 11114 | 590 | 30 |

***Fig. S1*** *Scatter plot of dimensions of plum stones found at Advent City. These dimensions can be used to classify different subspecies (cultivars) and their possible origin.*

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