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Skagafjörður Church and Settlement Survey: Archaeofauna from Kotið, 2016 and 2017

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Introduction and Excavations

For the past three years, the Skagafjörður Church and Settlement Survey (SCASS) has been exploring the settlement pattern on Hegranes, in Skagafjörður (Figure 1) (e.g., Bolender et al. 2016, 2017; Steinberg et al. 2016). This report focuses on test pits excavated at the site of Kotið in 2016 and 2017. Located on the land of the main farm of Helluland, but over a kilometer north of the modern farmhouse, Kotið is in between an eroded outcrop and a bog (Figure 2). Since the property of Helluland was subdivided, Helluland no longer owns Kotið (Catlin et al. 2017:36). Coring revealed that the soils around Kotið, in general, are not very deep, though some areas have significant soil deposition. Loss on ignition studies have shown that the area was more marshy in the past, and would have looked quite different than it does today.

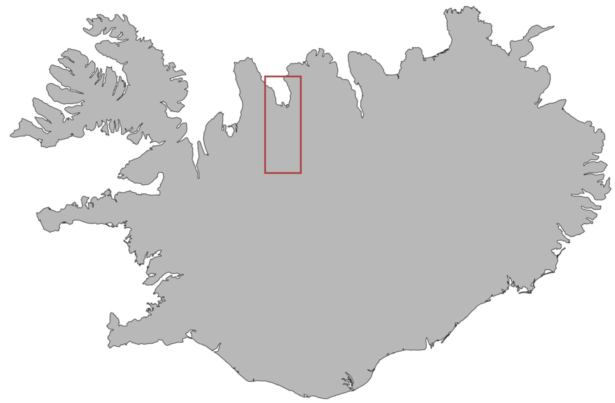

Figure 1: Location of Skagafjörður in Iceland

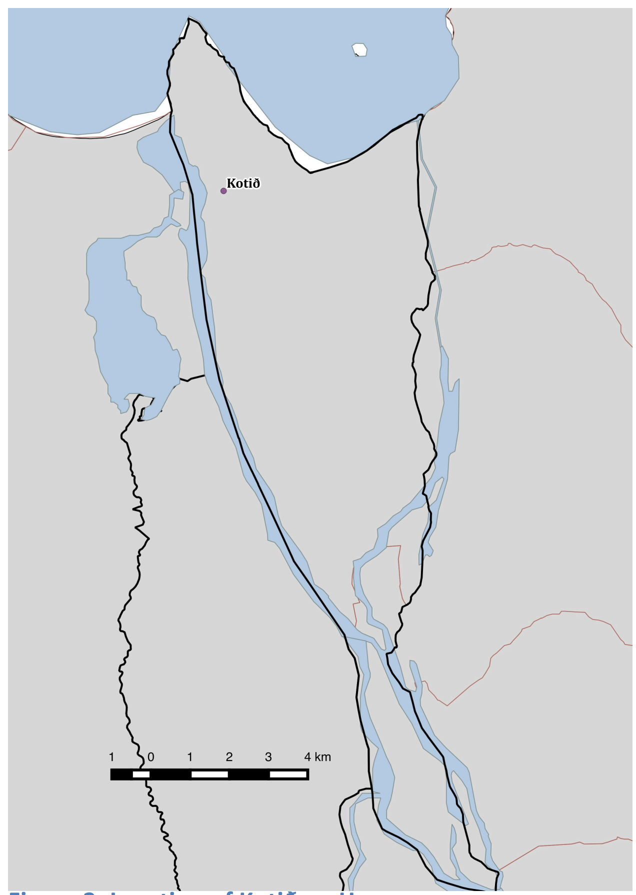

Figure 2: Location of Kotið on Hegranes

The 2016 test pit was a 1x1 meter unit (Catlin et al. 2017), and in 2017 that unit was expanded to a 2x2 (Catlin et al. 2018), using the previous test pit as the northeast corner. Results are presented here as a combination of the two units, since they are connected and the stratigraphy could be correlated. Catlin et al. (2017:46) identified four potential phases of occupation at this site, but the tephra sequence became more unclear during 2017 excavations, and the results are reported here as one phase, from settlement (ca. 871) to AD 1104. Figure 3 shows Kotið during excavation in 2017.

These test pits were originally targeted to collect data for Kathryn Catlin's dissertation research on the *fornbýli*, or ruins, on Hegranes (Catlin et al. 2017, 2018), and the archaeofauna recovered are now forming the basis of my dissertation project. Both projects are informed by the Skagafjörður Church and Settlement Survey (SCASS) research on settlement patterns on Hegranes, and are also contributing data to the settlement story.

Figure 3: Kotið during excavation.

Methods

The faunal materials were analyzed at the Hunter College Zooarchaeology Laboratory, and made use of the comparative collection there. Recording and data curation follow NABONE protocols, utilizing the 9th edition of this recording package (a Microsoft Access database supplemented with specialized Microsoft Excel spreadsheets, available to download at www.nabohome.org). Digital records were all made using this package. The animal bones excavated will be permanently curated at the National Museum of Iceland along with all digital records. Digital records will also be preserved in the NABO collection on The Digital Archaeological Record (tDAR). An electronic copy of this report is available at www.nabohome.org and at the UMB SCASS website/Fiske Center site.

All fragments were identified as far as taxonomically possible, and a selected element approach was not used. Most mammal ribs, vertebrae, and long bone shaft fragments were assigned to "Large Terrestrial Mammal" (cattle or horse sized), "Medium Terrestrial Mammal" (sheep, goat, pig, or large dog sized), and "Small Terrestrial Mammal" (fox or small dog sized). Only those elements that could be positively identified as sheep, *Ovis aries*, or goat, *Capra* *hircus*, were assigned to these categories while all other sheep/goat elements were assigned to a more general “caprine” category.

Following widespread North Atlantic tradition, bone fragment quantification makes use of the Number of Identified Specimens (NISP) method (Grayson 1984). All mammal measurements follow von den Driesch (1976). Sheep/goat distinctions follow Boessneck (1969) and Mainland and Halstead (2005). Only positively identified fragments of fish bone were given species level identification, with those unidentifiable to species placed in the family category where possible, often *gadid*, while others were identified simply as fish.

Tooth wear studies follow Grant (1982). Long bone fusion stage calibrations follow Zeder (2006) and presentation of age reconstruction makes use of Enghoff (2003) and McGovern (2009).

The Archaeofauna

The table below (Table 1) shows the entire archaeofaunal assemblage from Kotið. The first section of the table shows all elements that were identified to species (for domesticates) or family (for fish, birds, and mollusks). These make up the Number of Identified Specimens (NISP) and are the elements that are included in the majority of the analysis. The bottom portion of the table includes those fragments that could not be identified beyond the broad size categories explained above. These unidentifiable pieces plus the NISP make up the Total Number of Fragments (TNF) for the assemblage. The TNF is only discussed in the taphonomy section, as taphonomic factors affected the entire archaeofauna. Otherwise, all discussion focuses on those elements included in the NISP.

	TOTAL NISP
Domesticates	
Bos taurus	57
Equus caballus	13
Sus scrofa	3
Ovis aries	45
Ovis/Capra sp.	215
SEALS	
Phocid sp.	10
CETACEA	
Small whale/porpoise	10
Cetacea sp.	1
BIRDS	
Wildfowl - sea birds	304
Wildfowl - land birds	28
Bird sp.	351
FISH	
Gadid sp.	614
Salmonid sp.	1
Other Fish	1
Fish sp.indet.	325
MOLLUSCA	
Mollusca sp.	12
TOTAL NISP (Identified fragments) =	**1,990**
Small Terrestrial Mammal	15
Medium Terrestrial Mammal	286
Large Terrestrial Mammal	100
Unidentifiable Fragments	1,661
TOTAL TNF (all fragments)	**4,052**

Table 1: All bones from Kotið, including NISP and TNF.

Taphonomy

Various taphonomic factors can affect bones. Here, four measures of taphonomic effects will be explored to help characterize the entire archaeofaunal assemblage. The taphonomy is discussed in terms of the assemblage as a whole, using the Total Number of Fragments (TNF).

Fragment Size

Size of a bone can affect its identification rate. Larger bone fragments are often much easier to identify than smaller, more broken pieces. Some animals, however, have smaller bones that can be recovered whole and identified at a higher rate than broken fragments of a large mammal bone. In Figure 4 below, the categories with the most fragments are the 1-2 cm and 2-5 cm categories. Since over half of the assemblage is made up of birds and fish, this is not surprising. Very few of their bones fit into the larger size categories, which are mostly comprised of large terrestrial domesticates. In addition, the majority of the pieces under 1 cm are unidentifiable.

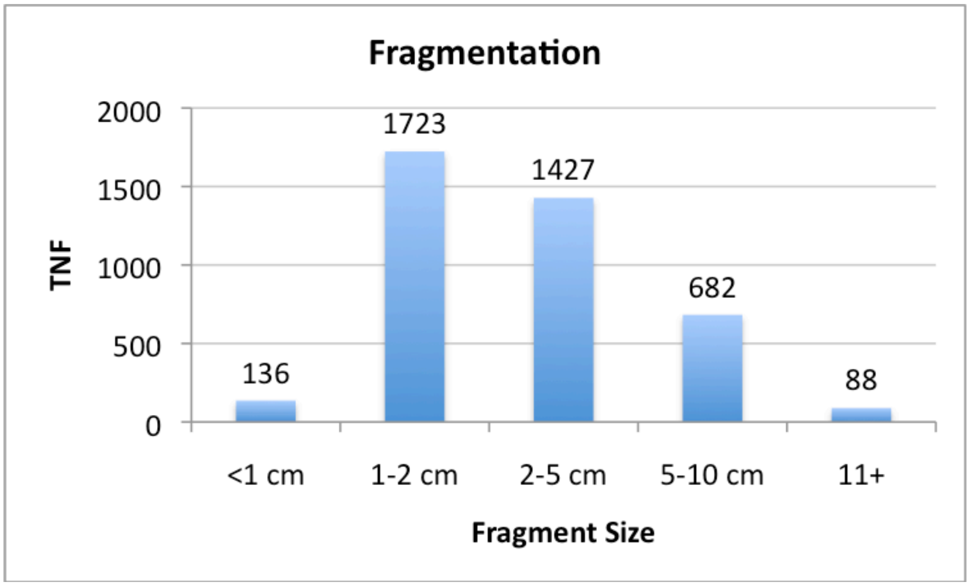

Figure 4: Fragment size based on entire assemblage (TNF)

Burning

As the chart below (Figure 5) shows, most of the bones from Kotið were unburned. The majority of those that were burned are completely calcined, the "white" category. This indicates a very hot fire. The midden at Kotið is primarily dark and made of charcoal (Catlin et al. 2018:65), so they were burning more wood than peat on site. These bones could have been burned as fuel and then eventually deposited into the midden during a cleaning event.

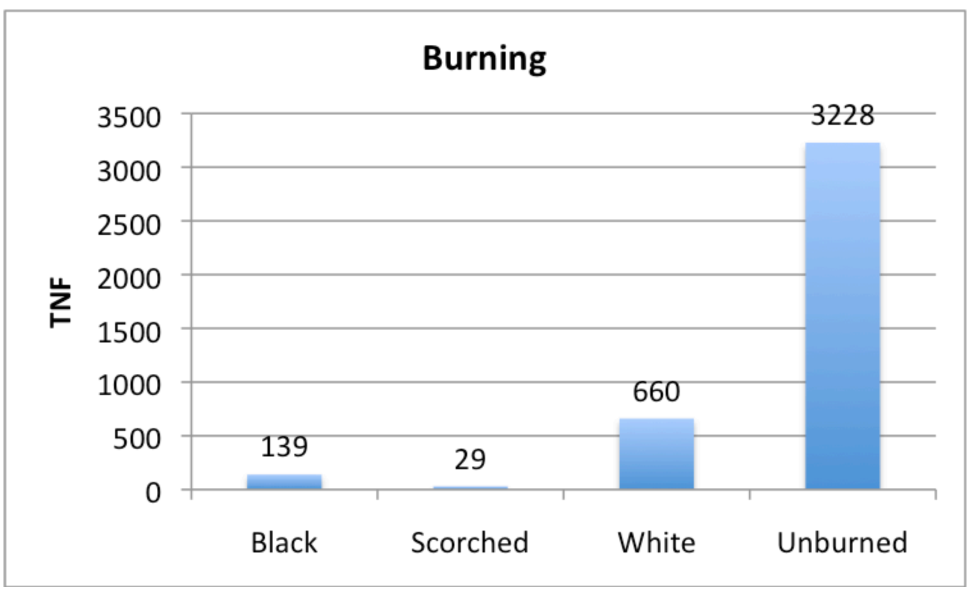

Figure 5: Total number of burned fragments in the Kotið assemblage

Gnawing

Only two bones showed evidence of gnawing by a dog. Though no dog bones were recovered from the site, the presence of gnawed bones indicates their presence. No rodent chew marks or rodent bones were found in the assemblage.

Butchery

Since most of the bones recovered from Kotið were birds and fish, it's not surprising that there is very little butchery present in the assemblage. Neither birds nor fish require great amounts of processing that would leave traces on the bones in most cases, though it is not impossible. One of the chopped bones is a haddock cleithrum, a bone often used in craftworking to create items such as gaming pieces. There are also two whale bones that have been worked (1) and chopped (1). Whalebone is also used in craftworking, though more as a platform or table for working on other materials. However, the rest of the bones from Kotið that show evidence of butchery are domesticated mammals. Only 12 domesticate bones were chopped—6 cattle, 3 caprines, 2 horse, and 1 pig (Figure 6). One sheep frontal bone was split, a signature of the svið preparation where the skull is split in half along the sagittal plane. The rest of the domesticated mammal bones were unmodified.

Figure 6: Butchery marks on domesticated mammal bone fragments from Kotið

Major Taxa

Figure 7 below shows the major taxa present in the Kotið assemblage based on NISP. Most of the assemblage is comprised of fish (47%) and birds (34%). Domesticates make up less than 17% of the assemblage. The next sections will discuss these major taxa in more depth in order to understand the activities taking place at Kotið.

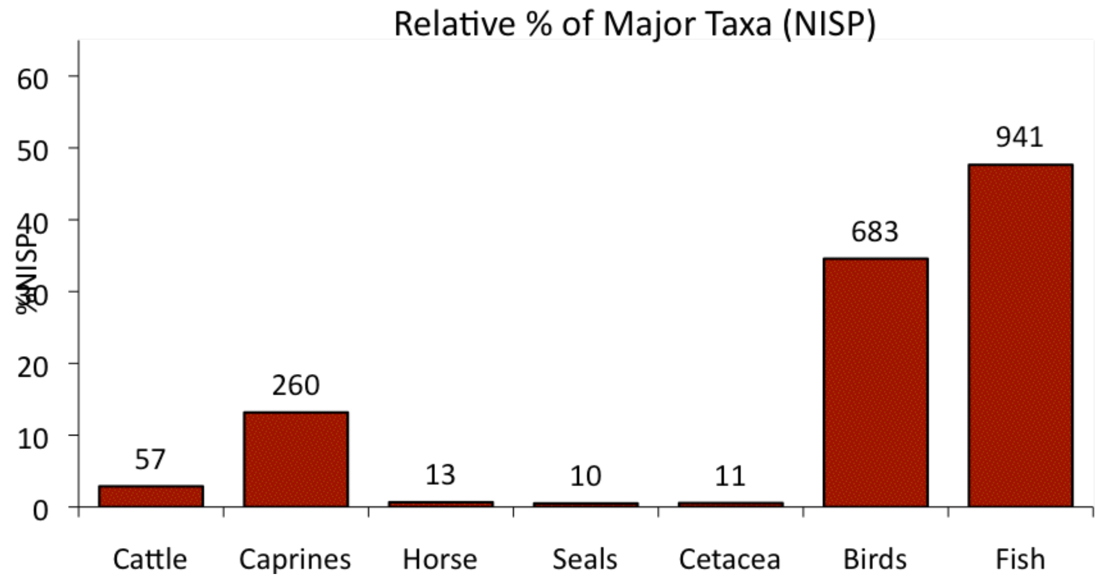

Figure 7: Major taxa present. Bars represent %NISP and the numbers above each bar are the NISP counts for each group.

At Kotið, the assemblage is made up of nearly 85% wild resources. When comparing this pattern to other contemporaneous farm sites, Kotið seems atypical. Looking at Figure 8 below, it is immediately obvious that Kotið has the highest percentage of wild resources than any of the other contemporary sites anywhere else in Iceland. However, the percentage of wild resources is similar to Hofstaðir in Mývatnssveit, though Hofstaðir does not get started until after AD 940, so it is not quite contemporary (McGovern 2009). Also, most of the wild species at Hofstaðir are freshwater fish, due to its inland location, while Kotið has a more marine focus.

Other sites with over 50% wild resources include Tjarnargata in Reykjavik and Herjolfsdalur on the Westman Islands. These are both early sites that focus on birds. The Kotið assemblage also contained large numbers of birds (~34%), indicating a marine resource exploitation strategy. Hoever, Kotið is unique in that they split their marine resource use into fish (~47%) and birds, with domesticates making up a small percentage of their economic strategy. No other site seems to have split their focus on marine fish and birds in quite the same way, though the later period at Skuggi (mid-11th to early 12th century) is close (Harrison 2013). This period is right before Skuggi was closed down, and at Kotið, we see a similar resource use pattern followed by abandonment.

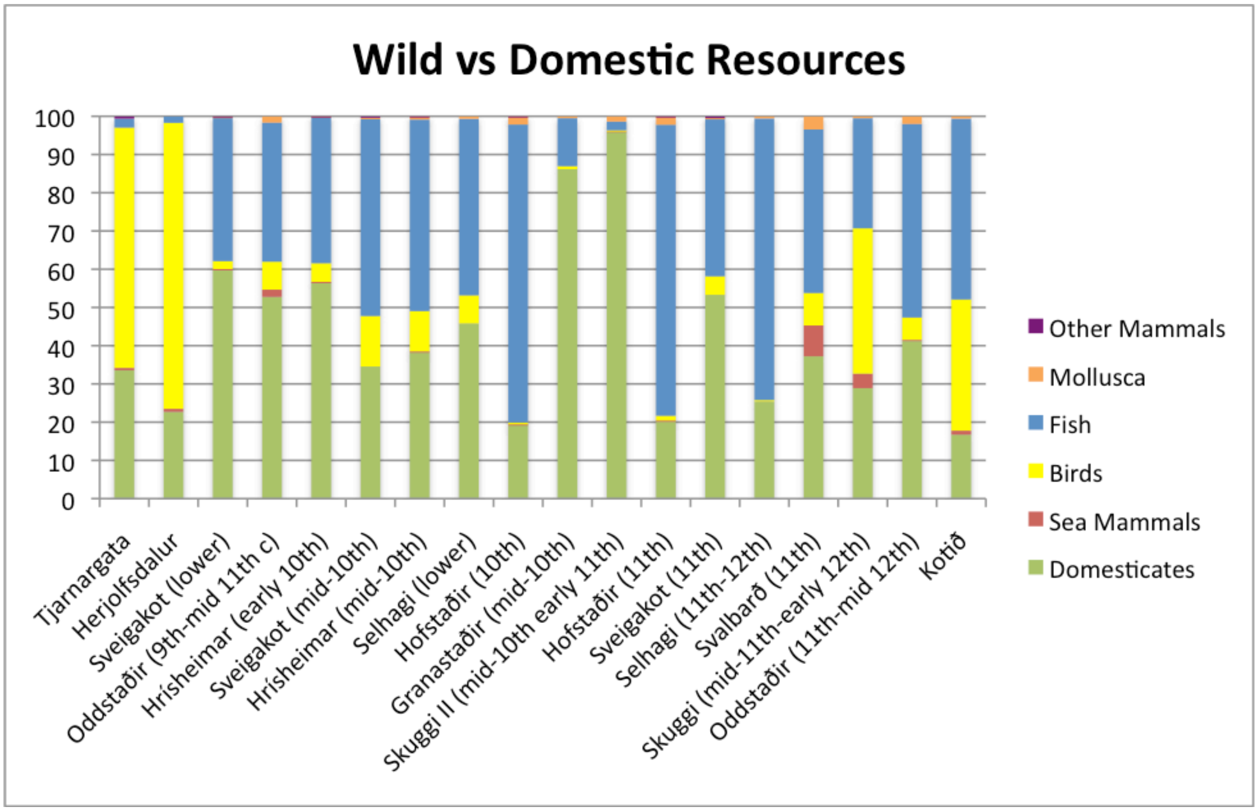

Figure 8: Wild versus domesticate bones present at sites all over Iceland. Tjarnargata is in Reykjavik and dates to the 10th century. Herjolfsdalur is on the Westman Islands and is an early period site. Sveigakot, Hrísheimar, Hofstaðir, and Selhagi are all located in Mývatnssveit. Granastaðir, Oddstaðir and Skuggi are in Eyjafjörður.

Caprines

There are 260 caprine bones in the Kotið assemblage, making up 13% of the NISP. None could be positively identified as goat (*Capra hircus*), but 45 were identified as sheep (*Ovis aries*). Bones from the entire body were recovered, though in Figure 9, it looks like there are no ribs or vertebrae. This is due to the NABONE protocol of not identifying ribs or vertebrae beyond size class, in this case "Medium Terrestrial Mammal" and not because they are not present in the archaeofauna. The presence of elements from the entire body indicates that specific cuts of meat were not being sent in to provision those who lived at Kotið, nor were they sending away portions of their slaughtered herd to provision others.

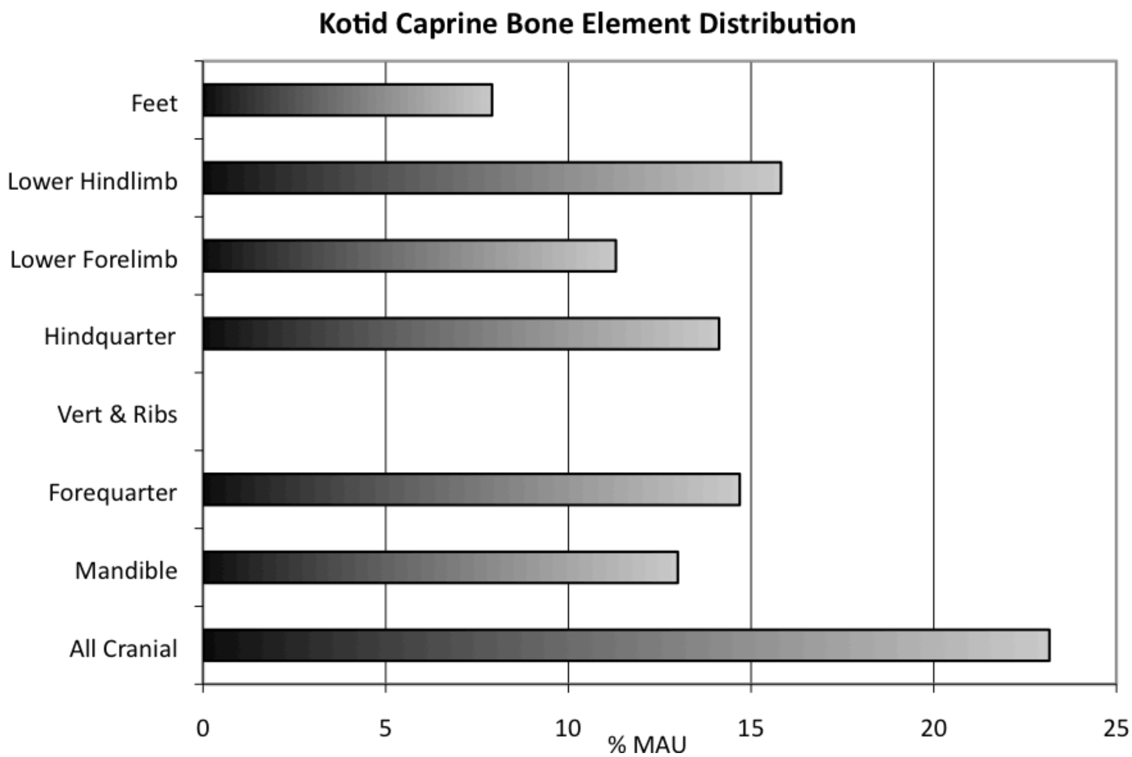

Figure 9: Caprine bones recovered and identified

Caprine Age Profile

The age profile for caprines at Kotið is constructed based on tooth eruption patterns, tooth wear stages, and long bone fusion data. Utilizing these three methods gives a clearer pattern of time of death for these animals. In this analysis, both those elements positively identified as sheep and the ones in the general caprine category are grouped together to present the age data. It is important to note that only five mandibles were available for tooth wear and eruption analysis.

Tooth Eruption

Tooth eruption is fairly predictable, since it is based on biology and not as much on diet or environmental factors, though nutrition will play a small role. For this reason, tooth eruption classes are a preferred method by zooarchaeologists for aging animals. Using tooth eruption data, we can assess mortality patterns. The eruption states for the five mandibles from Kotið are shown below in Figure 10.

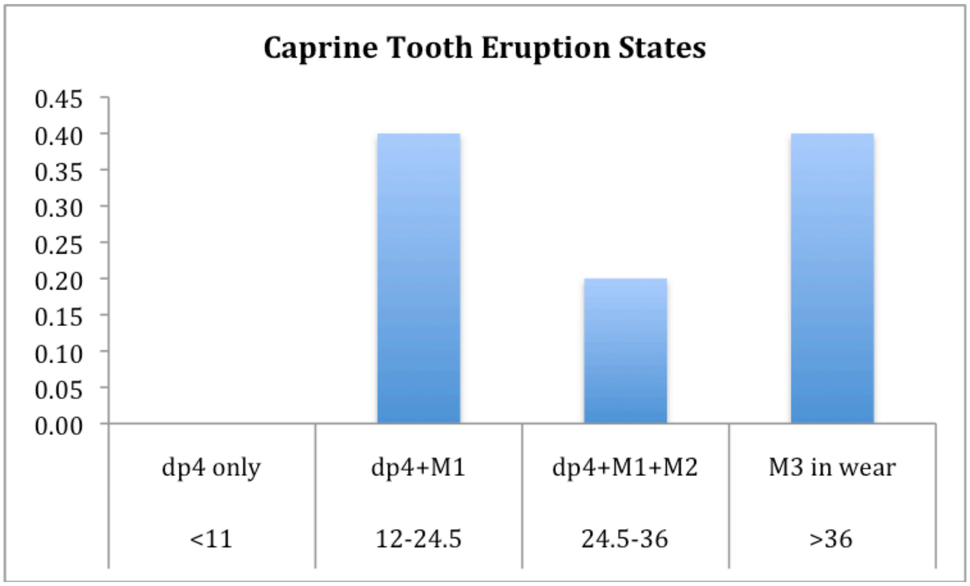

Figure 10: Tooth eruption for caprine mandibles, n=5

This analysis shows that there were no individuals less than one year of age at the time of their death.

Tooth Wear Analysis

With tooth wear studies, it is important to add the caveat that wear patterns are not solely dependent on age, but also on type of food eaten (e.g., Reitz and Wing 2008:174). If there is a lot of grit in the plant material that the animals eat, it will wear away tooth enamel much faster than a grit-free diet would (Mainland 2000; McGovern 2009:192; Zeder 2006:98), potentially making the animals appear older than their actual age. Indeed, especially with the different foraging strategies of sheep and goats, differential tooth wear will be more dependent on diet than on age. However, using tooth eruption and wear data along with long bone fusion data, as will be done here, can help to reconcile the two, potentially very different, age profiles (see Zeder 2006:97–98).

Again, there are only 5 mandibles included in the analysis of tooth wear. The wear stages for each tooth and total mandibular wear scores (MWS) are shown below in Table 2.

Toothwear Reference Number	dp4	P4	M1	M2	M3	MWS
165		j	l	h	g	55
167	g		f			23
169		j	g	h		39

170	m		h			30
173	h		g	U		30

Table 2: Mandibular Wear Scores (MWS) according to Grant (1982).

Long Bone Fusion Stages

Using fusion data compiled by Zeder (2006:107; chart reproduced below in Table 3), long bone fusion stages for the caprines are explored here. The data from Zeder indicate that sheep and goats have very similar ages of fusion for most long bones, and the differences between the two species seem to lie in the order of fusion while ages at time of fusion remain the same. Since the fusion schedule is essentially the same between the two species, this analysis uses both the bones confidently identified as sheep and those in the general caprine category (which could include goats).

Bone	Age of Fusion (in months)	Fused	Intermediate	Unfused
Proximal Radius	0-6	3	0	0
Distal Humerus	6-12	6	0	0
Pelvis	6-12	0	0	1
Scapula	6-12	1	0	0
2nd Phalanx	12-18	12	4	2
1st Phalanx	12-18	18	0	4
Distal Tibia	18-30	3	2	5
Distal Metapodial	18-30	14	0	16
Calcaneus	30-48	2	0	4
Proximal Femur	30-48	0	0	1
Distal Femur	30-48	0	0	2
Proximal Ulna	30-48	0	0	2
Distal Radius	30-48	1	0	0
Proximal Tibia	30-48	2	0	3
Proximal Humerus	48+	0	0	5

Table 3: Long bone fusion stages in caprines. Fusion data from Zeder (2006:107), number of elements in each fusion stage (fused, intermediate, and unfused) are listed for the Kotið assemblage.

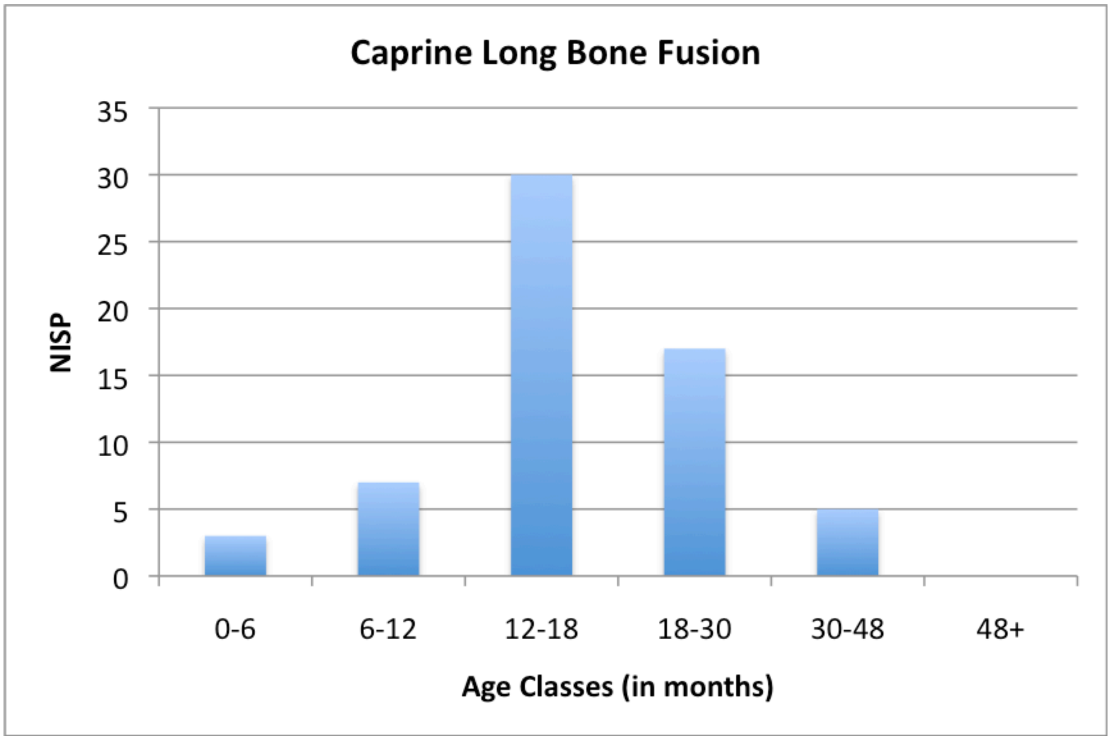

Figure 11: Caprine age classes based on long bone fusion

The long bone fusion data shown in Figure 11 above indicates that many individuals had reached their first year and were then killed. The few younger individuals may indicate a dairy strategy, with young lambs killed shortly after birth in order to collect the milk for human consumption. There were neonatal caprine elements present in the assemblage (n=7, or 2.69% of the total NISP), adding additional evidence to show that some young caprines were killed or died very early in their lives. The older individuals seem to point to a meat-focused economy. Prime meat age for sheep is around 1-2 years, and we see 47 bones from caprines in this age range. This is an expensive strategy, both in labor and in supplies, since the animals need to be raised to the peak of their growth curve. If they were not killed at this age, they would still take up resources and labor, but would give wool and milk (if female) in return. The lack of many old sheep suggests that wool production was not a focus at Kotið, and that mixed meat and milk production was the main focus. This is a common Viking Age strategy, as wool was mostly produced for the household during this time. Later, these profiles shift as wool became more important for export.

Cattle to Caprine Ratios

Ratios of cattle to caprines are used in Iceland to understand shifting importance in resource use over time. While cattle impart status, sheep provide the wool that is vital to surviving the Icelandic winter. Wool also becomes valuable as a trade good and a standardized form of measurement and currency, called *vaðmál*. Over time, the numbers of sheep kept increases, and numbers of cows decrease.

The ratio of cattle to caprines at Kotið is 4.56. This means there are about 4.5 caprines per every head of cattle. We can compare these ratios to those we see in other areas of northern Iceland (Figure 12). Here, the ratios at Kotið are compared to sites of similar time periods in a neighboring region of Skagafjörður, in Mývatn, and in Eyjafjörður. At Hofstaðir in Mývatn, the ratio stays relatively stable over time—it starts out a bit higher (1 cattle per every 3.3 sheep) and drops only slightly in later periods. At Skuggi, in neighboring Eyjafjörður, the mid-10th-early 11th century deposits have the highest cattle-caprine ratio of the sites compared here, with 9.57 caprines per every head of cattle. In the Kotið archaeofauna, the ratio falls around the middle of the sites presented. It is quite similar to the ratio at Hrísheimar in Mývatnssveit and to the earliest period at Stóra-Seyla in nearby Langholt.

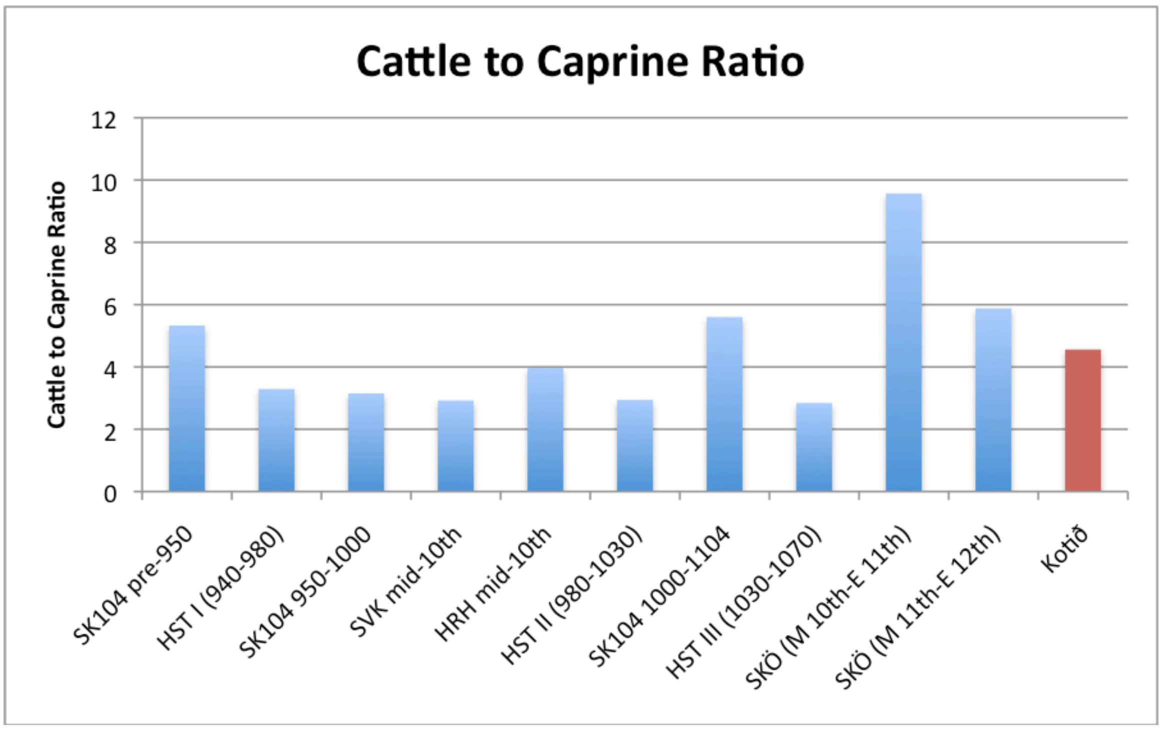

Figure 12: Cattle to caprine ratio at different sites in Northern Iceland around the same time period. Kotið is highlighted here in red. The only other site in Skagafjörður is SK104=Stóra-Seyla. In Mývatn are SVK=Sveigakot, HRH=Hrísheimar, and HST=Hofstaðir. Skuggi (SKÖ) is in Eyjafjörður. A taller bar indicates more caprines.

Cattle

Cattle make up less than 3% of the total archaeofauna. Bones from the entire skeleton are present (Figure 13), with limb bones being represented at a higher quantity than other bones. Similar to the caprine element distribution, this again represents a home butchery strategy.

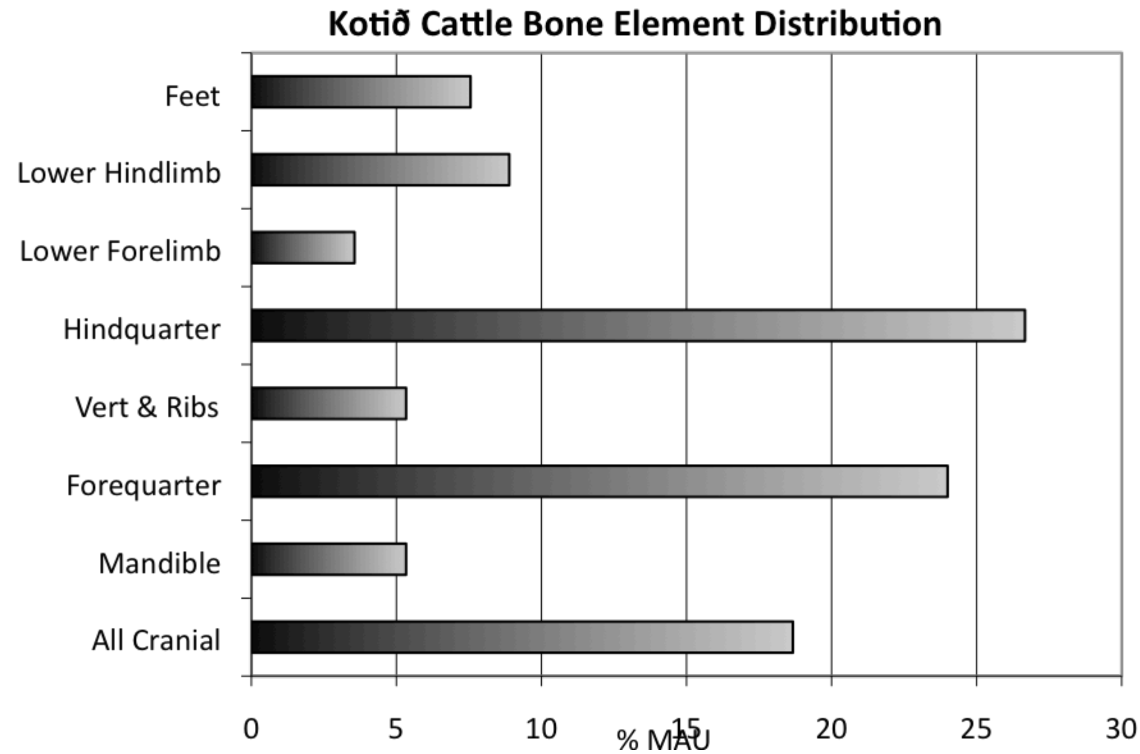

Figure 13: Cattle bone elements present at Kotið. The entire skeleton is represented.

Neonates

Of the 57 total cattle bones, 14 (24.5%) are from neonatal cattle (Figure 14). Unlike the caprine strategy of mixed management for multiple products (milk, meat, and wool), cattle cannot usually be successfully managed for both meat and milk in this way. Cattle have more specialized grazing needs, and raising a calf takes a lot of milk. If the milk is needed for human consumption, the calf must be killed. A high percentage of neonatal animals to adult animals is indicative of a focus on dairy for humans.

According to McGovern (2009:216), a typical Icelandic dairy economy would create an archaeofauna where 30-50% of the cattle bones are from neonates. This is not the case at Kotið, but the percentages are not far off, suggesting an attempt at the kind of dairy-based herding strategy discussed above.

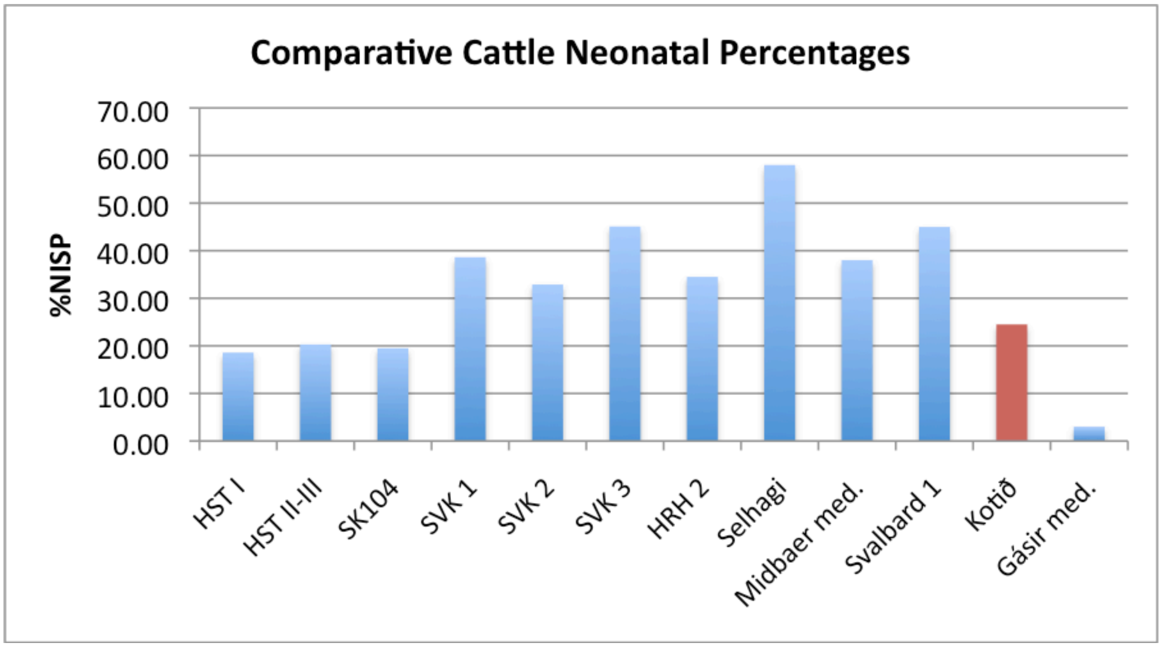

Figure 14: Comparison of cattle neonatal percentages from Kotið (highlighted in red) and other contemporaneous Icelandic sites. Stóra-Seyla (SK104) is located in Skagafjörður. HST=Hofstaðir (Late Viking Age, ca. 940-1000 A.D.), SVK=Sveigakot (Viking Age, 871-1000 A.D.), HRH=Hrísheimar (Viking Age, ca. 871-1050). Selhagi dates to the Early Medieval period (prior to 1300 A.D.), Miðbær (on Flatey) is post-1200 A.D. Svalbarð 1 dates to the Late Viking Age/Early Medieval. The Medieval period at Gásir is ca. 1250-1400 A.D.

Comparing the cattle neonatal percentages at Kotið to other Icelandic sites shows that the pattern for a dairy economy is quite widespread. The majority of the sites in Figure 14 have cattle neonatal percentages in the range given by McGovern (2009) for a dairy economy. The chart also shows that Kotið, while having a slightly higher percentage of neonatal bones, is close to the Viking Age phases at Hofstaðir and to Stóra-Seyla. This sample size at Kotið is smaller than the other two sites, but the site itself is also smaller, so this should be a reasonable approximation of actual activities on site. The outlier shown on the graph is the medieval trading site at Gásir. We now know that Gásir was being provisioned by farms in its hinterlands, and thus were actually consuming prime-age beef that was brought in rather than managing their own cattle (e.g., Harrison 2013).

Cattle Age Profile

There are not enough long bones or mandibles to accurately say anything about the age of the cattle at Kotið and a larger sample size is necessary to draw any firm conclusions. Preliminary results of long bone fusion states (presented in Table 4 below) include 5 bones. They indicate that at least some of the cattle were younger than 1-1.5 years. Peak meat production age is roughly 2.5-3 years (McGovern 2009:220). The current data shows that at least one animal was killed or died during this peak age range (2-2.5 years), but more data could change the picture significantly.

Bone	Age at Fusion	Number Fused	Number Unfused
Distal Humerus	1-1.5 years	1	1
Distal Tibia	2-2.5 years	1	0
Distal Femur	3.5-4 years	1	1

Table 4: Cattle long bone fusion, based on McGovern (2009)

Other Mammals

There were also marine mammals found in this archaeofauna. These include both cetacea and seals. Eleven cetacean bones were identified in total. Nine of these are vertebrae from a small cetacean (Figure 15) and they seem to belong to the same individual based on where they were found and their size. The single piece from a larger cetacean is a fragment that is unidentifiable without aDNA analysis. The final piece is a mandible found in 2016. Ancient DNA (aDNA) analysis on this mandible fragment came back as belonging to the dolphin family (Delphinidae) (Szabo, personal communication).

Figure 15: Vertebrae from a small cetacean

The seal bones (n=10) were not diagnostic to species, but they may also be sent for aDNA analysis. Seal remains include teeth, a rib, and a femur.

Birds

Birds make up 34% of the archaeofauna at Kotið. They include seabirds, land birds, and freshwater birds Figure 16. The seabirds present are mostly alcids—puffin and guillemot. These migratory birds come to Iceland in the summer months to nest. They prefer cliffs, though puffins dig burrows to lay their eggs in. In Skagafjörður, there are huge populations on Drangey, a steep-sided island in the fjord. To collect these birds would require teamwork, since the island is far away and difficult to climb, even with the modern ropes and ladders. Also present were a few gulls and some cormorant (*Phalacrocorax carbo*) bones. These could easily have been collected while hunting puffin and guillemot, or even from the shore. Gulls may have even flown over the site.

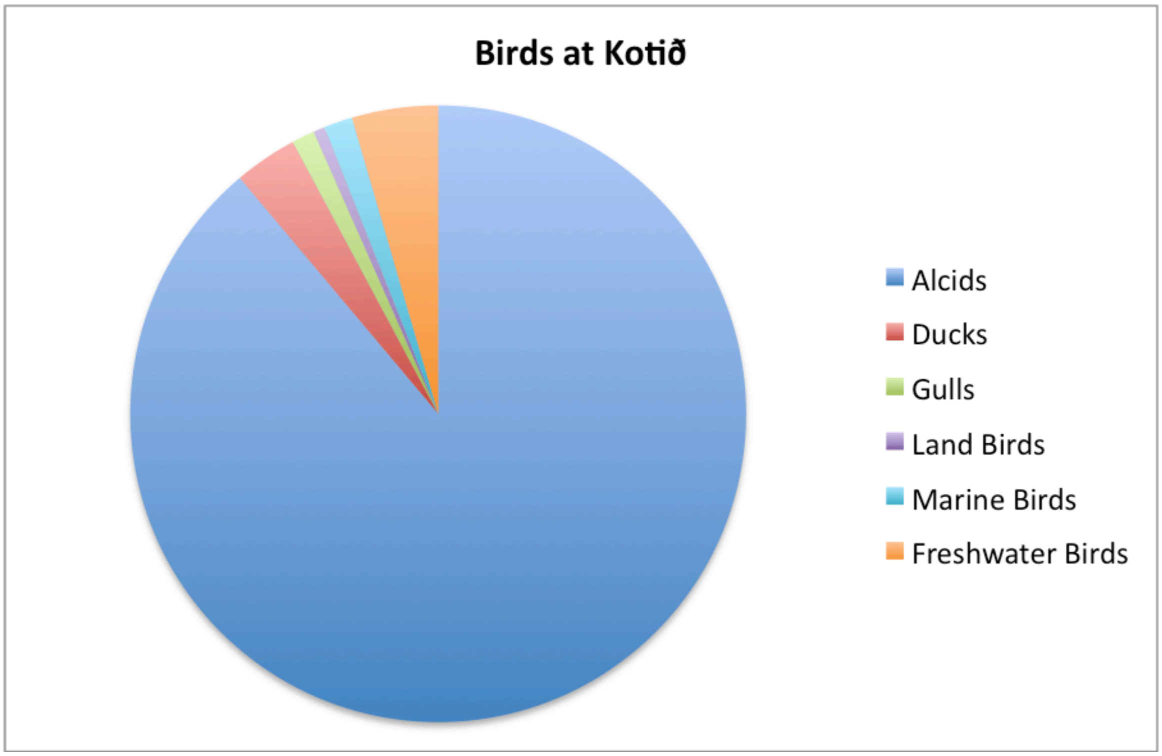

Figure 16: Identified birds at Kotið.

There are 11 ducks in the assemblage. Most of the ducks were not identifiable beyond the family level, but there are 4 red-breasted merganser (*Mergus serrator*) bones in the assemblage. These birds are migratory diving ducks, and they breed around freshwater. Ducks like a more marshy environment and are generally found near water. Today, Kotið does not fit the bill for the ideal duck habitat and there are no colonies nearby. However, Catlin et al.'s (2018:64) loss-on-ignition study shows that the area around Kotið had more organic material in the past, indicating a wetter environment.

The land birds are limited to two plover (*Pluvialis apricaria*) bones. These birds also show up in the summer time, and we have seen them on site today. The marine birds category contains only cormorant (*Phalacrocorax carbo*). The only freshwater bird was the red-throated look (*Gavia stellata*).

Many of the birds in the archaeofauna at Kotið are summer birds. They also represent a necessity for communal cooperation. Their presence indicates a summer occupation at Kotið, but does not mean that people did not occupy the site year-round.

Fish

The fish at Kotið represent an interesting case of resource specialization. Only two of the identifiable fish remains were not from gadids, and these were one trout (*Salmo trutta*) vertebra and a single wolfish (*Anarhichas lupus*) tooth. The focus on gadids, and mostly cod, is interesting in and of itself, because the site does not currently contain any coastline within its borders or the borders of the larger farm, Helluland, to which it belongs. However, it is the specialized fish production signature that is the most intriguing.

Our model for early Icelandic dried marine fish production indicates that at least two distinct types of fish products were being produced in Viking Age Iceland (Amundsen et al. 2004, 2005; Perdikaris and McGovern 2008a). One product was dried in the round, probably closely resembling the historically known "stockfish" later exported in large quantities from late medieval and early modern Iceland. The other product was more heavily filleted and spread open to produce a flat dried product that may have circulated more intensively within Iceland.

The production of these kinds of products leaves distinct archaeological signatures, as does the consumption. With a round dried product, production takes just the skull and the entire fish is dried. Vertebrae from the entire length of the fish (thoracic, precaudal, and caudal) stay with the fish, along with the cleithra, and these bones should all be found at the consumption site. So at a consumer sites, the graphs below (Figure 17 and Figure 18) would show equal bars for all vertebrae, as it presents %MAU and thus controls for quantities of each vertebra in the body.

For a flat-dried product, production cuts off the head and splits the fish down the middle almost all of the way to the tail, again leaving the cleithra to aid in keeping the body together. During the drying process, this filleting allows vertebrae to fall out. Therefore, at site where production of the flat-dried product is the focus, skull fragments and thoracic vertebrae are expected. At a site consuming flat-dried fish, more precaudal and caudal vertebrae will be found.

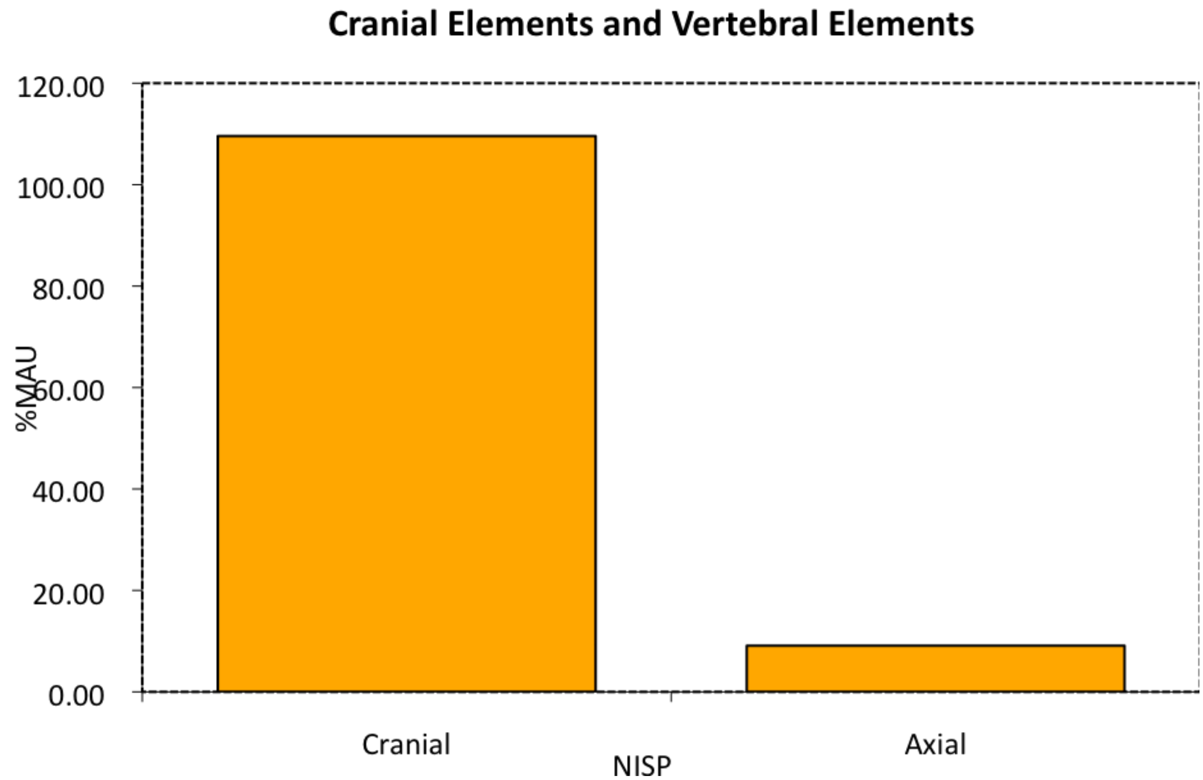

Figure 17: %MAU of cranial elements and axial elements for all gadids.

As can be seen in Figure 17 above, cranial elements are much more common than axial elements. In addition to this, the vertebral analysis Figure 18 shows that mostly thoracic vertebrae are found, in relation to how many are present in the body. This is strong evidence for the production of a flat-dried product at Kotið. The presence of small quantities of the other vertebrae also indicates that fresh fish were consumed whole on site on occasion. This pattern points to a Viking Age artisanal fishing strategy that began at the settlement of the region. Archaeological investigations at sites further inland in Skagafjörður also suggest a local trade network of this dried fish product. At the site of Stóra-Seyla in Langholt, zooarchaeological analyses point to the consumption of a flat-dried fish product (Cesario 2016). Patterns of marine fish product production and consumption have considerable potential to shed light on still poorly-understood patterns of pre-commercial, artisanal production and distribution of these characteristic Nordic dried fish products (Perdikaris and McGovern 2008a, 2008b).

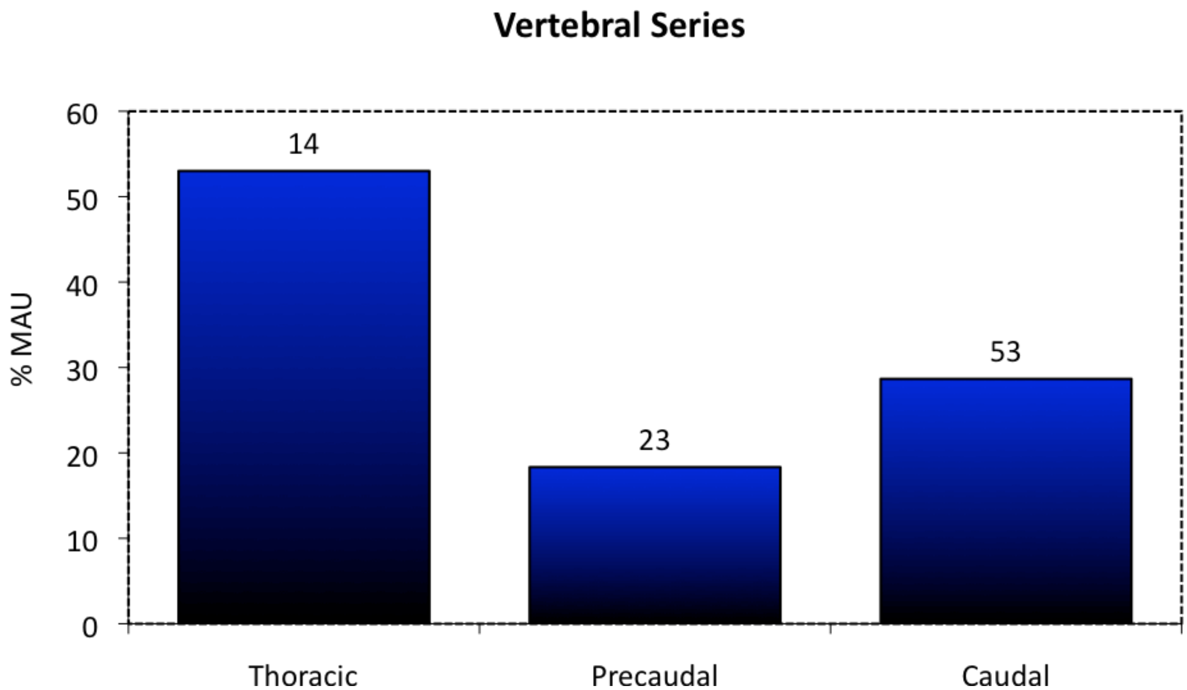

Figure 18: %MAU of vertebrae recovered from Kotið.

With fish bones, there is always the possibility that taphonomy has destroyed many of the bones or that the collection strategy will not favor smaller bones and the archaeofauna will be biased. A biased collection strategy was not the case at Kotið, since the caudal vertebrae are the smallest of all the vertebrae and many were collected. Since these smaller bones were preserved, it can be assumed that the soil conditions were favorable, and so taphonomy does not play a dominant role in the number of fish bones recovered.

Figure 19: View of Kotið. Note how little green there is; the land here is quite eroded and soils are not very deep in most places

Concluding Remarks

For a small site occupied for a relatively short time period, the NISP of 1,990 provides a sound base for quantification. Thus, this analysis can tell us a little bit about the economic activities that took place at Kotið and might be able to bring to light reasons for the site's abandonment before AD 1104. There are very few domesticates present in the assemblage, indicating that animal husbandry was not the only focus of the site. The presence of neonatal caprines and cattle points to occupation during the lambing and calving season, which today takes place in May.

The presence of alcids and plover also indicate a summer occupation. The harvesting of puffin and guillemot would have been a communal strategy, and may hint that the people inhabiting Kotið were an integral part of the community. This does not mean that they were elites, but that their labor or expertise were needed for this communal activity.

The fish signature marks Kotið as a producer site within a local artisanal fish strategy and trade network. Fishing usually takes place in the winter, when farm activities have slowed. However, Kotið does not seem to have been as heavily into farming (animal husbandry and fodder production) as one might expect (refer to Figure 8, the graph comparing wild versus domestic resources at a variety of sites throughout Iceland).

Kotið ceases to be occupied by humans by AD 1104, and possibly earlier. After this, it is reused for livestock grazing and animal structures are also built post-abandonment. The abandonment happens after Icelanders convert to Christianity (AD 1000), after the imposition of the tithe tax law (AD 1096), and right before Hólar comes into power as the bishopric in Skagafjörður (AD 1106). This was a time of social and political change in Iceland, coupled with the effects of environmental changes that began with human occupation of this previously uninhabited island.

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