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A research excavation report from Gollevarre and Drag

Stephen Wickler



UiT Norges arktiske
universitetsmuseum

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Cover photo: Excavation crew at Gollevarre. Photo: Stephen Wickler

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Reindeer archaeology in northern Norway

A research excavation report from Gollevarre and Drag

Stephen Wickler



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Locality: Gollevarre and Drag

Id.nr.: Gollevarre 116939, Drag 11618292

Site type: Gollevarre reindeer hunting-related settlement site and Drag settlement mound

Excavation dates: June and July 2024

Area: 3 m²

Municipality and County: Tana, Finnmark and Hamarøy, Nordland.

Coordinates: UTM Zone 33 N: Gollevarre 998950.8 N 7833015.9 E; Drag 7548753.1 N 544113.9 E

Catalog numbers: Gollevarre Ts. 16469, Drag Ts. 16470s

Keywords: medieval period, Sámi reindeer exploitation, pitfall trapping, reindeer pastoralism

Summary

This field report presents results from research excavations at the sites of Gollevarre in Tana, Finnmark and Drag in Tysfjord, Nordland. One of the main objectives was to obtain data for a Ph.D. project utilizing sedaDNA from cultural deposits and aDNA from reindeer bones to document the transition towards reindeer pastoralism. The excavations also provided insights into two medieval to early modern period settlements associated with reindeer exploitation from contrasting environments and cultural contexts within northern Norway.

Gollevarre is a residential site occupied from the 12th to 17th century that had a primary focus on reindeer hunting utilizing nearby pitfall trapping systems. Multiple phases of settlement with overlapping turf house structures reflect intensive hunting-related seasonal use. A 2 x 1 m trench was excavated within a 16th to early 17th century refuse deposit associated with a nearby turf hut/house structure. The deposit consisted almost entirely of reindeer bone originating from disposal of household refuse and hearth maintenance. Although very few artifacts were recovered, fragments of modified reindeer bone and antler were documented throughout the deposit. A majority of the worked bone appears to reflect butchery activity that included extensive long bone splitting for marrow extraction. Zooarchaeological analysis of the reindeer assemblage revealed a skewing towards young individuals and high frequency of antler relative to contemporaneous Sámi dwelling sites in Finnmark. Non-reindeer faunal remains reveal a varied subsistence strategy including the presence of livestock (pig and sheep) and exploitation of wild game including fish, birds and mammals.

The Drag settlement mound was first investigated as part of a research project on coastal Sámi farming settlements in Tysfjord. A 1.5 m² unit excavated in 2009 documented a settlement sequence dated from the late 12th century into the 18th century. A 1 m² unit was excavated in close proximity to the earlier excavation in 2024 and revealed two spatially distinct use zones in a cultural deposit spanning the 16th century. Two-thirds of the unit was occupied by boulders from a structural foundation wall. Slag from blacksmithing along with boat rivets and nails indicate specialized workshop use associated with the structure. The remainder of the unit reflects residential activity including waste disposal with significant quantities of charcoal and ash as well as highly fragmented bone dominated by domesticates, c. 60% burnt. The faunal assemblage as a whole is dominated by livestock but also includes small to medium sized wild mammals, birds, fish and fragments of worked whalebone. A majority of the five identified reindeer bone fragments are burnt. The presence of reindeer throughout the cultural deposit in the 2009 unit (n=20) was one of the main reasons for additional excavation in 2024.

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INTRODUCTION AND BACKGROUND FOR RESEARCH INVESTIGATIONS

Limited research excavations were undertaken in 2024 at the site of Gollevarre near the Tana River in Finnmark and a settlement mound at Drag in Tysfjord, Nordland. The investigations were motivated in part by the research interests of the author but more specifically as a source of data for Ph.D. student Diego Brambilla's research project at the University Museum of Arctic Norway where the author is a co-supervisor. The title of the Ph.D. project is *Genomics and archaeology of reindeer domestication and its impact on the Northern human diets and ecosystems of the past* and focuses on the use of multi-marker eDNA to better define the subsistence strategies of local Sámi settlements and any eventual change brought by the advent of reindeer herding (Brambilla 2023).

Previous research-based investigations undertaken at Gollevarre (1965-1966) and Drag (2009) have confirmed that both sites were occupied in the medieval period and have suitable assemblages of reindeer bone for aDNA analysis.

As required, the Directorate of Cultural Heritage was oriented about the planned research excavations in January 2024. Fieldwork at Gollevarre was carried out from June 18-21 and at Drag from July 2-3. The excavations were undertaken following UM documentation standards. Results will be recorded in the Norwegian national cultural heritage database (*Askeladden*) and the excavation report distributed to the Directorate of Cultural Heritage, Sami Parliament and the Cultural Heritage Department of Finnmark and Nordland County.

GOLLEVARRE, TANA MUNICIPALITY, FINNMARK COUNTY

Gollevarre is a medieval Sámi settlement site (ID 116939) located on the eastern side of the Tana River to the south of the Jávvájohka River and c. 13 km WSW of Karlebotn, inner Varangerfjord (Fig. 1). There are a number of alternative spellings for the place name in the literature including Gollevárri, Gollevarri, Gållevarri and Gallovarre. It is currently accessed by a 2.2 km trail starting at Highway 895 along the Tana River. The main site area lies at an elevation of 190 m asl on the southern side of a low hillock and is c. 100 x 100 m in area. A total of 16 turf hut/house structures (N. *gammetuft*) have been recorded with associated household refuse deposits that have reindeer bone and antler as a principal component. The individual house mounds are clearly visible on the surface, although the abundance of organic remains in the cultural deposits has led to luxuriant vegetation growth that obscures much of the site surface during the summer.

The Gollevarre settlement is associated with an extensive reindeer pitfall trapping complex concentrated along the Jávvájohka River that is one of the largest and most extensive in Finnmark. This fixed mass-kill system required a collective hunting strategy with multi-family cooperation. There are 12 separate systems consisting of an estimated 267 pits that extend for more than 7 km eastward from the Tana River. The Tana River-Varangerfjord isthmus forms a topographic bottleneck channeling large-scale reindeer migrations. The Tana River has the highest mean number of pits per locality and largest single systems that are aligned perpendicular to the north-south primary reindeer migration routes near the transition point between fall and winter pastures with hunting during the fall (Hood 2024a: 500, 517, 538-9). The closest pitfalls are c. 500 m to the north and northeast of the Gollevarre settlement with a cluster of at least eight spatially distinct stone-built meat storage caches (N. *kjøttgjemme*) in scree locations between the settlement and the pitfall system. The association between the

settlement and use of the trapping system is highlighted by the site location in close proximity to the pitfall complex with an overview of the surrounding landscape ideal for monitoring reindeer movements. The lack of a nearby source of freshwater, with the closest stream at a distance of several hundred meters, also reinforces this locational factor as access to water is usually a high priority for residential sites.



Figure 1. Map showing the location of Gollevarre settlement site and reindeer pitfall trapping complex to the north. Illustration: Askeladden, Directorate for Cultural Heritage.

In addition to the extensive pitfall complex, two adjacent localities with a series of stacked stone semi-circular to horseshoe shaped hunting blinds (N. *skyteskjul*) ranging from 1-2.5 m in width with a general southward orientation have been recorded c. 1 km WSW of the Gollevarre settlement. These include an alignment of ten individual structures extending for c. 150 m along the crest of a hilltop from 230-240 m asl (ID 275361) and a cluster of three structures of similar construction on the opposite side of the hilltop at c. 248 m asl (ID 275366). As with the pitfalls, these structures are difficult to date precisely but are estimated to be from the Sámi Iron Age, a period that extends from AD 0-1500.

Gollevarre excavations 1965-1966

The Gollevarre site was first described by ethnographers Ernst Manker and Ørnulv Vorren, specialists in the study of Sámi culture, in 1951. Archaeological excavations were undertaken in 1965 and 1966 by Tromsø Museum (Munch and Munch 1998) as part of a project focusing on the documentation of the large reindeer trapping systems between Tana and Varangerfjord led by Vorren (1998). Excavations of variable extent were undertaken in four house structures and substantial trenches were excavated in three of the associated refuse deposits (Fig. 2).

A majority of the house structures at Gollevarre are oval in form, although some are more squarish with rounded corners. They have well-defined turf wall mounds from c. 20-40 cm in height and 2-4 m in width. Centrally located raised circular stone hearths from c. 70-80 cm in diameter were documented in the investigated structures. Entrances with openings in the turf walls of about 1 m were documented in nearly all of the houses. Refuse deposits are often located either directly in front or to the left of the entrances although most of these features were not formally documented during excavation with approximate dimensions and locations drawn on the site plan map. Nine of the structures are spatially distinct, while the others are tightly arranged and partially overlapping exhibiting multiple use phases and longer periods of occupation.

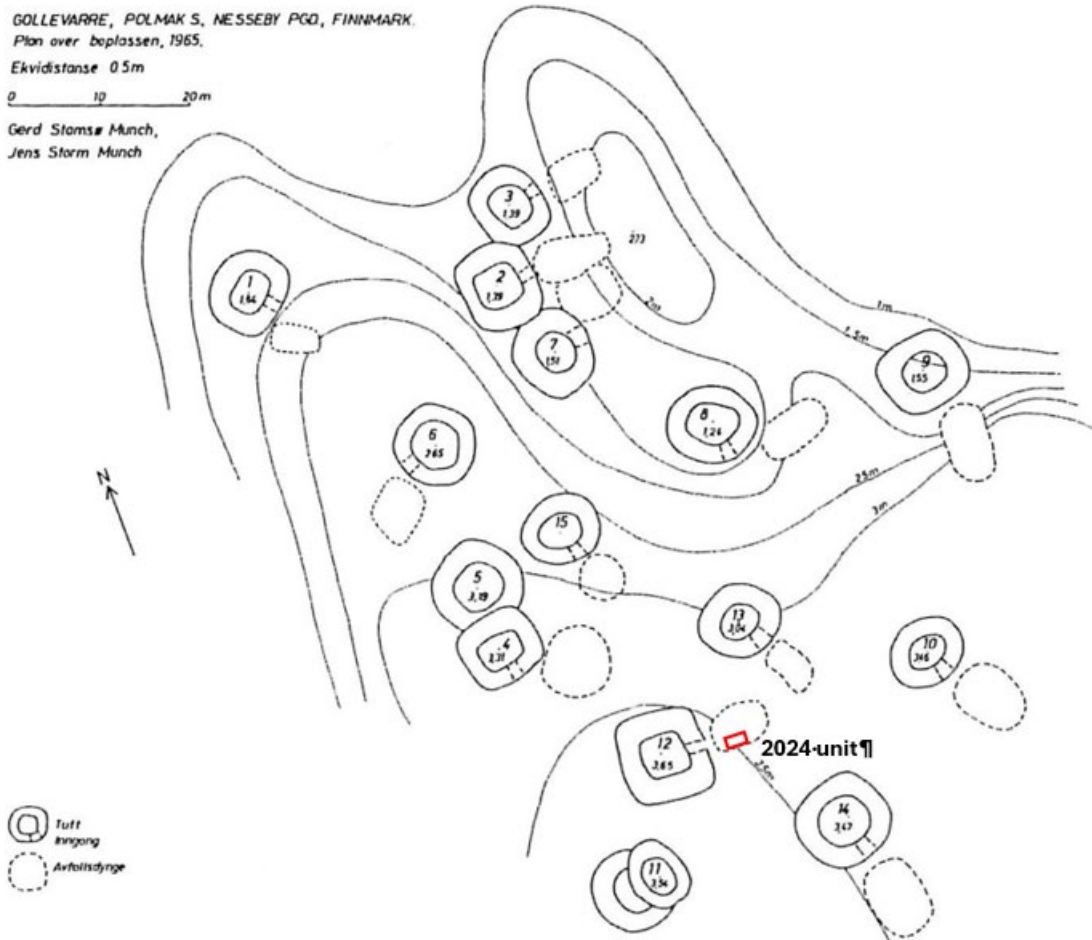


Figure 2. Gollevarre site map showing house structures and location of 2024 excavation. Illustration: Arctic University Museum of Norway.

About 50 m south of the residential site, an c. 20 x 8 m area called Hornsrud (ID 275355) with a dense concentration of reindeer antlers partially exposed above the surface was partially excavated in 1965. Nearly all of the material consisted of basal antler fragments still attached to the skull without the upper antler tines. This location was interpreted as a large dumping area for waste material from antler working activity with 1335 antler fragments counted but only 58 pieces of bone (Munch and Munch 1998: 124). A circular stone hearth was exposed beneath the antler layer and an antler radiocarbon date of cal AD 1306-1445 from Hornsrud is one of the earliest from Gollevarre, although it is not specified where the sample was collected (Fig. 3).

Four house structures were partially excavated in 1965-1966, including House 5, 8, 12 and 14. House 14 was the most extensive with nearly total excavation over two years. It is an oval structure with exterior dimensions of 9 x 8 m and a floor area of 4 x 4 m. This structure had a well-defined refuse deposit just outside the entrance with estimated dimensions of 15 x 10 m extending across a 1 m high slope. A 7 x 2 m trench was excavated within the refuse deposit with a 20-30 cm thick cultural deposit. No finished artifacts were found, only a large quantity of reindeer antler and lesser amounts of bone. It has subsequently been determined that a large bag of reindeer bone and a separate bag of antlers found in the Sámi collection at UM was collected from this trench. This appears to be the only excavation location from where faunal remains were collected in a semi-systematic manner, although there is no record of the field sampling strategy used for this assemblage and no profile of the excavation trench was drawn. A sample of 46 individual reindeer long bones and mandibles with teeth were obtained from this

context by Knut Røed in 2011 for aDNA analyses in association with a research project on genetic expressions of reindeer domestication (see Bjørklund 2019). The total number of bones used for the extraction of DNA samples was later reduced to 28 (Røed 2015; Røed et al. 2018). Radiocarbon dates were obtained from six of the bones with authentic DNA sequences producing a collective calibrated age range of cal AD 1453-1656 (Røed et al. 2018: Appendix A). Zooarchaeologist Anna-Kaisa Salmi (2013) took osteometric measurements from a subsample of complete long bones or long bone ends (n=13) and complete or fragmentary mandibles (n=3) from the bones obtained by Røed.

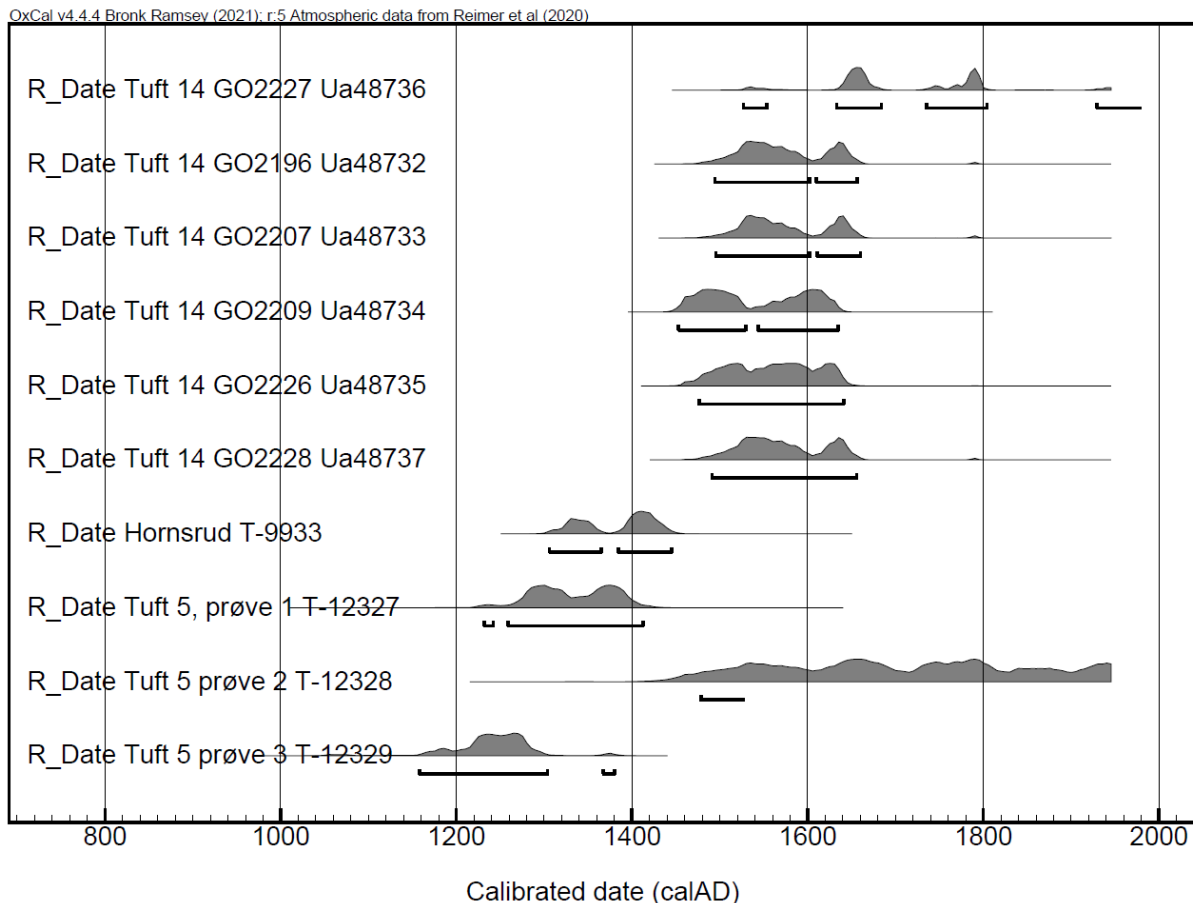


Figure 3. Graph of calibrated radiocarbon age ranges from Gollevarre excavations in 1965-1966. Laboratory codes: Ua (Uppsala) Røed et al. 2018, T (NTNU, Trondheim) Munch and Munch 1998.

Other house structures with more extensive excavation include House 5 which is partially covered by subsequent construction of House 4. This is a typical oval turf house with a central hearth and cultural deposit from 10-25 cm thick. A 3-8 cm thick charcoal concentration found under the northern turf wall mound predates house construction. Two charcoal samples and one bone sample from this context were collected from the trench profile in 1995 and radiocarbon dated (Munch and Munch 1995). The two charcoal dates produced a collective age range of cal AD 1158-1412, the earliest age estimates from the site. However, the bone date (T-12328) was substantially later with an extremely high standard error of +/-105 years resulting in an age range av 1478-modern. It is recommended that this date be rejected as unreliable.

House 8 is an 8.5 x 7.5 m structure that stands alone in the upper site area with a quadratic 5 x 5 m floor area, central circular hearth and cultural deposit up to 30 cm thick. Remnants of wood from the original house structure were recorded in the interior. Finds included worked antler and bone, five iron knives, single arrow and spear points and a band-shaped piece of bronze. An

8 x 5 m refuse deposit to the left of the entrance was excavated with a 16.6 m x 1 m trench expanded to 2 m for a distance of 5.6 m. The cultural deposit in the trench ranged from 10-30 cm with a substantial amount of reindeer antler and bone. Artifacts were limited to an antler awl, a probable bone purse lock and iron fragments.

House 2 is in the center of three tightly spaced structures that also include House 3 and 7 in the upper site area. Excavation was limited to the associated refuse deposit where areas of 5.5 x 3 m and 1.5 x 1 m were opened. The cultural deposit was up to 40 cm thick with an abundance of reindeer antler and bone, including worked material such as partially finished gaming dice and an antler spoon. This refuse feature had the highest density of artifacts at the site with 84 individual catalog numbers. These included iron arrowheads and spear points, knives and a fire striker (N. ildstål). All of the iron objects were found in the upper cultural deposit just below the turf, suggesting a late medieval to post-medieval age.

Artifact assemblage

A total of 200 artifacts were recovered from the excavations. The most abundant category was worked reindeer bone, and antler in particular (n=57). Most objects were unfinished blanks and preforms including 24 antler spoons with only four finished specimens. According to the excavators, the spoons all appear to be dated to the 15th to 17th century and were probably produced for sale (Munch and Munch 1998: 128). Other artifacts included bone (n=32) and antler (n=9) awls for hide working, partially finished antler dice (n=4) and an unfinished curved bone purse lock. The second most abundant category was objects made of iron. These were dominated by simple utilitarian table knives (N. *bordkniv*) with wooden handles attached by rivets (n=16) and an average length of c. 17 cm (Fig. 4). It is likely that the knives would have been readily available for sale by local merchants. It is noted by the excavators that knives of this type had previously been found in contexts from the 15th to 18th century and that the abundance of knives is undoubtedly associated with production of bone and antler artifacts (Munch and Munch 1998: 127). A majority of the other iron artifacts are projectile points (n=3), arrowheads (n=9) up to 16.2 cm and spearpoints (n=6) up to 32.5 cm in length most likely associated with reindeer hunting. Miscellaneous iron objects included a few small nails and an auger. A single fire striker (N. *ildstål*) and strike-a-light flint flake were also found. The only non-iron metal artifact was a bronze band. The abundance of hand-held whetstones (n=21) of diverse shapes and sizes would have been essential for sharpening knives used for working antler and bone (Fig. 5). The seven whetstones found in House 5 range from 6.7 to 15.5 cm in length.

Faunal remains

There was no systematic strategy for collecting or quantifying animal bone by the excavators. Although a tally of reindeer bone and antler from selected contexts is presented in the text, the only apparent attempt at more systematic sampling of reindeer bone and antler was limited to the refuse deposit associated with House 14. The reindeer bone collected from this context was placed in a large (60 x 50 cm) feed sack and antler in a separate (75 x 45 cm) plastic bag. This material is currently located in the UM Sámi collection with catalog number L2364. The bone assemblage was sorted into principle skeletal components (long bones, vertebrae, ribs, crania, etc.) by zooarchaeologist Anna-Kaisa Salmi in November 2024. It was apparent that bone collection had not been systematic as smaller bones, such as those recovered from a similar refuse deposit in 2024, were largely absent. Collection of the reindeer bone and antler sample from House 14 is not mentioned in the excavation report but the provenience has been determined by the UM Sámi collection manager.



Figure 4. Table knives from Gollevarre. Left: L1319 q, House 8. Right: L1320 ai, House 5. Photographs: Arctic University Museum of Norway.



Figure 5. Whetstones from House 14 at Gollevarre (L1321 ai). Photograph: Arctic University Museum of Norway.

The presence of non-reindeer faunal remains is mentioned by the excavators including some bird and fish bone from the refuse deposit at House 8 (Munch and Munch 1998: 116) and fishbone from around the hearth in House 14 (Munch and Munch 1998: 119). A single pig canine tooth was also found in House 14 (Munch and Munch 1998: 121). A single bone from the House 14 refuse deposit was identified as sheep by DNA analysis (Røed 2015). This may suggest that the quantity and variety of non-reindeer bone was most prevalent at House 14 where a collective radiocarbon calibrated age range of cal AD 1453-1656 was obtained from the refuse deposit (Røed et al. 2018: Appendix A).

Animal bones from the 1960s excavations currently on display in the Sámi exhibition at UM (see Munch and Munch 1998: 125) were recently identified by zooarchaeologist Nikola Kovačević. These provide a valuable supplementary source of data on non-reindeer wild species being exploited. Mammal bones include an otter (*Lutra lutra*) femur and a possible sternal rib from a sea mammal (dolphin?). Bird bones include a humerus and both proximal and distal femur fragments from at least two individuals of the grouse family, most closely resembling a black grouse (*Lyrurus tetrix*) hen in size (*N. orrfugl*). Although this species is currently rare in Finnmark outside of Pasvik, it was probably more widely distributed in the medieval period. Fish bones include a cleithrum, rib (epipleural) and tail vertebra from the flounder family. The large

vertebra is most likely halibut, and the other two bones may also be from this species. The upper jaw (maxilla) from a possible haddock is also on display. The presence of a potential sea mammal bone as well as halibut, a large pelagic species up to 4 m long and weighing over 300 kg, suggest access to deepwater marine resources.

Gollevarre research excavation 2024

Limited excavation was undertaken in 2024 at Gollevarre in connection with Ph.D. student Diego Brambilla's Ph.D. research. Both sedaDNA from the archaeological site deposit and aDNA samples of excavated reindeer bone from Gollevarre will be used to address the research objectives of the project. The DNA analyses of reindeer bone from Gollevarre by Brambilla will supplement and expand existing aDNA results obtained by Knut Røed from a sample of 28 bones sourced to the refuse deposit at House 14 in 2011 (Røed 2015; Røed et al. 2018). Field investigations at Gollevarre were undertaken over a four-day period from June 18-21 by the author, Ph.D. co-supervisor Galina Gusarova and Diego Brambilla.

Excavation was planned in a refuse deposit associated with one of the turf house structures in order to maximize the quantity of reindeer bone available for DNA sampling. As tentatively planned in advance of field investigations, the refuse deposit associated with turf house structure 12 was chosen for excavation of a 2 x 1 m trench. The size and location of the excavation unit was based on estimates that considered the amount of time available, expected density of material, and thickness of the cultural deposit. Fortunately, the density of reindeer bone and antler were more than sufficient to achieve the research objectives.

House 12 (ID 116939-14) was originally investigated in 1966 (Munch and Munch 1998: 121-122). It is located in the lower southeastern corner of the site and is one of the larger structures with estimated exterior dimensions of 7 x 7 m and a floor area of 4.5 x 3.5 m. The approximate center of the structure has the following GPS coordinates (X998950.8 Y7833015.9 UTM33N). The wall mound is up to 1.7 m wide and 30-40 cm high. There is a clearly defined c. 70 cm wide entrance in the eastern wall. As this house structure appeared to be more quadratic than the others by the excavators in 1966, the upper turf layer was removed in the southwestern floor quadrant revealing that the structure was actually oval in form. A circular stone hearth was exposed at the center of the structure with a 20-25 cm thick cultural deposit on the floor. A dark 10 cm thick cultural deposit exposed beneath the former ground surface was interpreted as an earlier refuse deposit upon which the house structure had been built. The potential for two use phases influenced the decision to excavate at this location in 2024. The refuse deposit associated with House 12 faces the entrance at a distance of 2-7 m. It has an L-shaped appearance and is 2-2.5 m wide and up to 5.4 m long (Fig. 6). The excavation trench was placed across the low refuse mound 4.2 m from the house entrance with the long axis oriented from west to east (Fig. 7).

Excavation was carried out in natural stratigraphic units subdivided into 5 cm increments within layer boundaries. Following removal of the upper dense grass turf layer (Layer 1A) with a shovel, all remaining excavation was done by hand troweling. All excavated matrix within the cultural deposit was water-sieved through 4 mm mesh in a small meltwater pool several hundred meters from the site. Material remaining in the mesh was bulk bagged for later lab sorting. Larger pieces of reindeer bone and antler were removed by hand during excavation and bagged separately. This material was later lightly cleaned but not washed to avoid disturbance of surfaces for potential aDNA extraction. Excavated finds were assigned catalog number Ts.16469.1-34 in the lab (Appendix 1).

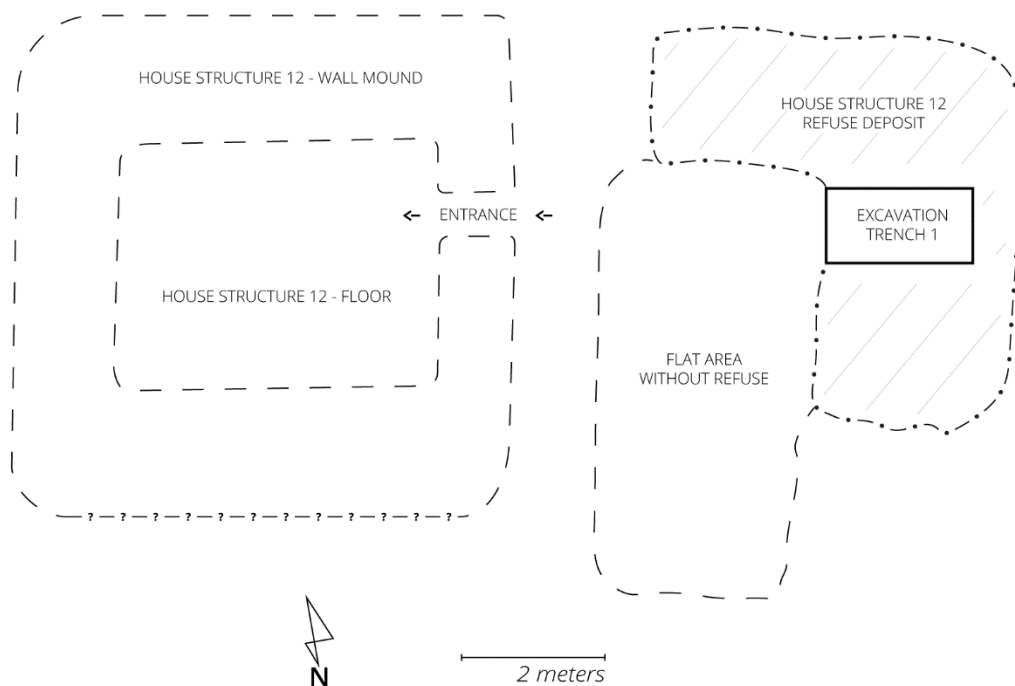


Figure 6. Plan view drawing of House 12 turf structure and associated refuse deposit showing location of trench excavated in 2024. Illustration: Stephen Wickler and Erik Kjellman, Arctic University Museum of Norway.



Figure 7. View of excavation trench during removal of upper grass turf. Left: facing north. Right: facing south. Photographs: Stephen Wickler, Arctic University Museum of Norway.

Stratigraphic sequence

Layer 1A (0-10 cm bs): Grass turf with extremely dense root mass. Reindeer bone permeated by roots in the lower 5 cm of layer collected for water-sieving (Fig. 8).

Layer 1B (10-15 cm bs): Lower turf zone with root mass gradually decreasing with depth. All matrix water sieved. Dense concentration of reindeer bone and lesser amount of antler. Boundary with underlying stratigraphic unit indistinct or diffuse in some parts of the trench.

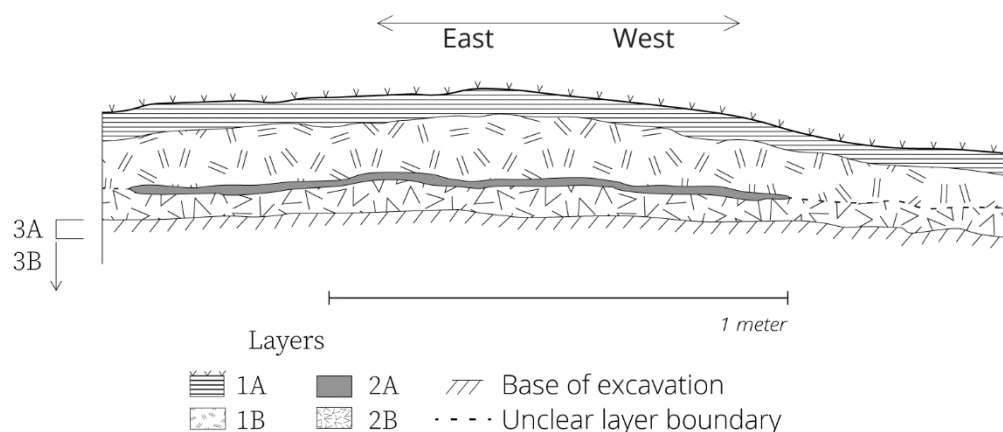


Figure 8. Excavation trench south profile drawing. Illustration: Stephen Wickler and Erik Kjellman, Arctic University Museum of Norway.

Layer 2A (2-3 cm thick): Band of tan fine grainy silt concentrated in central part of trench between Layer 1B and 2B. Located below main turf root penetration zone. Interpreted as an ash deposit most likely associated with hearth cleaning in House 12. This unit may represent single or multiple dumping episodes.

Layer 2B (15-20/25 cm bs): Lower cultural deposit with fine dark silt matrix containing variable density of charcoal fragments and pockets of ash as well as sand. The layer is around 5 cm thicker in the eastern end of trench. Dense concentration of reindeer bone with lesser amounts of antler apart from a concentration of multiple antlers (n=10), most with cut marks, placed on the original ground surface (Layer 3) in the northwestern portion of unit as an initial depositional event (see Fig. 9 and Fig. 10). Most antlers had intact tines and were cut through near the skull attachment point. The largest antlers have a total length ranging from 64-67 cm. A small 34 cm long single tine antler with attached skull fragment is also present.

Layer 3A (25-29 cm bs): Basal sterile matrix with lower boundary documented by use of a soil probe at the eastern end of trench. Very fine tan compact silt with scattered sand grains.

Layer 3B (29-39+ cm bs): Lower basal matrix documented with soil probe at the eastern end of trench. Grainy silt with reddish coloring due to increasing amount of iron.

A total of six small sediment samples were collected from each of the stratigraphic units, SS1-6 (Ts. 16469.28-34). The stratigraphic sequence within the refuse deposit was straightforward and consisted of an upper grass turf stratum (Layer 1) with a thick root mass permeating the dense concentration of reindeer bone in the underlying refuse deposit (Layer 2). The refuse deposit consisted almost entirely of reindeer bone, including substantial quantities of heat-altered bone fragments, mixed with pockets of ash and scattered charcoal from multiple dumping episodes of hearth contents. An extensive band of ash (Layer 2A) separated the lower turf zone from the refuse deposit in the central portion of the unit. An overall assessment of the sequence indicates that multiple episodes of refuse dumping took place during a single occupation phase of the House 12 turf structure gradually built up the cultural deposit. Individual dumping events are discernable through patterns of bone/antler, ash and charcoal distribution. The low number of artifacts found in the cultural deposit suggest that the principal source of material was food waste along with ash and charcoal from the hearth. Although fire-cracked stones from the hearth were scattered throughout the deposit, they only account for a volume of c. 10 liters. Very few non-heat altered stones were observed in the unit.

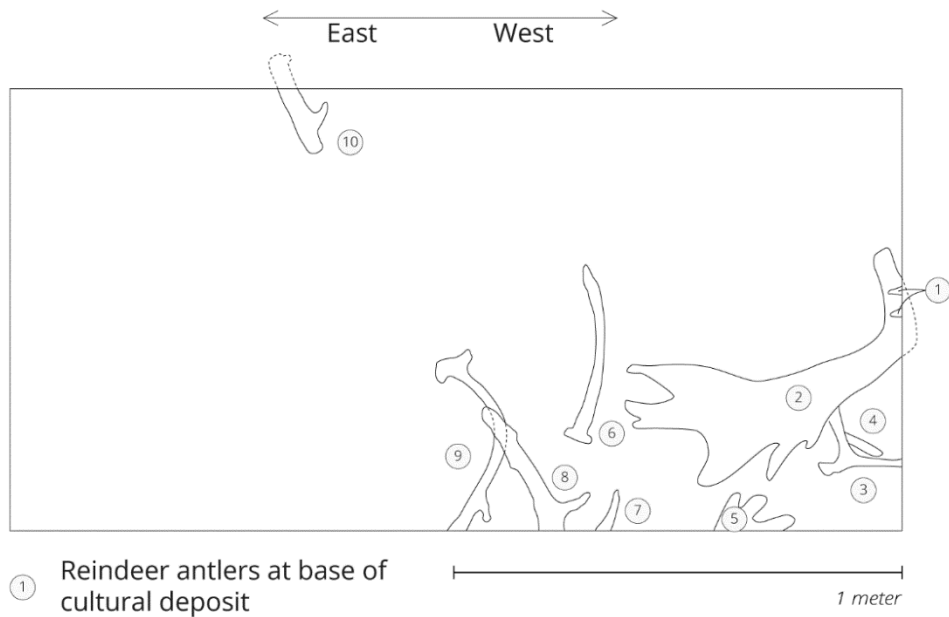


Figure 9. Plan view of excavation trench showing concentration of reindeer antlers at base of cultural deposit (no. 1-10). Illustration: Stephen Wickler and Erik Kjellman, Arctic University Museum of Norway.



Figure 10. View of excavation trench with reindeer antler concentration at base of cultural deposit facing south. Photograph: Stephen Wickler, Arctic University Museum of Norway.

Artifact assemblage

Both the quantity and variety of artifacts recovered from the trench excavation are quite limited. This is not surprising given the context as a refuse deposit for food waste rather than general household related activity from a typical residential site. All of the objects represent find categories present in the initial 1960s excavations at Gollevarre and the quantities are roughly comparable when adjusted to reflect the limited extent of excavation in 2024.

A gray schist whetstone was found in the upper cultural deposit (Layer 1B) at a depth of 15 cm. It has extensive use wear on at least one surface and dimensions of 13.2 x 4 x 3 cm (Ts.16469.5) (Fig. 11). A 5.5 cm long utilitarian table knife fragment including part of the lower blade and handle with rivets and remnants of a wood handle was also found in Layer 1B along with a small iron fragment likely to be from the same object (Fig. 12). Both of these artifacts have close similarities to objects recovered in the earlier excavations. A small flake of strike-a-light flint was found in Layer 2B (Ts. 16469.15). Flint flakes from fire starting would have been plentiful in household refuse but are not easily recovered without fine mesh sieving as the recovery of only one such flake in the earlier excavations demonstrates. A highly fragmented piece of worked wood measuring c. 40 x 7 cm was found in the central part of the unit within Layer 2B at a depth of 16 cm bs. The wood had been thinned to c. 5 cm, but its use remains unclear. Pieces of worked reindeer bone and antler are present but not abundant in the cultural deposit and include a possible tool made from a proximal metacarpal in Layer 1A (Ts. 16469.2) (Fig. 13). Awls of bone and antler were common in the earlier excavations.



Figure 11. Schist whetstone from Layer 1B (Ts.16469.5). Photograph: Mari Karlstad, Arctic University Museum of Norway.



Figure 12. Knife handle fragment with traces of wood from Layer 1B (Ts.16469.6). Photograph: Mari Karlstad, Arctic University Museum of Norway.



Figure 13. Potential tool made from a split reindeer proximal metacarpal (Ts. 16469.2). Photograph: Mari Karlstad, Arctic University Museum of Norway.

A very small sherd of white glazed pottery tentatively identified as faience was found in the upper turf layer (Ts.16469.1). Faience is a fine tin-glazed pottery that was produced as early as the 1600s in Holland as a cheap copy of Chinese porcelain and by 1722 in Copenhagen. Radiocarbon dates restrict the deposit to the 16th century and suggest that the pottery sherd represents limited later activity.

Faunal remains

As noted above, fragments of worked reindeer bone and antler were present throughout the refuse deposit. However, there are no definite examples of recognizable preforms or blanks associated with artifact manufacture. A majority of the modified bone represents traces of cutting and chopping associated with reindeer processing for household consumption. Most reindeer long bones have evidence of being longitudinally split or fractured for marrow extraction and the restricted number of intact long bones demonstrates the extent of this activity. It is therefore surprising that evidence of marrow extraction from the 1960s excavations is only mentioned from the House 14 refuse deposit where it is noted that some of the larger bones were split for marrow extraction (Munch and Munch 1998: 120). However, an examination of the reindeer bone from the House 14 refuse deposit at UM as well as the reindeer bone assemblage from the 2024 excavation confirms that a majority of long bones and phalanges were split or broken for marrow extraction.

Distinctive angled cut marks made by a sharp knife that form a V-shaped pattern were documented on at least five reindeer long bones and are most likely butchery-related although artifact manufacture is also a possibility (Ts.16469.7) (Fig. 14). A proximal phalanx with a beveled cut across the midsection illustrates this uncertainty as it may be related to either marrow extraction or artifact production (Fig. 15). Five reindeer proximal rib head fragments, each with a series of fine, medially placed parallel cut marks on the underside surface, were found in Layer 1B (Ts.16469.7) along with an additional bone in Layer 2B (Fig. 16). A lumbar vertebrae fragment with similar parallel cut marks was also identified in this layer. These cut marks are most likely from defleshing and the separation of ribs from vertebrae as supported by evidence that all of the rib heads were broken off from the main rib. Another noteworthy observation is the presence of a significant number of small stylohyoid bone fragments with cut marks. These bones are likely to have accompanied reindeer tongues brought to the residential site for consumption. Reindeer tongue is a valued traditional Sámi food item both cooked and dried.



Figure 14. Reindeer long bone fragments with V-shaped cut marks from Layer 1A (Ts.16469.7). Photograph: Mari Karlstad, Arctic University Museum of Norway.



Figure 15. Reindeer proximal phalanx with a beveled cut across the midsection (Ts.16469.7). Photograph: Mari Karlstad, Arctic University Museum of Norway.



Figure 16. Reindeer proximal rib head fragments from Layer 1B with parallel cut marks (Ts.16469.7). Photograph: Mari Karlstad, Arctic University Museum of Norway.

An analysis of the animal bone assemblage focusing on reindeer was undertaken by zooarchaeologist and reindeer specialist Prof. Anna-Kaisa Salmi from the University of Oulu in November 2024 (Salmi 2025) (see Appendix 2), following laboratory processing of faunal remains (Fig. 17). A total of 3887 bone fragments were identified as reindeer (*Rangifer tarandus*) and a majority of the 1337 unidentified mammal bone fragments are also likely to be from reindeer. The minimum number of individuals (MNI) for reindeer is 24. All parts of the reindeer skeleton are present in the assemblage, but elements of the meatiest part of the reindeer carcass – scapula, pelvis, humerus, and femur in particular – are clearly underrepresented in comparison with cranial parts and extremities.

A relatively high frequency of sub-adult individuals is also apparent with a majority of the animals below 3-5 years of age. This contrasts with roughly contemporaneous Sámi residential sites in Varanger (Hambleton and Rowley-Conwy 1997) and Pasvik (Hedman et al. 2015) where 60% of late fusing epiphyses occurring at c. 3-5 years are fused compared to 40% at Gollevarre (Salmi 2025). However, it should be noted that the Pasvik sites represent rectangular row-hearth seasonal settlements where at least 70% of reindeer were over four years old, a profile that reflects the culling of older animals (Hood 2024b: 662). The abundance of sub-adult individuals in the Gollevarre assemblage is likely to have been influenced by multiple factors. Although use

of hunting-pit systems may appear to reflect little or no selectivity (Headman et al. 2015: 13; Hood 2024a: 538), herd behavior is highly complex, and organizational factors have a substantial impact on which animals were trapped. This makes it difficult to provide a baseline for assessing selectivity by age. It is also possible that the lower-leg bones of younger individuals were more easily transported back to the settlement and may also have been preferred as a source of marrow. There are interesting parallels with early modern period (AD 1500-1700) turf hut (*goadit*) settlements in interior Finnmark. At Ássebákti in Karasjok and Kjerringneset in Pasvik, the reindeer remains are skewed towards lower-leg bones and hooves (Hood 2024b: 667-668).

Salmi asserts that antler and cranial fragments are common or overrepresented at Gollevarre but rare in contemporary residential sites. An overall assessment of the reindeer assemblage by Salmi suggests that this was a butchery location within the Gollevarre site, which is described as a hunting camp. However, a detailed review of the collective Gollevarre evidence demonstrates that this was a long-term settlement focused on intensive seasonal reindeer hunting with numerous substantial turf house structures rather than a short-term temporary hunting camp. It is also highly unlikely that the excavated refuse deposit represents a butchery location given the abundant evidence for dumping of bones and other household refuse from the nearby house structure. Initial reindeer butchery would have been most practical in the vicinity of the pitfall trapping complex with temporary storage of meat rich parts of the reindeer carcass in storage catches (*N. kjøttgjemme*) located between the pitfall complex and residential site. Transport to the house site of antlers and skull fragments to which they were attached for artifact production as well as long bones / phalanges for marrow extraction would have been a relatively easy and straightforward task. It is also likely that marrow extraction took place in association with boiling of the marrow bones within the turf house structure.



Figure 17. Laboratory processing of reindeer bone from the Gollevarre excavation in 2024. Left: sorting of water-sieved material. Right: Drying large reindeer bones. Photograph: Stephen Wickler, Arctic University Museum of Norway.

The identification of non-reindeer bones is essential for a comprehensive understanding of subsistence at Gollevarre. Identification of animal bones from both Gollevarre and Drag focusing on non-reindeer species was undertaken by zooarchaeologist Nikola Kovačević (Appendix 3). The only definite evidence of domesticated species from the 2024 excavation is a single sheep bone (fused distal radius) belonging to an individual three or more years of age. However, the recovery of a pig canine tooth and a sheep bone identified by DNA from the initial Gollevarre excavations confirms the presence of domesticated animals at the site. It is not unlikely that a small number of sheep were being kept at the site to provide wool and/or milk as has been

proposed for other medieval Sámi settlement sites in Finnmark (Hambleton and Rowley-Conwy 1997: 67). However, the presence of single pig tooth is insufficient to suggest swine keeping. The occurrence of domesticated taxa in the faunal record from the 1960s excavation is also likely to have been more abundant than documented given the minimal number of faunal remains collected lack of faunal identification.

Although much less abundant than reindeer, a variety of other wild species document the importance of hunting, trapping and fishing as subsistence-related activities at Gollevarre. The only wild mammal evidence is a single incisor from a possible small predator and lemming bones, a non-cultural intrusive species. The bird bone assemblage (NISP=27) had only two identifiable long bones (humerus) and a scapula from willow ptarmigan (*Lagopus lagopus*) that were slightly burnt. Fish bones are predominantly small individuals of marine species that increase in number between Layer 1B and Layer 2B (Fig. 18). Many of these bones are vertebrae and ribs that may not have been recovered without fine mesh water sieving. A majority of the identifiable fish bone are from the cod family and include cod, saithe and haddock. Several fin bones have butchery cut marks. A few vertebrae identified in the flounder family that may be halibut were also recovered.



Figure 18. Fish bones from Layer 2B (Ts.16469.20). Photograph: Mari Karlstad, Arctic University Museum of Norway.

Radiocarbon dates and site chronology

Charcoal samples of short-lived birch (Appendix 4, Kirchhefer 2024a) from both the upper and lower cultural deposit were dated by NTNU in Trondheim with results presented in Table 1. The calibrated age ranges are statistically identical and span the entire 16th century at 2σ . These results fall within the later part of the settlement at Gollevarre based on the corpus of radiocarbon dates from the 1960s excavation that have a collective age range of cal AD 1158-1656. They are also consistent with the dates obtained by Knut Røed from the House 14 refuse deposit that have a collective age range of cal AD 1453-1656 (Røed et al. 2018: Appendix A). The presence of a table knife fragment of a type most commonly found in the 15th to 18th century supports the radiocarbon results. A very small fragment of pottery in the uppermost layer tentatively identified as faience, first produced in Scandinavia in the 1700s, is likely to be intrusive.

There is limited evidence for the existence of both pig and sheep at Gollevarre and it is possible that the quantity of livestock increased in the latter part of the occupational sequence. A single reindeer bone analyzed by Røed (Røed et al. 2018) from the House 14 refuse deposit had a DNA haplotype commonly found in modern ‘domesticated’ reindeer. All of the other DNA samples were typical of wild reindeer. This may also indicate that some tended reindeer as well as domestic livestock were kept at Gollevarre in the 15th to 17th century.

Table 1. Radiocarbon dates from Gollevarre and Drag.

Context	Cat. no. (Ts.)	lab. no.	Sample (mg)	Species*	¹⁴ C age (BP)	d ¹³ C	Cal. ¹⁴ C age AD (2 σ)
Gollevarre: Trench 1, House 12							
Layer 1A (0-10 cm bs)	16469.24	TRa-25307	120	birch (twigs)	300 ± 15	-26.1	1516-1590 (72.6%)
Layer 2B (15-20 cm bs)	16469.27	TRa-25308	30	birch (bark)	310 ± 20	-27.9	1500-1600 (75.2%)
Drag: Unit 1							
Layer 2A (20-30 cm bs)	16470.54	TRa-25309	170	birch	315 ± 15	-26.0	1507-1595 (76.7%)
Layer 2C (40-45 cm bs)	16470.56	TRa-25310	60	birch	340 ± 20	-27.0	1541-1635 (61.5%)

* AMS – charcoal /carbonized material. Calibrated with OxCal v4.4.4.

DRAG (ÁJLUOKTA) SETTLEMENT MOUND, HAMARØY MUNICIPALITY, NORDLAND COUNTY

The Drag (Ájluokta) site is a settlement mound (N. *gårdshaug*) (ID 116182) located c. 260-270 meters from the shore of Dragsbukta bay at an elevation of 29-30 m asl. Drag lies within the Tysfjord region of northern Nordland where there has been a mixture of Sámi and Norse settlement for many centuries. The site boundaries are estimated to be c. 60 x 50 m and lie within present-day Drag farm with a farmhouse in the center and outbuildings including a storehouse in the north and a recently built garage that replaced a small barn in the south (Fig. 19). Drag farm is one of the oldest farms in the area as indicated by the name Drag which is also the name of the current settlement. The Ellingsen family, who are the current landowners, have been here since the mid-1800s, and it is claimed that they owned reindeer that were looked after by Sámi reindeer herders as part of their own herd in early 1900s (Andersen 2010: 32). This was a traditional practice between permanently settled residents and pastoralists known as *sytingsrein*.

Drag excavation 2009

Research leader Oddmund Andersen from the Árran Lule Sámi Center at Drag carried out a limited excavation in the settlement mound in 2009 as part of a research project related to coastal Sámi farming settlements in Tysfjord (Andersen 2010, 2019). Written sources mention Sámi farms in Tysfjord during the 16th and 17th centuries that had a mixed economy combining agriculture and fishing with hunting and gathering (Nielsen 1990). However, there appears to have been less focus on agriculture with fewer livestock and less barley grown on Sámi farms in comparison to Norse farms along with a greater emphasis on hunting and trapping (Kolsrud

1947). Tax lists extend back to 1559 and document 15 Sámi farms in Tysfjord, including Drag, with a significant increase in the 1600s to at least 31 sites (Andersen 2019: 5-6).

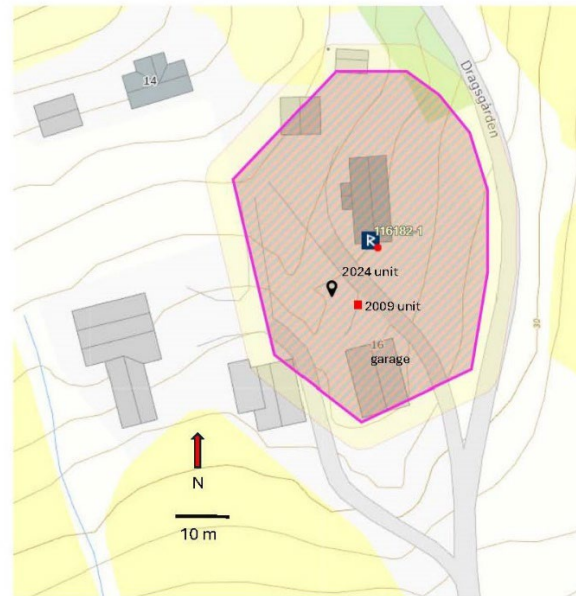


Figure 19. Map of Drag settlement mound showing location of excavation units from 2009 and 2024. Map: Askeladden, Directorate for Cultural Heritage.

Settlement mounds in Tysfjord reflecting both Norse and Sámi ownership extend back to the early medieval period. During the medieval period a shift in subsistence economy takes place with an increased focus on animal husbandry including sheep, goats and cattle, and the introduction of barley as a crop. Excavations in selected settlement mounds sought to clarify the ethnic identity of those involved in this shift and determine the relative importance of animal husbandry and cultivation for the Sámi during this period of transition.

Stratigraphic sequence and chronology

An area of 1.5 m² was excavated in the southern portion of the settlement mound. The excavation unit was divided into four quadrants and all matrix below the 20 cm thick turf (Layer 1) was sieved through 4 mm mesh. The cultural deposit ranged from 70-80 cm in thickness and extended to a basal culturally sterile grey sand (Layer 10). The stratigraphic sequence is characterized by numerous discontinuous and intersecting sublayers that appear as bands and lenses rather than continuous strata (Fig. 20). The lowest cultural stratum (Layer 9) has a basal radiocarbon date of cal AD 1160-1280. The overlying layers 7-8 have two radiocarbon dates with a collective age range of cal AD 1300-1440. Although no dates were obtained from the upper half of the excavation unit, it is argued that Layer 3, located at a depth of c. 40 cm, represents 18th century occupation on the basis of a coin bearing the date 1703 (Andersen 2019: 14). The upper two layers have evidence of recent disturbance. Despite these issues, it is likely that the overall stratigraphic sequence represents continuous settlement.

The lower portion of the cultural deposit, consisting of three strata (layer 7-9) is dated from the late 12th century into the 15th century. The excavation report suggests that the presence of multiple layers of pine logs or rough planks placed both above and abutting large flat stones in Layer 7 and 8 in the NE quadrant of the unit may be part of a wooden house floor (Andersen

2010: 35). Noteworthy finds in these strata include fragments of a soapstone vessel and a bakestone, objects that are traditionally associated with Norse occupation.

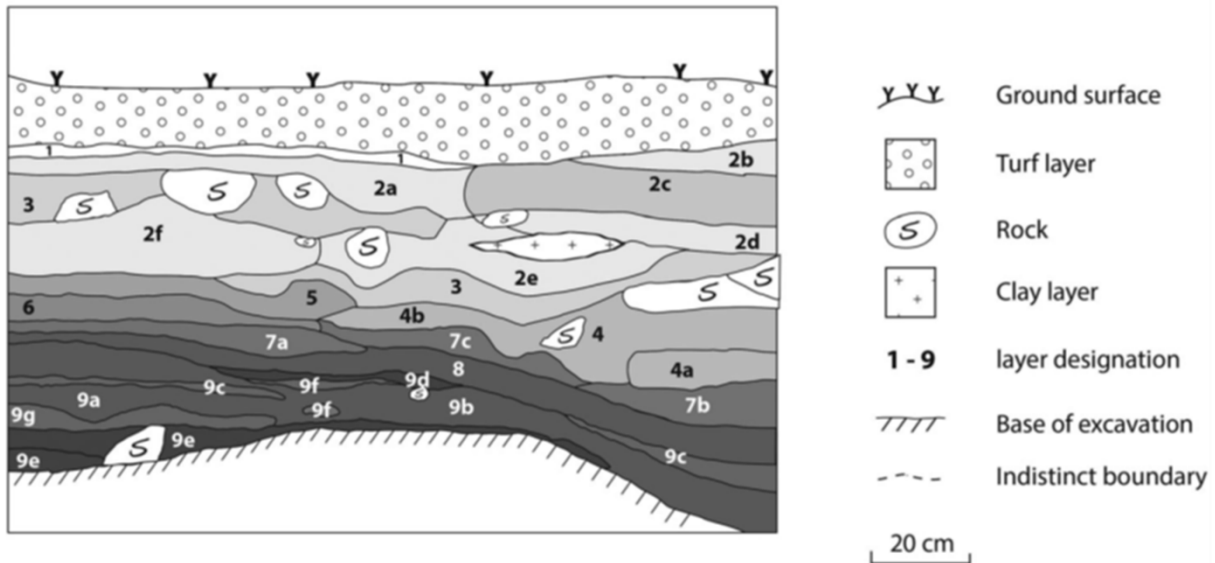


Figure 20. Stratigraphic profile facing north from 2009 excavation unit at Drag. Source: Andersen 2019: Figure 7.

Faunal remains

A total of 1436 animal bones were recovered from the excavation and submitted to the Dept. of Natural History at the University Museum of Bergen for identification (Hufthammer and Brattbak 2020). Bones of sheep/goat are found in all layers but increase in Layer 3 and above with 15 bones in basal Layer 9. A few cattle bones are found in Layer 7-9 (n=3). Pig bones only occur in Layer 3 (n=2). Whalebone is noted by the excavator in Layer 6 but does not appear on the list of identified species (Andersen 2019: Table 3). This may be from what is described as a fragment of a possible bone plaque (Andersen 2010: 35).

Reindeer bones are documented in all layers except for Layer 6 with a total of 20 individual bones (Table 2). A majority of reindeer bones are from contexts post-dating 1700 in Layer 2 and 3 (n=7). One bone was identified as red deer (*Cervus elaphu*) and one as reindeer (*Rangifer tarandus*) or red deer (*Cervus elaphu*). As the natural distribution of red deer only extends as far north as Saltfjellet in Nordland, it is considered more likely that these are also reindeer bones. DNA sampling of reindeer bones from the 2009 excavation will be part of Diego Brambilla's Ph.D. project. Limited DNA analysis of reindeer bone samples was also undertaken by Knut Røed at the request of Oddmund Andersen with tentative results indicating the presence of a DNA haplotype associated with modern 'domesticated' reindeer (O. Andersen: pers. comm.). It remains uncertain which of the reindeer bones were analyzed by Røed and if these were returned to the assemblage following analysis.

Of the 38 identifiable fish bones, the most numerous and widespread species are cod (n=23), followed by salmon which are restricted to Layer 7 and 9 (n=7). A single herring bone was also found in Layer 9. Single bones from four bird species, including two bones from game birds and one seabird (*Alcidae*), were identified in Layer 6-9.

Table 2. List of reindeer and possible deer bone from 2009 Drag excavation. Source: Hufthammer and Brattbak 2020.

Species	Layer	Bone type	Bone part	Total	Side	Weight (g)
<i>Rangifer tarandus</i>	2	Metatarsus	Prox,Dia	1	Dx	7.6
<i>Cervus elaphus</i>	3a	Phalanx II		1		7.6
<i>Rangifer tarandus</i>	3a	Ulna	Prox,Dia	1	Dx	9.2
<i>Rangifer tarandus</i>	3a	Mandibula	Prox	1	Sin	5.0
<i>Rangifer tarandus/Cervus elaphus</i>	3a	Phalanx II	Dist	1		2.3
<i>Rangifer tarandus</i>	3b	Dens	M3N	1		2.8
<i>Rangifer tarandus</i>	3c	Mandibula	M1,M2,M3	1	Dx	7.2
<i>Rangifer tarandus</i>	4	Centrotarsale		1	Dx	7.1
<i>Rangifer tarandus</i>	5	Phalanx I	Dia,Dist	1		2.6
<i>Rangifer tarandus</i>	7	Phalanx III	Prox	1		1.4
<i>Rangifer tarandus</i>	7	Metacarpus	Prox	1	Sin	2.8
<i>Rangifer tarandus</i>	7	Metatarsus	Prox,Dia	1		19.8
<i>Rangifer tarandus</i>	7	Vertebra	Sacrales Nr 1	1		14.8
<i>Rangifer tarandus</i>	7	Metacarpus	Prox,Dia	1	Sin	5.8
<i>Rangifer tarandus</i>	8	Antler (worked)		1		70.7

Drag excavation 2024

It was initially hoped that the original unit excavated by Andersen in 2009 could be relocated and reopened to allow collection of sedaDNA samples from the profiles for Brambilla's PhD project. This was not possible as the area where the unit was located had been disturbed and covered with a highly compact fill layer deposited when a new garage was built following the 2009 excavation. A new 1 m² unit was therefore excavated just beyond the garage fill zone at a distance of c. 7 m NNW of the 2009 unit (Fig. 21). The SE corner of the new unit was located 11.8 m at 200° from the SW corner of the farmhouse and 10.5 m at 336° from the NW corner of the new garage (7548753.1N 544113.9Ø UTM33).



Figure 21. Overview of Drag settlement mound site showing location of excavation unit. Left: looking north with farmhouse on the right. Right: Looking south with a new garage in the background. Photograph: Stephen Wickler, Arctic University Museum of Norway.

Excavation was done over a two-day period from July 2-3 by the author and PhD student Diego Brambilla. Digging was carried out in natural stratigraphic units subdivided into 5 cm increments within layer boundaries where these were distinguishable. Following removal of the upper grass turf layer (Layer 1A) with a shovel, all remaining excavation was done by hand troweling. All excavated matrix within the undisturbed cultural deposit (Layer 2) was water sieved through 4 mm mesh using a garden hose. All material remaining in the sieve was bulk bagged for later lab sorting. Excavated finds were assigned catalog number Ts.16470.1-64 in the lab (Appendix 1).

Stratigraphic sequence

Although the stratigraphic sequence has some characteristics resembling the unit excavated in 2009, the strata are not nearly as fragmented and discontinuous suggesting less disturbance (Fig 22). The main cultural deposit (Layer 2) is separated into lower and upper components (Layer 2A and Layer 2B) distinguished by color and texture overlying a lower transitional stratum (Layer 2C) with a significantly lower quantity of cultural remains. Layer 2B and 2C only extend as far east as the stone foundation wall that was built on the former ground surface identified as Layer 3. A total of nine small sediment samples were collected from the stratigraphic profile, SS1-9 (Ts. 16470.57-64).

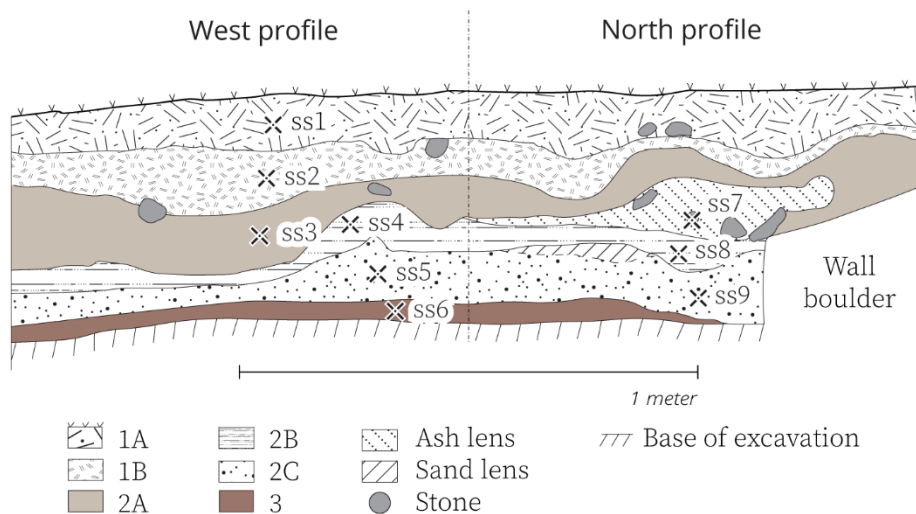


Figure 22. North and west profiles of 2024 excavation unit showing sediment sample locations (SS1-9). Illustration: Stephen Wickler and Erik Kjellman, Arctic University Museum of Norway.

Layer descriptions

Layer 1A (0-10 cm bs): Grass turf with dense root mass and light brown fine silt. Variable thickness ranging from 10-15 cm. Turf layer with modern disturbed material.

Layer 1B (10-20 cm bs): Disturbed modern fill layer comprised of fine yellowish silty sand with scattered stones and pockets of yellowish orange sand. Scattered modern artifacts and other material (glass, brick and pottery fragments, animal bone, charcoal).

Layer 2A (20-30/35 cm bs): Variable thickness ranging from 5-10 cm in the northern profile to 17 cm in the western profile. The upper portion of main cultural deposit with dark gray compact clay-silt mixture. Truncated by modern disturbance with upper c. 5 cm containing modern material that was not sieved.

Layer 2B (30/35-40 cm bs): Lower cultural deposit with dark organic fine silt and fine bands of silt, ash and sand. A light gray ash deposit up to 12 cm thick separates Layer 2A and 2B in the north profile. This is interpreted as material dumped from a hearth or fireplace along the outer margin of a foundation wall for a substantial structure made of boulders from 30-50 cm in diameter that occupies the eastern two-thirds of the excavation unit.

Layer 2C (40-45 cm bs): Lower cultural deposit with grayish brown silt containing alternating bands of light ash and dark silt. Most noticeable in northern profile where a light colored mineral sand lens was present at the top of the layer.

Layer 3 (45-50+ cm bs): Culturally sterile tan sandy silt extending at least 5 cm below the base of excavation in a soil probe before reaching possible bedrock.

A total of nine small sediment samples were collected from each of the six stratigraphic units in the western profile with additional samples from Layer 2B, Layer 2C and the ash deposit between Layer 2A and 2B in the northern profile (Ts. 16470.57-64). Samples were collected from each stratigraphic unit for sedaDNA analysis by Diego Brambilla (Fig. 23).



Figure. 23. Collection of sediment samples for sedaDNA analysis from west profile of excavation unit. Photograph: Stephen Wickler, Arctic University Museum of Norway.

The cultural deposit is spatially separated into two distinct horizontal zones (Fig. 24). The eastern two-thirds is dominated by an alignment of massive boulders, the largest more than 50 x 60 cm in diameter, in a foundation wall from a large structure that extends eastward. The wall remnant in the unit ranges from 25-35 cm in height. Smaller boulders from 30-40 cm in diameter are stacked and wedged between the largest boulders. The interface between the wall and a floor area paved with smaller (10-20 cm) stones was partially exposed in the southeast corner of the unit. The presence of iron slag lumps with a total weight of 900 gm concentrated in the floor area and along the outside of the wall suggests that the structure was a workshop with a blacksmith. A variety of iron nails and rivets along with pieces of worked wood and wood shavings support this interpretation. Fragments of schist slabs (*N. skiferheller*) with evidence of heat exposure and an abundance of ash and charcoal were also associated with the structure.



Fig. 24. View of unit at base of excavation. Left: facing north. Right: facing south. Photographs: Stephen Wickler, Arctic University Museum of Norway.

The nature of activity in the western part of the unit outside of the foundation wall may be partially linked to use of the structure but is also residential. This includes large quantities of charcoal as well as ash in small pit-like features that suggest dumping of waste material from hearth cleaning. A significant amount of highly fragmented bone, much of it with evidence of heat exposure, was also mixed with the charcoal and ash. This is suggestive of midden from residential contexts where bone refuse from human consumption was trampled on the floor before disposal.

Radiocarbon dates and chronology

Charcoal fragments were abundant throughout the cultural deposit with 48 g in Layer 2A, 65 g in Layer 2B and 29 g in Layer 2C. Charcoal samples of short-lived birch (Appendix 4, Kirchhefer 2024b) from both the upper (Layer 2A) and lower (Layer 2C) cultural deposit were dated at NTNU in Trondheim. These include a 60 mg sample of birch twigs from Layer 2C (Ts. 16470.56) and a 170 mg sample of birch twigs from Layer 1A (Ts. 16469.24). The calibrated age ranges for both dates are almost identical and span the entire 16th century as well as potentially extending into the 17th century at 2σ . These dates are also very close to the age of the refuse deposit at Gollevarre.

The age range from the cultural deposit in the 2024 excavation unit would be bracketed between Layer 3 (dated by a coin to 1703) and Layer 7 (AD 1300-1430) in the 2009 excavation unit. As the maximum depth of the cultural deposit only extends to c. 45 cm bs, roughly half of that recorded in 2009, it is not surprising that material is limited to the post-1500 period. It also raises the possibility that the earlier medieval deposit in the 2009 unit may be spatially restricted, and that settlement expanded within the mound area over time. The intact cultural sequence is interpreted as representing continuous activity during the 16th century with the later settlement deposit truncated by modern disturbance. The focus of activity may also be more closely associated with a specialized workshop than typical residential use.

Artifact assemblage

A sample of modern finds from Layer 1A and Layer 1B were collected, including a complete boat rivet and fragments of glass and glazed pottery. A representative sample of animal bone fragments dominated by domesticated livestock was also collected from this layer. The number of finds in Layer 2A and Layer 2B were roughly comparable and dominated by iron objects. Boat rivets were common and included small complete rivets from boat planks that have not been

preserved. Head and rove fragments from medium to large rivets were also present suggesting the potential for boat repair activity. Thin iron bands up to 1 cm in width with a series of rivet holes may also have been associated with boats. Small to large iron nails of variable form were also common. Fragments of what may be small buckles were identified in both Layer 2A and Layer 2B. Copper items included a 5.5 cm long needle (Fig. 25), a round pointed 3.5 cm needle fragment, a piece of folded copper sheeting, as well as several small copper rivets and pieces of thin copper sheeting with rivet holes (Fig. 26). The overall impression from the assemblage of metal objects is an association with workshop activity. As mentioned above, a substantial number of iron slag lumps from blacksmithing activity were present. Some of the slag contained glassy nodules. The only glass objects found were a single glass bead discolored by exposure to heat in Layer 2B and a small translucent fragment that appears to be rock crystal from Layer 2C.



Figure 25. A copper needle from Layer 2B (Ts. 16470.35). Photograph: Mari Karlstad, Arctic University Museum of Norway.



Figure 26. Small copper rivets and copper sheeting with rivet holes from Layer 2B (Ts. 16470.35). Photograph: Mari Karlstad, Arctic University Museum of Norway.

Objects of worked stone were scarce and limited to three schist flagstone (*N. skiferheller*) fragments with discoloration from heat exposure found in Layer 2A. One of the fragments had traces of being worked along one edge. Two pieces of grey strike-a-light flint, a large flake and a nodule with multiple flake scars and cortex, were found in Layer 2B. Both are discolored from exposure to heat. Such items are common in northern Norwegian archaeological sites extending from the Iron Age up until the early modern period.

Pieces of worked wood were fairly abundant in Layer 2 and ranged from formal artifacts such as boards or planking to wood shavings and waste pieces associated with chopping wood or carpentry. Many fragments of wood and bark from both pine and birch were partially burnt. Pine branch remnants from within the trunk were also preserved due to their resistance to decay.

Finds from the basal cultural stratum Layer 2C were limited to a single iron fragment and a more limited quantity of partially burnt wood and bark than in the upper strata of Layer 2. A single piece of unworked pumice and potential flake of rock crystal were also recovered.

Faunal remains

Zooarchaeological analysis of the faunal assemblage at Drag, consisting of 1272 bone fragments, was undertaken by Anna-Kaisa Salmi (2025) with a focus on identification of reindeer. The bone assemblage from Drag was also examined by zooarchaeologist Nikola Kovačević. One of the most visible characteristics of the assemblage is a high degree of fragmentation attributed to trampling of discarded bone within house structures prior to waste disposal outside. A majority of the bone is domesticated livestock dominated by sheep or goat and also including cattle as was also the case in the 2009 faunal assemblage. A total of four reindeer bone fragments were identified in Layer 2, two of which are burnt. These are from limb extremities (phalanges, a metacarpal fragment, and a carpal bone). The shaft of the metacarpal was freshly broken. Additional possible or probable reindeer bone dominated by long bones was also noted by Kovačević although this material could not be clearly distinguished from domesticated livestock. An additional six reindeer bones were found in the strata spanning the 16th century from the 2009 excavation unit (Layer 4-6).

Approximately 60% (436 g) of all bone fragments are heat-altered with blackened or whitened bone evenly distributed between Layer 2A and Layer 2B. Two small fragments of burnt mammal bone from Layer 2B have multiple surfaces with cut marks potentially associated with artifact manufacture. The two burnt reindeer bone fragments from Layer 2A and six fragments of burnt bone from Layer 2B have been stained green from exposure to copper objects. The presence of several Norway lemming bones is interpreted as non-cultural intrusive material.

Fragments of worked cancellous whalebone (NISP=55) were present in Layer 2A (23 g) (Ts. 16470.17) and Layer 2B (36 g) (Ts. 16470.41). Some of the whale bone fragments in Layer 2B are partially burnt and one bone fragment has a cut mark on an intact exterior surface. Another bone fragment has a nutrient foramen commonly found on a number of bones, including maxilla and vertebrae. A single piece of worked whalebone was also identified from the 2009 excavation. Other marine mammal bones include several burnt seal phalanges not identifiable to species.

There is also a limited amount of fish bone dominated by small individuals based on the size of vertebrae and ribs (Fig. 27). The amount of fishbone increases from 14 g in Layer 2A to 28 g in Layer 2B. Although marine taxa predominated, a single Salmonidae vertebra was also identified. A number of salmon bones were also present in the 2009 assemblage. Nearly all of the identifiable fish bones are vertebra and skull fragments from smaller individuals within the cod family that include cod (*Gadus morhua*) and saithe (*Pollachius virens*). Other species include a few bones of haddock or whiting and single vertebra from the flounder and herring families.



Figure 27. Fish bones dominated by small individuals from Layer 2B (Ts. 16470.47). Photograph: Mari Karlstad, Arctic University Museum of Norway.

In addition to animal bone, fragments of marine shell were also present in Layer 2A and Layer 2B (NISP=132). All shells are highly fragmented with a greyish color indicative of heat exposure. Nearly all of the shell is from a bivalve mollusk tentatively identified as ocean quahog (*Arctica islandica*), a species that grows up to 12 cm in diameter and currently commercially harvested as a food source. It is therefore likely that these mollusks were being consumed, and their shells trampled in the same way as the animal bone. A few fragments of small periwinkles with evidence of heat exposure were also present. These are too small for consumption and were most likely brought to the site unintentionally along with the bivalves.

SUMMARY AND CONCLUSIONS

This field report is intended to provide a comprehensive presentation of results from the research excavations at Gollevarre and Drag. One of the main objectives for the investigations was to provide relevant data for the Ph.D. project *Genomics and archaeology of reindeer domestication and its impact on the Northern human diets and ecosystems of the past* (Brambilla 2023). This includes both sedaDNA from cultural deposits and aDNA from reindeer bone and antler associated with these deposits. In addition to supplying material for DNA sampling associated with the Ph.D. project, the excavations provided valuable insights into medieval settlements associated with reindeer exploitation from contrasting environments and cultural frameworks within northern Norway.

Gollevarre settlement site

Although the Gollevarre site is unquestionably associated with reindeer exploitation utilizing the nearby pitfall trapping complex and is located in a strategic position for this purpose, it was also a sizable residential settlement occupied over a period of five centuries with a collective radiocarbon age range of AD 1158-1656. Multiple phases of settlement are apparent as evidenced by overlapping house structures and occupation potentially reflecting intensive use on a seasonal basis scheduled in part by reindeer hunting activity.

The Gollevarre excavation trench was placed within a refuse deposit associated with a turf house structure (House 12) that is radiocarbon dated to the 16th century. The nearby refuse deposit associated with House 14 has a collective radiocarbon age range of AD 1453-1656 bracketing the cultural deposit documented in 2024. The refuse deposit consisted almost entirely of reindeer bone with a lesser amount of antler, including substantial quantities of thermally altered bone fragments, reflecting multiple dumping episodes of hearth contents built up over time from the associated house structure. Individual depositional events are discernable through patterns of bone/antler, ash and charcoal deposition. The low number of artifacts found in the cultural deposit suggest a primary focus on disposal of food waste. Both the quantity and variety of artifacts recovered from the excavation are limited. This is not unexpected given the context as a refuse deposit for food waste rather than general household related activity from a typical residential site. Fragments of worked reindeer bone and antler are present throughout the refuse deposit although no recognizable preforms or blanks associated with artifact manufacture were identified. A majority of the modified material appears to reflect butchery and consumption-related activity. Specific elements such as vertebrae have frequent cut marks, and most reindeer long bones have evidence of fracturing for marrow extraction.

The presence of non-reindeer faunal remains in the assemblage is of particular interest for understanding the nature of subsistence at Gollevarre and the role of reindeer hunting relative to animal husbandry and consumption of other wild species including fish, birds and mammals. The limited presence of domesticated livestock has been documented, including a single pig tooth and two sheep bones.

Drag settlement mound

Oddmund Andersen from the Árran Lule Sámi Center at Drag excavated a 1.5 m² unit in the Drag settlement mound in 2009 as part of a research project related to coastal Sámi farming settlements in Tysfjord (Andersen 2010, 2019). It was initially hoped that Andersen's unit could be relocated and reopened to allow collection of sedaDNA samples from the profiles for Brambilla's PhD project. This was not possible due to disturbance from garage construction and a new 1 m² excavation was undertaken c. 7 m north of the original unit.

The overall radiocarbon sequence from the 2009 excavation suggests that the settlement mound was occupied by the late 12th century with potential for continuous occupation extending into the 18th century, although no dates were obtained from the upper half of the excavation unit. Radiocarbon dates from the upper and lower cultural deposit in the 2024 excavation unit overlap and span the entire 16th century. This age range is bracketed between Layer 3 (dated by a coin to 1703) and Layer 7 (AD 1300-1430) in the 2009 excavation unit.

The excavation unit is spatially separated into two distinct zones. The eastern two-thirds is dominated by an alignment of massive boulders from a foundation wall of a large structure. The presence of iron slag from blacksmithing along with boat rivets, nails and other iron objects suggests a specialized workshop. The nature of activity in the western part of the unit outside of the foundation wall appears to reflect both use of the structure as well as residential activity. The animal bone assemblage is highly fragmented and dominated by domesticated livestock. There is also a limited amount of bone from small to medium sized wild mammals, birds, and fish as well as worked whalebone. Five reindeer bone fragments were identified in the main cultural deposit. A majority of the reindeer bones in the 2009 unit are from the upper strata.

Reindeer at Gollevarre and Drag

Questions regarding herding activity and the development of reindeer pastoralism in northern Norway were of central importance in selecting the two excavation locations. As Hood (2024b: 602-603) notes, discussing reindeer practices that include different forms of hunting, tending and herding is more appropriate than focusing on reindeer 'domestication' per se. It was deemed desirable to prioritize sites from the medieval period where there are multiple strands of evidence indicating that a major transition towards reindeer pastoralism among the Sámi took place from the 15th century onward (Bergman *et al.* 2013; Bjørklund 2013; Salmi 2023). This is also a period when intensive reindeer hunting by the Sámi took place in the Tana-Varangerfjord area using collective hunting facilities that included pitfall traps and funnel-shaped systems combining corrals with lead fences (Vorren 1944, 1965). Based on historical records, these systems had gone out of use by the mid-17th century.

Gollevarre illustrates this phenomenon through medieval settlement focused on the exploitation of wild reindeer. The extraction of aDNA by Røed (Røed *et al.* 2018) from reindeer excavated at Gollevarre in the 1960s provides a baseline for the current project. All but one of Røed's 28 bone samples have DNA haplotypes characteristic of wild reindeer. The presence of a single reindeer bone with a DNA haplotype commonly found in "modern domesticated reindeer" (Røed 2015) may suggest that a small number of reindeer were being tended by the residents of Gollevarre. The collective evidence from Gollevarre indicates that although reindeer exploitation may have been the most important factor for settlement, limited numbers of both domesticated livestock and reindeer also appear to have been present at the site. The reindeer may reflect some type of small-scale herding although there is insufficient data to assess this possibility. Hunting of wild game apart from reindeer as well as fishing were also integral components of subsistence at the site.

The settlement mound at Drag reflects a fundamental contrast to Gollevarre as a medieval farmstead with evidence of both Norse and Sámi occupation beginning in the late 12th century and extending into the early modern period. Written sources mention Drag as a Sámi farm during the 16th and 17th centuries with a mixed economy combining agriculture and fishing with hunting and gathering. A total of five reindeer bone fragments were identified by Salmi from the main cultural deposit in 2024. The presence of reindeer bones throughout the cultural deposit from excavations in both 2009 and 2024 presents considerable potential for aDNA documentation. In contrast to Gollevarre, there is a greater likelihood that a majority of the reindeer are 'tame', although the potential for wild reindeer hunting must also be considered.

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Appendix 1. Catalog of finds from Gollevarre (Ts.16469.1-34) and Drag (Ts. 16470.1-64).

Gollevarre

UiT Norges arktiske universitetsmuseum

10.01.2025

Ts16469/1-34

Funnkategori: avfallsdeponi/avfallsdyngje. **Periode:** middelalder.

Framkommet ved: Arkeologisk utgravning.

Lokalitetsnavn: Gollevarre.

Fylke: Troms og Finnmark. **Kommune:** Tana.

Gård: Umatr.Statsgrunn 38/1.

LokalitetsID: 116939.

Funnomstendighet: Utgravning i forbindelse med Diego Brambillas PhDs prosjekt ved Norges arktiske universitetsmuseum (UM). Målet er å hente ut prøver av både reinbein og sediment til aDNA og sedaDNA analyser, det vil også tas ut karbondateringsprøver av både bein og trekull for å sikre en pålitelig kronologi for dannelse av kulturlag i avfallsdyngen som undersøkes. Gollevarre er en samisk boplasslokalitet med 16 gammetuftet og nærliggende avfallsdynger (mødding/beindeponi) på ca. 100 x 100 m. Boplassen er tilknyttet fangstanleggene ved Gollevarre på østsiden av Tana elva. Noen av tuftene på Gollevarre ble helt eller delvis utgravd av Jens Storm Munch og Gerd Stamsø Munch i 1965 og 1966. I 2024 ble det gravd en 2 x 1 m sjakt i avfallsdyngje tilhørende tuft 12.

Funnet av: Stephen Wickler.

Katalogisert av: Bente Richardsen Isaksen.

1) Kar av keramikk/porselen

Variante: lite porselen fragment.

Antall: 1.

Gjenstandsbeskrivelse: veldig lite fragment av porselen funnet i såld.

Funnr.: 1. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1A gresstorv med reinbein.

2) Pren av bein/rein

Form: beinpren. **Variante:** bearbeidet reinbein - mulig prent eller kniv.

Antall: 1.

Gjenstandsbeskrivelse: margspaltet langbein av rein muligens tilspisset og bearbeidet til mulig bruk som prent eller kniv.

Funnr.: 1. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1A gresstorv med reinbein.

3) av bein/brent

Gjenstandsbeskrivelse: små fragmenter av brent bein (4 stk.).

Funnr.: 1. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1A gresstorv med reinbein.

4) av bein/reinbein

Gjenstandsbeskrivelse: Reinbein fra lag 1A, nivå 1 0-10 cm bs: 2 store poser av vannsåldet bein Ink. prøve (specimen) 1 (gevir) og prøver 2-4 (radius prox. right) til DNA analyse.

Funnr.: 1 og 2. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1A gresstorv med reinbein.

5) Bryne av skifer

Form: håndbryne. **Variante:** komplett bryne med bruksspor på en flate. **Gjenstandsdel:** hel.

Antall: 1.

Gjenstandsbeskrivelse: helt håndbryne med bruksspor på en flate (se lignende bryner funnet på utgravning på 60-tallet) - funnet in situ på 15 cm dybde, 125 cm Ø/7 cm N.

Mål: L: 13,2 cm. B: 3 cm. H: 4 cm.

Funnr.: 8. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

6) Kniv av jern/knivskaft med trerester

Variante: skaftfragment av brukskniv med spor etter tre på skaftet. **Gjenstandsdeler:** knivskaft.

Antall: 1. **Antall fragmenter:** 2.

Gjenstandsbeskrivelse: fragment av brukskniv skaft med rester av tre + et lite blad? fragment (lignende brukskniver funnet på utgravning på 60-tallet).

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

7) av bein/bearbeidet

Variante: bearbeidet reinbein.

Gjenstandsbeskrivelse: reinbein med spor etter bearbeiding / kuttmerker, inkl. 5 reinsdyr ribbein hodefragmenter (proksimale) med parallelle kuttmerker på undersiden (se lignende bein med kuttemerker i Lag 2B, undernr. 17).

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

8) av bein/brent

Gjenstandsbeskrivelse: små fragmenter av hvit og svart brent bein - antatt å være mest fra rein?.

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

9) av bein

Gjenstandsbeskrivelse: mindre beinfragmenter fra rein og tann fra mulig mindre rovdyr.

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

10) av bein

Gjenstandsbeskrivelse: bein fra smågnagere (lemming, mus, ol).

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

11) av bein/fiskebein

Gjenstandsbeskrivelse: fiskebein fra småfisk.

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

12) av bein

Gjenstandsbeskrivelse: reinbein fra vannsåldet masse (2 storpøser) - mest mindre beinfragmenter .

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

13) av bein/rein

Gjenstandsbeskrivelse: store reinbein fragmenter - ikke vannsåldet (plukket ut under utgravning og ikke vasket) - sortert etter type (krania, ribbe og skulderbein, ryggbein, langbein) med flere prøver merket for mulig DNA uttak.

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

14) Fragment av jern

Variante: lite fragment av jerngjenstand .

Antall: 1.

Gjenstandsbeskrivelse: lite fragment av jerngjenstand i bunnen av lag 2B, 19 cm dybde i sør-profil, 80 cm V.

Funnr.: 9. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvlag med mye reinbein.

15) Ildflint av flint

Variante: ildflint avslag . **Gjenstandsdeler:** avslag.

Antall: 1.

Gjenstandsbeskrivelse: lite avslag av flint.

Funnr.: 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

16) av tre

Variante: bearbeidet treverk - tynn, flat stykke .

Antall: 1.

Gjenstandsbeskrivelse: tynn, flatt stykke bearbeidet treverk (mulig planke?) funnet i nedre kulturlag 2B, 16 cm dybde, 70-100 cm Ø / 35-50 cm S.

Funnr.: 10. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

17) Bein av bein/bearbeidet

Variant: bearbeidet reinbein og andre pattedyr bein .

Gjenstandsbeskrivelse: Bearbeidet eller mulig bearbeidet reinbein med bl.a. kuttmerker (proksimalt ribbein med flere kuttmerker som ligner på de fra lag 1B) + lendevirvler med kuttmerker) og V-formet kutt på 2 langbein. **Funnr.:** 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

18) av bein

Gjenstandsbeskrivelse: mindre fragmenter av bein fra både rein (bl.a. gevir) og andre små pattedyr + fugl.

Funnr.: 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

19) av bein/brent

Gjenstandsbeskrivelse: varmpåvirket reinbein - tildekt av ildsted sot og asker samt små fragmenter av brent bein (svart+hvit) .

Funnr.: 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

20) av bein/fiskebein

Gjenstandsbeskrivelse: fiskebein fra småfisk.

Funnr.: 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

21) av bein/rein

Gjenstandsbeskrivelse: Mindre reinbein fra vannsåldet masse.

Funnr.: 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

22) av bein/rein

Gjenstandsbeskrivelse: Store reinbein plukket ut under utgravning og ikke vannsåldet eller vasket - til uttak av prøver til DNA analyse .

Funnr.: 6. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

23) av bein/reingevir

Gjenstandsbeskrivelse: Samling av reingevir funnet på bunnen av lag 2B ca. 20 cm dybde liggende på sterilt lag 3. 10 stk. tegnet på plantegning.

Funnr.: 7. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

24) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekullprøve fra lag 1A, 0-10 cm dybde -uttak av C14 prøve (0,15 g).

Vekt: 11,33 g.

Funnr.: 1. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1A gresstorvsone med mye reinbein.

25) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekullprøve fra lag 1A.

Vekt: 7,1 g.

Funnr.: 2. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1A gresstorvsone med mye reinbein.

26) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekullprøve fra lag 1B, nedre gresstorvsone / kulturlag, 10-15 cm dybde.

Vekt: 124 g.

Funnr.: 3. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngje ved tuft 12 - Lag 1B nedre gresstorvsone med mye reinbein.

27) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekullprøve fra nedre kulturlag 2B, 15-20 cm dybde. Uttak av C14 prøve (0,25 g).
Vekt: 44,78 g.
Funnr.: 4. **Funnkontekst:** 2 x 1 m sjakt i avfallsdyngge ved tuft 12 - Lag 2B nedre kulturlag med mye reinbein.

28) Prøve, annet av jord/jordprøve
Funnr.: SS1. **Funnkontekst:** sjakt 1, nedre del av Lag 1B nedre gresstorvsone - jordprøve fra sør-profil .

29) Prøve, annet av jord/jordprøve
Funnr.: SS2. **Funnkontekst:** sjakt 1, nedre del av Lag 1B nedre gresstorvsone - jordprøve fra sør-profil .

30) Prøve, annet av jord/jordprøve
Vekt: 44,78 g.
Funnr.: SS3. **Funnkontekst:** sjakt 1 - jordprøve fra lag 2A siltlinse mellom lag 1B og 2B i sørprofil.

31) Prøve, annet av jord/jordprøve
Funnr.: SS3A. **Funnkontekst:** sjakt 1 - jordprøve fra lys sandlinse i NV hjørne - bunnen av lag 1B, 16 cm dybde .

32) Prøve, annet av jord/jordprøve
Funnr.: SS4. **Funnkontekst:** sjakt 1 - lag 2B nedre kulturlag fra sørprofil.

33) Prøve, annet av jord/jordprøve
Funnr.: SS5. **Funnkontekst:** sjakt 1 - øvre lag 3A sterilt bunnlag.

34) Prøve, annet av jord/jordprøve
Funnr.: SS6. **Funnkontekst:** sjakt 1 - lag 3B, nedre sterilt bunnlag 4cm under sjaktbunn tatt med jordbor.

Drag

UiT Norges arktiske universitetsmuseum

10.01.2025

Ts16470/1-64

Funnkategori: boplassfunn/gårdshaug. **Periode:** middelalder, nyere tid.

Framkommet ved: Arkeologisk utgravning. **Funnår:** 2024.

Lokalitetsnavn: Drag.

Fylke: Nordland. **Kommune:** Hamarøy.

Gård: Drag 260.

LokalitetsID: 116182.

Funnomstendighet: Det var planlagt å gjenfinne og gjengrave en del av utgravningsfeltet fra 2009 i Drag gårdshaugen for uthenting av sediment prøver til sedaDNA analyser tilknyttet Diego Brambillas PhD prosjekt ved Norges arktiske universitetsmuseum (UM). Dette ble ikke mulig da området var tildekt av fyllmasse fra garasjebygging. Da ble det gravd en ny 1x1 m rute i nærheten av utgravningsrute fra 2009.

Funnet av: Stephen Wickler.

Katalogisert av: Bente Richardsen Isaksen.

1) av bein/pattedyr - forstyret lag

Gjenstandsbeskrivelse: pattedyrbein (husdyr?) fra moderne forstyret fyllmasse (Lag 1A og B).

Funnr.: 1. **Funnkontekst:** gårdshaug - moderne fyllmasse .

2) Nagle av jern, metall

Form: båtnagle. **Variant:** komplett båtnagle + murstein og metall.

Antall: 3.

Gjenstandsbeskrivelse: utvalgte moderne gjenstander fra forstyret fyllmasse (murstein, metall, båtsaum).

Funnr.: 1. **Funnkontekst:** gårdshaug - moderne fyllmasse .

3) Glass av porselen, glass

Form: skår. **Variant:** glass og porselen skår, murstein fragment.

Antall: 6.

Gjenstandsbeskrivelse: moderne gjenstander (små fragmenter) - forstyrelse i øverste del av kulturlag (2A).

Funnr.: 2. **Funnkontekst:** gårdshaug - moderne forstyrelse i øvre kulturlag .

4) Helle av skifer

Variant: skiferheller - 2 fragmenter.

Antall: 2.

Gjenstandsbeskrivelse: 2 skiferhelle fragmenter med spor etter varme eksponering og bruk .

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A) .

5) Helle av skifer

Variant: skiferhelle fragment.

Antall: 1.

Gjenstandsbeskrivelse: skiferhelle fragment med spor etter bearbeiding.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A) .

6) Helle av skifer/polert overflate

Variant: skifer/stein med polert overflate.

Gjenstandsbeskrivelse: 2 små steinfragmenter med polerte overflater - 1 muli kokstein.

Funnkontekst: gårdshaug - øvre kulturlag (2A) .

7) Perle av glass/varmeeksponert?

Form: kuleformet. **Variant:** liten glassperle.

Antall: 1.

Gjenstandsbeskrivelse: liten glassperle.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A) .

8) av tre/bearbeidet (spon) og delvis brent, bark

Variant: liten glassperle.

Gjenstandsbeskrivelse: samling av små stykker av bearbeidet tre (spon, høgflis), noen delvis brent + bark.

Funnkontekst: gårdshaug - øvre kulturlag (2A) .

9) av slagg/jern

Gjenstandsbeskrivelse: jernslag antatt å være fra smed aktivitet i steinstruktur med kraftig steinblokkfundament (500g) .

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

10) Spenne av jern

Form: oval. **Gjenstandsdel:** mulig flintlås + spenne.

Antall: 2.

Gjenstandsbeskrivelse: mulig liten flintlås og tynn ovelspenne.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

11) Plate av kobber

Form: plate. **Variant:** sammenbrettet. **Gjenstandsdel:** kobberblikk - flak.

Antall: 1.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

12) Bånd av jern

Form: tynne jernbånd med nagler. **Variant:** rekke med smånagler / naglehull.

Antall: 5.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

13) Nagle av jern

Form: klinknagle. **Variant:** små båtnagler med både hode og roe.

Antall: 5.

Gjenstandsbeskrivelse: små komplett båtsaum med hode og roe - fra båtbord.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

14) Spiker av jern

Variant: varierende størrelse fra stor til liten og flertall med firkant stilk.

Antall: 6.

Gjenstandsbeskrivelse: Spikere i forskjellige størrelser - håndsmidde.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

15) Spiker av jern

Variant: varierende størrelse fra stor til liten - også mulig nål. **Gjenstandsdel:** stilk.

Antall: 8.

Gjenstandsbeskrivelse: samling med naglestilker - også mulig fiskekrok og nål.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

16) Nagle av jern

Variant: både mulige båtnagler og spikere . **Gjenstandsdel:** hode.

Antall: 4.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

17) Bein av bein/hvalbein - delvis bearbeidet

Variant: delvis bearbeidet hvalbein.

Gjenstandsbeskrivelse: hvalbein med spor etter bearbeiding - også funnet i lag 2B, nivå 3.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

18) av bein/pattedyr / fugl

Gjenstandsdel: hode.

Gjenstandsbeskrivelse: bein fra pattedyr (mest husdyr?) og muligens fugl - mesteparten veldig fragmentert.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

19) av bein/små pattedyr+fugl

Gjenstandsbeskrivelse: små fragmenter av pattedyr (med smånagere) og fugl.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

20) av bein/delvis varmekspionert

Gjenstandsbeskrivelse: små fragmenter av mindre pattedyr / gnagere / fugl - delvis varmekspionert (svart fra kull).

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

21) av bein/brent - mest pattedyr

Gjenstandsbeskrivelse: små fragmenter av brent (hvitfarget) bein .

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

22) av bein/rein

Gjenstandsbeskrivelse: Reinbein fragmenter: ubrent (2 stk.) og brent (2 stk.) - et med grøn misfarging fra kontakt med kobber. Identifisert av Anna-Kaisa Salmi.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

23) av bein/fiskebein

Gjenstandsbeskrivelse: bein fra mindre fisk .

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

24) av skjell/musling

Gjenstandsbeskrivelse: små fragmenter av varmekspionert (grå) skjell - mest musling og noen få småsnegler .

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

25) Ildflint av flint

Variert: avslag av ildflint.

Antall: 2.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

26) av slagg/glassaktig + oker

Gjenstandsbeskrivelse: glassaktig slagg fragmenter (2 med oker innhold).

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

27) av steinkull/mulig?

Gjenstandsbeskrivelse: små fragment av mulig steinkull - kan være glassaktig slagg .

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

28) av slagg/jernslag

Gjenstandsbeskrivelse: klumper av jernslag fra smed aktivitet i struktur med steinfundament - også funnet i øvre kulturlag 2A (400 g).

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

29) Nagle av jern

Variert: kraftig nagler . **Gjenstandsdel:** stilk.

Antall: 2.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

30) Nagle av jern

Form: båtnagle. **Gjenstandsdel:** hode/roe med stilk.

Gjenstandsbeskrivelse: sannsynlig båtnagler .

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

31) Spiker av jern

Gjenstandsdel: hode og stilk.

Antall: 4.

Gjenstandsbeskrivelse: mindre spikere fragmenter.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

32) Nagle av jern

Gjenstandsdel: stilk.

Antall: 9.

Gjenstandsbeskrivelse: stilkfragmenter fra mindre nagler/spikere.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

33) Nagle

Form: klinknagle. **Variert:** både roer og småplater med/uten hull. **Gjenstandsdel:** roe / jernplater.

Antall: 8.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

34) Spenne av jern, kobber

Form: oval. **Gjenstandsdel:** kobber gjenstand+ mulig spenne.

Antall: 3.

Gjenstandsbeskrivelse: ukjent kobber gjenstand + mulig liten spenne.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

35) Nagle av kobber

Variert: små kobber nagler + plate/roe med hull. **Gjenstandsdel:** nagle, nagle med roe, roe, plate med hull.

Antall: 4.

Gjenstandsbeskrivelse: små kobber gjenstander: nagle med roe, nagle, roe med hull, plate med flere hull.
Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

36) Nål av kobber

Variant: mulig kobbernål med flat ende - uten øye . **Gjenstandsdel:** nesten hel - mangler øye.

Antall: 1.

Gjenstandsbeskrivelse: kobber gjenstand - mulig nål .

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

37) av tre/høgfliss, spon

Gjenstandsbeskrivelse: diverse fragmenter av ubrent tre: bl.a. furu grenkjerner, bearbeidet spon og flis.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

38) av tre/delvis brent

Gjenstandsbeskrivelse: biter av delvis brent tre.

Funnr.: 4.

39) av bein

Gjenstandsbeskrivelse: bein: store og små fragmenter (2 poser), mest pattedyr (husdyr).

Funnr.: 4.

40) av bein

Gjenstandsbeskrivelse: bein: mindre fragmenter av pattedyr og fugl.

Funnr.: 4.

41) Bein av bein/sjøpattedyr

Gjenstandsbeskrivelse: bein: sjøpattedyr (hval) med spor etter bearbeiding - kuttmerker, ol.

Funnr.: 4.

42) av bein/varmeekspontert-svart

Gjenstandsbeskrivelse: bein fragmenter: svart/varmeekspontert, mest pattedyr.

Funnr.: 4.

43) av bein/brent-hvit

Gjenstandsbeskrivelse: bein: små fragmenter av hvit brent bein, mest pattedyr.

Funnr.: 4.

44) av bein/rein

Gjenstandsbeskrivelse: 1 stk. varmeekspontert/brent reinbein.

Funnr.: 4.

45) av bein/misfarget brent bein

Gjenstandsbeskrivelse: brent bein fragmenter misfarget grønn fra kontakt med kobber.

Funnr.: 4.

46) Bein, brente av bein/bearbeidet brent bein

Variant: spor etter bearbeiding.

Antall: 2.

Gjenstandsbeskrivelse: brent (hvit) fragmenter av bearbeidet bein (2 stk.).

Funnr.: 4.

47) av bein/fiskebein

Gjenstandsbeskrivelse: fiskebein.

Funnr.: 4.

48) av skjell/grå varmeekspontert

Gjenstandsbeskrivelse: fragmenter av grå varmeeksponert skjell, mest muslinger, men også mindre snegler.
Funnr.: 4.

49) Glass av glass/mulig bergkrystall?

Variant: liten fragment - kan være bergkrystall?.

Antall: 1.

Gjenstandsbeskrivelse: lite fragment av glass - kan være bergkrystall? .

Funnr.: 5. **Funnkontekst:** gårdshaug - nedre kulturlag (2C), nivå 4 (40-45/50 cm bs) .

50) av pimpstein

Gjenstandsbeskrivelse: pimpstein uten bruksspor og 2 fragmenter av skjørbrentstein (rullestein).

Funnr.: 5. **Funnkontekst:** gårdshaug - nedre kulturlag (2C), nivå 4 (40-45/50 cm bs) .

51) av jern

Variant: bøyd jernstripe - ukjent gjenstandstype.

Antall: 1.

Gjenstandsbeskrivelse: jerngjenstand av ukjent funksjon.

Funnr.: 5. **Funnkontekst:** gårdshaug - nedre kulturlag (2C), nivå 4 (40-45/50 cm bs) .

52) av tre/delvis brent

Gjenstandsbeskrivelse: samling av trebiter - et flertall er delvis brent.

Funnr.: 5. **Funnkontekst:** gårdshaug - nedre kulturlag (2C), nivå 4 (40-45/50 cm bs) .

53) av bein/noen brente fragmenter

Gjenstandsbeskrivelse: samling av små beinfragmenter med flere brente (hvit) + 1 større fragment.

Funnr.: 5. **Funnkontekst:** gårdshaug - nedre kulturlag (2C), nivå 4 (40-45/50 cm bs) .

54) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekull - uttak av 1 prøve til C14 datering (Totalt c 48 g). Valg av 0,17g bjørk til C14 datering.

Vekt: c 48 g.

Funnr.: 2. **Funnkontekst:** gårdshaug - øvre kulturlag (2A), nivå 2 (20/30-30 cm bs) .

55) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekull - ink. flere småkvister med kuttmerker (totalt 65 g).

Vekt: 65 g.

Funnr.: 4. **Funnkontekst:** gårdshaug - nedre kulturlag (2B), nivå 3 (30-40 cm bs) .

56) Prøve, kull av trekull

Gjenstandsbeskrivelse: Trekull med uttak av prøve til C14 datering (totalt 28,82 g). Valg av 0,06 bjørk til C14 datering.

Vekt: 28,82 g.

Funnr.: 5. **Funnkontekst:** gårdshaug - nederste del av kulturlag (2C), nivå 4 (40-45/50 cm bs) - overgang til sterilt lag 3 .

57) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøver fra lag 1A og B (ss1 og 2), vest profile.

Funnkontekst: gårdshaug - moderne fyllmasse, vest profil .

58) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve, lag 2A, vest profil.

Funnkontekst: gårdshaug - øvre kulturlag (2A) jordprøve vest profil (SS3) .

59) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve fra vest profil, lag 2B.

Funnkontekst: gårdshaug - nedre kulturlag (2B) jordprøve vest profil (SS4) .

60) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve, vest profil, lag 2C .

Funnkontekst: gårdshaug - nedre kulturlag (2C), jordprøve vest profil (SS5) .

61) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve, v. profil, lag 3.

Funnkontekst: gårdshaug - sterilt bunnlag (3) jordprøve vest profil (SS6).

62) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve nord-profil, askelinse i lag 2.

Funnkontekst: gårdshaug - askelinse mellom 2A og 2B, jordprøve (SS7).

63) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve lag 2B - nord-profil.

Funnkontekst: gårdshaug - nedre kulturlag (2B) nord-profil (SS8).

64) Prøve, annet av jord/jordprøve

Gjenstandsbeskrivelse: jordprøve, lag 2C nord-profil.

Funnkontekst: gårdshaug - nedre kulturlag (2C) jordprøve nord-profil (SS9) .

Appendix 2

Zooarchaeological analysis of animal bone assemblages from Gollevarre and Drag research excavations in 2024

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1. Introduction

This report presents the results of zooarchaeological analysis of the animal bone assemblages from Gollevarre and Drag research excavations in 2024 (Table 1). The animal bone material was analyzed in November 2024 at the Tromsø University Museum.

2. Osteological methods

In the lack of a reference collection on site, identification of the bones was aided by reference manuals (Hillson 1992; Smart 2009). Due to the lack of a reference collection, fish bones were left unidentified for possible later ichthyoarchaeological analysis. Furthermore, the possible metacarpal or metatarsal bones of a middle-sized mammal were left unidentified for a possible future species identification with the aid of a proper reference collection.

Reindeer age estimations based on tooth eruption and wear were made according to Miller (1974) and van den Berg *et al.* (2021). The age estimations based on long bone epiphyseal fusion were made according to Hufthammer (1995). Ovicaprid age estimation was based on Silver (1969). Because the timing of tooth eruption, tooth wear and epiphyseal fusion may differ between populations (Sten 2004), the age assessments are to be understood as estimations, not exact biological ages.

Measurements were taken with a sliding caliber according to von den Driesch (1976) and Puputti & Niskanen (2008). The recording protocol of pathological lesions is based on Thomas & Worley (2014) and Bartosiewicz *et al.* (1997). Enteseal changes were scored according to Niinimäki & Salmi (2016). The measurements as well as recorded pathologies and enteseal changes can be found in Appendix 1.

Quantification of the species diversity is based on numbers of identified fragments (NISP) and minimum numbers of individuals (MNI) (Reitz & Wing 2004: 192–193, 214–215). Skeletal frequencies were quantified as NISP, MNE (minimum number of elements) and MAU (modified anatomical units), which is the minimum number of each skeletal element in the assemblage divided by the number of that element in the complete animal skeleton (Reitz & Wing 2004: 215–216). The MAU enables the comparison of the frequencies of such elements as vertebrae and femurs, of which there are different numbers in the skeleton (Reitz & Wing 2004:215-216).

3. Results

3.1. Gollevarre

There were 3887 identified bone fragments in total, divided between layers IA, IB, and IIB (Table 1). In layer IA, 435 bone fragments were identified, 401 belonging to reindeer (*Rangifer tarandus*) and 34 to unidentified mammals. There were also fish bones, but they were not counted for the purposes of this report. The minimum number of reindeer individuals in layer IA was 6 based on right-side maxillae. In layer IB, a total of 2115 bone fragments were identified. In addition to reindeer, which clearly dominated the faunal assemblage from this layer, also bones of sheep (*Ovis aries*), Norway lemming (*Lemmus lemmus*), mammal, bird, and fish were identified. The sheep bone was a fragment of a fused distal radius, belonging to an individual of three years of age or more. In layer IIB, a total of 2717 bone fragments belonging to reindeer, mammal, bird, and fish were identified. In all three layers, reindeer bones were clearly the most common, their relative frequencies being 92%, 80%, and 66% of Number of Identified Specimens (NISP), respectively. The Minimum Number of Individuals (MNI) of reindeer were six, eight, and ten, respectively.

Table 1. The species diversities in layers IA, IB, and IIB in Gollevarre.

Common name	Scientific name	IA		IB		IIB	
		NISP	MNI	NISP	MNI	NISP	MNI
Reindeer	<i>Rangifer tarandus</i>	401	6	1703	8	1783	10
Sheep	<i>Ovis aries</i>			1	1		
Norway lemming	<i>Lemmus lemmus</i>			15	2		
Mammal	<i>Mammalia</i>	34		393		910	
Bird	<i>Aves</i>			3		24	
Fish	<i>Pisces</i>	N/A		N/A		N/A	

All parts of the reindeer skeleton are present in the assemblage, but elements of the meatiest part of the reindeer carcass – scapula, pelvis, humerus, and femur in particular – are clearly underrepresented in comparison with cranial parts and extremities (Table 2). The pattern is similar in all three layers. Nearly all the long bones and phalanges were freshly broken for marrow extraction.

Table 2. Reindeer skeletal frequencies as Numbers of Identified Specimens (NISP), Minimum Numbers of Elements (MNE), and Modified Anatomical Units (MAU).

	IA			IB			IIB		
	NISP	MNE	MAU	NISP	MNE	MAU	NISP	MNE	MAU
Cranium	101	6	6	445	8	8	447	10	10
Axial skeleton	107	2	2	511	5	5	630	6	6
Scapula	1	1	0,5	3	2	1	10	5	2,5
Humerus				3	2	1	3	2	1,5
Radius	5	4	2	20	7	3,5	20	8	4
Ulna	2	2	1	9	3	1,5	7	5	2,5
Carpus	1	1	0,5	23	6	3	20	3	3
Metacarpal	4	4	2	27	2	1	16	4	2
Pelvis							2	2	1
Femur	1	1	0,5	1	1	0,5			
Tibia	4	3	1,5	8	5	2,5	6	4	2
Tarsus	6	2	1	35	10	5	20	7	3,5
Metatarsus	6	6	3	8	8	3	16	6	3
Hoof	27	5	1,25	73	12	3	91	7	1,75

Reindeer age estimations show a relatively high frequency of sub-adult individuals (Fig. 1). While more than 80% of early fusing (ca. 2–18 months) elements in the assemblage were fused, the relative frequency of fused elements drops drastically in the middle fusing (ca. 18–30 months) group where approximately 50–60 % of the elements were fused (Fig. 1). Of the late fusing (ca. 36–54 months) elements, approximately 40% were fused. The pattern is similar in all three layers. Tooth eruption data shows a similar pattern where approximately half of the mandibular and maxillary fragments had fully erupted dentitions (Fig. 2). Small sample sizes in each layer may contribute to the differences between the layers, the percentage in combined layers data being the most robust in terms of sample size.

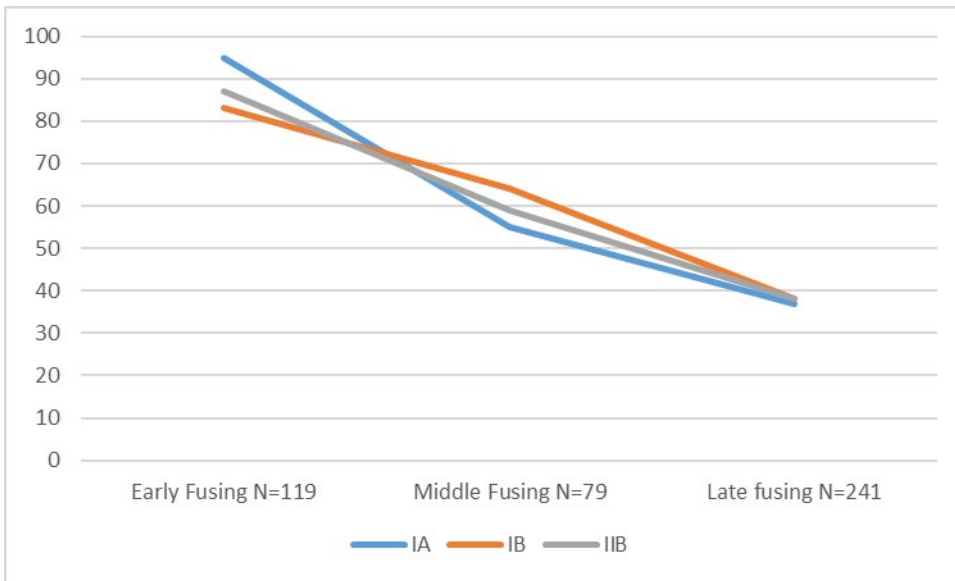


Figure 1. Reindeer age profile in layers IA, IB, and IIB based on epiphyseal fusion. Early fusing elements (fusion at ca. 2–18 months) are proximal scapula, acetabulum, distal humerus, proximal radius, and proximal 1st and 2nd phalanges. Middle fusing (fusion at ca. 18–30 months) elements are distal metapodials and distal tibia. Late fusing (fusion at ca. 36–54 months) elements are proximal calcaneum, proximal tibia, femur, distal radius, proximal humerus, and vertebral bodies.

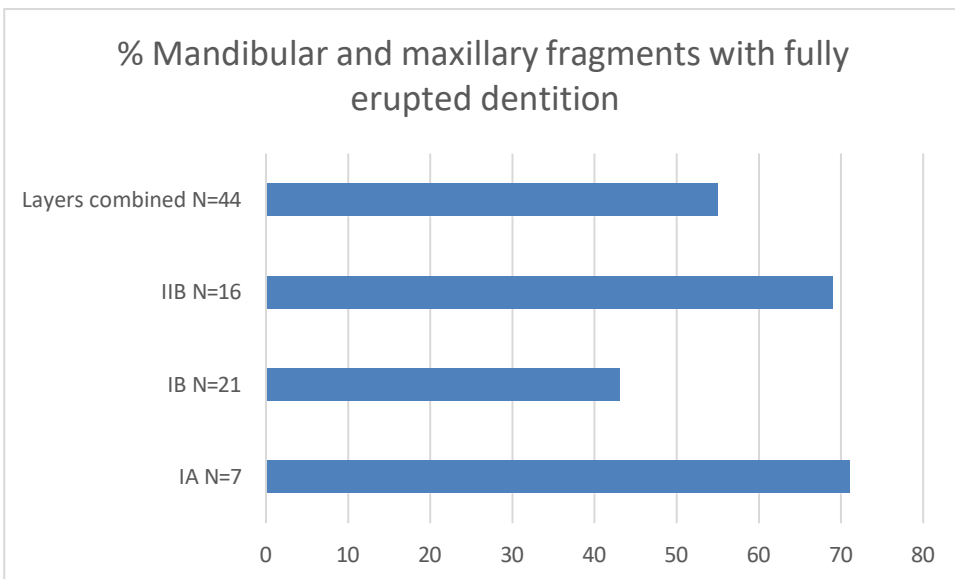


Figure 2. Percentages of mandibular and maxillary fragments with fully erupted dentitions (with the permanent fourth premolar and third molar erupted) in each layer and combined layers. Full permanent dentition has erupted approximately at the age of two years.

Due to the highly fragmented state of the reindeer long bones in the assemblage, measurements were taken only of 30 bone fragments (Table 3).

Table 3. Reindeer long bone measurement means (mm) and sample sizes.

Measurement	Mean	N
Humerus proximal breadth	66,9	1
Humeral head anterior-posterior	48,2	1
Radius proximal breadth	44,7	5
Radius proximal anterior-posterior	24	5
Radius distal breadth	44,7	6
Metacarpal proximal depth	30,4	1
Metatarsal proximal breadth	33,5	2
Metatarsal proximal depth	33,6	8
Tibia proximal breadth	45,6	8
Tibia proximal anterior-posterior	57,7	1

3.2. Drag settlement mound

The faunal assemblage from the Drag settlement mound consisted of 1272 bone fragments (Appendix 2). Identified taxons included reindeer, sheep or goat, cattle, Norway lemming, whale, birds, fish, and bivalves. The reindeer bones were fragments of limb extremities (phalanges, a metacarpal fragment, and a carpal bone). The shaft of the metacarpal was freshly broken. Ovicaprid bones were cranial fragments, fragments of limb extremities, and a proximal radius. There were two mandibular fragments with deciduous premolars and erupted first molars. The mandibular fragment had an erupted M2, the other did not but based on the very similar wear pattern of the deciduous premolars as well as the first molars, it is still possible that these right- and left-side fragments belonged to the same individual around the age of 9–12 months when the second premolar typically erupts (Silver 1969). The proximal radius was fused, which means that it belonged to an individual older than 10 months (Silver 1969). Cattle was represented by a mandibular ramus fragment. The whale bones were highly fragmented, making species and anatomical element identification impossible. The fish bones were not counted as they will potentially be subjected to an ichthyoarchaeological analysis. The bivalve remains were burned and highly fragmented. Approximately 60% of all the bone fragments were burned.

Table 2. Species diversity in the Drag settlement mound faunal assemblage.

Common name	Scientific name	NISP	MNI
Reindeer	<i>Rangifer tarandus</i>	4	1
	<i>Ovis aries/Capra</i>		
Sheep or goat	<i>hircus</i>	10	1
Cattle	<i>Bos taurus</i>	1	1
Ungulate	<i>Ungulata</i>	11	
Norway lemming	<i>Lemmus lemmus</i>	2	1
Whale	<i>Cetacea</i>	55	
Mammal	<i>Mammalia</i>	1056	
Bird	<i>Aves</i>	1	
Fish	<i>Pisces</i>	N/A	
Bivalve	<i>Bivalvia</i>	132	

4. Conclusion

The faunal assemblage from Gollevarre is clearly dominated by reindeer bones, which is in line with the interpretation of the site as a wild reindeer hunting camp. In addition to reindeer, bones of fish, birds, sheep and Norway lemming were discovered. While reindeer was clearly the focus of the economic activities at the site, fowling and especially fishing probably contributed to the hunters' food economy while at the camp. Small numbers of sheep bones have been discovered from other Sámi sites in northern Norway, for instance the Gæccevaj'njar'ga in Varanger fjord and Brodtkorbneset and Steintjörna in Pasvik (Hambleton & Rowley-Conwy 1997; Hedman et al. 2015). Sheep were therefore familiar to the Sámi, although their presence does not necessarily indicate that the communities in question engaged with sheep husbandry, as it is also possible that sheep meat was acquired as meat cuts or whole carcasses. Sheep husbandry cannot be ruled out, however; these animals may have been kept in small numbers primarily for wool and milking (Hambleton and Rowley-Conwy 1997; Hedman et al. 2015). The single sheep bone fragment from Gollevarre is not necessarily an indication of sheep being kept at the site, as it may also originate from a cut of meat transported to the site. The occurrence of Norway lemming is probably not directly related to human economic activity.

In comparison with roughly contemporary dwelling sites, the reindeer age profile in the Gollevarre assemblage is clearly more skewed towards young individuals. In Gæccevaj'njar'ga in the Varanger fjord, no jaw fragments with deciduous teeth were discovered at all, all the crania seemingly belonging to individuals more than two years of age. Moreover, in Gæccevaj'njar'ga and both Pasvik sites, ca. 60% of late fusing epiphyses were fused (Hambleton & Rowley-Conwy 1997; Hedman et

al. 2015). This is in contrast with the Gollevarre assemblage where only ca. 40% of the late fusing epiphyses were fused, indicating that most of the animals died before the age of 3–5 years.

The reindeer skeletal frequencies in the Gollevarre assemblage also differed from contemporaneous dwelling sites. Antlers and cranial fragments were rare in Gæccevaj'njar'ga, Brodtkorbneset, and Steintjörna, whereas these elements were common and even overrepresented in relation to other body parts in the Gollevarre assemblage. These elements may have been discarded at the primary butchery site (Hambleton & Rowley-Conwy 1997), which would be consistent with the observation that these elements were present in Gollevarre. It is also possible that ritual treatment of antlers and crania affects their frequencies at dwelling sites, as these elements are also very common in offering sites (Hedman et al. 2015; Salmi et al. 2018). A combination of butchery, waste disposal, transportation, and ritual practices probably affects the differences in the skeletal frequencies between the dwelling sites and a hunting camp such as Gollevarre. Based on the abundance of cranial and vertebral elements at Gollevarre, it seems that primary butchery, carcass processing, and associated waste disposal took place there, while some of the elements were transported away from the site to be consumed and/or traded. Bone assemblages from reindeer mass hunting sites in southern Norway show that the meat-rich parts of the carcass, particularly the upper limb bones and ribs, were transported away from hunting (Hufthammer et al. 2011; Indrelid & Hufthammer 2011). The Gollevarre assemblage bears a resemblance to these sites in that upper limb bones were clearly underrepresented.

The faunal remains from the Drag settlement mound point towards a varied subsistence strategy, possibly including animal husbandry and herding, fowling, fishing, and whaling. The data at hand is not sufficient to discuss the extent to which the inhabitants of the site engaged with these modes of subsistence themselves – some of the bones may have ended up at the site via trade activities. The ovicaprid bones derived from both meaty and non-meaty body parts, suggesting that these animals were probably slaughtered at the site. The age estimations point towards slaughter at a relatively young age, but the number of bones subjected to age estimations is too small for reliable conclusions about ovicaprid management practices.

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APPENDIX 1. Animal bone finds from Gollevarre

Layer	Taxon	Element	Part	Notes	N	N burned
IA	Rangifer tarandus	Antler			3	
IA	Rangifer tarandus	Cranium			52	
IA	Rangifer tarandus	Mandible		1 left, 2 right. One right-side fragments has a dp4, the other dp2-3	1	
IA	Rangifer tarandus	Maxilla		5 right-side fragments with the following dentitions: P3-M3; P2-3; M1	2	
IA	Rangifer tarandus	Molar mand			3	
IA	Rangifer tarandus	Molar max			19	
IA	Rangifer tarandus	Premolar max			13	
IA	Rangifer tarandus	Atlas			2	
IA	Rangifer tarandus	Axis			1	
IA	Rangifer tarandus	Cervical vertebra		7 unfused, 4 fused	7	
IA	Rangifer tarandus	Thoracic vertebra		14 unfused, 6 fused	14	
IA	Rangifer tarandus	Lumbar vertebra			2	
IA	Rangifer tarandus	Coccygeal vertebra			1	
IA	Rangifer tarandus	Vertebra			70	
IA	Rangifer tarandus	Rib			26	
IA	Rangifer tarandus	Scapula	Proximal	Right, fused	1	
IA	Rangifer tarandus	Radius	Proximal	Right-side fused proximal radii, one specimen is freshly broken and h	3	
IA	Rangifer tarandus	Radius	Proximal	Freshly broken	2	
IA	Rangifer tarandus	Ulna	Proximal	Right, unfused	1	
IA	Rangifer tarandus	Ulna	Proximal	Freshly broken	1	
IA	Rangifer tarandus	Hamate		Left	2	
IA	Rangifer tarandus	Metacarpal	Proximal	Freshly broken	4	
IA	Rangifer tarandus	Femur	Proximal	Fused caput femoris, cut mark	1	
IA	Rangifer tarandus	Patella			1	
IA	Rangifer tarandus	Tibia	Distal	A left side sample with measurement Bd=43,2; two right-side samples	3	
IA	Rangifer tarandus	Tibia	Proximal	Freshly broken, fused	1	
IA	Rangifer tarandus	Calcaneus			1	
IA	Rangifer tarandus	Intermediate cuneiform			1	
IA	Rangifer tarandus	Malleolus			1	
IA	Rangifer tarandus	Medial cuneiform			1	
IA	Rangifer tarandus	Naviculo-cuboid			1	
IA	Rangifer tarandus	Talus			1	
IA	Rangifer tarandus	Metatarsal		Freshly broken	1	
IA	Rangifer tarandus	Metatarsal	Proximal	Freshly broken	4	
IA	Rangifer tarandus	Metatarsal II/V			1	
IA	Rangifer tarandus	Metapodial	Distal	3 unfused epiphysis fragments, 2 unfused shaft fragments, 2 fused dis	3	
IA	Rangifer tarandus	Long bone		Freshly broken	96	
IA	Rangifer tarandus	Phalanx prox III/IV		1 unfused, 3 fused of which 2 freshly broken, 1 unbroken specimen th	3	
IA	Rangifer tarandus	Phalanx prox III/IV	Distal	Freshly broken	4	
IA	Rangifer tarandus	Phalanx prox III/IV	Proximal	Freshly broken	2	
IA	Rangifer tarandus	Phalanx prox II/V			1	
IA	Rangifer tarandus	Phalanx med III/IV		Fused, 2 freshly broken	1	
IA	Rangifer tarandus	Phalanx med III/IV	Proximal	Freshly broken	1	
IA	Rangifer tarandus	Phalanx med II/V			2	
IA	Rangifer tarandus	Phalanx dist III/IV			7	
IA	Rangifer tarandus	Phalanx dist II/V			3	
IA	Mammalia				29	5
IB	Rangifer tarandus	Antler		2 attached	16	
IB	Rangifer tarandus	Cranium			264	
IB	Rangifer tarandus	Mandible		2 left, 2 right	4	
IB	Rangifer tarandus	Mandible		Left, dp2-4	1	
IB	Rangifer tarandus	Mandible		Left, M1-2, M3 erupting. T.W.S. M1=b M2=a	1	
IB	Rangifer tarandus	Mandible		Left, dp2-4	1	
IB	Rangifer tarandus	Mandible		Left, dp4	1	
IB	Rangifer tarandus	Mandible		Right, dp3-4	1	
IB	Rangifer tarandus	Mandible		Right, d3-4, M1, T.W.S. dp4=e M1=a	1	
IB	Rangifer tarandus	Mandible		Right, P2-3, dp4, M1-2, M3 erupting, T.W.S. dp4=g M1=d M2=d	1	
IB	Rangifer tarandus	Mandible		Right, dp2-4, M1, M2 not erupted, T.W.S. dp4=f M1=b	1	
IB	Rangifer tarandus	Mandible		Right, dp2-3	1	
IB	Rangifer tarandus	Mandible		Right, dp3-4, M1, M2 not erupted, T.W.S. dp4=f M1=a	1	
IB	Rangifer tarandus	Maxilla		Left, P2-4, M1-3	1	
IB	Rangifer tarandus	Maxilla		Left	1	
IB	Rangifer tarandus	Maxilla		Left, M1-3	1	
IB	Rangifer tarandus	Maxilla		Left, M1-2	1	
IB	Rangifer tarandus	Maxilla		Left, P4, M1-3	1	
IB	Rangifer tarandus	Maxilla		Right, M1-2	1	
IB	Rangifer tarandus	Maxilla		Right, P4-M2	2	
IB	Rangifer tarandus	Maxilla		Right, M1-3	1	
IB	Rangifer tarandus	Maxilla		Right, P4 erupting, M1, M2 erupting	1	
IB	Rangifer tarandus	Maxilla		Right, P2-3	1	
IB	Rangifer tarandus	Maxilla		Right, dp4, M1, M2 erupting	1	
IB	Rangifer tarandus	Maxilla		Right, P3-4, M1-3	1	

IB	Rangifer tarandus	Maxilla		Right, P3-4, M1-3	1	
IB	Rangifer tarandus	Molar mand		M3	15	
IB	Rangifer tarandus	Molar max			52	
IB	Rangifer tarandus	Premolar mand		Including three dp4s	12	
IB	Rangifer tarandus	Premolar max			32	
IB	Rangifer tarandus	Tongue bone			6	
IB	Rangifer tarandus	Tooth			18	
IB	Rangifer tarandus	Atlas		5 complete, 2 fragments	7	
IB	Rangifer tarandus	Axis		1 complete, 1 fragment	2	
IB	Rangifer tarandus	Cervical vertebra		18 unfused, 6 fused	24	
IB	Rangifer tarandus	Thoracic vertebra		30 unfused, 17 fused, 1 fragment of vertebral arc and spinous process	48	
IB	Rangifer tarandus	Lumbar vertebra		24 unfused, 6 fused	30	
IB	Rangifer tarandus	Sacrum		1 fused	6	
IB	Rangifer tarandus	Coccygeal vertebra		Fused	1	
IB	Rangifer tarandus	Vertebra			393	
IB	Rangifer tarandus	Rib			182	
IB	Rangifer tarandus	Scapula		1 fused right-side scapula, 2 left, 1 of which fused	3	
IB	Rangifer tarandus	Humerus	Distal	1 left, 1 right, both fused	2	
IB	Rangifer tarandus	Humerus	Proximal	Fragment of unfused caput femoris epiphysis	1	
IB	Rangifer tarandus	Radioulna		Shaft fragment, 2 freshly broken	7	
IB	Rangifer tarandus	Radius	Proximal	3 left, 4 right, all fused and freshly broken, 1 right-side fragment Bp=4	11	
IB	Rangifer tarandus	Radius	Distal	1 left-side distal radius with Bd=42,9; 1 fused right-side radius with Bd	6	
IB	Rangifer tarandus	Ulna	Proximal	2 right-side proximal fragments, all fused	3	
IB	Rangifer tarandus	Capito-trapezoid		3 left, 1 right	4	
IB	Rangifer tarandus	Hamate		1 left, 4 right	5	
IB	Rangifer tarandus	Lunate		3 left, 3 right	6	
IB	Rangifer tarandus	Pisiform		2 right	2	
IB	Rangifer tarandus	Scaphoid		2 left	2	
IB	Rangifer tarandus	Triquetral		2 left, 2 right	4	
IB	Rangifer tarandus	Metacarpal	Proximal	1 complete, fused metacarpal, broken for marrow; 26 freshly broken	27	
IB	Rangifer tarandus	Metacarpal II/V			4	
IB	Rangifer tarandus	Femur	Distal	Fragment of unfused distal epiphysis	1	
IB	Rangifer tarandus	Tibia	Distal	5 freshly broken and fused distal tibiae; 1 left with Bd=42,4; 4 right wi	5	
IB	Rangifer tarandus	Tibia	Proximal	2 left, 1 right, all freshly broken and fused	3	
IB	Rangifer tarandus	Calcaneus		1 left, 1 right, both fused, 1 unfused epiphysis	3	
IB	Rangifer tarandus	Intermediate cuneiform		1 left, 1 right	2	
IB	Rangifer tarandus	Lateral cuneiform		3 left, 1 right	4	
IB	Rangifer tarandus	Malleolus		5 left, 5 right	10	
IB	Rangifer tarandus	Medial cuneiform		8 left, 1 right	9	
IB	Rangifer tarandus	Naviculo-cuboid		Left	1	
IB	Rangifer tarandus	Talus		4 left, 2 right	6	
IB	Rangifer tarandus	Metatarsal	Proximal	Freshly broken metatarsal fragments, 1 with Bp=31,9 Dp=33,5	8	
IB	Rangifer tarandus	Metapodial	Distal	16 fused, 3 unfused, freshly broken	29	
IB	Rangifer tarandus	Metapodial		Shaft fragments, freshly broken	9	
IB	Rangifer tarandus	Sesamoid			13	
IB	Rangifer tarandus	Phalanx prox		7 freshly broken, all fused	8	
IB	Rangifer tarandus	Phalanx prox	Distal	6 freshly broken, 1 cut in half perpendicularly	7	
IB	Rangifer tarandus	Phalanx prox	Proximal	3 unfused, all freshly broken	8	
IB	Rangifer tarandus	Phalanx prox II/V			4	
IB	Rangifer tarandus	Phalanx med		8 fused, 2 unfused, 3 freshly broken	10	
IB	Rangifer tarandus	Phalanx med	Distal	Freshly broken	13	
IB	Rangifer tarandus	Phalanx med	Proximal	6 fused and freshly broken, 1 unfused	7	
IB	Rangifer tarandus	Phalanx med II/V			1	
IB	Rangifer tarandus	Phalanx dist			13	
IB	Rangifer tarandus	Phalanx dist II/V			4	
IB	Rangifer tarandus	Phalanx			7	
IB	Rangifer tarandus			1 flat bone fragment with a cut mark, 1 with a chop mark, one long b	290	
IB	Ovis aries	Radius	Distal	Left, fused, Bd=25,0	1	
IB	Lemmus lemmus	Mandible	Fragment	2 left, 2 right	4	
IB	Lemmus lemmus	Tooth	Fragment		3	
IB	Lemmus lemmus	Femur	Distal	1 left distal fragment, 1 right proximal fragment	2	
IB	Lemmus lemmus	Humerus		1 left, 1 right	2	
IB	Lemmus lemmus	Tibia		2 left, 1 right	3	
IB	Lemmus lemmus	Sacrum			1	
IB	Mammalia			9 small mammal bone fragments, 5 mediums-sized mammal bone fra	267	126
IB	Aves				3	
IB	Pisces			Not counted		
IIB	Rangifer tarandus	Antler		3 attached to the cranium; cut marks in 2; a fragment of a very large a	30	
IIB	Rangifer tarandus	Mandible		Right, dp2-4, M1-2, M3 erupting. Age estimation based on Miller's too	1	
IIB	Rangifer tarandus	Mandible		Left, dp4, M1, M2 not erupted	1	
IIB	Rangifer tarandus	Mandible		Left, dp2-4 in the fragment	1	
IIB	Rangifer tarandus	Mandible		Right, M2, M3 erupting	1	
IIB	Rangifer tarandus	Maxilla		Left, P	1	
IIB	Rangifer tarandus	Maxilla		Left, M	1	
IIB	Rangifer tarandus	Maxilla		Left, P2-4	1	

IIB	Rangifer tarandus	Maxilla		Left, P2-4, M1-3	1	
IIB	Rangifer tarandus	Maxilla		Left, M1-3	1	
IIB	Rangifer tarandus	Maxilla		Left, M1-2	1	
IIB	Rangifer tarandus	Maxilla		Left, P2-4, M1-2	1	
IIB	Rangifer tarandus	Maxilla		Right, P4, M1-2	1	
IIB	Rangifer tarandus	Maxilla		Right, P3-4, M1-2, M3 erupting	1	
IIB	Rangifer tarandus	Maxilla		Right, P4, M1-3	1	
IIB	Rangifer tarandus	Maxilla		Right, P2-4, M1-3	1	
IIB	Rangifer tarandus	Maxilla		Right, P3-4, M1	1	
IIB	Rangifer tarandus	Maxilla		Right, P2-3	1	
IIB	Rangifer tarandus	Maxilla		Right, P2	1	
IIB	Rangifer tarandus	Maxilla		Right, M2-3	1	
IIB	Rangifer tarandus	Maxilla		Right, P4, M1-3	1	
IIB	Rangifer tarandus	Maxilla		Right, M2-3	1	
IIB	Rangifer tarandus	Molar			14	
IIB	Rangifer tarandus	Molar max			43	
IIB	Rangifer tarandus	Premolar mand		Including one dp4	7	
IIB	Rangifer tarandus	Premolar max			33	
IIB	Rangifer tarandus	Tongue bone			19	
IIB	Rangifer tarandus	Tooth			15	
IIB	Rangifer tarandus	Cranium			256	9
IIB	Rangifer tarandus	Sternum			1	
IIB	Rangifer tarandus	Atlas			3	
IIB	Rangifer tarandus	Axis		1 fused, 1 unfused	4	
IIB	Rangifer tarandus	Cervical vertebra			3	
IIB	Rangifer tarandus	Thoracic vertebra		12 fused, 29 unfused	50	
IIB	Rangifer tarandus	Lumbar vertebra		7 fused, 8 unfused, 1 transversal process, cut marks in the cranio-caud	16	
IIB	Rangifer tarandus	Sacrum			6	
IIB	Rangifer tarandus	Coccygeal vertebra			6	
IIB	Rangifer tarandus	Vertebra		Unfused epiphyses of vertebral body	533	8
IIB	Rangifer tarandus	Rib			198	1
IIB	Rangifer tarandus	Scapula		2 fused right-side scapulae, 1 fused left	10	
IIB	Rangifer tarandus	Humerus	Distal	Trochlear fragment, fused	1	
IIB	Rangifer tarandus	Humerus	Proximal	Right, Bp=66,9 HHAP=48,2; fused but epiphyseal fusion line still visibl	1	
IIB	Rangifer tarandus	Humerus	Proximal	Unfused humeral head fragment	1	
IIB	Rangifer tarandus	Radius	Proximal	Right, proximal radius fused, proximal ulna not present	1	
IIB	Rangifer tarandus	Radius	Distal	Left, fused, Bd=48,4	1	
IIB	Rangifer tarandus	Radius	Distal	Left unfused epiphysis	1	
IIB	Rangifer tarandus	Radius	Distal	Right, fused, Bd=46,3	1	
IIB	Rangifer tarandus	Radius	Distal	Right, fused, Bd=43,2; freshly broken	1	
IIB	Rangifer tarandus	Radius	Distal	Juvenile	1	
IIB	Rangifer tarandus	Radius	Proximal	Left, fused, freshly broken	1	
IIB	Rangifer tarandus	Radius	Proximal	Left, fused, Bp=43,0 PRAP=21,6; cut marks on the anterior side	1	
IIB	Rangifer tarandus	Radius	Proximal	Right, fused, 1 juvenile	4	
IIB	Rangifer tarandus	Radius	Proximal	Right, fused, Bp=51,3 PRAP=27,0	1	
IIB	Rangifer tarandus	Radius	Proximal	Freshly broken	7	
IIB	Rangifer tarandus	Ulna		1 left, 1 right	2	
IIB	Rangifer tarandus	Ulna	Proximal	Left, 2 fused	3	
IIB	Rangifer tarandus	Ulna	Proximal	1 right, unfused and freshly broken	2	
IIB	Rangifer tarandus	Capito-trapezoid			1	
IIB	Rangifer tarandus	Hamate		2 left, 3 right	5	
IIB	Rangifer tarandus	Lunate		2 left, 4 right	6	
IIB	Rangifer tarandus	Pisiform			2	
IIB	Rangifer tarandus	Scaphoid		2 left, 2 right, one of which has new bone growth and bone destructio	4	
IIB	Rangifer tarandus	Trapezoid			1	
IIB	Rangifer tarandus	Metacarpal		Unfused, freshly broken	2	
IIB	Rangifer tarandus	Metacarpal	Proximal	Freshly broken, one sample with Dp=30,4	14	
IIB	Rangifer tarandus	Metacarpal II/V		6 fused, 1 unfused	7	
IIB	Rangifer tarandus	Pelvis		1 fused fragment of acetabulum, 1 juvenile	2	
IIB	Rangifer tarandus	Tibia	Distal	Unfused epiphysis	1	
IIB	Rangifer tarandus	Tibia		Shaft fragments, freshly broken	2	
IIB	Rangifer tarandus	Tibia	Proximal	Left, fused, freshly broken	1	
IIB	Rangifer tarandus	Tibia	Proximal	Right, fused, Bp=65,9 PTAP=57,7	1	
IIB	Rangifer tarandus	Tibia	Proximal	Unfused epiphysis	1	
IIB	Rangifer tarandus	Calcaneus		2 left, 2 right, 2 fused, 4 unfused	7	
IIB	Rangifer tarandus	Lateral cuneiform		1 left, 1 right	2	
IIB	Rangifer tarandus	Malleolus		1 left, 2 right	3	
IIB	Rangifer tarandus	Naviculo-cuboid		2 left, 3 right	5	
IIB	Rangifer tarandus	Talus		1 left, 2 right	3	
IIB	Rangifer tarandus	Metatarsal		Fused, Dp=36,1; freshly broken	1	
IIB	Rangifer tarandus	Metatarsal		Fused, Bp=35,1; ossified hematoma laterally, fig. 2; freshly broken	1	
IIB	Rangifer tarandus	Metatarsal	Proximal	Freshly broken	11	
IIB	Rangifer tarandus	Metatarsal	Proximal	Dp=32,8; freshly broken	1	
IIB	Rangifer tarandus	Metatarsal	Proximal	Dp=33,8; freshly broken	1	
IIB	Rangifer tarandus	Metatarsal	Proximal	Dp=34,7; freshly broken	1	

IIB	Rangifer tarandus	Metatarsal	Proximal	Dp=32,6; freshly broken	1	
IIB	Rangifer tarandus	Metatarsal	Proximal	Dp=34,0; freshly broken	1	
IIB	Rangifer tarandus	Metatarsal	Proximal	Dp=31,2; freshly broken	1	
IIB	Rangifer tarandus	Metapodial		Freshly broken fragments, 9 unfused, 1 fused	33	
IIB	Rangifer tarandus	Sesamoid			10	
IIB	Rangifer tarandus	Phalanx prox		14 fused, of which 1 freshly broken, 1 with stage 2 new bone growth	19	
IIB	Rangifer tarandus	Phalanx prox II/V			5	
IIB	Rangifer tarandus	Phalanx med		8 fused, 3 unfused	17	
IIB	Rangifer tarandus	Phalanx med II/V		12 fused	13	
IIB	Rangifer tarandus	Phalanx dist			13	
IIB	Rangifer tarandus	Phalanx dist II/V			3	
IIB	Rangifer tarandus	Phalanx			25	
IIB	Rangifer tarandus	Long bone		Freshly broken shaft fragments of long bones	244	
IIB	Aves				24	
IIB	Mammalia				760	150
IIB	Pisces			Not counted		

APPENDIX 2. Animal bone finds from Drag

Layer	Taxon	Element	Part	Notes	N	N burned
2	Rangifer tarandus	Metacarpal	Proximal	Freshly broken		1
2	Rangifer tarandus	Phalanx prox	Distal			1
2	Mammalia			Includes 47 burned large mammal bone fragments, 77 unburned larg	172	336
2	Pisces					
2	Bivalvia					39
2	Cetacea				21	
2	Rangifer tarandus	Phalanx prox II/V		Fused	1	
2	Aves				1	
2	Lemmus lemmus	Mandible		Left	1	
2	Ovis aries/Capra hircus	Mandible		dp2-4, M1, M2 not erupted, right side	1	
2	Ovis aries/Capra hircus	Mandible		dp3-4, M1-2, left side	1	
2	Ungulata	Tooth			11	
3	Pisces					
3	Cetacea				34	
3	Bivalvia					93
3	Mammalia			Includes 6 burned fragments greenish in colour, 2 fragments of burne	218	305
3	Rangifer tarandus	Hamate		Right		1
3	Ovis aries/Capra hircus	Tooth			1	
3	Ovis aries/Capra hircus	Hamate		Left	1	
3	Lemmus lemmus	Femur	Proximal	Right	1	
3	Lemmus lemmus	Femur	Proximal	Left	1	
3	Bos taurus	Mandible			1	
3	Ovis aries/Capra hircus	Maxilla		P3-4, M1-3, right side	1	
3	Ovis aries/Capra hircus	Tooth			2	
3	Ovis aries/Capra hircus	Metapodial	Distal	Fused	1	
3	Ovis aries/Capra hircus	Phalanx dist		Fused	1	
3	Ovis aries/Capra hircus	Radius	Proximal		1	
4	Mammalia			Including 1 fragment of unburned large mammal long bone	19	6

Appendix 3. Faunal identification table of animal bones from Gollevarre and Drag research excavations in 2024 by Nikola Kovačević

GOLLEVARRE

Context	Museum no.	Animal class	Identified species	Body part
Layer 1A	TS.16469.3	mammal		indeterminate, burnt
Layer 1B	TS.16469.7	mammal	reindeer	all bones in the bag are proximal ends of ribs with many cut marks medially (cut from the underside)
Layer 1B	TS.16469.7	mammal	probable reindeer	skull fragments
		mammal	(medium) large terrestrial mammal	indeterminate fragments
		mammal	probable reindeer	fresh fractured long bone fragments; lumbar vertebra
		mammal	reindeer	phalanx
Layer 1B	TS.16469.8	mammal		various indeterminate fragments; burned
Layer 1B	TS.16469.9	mammal	reindeer	antlers, skull, ribs, lumbar vertebrae, tail vertebrae, long bones; some cut marks on these, mainly younger individual(s)
		mammal	(medium) large terrestrial mammal	ribs, long bones
		fish		various indeterminate fragments
		bird		long bones
		mammal	possibly small predator	incisor
Layer 1B	TS.16469.10	mammal	lemming (rodent)	jaws, teeth, long bones, ribs
Layer 1B	TS.16469.11	fish		various indeterminate fragments (mainly fin bones from marine fish)
Layer 2B	TS.16469.17	mammal	probable reindeer	fragments of long bones with fresh fractures (one with cut marks), as well as fragments of lumbar vertebrae (one with cut marks)
Layer 2B	TS.16469.18	mammal	reindeer	ribs, long bones, antlers, skull, metapodials, teeth; hyoid bone with cut marks; some burnt bones and cut marks; some fresh fractures of long bones; mainly younger individual(s)
		mammal		various indeterminate fragments
		bird		various indeterminate fragments
		bird	willow ptarmigan (lirype)	humerus x2, scapula; possibly slightly burnt (shiny and reddish/brownish surface)
Layer 2B	TS.16469.19	mammal	reindeer	fragments of long bones, skull, vertebrae, etc.; mostly burned; cut marks on vertebrae
		bird		fragments of long bones; burned
		mammal	probable reindeer	fragments of long bones, ribs, vertebrae, etc.; burned
		fish	cod family (cod and/or saithe, possibly several species)	vertebrae
		fish	flounder family	vertebrae
Layer 2B	TS.16469.20	fish		various indeterminate fragments (mainly fin bones from marine fish); at least one fragment with cut mark
		mammal	small terrestrial mammal	rib
		mammal	lemming (rodent)	lower jaw
		fish	cod family (cod and/or saithe, possibly also haddock)	vertebrae
		fish	cod family	skull fragments

DRAG

Context	Museum no.	Animal class	Identified species	Body part
Layer 2A, level 2	TS.16470.17	mammal	whale family	indeterminate fragments
Layer 2A, level 2	TS.16470.18	mammal	sheep/goat	lower jaw, teeth, long bones etc.
		mammal	larger terrestrial mammal	various indeterminate fragments
		mammal		various small fragments
Layer 2A, level 2	TS.16470.19	mammal	lemming (rodent)	lower jaw, teeth
		mammal	terrestrial herbivore	lower jaw, tooth fragments
		fish	cod family (cod and/or saithe)	skull fragments
		bird		various small fragments of long bones
		mammal		various indeterminate fragments
		fish		various indeterminate fragments
		bird		various indeterminate fragments
Layer 2A, level 2	TS.16470.20	mammal	large terrestrial mammal (reindeer and/or cattle)	fragments of long bones and ribs etc.; burnt
		mammal	medium-sized terrestrial mammal (sheep/goat and/or reindeer)	fragments of long bones and ribs etc.; burnt
Layer 2A, level 2	TS.16470.21	mammal	large terrestrial mammal (reindeer and/or cattle)	fragments of long bones, ribs and skull etc.; burned
		mammal	medium-sized terrestrial mammal (sheep/goat and/or reindeer)	fragments of long bones, ribs and skull etc.; burned
		bird		long bones; burnt
		fish	cod family	skull fragments
Layer 2A, level 2	TS.16470.22	mammal	reindeer	4 fragments including long bones; 2 burnt
Layer 2A, level 2	TS.16470.23	fish	cod	vertebrae, skull fragments
		fish	saithe	vertebrae, skull fragments
		fish	cod family	vertebrae, skull fragments
		mammal	terrestrial herbivore	tooth fragment
		fish	herring family	1 vertebra
		fish	flounder family	1 vertebra
		fish	salmon family	1 vertebra
Layer 2B, level 3	TS.16470.39	mammal	(medium) large mammal	long bones, vertebrae, ribs etc.; burnt
		mammal	sheep/goat	carpal, tooth; burned
		mammal	cattle	lower jaw, phalanges
		mammal	sheep/goat	upper jaw with teeth, cervical vertebra, metapodials
		mammal		various indeterminate fragments
		mammal	(medium) large terrestrial mammal	fragments of long bones, phalanges, vertebrae, carpals, tarsals, ribs; some fragments of long bones show signs of predatory gnawing, fresh fractures as well as impact scars
Layer 2B, level 3	TS.16470.40	mammal	seal family	phalanges; burned
		mammal	sheep/goat	tooth
		mammal	rodents	long bones etc.
		mammal		various small fragments
		bird		various small fragments of long bones
		fish	cod, saithe	various skull fragments
		fish	cod family	various skull fragments and vertebrae
		fish		various small fragments
Layer 2B, level 3	TS.16470.41	mammal	whale family	indeterminate fragments incl. fragment with nutrient foramen (found on several different bones such as maxilla and vertebra); one fragment with cut marks
Layer 2B, level 3	TS.16470.42	mammal	cattle	long bone fragment, burnt
		mammal	sheep/goat	femur, burned
		mammal	(medium) large terrestrial mammal	long bone fragments, rib, burned
Layer 2B, level 3	TS.16470.43	mammal		various indeterminate fragments; burned
		mammal	(medium) large terrestrial mammal, probable a mixture of sheep, goat, cattle and reindeer	long bones, vertebrae, ribs, lower jaw; burned
		bird		long bones
		fish	cod family	vertebra
Layer 2B, level 3	TS.16470.44	mammal	reindeer	carpal, burned
Layer 2B, level 3	TS.16470.45	mammal	(medium) large terrestrial mammal, probable reindeer	burnt bones, probable long bones; stained green from exposure to copper object(s)
Layer 2B, level 3	TS.16470.46	mammal	(medium) large terrestrial mammal, probable reindeer	2 burnt bones, probable long bones; cut marks
Layer 2B, level 3	TS.16470.47	fish	cod family (cod and saithe)	vertebrae, skull fragments
		fish		various indeterminate fragments
		fish	possibly haddock or whiting (lysing)	vertebrae

Appendix 4. Charcoal identification reports from Gollevarre (Kirchhefer 2024a) and Drag (Kirchhefer 2024b)

RAPPORT 16/2024

Artsbestemmelse av arkeologisk trekull fra Gollevárri, Tana kommune

Oppdragsgiver: Norges arktiske universitetsmuseum, Lars Thørings veg 10, 9006 Tromsø
Kontakt: arkeolog Stephen Wickler
Rapport dato: 11.12.2024
Utarbeidet ved: Andreas J. Kirchhefer, dr. scient., Skogåsvegen 6, 9011 Tromsø.
Epost: post@dendro.no, mob.: 995 30 332. Org.-nr.: 994 482 181 MVA.

RESULTATER

Begge prøver inneholdt tilstrekkelige mengder materiale med forventet lav egenalder som skal være godt egnet til radiokarbondatering.

Hos materiale som foreslås til datering dreier det seg om trekull av bjørkekvist (FN1, FN4, *Betula* sp.) og forkullet bark (FN4). Alle kvister har den ytterste årringen bevart (barkkant).

Nr.	Kontekst	g (tot)	n (tot)	n (ana)	Treslag (dat)	g (dat)	Kommentar
FN1	Tuft12, sjakt, 1 lag IA	11,33	>100	2	2 bjørk	0,15	1x kvist Ø 2 mm (0,03 g), 1x kvist, halvt tverrsnitt (0,12 g, 33 ringer, uten smårøtter)
FN4	Tuft 12, sjakt, 1 lag IIB	44,78	>100	4	2 bark, 2 bjørk	0,25	1x bark (0,03 g), 1x tynn bark (0,02 g), kvist kortskudd Ø 3 mm (0,05 g), kvist Ø 5 mm (0,13 g)

g = vekt (g), n = antall fragmenter, tot = totalt, ana = analysert, dat = foreslått til datering, na = ikke utslag på vekta (kan være rundt 0,01-0,02 g), indet. = ikke mulig å artsbestemme.



Foto: Trekullprøve FN1 (petriskål 14,4 cm).

REFERANSER

Grosser D (2003): *Die Hölzer Mitteleuropas: Ein mikrophotographischer Lehratlas*, Verlag Kessel.

Hather JG (2000): *The identification of the Northern European woods: a guide for archaeologists and conservators*. London: Archetype.

Mork E (1966): *Vedantomi. With an identification key for microscopic wood-sections*. Oslo: Johan Grundt Tanum.

Schweingruber FH (1990): *Mikroskopische Holzanatomie*. Birmensdorf: WSL.

Artsbestemmelse av arkeologisk trekull fra en gårdshaug på Drag, Hamarøy kommune

Oppdragsgiver: Norges arktiske universitetsmuseum, Lars Thørings veg 10, 9006 Tromsø
 Kontakt: arkeolog Stephen Wickler
 Rapport dato: 11.12.2024
 Utarbeidet ved: Andreas J. Kirchhefer, dr. scient., Skogåsvegen 6, 9011 Tromsø.
 Epost: post@dendro.no, mob.: 995 30 332. Org.-nr.: 994 482 181 MVA.

RESULTATER

Begge prøver inneholdt tilstrekkelige mengder materiale med forventet lav egenalder som skal være godt egnet til radiokarbondatering.

Hos materiale som foreslås til datering dreier det seg om forkullet, tynn kvist av bjørk (FN2, FN5; *Betula* sp.). Også forkullet kvist av bartre kan være et alternativ (FN2; trolig furu, *Pinus sylvestris*). Alle kvister har den ytterste årringen bevart (barkkant).

Nr.	Kontekst	g (tot)	n (tot)	n (ana)	Treslag (dat)	g (dat)	Kommentar
FN2	rute 1, nivå 2	ca. 48	>100	2	1 bjørk 1 bartre	0,17 0,08	Alternativ 1: kvist av bjørk, Ø 6 mm, 10 ringer Alternativ 2: kvist av bartre, Ø 3,5 mm, 13 ringer
FN5	rute 1, nivå 4	28,82	>100	2	2 bjørk	0,06 0,04	Alternativ 1: kvist av bjørk, > 5 ringer Alternativ 2: kvist av bjørk Ø 3 mm, >10 ringer

g = vekt (g), n = antall fragmenter, tot = totalt, ana = analysert, dat = foreslått til datering, na = ikke utslag på vekta (kan være rundt 0,01-0,02 g), indet. = ikke mulig å artsbestemme.



Foto: Trekullprøve FN2 (venstre) og FN5 (høyre). Petriskål 14,4 cm.

REFERANSER

Grosser D (2003): *Die Hölzer Mitteleuropas: Ein mikrophotographischer Lehratlas*, Verlag Kessel.

Hather JG (2000): *The identification of the Northern European woods: a guide for archaeologists and conservators*. London: Archetype.

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