Fornbýli Landscape and Archaeological Survey on Hegranes (FLASH)
Interim Report 2016

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Picture on front page – Lauren O´Conner and Nicholas Zeitlin excavate a test unit at Næfurstaðir, 29 July 2016. Photo facing south.

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Coring and excavations at the *fornbýli* were carried out under the direction of Kathryn Catlin. Portions of the work were assisted at various stages by John Steinberg, Douglas Bolender, Brian Damiata, Gúðný Zöega, Rita Shepard, John Schoenfelder, Bryndís Zöega, Eric Johnson, Ceecee Cesario, Alicia Sawyer, Katherine Wagner, Aileen Balasalle, Lauren W. O´Connor, Annie Greco, Nicholas Zeitlin, Jared Muehlbauer, and Leigh Koszarsky. Some coring data reported here were collected in 2015 and have previously been reported; that work was assisted by many of those listed above as well as Allison Carlton, Shala Carter, Ramona Steele, Collin Lenfest, Laura Marques-Jackson, and Joe Trebilcock (Catlin, et al. 2016). Josiah Wagener cleaned, conserved, and photographed the artifact finds, and preliminary faunal analysis was carried out by Grace Cesario. The background air photos shown in maps in this report are ©Loftmyndir ehf.

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SKAGAFJÖRÐUR HERITAGE MUSEUM

The Skagafjörður Heritage Museum is a center for research on local history and cultural heritage in the Skagafjörður region, North Iceland. It is affiliated with the National Museum of Iceland and its main exhibition at the old turf farm of Glaumbær is one of the most visited national heritage tourist attractions. The Archaeological Department of the museum was established in 2003 and engages in contract and research driven archaeology both within and outside the region. The core long-term research programs center on fundamental issues surrounding the settlement and early medieval church history of Skagafjörður and the North-Atlantic region with a focus on developing methodological and theoretical approaches to the geography of early Christian cemeteries. The department is involved in multifaceted interdisciplinary collaboration with Icelandic and international institutions and specialists. Its research portfolio includes bioarchaeology, early metal production, settlement studies, as well as the methodological aspects of archaeological surveying.

FISKE CENTER FOR ARCHAEOLOGICAL RESEARCH

The Andrew Fiske Memorial Center for Archaeological Research at the University of Massachusetts Boston was established in 1999 through the generosity of the late Alice Fiske and her family as a living memorial to her late husband Andrew. As an international leader in interdisciplinary research, the Fiske Center promotes a vision of archaeology as a multi-faceted, theoretically rigorous field that integrates a variety of analytical perspectives into its studies of the cultural and biological dimensions of colonization, urbanization, and industrialization that have occurred over the past one thousand years in the Americas and the Atlantic World. As part of a public university, the Fiske Center maintains a program of local archaeology with a special emphasis on research that meets the needs of cities, towns, and Tribal Nations in New England and the greater Northeast. The Fiske Center also seeks to understand the local as part of a broader Atlantic World.

SKAGAFJÖRÐUR CHURCH AND SETTLEMENT SURVEY

The Skagafjörður Church and Settlement Survey (SCASS) seeks to determine whether and how the settlement pattern of the 9th-century colonization of Iceland affected the development of the religious and economic institutions that dominated the 14th century. The research builds on the combined methods and results of two projects. One has focused on Viking Age settlement patterns (Steinberg, et al. 2016). The other has been investigating the changing geography of early Christian cemeteries (Zoëga 2014). Together, the research seeks to understand the connections between the Viking settlement hierarchy and the Christian consolidation.

FORNBÝLI LANDSCAPE AND ARCHAEOLOGICAL SURVEY ON HEGRANES

The *Fornbýli* Landscape and Archaeological Survey on Hegranes (FLASH) project investigates ruined structures and sites located on the environmental and social margins of the modern farm properties. This research complements the work of SCASS by seeking to understand the role of smaller, marginal settlements in the political economy of the region, as well as the effects of anthropogenic environmental and landscape change on the establishment, abandonment, and reuse of these sites. The project is led by Kathryn Catlin as part of her doctoral dissertation in Anthropology at Northwestern University.

Contents

Introduction

In 2016, the *Fornbýli* Landscape and Archaeological Survey on Hegranes (FLASH) project and the Skagafjörður Church and Settlement Survey (SCASS) continued survey and excavation in and around known outlying ruins and archaeological places (*fornbýli*) on the farms of Ás (Næfursstaður), Keflavík (including Kriki and Þrælagerði), Egg (Minni-Egg), Helluland (Háagerði and Kotið), and Hamar (Hendilkot) on Hegranes in Skagafjörður, North Iceland (Pálsson 2010) (Figure 1). The work was performed to meet the goals of Kathryn Catlin's doctoral dissertation research towards her PhD at Northwestern University as part of the Skagafjörður Church and Settlement Survey (SCASS). Additional coring by SCASS in 2016 at the outlying fields of Garður (Hegranesþing), Keta, Ríp, Utanverðunes, Keflavík, Egg (including Rein), Helluland (including Ásgrimsstaðir), and Hamar are described in separate reports, along with specific details and analysis of the farmsteads at these major sites (Bolender, et al. 2017; Steinberg, et al. 2017).

The work described in this report was performed under two permits issued by Minjastofnun Íslands. Coring at the *fornbýli* sites was carried out under MÍ 201606-0030, test excavations were performed under MÍ 201606-0051, and finds were collected under ÞÍ 2016-41.

The FLASH research had two primary purposes: first, to locate, date, and to the extent possible, characterize the nature of the activities performed at the *fornbýli* locations; and second, to describe and understand the sequences of soil erosion, sediment deposition, and landscape change that have occurred on Hegranes, both near and distant from the *fornbýli* sites and the major farms, since the settlement of Iceland ca. 870 AD.

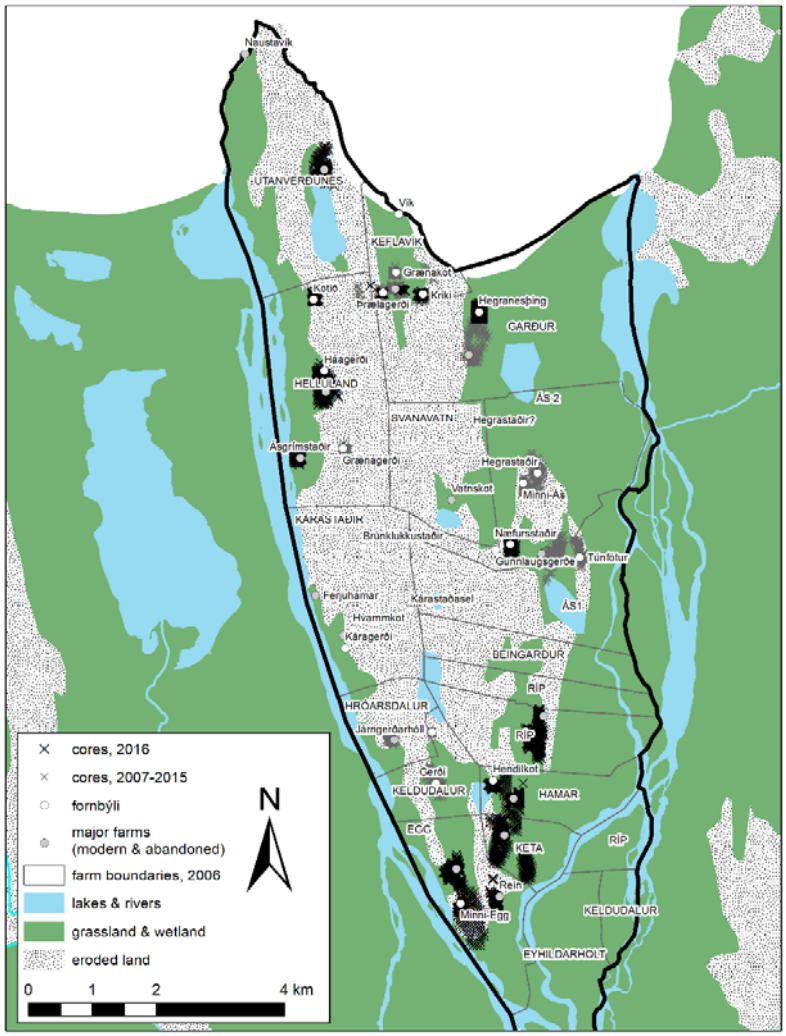

Figure 1*. Map of Hegranes showing farms,* fornbýli *sites, and cores. Erosion data ©LBHI.*

Coring was employed by FLASH and SCASS to (1) determine the establishment date and extent of the medieval settlements and farmsteads; (2) locate areas of human activity and measure soil depth in the fields immediately surrounding the medieval settlements; and (3) determine the dates, use, and environmental context of *fornbýli* sites.

The Icelandic word *fornbýli* usually refers to relatively small, early farmsteads, generally without evidence of settlement after the medieval period. Often *fornbýli* include a longhouse (*skáli*), one or two outbuildings, and an enclosure wall. *Fornbýli* is also sometimes used to describe indeterminate ruins which, based on the surveyor's experience, are likely to have previously been inhabited – this latter sense was used by Hjalti Pálsson in Byggðasaga Skagfirðinga (2010), and the FLASH project takes his designations as a starting point for investigation. Most of the sites surveyed in this project do not have surface features common to *fornbýli*, but archaeological research is showing that the majority of them were inhabited early; though most early features have since been obscured by later construction and agricultural use of the sites. It is also possible that the early habitation phases of at least some of the sites may not represent "farms" *per se* but rather long-term activity areas, which raises additional questions about terminology. For consistency, *fornbýli* is used to describe the early habitation phase of the sites, while the more general "site" designation is used for later phases and for the site as a whole.

Preliminary interpretations of the work suggest that many *fornbýli* were inhabited early, that the sites were reused after habitation ceased for multiple purposes through the medieval period and later, and that the overall landscape of Hegranes has been subject to significant erosion and alteration over the course of its history. Most of the *fornbýli* were inhabited prior to ca. 950 AD, and several of them were relatively large during the 10th and 11th centuries, comparable in size to farms that would later become much larger and more successful (Appendix E). Others seem only to have been inhabited for a short time, perhaps as a temporary or seasonal work site. None show evidence of habitation much after ca. 1104, and from that time until after the late 18th century, many of the sites were rebuilt as farm infrastructure for livestock management, only to be finally abandoned and fall to ruin before the 20th century. Preliminary environmental analysis suggests two significant periods of erosion: prior to 1104, and after 1766, roughly corresponding to the periods when the use of the sites was changing.

The relationship between mire development and site use will be further investigated in 2017, along with the character and timing of habitation at the remaining sites.

Methodology

Chronology

Skagafjörður has a tephra sequence that allows for a common dating system, leading to a fine-grained chronology of the changes in early settlement patterns (Larsen, et al. 2002; Þórarinsson 1977). The dates of the historic eruptions roughly permit delineation between several major historical events, including the original settlement of the island about 870 AD, the end of mass migration to the island in ca. 930, the conversion to Christianity in ca. 1000, the establishment of the tithe law in 1097, the incorporation of Iceland into the Norwegian state in 1262, and the beginnings of the Little Ice Age around the beginning of the 14th century (Figures 2 and 3). Brian Damiata is engaged in ongoing analysis of the tephra layers.

Historic tephras:

- Hekla A.D. 1766. A black tephra often observed in the upper 10-20 cm of the soil sequence.
- Hekla A.D. 1300. A gray-blue to black tephra (Larsen 1984; Larsen, et al. 1999; Larsen, et al. 2002; Larsen, et al. 2001; Sveinbjarnardóttir 1992).
- Hekla A.D. 1104 (H1). A white or yellowish-white tephra; the most consistent in Skagafjörður (Eiriksson, et al. 2000; Thórarinsson 1967) and readily identifiable in both natural and cultural stratigraphic sequences. Variously referred to below as 'H1' or '1104'.

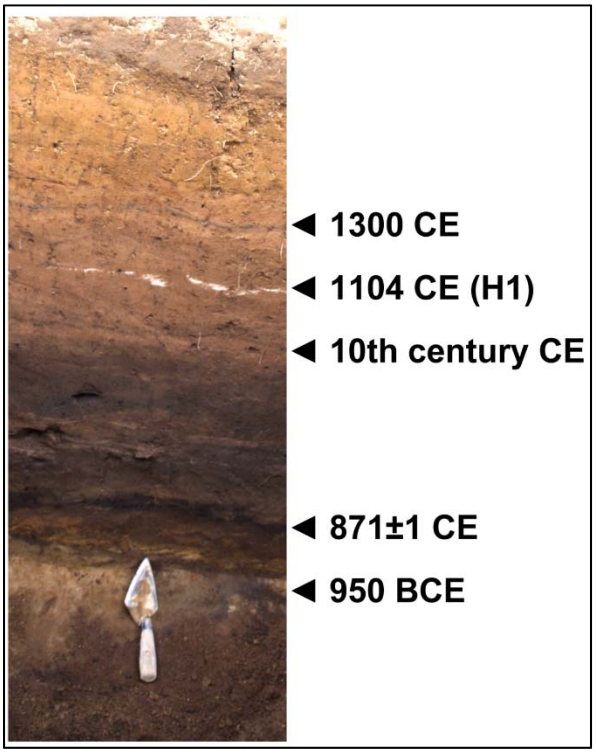

Figure 2. *Skagafjörður tephra sequence, shown in a representative profile section.*

Landnám sequence tephras:

- Late 10th century tephra (1000). The source has not yet been determined, but likely to be either the Grímsvötn or Veiðivötn eruptions dated to approximately A.D. 1000 (Vj~1000) (Boygle 1999; Ólafsson 1985; Sigurgeirsson 1998; Wastegard, et al. 2003).
- The mid-10th century layer (~950). This bluish-green layer is currently un-sourced and undated, but is found between the LNL and Vj~1000. Analysis by Brian Damiata is ongoing. There are several potential candidates for this layer, including the A.D. 934 ±2 eruption of Eldgjá (Fei and Zhou 2006; Hammer, et al. 1980; Thordarson, et al. 2001), an A.D. 933 ±6 green tephra layer identified in the Lake Mývatn area from Veiðivötn, termed V-Sv (Sigurgeirsson, et al. 2013), or a V~950 layer also observed in Mývatnsveit (Sigurgeirsson, et al. 2002).
- "*Landnám* layer" (LNL), dated to A.D. 871 ±2, the approximate date of the settlement ("*landnám*") of Iceland (Grönvold, et al. 1995; Zielinski, et al. 1997 [A.D. 877 ±4]). The tephra

originates from the Vatnaöldur fissure swarm associated with the Torfajökull and Bárðarbunga volcanoes system (Dugmore and Newton 2012; Larsen 1984). The eruption had two stages, resulting in two distinct tephras – an olive-green tephra overlaying a white tephra. Only the green component has been identified in Skagafjörður.

- Black tephra before the LNL (Black Katla). The earliest tephra in this sequence is a dark black layer probably from the Katla volcano, but it is not well dated and its distribution is not yet well understood in Skagafjörður (Wastegard, et al. 2003).
- 'LNS' signifies the *landnám* sequence, a series of tephra and other sediment layers that are often found in association with the LNL and Black Katla. This distinctive dark-colored sequence is sometimes observed in the absence of accompanying tephra, and in such cases is also assigned a date of ca. 870. The non-tephra elements of the LNS have been attributed to the widespread effects of human activity, especially deforestation.

Prehistoric and other tephras:

- Hekla 3 (H3). A thick (generally 2-3 cm), coarse grained, white or whitish-yellow tephra dating to about 950 B.C. (Dugmore, et al. 1995).
- Hekla 4 (H4). A thick (generally 1-3 cm), finer grained, white or yellowish-white tephra dating to about 2300 B.C. (Eiriksson, et al. 2000).
- Unknown tephras:
  Tephra that could not be identified were recorded as 'unknown' in the field. These are often dark tephras that do not obviously correspond to one of the known layers in the sequence. Descriptions, especially color, are recorded for unknown layers.

Tephra are used to date layers within the stratigraphic sequence in soil cores and excavations, to associate specific layers with historical periods, and to characterize environmental changes through time.

Coring

Field Methods

Coring in and around the *fornbýli* was performed in systematic paced grids with 10-meter spacing, with additional judgmental coring near areas of suspected early habitation. In some cases, coring at more distant areas in the vicinity of the *fornbýli* employed 20 meter grids. Extensive field coring used grids of up to 50-meter spacing. We recorded a total of 2624 cores on Hegranes in 2016, of which 619 were recorded at *fornbýli*. Previously, 1737 cores (814 at *fornbýli*) had been recorded in 2015 as well as 91 cores in earlier years (2007 and 2013) (Table 1, Appendix F).

Field and *fornbýli* coring primarily employed a JMC Backsaver core with an 18-inch large-diameter sampling tube. The backsaver core is capable of extracting up to 120 cm of sediment in 40-cm increments, with a diameter of approximately 3 cm (1.25 in) (Figure 3).

Figure 3. *Stratigraphic layers in a JMC Backsaver core.*

Recording Methods

Coring data was entered to the SCASS database in the field using an IPad or IPhone with remote access to FileMaker Go software. In order to characterize the history of sediment deposition and erosion on Hegranes, we recorded stratigraphic information for each core, including depth, thickness, and descriptions of sediment layers. Stratigraphic data was recorded from the top of the topsoil to glacial gravel or bedrock (or the depth at which the core could no longer penetrate into the ground, if gravel was not directly observed). In some cases, when prospection for cultural material was the primary purpose of the core, coring halted after the prehistoric H3 or H4 layer was observed. In the maps below, the total depth of core penetration is shown: a simple color-coded dot indicates the depth at which rock or gravel was reached, while the stopping depth of cores where gravel was not reached are designated with an 'x' atop the color-coded dot. In the text and in Table 1, when average depth is reported, the calculation includes only cores for which total depth to gravel or bedrock is known (i.e. those without an 'x' on the depth maps).

Stratigraphic layers were identified as belonging to one of several ecological or cultural descriptive categories. Ecological categories included topsoil, Aeolian deposit (silty andosol), bog, clay, gley, sand, glacial gravel, and bedrock. Bog (mire) deposits are discussed below in terms of landscape change and land use, and are shown on the maps. Cultural categories included domestic refuse or midden deposits (pink or grey layers primarily consisting of more than 50% ash and other debris), architectural turf, floors, and other dense cultural layers. We also used a "low density cultural" designation for layers in which Aeolian sediment was diffusely mixed with ash (10-50% of the soil matrix). Inclusions of ash, charcoal, bone, and other material in an otherwise sterile matrix were also recorded. Additional descriptions and disturbances, as well as other relevant comments regarding the core and its location, were noted when applicable.

Depth and thickness of tephra layers were also recorded where present, and the presence or absence of tephra layers in shown in the maps below. When observed in association with cultural deposits, tephra layers are used to constrain the earliest and latest possible dates for the deposit. When tephra was not observed in situ, *terminus post quem* (date after which) dates of certain cultural deposits can be obtained from layers of turf that include tephra; for example, a turf that includes multiple layers of the H1 tephra must have been cut from a bog after the year 1104.

Analytical Methods

Chronological phasing of cultural material primarily relies on two tephra layers: the white Hekla A.D. 1104 (H1) and the dark bluish-grey Hekla A.D. 1300. These layers are the most commonly observed, and are often the easiest of the historical tephras to identify. When present, the dark black Hekla A.D. 1766 and the greenish ~950 layer are also used to date deposits. The chronology derived from the coring data allows the earliest evidence for human use at a point location to be assigned to one or more of the following time periods (all A.D.):

- Pre~950
- Pre-1104
- 1104-1300
- Pre-1300
- Post-1766
- Post-1300
- Post-1104
- 'All time', denoting the presence of cultural material from any time period, whether or not a date could be assigned.

Table 1. *Summary of coring data from* fornbýli *in 2016. (** = data collected in 2016 only; * = data collected in 2015 and 2016; ++ = differences significant to p=0.05; + = differences significant from p=0.05 to p=0.15; - = wall location not known; ° = date derived from analysis of cores and excavation where available)*

Farm	Total Cores		Average Depth (cm)		Cultural Material			1766		1300		1104		1000		~950		LNS/ LNL		H3		H4		Unknown / Other		Bog		Earliest Clear Cultural Date°	location missing
					Any			Total		Total		Total		Total		Total		Total		Total		Total		Total		Total			
	Inside Wall	Outside Wall	Inside Wall	Outside Wall	Midden	LDC	Turf	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out		
Þrælagerði*	145		44		71			7		13		27		0		0		2		79		11		2		12		pre~950	0
	86 (59%)	59 (41%)	45	43	18	6	47	2	5	5	8	10	17	0	0	0	0	2	0	54	25	5	6	0	2	4	8		
Kriki*	112		57^{++}		33			22		33		40		2		1		26		65		30		4		20		pre~950 (probable)	0
	78 (70%)	34 (30%)	72	33	5	4	21	18	4	21	12	34	6	2	0	1	0	25	1	55	10	27	3	3	1	15	5		
Næfurstaðir*	157		44^{+}		66			24		17		49		9		13		6		62		10		4		37		pre~950	0
	93 (59%)	64 (41%)	48	38	17	13	40	9	15	4	13	38	11	7	2	13	0	6	0	45	17	2	8	1	3	12	25		
Hendilkot**	124		43^{-}		55			0		2		56		4		16		9		73		7		2		0		Pre-1000	0
	-	-	-	-	18	16	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Minni-Egg* inner	182		55^{++}		55			11		17		32		2		1		14		110		57		8		19		pre-1104	0
	108 (60%)	74 (40%)	63	44	0	7	43	7	4	8	9	23	9	2	0	1	0	12	2	75	35	49	8	8	0	16	3		
outer	156 (86%)	26 (14%)	57	44				2	2	4	5	6	3	0	0	0	0	2	0	25	10	4	4	0	0	1	2		
Háagerði**	46		38^{+}		17			8		8		9		0		1		0		13		1		0		16		post-1300	0
	19 (41%)	27 (59%)	45	32	0	0	16	2	6	3	5	3	6	0	0	0	1	0	0	6	7	0	1	0	0	4	12		
Kotið**	70		39^{-}		26			11		11		22		6		0		13		27		11		4		3		pre~950	1
	-	-	-	-	3	6	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		

*Table 2. List of Test Pits and Profiles (coordinates in ISN 1993 Lambert) (*marks center of profile)*

Site	Place	Farm	Fornbýli	Excavation	Size (m)	SW Corner Easting	SW Corner Northing	Date Opened	Date Closed
445	6	Keflavík	Keflavík	Profile 1	Profile	477393*	581872*	29 June 2016	29 June 2016
445	6	Keflavík	Keflavík	Profile 2	Profile	477445.5*	581843.5*	30 June 2016	30 June 2016
445	4	Keflavík	Kriki	TP1	1x1	477712	581767	4 July 2016	7 July 2016
445	4	Keflavík	Kriki	BOG1	.5x.5	477673	581768.5	9 July 2016	9 July 2016
445	2	Keflavík	Þrælagerði	TP2	1x1	477070.5	581790	10 August 2016	11 August 2016
447	2	Helluland (Hamraborg)	Kotið	TP1	1x1	475998.6	581699.1	15 July 2016	18 July 2016
442	4	Ás	Næfurstaðir	TP1	1x1	479087.3	577784.2	28 July 2016	30 July 2016
455	1	Hamar	Hendilkot	TP1	1x1	478805	574013.5	1 August 2016	3 August 2016

Deposits associated with these temporal phases were labelled based on whether or not they contained any evidence of cultural material, including midden, LDC, turf, floor, other cultural layers, or small inclusions of ash, charcoal, or bone. Cores were assigned to a "yes," "no," or "maybe" category for each of these time periods. These criteria are used to date the various activities that have taken place at the site, and to map the spread of associated material remains. This data is shown in the maps below.

Designating cores based on the presence of *any* cultural material is a more inclusive criteria than the "farmstead" designation employed by SCASS for coring in and around visible farm mounds (see Bolender, et al. 2016 and forthcoming). Greater inclusivity is appropriate for the interpretation of field and *fornbýli* coring, where mounds may not be evident, and evidence for human use of the landscape is often limited outside of very small areas where the concentration is higher. However, to facilitate size comparison between *fornbýli* and other SCASS sites, approximate farmstead areas ca. 1104 have also been calculated for the *fornbýli* based on the observation of midden, turf, and low density cultural (LDC) layers, following the SCASS protocol (see methodologies in Bolender et al. 2016). Maps showing the resulting estimated farmstead extents are also included below. It should be noted that these farmstead sizes are early estimates, rounded to the nearest 100 m^2, and may be revised before final publication of the results.

Coring maps shown below display (1) the depth of glacial gravel/bedrock (or the full depth to which the core penetrated if basal deposits were not encountered); (2) the presence or absence of all tephra layers, shown along with the presence or absence of natural bog (mire) deposits; (3) the presence, category, and earliest date of observed cultural material; and (4) the approximate size of the ´farmstead´ at 1104, with yes/maybe designation for cores that contained midden, LDC, and/or turf. Maps for Þrælagerði, Keflavík, Kriki, Næfurstaðir, and Minni-Egg include data collected in 2015 as well as 2016. Independent sample statistical t-tests were performed to explore the difference in soil depth to bedrock inside vs. outside of field boundaries, and the p-values (significance) of these tests are summarized in Table 1 and described in the text below.

Excavations

Test excavations at the *fornbýli* targeted the oldest locations of ash middens as determined from coring survey, and additional profiles at Keflavík were placed to characterize wetland development in the vicinity of human habitation.

A total of eight test pits and profiles were excavated in 2016 as part of FLASH (Table 2). Test pits were excavated using a single context recording protocol according to the methods described by the Icelandic Institute of Archaeology (Fornleifastofnun Íslands (FSÍ)) (Lucas 2003). Contexts under the 1300 tephra layer were sieved through a 5 mm mesh screen, except TP1 at Kotið which used a 2.5-mm mesh. Contexts, photos, samples and finds were entered to the SCASS database in the field using an IPad or IPhone with remote access to FileMaker Go software. Contexts within the test pits were divided in the field by major distinctions in color, composition, and inclusions. Layers were further

identified and clarified in profiles. Profiles 1 and 2 at Keflavík were cleared back from existing ditches, and the unit in the mire (Bog 1) at Kriki was dug rapidly in an area with no cultural deposits to expose a profile for the retrieval of loss-on-ignition samples. Profiles for all units were drawn in the field and converted to digital images in Adobe Illustrator.

All finds have been conserved by Josiah Wagener and will be remitted to the National Museum of Iceland. Numerous faunal remains were retrieved and are undergoing analysis by Grace Cesario. Macrobotanical flotation samples were obtained from all pre-1300 contexts and are undergoing analysis at UMass Boston. When feasible, bone samples were collected for radiocarbon dating, and will be processed by Brian Damiata. Loss on ignition samples collected from the bog at Keflavík will be processed by Kathryn Catlin in 2017. For a list of all finds and samples, see Appendices A (Finds Register), B (Sample Register), and C (Flotation Log).

GPS Recording

Location data was recorded through the use of several GPS devices. All measurements use the ISNET93 coordinate system. Core locations were most often recorded using the built-in GPS of the mobile device, taking advantage of location functions within the FileMaker software. Using iPhones and iPads, the GPS location is accurate to between 4 and 10 meters. Due to vagaries of collecting location data with iPads and iPhones, which depend upon local cell phone service as well as line-of-sight connection to GPS satellites, location data failed to record for 17 cores in 2016. In a few cases these locations were estimated from memory.

Location information for cores at *fornbýli* was also recorded using a Trimble R1 differential GPS receiver connected via Bluetooth to a shared map in ArcGIS Online. Data were collected using iPads and iPhones running the GNSS Status and ArcGIS Collector apps. This technology allowed us to view the locations of cores in real-time with a location accuracy of < 1m when connected to the R1 receiver. A Trimble R2 was also employed occasionally, in particular to collect test excavation unit corner locations to a horizontal accuracy of < 10cm at Kriki, Keflavík, and Hendilkot. ArcGIS Collector can also record locations using the internal GPS receiver in the tablet, again with an accuracy of ca. 4-10m, and this method was employed during field coring at several of the major farm sites. However, ArcGIS Collector is unable to record elevation data, so points collected via the app were recorded only in two dimensions. Coring locations recorded in 2015 at Kriki, Þrælagerði, Minni-Egg, and Næfurstaðir used only the internal iPad GPS in the FileMaker Go app, and therefore may only be accurate to within 4-10m.

SCASS also regularly employs two handheld Trimble devices, a Geo7X and a GeoXH (estimated accuracy < 1m), as well as a Topcon Hiper SR differential GNSS (estimated accuracy 1 cm) to capture location data. Corners of test excavations at Þrælagerði, Kotið, and Næfurstaðir, and a few core locations at the major sites, were measured using the Topcon HiperSR which received RTK corrections in real-time. Some coring locations at the major farms were collected with the Trimble handheld devices, and this data was differentially corrected via post-processing using Pathfinder Office software.

Digital Photography

During test excavations at the *fornbýli*, all profiles and contexts were photographed with a Canon T5i DSLR camera with a Sigma 18-250mm lens, and photos were stored on the SCASS server and uploaded to the FileMaker database (Appendix D). To supplement the coring survey, more than 400 digital photos were recorded in 2016, taken in JPG format using the built-in camera of the iPhone or iPad used for data collection. Some coring photos were saved to the Camera Roll, some were taken directly in ArcGIS Collector, and others were taken directly in FileMaker Go. Coring photos not taken

directly in FileMaker were uploaded to the database later, and are also stored on the SCASS server. Cores with photos on record are so noted in Appendix F.

Kite Aerial Photography (KAP) was performed at multiple sites in 2016 under the direction of John Schoenfelder. Images have so far been processed for Egg and Helluland, and are shown in the corresponding maps below, along with kite photography from other sites in previous years. KAP was performed at a single *fornbýli* site in 2016 (Háagerði on Helluland) and the images have not yet been processed. For details of the process and a list of photos, see the 2015 SCASS and FLASH reports and the forthcoming 2016 SCASS report (Bolender, et al. 2016; Bolender, et al. 2017; Catlin, et al. 2016; Steinberg, et al. 2017).

Field boundaries

Boundaries of homefields shown on the maps and used in soil depth comparisons were derived from several sources. Field boundaries at many of the *fornbýli* are visible on the surface today, and were traced from commercially available aerial photography (except for sites at Keflavík, which were surveyed by Byggðasafn Skagfirðinga in 2008 (Guðný Zoëga and Guðmundur S. Sigurðarson 2009)). Additional GPS survey of visible turf architecture at the *fornbýli* will be carried out in the spring of 2017.

During the second half of the 20th century, many farms in Iceland (including those on Hegranes) were enlarged, flattened, drained, and plowed to take advantage of higher yields made possible by modern machinery. Therefore, no surface trace is visible of walls and structures that were present prior to modernization, including homefield walls of the major farms as well as any *fornbýli* that were located within the expanded hayfields. For farms that were extant at the time, *túnakort* (property assessment maps) from 1918 were georeferenced to their best-guess location based on natural features, modern field shapes, roads, and structures, and were traced into a shapefile in GIS.

Survey Results

Ás

The farm at Ás (now comprising Ás I and Ás II) is one of the largest farms in Hegranes, and has been associated with the first settlers to arrive in the region in the late 9th century AD. Ás is located along the eastern side of Hegranes and takes its name from the eroded, rocky ridge (*ás* in Icelandic) that runs along the north-south axis of the farm.

Five known *fornbýli* are located on the landscape of Ás I and II: Minni-Ás, Hegrastaðir, Túnfótur, Næfurstaðir, and Gunnlaugsgerði (Figure 4) (Pálsson 2010:58-59). Ás itself, Minni-Ás, Túnfótur, and Hegrastaðir were surveyed in 2015 (Catlin, et al. 2016). Næfurstaðir was partially surveyed in 2015, and completed in 2016, including the excavation of a test unit (TP1). In 2017, Gunnlaugsgerði will be surveyed and Hegrastaðir will be completed.

Næfurstaðir

Næfurstaðir is located about 700 meters to the west of the main medieval farm at Ás, on the western slope of a low boggy valley, now drained and cultivated as hayfields (Figure 5). The turf wall and ruined structures at Næfurstaðir are mentioned in the Jarðabók, a farm survey carried out in 1709-1713, where the place is described as “Hafurstader,” suggesting goats (“hafur”) may have been kept here at some point (Magnússon and Vídalín 1930:65; Pálsson 2010:58). The Örnefnaskrá only mentions Næfurstaðir briefly (Örnefnastofnun Íslands n.d.-a). The name, however, refers to birch bark (*næfur*), which could have been used for kindling, tanning hides, roofing, paper, crafts, and other purposes. The construction date and earlier uses of the site are not known. The old wooden corral

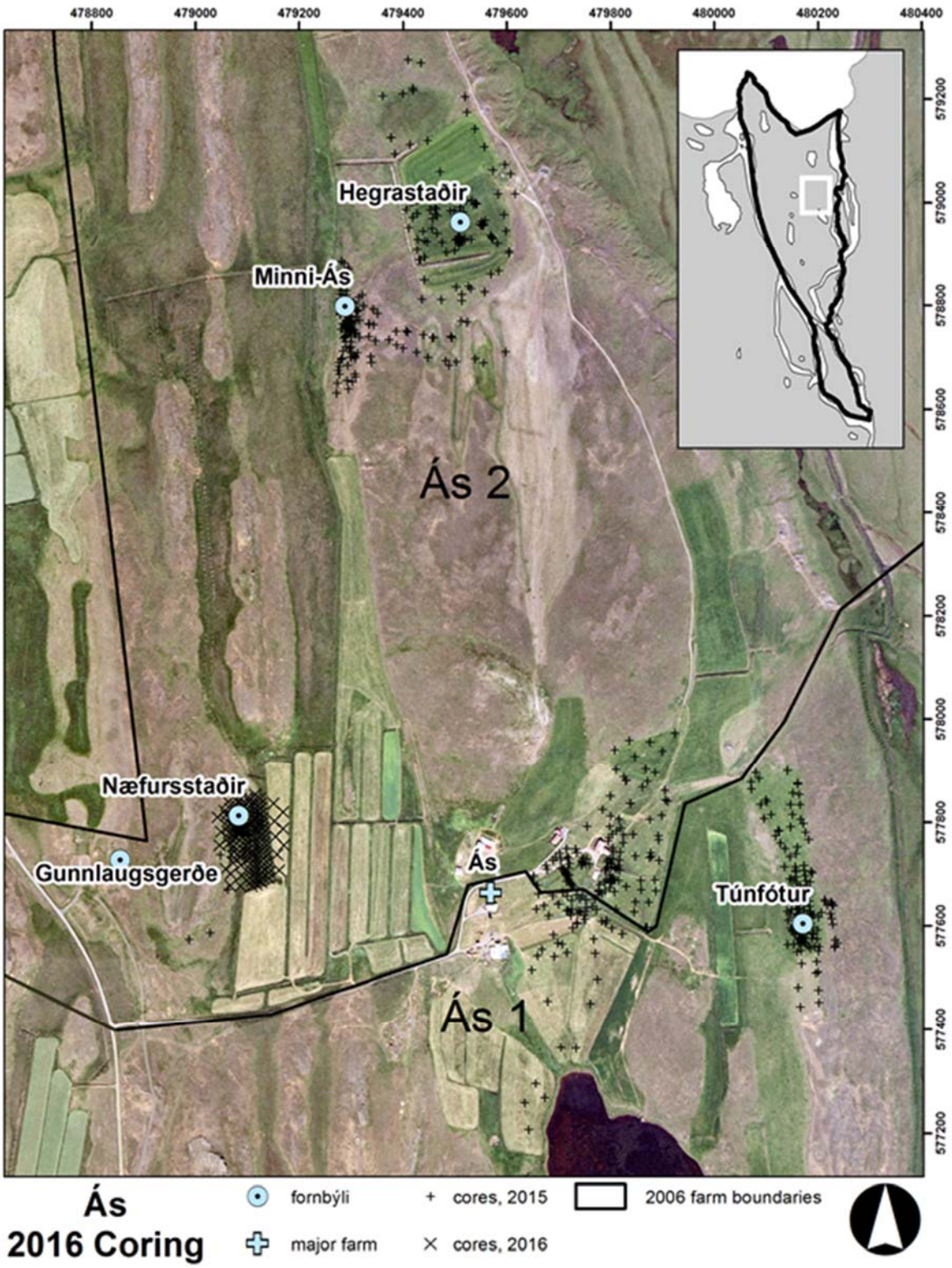

Figure 4. Locations of fornbýli *and coring at Ás.*

(*rétt*) atop the hill to the west of Næfurstaðir has been known as Næfurstaðarétt as recently as 1990 (Defense Mapping Agency USA and Iceland Geodetic Survey), so the lower *fornbýli* site may have been in use in some form when the *rétt* was constructed and used.

The site is heavily cryoturbated, and is situated between a steep eroded slope to the west and a mire to the east. *Þúfur* (frost hummocks) here are often waist deep or higher, and the grass is very long,

conditions that make survey somewhat challenging. The ruins at Næfurstaðir include two structures visible on the surface, one large multiple-room structure at the top of a small hill near the northwestern corner of the field, and another, smaller structure to the east near the ditch (Figure 5). These structures are encircled by a turf wall that is also visible on the surface, and is clearly apparent in air photos (Figures 5-9). The eastern edge of the field wall is truncated by a ditch that now drains the field to the east, making it suitable for modern hay cultivation. It is likely that the turf wall originally extended farther to the east, which would have given the field a more circular shape, although coring in the boggy field to the east of the site did not reveal clear evidence of a historic turf wall. All structures will be surveyed with a GPS in the spring of 2017.

Coring

A total of 140 cores were recorded at Næfurstaðir in 2016, bringing the total number of cores at the site to 157 (Table 1, Figures 6-8). The data were collected in 10-m transects through the site on 27 July and 12 August 2016. Ninety-three cores (59%) were recorded inside the visible turf wall, while 64 (41%) were recorded outside the wall. The cores outside the wall included several transects to the north and south, a single transect along the slope to the west, and two 30-m transects in the drained mire to the east. The slopes to the north and west are dry and heavily eroded, with gravel emerging in many places, and numerous blueberry shrubs. The land to the south and east is flatter and boggy. It was hoped that transects in the mire to the east would reveal evidence of an extension to the turf field wall prior to flattening and drainage, but no turf could be distinguished from natural peat deposits in these cores. Numerous cores inside the turf wall also contained significant peat deposits, especially in the southeast section (Figure 7).

Soil inside the wall had an average depth of 48 cm, while outside the wall, the depth averaged 38 cm (Table 1, Figure 6). This 10-cm difference is significant to p=0.05, equal variances not assumed. This

Figure 5. *Aileen Balasalle takes a GPS measurement on the eroded slope outside the wall at Næfurstaðir. Photo facing southeast. The turf field wall and the main ruined structure are visible, and the secondary structure is barely visible near the center of the photograph. The modern buildings in the middle distance are the farmhouses and barns of Ás I and II.*

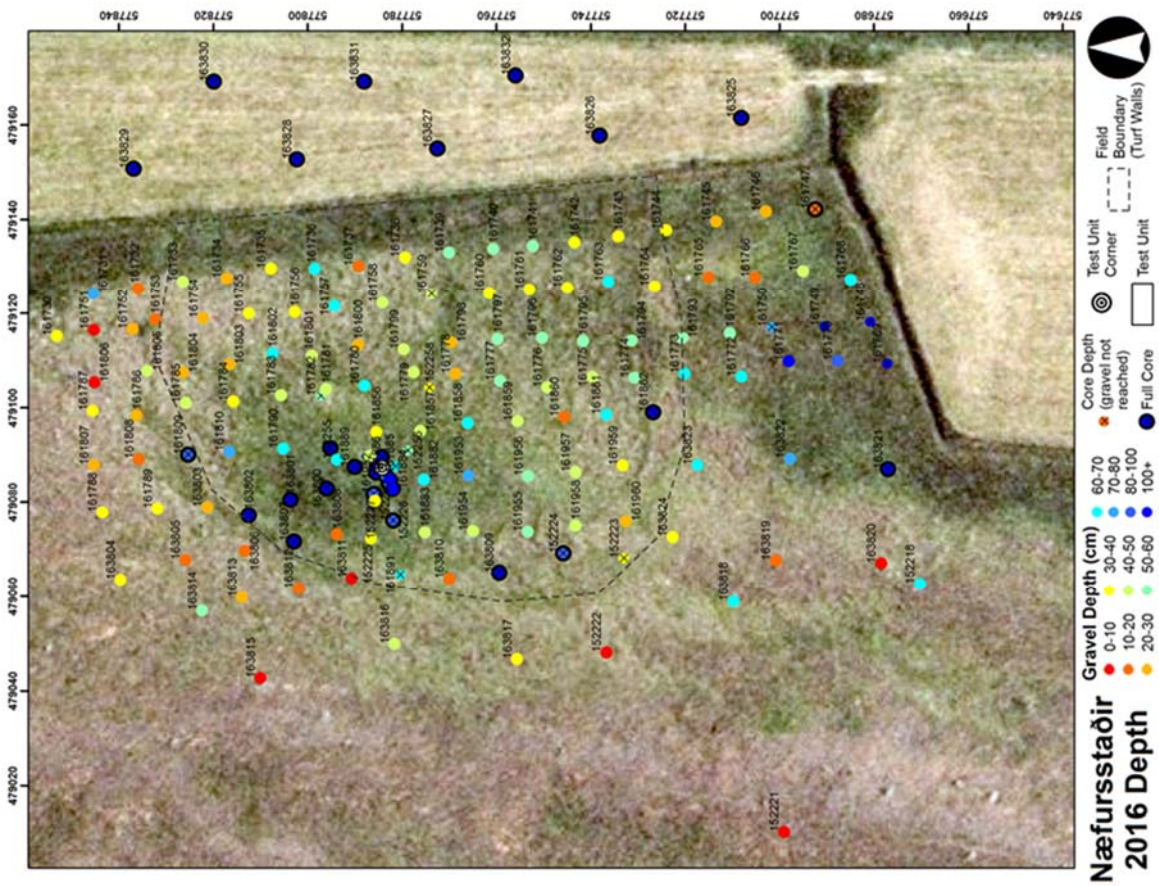

Figure 6. *Depth and locations of cores at Næfurstaðir, 2015 and 2016.*

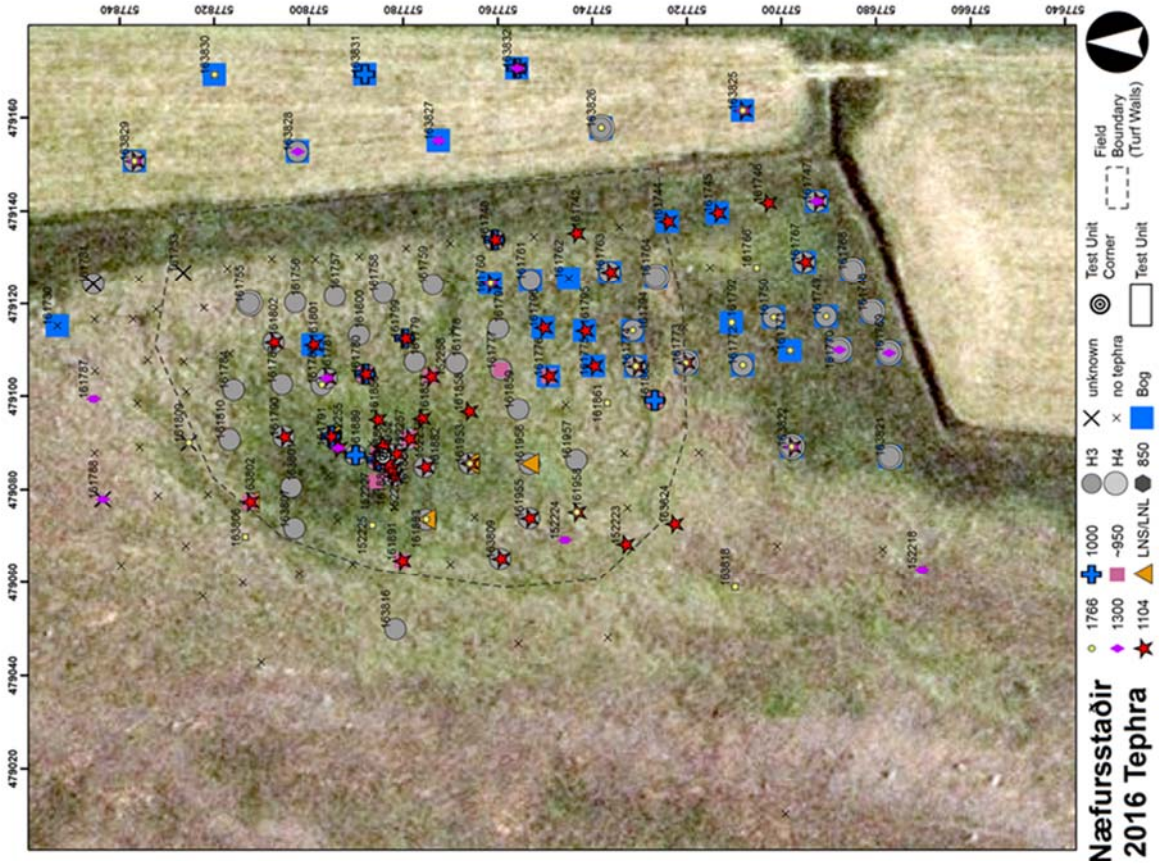

Figure 7. *Tephra layers and boggy deposits observed in cores at Næfurstaðir, 2015 and 2016.*

Figure 8. Cultural material observed in cores at Næfurstaðir, 2015 and 2016. Note that the turf at the south end of the site may be upcast from excavation of the ditch.

statistic reflects high levels of erosion to the north and west of the site, but little erosion inside the wall, mitigated by some deeper boggy deposits (70-120 cm) at the south end of the survey area, between the turf wall and a modern drainage ditch.

Eleven cores outside the wall (17%) contained in situ 1104 tephra layers (Figure 7). All but one of these were located in or very near mires, while the remaining core was very close to the field wall which may have acted to protect it. In contrast, 38 cores (41%) inside the wall contained the 1104 layer, including cores with midden deposits as well as sterile and boggy cores. The ~950 and LNS layers were seen in 13 (13%) and 6 (6%) cores inside the wall respectively, and none outside, while the 1000 layer was seen in two boggy cores outside the wall (3%) and seven cores inside (8%). The 1300 and 1766 layers were seen more often outside the wall than inside (20% vs. 4% for 1300, and 23% vs. 10% for 1766), though the majority of these were in the mire – three of each layer were seen in non-boggy cores outside the wall (5% in both cases). The presence of a very small amount of tephra observed in non-boggy areas outside of the wall suggests that erosion has been ongoing, with perhaps significant events occurring after 1104 (removing this and earlier tephra deposits), and likely also after 1766 (removing the 1766 and 1300 deposits). The turf wall appears to have protected interior tephra from removal via erosion. The bog was likely in place by 1104, perhaps before 1000 in the lower-lying space to the east, where it acted to capture and preserve the later tephra layers that elsewhere eroded away.

Forty cores at Næfurstaðir contained structural turf deposits (25%), 17 contained midden (11%), and 13 included low density cultural deposits (8%) (Figure 8). 66 total cores had some cultural material (42%), including those with only a speck of charcoal or ash. When midden, LDC, or ash inclusions

could be dated, all were prior to 1104, and many were below the ~950 layer. Midden deposits were concentrated near the main ruined structure, especially downslope to the southeast.

Nine cores near the main ruined structure included pre-1104 turf in association with early midden deposits, while one core in the wall (152224) gave a pre-1300 date for turf construction. Otherwise, all turf observed at the site was post-1104, post-1300, or post-1766 (Figure 8). Post-1766 turf in the field wall and both visible structures indicates that the infrastructure of the site was most recently maintained and used, likely as housing for animals, sometime during or after the latter third of the 18th century, and it may have been in regular use through that time. (Note that turf deposits recorded near the ditch at the south end of the site may be the result of upcast peat during excavation of the ditch, rather than intentional turf construction.)

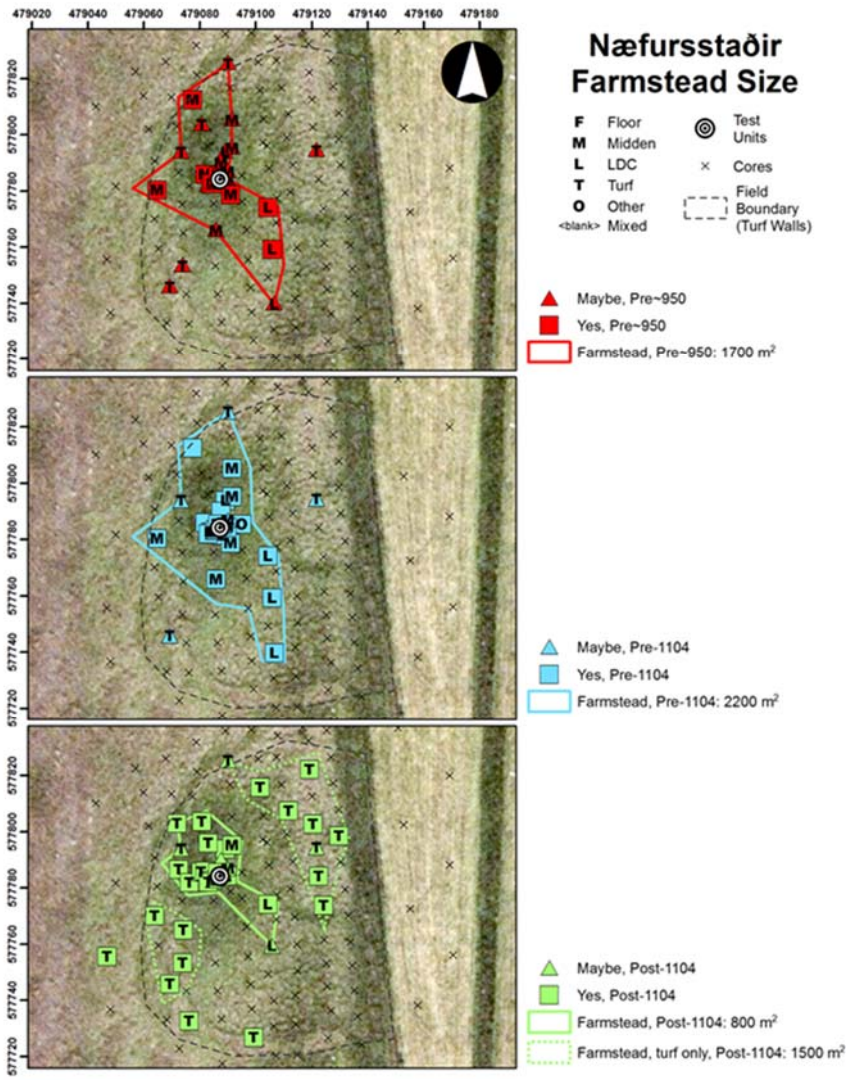

Figure 9. Estimates of farmstead size at Næfurstaðir. After 1300, turf is the only cultural material observed.

The SCASS protocol for calculating farmstead size gives a pre-1104 area of 2200 m^2, within range of the smallest of the "major" farmsteads (Figure 9, Appendix E). The post-1300 "farmstead," which includes two small areas of turf only, gives a total area of 1300 m^2. However, Næfurstaðir should probably not be considered as a "farm" much later than ca. 1104.

Excavation

Test Pit 1 (TP1) was placed to the southeast of the main visible structure, between cores 161888 and 161952 (Figure 8). We expected to find a deep midden deposit of at least two different characters: a dark charcoal midden below the ~950 tephra, and a later peat ash midden below the 1104. TP1 was excavated on 28-29 July 2016, by Kathryn Catlin, Lauren O´Connor, and Nicholas Zeitlin (Table 3, Figures 10, 11, and the cover photo of this report).

We first used shovels to remove a heavily bioturbated (worm-eaten) root mat [101] down to a depth of about 30 cm. No artifacts or other evidence of human activity was observed in the root mat.

Table 3. *Contexts for Test Pit 1 at Næfurstaðir. *All troweled and sieved unless noted. **Average of all corners, in cm.*

Context	Class	Description*	Color	Compaction & Composition	Homo-geneity	Boundary	Inclusions	Date	Opening Depth**	Closing Depth**	Thickness**
101	Topsoil	Root mat and crumbles. Bioturbated. Shoveled. Not sieved.	Mid Brownish Brown	Friable Sandy Silt	Uniform	Gradual		post-1300	0	29	29
102	Aeolian Deposit	Turf-like bioturbated layer under topsoil. Includes 1300 tephra. Shoveled, then troweled. Lowest 10% of context sieved.	Mid Reddish Brown	Friable Sandy Silt	Uniform	Gradual	All at base of cxt Bone, Turf, Ash (Peat), Charcoal, Tephra Find: round white pebble	pre- and post-1300	29	56	27
1104	Tephra - H1	H1/1104 tephra layer. Truncated.	Light Greyish White	Friable	Uniform	Sharp		1104	56	56.9	0.9
103	Midden	Peat ash midden layer. Some white tephra upcast inclusions.	Mid Pinkish Brown yellowish in places	Soft Clayey Silt	Lensed	Sharp	Bone, Shell, Charcoal, Ash (Peat), Fire Cracked Rock, Tephra Find: translucent white rock	pre-1104	56.9	62.8	5.9
[1000] (?)	Tephra and midden	Patches of tephra in dark midden. No tephra IDed in profile.	Dark Greyish Black	Friable	Lensed	Sharp	Bone, Charcoal, Ash (Peat), Tephra	pre-1104	62.8	65	2.2
104	Midden - LDC	Ldc and midden layer	Mid Orangish Brown	Soft Sandy Silt	Mottled	Gradual	Charcoal, Ash (Peat), Bone, Ash (Wood)	post-1000	65	71	6
[934] (1000)	Tephra	Green tephra. Later IDed in profile as 1000.	Dark Greenish Grey	Friable	Uniform	Sharp	Tephra	ca. 1000	71	72.3	1.3
105	Midden - LDC	Ldc layer under tephra. More compact than [104].	Mid Yellowish Brown	Soft Sandy Silt	Mottled	Sharp	Charcoal, Ash (Peat), Ash (Wood)	pre-1000	72.3	74.5	2.2
106	Cultural Layer	Possible floor or hay/dung midden. Super greasy.	Mid Whiteish Grey	Soft Sandy Silt	Mottled	Sharp	Charcoal, Bone, Tephra, Fire Cracked Rock	pre- and post-~950	74.5	78.5	4
107	Midden - LDC	Very low density layer under greasy layer.	Mid Reddish Brown	Soft Sandy Silt	Mottled	Sharp	Charcoal, Bone, Fire Cracked Rock	pre-~950	78.5	84.8	6.3
108	Midden	Dark midden layer and LNS down to subsoil. Trowel and sieve to H3, then shovel.	Dark Brownish Black	Soft Silty Sand	Lensed	Sharp	Bone, Shell, Charcoal, Ash (Peat), Wood, Pebbles (2-6cm), Fire Cracked Rock Find: chunk of ore	pre-~950 and ca. 871	84.8	102	17.2 ([108] and LNS)

Beneath the root mat we encountered a dry, dense, somewhat spongy layer [102] that we interpreted during excavation as a layer of turf including the 1300 tephra layer. However, as we continued to excavate the layer it became clear that it was a natural formation, porous mostly due to bioturbation (worms), perhaps formed as diffuse ash and other windborne material settled into an active vegetative surface. A similar dry, worm-eaten layer was also observed in the test unit in the midden at Keta in 2016 (Bolender, et al. 2017).

Near the base of [102] we began to encounter a very low density of cultural inclusions within the Aeolian matrix, consisting of peat ash, charcoal, turf, some bones, and a small round white pebble (Figure 12). We screened and sampled for flotation the last few centimeters of the layer, above the 1104 tephra, having by now determined the 1300 layer we had earlier encountered was most likely in situ and not in turf. The distinction between the sterile, bioturbated soil at the top of [102] and the less disturbed layer with cultural inclusions at the base of the context is much more clear in the profile than it appeared during excavation (Figure 11).

Cultural material continued beneath the 1104/H1 tephra layer. Context [103] included a layer of low density

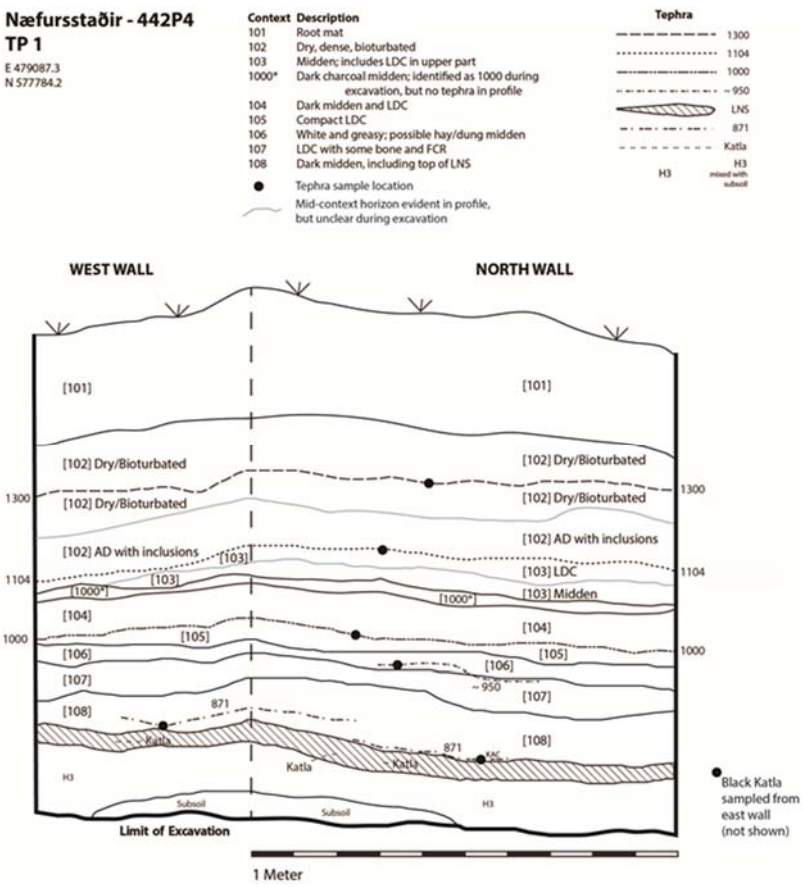

Figure 10. *Profile drawing of the north wall and half of the west wall of TP1 at Næfurstaðir.*

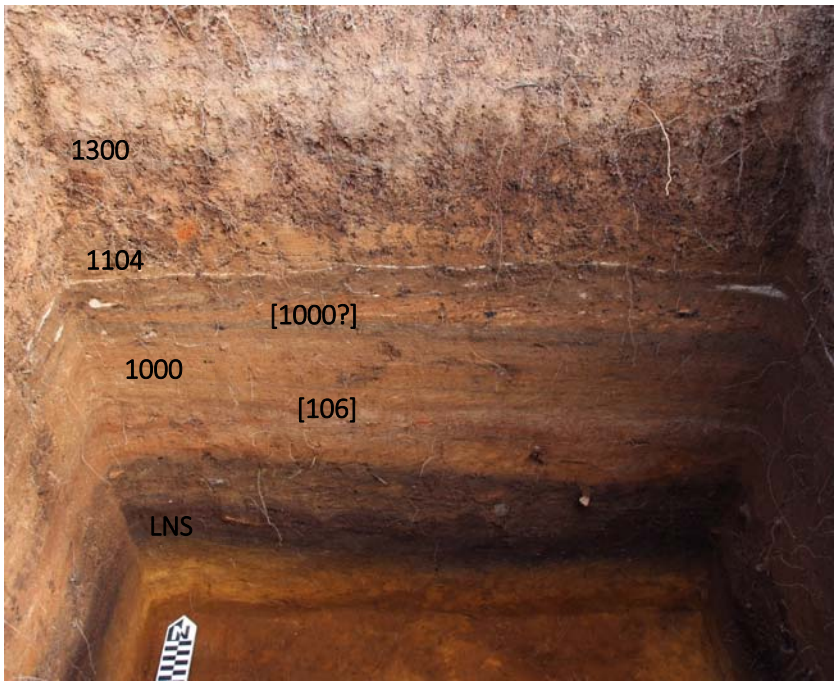

Figure 11. *Photo of the north wall of TP1 at Næfurstaðir. Some contexts and tephra layers are labeled.*

cultural material, which gave way to a layer of peat ash in the north half of the unit, followed by darker, primarily charcoal midden deposits across the entire unit. Again, the distinction between the low density cultural and midden layers is more clear in the profile than it was during excavation. The single find from [103] was another small white stone (Figure 12), along with numerous faunal remains, and some shell. A small amount of fire-cracked rock was not saved.

Underneath the charcoal midden of [103] we encountered a dark midden layer that contained patches of tephra, which we interpreted as the [1000?] layer. However, tephra could not be located in the side wall at the end of the excavation, leading to the revised interpretation that this layer may have included upcast tephra within the midden. Tephra was not sampled from the layer but we did collect flotation and bone samples from this solidly pre-1104 context.

Context [104] includes the remains of the charcoal midden beneath the dark [1000?] layer, as well as a lower density cultural layer just atop a greenish-grey tephra layer that was interpreted during excavation as the ~950/934 tephra. No finds (aside from faunal remains) were retrieved from either [104] or the [~950] tephra context. After excavation, John Steinberg and Brian Damiata interpreted the tephra layer as likely to be the 1000 layer rather than ~950 (tephra analysis is ongoing).

Beneath the grey-green tephra layer, a layer of compact, very low density ash and charcoal [105] continued for several centimeters. Some tephra was encountered, but it never resolved into a continuous layer. This may have been upcast, perhaps from the patchy ~950 layer identified in the sidewall by Brian Damiata within [106] below. No finds aside from faunals were recovered from [105].

Beneath the low density ash and charcoal layer we encountered a greasy, whitish-grey layer, about four centimeters thick [106]. We discussed the possibility that this might have been the floor of an animal barn, or perhaps more likely, a hay/dung midden similar to that encountered in the midden at Egg TP1 (Steinberg, et al. 2017). The context included some fire-cracked rock (not saved) as well as a few as yet unidentified faunal remains and a small amount of charcoal. A small amount of tephra was noticed during excavation, but it did not resolve into a continuous layer. After excavation, Brian Damiata identified a tephra layer near the base of this context in the north side wall, tentatively identified as the ~950 layer.

The greasy layer was preceded by another layer of very low density cultural material within an Aeolian matrix [107]. Charcoal, faunals, and some fire-cracked rock was observed, mostly near the base of the context. The faunals included a bone that has been identified as a seal toe by Grace Cesario (pers. comm.).
This low density layer gave way to a dense, dark charcoal midden [108] containing a large amount of animal bones and shell, as well as wood, pebbles, fire-cracked rock, some lenses of peat ash, and a chunk of iron. The lower half of the context became increasingly soft and loamy as it gradually faded into the top of the landnám sequence. The lowest levels of the midden included animal bones, wood, and charcoal that had been embedded or pressed into the top of the LNS, perhaps indicating that the LNS was a functioning ground surface at the time the objects were deposited.

After excavation, Brian Damiata sampled a possible landnám tephra layer (LNL) from the middle of [108] in the west side wall. Kathryn Catlin later observed another possible LNL in the north wall, just above the LNS, which she also sampled for analysis (Figure 10). The Black Katla tephra layer was also observed and sampled, and the unit was shoveled down to the limits of excavation, about 10 cm into the sterile layers of mixed H3 and subsoil. Analysis of the tephra samples is not yet complete, but it seems clear that significant human activity was occurring at Næfurstaðir very early in Iceland´s history.

Interpretation

People were living and working at Næfurstaðir shortly after the *landnám*, ca. 871. During the approximately 230 years between ca. 871 to shortly after 1104, there were three periods of intense occupation, interspersed with periods of lighter use. During the earliest period [108], ca. 871 to well before ~950, charcoal and wood burning were predominant, with significant consumption of animal products, some peat use, and possibly of some amount of iron extraction. Identifiable faunal remains from this layer were primarily wild species, including birds, fish, mollusks, and a seal toe from the base of [107], with about 8% terrestrial mammals (likely sheep, goat, cow, and/or horse) (Cesario pers. comm.). It is worth noting that our excavations at Ás in 2015 did not contain well dated early deposits (Bolender, et al. 2016) – it is possible that the first settlers of Ás lived at Næfurstaðir, and moved to the current site of Ás early in 10th century.

Figure 12. *Finds from TP at Næfurstaðir. Top left: polished white stone from [102] (F#1), Top right: white stone from [103] (F#2), Center: white stones from [103] (S#7, not yet conserved), Bottom: iron object from [108] (F#3). Scales in cm.*

A period of similar but less intense use followed, through the middle of the 10th century, during which time the site may not have been permanently occupied (low density cultural material in [107]). During the second half of the 10th century, the site once again saw heavy use, likely primarily for the housing and support of livestock, as the midden in [106] appears to consist of primarily hay and dung with some few inclusions of charcoal, bone, and fire-cracked rock. A second period of less intense use followed ([105] and the base of [104]), with a very low density of ash, charcoal, and faunal remains, until sometime after ca. 1000. During the 11th century – after ca. 1000 and ending prior to 1104 – Næfurstaðir saw a final period of intense habitation (the top of [104], [1000?], and the base of [103]), again primarily charcoal midden with a later increase in peat ash disposal. This change in midden character may indicate a shift from wood-burning to peat-burning as forest resources became less available during the 11th century. Though the faunal remains were fewer in number than during the earliest phase, wild species continued to predominate. Shortly before 1104, intense use of the site once again dwindled, leaving

only a very low density of cultural material (primarily peat ash, charcoal, and some faunals (now mostly domestic)).

Between 1104 and 1300, long-term human occupation of the site gradually ceased entirely, giving way to use as animal barns and outbuildings from approximately the late 12th through at least the late 18th centuries.

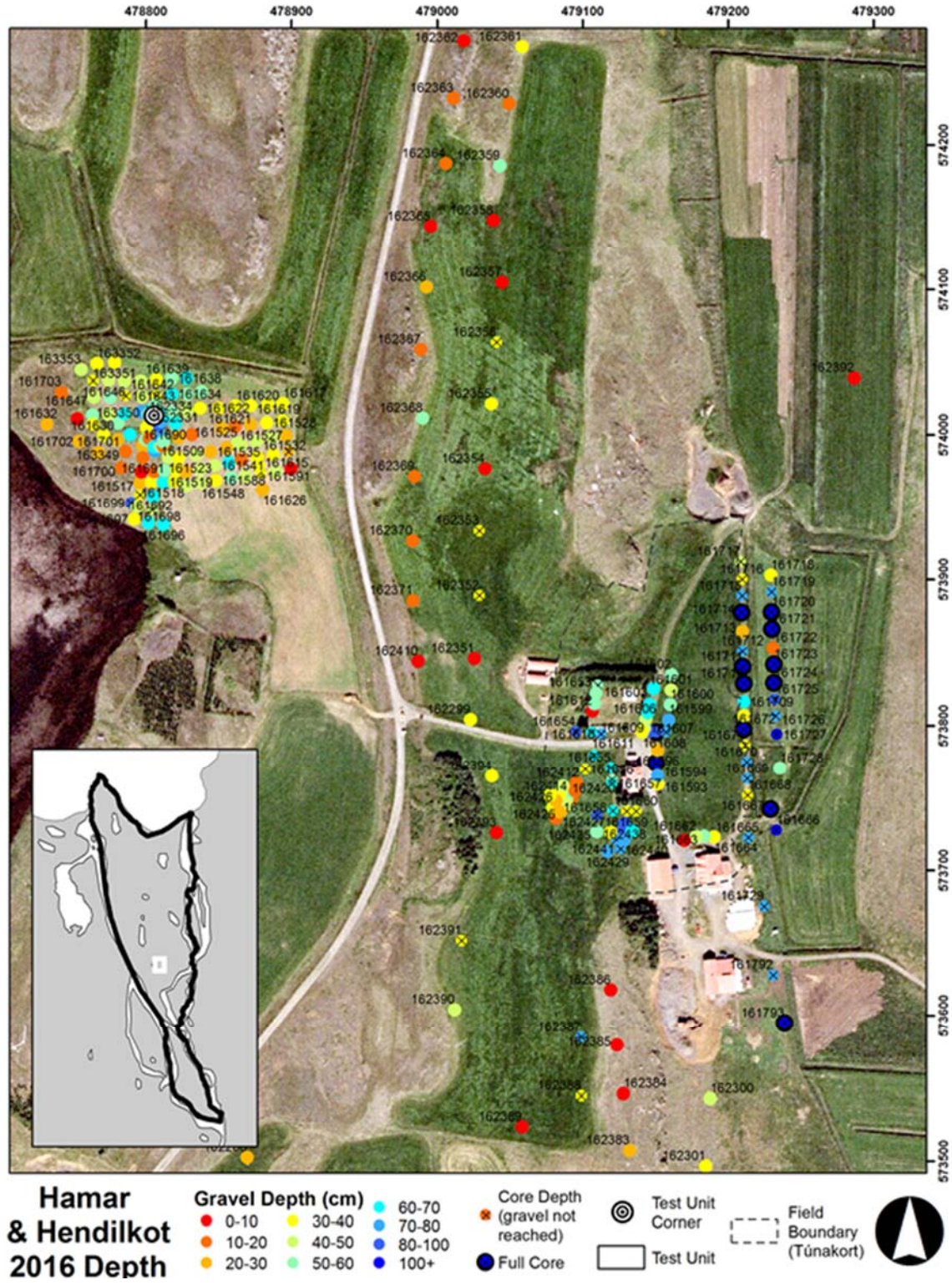

Figure 13. Core locations and depths at Hamar and Hendilkot.

Hamar

Hamar is located on the southeastern side of Hegranes. SCASS conducted a coring survey of Hamar in 2016 and found significant evidence of occupation prior to 1104, but no deposits could be clearly dated to the 10th century (Bolender, et al. 2017). A test unit is planned at Hamar for the 2017 field season. Hendilkot is the only known *fornbýli* on Hamar land.

Hendilkot

Hendilkot is located west of the Hegranes road, about 400 m northwest of the main farm at Hamar (Figure 13). The visible architecture at the site consists of at least two late medieval or early modern structures, likely animal barns, atop a hill to the northeast of Hendilkotsvatn lake (Figure 14). The immediate surroundings of the structures are heavily vegetated with tall grass, making identification of walls somewhat difficult; the site will be surveyed more completely in the spring of 2017.

Hendilkot is described in the 1713 Jarðabók as sheep houses and meadowland, with no memory of people ever living here (Magnússon and Vídalín 1930:67). However, the Örnefnaskrá (Place-Name Register) for Hegranes relates the story of the Hávarð hegra (Havard the Heron), the first settler of Hegranes, and his two brothers, Hróar and Hendill (Örnefnastofnun Íslands n.d.-c). Hávarð gave both his brothers land at the south end of Hegranes: Hróar built a farm at Hróarsdalur, and Hendill settled on the other side of the pond (Hendilkotsvatn) at Hendilkot. The Örnefnaskrá further describes a homefield about 4-5 *dágsláttur* in size, surrounded by a wall, with the ruins of a house and more recently a corral (*rétt*). They further suggest that the name Hendilkot might have been given fairly recently, as an early farm should rather have been called Hendil*staðir*, in which case the location now known as Hendilkot might not in fact mark the site of Hendil´s *landnám* farm.

Figure 14. *Photo of ruined structures at Hendilkot, looking southwest over Hendilkotsvatn.*

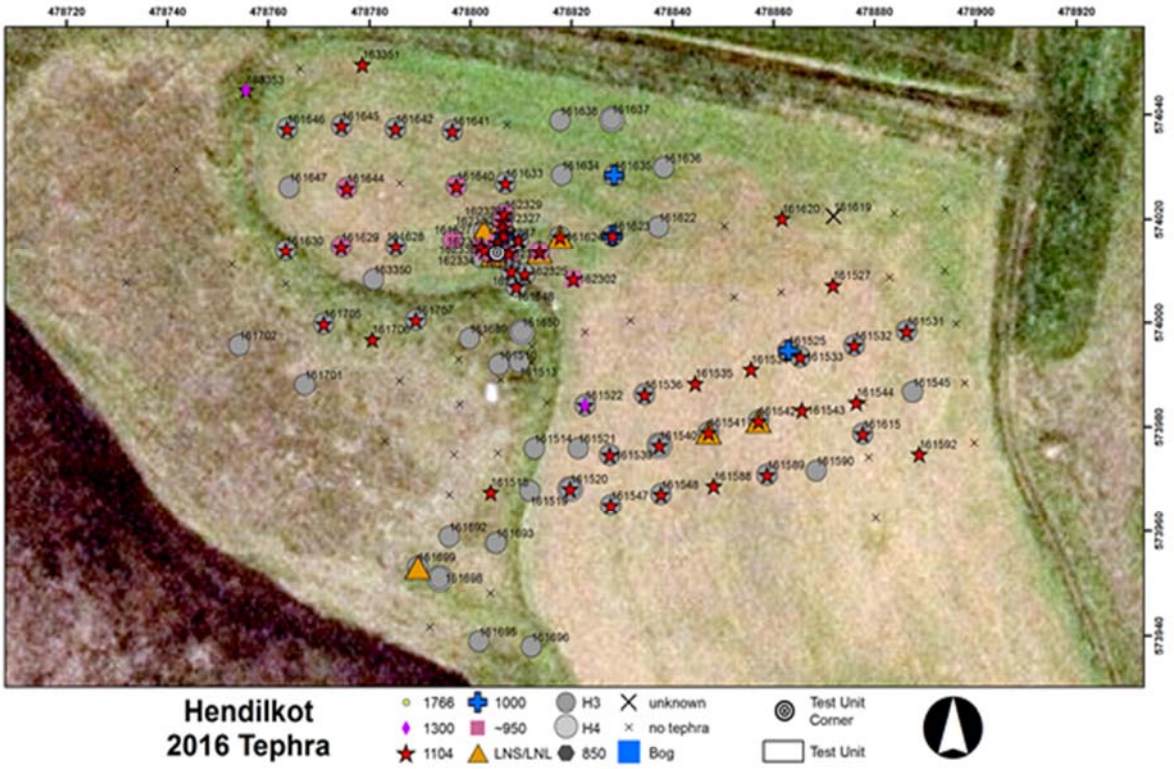

Figure 15. Tephra layers observed in cores at Hendilkot in 2016. Note that no cores contained evidence of mire development (bog).

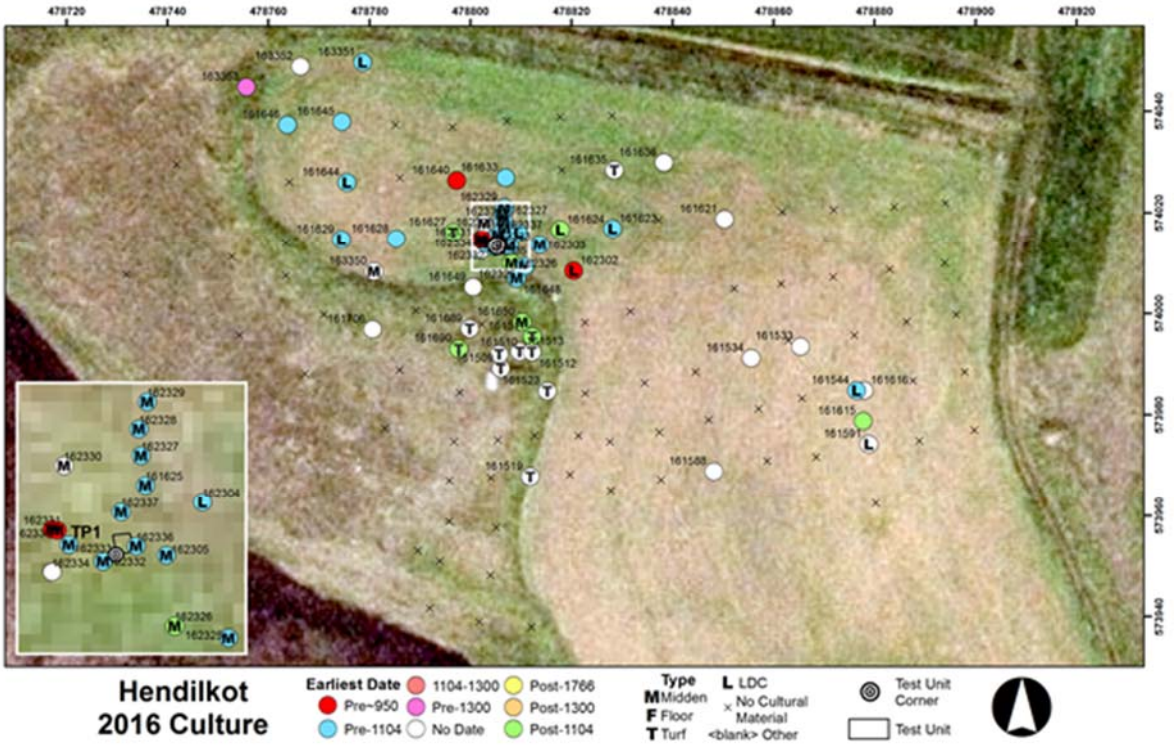

Figure 16. Cultural material observed in cores at Hendilkot in 2016.

Coring in the structures suggested a post-1104 date for turf construction. The slopes to the south and west of the architecture, towards the lake, are heavily eroded with significant blueberry growth. The field to the north and east has been plowed and flattened and is actively used as a hayfield by the farmers at Hamar. Plowing has truncated the deposits, removing soil down to below the 1300 tephra layer in most cases, including any evidence of additional structures, later midden deposits, or the homefield boundary described in the Örnefnaskrá. The area of the medieval midden is located just to the north of the visible structures within the hayfield, so later midden deposits after about the late 13th century have likewise been removed in most cases.

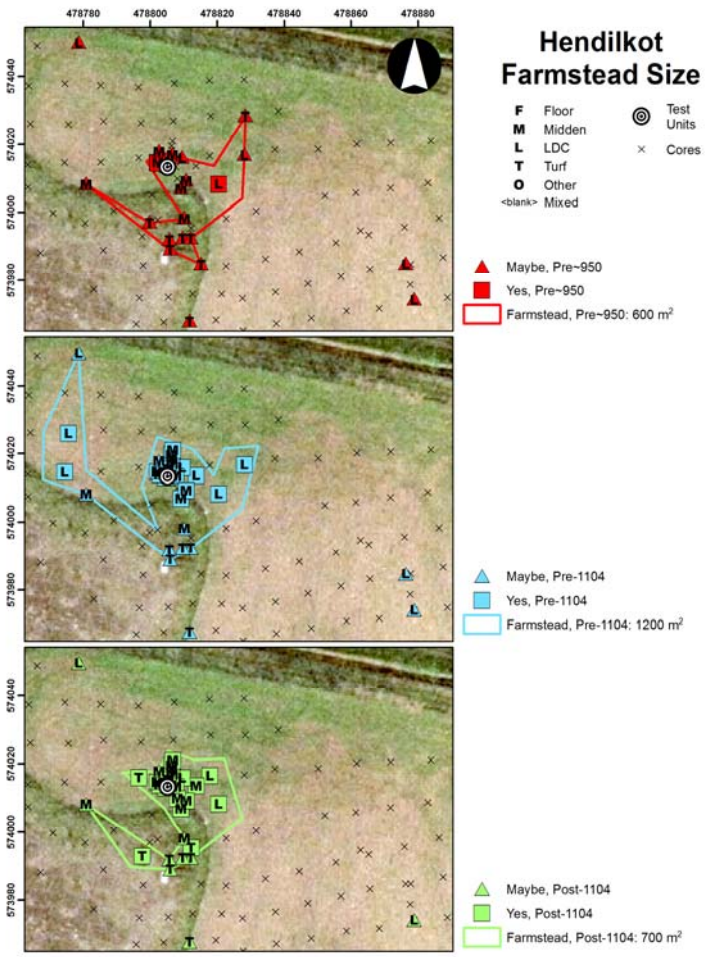

Figure 17. *Estimates of farmstead size at Hendilkot. Note that the pre-950 size may be exaggerated, as it is determined by only two cores with certain early dates.*

Coring

A total of 157 cores were recorded at Hendilkot in 2016 (Table 1, Figures 13 and 15-17). The data were collected in 10-m transects through the site on 25 and 26 July 2016, with additional coring on 01 August to place the test unit. As no turf wall or boundary was visible at Hendilkot, interior vs. exterior analysis is not possible at the site; in any case, such an analysis would be difficult due to the deep plow zone, discussed above. Kristján at Hamar told us that he remembered a turf structure atop the slight ridge extending to the east from the visible ruins, but that it had been bulldozed at some point in the past, and indeed, coring through this area did not show evidence of turf construction. Upper layers preliminarily identified as turf were later confirmed to be a very dry, spongy plow zone throughout the plowed hayfield. If there was late medieval or early modern turf building located here, it has certainly been bulldozed away. Soils at Hendilkot had an overall average depth of 43 cm to gravel, with the deepest soils concentrated near the medieval midden and visible structures (Table 1, Figure 13).

In contrast to the majority of other *fornbýli* sites, no evidence of significant mire formation was observed at Hendilkot. The two cores at the northeastern limit of the survey (161529 & 161617) contained undated dark river sand, suggesting a stream may have run near the site in the past.

Throughout the site, 56 cores contained the 1104 tephra layer in situ (45%) (Table 1, Figure 15). Four cores contained the 1000 layer (3%), 16 included the ~950 layer (13%), 9 contained LNS/LNL (7%), and 73 had H3 (59%) while only 7 cores contained the H4 layer (6%). Two cores included unidentified tephra. Of the later historic tephras, no cores contained 1766 and only 2 cores near the edges of the plowed field had the 1300 layer (1.6%), but this absence is primarily due to recent plowing rather

than erosion. Evidence for erosion is most clear on the slope to the south and west of the site, towards the lake, where soils are shallow and most tephra layers are absent (Figures 13 and 15). At Hendilkot, deeper soils seem to be due more to the topography than to architecture, though of course without evidence of a turf wall it is difficult to say.

Fifty-five cores at Hendilkot contained at least some evidence of cultural material (44%), including specks of charcoal or ash as well as midden, turf, and low density cultural layers (Figure 16). Cores with pre-1104 turf, midden, and low-density cultural deposits were concentrated to the north of the ruins. Four cores in this area contained a small amount of evidence for pre~950 activity. An ending date for the occupation could not be determined, as deposits were truncated by plowing in almost all locations, leaving the 1104 tephra layer in situ but removing the 1300.

The SCASS protocol for calculating farmstead size gives a pre-1104 area of 1200 m^2 (Figure 17), smaller than most of the "major" farmsteads measured on Hegranes, but within range of the smallest farmsteads in the neighboring Langholt region (the smallest of which are between about 500-1000 m^2) (Appendix E) (Bolender, et al. 2016; Bolender, et al. 2017; Steinberg, et al. 2016). The post-1104 farmstead size is 700 m^2, still within the range of previously observed "small" farmsteads on Langholt (about 500-1000 m^2). The farmstead seems to have shrunk slightly into the late medieval period, but evidence for its later extent has been removed by plowing. The earlier, pre-950 size of about 600 m^2 is likely a generous estimate, as it relies on only two cores that are securely dated to the first half of the 10th century.

Excavation

Test Pit 1 (TP1) was placed just to the north of the main visible structure, between cores 162336 and 162337 (Figure 16). We expected to find midden deposits from just above ~950 to well above 1104, continuing to the bottom of the plow zone. Although other cores nearby had shown a small amount

Figure 18. Katherine Wagner screening next to TP1 at Hendilkot. The long grass behind her contains the ruins of several turf structures. Photo taken facing southeast.

Table 4. *Contexts for Test Pit 1 at Hendilkot. *All troweled and sieved unless noted. **Average of all corners, in cm.*

Context	Class	Description*	Color	Compaction & Composition	Homo-geneity	Boundary	Inclusions	Date	Opening Depth**	Closing Depth**	Thickness**
101	Topsoil	Plow zone. Shovel to base of roots, then trowel. Not sieved.	Mid Brownish Brown	Soft Silt		Sharp	Ash (Peat), Charcoal, Bone	post-1104	0	15	15
102	Midden	Low density cultural under plow zone.	Mid Brownish Brown	Soft Silt	Mottled	Sharp	Ash (Peat), Charcoal, Bone, Iron, Slag Finds: Iron piece, nail	post-1104	15	18	3
103	Midden	Midden layer. Shovel and trowel.	Mid Pinkish Brown	Soft Silt	Lensed	Sharp	Ash (Peat), Charcoal, Bone, Slag Finds: Green pebble, leather fragment	post-1104	18	27.9	9.9
104	Midden	Pinker, more dense midden layer. Shovel and trowel.	Mid Brownish Pink	Soft Silt	Lensed	Gradual	Charcoal, Ash (Peat), Bone, Wood, Fire Cracked Rock, Slag	post-1104	27.9	41.4	13.5
1104	Tephra	H1 - 1104 tephra	White		Uniform	Sharp	None	1104	41.4	423	0.9
105	Midden	Very low density midden	Mid Yellowish Brown	Soft Silt	Mottled	Sharp	Charcoal, Bone, Ash (Peat)	pre-1104	42.3	44.3	2
106	Midden	Striated midden under h1	Mid Greyish Brown with pink, white, and other lenses	Soft Sandy Silt	Lensed	Sharp	Ash (Wood), Ash (Peat), Charcoal, Bone, Turf, Fire Cracked Rock, Shell Finds: Two white rocks, one green stone, one green geode	pre-1104	44.3	65.9	21.6
107	Aeolian Deposit	Mostly sterile layer under midden and above tephra.	Mid Brownish Brown	Soft Silt	Mottled	Sharp	None	pre-1104	65.9	68.1	2.3
934	Tephra	Green tephra layer	Dark Greyish Green	Friable Silty Sand	Mottled	Sharp	None	ca. 950	68.1	68.3	0.2
108	Aeolian Deposit	Under 934. Appears sterile.	Mid Brownish Brown	Soft Silt	Mottled	Sharp	None	pre-~950	68.3	70.8	2.5
871	Aeolian Deposit	Landnám sequence. No apparent tephra. Below LNS, shoveled to subsoil without sieving.	Dark Greyish Brown	Soft	Uniform	Sharp	None	ca. 871	70.8	73 (LNS) 85 (LoE)	2.2 (LNS)

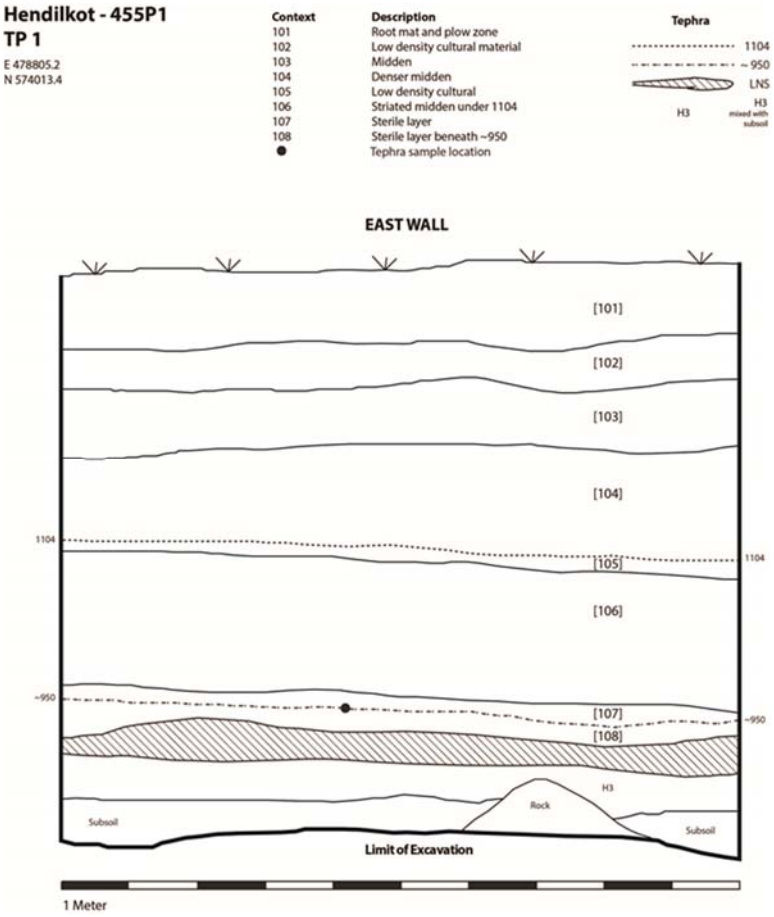

Figure 19. Profile drawing of the east wall of TP1 at Hendilkot.

of midden material under the ~950 tephra layer in a few cases, no locations had thick midden deposits, a clear H1 layer, *and* significant midden below the ~950. The placement of the unit, with two clear tephra layers and a thick midden but little evidence of midden deposits before ~950, was therefore a compromise between good tephra layers and deep midden deposits. TP1 was excavated on 01-03 August, 2016, by Kathryn Catlin and Katherine Wagner (Figures 18-23; Table 4).

We first used shovels to remove the dense root mat, then troweled to the bottom of the heavily disturbed plow zone [101], without screening this disturbed context. The plowed material included fragments of charcoal, peat ash, and bone, confirming that the midden had been truncated by modern machinery. A layer of low density cultural material [102] beneath the plow zone was removed by trowel and completely screened. This context contained charcoal, bones, ash, some slag, and a few bits of iron, embedded in a primarily Aeolian soil matrix. One iron nail was retrieved (Find #2) as well as an unusually shaped metal object which, after treatment, appeared to have a hole punched through the center (Find #1, Figure 21). The context is most likely of pre-1300 date. All contexts beneath [102] were sampled for flotation.

Beneath the low density layer, contexts [103] and [104] were successive layers of peat ash midden, though the lower context [104] was slightly denser with a higher peat ash concentration. Both contexts were partially shoveled and then troweled, 100% screened, and sampled for flotation. Both contexts included peat ash, charcoal, slag, and bone, with fire-cracked rock and wood observed only in [104]. A blue-green pebble and a small fragment of organic material (possibly leather) with a hole punched through it were retrieved from [103] (Finds #5 and 6, Figure 22). Beneath [104], the 1104 tephra covered the entire unit in a very thin layer (< 1cm), and was also screened and sampled for flotation. A small amount of animal bone was retrieved from within the tephra.

The H1 tephra layer was immediately preceded by a thin layer of very low density cultural deposits [105], including ash, charcoal, and bone, but no finds. A thick, dense, striated peat ash midden [106] preceded the LDC. Flotation samples were retrieved from the top, middle, and bottom of the context, as well as bone samples for radiocarbon dating from near the base of the midden. Like the later layers, this earlier midden also contained peat ash, charcoal, bone, and slag, but the lowest levels of [106] also included wood ash, fire cracked rock, discarded turf, and shell. Bones were identified during excavation by Katie Wagner as including large amounts of birds and fish, and Grace Cesario noted the same thing after reviewing the bones in the lab. No finds were retrieved aside from two

Figure 20. Photograph of the east wall of TP1 at Hendilkot.

Figure 21. Unusual iron object (Find #1) from post-1104, likely pre-1300 context [102] in TP1 at Hendilkot. Note the scalloping along the top right edge and possible hole punched in the center. Scale in centimeters.

white quartz-like stones and two small green pebbles, one of which broke during cleaning to reveal a geode inside (Find #9, Figure 23).

Beneath the midden we encountered a thin, mostly sterile layer of soil [107]. This context contained no visible evidence of human activity, and was sampled for flotation. A patchy, green tephra layer lay beneath the sterile soil, identified in the field as [934]. John Steinberg later confirmed that the layer is likely the ~950 tephra, but tephra samples were obtained from both the floor of the unit and the side wall, and analysis is ongoing. The tephra was also sampled for flotation. Beneath this mid-10th century tephra layer, we encountered another sterile layer [108]. Though some nearby cores had included evidence of human occupation during this time, no inclusions were visible during excavation. Slight mottling of the soil might suggest a human presence or could be due to ecological factors such as water movement through the soil column. Flotation samples were collected. This apparently sterile layer was preceded by the dark, soft, organic material of the landnám sequence. No tephra was visible, and the layer was sampled for flotation. A layer of mixed H3 and subsoil was under the LNS, and the unit was excavated for several centimeters into the sterile subsoil below the prehistoric tephra.

<u>Interpretation</u>

Although there was some small amount of activity at the site during the first half of the 10th century, Hendilkot does not appear to have been occupied on a permanent basis until later in that century, or possibly early in the 11th century. After the tephra has been analyzed, and radiocarbon dates from charred seeds or bones become available, wiggle-matching may help to narrow the date of occupation. Once established in this place, the inhabitants of Hendilkot primarily burned and discarded peat for fuel, may have engaged in some amount of iron production, and used the wild resources available in the nearby lake for at least some of their food (bird, fish, and shell in [106]). A possible short hiatus near the end of the 11th century was probably followed by several more centuries of continuous occupation, though the end date cannot be determined. More recently, the site was used to manage livestock.

In any case, Hendilkot was occupied at least several decades later than the majority of other *fornbýli*. Generally speaking, in terms of its size ca. 1104, relatively late settlement date, and the nature of the midden deposits (primarily peat ash), Hendilkot appears more like a later subdivision of a major farm than do the majority of other *fornbýli*. In this sense it resembles Rein on Hegranes (Bolender, et al.

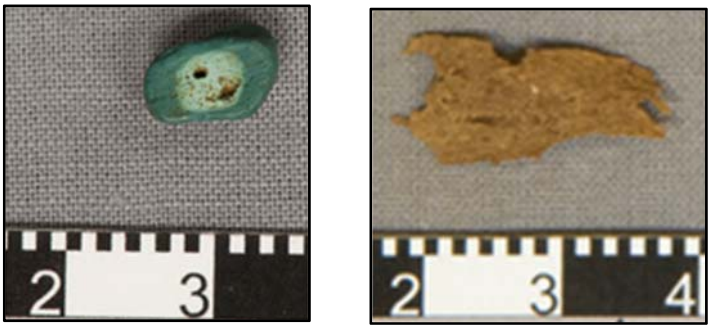

Figure 22. *Finds from post-1104, likely pre-1300 midden context [103] in TP1 at Hendilkot. Left: green stone (Find #5). Right: Organic fragment, possibly leather. Note the semicircle along the top edge, possibly the remains of a punched hole. Scale in centimeters.*

Figure 23. *White and green stones, including geode, from pre-1104 midden context [106] in TP1 at Hendilkot (Find #9). Scale in cm.*

2017) as well as the late "small" farms that have been recorded on Langholt, a neighboring region (Steinberg et al. 2016). These later farms may have been established as part of a later medieval land division processes, when dependencies and tenancies were carved from the landscape of existing larger farms (in this case, Hendilkot would have likely belonged to Hamar, or possibly Keldudalur or Ríp). This is in contrast to the pattern of early establishment and early abandonment for *fornbýli* on the northern half of Hegranes (see below and Catlin et al. 2016). However, a second test unit is planned for 2017, to verify and retrieve midden samples from below the ~950 layer.

Hendilkot does not appear to have been inhabited until approximately a century after the landnám, give or take a few decades. If Hávarð *hegra* did provide his brother Hendil with a farm on Hegranes in the late 9th century, it was probably not located here.

Egg

Egg is located near the southern end of Hegranes on its western side (Figure 1). Egg was a major farm during the Viking Age, and survey and excavation were carried out by SCASS in 2016 (Steinberg, et al. 2017).

Two *fornbýli* are known to exist within the current property (Figure 24) (Pálsson 2010:128). Rein, to the east, is a large abandoned farm or *eyðibýli*, with numerous visible ruined structures. Rein was inhabited during the medieval period until around the 15th century, and was later resettled in the 19th century and finally abandoned in the early 20th century. Due to its existing documentation as proper farm, Rein was surveyed as part of SCASS, though the size of its farmstead (400-1200 m^2) and dates of occupation (late 10th century) are comparable to those observed at Hendilkot (Bolender, et al. 2017). A small turf ruin north of Rein was also surveyed (white outline on Figure 24), and showed no evidence of activity prior to a post-1300 structure, possibly a *stekkur*. Minni-Egg, the second *fornbýli* at Egg, is located to the south of Egg and west of Rein, and was surveyed by FLASH in 2015 and 2016 (Catlin, et al. 2016).

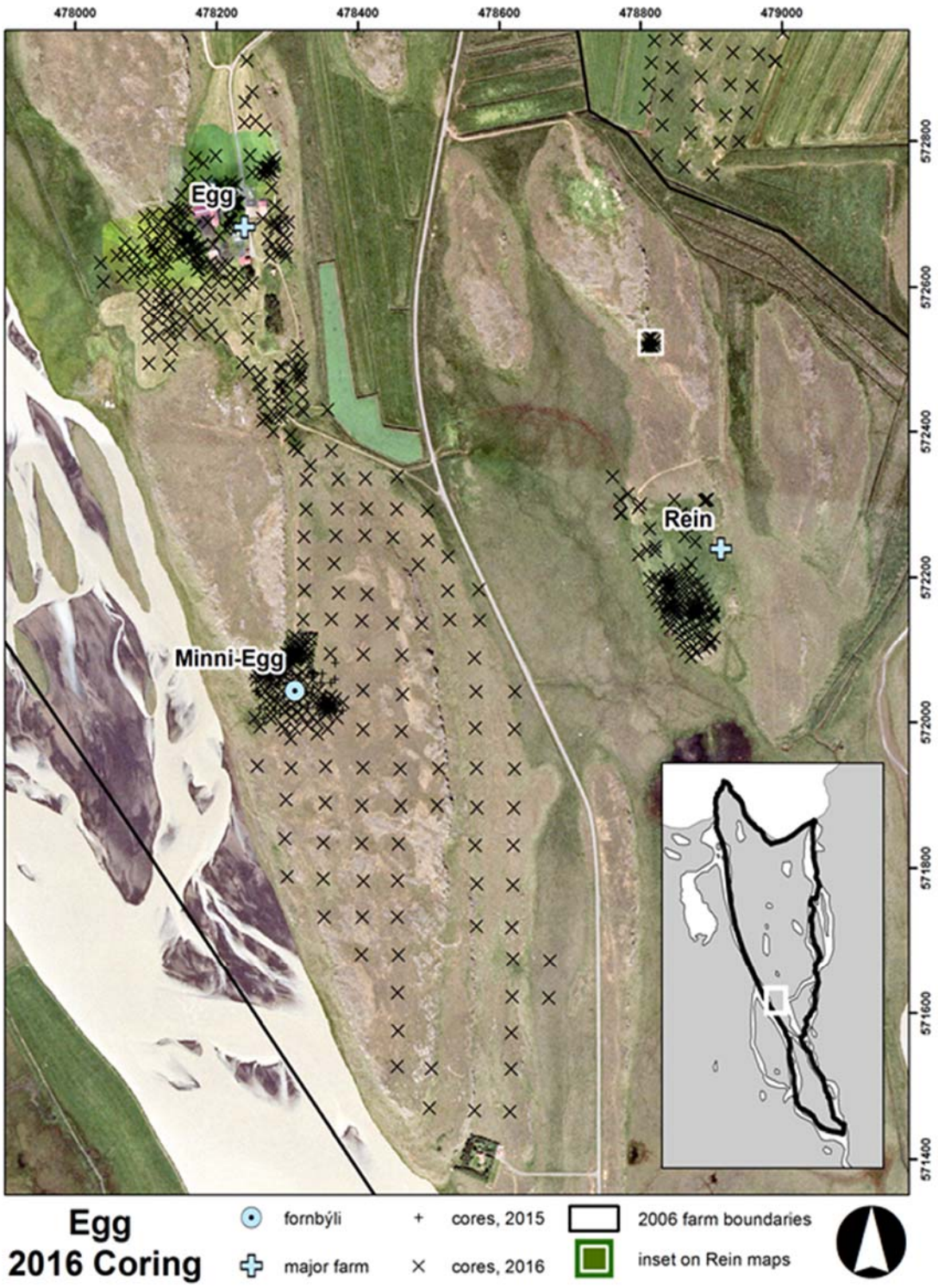

Figure 24. Overview of Egg, Minni-Egg, and Rein.

Minni-Egg

Minni-Egg (451P1) is located about 650 meters to the south of the modern farm at Egg, south of Eggjarborg, the long rocky outcrop that gives Egg its name. There are no records describing Minni-Egg in use, though it was most likely used as a sheepfold and possibly a small farm at some point in the past (Pálsson 2010: 128). The 1713 Járðabók describes Minni-Egg as an abandoned cottage (*eyðikot*), with a turf fence and some ruins (Magnússon and Vídalín 1930:58). The Örnefnaskrá refers to the

place as Litla-Egg, describing it as an ancient farm with a small field fenced with turf (Jónsson n.d.; Örnefnastofnun Íslands n.d.-b).

Minni-Egg is bordered by a rocky outcrop to the northwest, eroded areas to the east and south, and a sharp drop to the river to the west (Figure 25). The site includes a visible enclosure wall that incorporates the high rocky ridge as its northwest edge. There are at least two visible ruined structures, one in the southeast corner of the homefield and another just outside of the northwest corner, likely sheephouses and/or *stekkir*. A second, likely older, enclosure extends several meters farther to the south. The ruined structure at the southeast corner of the site is situated between the two enclosure walls. Just to the north of Minni-Egg are the remains of a garden that surrounded a now-demolished mid-20th-century summer house. The entire site is highly cryoturbated, covered in very tall grass, boggy, and steeply sloping from east to west, making survey somewhat challenging. Coring was performed at Minni-Egg in the summer of 2015 (Catlin et al. 2016), and continued on 19 and 21 July and 08 August, 2016. A further GPS survey was carried out on 14 September 2016 by Kathryn Catlin and Bryndís Zoëga for the Skagafjörður Folk Museum.

Figure 25. *Photos of Minni-Egg. Features are labeled. Top: Eric Johnson and Grace Cesario near core 161019, where LDC was observed. Photo taken from the large rock outcrop, facing southeast. Bottom: Bryndís Zoëga taking GPS measurements of the inner wall. Photo facing southwest. Note the dramatic slope towards the river and the difference in soil and vegetation cover inside vs. outside of the field walls.*

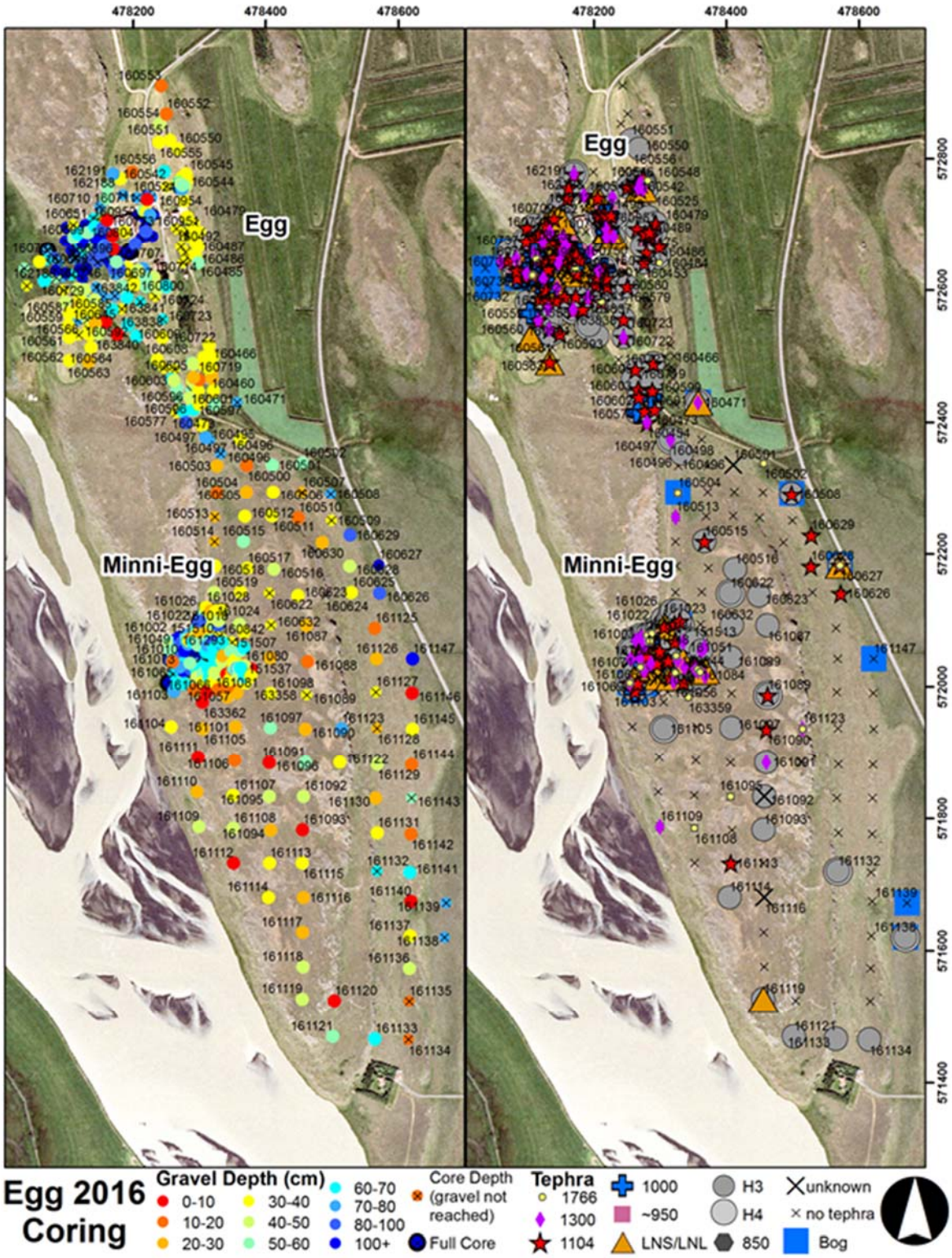

Figure 26. Soil depth and tephra locations on the landscape of Egg and Minni-Egg.

Coring

A total of 182 cores have been recorded at Minni-Egg, 118 of which were in 2016 (Table 1, Figures 26-29). The majority (108, 59%) of these were recorded within the inner wall, with an additional 48 (26%) between the outer and inner enclosure walls. Additional coring on a 50m grid throughout the area to the east and south of Minni-Egg was performed by SCASS researchers; this survey showed significant evidence of erosion, including shallow soils, few tephra layers, and no evidence of cultural activity (Figure 26). Preliminary analysis of the cores closest to Minni-Egg shows nearly a 20cm

difference in depth between the interior and exterior of the enclosure wall, significant to p=0.05. This reflects high levels of erosion and degradation surrounding the site. The interior, probably later wall appears to have been much more effective in protecting soils from erosion than the exterior, probably earlier wall (Figure 27).

The majority of tephra layers recorded outside of the interior boundary wall were observed in cores near the ruined structure that lies between the two walls, which probably protected them from erosion (Figure 28). It may be suggested, however, that a major erosion event occurred after ca. 1104 but prior to ca. 1300. This is due to the fact that while the 1300 and 1766 tephra layers are present in approximately similar proportions between the interior and exterior of the site, the 1104 tephra and earlier layers are much more prominent inside the wall (Table 1 and Figure 28). Significant boggy deposits were also observed, primarily in the western half, as the site steeply slopes toward the river.

Fifty-five cores at Minni-Egg contained at least some evidence of cultural material (Table 1, Figure 29). The majority of these were turf (43), while the remainder were inclusions of ash and charcoal, or in about seven cases, very questionable low-density cultural material. The exterior boundary wall could not be clearly dated, though two cores between the walls contained turf of both pre- and post-1104 date. Most cores in the interior boundary wall likewise could not be dated, but one core gave a clear post-1300 date (multiple lines of tephra in turf). The structure in the southeast corner is also of post-1104 date, and its most recent construction appears to be post-1300. The second structure in the western corner appears to be pre-1300. There may be a post-1766 structure near the southwestern side of the enclosure. Turf elsewhere throughout the site is of various dates, though the majority could not be dated. Minni-Egg has a very distinctive, think, soft landnám sequence, and it is possible that in some cores LNS has been misidentified as turf.

Three areas were located with low-density cultural deposits. In 2015, we identified three cores in and around the main ruined structure with very thin layers of LDC beneath turf deposits: slightly greasy layers 1-2 cm thick, with just a hint of ash inclusions (151098, 151498, and 151539). However, follow-up cores in 2016 could not locate any evidence of midden or LDC in this area, though we did once again observe undated or post-1104 turf (cores 161080, 161081, 161083). In 2017, we observed a similar, greasy LDC layer in a core along the ridge below the rocky outcrop, at the northern side of the site (161005) and a slightly thicker, more ashy LDC deposit in another core nearby (161298). Likewise, in the northern corner of the site atop the hill just to the south of the modern garden, we observed a thick greasy layer identified as LDC in two cores (161019 and 161038). However, in both of these locations, follow-up cores found no evidence of LDC or midden material, only turf and slightly disturbed soil. Using these extremely uncertain LDC designations, the SCASS protocol for estimating farmstead size gives a total pre-1104 area of about 20 m^2 (Figure 30, Appendix E). The post-1300 "farmstead," which includes three concentrations of turf, is more in line with other sites at 1200 m^2.

Interpretation

Because our initial observations of low density cultural material in cores could not be reproduced, no test pit was excavated here in 2016. One final coring attempt is planned for the summer of 2017, which will revisit all locations where domestic refuse was observed to perhaps, finally, locate a substantial midden deposit and excavate a test unit.

However, it is a likely possibility that any major pre-1104 domestic refuse deposits at Minni-Egg have simply eroded away. At other *fornbýli* sites where late modern ruined structures are visible on the surface, the pre-1104 midden deposits were found about 10-15 meters away, usually downslope/downwind. If this pattern held at Minni-Egg, medieval midden deposits should be located somewhere to the southwest of the major structure, within about 20 meters of its ruined walls. This would place the midden between the two enclosure walls. Cores within this radius contained no

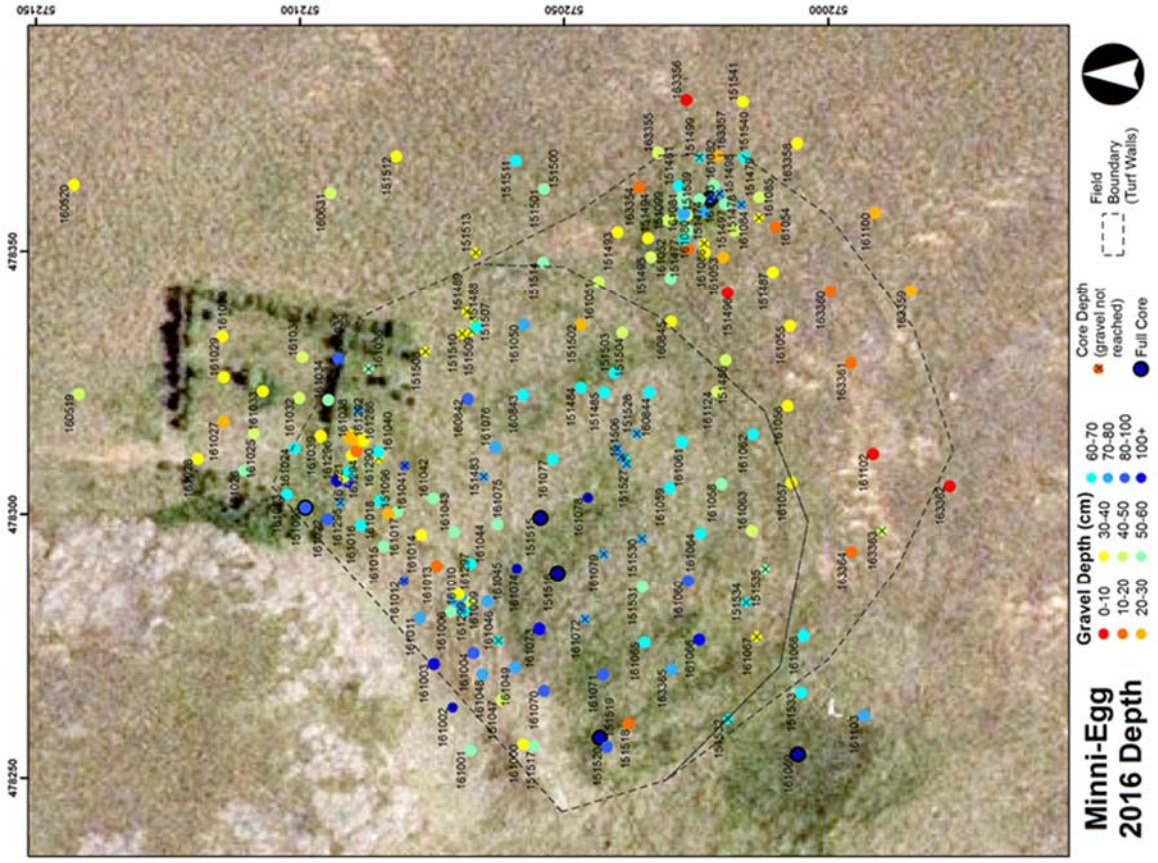

Figure 27. *Core locations and depths at Minni-Egg.*

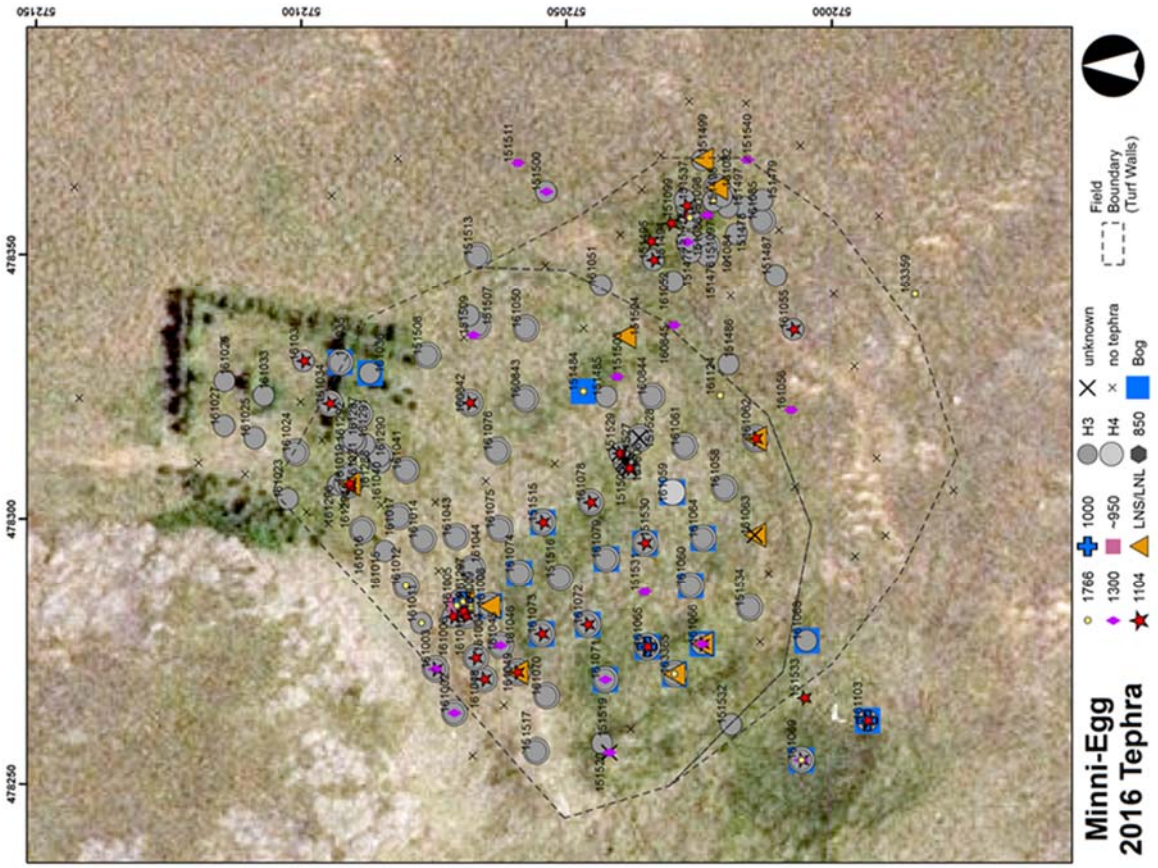

Figure 28. *Tephra and boggy deposits observed in cores at Minni-Egg.*

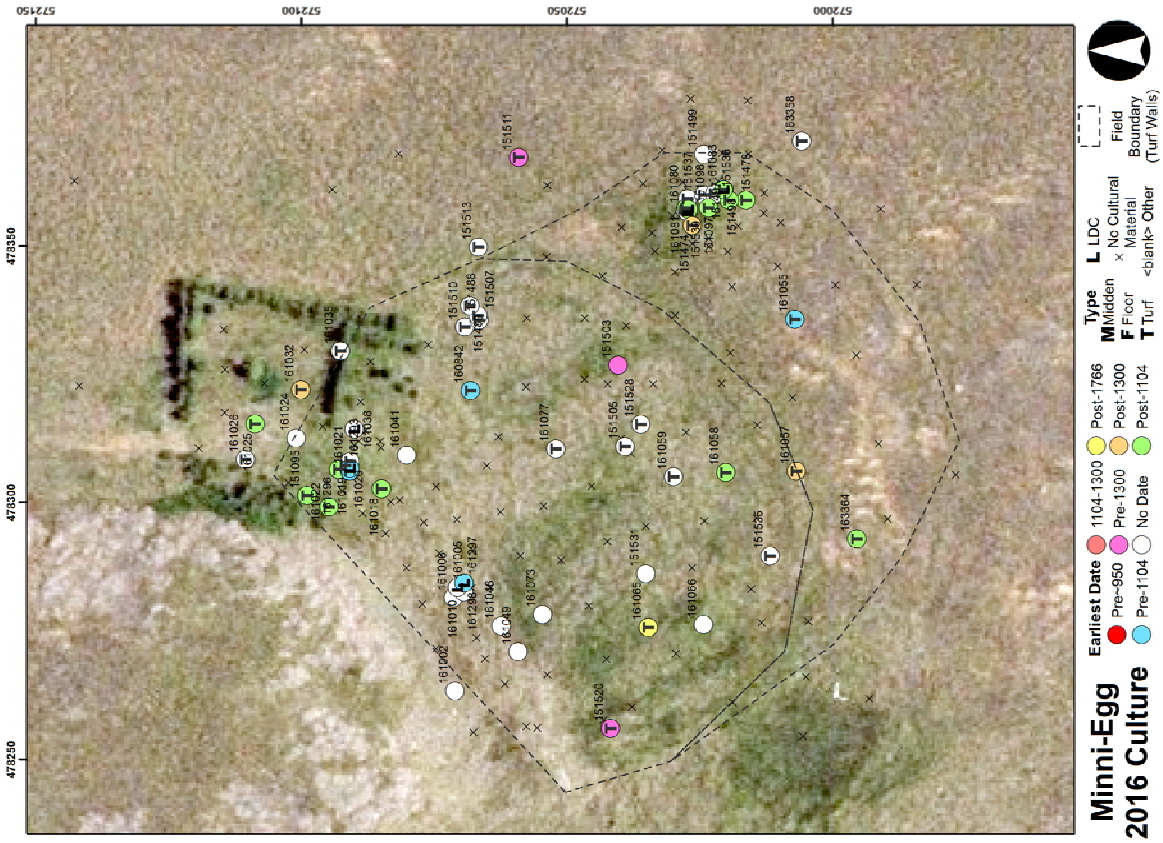

Figure 29. *Cultural material observed in cores at Minni-Egg.*

evidence of cultural material and no historic tephra layers more recent than H3,with an average gravel depth of 30 cm. Visually, the area is heavily eroded, as is all of the land farther south of Minni-Egg. It is very likely, given its morphological similarity to other *fornbýli* sites, that there was significant early habitation at Minni-Egg. However, it is also very likely, given its environmental context, that the vast majority of evidence relating to this early settlement was removed by wind and water erosion sometime after ca. 1104.

Dating of structural turf further shows that Minni-Egg was used for livestock management after 1104 and perhaps earlier, with rebuilding and reuse occurring at various times between ca. 1300 and the late 18th century.

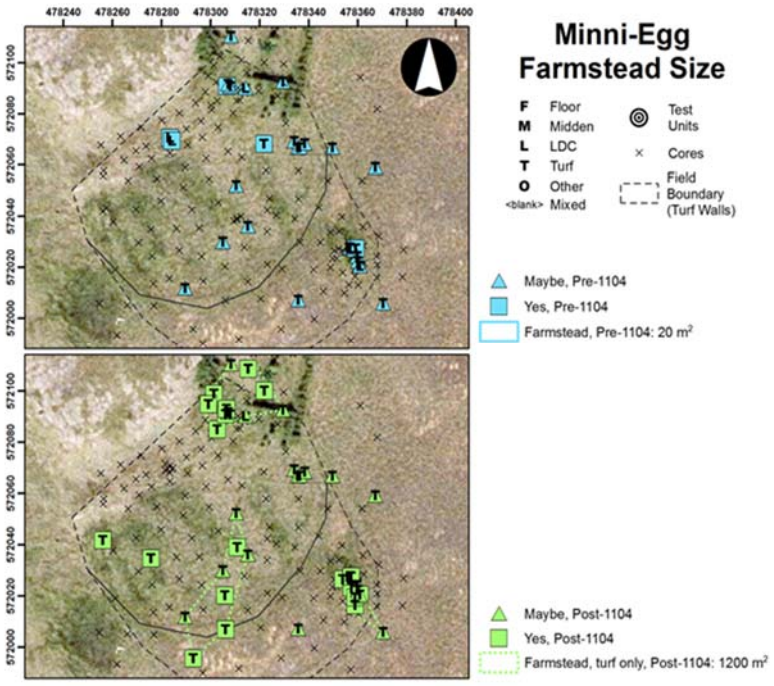

Figure 30. *Estimates of farmsteads size at Minni-Egg. Note that the pre-1104 polygons are too small to be seen beneath the coring symbols.*

Helluland

The farm at Helluland (447) is located along the western side of Hegranes. The landscape of Helluland and the two farms to the south (Kárastaðir and Hróarsdalur) includes some of the rockiest land on Hegranes, glacier-scraped bedrock cut by long, green dales. Of the land that was owned by Helluland

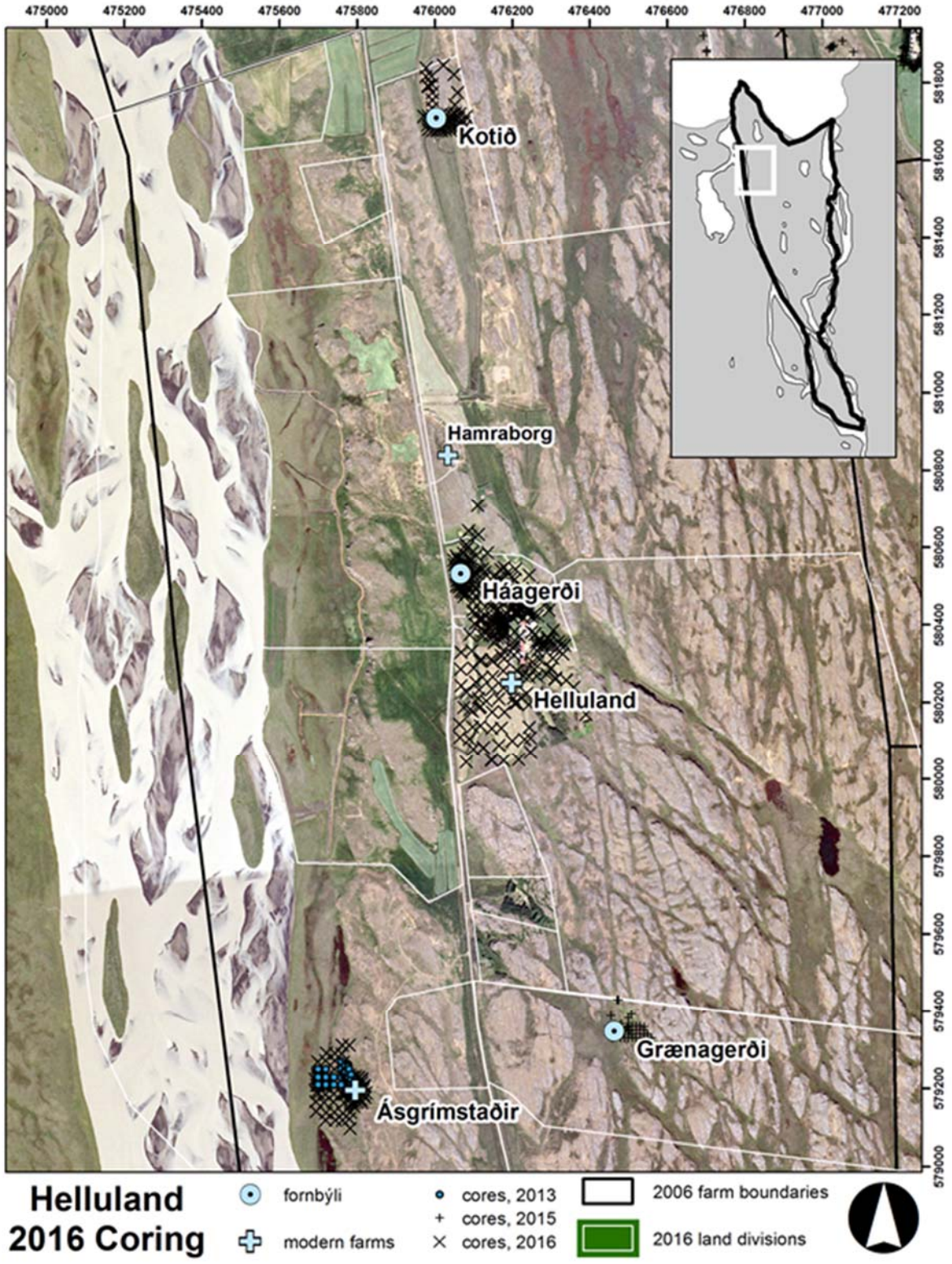

Figure 31. Overview of coring on the Helluland landscape and its fornbýli and eyðibýli. Note the changes in modern land division between 2006 and 2016.

Figure 32. Photos of Háagerði. Top: Háagerði (hills at center). Facing northwest. Bottom: Ruined structure at Háagerði. Modern farmhouses of Helluland are in the background.

in 2006, the largest open green space is occupied by the main farmstead of Helluland, which was surveyed by SCASS in 2016 (Bolender, et al. 2017).

There are four known *fornbýli* on Helluland (Figures 1 and 31), including Ásgrimsstaðir, a large abandoned farm or *eyðibýli* that was inhabited from the medieval period through 1927 (Pálsson 2010). Like Rein on Egg, Ásgrimsstaðir is considered a major farm, and it was surveyed in 2016 as part of SCASS (Bolender, et al. 2017). Háagerði is located within the homefield of Helluland and was also surveyed in 2016.

The two other *fornbýli*, Kotið and Grænagerði, are no longer owned by Helluland, since the larger property was subdivided prior to 2016 (Figure 31). Grænagerði is located near the southern extent, on a property that is now called Hulduland. Grænagerði was surveyed in 2015 (Catlin, et al. 2016) and is expected to be completed in 2017. Kotið is located near the northern extent of the former

Helluland property, and is now owned by Hamraborg. Survey and excavation at Kotið was carried out in 2016.

Háagerði

Háagerði (447P3) (loosely translated, High House) consists of a turf structure atop a small hill near the northwestern corner of the homefield at Helluland, with a possible second structure south of the hill (Figure 32). The field that surrounds Háagerði on the north, east, and south is now flattened and drained and is frequently in hay. Háagerði is bordered to the west by the main Hegranes road.

Háagerði appears on the 1918 *túnakort* map as a "*peningshús*," or animal barn, within a discontinuous section of homefield (Figure 33) (Sveinsson 1918). Háagerði is not described in the Járðabók, but it is mentioned in the place-name database for Hegranes, which describes it as a place on the homefield of Helluland. The Örnefnaskrá says that Háagerði is mentioned as one of the abandoned places on Hegranes, and associated the name with this place, "*ef það hefur áður verið býli*" ("if it was ever a farm") (Örnefnastofnun Íslands n.d.-d:4). Therefore, although this place at the north of Helluland´s homefield has recently been associated with the name "Háagerði," a historical correlation is somewhat more uncertain: in previous centuries, the name may have been associated with some other place on the Helluland landscape.

Coring

Forty-six cores were recorded at Háagerði in 2016 in an approximate 10-meter paced grid, merging with the field coring performed by SCASS for Helluland. The maps below show all coring performed at Helluland, to provide context for the Háagerði data, though the analysis describes only cores recorded specifically during the Háagerði survey (Figures 34-36; see especially the inset in Figure 36). Though there is a field wall marked on the 1918 *túnakórt*, and some slight suggestion of a wall in the aerial photos, no such wall is visible on the ground. The majority of cores in the drained field around

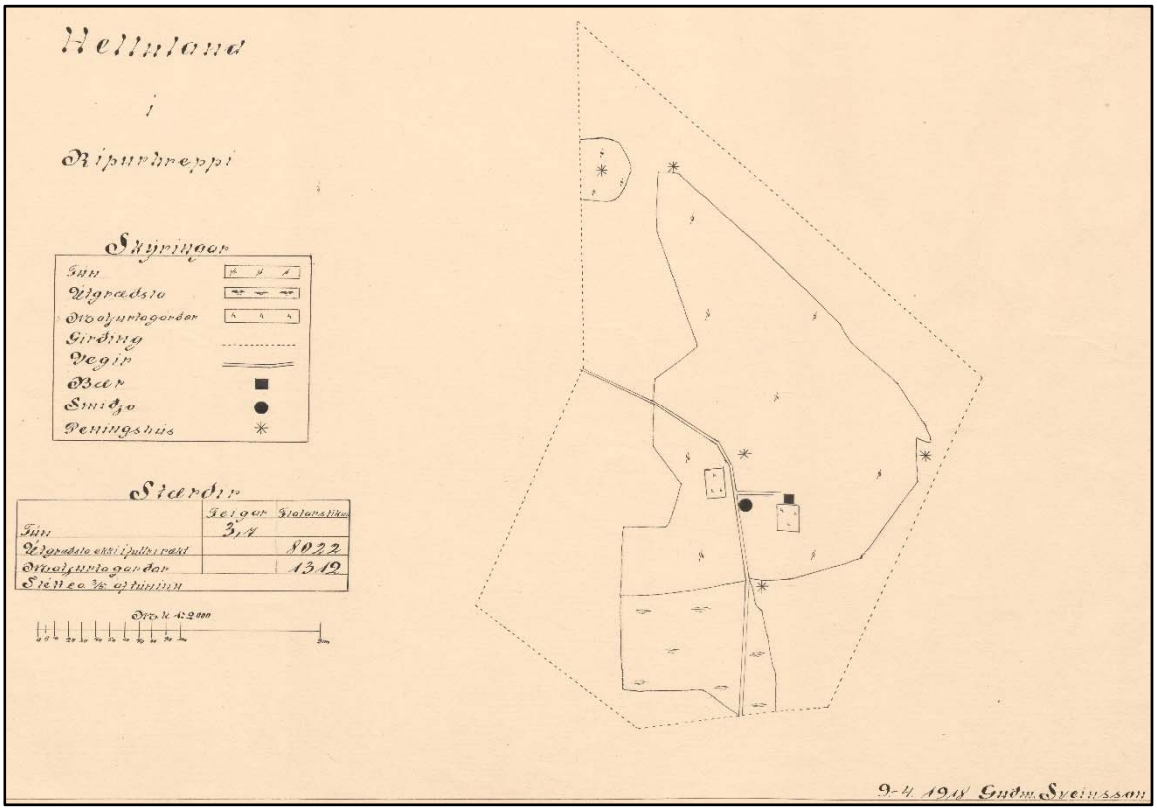

Figure 33. Túnakort *map of Helluland (Sveinsson 1918). The surveyed Háagerði location corresponds to the semicircular section of homefield at the top left of the map.*

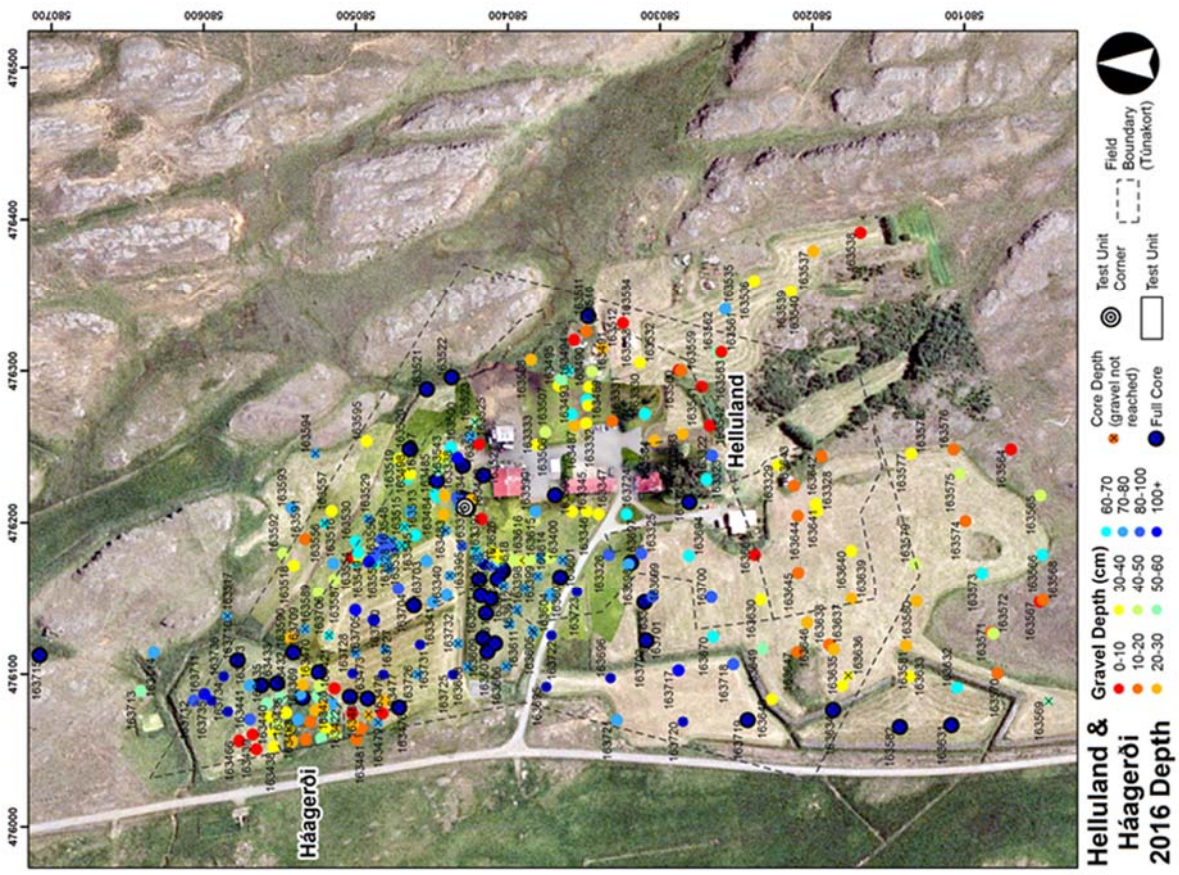

Figure 34. *Core locations and depths at Helluland and Háagerði.*

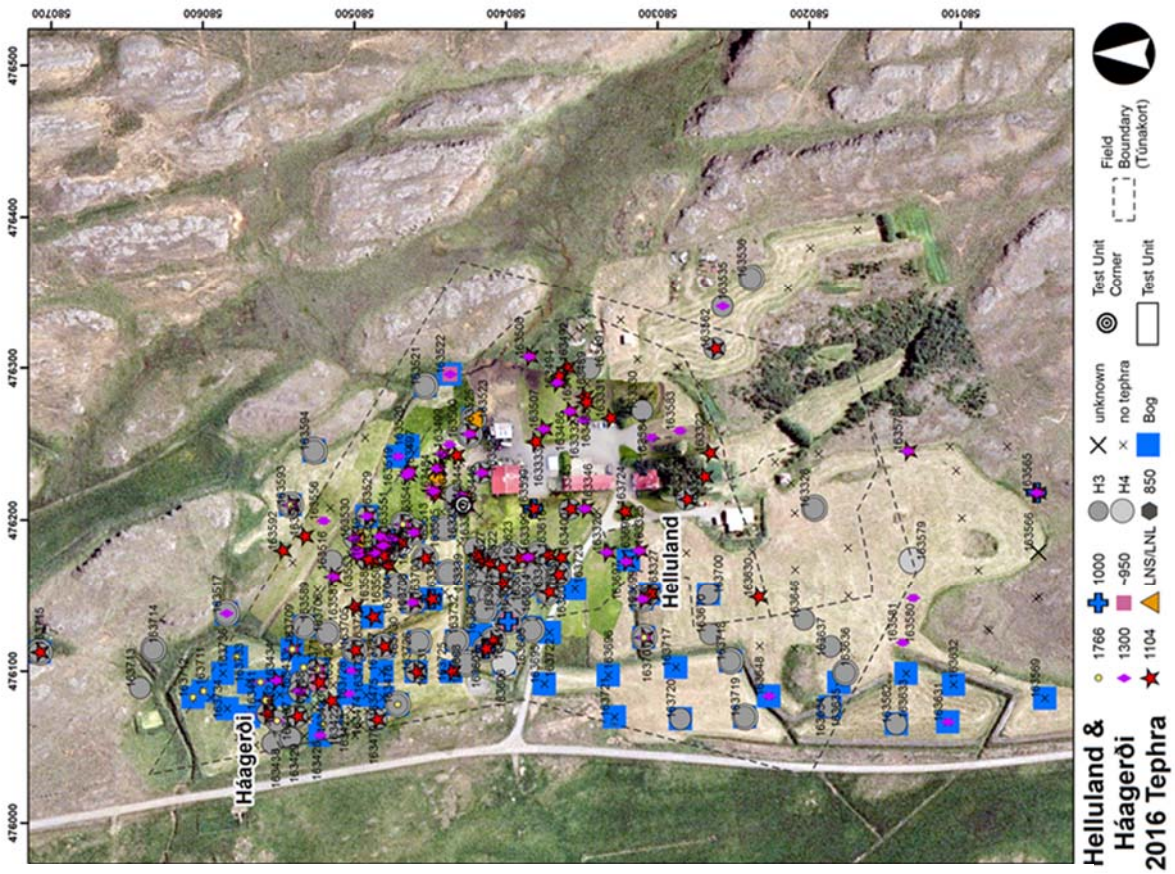

Figure 35. *Tephra and boggy deposits observed in cores at Helluland and Háagerði.*

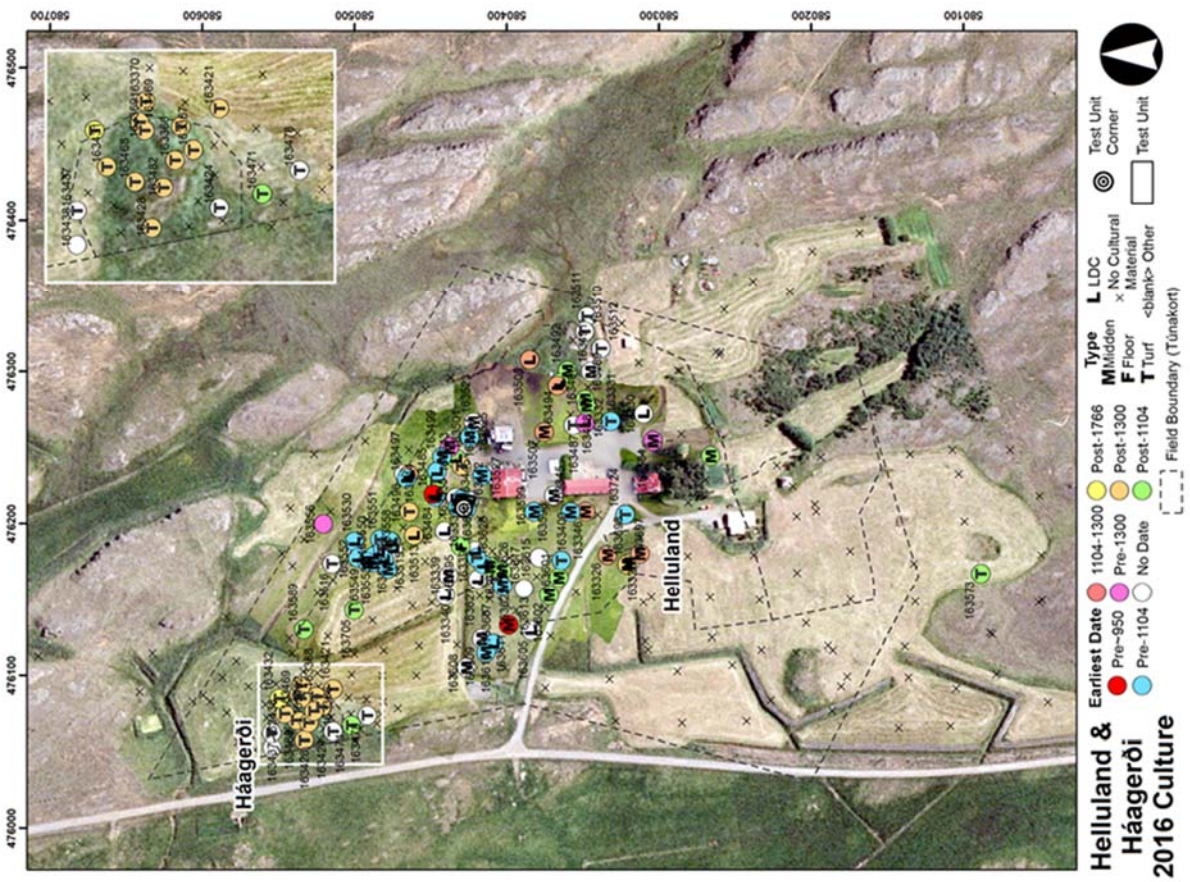

Figure 36. Cultural material observed in cores at Helluland and Háagerði (inset).

Háagerði were deep and boggy. The topography of the site and the prominence of bog make estimation of the difference between inside/outside field walls somewhat difficult. Of all cores that reached bedrock, the average depth was 38 cm (Figure 34).

Tephra at Háagerði include 8 cores each (17%) that contain 1766 and 1300, 9 cores with H1 layers (20%), and only one with ~950 (2%), while no cores had 1000 or LNL layers and 14 had H3 or H4 layers (30%). This suggests that Háagerði and its immediate vicinity (if not all of Helluland) may have experienced significant erosion between ca. 1000 and 1104, removing earlier sediment deposits (Figure 35).

Sixteen cores at Háagerði (35%) contained turf, most of it post-1300, the rest undated (Figure 36). One core contained a speck of peat ash (163438), and no other cultural material was observed at Háagerði. Because there is no evidence that Háagerði was ever inhabited, no estimate of farmstead size was attempted. The turf structures at Háagerði could be included in the post-1300 farmstead size estimate for Helluland.

<u>Interpretation</u>

The location surveyed in 2016 was never regularly inhabited by people. It is possible that the old place-name Háagerði refers to some other location on the Helluland landscape. However, the current site known by that name is unlikely to be older than the post-1300 animal barn that is most evident atop the hill. Since the area around Háagerði would most likely have been a wet mire prior to 20th century drainage efforts, it is possible that the site may have served as a high and dry center to a wet-meadow pasture during the late medieval or early modern period, though more research is needed.

Figure 37. Students coring at Kotið. Photo facing west. The students in the distance are standing inside the ruined structure. Note the eroded land in the foreground and the drainage ditch to the south (at left).

Kotið

Kotið ('the cottage´) (447P2) is located about 1.4 km north of the modern farmhouse at Helluland, not far to the east of the main Hegranes road and just south of the border with Utanverðunes (Figures 1 and 31). Its visible architecture consists of a single structure atop a hill, between an eroded outcrop and low-lying bog (Figure 37). Coring suggests a post-1104 date for the structure, with repeated use through at least the late 18th century. The land directly to the north of the site is heavily eroded, as is much of the landscape to the east. The immediate surroundings of the architecture, especially to the east and west, have deeper soils and deep grassy *búfur*, with boggy deposits in places. Directly to the south, between the structure and the drainage ditch, upcast from the excavation of the ditch is piled high, preventing coring access to this space, though it may be presumed that the in situ soils here are likewise boggy. The now drained mire in the valley stretches in a thin line, starting to the north and west of Kotið and heading south, becoming an active hayfield for nearly a kilometer between rocky ridges in the direction of Helluland and Háagerði.

Previous historical survey of the site suggested it was never inhabited, perhaps only ever a sheep house (Pálsson 2010: 169). The Jarðabók makes no mention of Kotið. The place-name database mentions numerous *stekkir* on the landscape of Helluland, but it is unclear whether any of them refer to the place now known as Kotið, and none of these places are described as having been inhabited (Örnefnastofnun Íslands n.d.-d).

No evidence of a homefield wall is clear on the surface, though there seems to have been a visible wall prior to 2010 when Pálsson visited the site (2010:169). A possible kuml was identified atop the rocky ridge to the north of Kotið in 2015 (Catlin, et al. 2016), but on returning to the site in 2016, the soil around and within the rock pile had eroded and it became clear that this is *not* a kuml, but simply a large glacial erratic around which numerous other rocks and sediment had accumulated.

Coring

A total of 70 cores were recorded at Kotið in 2016 (Table 1, Figures 38-40). The data were primarily collected in 10-meter paced transects on 14 July 2016, with additional coring on 15, 16, and 18 July to place the test pit and complete recognizance of the landscape. Since no turf wall or boundary is clearly visible at Kotið, interior vs. exterior analysis of soil depth cannot be carried out. Much like Hendilkot, the differences in soil depth across the sites appear to be due more to topography than architecture. An unusually deep core to the northeast of the site (160679) contained striated river sand between LNL and H1, atop wet Aeolian deposits and more sand a meter below the surface; there may have been a stream running along this side of the site. The average depth of sediment to bedrock was 39 cm, deepest in the lowest-lying areas near the mire (Figure 38).

Twenty-two cores at Kotið (31%) contained the 1104 tephra layer, plus 11 instances (16%) each of the 1300 and 1766 layers, 6 cores (8%) with the 1000 layer, 13 (19%) that included LNS/LNL, and none with the ~950 layer. Twenty-seven cores included H3 (39%) while 11 (16%) had the H4 layer, as well as 4 cores with tephra that could not be identified in the field. Unsurprisingly, most of the tephra was observed in the areas with the deepest soil (Figure 39). However, in the driest and most heavily eroded part of the site along the eastern edge, the historic tephras (1104, 1300, and 1766) are prominent, while LNS and the prehistoric layers are absent. It may be suggested, then, that at least in this portion of the site, a significant erosion event occurred prior to 1104, significant enough to remove soil all the way to below the H3 layer.

Twenty-six cores at Kotið contained at least some evidence of cultural material (37%, Figure 40). Eighteen of these contained turf deposits, concentrated in and around the visible architecture. Tephra layers in and below the turf universally date the construction to after 1104, with construction events as late as post-1766. One core in the eroded space to the north of the site contained a single possible

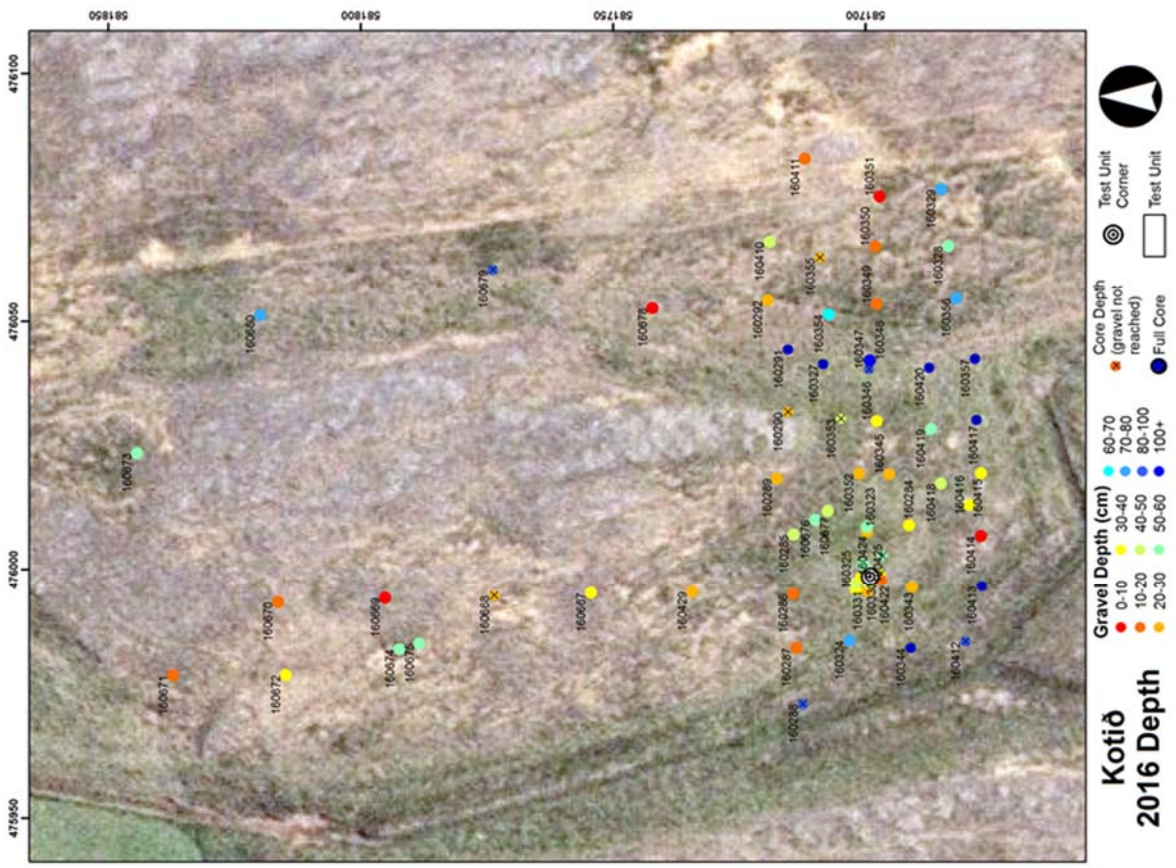

Figure 38. Core locations and depths at Kotið.

Figure 39. Tephra and boggy deposits observed in cores at Kotið.

Figure 40. Cultural material observed in cores at Kotið.

instance of post-1766 turf, suggesting there may have been a field boundary here, though no clear wall could be discerned amidst the eroded *þúfur*.

Nine cores contained low-density cultural or denser midden layers, concentrated in a small area just to the west of the architecture. When tephra was present, two cores included material below the 1000 tephra layer, one below the 1104, and another below the 1300. This area also included the single instance of turf below the 1104 tephra.

The SCASS protocol for calculating farmstead size gives a pre-1104 area of approximately 50 m^2 (Figure 41), much smaller than sites classified as "farms," and the smallest of the *fornbýli* aside from Minni-Egg (Appendix E). Unlike Minni-Egg, however, the topography, tephra, and remaining architecture provide

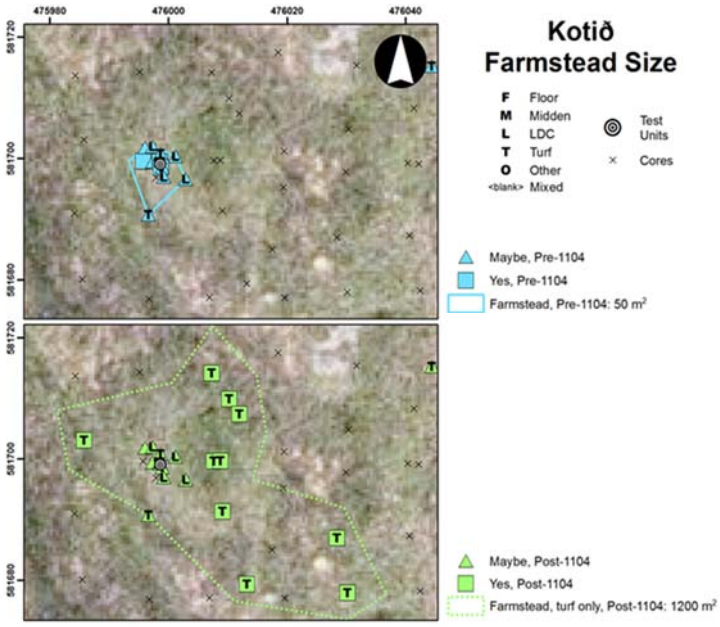

Figure 41. *Estimates of farmstead size at Kotið. It would be reasonable to associate the pre-1104 size with a pre-1000 farmstead, as several cores containing cultural material below the 1000 layer and midden was observed both above and below the 1000 and/or ~950 layer in Test Pit 1.*

Figure 42. *John Schoenfelder and Nika Zeitlin record a GPS point at Kotið while Lauren O´Connor, Kat Catlin, and Annie Greco observe.*

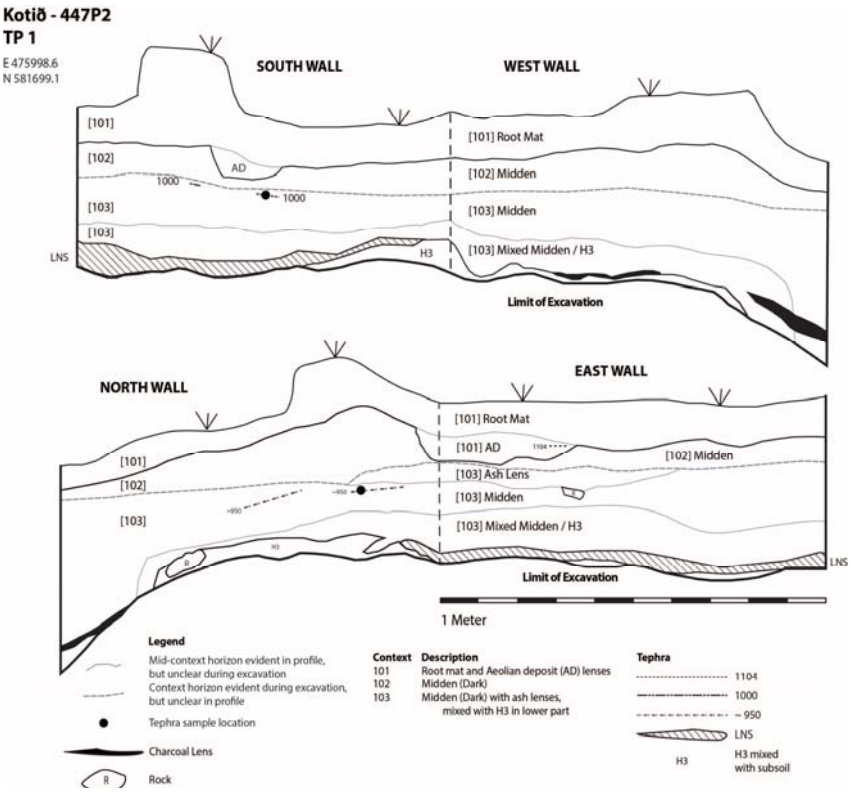

Figure 43. Profile drawing of all four side walls of TP1 at Kotið.

at a slightly higher degree of confidence that the midden at Kotið has not substantially eroded away, and was never much larger than observed. The post-1104 farmstead size, derived only from the presence of turf, was 1200 m^2, similar to other farms and *fornbýli*, although it should not be considered a farm at this date.

Excavation

Test Pit 1 (TP1) was placed within the small midden area, to the west of the ruined structure, at the location of cores 160427 and 160330 (Figure 40). We expected to find ten to twenty centimeters of midden deposits just under the root mat, with in situ 1104 and 1000 tephra deposits above or within the midden, possibly some turf, and sterile soil and/or bedrock at 30-50 cm below the surface. While a few cores nearby also included midden or LDC layers, the thickest midden deposit and the best tephra sequences were at this location. TP1 was excavated on 15, 16, and 18 July 2016 by Kathryn Catlin, Nicholas Zeitlin, and Annie Greco (Figures 42-44; Table 5). This unit was screened with a 2.5-mm mesh.

At the base of the cryoturbated root mat [101], which we removed with shovels (all underlying contexts were removed by trowel), we observed a small amount of charcoal, bone, and peat ash inclusions, as well as a lens of H1 tephra along the east wall of the unit. Beneath the root mat was a dark midden layer [102], primarily charcoal, with faunal remains (including at least one pig bone), slag, and three metal pieces: a nail, a staple, and a rivet

Figure 44. Photo of the north wall at Kotið TP1. Observed tephra layers are labeled.

*Table 5. Contexts for Test Pit 1 at Kotið. *All troweled and sieved unless noted. **Average of all corners, in cm.*											
Context	Class	Description*	Color	Compaction & Composition	Homo-geneity	Boundary	Inclusions	Date	Opening Depth **	Closing Depth **	Thickness
101	Topsoil	Topsoil, cryoturbated. Shoveled. Not screened. Tiny speck of 1104 on east wall at base of cxt.	Dark Brownish Brown	Soft Sandy Silt	Uniform	Sharp	All at base of cxt: Charcoal, Ash (Peat), Bone	post-1104	0	15.5	15.5
102	Midden	Midden layer, dark	Mid Brownish Brown	Soft Sandy Silt	Mottled	Unclear	Ash (Wood), Ash (Peat), Charcoal, Bone, Fire Cracked Rock, Iron Finds: iron rivet, nail, and staple	post-1000	15.5	19.75	4.25
103	Midden	Continued midden deposits, slightly more peat ash at top, then darker again. Lowest levels, mixed with remobilized H3. Includes pit in NW corner.	Mid Brownish Brown pinkish in NE corner at top of context	Soft Sandy Silt	Mottled	Unclear	Ash (Peat), Charcoal, Bone, Ash (Wood), Turf, Iron, Slag, Fire Cracked Rock, Gravel (<2cm) Finds: 2 rivets, bone ring pin, nail, worked lithic, bark fragment, 2 metal fragments.	ca. ~950	19.75	40	20.25
871	Tephra	Landnam tephra sequence. Truncated in northwest.					One animal bone.	ca. 871	40	45	5

Figure 45. Metal finds from Kotið TP1. Labeled with find numbers. Units in centimeters. F1: rivet, staple, nail fragment from [102]. F2 and F5: rivets from [103]. F4: nail from [103]. F7 and F8: metal fragments from [103].

(Find #1, Figure 45). A line of small pebbles stretching east-west near the bottom of the context did not appear to have been purposely placed, but rather was likely due to the action of water in between frost hummocks. When the midden began to change character from primarily charcoal to primarily peat ash, we switched to a new context [103]. However, it quickly became clear that the peat ash was confined to a lens in the northeast corner of the unit, spread diffusely through the remainder of the unit. Finds from [103] included two rivets that matched the rivet from [102] (Finds #2 and #5, Figure 45), which suggests that the two contexts were not significantly separated in time.

Figure 46. Animal-head bone ring-pin (Find #3) from [103], TP1 at Kotið. Units in centimeters.

Beneath the peat ash lens in the northeastern corner of the unit, at the transition from peat ash back to primarily charcoal midden, we unearthed a ring-pin made of bone with a carved handle in the shape of an animal head (Find #3, Figure 46). Other finds, in addition to the rivets and numerous faunal remains, included a nail (Find #4, Figure 45) and two other metal fragments (Finds #7 and 8), a fragment of tree bark (Sample #11), and a lithic that appeared to be worked (Find #6, Figure 47). Bone (especially fish and bird), shell, and fire-cracked rock increased in frequency near the base of [103].

At the bottom of [103], the dense midden began to give way to a layer of primarily remobilized H3 tephra, with significant deposits of bone and charcoal as well as lenses of peat ash and other greasy

midden deposits. There were no further metal or other finds in this lower portion of the context. We expected these deposits to be thin, representing the earliest midden materials impressed into a ground surface, and so we did not start a new context. However, the layer of mixed midden/H3 turned out to be much deeper than expected. This mixed layer gave way to a truncated landnám tephra layer in the east and south sections of the unit. In the northwest corner of the unit, a deep pit had been dug through the LNL and into the subsoil, filled with fire-cracked rock, bones, and charcoal. The boundaries between the dense midden, the remobilized H3 layer, and the pit feature were extremely blurred and diffuse both during excavation and in the profile, making it somewhat uncertain whether the pit pre- or post-dates the mixed midden/remobilized H3 deposits. However, the truncated LNS layer around the pit suggests the LNS was removed about the time the pit was dug, making it a very early deposit. Throughout the rest of the unit, dips in the underlying LNS or subsoil had accumulated ash and bone, though only the pit in the northwest corner appeared to have been purposefully excavated. Bones from within the pit were sampled for radiocarbon, and flotation samples were retrieved from all contexts under the root mat (including multiple samples from throughout [103]). The underlying mixed subsoil/H3 layer was mottled with dark greasy deposits that were determined to be naturally occurring organic precipitates.

Figure 47. Worked lithic from [103], TP1 at Kotið. Units in centimeters.

During excavation, the only tephra observed were the small H1 lens under [101] and the landnám tephra (Figure 43). However, after excavation, John Steinberg identified a possible ~950 layer in the north side wall, while Douglas Bolender identified a possible 1000 layer in the south wall, both near the top of [103]. Samples of these two layers were retrieved for analysis. During cleaning, some additional bones were collected from the side walls.

Interpretation

There appears to have been a small settlement at Kotið from shortly after the landnám in the late 9th century through perhaps the beginning of the 11th century, though when the tephra analysis and radiocarbon dating become available these dates may narrow. At least one pit was dug for trash disposal very early during this period, and local wild resources were consumed. Though the primary fuel used appears to have been charcoal, later during this period peat was also often burnt. The metal finds, mostly fasteners and mostly retrieved from the upper levels, suggest there may have been a wooden structure here during the late 10th century.

The bone pin was also deposited sometime during the late 10th or early 12th century. The asymmetrically tapered end of the pin and its relatively short length (approximately 6.5 cm) suggest

that the pin may have been broken and resharpened, and could have been disposed of for this reason, or it may have been lost. Such a pin is a fascinating find, especially on a site of such small size. Bone pins with carved animal heads are known from a few other Viking Age contexts in Iceland, including a carved pin head found in a midden at Sveigakot (Vésteinsson, et al. 2005) and, more notably, a complete pin from a pagan burial at Keldudalur on Hegranes (Zoëga 2008). Neither of these pins have a circular ring, however. A more similar bone pine, with a ring formed by an animal head biting the pin, was found in 1962 at Gröf in Vatnsnes (Sarpur: Menningarsögulegt gagnasafn n.d.), but is thought to be from a later, 13th century context.

Permanent settlement at Kotið appears to have stopped before the 12th century. From this time through at least the late 18th century, this place was the site of an animal barn. The proximity of mire to the site, and the possibility that a stream may have stopped flowing directly to the east before 1104, raises the possibility that Kotið could have been an attractive site for a wet meadow for livestock grazing.

Keflavík

The farm at Keflavík is located at the northern edge of Hegranes, in a north-south valley that borders on the fjord and channels the wind when it blows from the north or south. There are two major medieval farmsteads on the property, at least one of which is associated with a cemetery. Excavations and geophysical survey at the farm mound, cemetery, and older farmstead (Lower Keflavík) were carried out in 2015 and 2016 and have been reported elsewhere (Bolender, et al. 2016; Catlin, et al. 2016; Steinberg, et al. 2017; Zoëga, et al. 2016).

Four named *fornbýli* have been located on the landscape of Keflavík: Þrælagerði, Grænakot, Kriki, and Vík (Figures 1 and 48) (Pálsson 2010:35-37). Grænakot was investigated in 2015 and no evidence of habitation was found, only turf deposits of varying ages (Catlin, et al. 2016). Þrælagerði and Kriki were also investigated in 2015 and showed no evidence of habitation, but both sites were revisited in 2016 and this time midden deposits were located at both sites. The decision was made to revisit

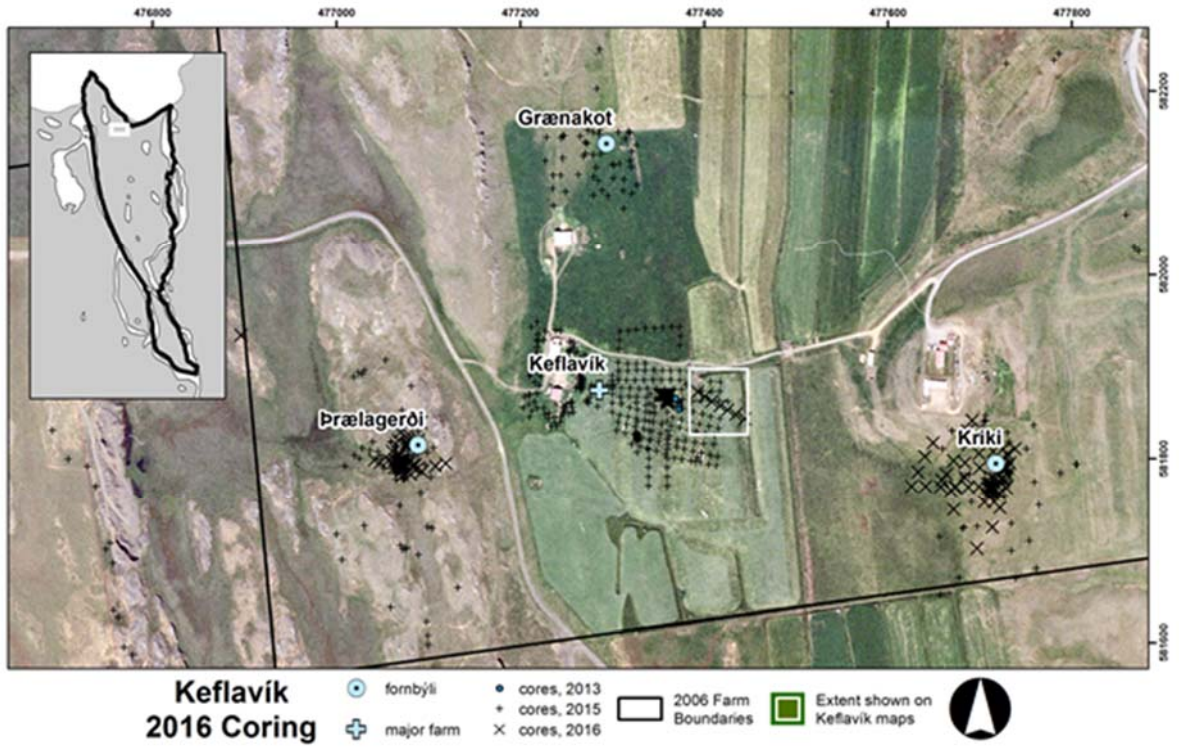

Figure 48. *Keflavík landscape, including cores and* fornbýli. *Vík is to the north, not shown.*

these sites after successes at Minni-Ás and Túnfótur in 2015 led to a change in survey strategy, now requiring a ten-meter coring grin in order to locate small middens less than a few hundred square meters in area.

In 2008, the main medieval farmstead as well as Þrælagerði and Kriki were surveyed and mapped by archaeologists from the Skagafjörður Heritage Museum (Guðný Zoëga and Guðmundur S. Sigurðarson 2009). Small test trenches were also excavated in the field walls at both *fornbýli* sites. Survey data from this work is displayed on several of the maps below.

Keflavík Farmstead

One research goal of the FLASH project is to characterize the environmental changes that occurred in and around the medieval settlements of Hegranes, including the development of peat bogs and mires. Early in the 2016 season, the opportunity arose to investigate and describe the mire at Lower Keflavik. As at numerous *fornbýli*, boggy deposits were observed in several cores in 2015 that fall within or very near to the medieval farmstead (Catlin, et al. 2016). This portion of the field is now drained mire, and the medieval farmstead covers much of the area between two drainage ditches (Bolender, et al. 2016). On June 29 and 30, Kathryn Catlin exposed a profile in each of the ditches, and connected the profile with a transect of cores at 10-meter spacing (Figures 49-53).

Profile 1, along the east side of the western ditch and within the area of the pre-1104 farmstead, exposed a dry, crumbly root mat above a deposit of structural turf (not natural peat) with the 1300 layer inside it. The ditch may have been dug through an old building. Below the turf were non-boggy layers of LDC and midden with the 1104 tephra in situ (Figure 51). Beneath the pre-1104 midden, the sediment turned to a very wet, striated mire, including large pieces of waterlogged wood, that separated in lamellar plates. A landnám tephra layer was observed within the bog, and the ditch was not cleared below the waterlogged H3 layer, about a meter below the ground surface.

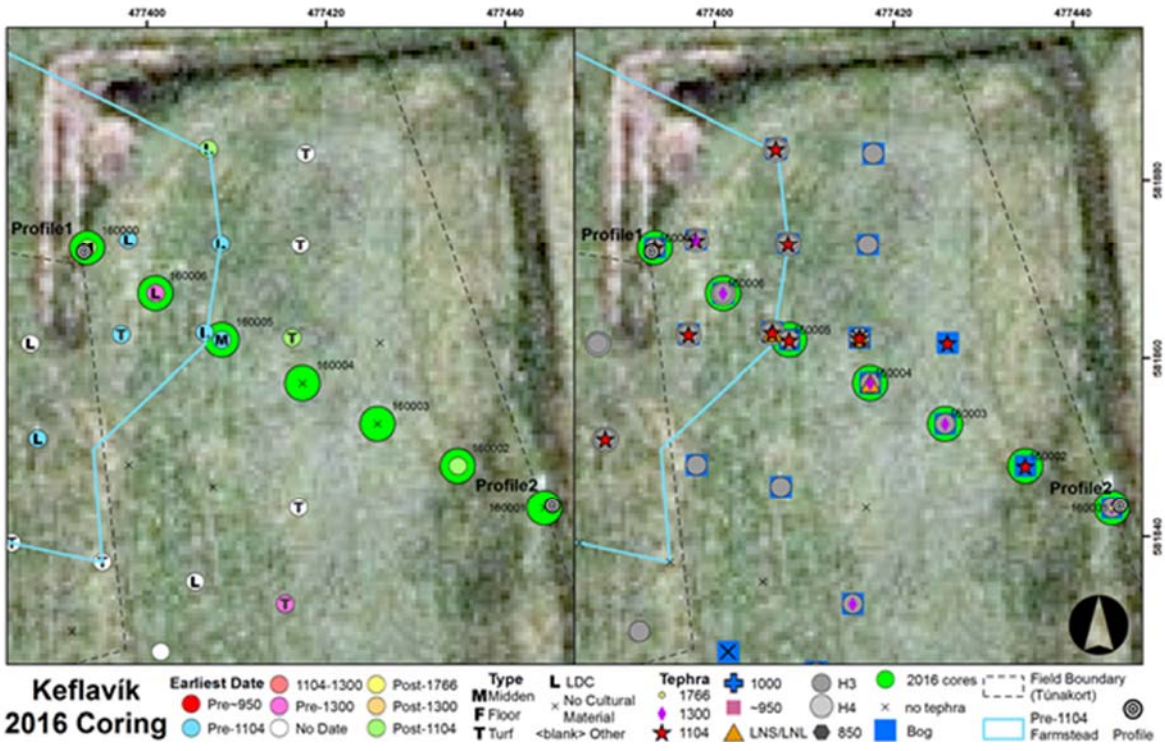

Figure 49. Locations of profiles and coring in the mire at Lower Keflavík. The 2016 transect is highlighted in bright green circles.

Figure 50. Bog Profile 1 at Keflavík. Photo facing southeast, approximately along the coring transect. A portion of Kriki is visible in the middle distance at far left.

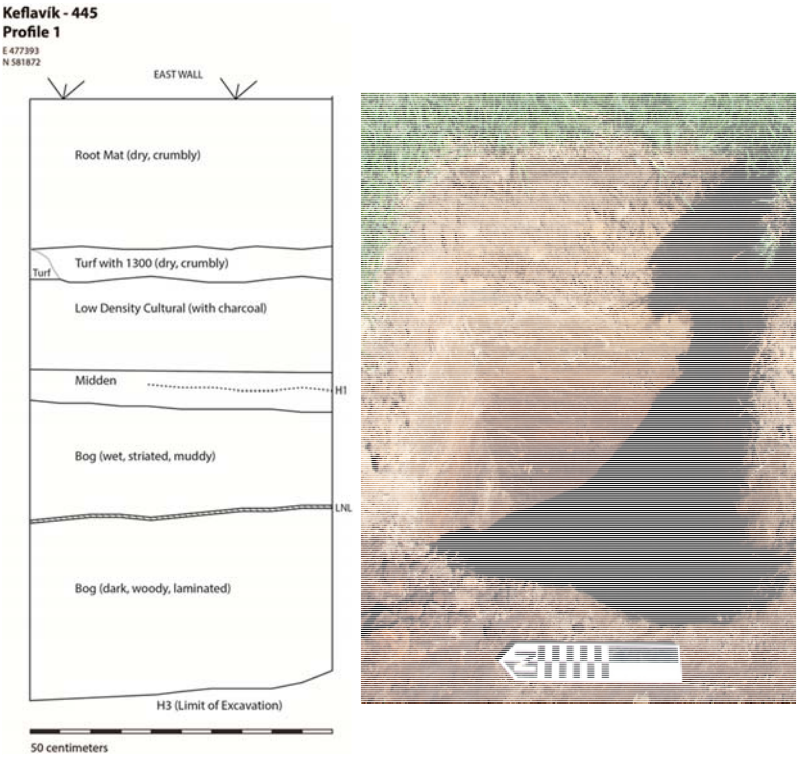

Figure 51. Drawing and photograph of Profile 1 at Keflavík.

Profile 2, along the west side of the eastern ditch, exposed a crumbly root mat with the 1300 layer in situ atop a rooty, iron-mottled dry boggy layer that included the H1 tephra in situ (Figure 52). This gave way to a darker, peatier, laminated mire with more roots and some wood, to below the H3 tephra, when the sediment became wetter with a higher proportion of wood to roots. This layer overlay a thick layer of red, iron-rich mud and gravel with no roots or wood, that included the H4 layer and another unidentified prehistoric tephra. The red mud continued to at least 125 cm, the limit of the profile.

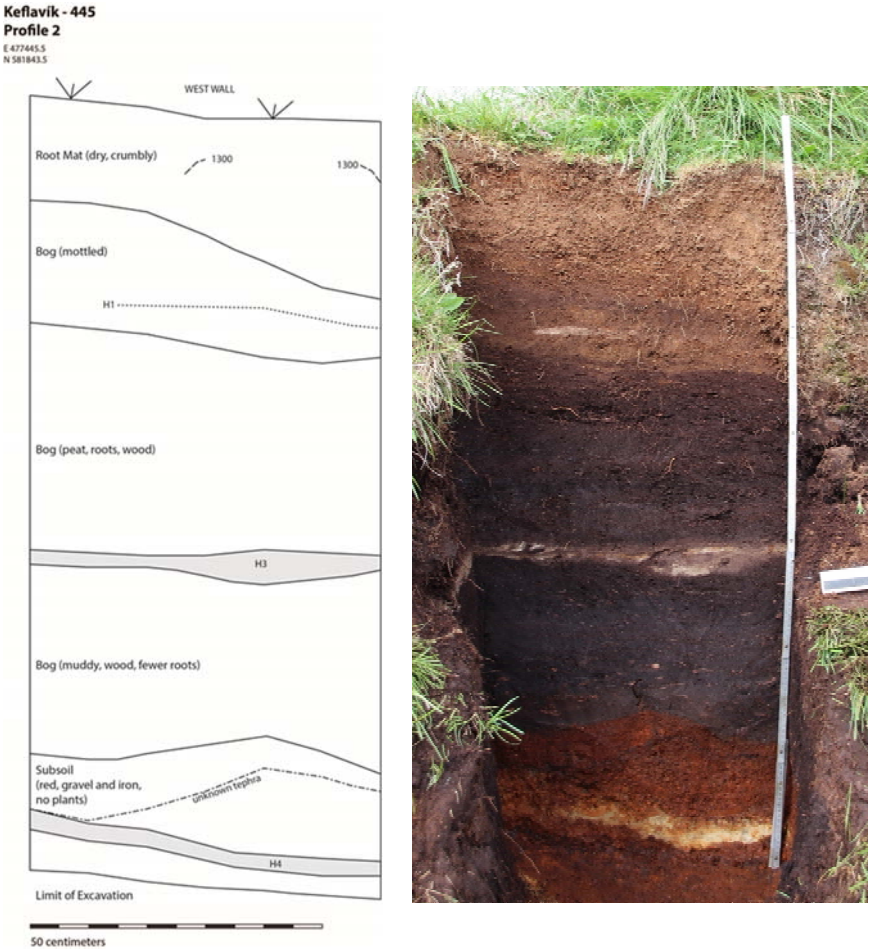

Figure 52. Drawing and photograph of Profile 2 at Keflavík.

The coring transect between the two profiles is shown in Figures 49 and 53. Taken together, the profiles and transect show that the mire was likely wet with active peat growth prior to and during the first centuries of settlement at Keflavík (before LNS and H1, where present). The 1300 layer appears to post-date the bog in most cases, including Profile 2, though care should be taken here as modern drainage activities may have dried the upper layers of sediment, changing their appearance to macroscopically resemble Aeolian deposit or grassy root mats. Nonetheless, it is safe to assume that this portion of the Keflavík mire was wet until at least the early 12th century, after which point it has been subjected to modification and alteration by human activity. The presence of a mire may have been attractive to early settlers; as there is little evidence here of turf cutting or peat removal, the area may have served as a wet meadow for grazing livestock during the medieval period.

Kriki

Kriki (445P4), sometimes called Litla-Keflavík, is located approximately 430 meters to the east of the medieval cemetery, in a field just to the southeast of the modern farmhouse (Figure 48). No record of habitation is known from here. The Örnefnaskrá mentions the site but gives little detail (Örnefnastofnun Íslands n.d.-e). The existence of the site is also mentioned in the Jarðabók, lumped together with Þrælagerði, and it was assumed that no one lived at either site based on the small size of the enclosures (Magnússon and Vídalín 1930; Pálsson 2010:63: 35).

The site includes at least one structure and the partial remains of a bounding wall, though they are difficult to distinguish on the surface (Figure 54). The locations were recorded during the Skagafjörður Heritage Museum's survey in 2008, when a test excavation in the wall dated the site to post-1104, perhaps early in the 12th century (Guðný Zoëga and Guðmundur S. Sigurðarson 2009).

Kriki is bordered by eroded areas to the south and east, the modern farmhouse and yard to the north, and wet bog to the west. Much of the site is heavily cryoturbated. Background imagery in the maps was produced via Kite Aerial Photography in 2015 under the direction of John Schoenfelder.

Kriki was surveyed in 2015, however, the 20-30m survey grid employed that year was deemed insufficient to locate evidence of settlement and domestic refuse. In 2016, the survey at Kriki was continued with a 10m grid, and two small areas of domestic refuse were located. The southernmost of these was followed up with a 1x1m test excavation. A test unit was also rapidly excavated in the mire along the western side of the enclosure at Kriki, to supplement bog work at Lower Keflavík (see above) and as a preliminary test of mire analysis methods for the FLASH project.

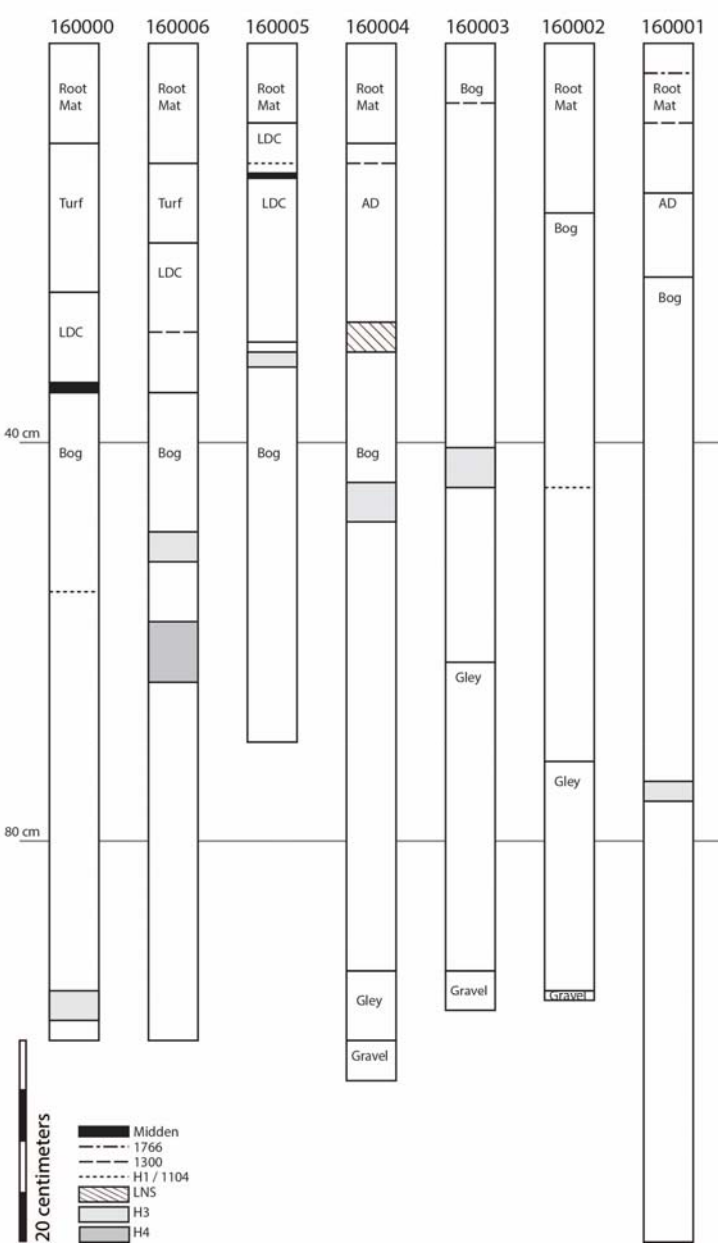

Figure 53. Diagram of coring transect through the drained mire at Lower Keflavík.

Coring

Sixty-three cores were recorded at Kriki in 2016, bringing the total number of cores at the site to 112 (Table 1, Figures 55-58). The data were collected on 3, 4, and 7 July and 12 August 2016. Cores at Kriki had an average sediment depth to gravel of 57 cm, with significant differences between cores exterior to the enclosure wall (33 cm, 30%) vs. interior (72 cm, 70%) ($p<0.05$) (Figure 55). This difference reflects high levels of erosion and degradation in the area around the site, as well as the wall itself acting to protect interior soils from removal. Soil depth is however mitigated by the presence of deep bogs along the downslope, western edge of the site, including areas within the turf enclosure (Figure 56). Differences in depth are most striking along the non-boggy northern edge of the site, where cores just inside of the wall were often more than 120 cm deep, while those outside of the wall were less than 40 cm (Figure 55).

Tephra layers dating to the medieval period and earlier were more commonly observed inside the wall than outside (Figure 56): 34 of 40 (85%) H1 layers, all three of the 1000 and 950 layers, 25 of 26 LNS layers (96%), 55 of 65 (85%) H3 layers, and 27 of 30 (90%) H4 layers. Early modern tephra layers were also more commonly observed inside the enclosure, though in slightly less stark proportions: 18 of 22 (81%) 1766 layers, and 21 of 33 (64%) 1300 layers. Similar to other sites, this suggests that erosion occurred in the vicinity of Kriki after the wall was constructed, after 1104 and prior to 1300, with a period of more stability after the early 14th century, followed by another significant period of erosion after the late 18th century.

Figure 54. Kriki, facing southeast. TP1 is visible at center right, and the enclosure wall can be seen at front, and just behind the excavation. The slightly raised green area with fewer þúfur *to the left of the excavation marks the location of the late modern structure.*

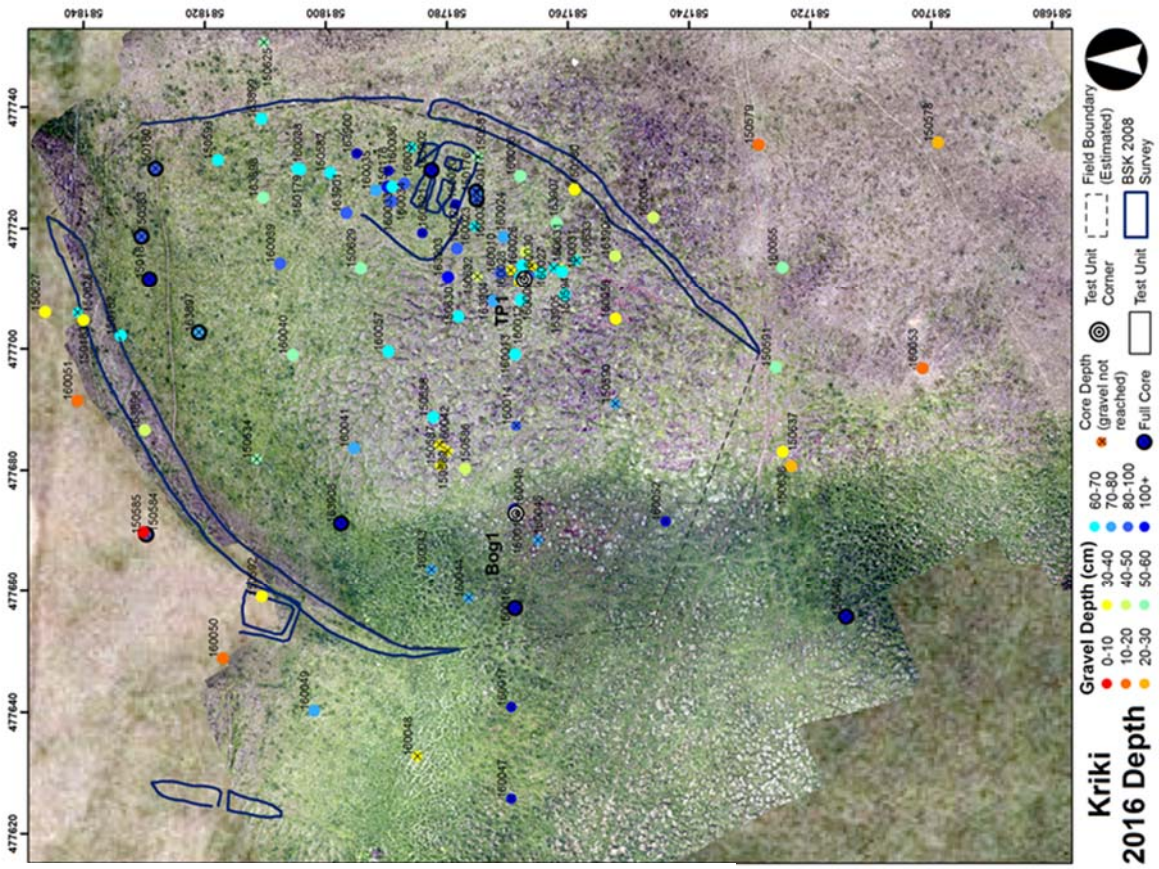

Figure 55. Core locations and depths at Kriki.

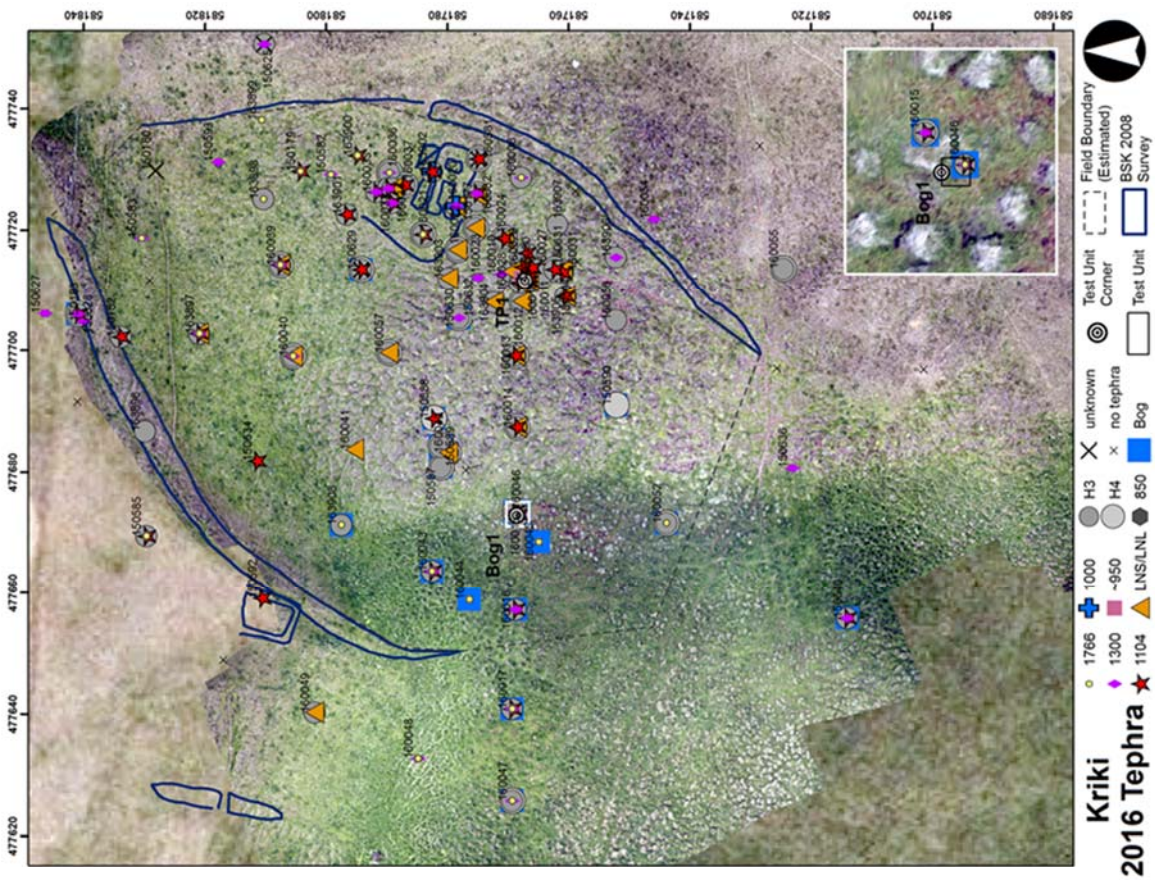

Figure 56. *Tephra and boggy deposits observed in cores at Kriki. Test pit Bog 1 is in the inset.*

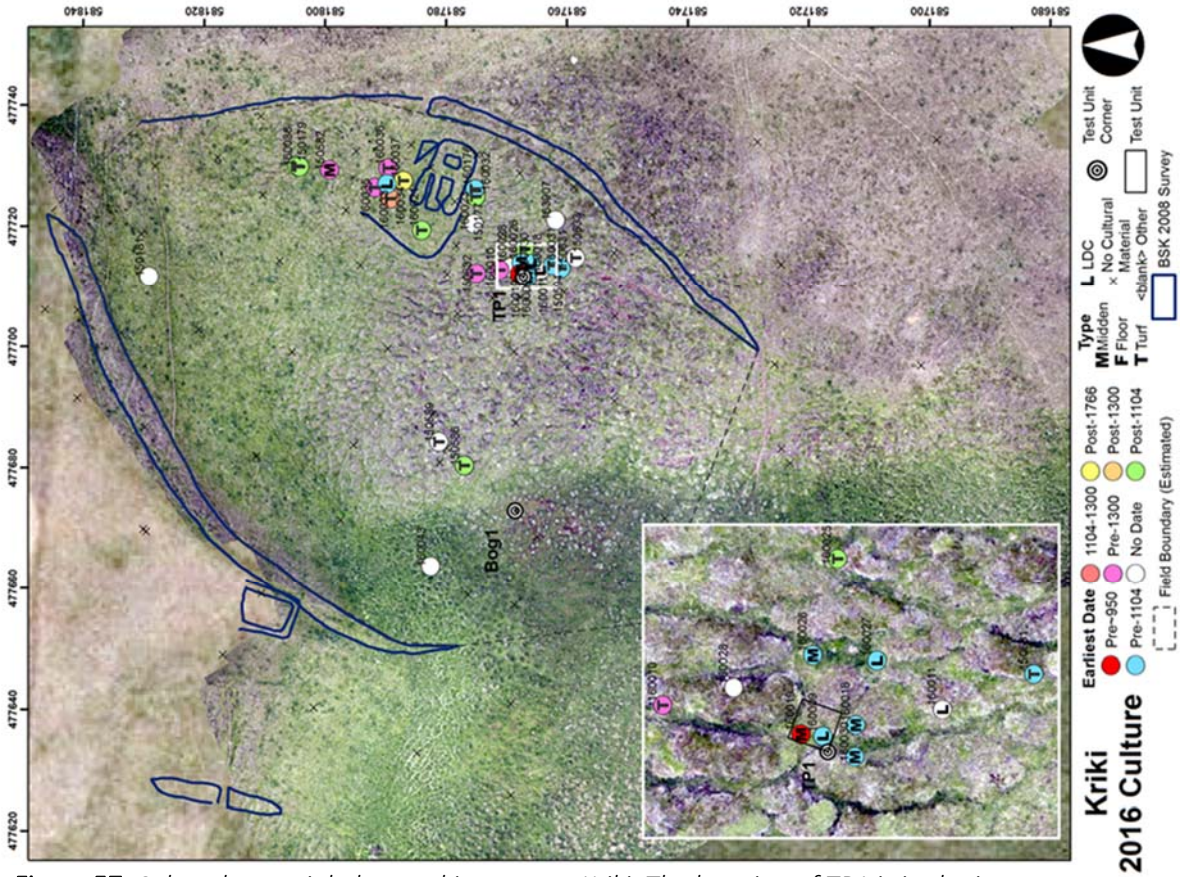

Figure 57. *Cultural material observed in cores at Kriki. The location of TP1 is in the inset.*

Thirty-three cores at Kriki (29%) contained at least some evidence of cultural material (Table 1, Figure 57). The majority of these were turf, with four instances of LDC and five of midden, while the remainder were inclusions of ash or charcoal. When datable, all turf was post-1104 (the same date provided by the 2008 museum excavations), with at least two post-1766 turf deposits. All pre-1104 material and one pre~950 deposit were either midden or low-density cultural deposits, primarily concentrated in a small, highly cryoturbated area downslope and to the southwest of the ruined turf structure. In contrast to many other *fornbýli* sites, few cores at Kriki contained isolated inclusions of ash or charcoal.

The SCASS protocol for estimating farmstead size (Figure 58) gives a pre-~950 area of less than 40 m^2 – only about 25 m^2 if we count only the area around the core that certainly contains midden below the tephra layer. The pre-1104 area of 120 m^2 is larger mostly due to the greater degree of certainty in dating. The post-1104 farmstead size of 500 m^2 is entirely driven by turf and does not reflect habitation by humans.

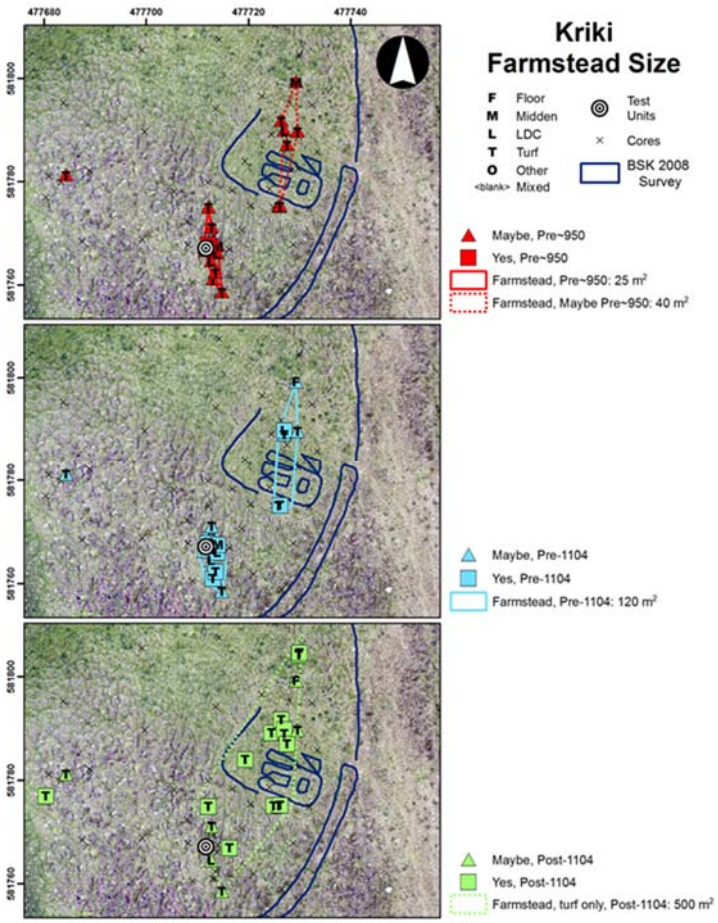

Figure 58. *Estimations of "farmstead" size over time at Kriki.*

Figure 59. *TP1 at Kriki after removal of the topsoil [101]. Note the effects of cryoturbation on the underlying sediment.*

<u>Excavations</u>

Test Pit 1 (TP1) was placed to the southwest of the visible structure, at the location of cores 160009 and 160019, near 160018, 160026, 160027, and 160030 (Figure 57). I expected to find a very thin, dark midden layer below the ~950 and 1104 tephra layers. Although a few cores farther to the north included similar, very thin midden deposits, this location seemed to contain both the widest spread (at only about 15 square meters) and the more complete tephra sequence. The unit was placed at a slight rotation from N-S in order to best fit among the *þúfur*. TP1 was excavated on 04-

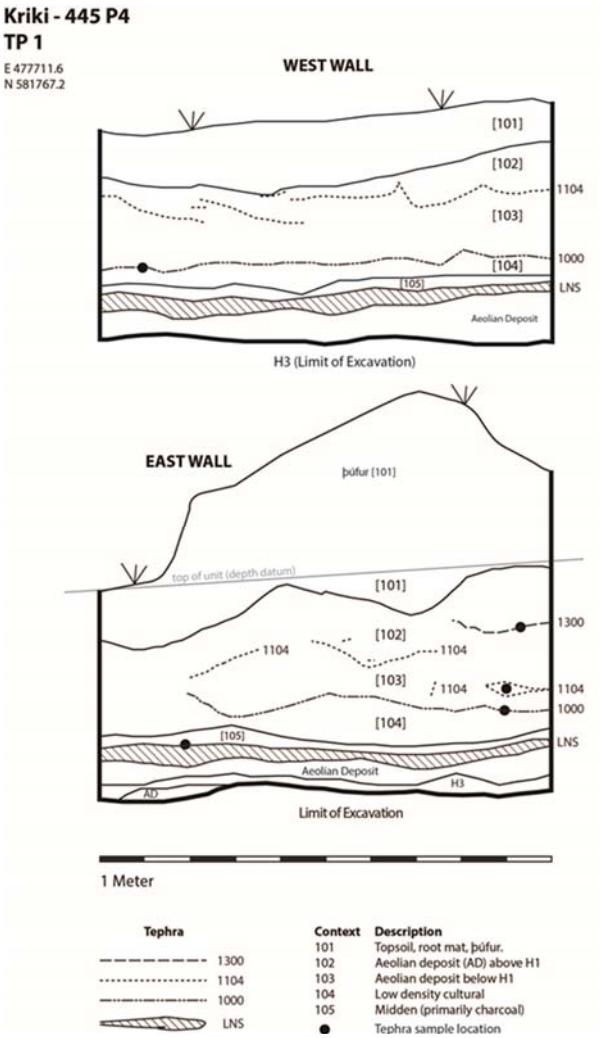

Figure 60. Profile drawing of the West and East walls of TP1 at Kriki.

07 July 2016 by Kathryn Catlin (Table 6, Figures 59-61). TP1 was not screened, as the entire midden layer was collected for flotation (approximately 4 gallons).

A corner of the *þúfa*, located in the southwest quadrant of TP1, was removed as part of the topsoil, context [101] (Figure 59). Context depth measurements were recorded based on the top of the cut, not the top of the *þúfa* (Table 6 and Figure 60). The thick, cryoturbated head of the *þúfa* contained no cultural material and in fact was an extension of the topsoil, which may imply that the majority of cryoturbation at Kriki has occurred relatively recently, certainly after ca. 1104 and perhaps not until after ca. 1300. Cryoturbation had a minimal effect on the sediment layers until just below the 1104 tephra layer, above the midden; below this point the layers flattened out.

Context [102] contained a small amount of charcoal but was otherwise sterile. Macrobotanical flotation samples were retrieved from this and all underlying contexts. The 1104 layer, below [102], was diffuse and wispy due to the effects of cryoturbation, and the underlying [103] was similar to [102], with some charcoal inclusions and a small amount of patchy 1000 (possibly ~950) tephra. The 1000 layer was diffuse and unclear during excavation, so the boundary between [103] and [104] occurs near 1000 but does not precisely coincide. Context [104] was a very low density cultural layer with some grey and pink ash inclusions. Below [104], the very thin midden layer [105] emerged, only about 1 cm thick. This sheet midden consisted primarily of charcoal, with some wood and peat ash, a very small amount of burnt animal bone fragments, and more stones/pebbles than in other layers (though with no apparent organization). The entire layer was sampled for flotation. The midden layer gave way to the landnám sequence, with patches of LNL near the top. Mottled Aeolian subsoil and H3 tephra were beneath the LNS. Following excavation, tephra samples were retrieved from all visible layers (except H3).

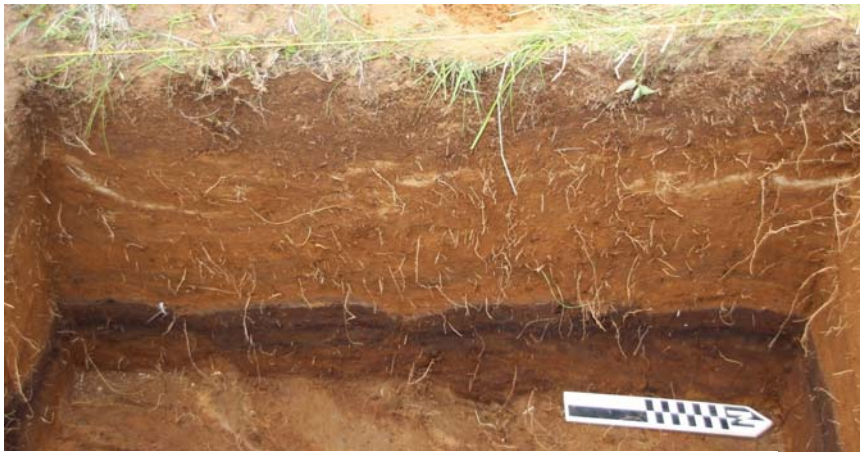

Figure 61. Photo of the west wall of TP1 at Kriki.

Table 6. *Contexts for Test Pit 1 at Kriki. Not sieved. *All troweled unless noted. **Average of all corners, in cm.*											
Context	Class	Description*	Color	Compaction & Composition	Homo-geneity	Boundary	Inclusions	Date	Opening Depth **	Closing Depth **	Thick-ness
101	Topsoil	Crumbly topsoil, root mat. Part of a þufur in sw corner. Cryoturbated. Shoveled, then troweled. Likely contained some 1300 tephra.	Dark Yellowish Brown	Soft Silt	Mottled	Sharp		post-1104	0	14.375	14.375
102	Aeolian Deposit	Above h1. Cryoturbated.	Mid Yellowish Brown	Soft Silt	Mottled	Gradual	Charcoal, Tephra	post-1104	14.375	22	7.625
1104	Tephra	Patchy and diffuse, includes h1 plus surrounding soil due to þufur. Cryoturbated.	Mid Brownish White	Soft Sandy Silt	Lensed	Unclear	Charcoal	ca. 1104	22	25.5	3.5
103	Aeolian Deposit	Under h1. Cryoturbated. Shoveled, then troweled.	Mid Yellowish Brown	Soft Sandy Silt	Mottled	Gradual	Charcoal	pre-1104	25.5	31.25	5.75
104	Midden - LDC	Slightly more presence of cultural material in a slightly darker (grey-pinkish) matrix. Likely some 1000 tephra included in layer. Some visible greasy smears.	Mid Pinkish Brown somewhat greyer than [103]	Soft Sandy Silt	Mottled	Gradual	Ash (Peat), Charcoal, Tephra	likely ca. 1000	31.25	36.5	5.25
105	Midden	dark midden layer! Likely under 1000, definitely under 1104.	Mid Bluish Grey	Soft Clayey Silt	Mottled	Sharp	Ash (Wood), Ash (Peat), Charcoal, Bone (tiny and burnt), Pebbles (2-6cm)	likely pre-1000	36.5	37	0.5
871	Tephra	Landnam sequence, lnl peeking through at top. Sampled from top on context just under midden. Trowel, then shoveled.	Dark Greenish Grey	Soft Sandy Silt	Mottled	Sharp		ca. 871	37	47	10

Figure 62. Kriki, near the location of Bog1, facing north. The enclosure wall is visible, stretching diagonally up the slope from the mire at middle left, to just below the tractor atop the hill at right.

Kriki therefore appears to have been inhabited for a very short time after landnám, likely during the early 10th century, perhaps for only a few days – long enough to build at least one substantial fire.

Bog Pit 1 (Bog1) was intended to provide a sequence of tephra and peat samples that could be subjected to Loss-on-Ignition analysis, to characterize the changing nature of the mire over time with respect to the sequence of human activity at Kriki. The unit was placed just inside the western edge of where the field wall was likely to have been located (Figures 56 and 62), though the wall is no longer visible here due to significant continuing mire development since the site was abandoned. Placing the unit inside the wall was intended to explore whether the protection offered by the wall had acted to limit mire formation during the time that the site was in use. Specifically, the 50x50cm unit was placed in an area where coring had indicated no evidence of cultural deposits, with a tephra sequence that included 1766, 1300, 1104 and the prehistoric Hekla layers, at the location of core 160046. Bog 1 was excavated on 7 July 2016 by Kathryn Catlin.

The excavation generally verified the tephra and mire stratigraphy shown in the core (Figure 63). The unit was wet and boggy with a strong scent of decay through the full depth. The 1766 layer was less apparent during excavation than it had seemed in the core, as was the 1104 layer, and no sign of tephra between the 1104 and H3 was apparent. The general absence of early tephra through the lower, boggy portions of Kriki may suggest the mire was cut for peat or turf prior to 1104. As the excavation progressed downward, the sediment became wetter and darker, and the visible peat content decreased, starting at a point between H1 and 1300. After exposing the H4 tephra layer, the unit began to flood, and samples were rapidly extracted from the north wall, from bottom to top. Loss-on-Ignition samples are expected to be processed in the spring of 2017; relative carbon context through the column will be used to characterize mire development.

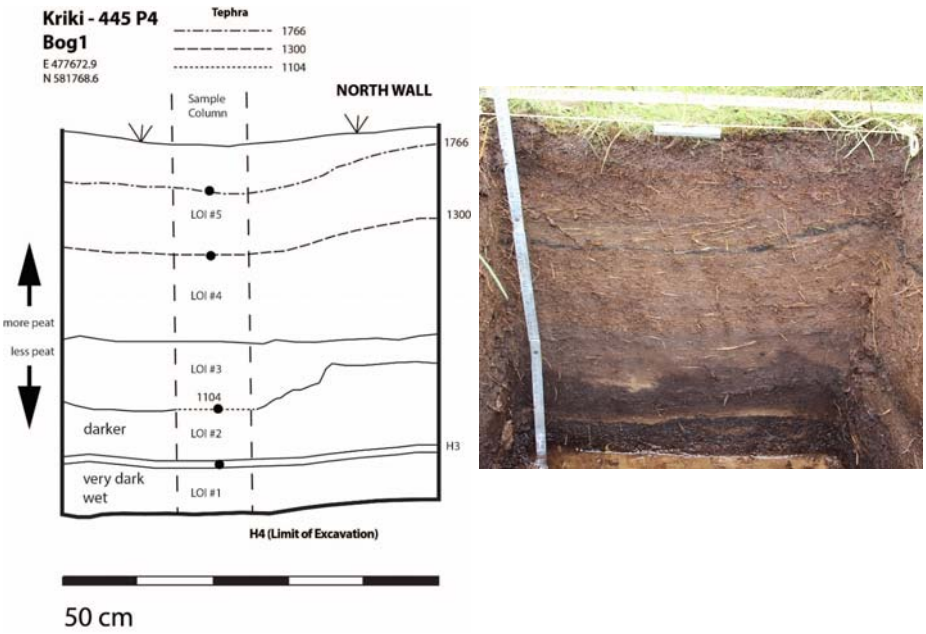

Figure 63. Profile drawing and photo of the north wall of Bog1 at Kriki. Black circles mark tephra sample locations.

Interpretation

Kriki appears to have been inhabited for only a very short time during the 10th and/or 11th centuries. The habitation here does not appear to have risen to the level of settlement, as the area of domestic refuse is very small and no contemporary turf was observed. Habitation at Kriki may have been only a brief camping episode, perhaps while making charcoal, watching sheep, or cutting peat during the initial construction of the farmstead at Keflavík. The absence of isolated ash inclusions in cores through most of the site further suggests the habitation did not go on for very long, as there was never a significant flux of ash blowing around the site. After the 11th century, turf enclosure walls and structures were built for agricultural management, perhaps in a similar configuration to those observable today. These are likely to have been a grazing area and barn, perhaps including a wet meadow, for livestock associated with the Keflavík farmstead.

Coring in the bog at Lower Keflavik suggested it may have dried somewhat between ca. 1104 and ca. 1300 (see above). In contrast, the bog at Kriki seems to have been experiencing active peat growth from prehistoric times through the present, especially during and after the 12th century (though this may be revised pending LoI results). The post-1104 date for the outbuildings at Kriki may therefore in part reflect a decrease in wet meadowland close to the Keflavík farmstead, requiring more extensive use of outfields for grazing.

Þrælagerði

Þrælagerði (445P2) is about 200 m west of the medieval cemetery excavation at Keflavík (Figure 48). The early use and establishment date of the site are not known, though it was already in ruins by the time of the Jarðabók survey ca. 1713, where its existence is mentioned in the same sentence as another site (probably Kriki). Both sites are described as never having been inhabited, based on the small size of the enclosures (Magnússon and Vídalín 1930:63). The Jarðabók describes both sites as "*sem men halda þrælagerði*" ("which people consider thralls´ enclosures"), and this reference may be the origin of Þrælagerði's name (Pálsson 2010: 35-36). Þrælagerði is also briefly mentioned in the Örnefnaskrá (Örnefnastofnun Íslands n.d.-e). In 2008 the Skagafjörður Heritage Museum carried out a survey and test excavation at Þrælagerði, establishing that it was likely a sheepfold sometime after 1104 and before 1300 (Guðný Zoëga and Guðmundur S. Sigurðarson 2009).

Þrælagerði is located in a cryoturbated bowl between rocky outcrops to the north, east, and south, with a lower boggy area to the west (Figure 64). Þrælagerði is close to medieval Keflavík but is not

Figure 64. Þrælagerði landscape, facing southeast. Brian Damiata and John Schoenfelder are working at TP2. The green area to the left of them is the homefield and ruins; the enclosure wall can barely be seen. The farm at Keflavík is behind them and over the ridge. In the middle ground, note the sharp edges of the mire, evidence of peat cutting.

visible from the main farm, and reaching the site requires climbing over or walking around a rocky ridge. The mire shows evidence of having been cut for peat. Ruins still visible at the site include two structures inside the large turf enclosure wall, as well as several other turf structures in the near vicinity.

Þrælagerði was surveyed in 2015, but since the 20-30m survey grid was deemed insufficient to locate evidence of settlement and domestic refuse at *fornbýli*, the site was revisited in 2016 on a targeted 10m reconnaissance grid within the enclosure wall. This time, a large area of domestic refuse, primarily charcoal and bone, was located downslope and to the southwest of the ruined structures (Figure 65). A smaller area of domestic refuse was also located to the north of the structures, near the most promising core from the 2015 season. A 1x1 test excavation was carried out in the larger midden in 2016.

Coring

At Þrælagerði 58 cores were recorded in 2016, bringing the total number of cores in and around the site to 145 (Table 1, Figures 66-69). Coring was primarily performed on 11 and 12 July 2016, with some additional coring prior to and during excavations on 8, 10, and 11 August. Coring in 2016 did not contradict the post-1104, pre-1300 date for most of the turf at the site. Some very few cores gave a post-1300 date for turf construction (Figure 68). Coring in a structure located on a rocky outcrop in the mire west of the site showed clear evidence of post-1300 construction (not shown on Þrælagerði maps, but see Figure 48 near the western boundary of Keflavík).

The average depth to gravel at the site was 44 cm, not a significant change from 2015 data, with no significant differences inside vs. outside of the enclosure wall (Figure 66); as at Hendilkot and Kotið, depth of soil at Þrælagerði appears to have more to do with topography than architecture. Likewise, tephra at the site does not appear to have been affected by the presence of the wall (Figure 67), though little tephra of any sort was observed at Þrælagerði in comparison with other sites. The complete absence of the 1000 and ~950 layers and scarcity of LNS suggests pre-1104 erosion, turf/peat cutting, or more likely, both. The presence of only 13 1300 layers (9%) and 7 1766 layers (5%) through the entire site further suggests erosion after the late 18th century. The H1 layer was the most common historic tephra at the site, however with only 27 observations of the layer (18%), most of them outside of the enclosure wall, the preservation of even H1 at Þrælagerði is much lower than

Figure 65. Pink flags mark cores containing evidence of domestic refuse (charcoal and bone midden) at Þrælagerði. The turf enclosure wall runs across the frame, behind the flags and at right angles to their line. Photo taken from the ruined structures, facing southwest.

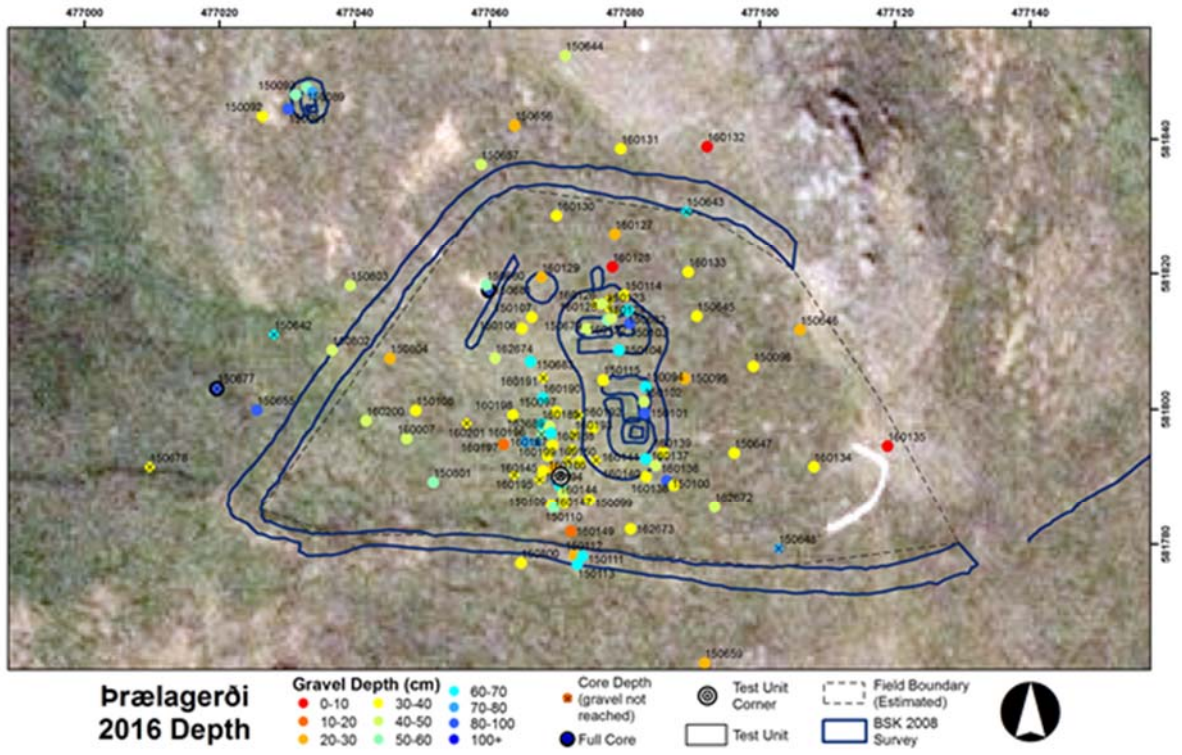

Figure 66. Depth and locations of cores near the central area of Þrælagerði.

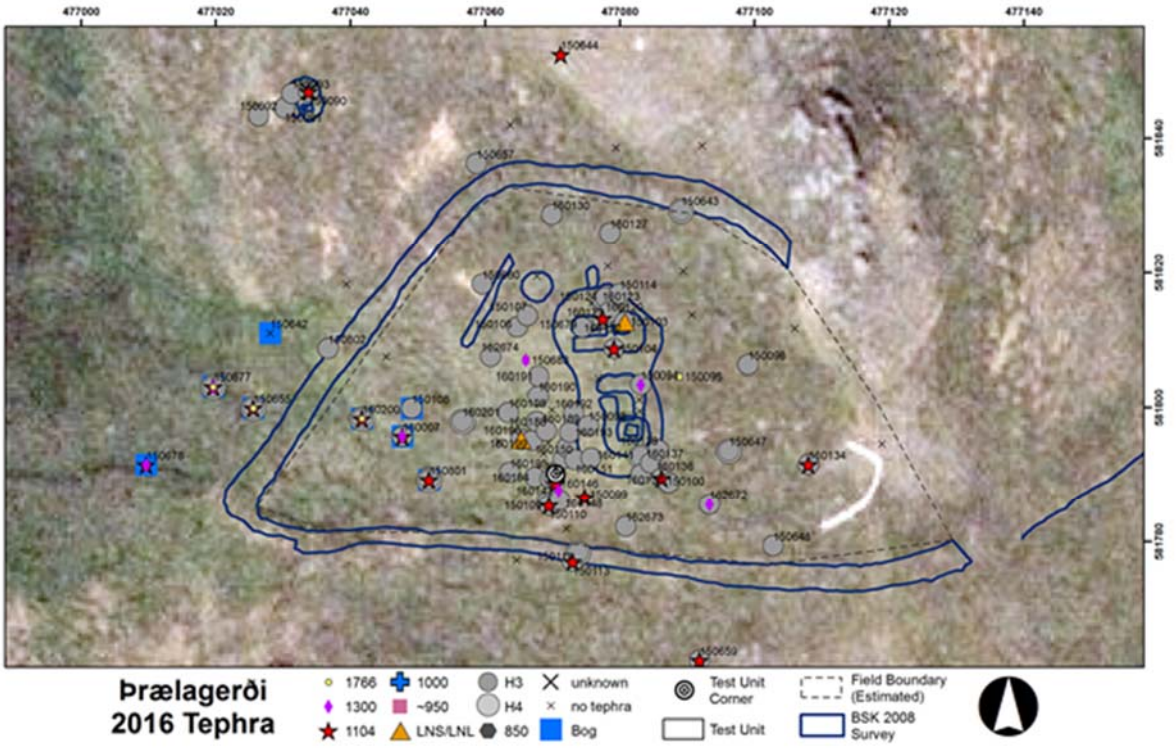

Figure 67. Tephra and boggy deposits observed in cores at Þrælagerði.

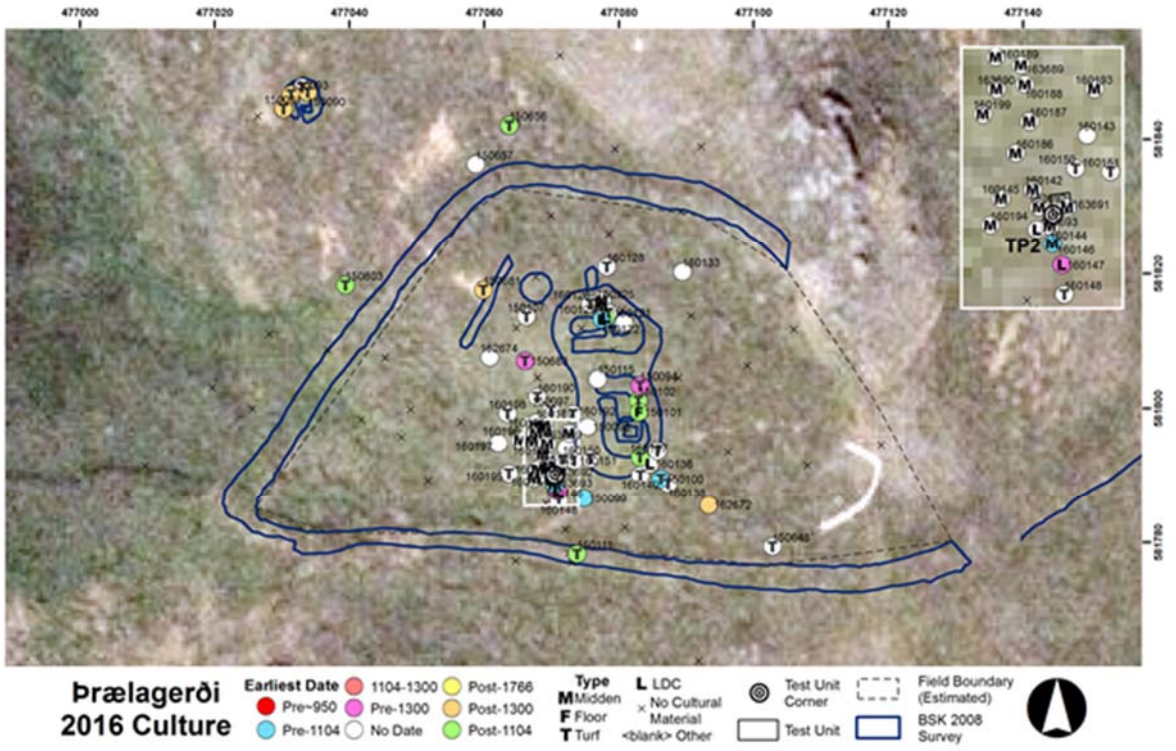

Figure 68. Cultural material observed in cores at Þrælagerði.

to anthropogenic landscape change, though it does unfortunately complicate dating of the site. Seventy-one cores at Þrælagerði showed evidence of cultural material (32%), primarily turf (47), with 18 at other sites on Hegranes. The presence of 79 H3 layers (54%) shows that that absence of tephra here is a relatively recent phenomenon. As yet this is unexplained aside from a probable connection observations of midden and 6 of low-density cultural material (Figure 68). Compared to Kriki, Þrælagerði had numerous cores with inclusions of charcoal or more rarely peat ash. As noted above,

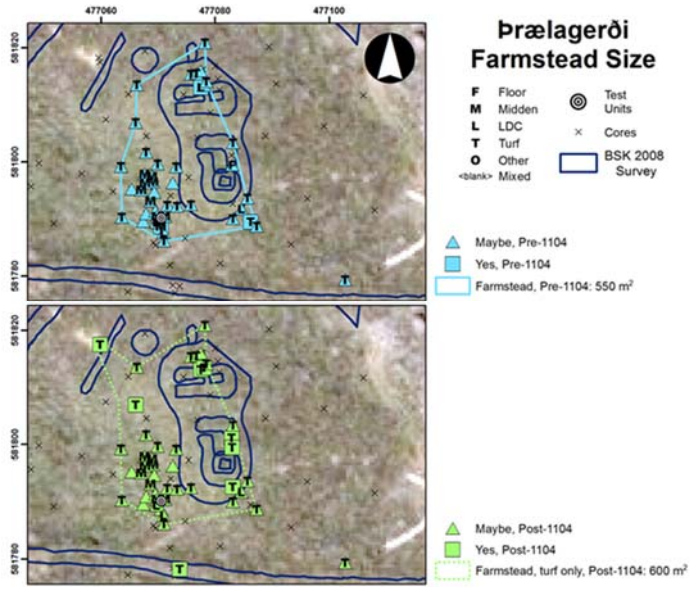

Figure 69. Estimations of farmstead size over time at Þrælagerði.

turf at the site was primarily post-1104 or pre-1300 when it could be dated, with some few examples to either side of those dates. Midden at the site was very difficult to date, as in most cases it was observed in cores that lacked historic tephra layers. The small cluster of midden and LDC to the north of the architecture suggests a pre-1104 date. The linear strip of midden observed to the southwest of the ruins had almost no preserved tephra in association, except for two cores near the southern edge of the midden which also suggested a pre-1104 date. The linear nature of the midden, as well as the fact that cores to all four sides of the midden contained turf, suggest that the domestic refuse may have accumulated inside a former structure. The absence of tephra associated with the turf makes it difficult to date, though it is likely to be pre-1104 if not earlier. Test Pit 2 (see below) further supports an early date for habitation here.

The SCASS protocol for estimating farmstead size (Figure 69) gives an area of 550 m^2, near the median size for *fornbýli* and in fact larger than Rein, though this may be an overestimate, since the farmstead boundary as drawn connects what may be three separate activity areas. The post-1104 size, consisting only of turf, is estimated at 600 m^2. The general lack of tephra at the site means that no further estimates could be calculated with any certainty.

Excavation

Test Pit 2 (TP2) was placed to the southwest of the main visible structure, between cores 160144 and 163691, where we expected to find at least 10 cm of dark charcoal midden. Although many cores near the eventual test pit location contained midden deposits (Figures 65, 67, and 68), very few of them included any tephra, with the exception of a few ephemeral H1 layers near the test pit that could not be reproduced. The test pit was therefore placed in a good midden deposit in the hope than an ephemeral H1 in the core would appear more substantial during excavation. TP2 was excavated on 10 August 2016 by Kathryn Catlin and Rita Sheppard, and was drawn and backfilled on 11 August by Kathryn

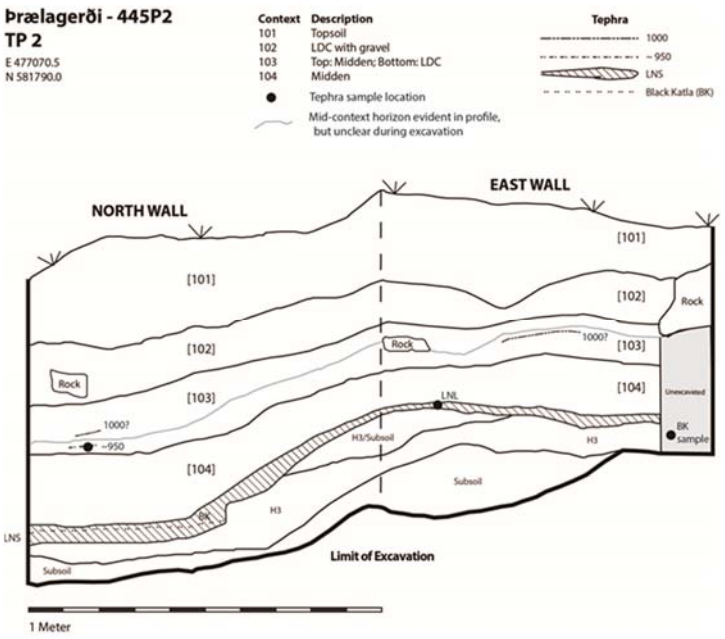

Figure 70. Drawing of the north and east walls at Þrælagerði TP2.

Figure 71. Photos of the north (top) and east (bottom) walls of TP2 at Þrælagerði.

Figure 72. Photo of Þrælagerði TP2 after excavation, showing the size and arrangement of the two rocks that interfered with excavation. Note that both rocks are atop the midden, in particular, the large rock in the southwest corner, which could form part of the foundation for a later structure. Photo facing southeast.

Catlin and John Schoenfelder (Table 7, Figures 70-75). (TP1 had been an environmental profile near the site that was exposed and recorded in 2015 (Catlin, et al. 2016).)

After removal of the topsoil [101] we encountered a large, flat rock covering most of the southwest quadrant of the unit (Figure 72). We suspected the rock might be architectural and so left it in place as we continued to the end of the unit. Additional smaller stones (mostly pebbles and a few cobbles) began to emerge at the base of [101] and into [102]. Some of stones appeared to be fire-cracked and we observed at least one smooth, rounded river stone. However, there was no evidence of burning or a pit, and although some of the rocks in the northeast corner seemed to form a rough circle, we concluded that the majority of these stones had probably been washed here by rain, and kept in place by the surrounding *þúfur*. The soil matrix of [102] was very low density cultural material with small amounts of bone and charcoal. Bones were collected from [102] and the soil was screened, but we did not retrieve flotation samples. We removed the majority of the rocks, aside from the large one in the southwest corner and another in the southeast corner that would have caused the wall to collapse had we removed it. Though we pedestalled these two rocks for safety´s sake, the layers of sediment under them appeared to correspond to what we were seeing in the rest of the unit (Figure 72). Therefore, if the large flat rock in the southwest corner of the unit is indeed architectural in purpose, it goes with a building that was erected *after* the midden was no longer in use, and is *not* part of a structure into which domestic refuse was dumped. No turf was observed in the unit, so more excavation is needed to determine whether, and when, a structure may have been located here.

Beneath the cobbles, a very thin lens of sterile soil lay atop a dark midden, [103]. The midden contained primarily charcoal and many animal bones, including some articulated cuts, as well as more fire cracked rock. Radiocarbon, flotation, and bone samples were collected. Finds included a small

Table 7. *Contexts for Test Pit 2 at Þrælagerði. *All troweled and sieved unless noted. **Average of all corners, in cm.*

Context	Class	Description*	Color	Compaction & Composition	Homo-geneity	Boundary	Inclusions	Date	Opening Depth **	Closing Depth**	Thickness
101	Topsoil	Root mat. Shoveled, then troweled. Not sieved.	Mid Brownish Brown	Friable Silt	Uniform	Gradual	Bone, Charcoal, Fire Cracked Rock, Gravel (<2cm)	post-1000	0	21.25	21.25
102	Midden - LDC	Low density cultural, gravelly layer under root mat	Mid Orangish Brown	Soft Silt	Uniform	Sharp	Bone, Charcoal, Fire Cracked Rock, Gravel (<2cm), Pebbles (2-6cm)	likely post-1000	21.25	33.5	12.25
103	Midden	Darker midden layer. Density decreases at base, more clear in profile than during excavation	Mid Brownish Grey	Soft Silt	Mottled	Sharp	Bone, Charcoal, Wood, Fire Cracked Rock, Gravel (<2cm) Finds: round white pebble, nail fragment, worked whale bone object	ca. 1000	33.5	42	8.5
104	Midden	Darker, greaser midden	Mid Brownish Black	Soft Clayey Silt	Lensed	Sharp	Bone, Charcoal, Gravel (<2cm), Fire Cracked Rock Finds: iron ring (eyelet?), two round white pebbles, one green stone	likely pre~950	42	53.75	11.75
871	Tephra	LNS with some LNL visible at top	Dark Greenish Brown	Soft Silt	Uniform	Sharp		ca. 871	53.75	55.25	1.5

white round stone, a nail, and a large piece of worked whalebone (Figure 73). The midden tapered quickly to low density cultural material, and although we did not switch contexts, the transition is clear in profile (Figures 70 and 71).

A thick, dense, greasy, lensed charcoal and bone midden [104] emerged beneath the low density material. Some fire-cracked rock was also present though no evidence of a cooking pit was observed; the unit sloped downward in the northwest corner, but there was no cut through the underlying LNS layer. Finds from [104] included a metal ring (possibly an eyelet), two more small white stones, and a green stone that appeared to contain copper, possibly a former inclusion that had emerged from a fire-cracked basaltic rock (Figure 73). A large amount of faunal remains was retrieved from this

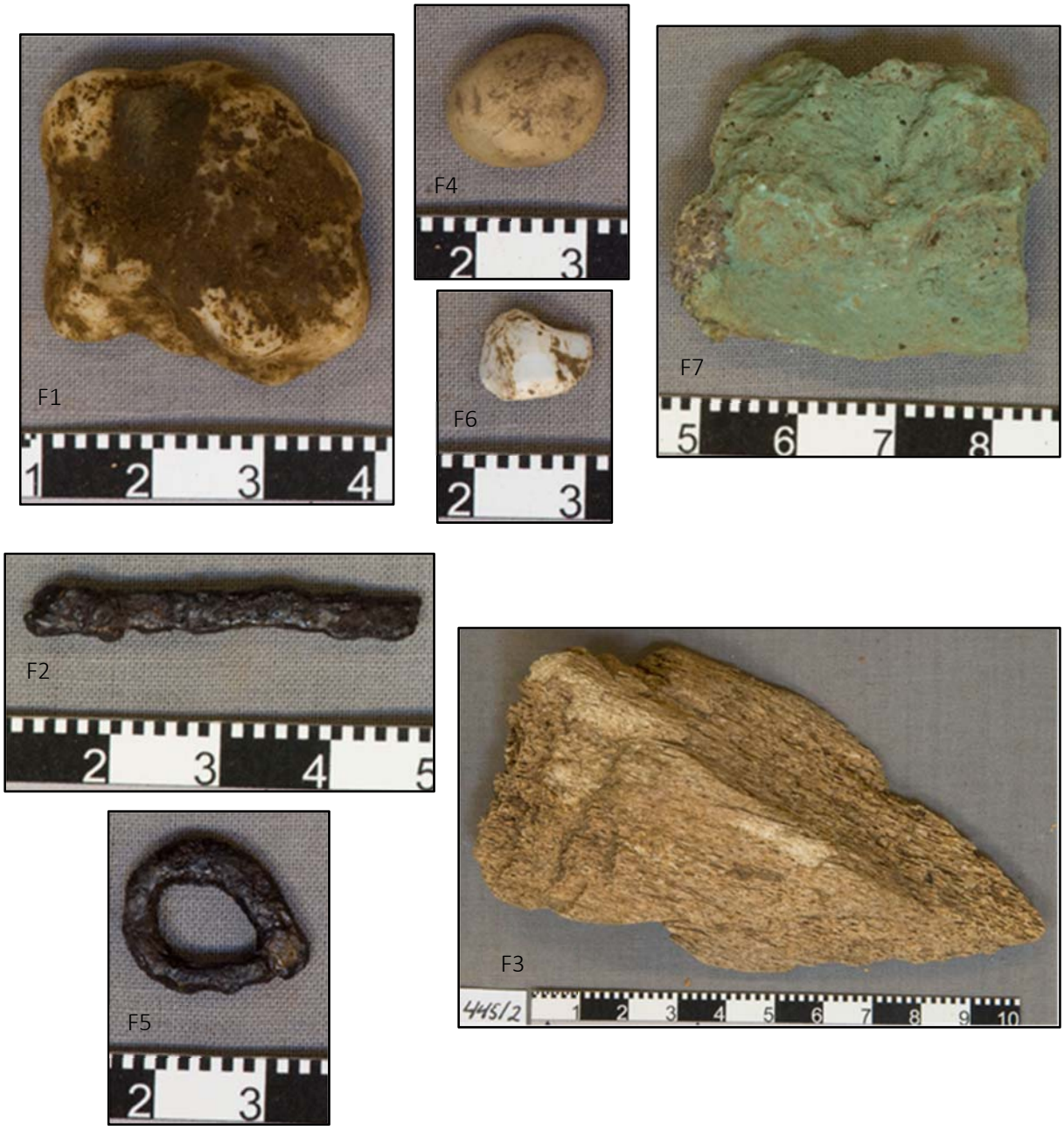

Figure 73. Finds from Þrælagerði TP2. Top: white stones (not yet treated) (F#1 [102], F#4 and F#6 [104]) and green stone (F#7 [104]); Bottom left: metal objects (nail (F#2 [103]) and eyelet hook (F#5 [104])); Bottom right: worked whalebone (F#3 [103]). Units in centimeters.

context, including numerous bird and fish bones. Terrestrial mammal bones were saved for radiocarbon dating, especially from the lowest levels, and multiple samples were taken for flotation.

We observed some landnám tephra appearing near the base of the context. LNS with scattered LNL lenses eventually covered the entire unit, directly beneath the midden. We removed and sampled the layer, then continued excavating through the underlying H3 layer and into subsoil.

No tephra other than the LNL was observed during excavation. We identified some possible dark tephra layers in the side walls of the unit. Brian Damiata concluded that the possible 1000 layers we had identified were dark lenses of sand and gravel rather than tephra, though he did identify and sample a possible ~950 layer from just above [104], as well as the LNL and a Black Katla from within the LNS (Figure 70).

Interpretation

Þrælagerði was inhabited for a short amount of time just after the landnám, in the late 9th or early 10th centuries. These first settlers burned a lot of charcoal and may have been producing it. They also subsisted in large part on birds and fish. There may have been a turf structure here at this time, in which domestic refuse eventually accumulated, though more work is needed to verify this. Over the course of the 10th century, permanent settlement ceased, though the site was re-occupied for a very short time for similar purposes probably during the early 11th century. Turf and peat cutting may have been a major occupation of this second phase, as cores in the bog often contain the 1104 layer but no earlier tephra. Human habitation of the site halted by the 12th century, but shortly thereafter the existing turf wall and structures at Þrælagerði were constructed, likely to support animals as they grazed in the wet meadows, and perhaps also to support turf- or peat-cutting activities. This may have included a structure at the site of TP2, if the large, flat rock we encountered may be interpreted as a foundation stone. Though the site may have continued to be used for livestock management into the 14th century and beyond, as were other nearby outbuildings, it was rebuilt only sporadically after 1300.

Outcomes of 2016 Survey and Future Work

The goal of the FLASH project in 2016 was to continue the survey begun in 2015, determining the age and character of additional *fornbýli* sites and to describe their spatial and temporal relationship to environmental change, especially erosion and mire development.

Coring and excavation data continues to suggest that many of the *fornbýli* on Hegranes were inhabited early, prior to 1104 and perhaps soon after *landnám*. For the most part, human settlement and habitation at the *fornbýli* appears to have stopped before, or in some cases shortly after, ca. 1104. After 1104, all of the sites were used as infrastructure for livestock management, which continued in some cases until after the late 18th century. In other words, around the late 11th and early 12th centuries, the outlying areas of Hegranes ceased to used be for permanent settlement, but continued in importance as part of seasonal or day-to-day management of the farm.

The coring data further suggest the timing of erosion events at many of the sites. The presence or absence of certain tephra layers, especially when there is difference in tephra preservation to either site of a field boundary, suggests that numerous sites experienced significant erosion prior to ca. 1104, or in some cases between 1104 and 1300. At numerous sites, evidence of erosion is also apparent later in the historic period, after ca. 1766. Though more work is needed, preliminarily, it now appears as though the major erosion events in and around the *fornbýli* sites primarily occurred around the same time or slightly after the end of habitation in the 11th or 12th centuries, followed by a second round of erosion around the 19th century, around the time that the sites ceased to be regularly used as farming infrastructure.

In addition, the presence of mires very close to the majority of *fornbýli* sites suggests that the presence and development of mires may have had at least as much, if not more, to do with the change in the way these sites were used than did erosion per se. Though more work is needed, it now appears as though the presence of mires may have been an attractive reason to settle in these areas, as a source of peat, turf, and brush, and later as a good quality wet meadow pasture for livestock. The relationship between mire development and the anthropogenic environmental changes that occurred after *landnám* are not well studied or understood. Gaining a preliminary understanding of mire development processes on Hegranes will be a priority in 2017.

Finally, the combined FLASH and SCASS projects are beginning to suggest that there may be significant differences in settlement strategies and patterns between the northern and southern halves of Hegranes. Hendilkot and Rein (an abandoned farm site that is part of the SCASS survey (Bolender et al. 2017)) are both located on the southern, flatter, less rocky section of Hegranes, were settled later in the 10th or even 11th centuries and lasted until well after 1104, and in character and form, bear a resemblance to smaller, later farms produced by subdivision of older, larger properties. In the north, *fornbýli* sites were settled shortly after the *landnám*, and were abandoned prior to or shortly after 1104, appearing more like small early farms that were later incorporated into the landscape of larger farms. Excavations during the 2017 season, especially at Hamar, and at Gerði on Keldudalur, should shed additional light on this hypothesis.

Fieldwork goals for 2017 include the following:

- Trace visible architecture at all *fornbýli* with a dGPS, and take clear photographs, including via kite and/or drone (planned for April and May 2017)
- Complete coring survey and 1x1 excavations at the remaining *fornbýli* on Hegranes to further characterize and date occupation and use of the sites, starting with Gerði (Keldudalur), Grænagerði (Helluland/Hulduland), Hegrastaðir (Ás), and Gunnlaugsgerði (Ás), and time permitting, Vík and Naustavík
- Excavate an additional 1x1 unit at Hendilkot (Hamar) to retrieve evidence of 10th century settlement, and consider second units at other sites, depending on the results of tephra and ^{14}C analysis
- Return to Minni-Egg for one final attempt at locating a midden, and if feasible, excavate a test unit
- Additional extensive coring and survey at multiple sites, to further characterize erosion and mire development in their vicinity, and to locate other structures in the extensive fields
- Time permitting, carry out additional field survey north of Helluland to locate a possible alternate site for Háagerði
- Time permitting, carry out an electrical conductivity (CMD) survey at one or more fornbýli to locate buried architectural or burnt features (Túnfótur on Ás is currently the best candidates for geophysics, as excavation in 2015 exposed a section of pre-1104 turf architecture).

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n.d.-c Hamar. Skagafjarðarsýsla, Rípurhreppur. Reykjavík: Örnefnastofnun Íslands.
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APPENDICES

Appendix A: Finds Register

All conservation was performed by Josiah Wagener on the date indicated.

SITE	EXC.	CXT.	FIND	RETRIEVAL	MAT. TYPE	DESCRIPTION	EXC. ID	EXC. DATE	CONS. DATE
Hendilkot	TP1	102	1	Point	Metal	Iron piece with hole	KAC	01.08.2016	09.08.2016
Hendilkot	TP1	102	2	Screen	Metal	Nail	KAC	01.08.2016	10.08.2016
Hendilkot	TP1	102	3	Screen	Slag	collection of slag	KAC	01.08.2016	N/A
Hendilkot	TP1	103	4	Screen	Slag	collection of slag	KRW	01.08.2016	N/A
Hendilkot	TP1	103	5	Point	Stone	Small green pebble	KAC	01.08.2016	04.08.2016
Hendilkot	TP1	103	6	Screen	Leather	Fragment with small round hole	KRW	02.08.2016	05.08.2016
Hendilkot	TP1	104	7	Screen	Slag	collection of slag	KAC	02.08.2016	N/A
Hendilkot	TP1	106	8	Screen	Slag	collection of slag	KAC	02.08.2016	N/A
Hendilkot	TP1	106	9	Screen	Stone	two larger white rocks, two smaller green ones - one is a geode	KAC	02.08.2016	10.08.2016
Kotið	TP1	102	1	Point	Metal	3 iron objects: rivet, nail fragment, and u-shaped piece	KAC	15.07.2016	21.07.2016
Kotið	TP1	103	2	Point	Metal	Rivet	KAC	15.07.2016	22.07.2016
Kotið	TP1	103	3	Point	Bone	Carved ring pin	AMG	15.07.2016	19.07.2016
Kotið	TP1	103	4	Point	Metal	Nail	NZ	15.07.2016	25.07.2016
Kotið	TP1	103	5	Point	Metal	Rivet	NZ	15.07.2016	21.07.2016
Kotið	TP1	103	6	Screen	Stone	Worked lithic	NZ	16.07.2016	25.07.2016
Kotið	TP1	103	7	Sample	Metal	Metal fragment from Sample 13	JMS	14.08.2016	12.08.2015
Kotið	TP1	101	8	Sample	Metal	Metal fragment from Sample 16	KAC	14.08.2016	12.08.2016
Kotið	TP1	103	S#11	Screen	Wood	Birch bark fragment. Collected as Sample 11.	KAC	16.07.2016	25.07.2016
Næfurstaðir	TP1	102	1	Point	Stone	Round white pebble	KAC	28.07.2016	29.07.2016
Næfurstaðir	TP1	103	2	Screen	Stone	Translucent white rock	LWO	28.07.2016	29.07.2017
Næfurstaðir	TP1	108	3	Point	Metal	Chunk of ore	LWO	29.07.2016	02.08.2016
Þrælagerði	TP2	103	1	Point	Stone	Round white pebble	KAC	10.08.2016	N/A
Þrælagerði	TP2	103	2	Screen	Metal	nail fragment	RSS	10.08.2016	11.08.2016
Þrælagerði	TP2	103	3	Point	Bone	worked, pointed object made of whale bone	KAC	10.08.2016	11.08.2016
Þrælagerði	TP2	104	4	Point	Stone	Round white pebble	KAC	10.08.2016	N/A
Þrælagerði	TP2	104	5	Screen	Metal	Iron ring, perhaps eyelet	RSS	10.08.2016	11.08.2016
Þrælagerði	TP2	104	6	Screen	Stone	Round white pebble	RSS	10.08.2016	N/A
Þrælagerði	TP2	104	7	Point	Stone	Green stone, possible former inclusion in fire-cracked basaltic rock	KAC	11.08.2016	12.08.2016

Appendix B: Sample Register

Additional tephra samples mentioned in the text were collected by Brian Damiata and logged separately.

SITE	EXC.	CXT.	SAMPLE	TYPE	BAGS	DESCRIPTION	ID	DATE
Hendilkot	TP1	102	1	Bone, Animal	1		KAC	01.08.2016
Hendilkot	TP1	103	2	Flotation	2		KRW	01.08.2016
Hendilkot	TP1	103	3	Bone, Animal	1		KRW	01.08.2016
Hendilkot	TP1	104	4	Flotation	2	Top context	KRW	02.08.2016
Hendilkot	TP1	104	5	Bone, Animal	1		KAC	02.08.2016
Hendilkot	TP1	104	6	Wood	1	Partially charred	KAC	02.08.2016
Hendilkot	TP1	104	7	Flotation	2	Base context above h1	KRW	02.08.2016
Hendilkot	TP1	1104	8	Flotation	1	1104	KAC	02.08.2016
Hendilkot	TP1	105	9	Flotation	2	Top of Context under h1	KAC	02.08.2016
Hendilkot	TP1	1104	10	Bones	1		KAC	02.08.2016
Hendilkot	TP1	105	11	Bones	1		KAC	02.08.2016
Hendilkot	TP1	106	12	Flotation	2		KRW	02.08.2016
Hendilkot	TP1	106	13	Bone, Animal	1		KAC	02.08.2016
Hendilkot	TP1	106	14	Flotation	2	Mid-context	KRW	02.08.2016
Hendilkot	TP1	106	15	Radiocarbon	1	Bone for radiocarbon	KAC	02.08.2016
Hendilkot	TP1	106	16	Flotation	2		KAC	02.08.2016
Hendilkot	TP1	106	17	Radiocarbon	1	Bone from base of midden	KRW	02.08.2016
Hendilkot	TP1	107	18	Flotation	2		KAC	02.08.2016
Hendilkot	TP1	934	19	Flotation	1		KAC	02.08.2016
Hendilkot	TP1	934	20	Tephra	1	from base of unit while excavating	KAC	02.08.2016
Hendilkot	TP1	108	21	Flotation	2		KAC	02.08.2016
Hendilkot	TP1	871	22	Flotation	1		KAC	03.08.2016
Hendilkot	TP1	934	23	Tephra	1	from side wall	KAC	03.08.2016
Kotið	TP1	102	1	Flotation	2	top of context	KAC	15.07.2016
Kotið	TP1	103	2	Flotation	2	top of context	KAC	15.07.2016
Kotið	TP1	103	3	Flotation	2	base of context, partially in dips	KAC	15.07.2016
Kotið	TP1	103	4	Flotation	4		KAC	16.07.2016
Kotið	TP1	871	5	Flotation	1		KAC	16.07.2016
Kotið	TP1	103	6	Charcoal	1	Base of context, possible cooking pit	KAC	15.07.2016
Kotið	TP1	103	7	Radiocarbon	1	Bones	KAC	16.07.2016
Kotið	TP1	103	8	Radiocarbon	1	Piece of bone removed from base of pit in cxt 103	KAC	18.07.2016
Kotið	TP1	103	9	Tephra	1	1000? From s wall	KAC	18.07.2016
Kotið	TP1	103	10	Tephra	1	934? From n wall	KAC	18.07.2016
Kotið	TP1	103	11	Wood	1		KAC	16.07.2016
Kotið	TP1	102	12	Bone, Animal	1	burnt and unburnt bones	KAC	15.07.2016
Kotið	TP1	103	13	Bone, Animal	1	bones, with bag of teeth inside	KAC	15.07.2016
Kotið	TP1	103	14	Bone, Animal	1	lower in context. includes bag of shell.	KAC	16.07.2016
Kotið	TP1	871	15	Bone, Animal	1	a single bone from the dark lens in the SE corner	KAC	16.07.2016
Kotið	TP1	101	16	Bone, Animal	1	bones from wall cleanup	KAC	16.07.2016
Kotið	TP1	103	17	Bone, Animal	1	bones removed from radiocarbon sample bag (birds and fish not suitable for dating)	GMC	13.08.2016
Kriki	BOG1	1	1	LOI	1	Under h3	KAC	09.07.2016
Kriki	BOG1	1	2	LOI	1	Under h1Wood	KAC	09.07.2016
Kriki	BOG1	1	3	LOI	1	Above h1	KAC	09.07.2016
Kriki	BOG1	1	4	LOI	1	Under 1300	KAC	09.07.2016
Kriki	BOG1	1	5	LOI	1	Above 1300	KAC	09.07.2016
Kriki	BOG1	1	6	Tephra	1	H3	KAC	09.07.2016
Kriki	BOG1	1	7	Tephra	1	H1	KAC	09.07.2016
Kriki	BOG1	1	8	Tephra	1	1300	KAC	09.07.2016
Kriki	BOG1	1	9	Tephra	1	1766 - somewhat unclear	KAC	09.07.2016
Kriki	TP1	102	1	Flotation	1	Above h1	KAC	05.07.2016
Kriki	TP1	1104	2	Flotation	2	Cryoturbated h1 plus soil around it	KAC	05.07.2016
Kriki	TP1	103	3	Flotation	2	Below H1	KAC	05.07.2016
Kriki	TP1	104	4	Flotation	2	Base of context - just above midden layer	KAC	05.07.2016
Kriki	TP1	105	5	Flotation	2	Entire midden layer	KAC	06.07.2016
Kriki	TP1	871	6	Flotation	2	LNS, top of context just below midden. likely includes some LNL.	KAC	06.07.2016
Kriki	TP1	104	7	Tephra	1	1000 from W wall of unit	KAC	06.07.2016
Kriki	TP1	102	8	Tephra	1	1300 from E wall of unit	KAC	06.07.2016
Kriki	TP1	1104	9	Tephra	1	1104 from E wall of unit	KAC	06.07.2016
Kriki	TP1	104	10	Tephra	1	1000 from E wall of unit	KAC	06.07.2016
Kriki	TP1	871	11	Tephra	1	LNL from E wall of unit	KAC	06.07.2016

Næfurstaðir	TP1	102	1	Bone, Animal	1	Some bones form screen	KAC	28.07.2016
Næfurstaðir	TP1	102	2	Flotation	2	Cxt 102 base above H1	LWO	28.07.2016
Næfurstaðir	TP1	102	3	Flotation	1	Cxt 102 base above H1 - directly atop H1	NZ	28.07.2016
Næfurstaðir	TP1	1104	4	Flotation	1	1104 flotation sample	NZ	28.07.2016
Næfurstaðir	TP1	1104	5	Bone, Animal	1		NZ	28.07.2016
Næfurstaðir	TP1	103	6	Flotation	3	Sample of midden - top of level	NZ	28.07.2016
Næfurstaðir	TP1	103	7	Bone, Animal	1	Bones recovered from midden	KAC	28.07.2016
Næfurstaðir	TP1	1000	8	Flotation	1		LWO	28.07.2016
Næfurstaðir	TP1	1000	9	Bone, Animal	1		LWO	28.07.2016
Næfurstaðir	TP1	104	10	Flotation	2	Floats under 1000	KAC	29.07.2016
Næfurstaðir	TP1	104	11	Bone, Animal	1		KAC	29.07.2016
Næfurstaðir	TP1	934	12	Tephra	1	Green layer	KAC	29.07.2016
Næfurstaðir	TP1	934	13	Flotation	1	Green layer	KAC	29.07.2016
Næfurstaðir	TP1	105	14	Flotation	2		KAC	29.07.2016
Næfurstaðir	TP1	106	15	Flotation	2		LWO	29.07.2016
Næfurstaðir	TP1	105	16	Bone, Animal	1		LWO	29.07.2016
Næfurstaðir	TP1	106	17	Bone, Animal	1		KAC	29.07.2016
Næfurstaðir	TP1	107	18	Flotation	2	Under floor?	KAC	29.07.2016
Næfurstaðir	TP1	107	19	Bone, Animal	1		KAC	29.07.2016
Næfurstaðir	TP1	108	20	Bone, Animal	1		KAC	29.07.2016
Næfurstaðir	TP1	108	21	Flotation	2	Opening	LWO	29.07.2016
Næfurstaðir	TP1	108	22	Radiocarbon	1	Bone	LWO	29.07.2016
Næfurstaðir	TP1	108	23	Flotation	1	Bottom of level	NZ	29.07.2016
Næfurstaðir	TP1	108	24	Radiocarbon	1	Bone - bottom of context	NZ	29.07.2016
Næfurstaðir	TP1	108	25	Radiocarbon	1	Bone - bottom of context	LWO	29.07.2016
Næfurstaðir	TP1	108	26	Wood	1	very bottom of context	LWO	29.07.2016
Næfurstaðir	TP1	108	27	Bone, Animal	1	Wall fall from cleaning for photos	NZ	29.07.2016
Næfurstaðir	TP1	108	28	Tephra	1	Possible lnl speck from north wall	KAC	29.07.2016
Þrælagerði	TP2	102	1	Bone, Animal	1		KAC	10.08.2016
Þrælagerði	TP2	103	2	Flotation	2		KAC	10.08.2016
Þrælagerði	TP2	103	3	Radiocarbon	1	Bone	KAC	10.08.2016
Þrælagerði	TP2	103	4	Bone, Animal	1	Articulated bones in small bags inside	KAC	10.08.2016
Þrælagerði	TP2	104	5	Flotation	2		KAC	10.08.2016
Þrælagerði	TP2	104	6	Radiocarbon	1	Bone	KAC	10.08.2016
Þrælagerði	TP2	104	7	Bone, Animal	1	Articulated bones in bags inside	KAC	10.08.2016
Þrælagerði	TP2	104	8	Radiocarbon	1	Bone from Base just above lnl	KAC	10.08.2016
Þrælagerði	TP2	104	9	Radiocarbon	1	Bones from base of nw corner "pit"	KAC	10.08.2016
Þrælagerði	TP2	871	10	Flotation	1	Lns	KAC	10.08.2016

Appendix C: Flotation Log

						Float		Heavy Fraction - Bagged		Light Fraction - Bagged		
Site	Exc.	Cxt.	SAMPLE	Liters	Weather	ID	Date	ID	Date	ID	Date	Note
Hendilkot	TP1	103	2	16	Sunny, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	19.09.2016	
Hendilkot	TP1	104	4	14	Sunny, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	20.09.2016	
Hendilkot	TP1	104	7	14	Sunny, windy, cold	KAC	09.09.2016	KAC	19.09.2016	KAC	20.09.2016	
Hendilkot	TP1	1104	8	8	Partly cloudy, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	20.09.2016	
Hendilkot	TP1	105	9	15	Partly cloudy, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	22.09.2016	
Hendilkot	TP1	106	12	15	Mostly cloudy, more still, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	22.09.2016	LF overflowed
Hendilkot	TP1	106	14	15	Mostly sunny, windy, cool	KAC	09.09.2016	KAC	22.09.2016	KAC	20.09.2016	
Hendilkot	TP1	106	16	15.5	Sunny, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	20.09.2016	
Hendilkot	TP1	107	18	13.5	Sunny, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	19.09.2016	
Hendilkot	TP1	934	19	7	Sunny, windy, cool	KAC	09.09.2016	KAC	19.09.2016	KAC	19.09.2016	
Hendilkot	TP1	871	22	8	Sunny, windy, cooler	KAC	09.09.2016	KAC	19.09.2016	KAC	19.09.2016	LF overflowed
Kotið	TP1	102	1	14	Sunny, mostly no more rain!	LKK	04.08.2016	LWO	11.08.2016	LKK	10.08.2016	
Kotið	TP1	103	2	12.5	Rainy	LKK	04.08.2016	LWO	11.08.2016	LWO	11.08.2016	
Kotið	TP1	103	3	15	Rain	LKK	04.08.2016	LWO	11.08.2016	LWO	11.08.2016	
Kotið	TP1	103	4	29	Cloudy	LKK	04.08.2016	LWO	11.08.2016	LKK	10.08.2016	
Kotið	TP1	871	5	8	Cloudy	LKK	04.08.2016	LWO	11.08.2016	LWO	11.08.2016	
Kríki	TP1	102	1	7	Sunny, windy, colder	KAC	05.09.2016	KAC	10.09.2016	KAC	10.09.2016	
Kríki	TP1	1104	2	14	Sunny, getting windier	KAC	05.09.2016	KAC	10.09.2016	KAC	10.09.2016	LF dried overnight, bagged on 12 sep
Kríki	TP1	103	3	13	Sunny	KAC	05.09.2016	KAC	10.09.2016	KAC	10.09.2016	
Kríki	TP1	104	4	13.5	Sunny	KAC	05.09.2016	KAC	10.09.2016	KAC	10.09.2016	
Kríki	TP1	105	5	13	Sunny	KAC	05.09.2016	KAC	10.09.2016	KAC	19.09.2016	
Kríki	TP1	871	6	13	Foggy but clearing up	KAC	05.09.2016	KAC	10.09.2016	KAC	10.09.2016	
Næfurstaðir	TP1	102	2	14	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	05.10.2016	
Næfurstaðir	TP1	102	3	7	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	03.10.2016	
Næfurstaðir	TP1	1104	4	8	Sunny, warm	KAC	28.09.2016	KAC	03.10.2016	KAC	03.10.2016	
Næfurstaðir	TP1	103	6	20	Sunny, warm	KAC	28.09.2016	KAC	03.10.2016	KAC	05.10.2016	
Næfurstaðir	TP1	1000	8	5	Sunny, warm	KAC	28.09.2016	KAC	03.10.2016	KAC	03.10.2016	
Næfurstaðir	TP1	104	10	15	Sunny, warm	KAC	28.09.2016	KAC	03.10.2016	KAC	05.10.2016	
Næfurstaðir	TP1	934	13	5	Sunny, warm	KAC	28.09.2016	KAC	03.10.2016	KAC	03.10.2016	
Næfurstaðir	TP1	105	14	12.5	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	03.10.2016	
Næfurstaðir	TP1	106	15	14	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	05.10.2016	
Næfurstaðir	TP1	107	18	15.5	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	05.10.2016	
Næfurstaðir	TP1	108	21	13	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	05.10.2016	
Næfurstaðir	TP1	108	23	6	Sunny, cool	KAC	28.09.2016	KAC	03.10.2016	KAC	03.10.2016	
Þrælagerði	TP2	103	2	15	Some sun	KAC	07.09.2016	KAC	19.09.2016	KAC	19.09.2016	
Þrælagerði	TP2	104	5	15	Light rain	KAC	07.09.2016	KAC	19.09.2016	KAC	19.09.2016	2 LF bags
Þrælagerði	TP2	871	10	7	Mostly cloudy	KAC	07.09.2016	KAC	10.09.2016	KAC	19.09.2016	

Appendix D: Excavation Photo Register

Photos taken with Kat´s Canon Rebel T5i. All photos are in .JPG format and are located on the SCASS server in \FIELD_SEASONS\2016_Field_ Season\Photos\Kat Site Camera\. Representative photos from each sequences have also been uploaded to the FileMaker server.

Some photos related to excavations were taken with other cameras and phones; these can be found on the SCASS server in multiple folders within \FIELD_SEASONS\2016_Field_ Season\Photos\.

			Photo sequence					
Place Name	Exc.	Cxt.	First #	Last #	DATE	ID	Description	Facing
Kriki	TP1	101	2394	-	07/04/2016	KAC	Pre excavation	E
Kriki	TP1	101	2395	-	07/04/2016	KAC	Pre excavation	SE
Kriki	TP1	101	2396	-	07/04/2016	KAC	Pre excavation	S
Kriki	TP1	101	2397	2400	07/04/2016	KAC	Base of 101	E
Kriki	TP1	101	2401	-	07/04/2016	KAC	Base of 101	S
Kriki	TP1	102	2402	2403	07/05/2016	KAC	Top 102	E
Kriki	TP1	102	2404	-	07/05/2016	KAC	Top 102	SE
Kriki	TP1	102	2406	-	07/05/2016	KAC	End 102	E
Kriki	TP1	104	2407	2408	07/05/2016	KAC	top 104	E
Kriki	TP1		2409	2412	07/06/2016	KAC	landscape - Kriki	SE
Kriki	TP1		2417	-	07/06/2016	KAC	landscape - Keflavík	NW
Kriki	TP1		2418	-	07/06/2016	KAC	landscape - Grænakot	NW
Kriki	TP1		2419	-	07/06/2016	KAC	landscape - Kriki	SE
Kriki	TP1		2420	-	07/06/2016	KAC	landscape	S
Kriki	TP1		2421	2422	07/06/2016	KAC	landscape	SE
Kriki	TP1		2423	-	07/06/2016	KAC	landscape	E
Kriki	TP1	105	2424	2427	07/06/2016	KAC	top 105	E
Kriki	TP1	871	2428	2429	07/06/2016	KAC	top LNS	E
Kriki	TP1		2430	2433	07/06/2016	KAC	n wall	N
Kriki	TP1		2434	2437	07/06/2016	KAC	w wall	W
Kriki	TP1		2438	2443	07/06/2016	KAC	e wall	E
Kriki	TP1		2444	2448	07/06/2016	KAC	s wall	S
Kriki	TP1		2453	2458	07/07/2016	KAC	landscape - between þúfur	N
Kriki	BOG1		2462	2474	07/09/2016	KAC	N profile	N
Kotið	TP1	101	2475	2476	07/15/2016	KAC	pre excavation	N
Kotið	TP1	101	2477	2478	07/15/2016	KAC	pre excavation	E
Kotið	TP1	101	2479	-	07/15/2016	KAC	pre exc, candid	N
Kotið	TP1	102	2480	2483	07/15/2016	KAC	top of context	N
Kotið	TP1	103	2484	2488	07/15/2016	KAC	start of context	N
Kotið	TP1	103	2489	2492	07/15/2016	KAC	bone pin (find 3)	S
Kotið	TP1	871	2493	2496	07/16/2016	KAC	Top of Context 871	N
Kotið	TP1		2502	2505	07/18/2016	KAC	West wall	W
Kotið	TP1		2506	2510	07/18/2016	KAC	North wall	N
Kotið	TP1		2511	2515	07/18/2016	KAC	East wall	E
Kotið	TP1		2516	2519	07/18/2016	KAC	South wall	S
Næfurstaðir	TP1	101	2520	2522	07/28/2016	KAC	Opening of test unit	E
Næfurstaðir	TP1	101	2523	2525	07/28/2016	KAC	Opening of test unit	N
Næfurstaðir	TP1	102	2526	2529	07/28/2016	KAC	Opening photo of level	N
Næfurstaðir	TP1	1104	2530	2535	07/28/2016	KAC	Opening photo for level	N
Næfurstaðir	TP1	103	2536	2539	07/28/2016	KAC	Opening photo for level	N
Næfurstaðir	TP1	1000	2540	2544	07/28/2016	KAC	Opening photo - 1000	N
Næfurstaðir	TP1	104	2545	2548	07/28/2016	KAC	top of context - under 1000	N
Næfurstaðir	TP1	934	2549	2552	07/29/2016	KAC	Top of 934	W
Næfurstaðir	TP1	105	2553	2556	07/29/2016	KAC	Top of Context under 934	W
Næfurstaðir	TP1	106	2557	2561	07/29/2016	KAC	Opening photo	W
Næfurstaðir	TP1	107	2562	2565	07/29/2016	KAC	Opening	N
Næfurstaðir	TP1		2566	-	07/29/2016	KAC	candid - sky	
Næfurstaðir	TP1		2567	-	07/29/2016	KAC	candid - nika and lauren	SE
Næfurstaðir	TP1		2568	-	07/29/2016	KAC	landscape - structure	N
Næfurstaðir	TP1		2569	-	07/29/2016	KAC	candid - nika and lauren	S
Næfurstaðir	TP1		2570	-	07/29/2016	KAC	candid - lauren	SE
Næfurstaðir	TP1		2571	-	07/29/2016	KAC	candid - nika	S
Næfurstaðir	TP1		2572	-	07/29/2016	KAC	candid - nika and lauren	S
Næfurstaðir	TP1		2573	2574	07/29/2016	LWO	candid - nika and kat	SE
Næfurstaðir	TP1	108	2575	2578	07/29/2016	KAC	Opening of 108	N
Næfurstaðir	TP1		2579	-	07/29/2016	KAC	candid - john	E

Næfurstaðir	TP1		2580	2585	07/30/2016	NZ	east wall	E
Næfurstaðir	TP1		2586	2590	07/30/2016	NZ	south wall	S
Næfurstaðir	TP1		2591	2595	07/30/2016	NZ	west wall	W
Næfurstaðir	TP1		2596	2601	07/30/2016	NZ	north wall	N
Næfurstaðir	TP1		2602	-	07/30/2016	KAC	candid - john and brian	W
Næfurstaðir	TP1		2603	2604	07/30/2016	KAC	candid - brian	NE
Næfurstaðir	TP1		2605	2607	07/30/2016	KAC	candid - group	S
Næfurstaðir	TP1		2608	2609	07/30/2016	KAC	candid - rita	W
Hendilkot	TP1	101	2812	2813	08/01/2016	KAC	opening photo	N
Hendilkot	TP1	101	2814	-	08/01/2016	KAC	opening photo/candid	S
Hendilkot	TP1	101	2815	-	08/01/2016	KAC	opening	W
Hendilkot	TP1	102	2816	2819	08/01/2016	KAC	opening photo	N
Hendilkot	TP1	103	2820	2823	08/01/2016	KAC	opening photo - no flash	N
Hendilkot	TP1	104	2824	2828	08/02/2016	KAC	Opening of Context	N
Hendilkot	TP1		2829	-	08/02/2016	KAC	landscape	N
Hendilkot	TP1		2830	-	08/02/2016	KAC	candid - katie	SE
Hendilkot	TP1	1104	2831	2835	08/02/2016	KAC	opening of context	N
Hendilkot	TP1	105	2836	2837	08/02/2016	KRW	Top of Context	N
Hendilkot	TP1	105	2839	2841	08/02/2016	KRW	Top of Context	N
Hendilkot	TP1	106	2842	2846	08/02/2016	KAC	Top of Context	N
Hendilkot	TP1	107	2847	2850	08/02/2016	KAC	Top of Context	N
Hendilkot	TP1	934	2851	2855	08/02/2016	KAC	Top of tephra layer	N
Hendilkot	TP1		2856	-	08/02/2016	KAC	candid - kat	
Hendilkot	TP1	108	2857	2860	08/02/2016	KAC	Top of Context	N
Hendilkot	TP1	871	2861	2864	08/03/2016	KAC	top of context	N
Hendilkot	TP1		2865	-	08/03/2016	KAC	candid - kat	S
Hendilkot	TP1		2866	2869	08/03/2016	KAC	e wall	E
Hendilkot	TP1		2870	2873	08/03/2016	KAC	s wall	S
Hendilkot	TP1		2874	2877	08/03/2016	KAC	w wall	W
Hendilkot	TP1		2878	2882	08/03/2016	KAC	n wall	N
Hendilkot	TP1		2883	2886	08/03/2016	KAC	e wall - tephra samples	E
Þrælagerði	TP2	101	2888	2891	08/10/2016	KAC	pre excavation	N
Þrælagerði	TP2	102	2892	2895	08/10/2016	KAC	top of context	N
Þrælagerði	TP2	102	2896	2897	08/10/2016	KAC	candid - rita	N
Þrælagerði	TP2	102	2898	2901	08/10/2016	KAC	mid context	N
Þrælagerði	TP2	103	2902	2906	08/10/2016	KAC	top context	N
Þrælagerði	TP2	104	2907	2912	08/10/2016	KAC	top context	N
Þrælagerði	TP2	871	2913	2917	08/10/2016	KAC	top context	N
Þrælagerði	TP2	871	2918	-	08/10/2016	KAC	close up of lnl in N wall	N
Þrælagerði	TP2		2919	2924	08/10/2016	KAC	east wall	E
Þrælagerði	TP2		2925	2930	08/10/2016	KAC	north wall	N

Appendix E: Farmstead and Homefield Sizes for All Hegranes farms

(Bolender, et al. 2016; Bolender, et al. 2017)

Place	Farmstead size ca. 1104	Homefield size
Minni-Egg	20	6850*
Kotið	50	?
Gerði	100	?
Kriki	100	7200*
Túnfótur	250	10950*
Minni-Ás	300	4050*
Rein	400	21650
Þrælagerði	550	3750*
Járngerðarhóll	750	?
Grænagerði	1150	?
Hendilkot	1250	?
Næfurstaðir	2150	8250*
Keta	2150	25100
Keflavík 2	2600	36900
Ásgrimsstaðir	3650	?
Keflavík 1	4100	5450*
Utanverðunes	4150	37400
Garður	4450	37700
Hróarsdalur	5350	22050
Hamar	7250	30300
Keldudalur	11550	31850
Ás	14250	89750
Vatnskot	?	27100
Ríp	?	55050
Helluland	?	41250
Beingarður	?	22950
Egg	?	38700
Hegranesþing	?	7650*
Naustavík	?	?
Hegrastaðir	?	?
Gunnlaugsgerðe	?	?
Vík	?	?
Kárastaðir	K	29000
Ferjuhamar	K	K
Brúnklukkustaðir	K	K
Hvammkot	K	K
Kárastaðasel	K	K
Káragerði	K	K
Grænakot	N/A	N/A
Háagerði	N/A	N/A

Sizes rounded to nearest 50 m^2.

Farmstead size	determined from coring
Homefield size	from 1918 túnakórt,
*	except: homefield size from air photo, various dates
?	unknown or not yet determined
N/A	never inhabited (probably)
K	landowner permission not granted for survey
grey	classified as *fornbýli*

Appendix F: Coring Data

Data for all cores can be found in the accompanying PDF file SCASS_2016_all_core_data.pdf (149 pages, includes data from all SCASS and FLASH sites).