

# ICELANDIC RESEARCH FUND

## ANNUAL REPORT

The annual report covers the grant period for the calendar year (01.01. - 31.12.).

A signed copy of the annual report shall be submitted to Rannís by email to [rannsoknasjodur@rannis.is](mailto:rannsoknasjodur@rannis.is)

– Subject: IRF - Annual report.

**Grant number:** 228883-051

**Project title:** The Rise and Fall of Transhumance in Iceland 800–1800

**Grant year:** 2022

**Project leader:** Egill Erlendsson



**Project leader email:** egille@hi.is

**Type of grant:** Research Grant

**Expert panel:** Humanities and Arts

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**Signatures** to certify that all information in the **annual scientific** and **budget reports** is correct and that the reports include all relevant information:

Date and place  Reykjavík, 31.01.2023
Project leader  
Person responsible for research facilities  

**To be filled out by Rannís:**

Date annual report received	
Grant previously paid	
Grant paid upon approval of annual report	
Annual report approved (date and signature)	

## SCIENTIFIC REPORT

Note: A financial report for the project is submitted separately.

### PROGRESS REPORT FOR THE GRANT YEAR

Describe the progress of the project; main results, milestones reached and other achievements or outputs. Please refer to the milestones in the application. If there are deviations from the original research plan, please explain the need or rationale for those changes.

The project has advanced according to plan in most aspects. In some ways it is ahead of its proposed schedule, and has acquired greater data than proposed. A delay in finding a MSc student to work within WP3 requires a move of work from 2022 to 2023. The WP relies almost entirely on own funding. This is explained later in this progress report.

The research team met several times over the year 2022: Feb 24 (Egill Erlendsson [EE], Elín Ósk Hreiðarsdóttir [EÓH], Árni Daníel Júlíusson [ÁDJ]; March 1 (EE, EÓH, ÁDJ, Gylfi Helgason [GH], Hrafnihildur H. Halldórsdóttir [HHH]); March 29 (full team meeting, EE, EÓH, ÁDJ, GH, HHH, Gísli Pálsson [GP]); April 20 (full team meeting, EE, EÓH, ÁDJ, GH, GP, HHH); April 26 (EE, EÓH, GH, Lilja Laufey Davíðsdóttir [LLD]); June field season (EE, EÓH, ÁDJ, GH, LLD, Oscar Aldred [OA]); December 12 (EE, EÓH, ÁDJ, GH, LLD). Besides that members of the research team have been in informal contact on numerous occasions over the year.

In the following sections (next pages) we describe the progress of each WP. They are: WP1 Transhumance and its history, WP2 Transhumance and its archaeology, WP3 Transhumance and its environmental context.

## Main results

### WP1:

This WP focuses on three aspects: 1) Written sources about transhumance and shielings, from AD 1100 to 1800, 2) shieling sites from the database of Ísleif (the database of the Institute of Archaeology) and 3) a review and analysis of the research literature concerning shielings in the North Atlantic area, Greenland, the Faroe Islands, Scotland and Norway. Together these first two source groups will be explored to analyse the spatial and temporal patterns of shielings in Iceland. Then this analysis will be used to locate the Icelandic system in the wider world of North Atlantic transhumance and shieling structures and practices. The written sources include the medieval sagas, both the family sagas, the bishops' sagas, the contemporary sagas like the Sturlunga collection, law texts, and agricultural regulations, eg Búalög. They also include the Diplomatarium Islandicum (**DI**), which has a wealth of information regarding transhumance and shielings in Iceland, from the 12<sup>th</sup> to the 16<sup>th</sup> century and Jarðabók Árna Magnússonar og Páls Vídalíns (Jarðabók) lists shielings and information on transhumance in 1702–1714 (excluding East-Iceland). “

A central aim of WP1 was the collection of information about shielings in medieval sources, especially in the **DI**. Material was collected from **DI** I-V and organised in an excel database. Currently, we have c. 160 entries registered in the database with every documentation found in the **DI** from the beginning of writing documents in Iceland to AD 1475. This gives us an invaluable insight concerning historical information on shielings, such as detailed information on shieling practices, indication about their location, what and how many animals were kept at shielings and suggestion about what kind of structures might have been at shielings. All this information will be critically analysed in the second and third year of the project. Of particular interest, that we can mention now, is that we found indications of documents referring to the size of the grazing areas, eg: “Skal einnig fylgja selför á land á Seljahöfða meður torfi til seljagjörðar og 12 kúgilda beit.” (**DI** III, no 110). It is unclear how much “12 kúgildi<sup>1</sup>” is, but it gives us an idea of the number of animals used at the shielings. Hopefully, further work can demonstrate how large of an area 12 kúgildabeit actually is, although it is estimated that it might vary depending on local environmental factors. Also of notice is a description of the houses used at a 14<sup>th</sup> century shieling in South-Iceland: “Selför á Neðravöll og skal þeim þar fá er í bæ búa hús og sýruker, stöðul og kvíar, fjörtugan kost í seljaland.” (**DI** II, no 412). This gives us a great view of which

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<sup>1</sup> 1 kúgildi is: 1 cow = 6 sheep (ær).

activities took place at the shieling and what structures were considered important at a shieling site in the 14th century.

Other medieval written sources such as the family sagas, the bishops' sagas, the contemporary sagas like the Sturlunga collection, law texts, and agricultural regulations, e.g. Búalög will be accessed through Hitzler's treatment in his book: *Sel - Untersuchungen zur Geschichte des isländischen Sennwesens seit der Landnahmezeit*. A representative of the TRANSICE project met Dr Hitzler, who is now an emeritus in Norway, to get his permission to translate the book and talk about shielings in Iceland. Hitzler was very supportive of the project and gave permission that his trailblazing book on Icelandic shielings would be translated into English with an introduction detailing new work on North-Atlantic shielings since the book was originally published in 1979. Further, he generously gave the project his scholarly diary, containing a wealth of material regarding his shieling research in Iceland in the 1970s and '80s. This is an invaluable diary, not only for the project, but also for other scholars and plans are being made to make sure at least a part of this diary will be accessible in the English version of Hitzler's book that will be published in this project. Hitzler's book is now being translated into English and is being prepared for publication. So far, c. 200 pages have been translated.

Another aim of the WP1 was the research into 18<sup>th</sup> and 19<sup>th</sup> centuries descriptions of shieling practices. It has brought a new material and ideas about shielings into the light. During the first year of the project, we have centred on interrogating a late 18th century piece written by Guðlaugur Sveinsson and published as a part of journal *Rit þess íslenska Lærdómslistafélags*, which issued articles from the Icelandic intellectual in the 18<sup>th</sup> century. The article by Sveinsson was especially fruitful, giving us fantastic material in regards to how shieling locations were chosen, and what took place at shielings in the 18<sup>th</sup> century. This material was used for a peer-reviewed journal article named "Sustainable transhumance practices in European landscapes. A comparative study" that has been submitted to *Human Ecology*. We also utilised data gathered in the fieldwork of WP1 for this article, especially regarding dating of shieling sites as evidence of Grænhólasel and Gráskriðusel in Hörgárbyggð Eyjafjörður, seems to have been had boundary walls around the grazing areas, most likely to exploit dung from the animals to increase the biomass of the area. The main author is prof Pablo Vidal-González at the Catholic University of Valencia but it is co-written two members of the project, Dr Árni D. Júlísson and Gylfi Helgason. The article can be found in Attachment 1 to this annual report.

Another aspect of WP1 was to analyse the spatial patterns of shielings found in the archaeological database Ísleif. The aim is to use the Ísleif data to identify and describe the spatial pattern of shielings

in each region of Iceland and give ideas regarding their role in the agricultural system and the physical settings in which they were established, with regard to topography and resources.

This year, the GIS work centred around preparing data on shielings and their landscape in N-Iceland, since work in WP II and III focused on that area. A few areas in SW-Iceland were also put into the GIS system at this stage, to help assess what site to excavate in the fieldwork summer of 2023, in accordance with the research plan detailed in the project's proposal.

The majority of archaeological walkover-surveys that have been undertaken in N-Iceland were performed between 1994/5 and 2006. We are therefore dealing with legacy data, which involves greater error in precision of data point. Geographical system in archaeology are great tools to interrogate spatial patterns but they have an extremely poor error management. Much of the time this year therefore went into updating this legacy data – or just to find it - so it meets that today's standards concerning point precision, but also and not the least adding relevant attributes to each site (*eg* farm values, slope, elevation *etc*). In Table 1, we can see the quantity of data that has been so far transformed from Ísleif to GIS. Further, data was also gathered from Landmælingar Íslands (The National Land Survey of Iceland), such as DEM of Iceland and information regarding soil types in Iceland from Náttúrufræðistofnun Íslands (Icelandic Institute of Natural History). The elevation and slope and (Tables 2 and 3) of the farms and the shielings in N-Iceland and in a part of SW-Iceland was examined this year to help us compare and contrast different landscape of shielings and farms (see tables 2 and 3 and exemplified in Figure 1).

Attribute	Amount
Shielings	395
Farms	953
Peat graves	626
Shepard's house	103

Initial results show that shielings seem to be located on a steeper terrain than farms, even in areas which are considered 'flat', i.e. not a mountainous region, such as Kelduneshreppur in SW-Iceland. In a 'classic' mountainous landscape, such as Svarfaðardalur, the difference in slope between farms and shielings is considerable. Whilst there are clearly more factors (e.g., environmental factors analysed at year two in this project) at play in choosing shieling locations, this helps us identify and understand better the landscape settings of shielings. The slope results point to people attempting to expand their

available grazing areas, that is shielings are generally situated at a steeper (harsher?) area than farms (lögbýli), in almost all districts analysed so far.

**Table 2.** Average elevation of farms and shielings analysed in the project's first year.

Hreppur	Average elevation of farms (m a.s.l.)	Average elevation of shielings (m a.s.l.)
Hvalfjarðarstrandarhreppur (BO)	52,4	199,2
Innri-Akraneshreppur (BO)	13	25
Skilmannahreppur (BO)	24,2	61
Leirár- and Melahreppur (BO)	28,4	112,1
Hvanneyrarhreppur (EY)	30,6	125,1
Þóróddshreppur (EY)	64,3	76,3
Arnarneshreppur (EY)	54,5	171,9
Svarfaðardalshreppur (EY)	82,8	228,4
Skriðuhreppur (EY)	195,8	338,8
Glæsibæjarhreppur (EY)	92,7	204,3
Hrafnagilshreppur (EY)	70,7	236,2
Saurbæjarhreppur (EY)	170,2	252,9
Öngulstaðahreppur (EY)	37,1	171,7
Grímsey (EY)	25,5	No shielings
Grindarvíkurhreppur (GK)	36,9	118,5
Hólshreppur (ÍS)	24,5	96,7
Kelduneshreppur (NP)	46,3	94
Árneshreppur (ST)	13	55,9
Kaldrananeshreppur (ST)	32	44,8
Svalbarðsstrandarhreppur (SP)	66,7	186,6
Grýtubakkahreppur (SP)	23,7	92,7

Apropos the average elevation of farms and shielings, we can clearly see that shielings are **always**, on average, situated higher in the land than farms in the same district. Indeed, we can confidently state now, based on preliminary result of the elevation and slope calculations in this project, that shielings are located on a marginal landscape. This preliminary result should help us – again, along with environmental factors examined in year 2 of the project, to understand and identify shielings in the Icelandic landscape. Since this project is the first to analyse large scale data from walk-over surveys (collected in the thirty years in Ísleif), it is anticipated that this result will help advance our ideas about

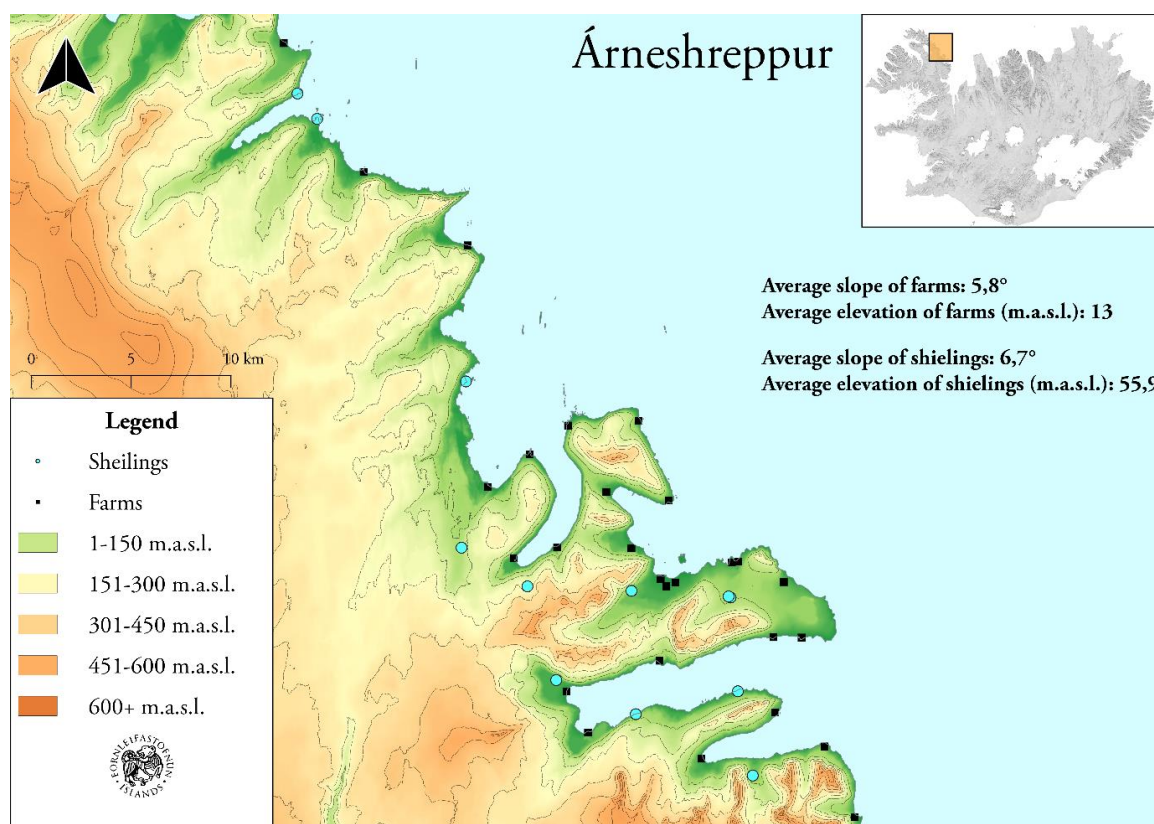
the landscape settings of shielings. This preliminary result will be used, along with a more detailed spatial analysis, in a peer-reviewed journal article (see milestones below) and presented at the *European Society for Environmental History Conference* in Bern.

**Table 2.** Average slope of farms and shielings analysed in the project's first year

Hreppur	Average slope of farms	Average slope of shielings
Hvalfjarðarstrandarhreppur (BO)	3,6°	7,6°
Innri-Akraneshreppur (BO)	2,4°	0°
Skilmannahreppur (BO)	3,7°	6,2°
Leirár- and Melahreppur (BO)	2,7°	5,1°
Hvanneyrarhreppur (EY)	6,3°	7,5°
Þóroddshreppur (EY)	9,24°	8°
Arnarneshreppur (EY)	4,5°	13,7°
Svarfaðardalshreppur (EY)	6,4°	13°
Skriðuhreppur (EY)	7,14°	11,9°
Glæsibæjarhreppur (EY)	4,6°	6°
Hrafnagilshreppur (EY)	5,2°	8,3°
Saurbæjarhreppur (EY)	7,2°	11,1°
Öngulstaðahreppur (EY)	3,32°	8,5°
Grímsey (EY)	8,5°	No shielings
Grindarvíkurhreppur (GK)	3,7°	2°
Hólshreppur (ÍS)	3,7°	3,2°
Kelduneshreppur (NP)	0,7°	3,3°
Árneshreppur (ST)	5,8°	6,7°
Kaldrananeshreppur (ST)	3,7°	4,9°
Svalbarðsstrandarhreppur (SP)	5,5°	11,2°
Grýtubakkahreppur (SP)	4,5°	7,4°

Despite the clear result of the elevations between shielings and farms a cautionary note is required. This image might possibly change when more districts from South-Iceland are examined, as the landscape is much flatter there (e.g. Skeiðahreppur and Hraungerðishreppur). Further analysis in later years of the project should give us a better idea about possible differences between shielings in N-Iceland and S-Iceland.





**Figure 1.** Map detailing locations of farms and shielings in Árneshreppur, Strandarsýsla.

## WP2:

The aim of the project is to advance our knowledge and understanding of the rise and fall of the transhumance system in Iceland AD 800–1800. The more specific objective of WP2 is to date the origins and end of transhumance in the study areas through tephrochronology and archaeology. The emphasis is thus on dating the establishment of shielings and defining when periods of intensive and widespread transhumance emerged and subsequently declined. A secondary goal is to create a robust typology of shielings and understand their usage by drawing on the archaeological material recovered during excavation, including both environmental samples and finds assemblages from shieling sites.

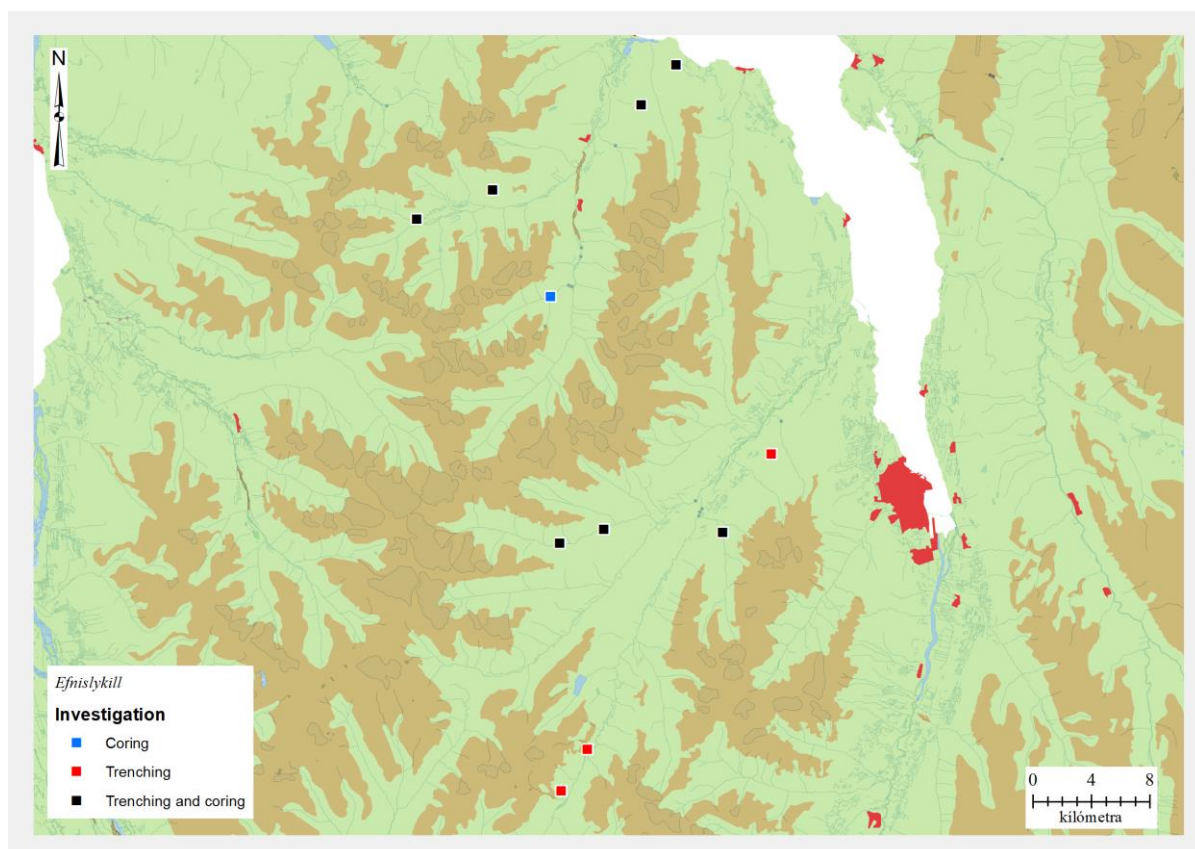
The focus of the 2022 field season was in Eyjafjörður, northeast Iceland. More specifically, the target areas were Svarfaðardalur and Hörgárbyggð where the aim was to try and date ten shielings in these areas.

Although fieldwork started in mid-June, it was cold, and it even snowed at one point. However, despite the weather, the field season went quite well. The field team consisted of five people (Lilja Laufey Davíðsdóttir, Elín Ósk Hreiðarsdóttir, Oscar Aldred, Gylfi Björn Helgason, and Egill Erlendsson) who were divided up into 2-3 smaller teams at each location.

At each of the 12 sites, the existing field survey was reviewed, and a more detailed description made of all shieling structures, routes to and from the shielings and the general vegetation, landscape, and surroundings. All archaeological features were measured in with a handheld GPS (Trimble Geoexplorer 6000 - ISN93) providing a detailed map of each site. Aerial photographs (from drones) were also collected at all the sites (see figures 3 and 4). Altogether 12 sites were explored with trenches (10 sites) and/or coring (9 sites), two more than originally planned. The dating of the tephra in the trenches was conducted by Magnús Á. Sigurgeirsson (see tephra report in Attachment 2) but the dating of the tephra samples from coring was performed by Egill Erlendsson. Both have completed their analyses. The post-excavation work of the field season is well on its way but the following are some of the main conclusions of the first field season of the shieling project.

### *Main result of the fieldwork in Eyjafjörður 2022*

Altogether 12 shielings were chosen for investigation in 2022, based on information from Ísleif, the database of the Institute of archaeology (FSÍ). To get a good representative sample of the system, a range of structurally variable shielings was selected: e.g., shielings with both few and many structures;

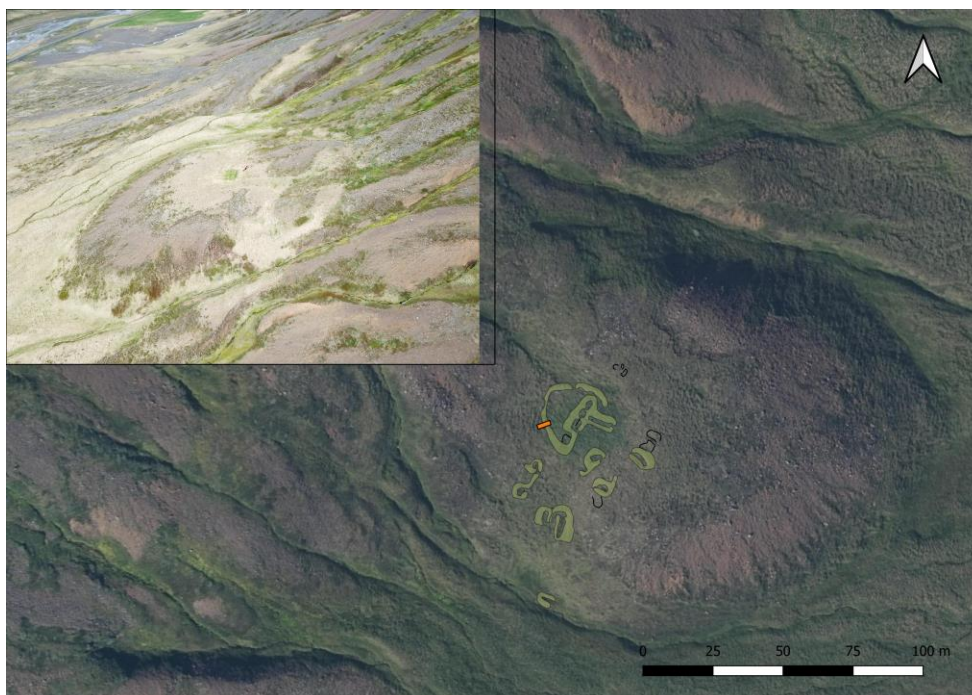


**Figure 2:** Location of trenches excavated and of the coring done in Eyjafjörður 2022. Map: Oscar Aldred.

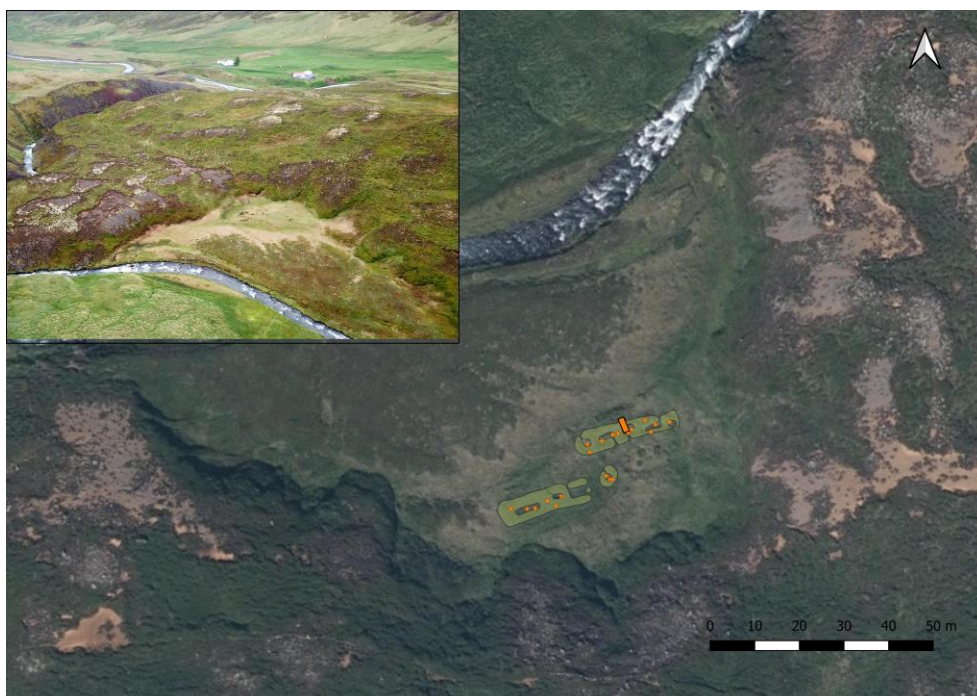
shielings that were connected to central areas and shielings associated with owner-occupied farms as well as tenant farms. In addition, the site selection ensured that the shielings were distributed fairly evenly throughout the research area (see Figure 1). Finally, access to the shieling was an important issue as the aim was that the walk to the shieling and back with equipment should take less than a couple of hours.

10 shieling sites were trenched (Figures 5 and 6). In all the sites a single trench was excavated, except Möðruvallasel (site 04) where additional to a trench into a ruin an erosion patch into a boundary was cleaned, examined, and drawn. The trenches were most frequently taken into structures of the shielings, usually into one of the more complex buildings, in an attempt to try and find suitable layers for taking samples for both micromorphological and archaeoentomological analysis. Besides the ten trenched sites, additionally the shielings of Auðnasel (site 12) and Kóngsstaðir (site 10) were examined through aerial photographs, field walking/surveying and coring, although they were not deemed suitable for trenching due to a lack of sufficient structures or/and tephra.





**Figure 3:** One of the shielings looked at in 2022 at Selhóll in Varmavatnshólar (site 03) Öxnadalur. On an aerial (from Loftmyndir ehf) the measured shieling ruins surveyed can be seen as well as the location of the trench. In the top left corner is a drone shot of the site, looking towards south-southwest. The drone picture shows well the thin layer of vegetation in the area. (Drone picture Gylfi Helgason).



**Figure 4:** One of the shielings looked at in 2022, Urðarsel (site 07) within the property of Atlastaðir, Svarfaðardalur. On an aerial (from Loftmyndir ehf) the measured shieling ruins surveyed can be seen as well as the location of the trench and the locations of the cores. In the top left corner is a drone shot of the site, looking towards south-southeast (Drone picture Gylfi Helgason).

The date of the shielings turned out to be quite varied (Table 4). Four of the shielings were only built after H1300 (site 01 Grænahólssel, site 03 – Varmavatnshólar, site 09 Sakka and site 11 Steðjasel – although the first mentioned showed a possible (but unconfirmed) occupation below H1300 in one of the cores). Three of these post-1300 sites were abandoned before the falling of the tephra of H1766

**Table 4.** The dating of shielings in Eyjafjörður in 2022.

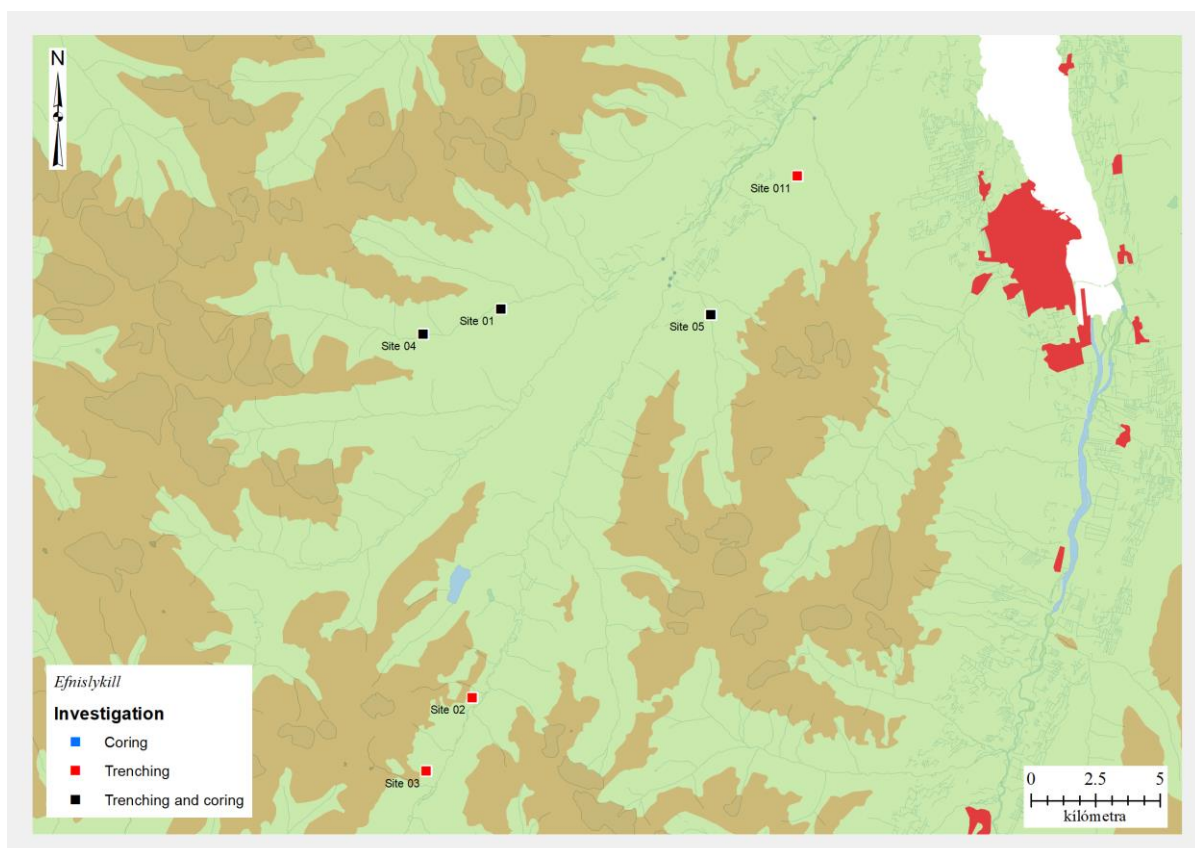
Site ID	Site no	Place name	Farm name	hdr in JÁM	Postdates	Predates
EY-201:011	01	Grænahólssel	Þúfnaveilir	30	1300	1766
EY-224:006	02	Gráskriðusel	Bessahlaðir	10	LNS	1104
EY-225:005	03	Selhóll	Varmavatnshólar	10	1300	uncertain
EY-200:006	04	Möðruvallasel	Baugasel	Staður	940	1766
EY-264:010	05	Bægisársel	Ytri-Bægisá	Staður	pre-1300	c. 17/18th c
EY-052:011	06	Selhjalli	Stóru-Hámundarstaðir	60	pre-1300	1766/16th c
EY-143:026	07	Urðasel	Atlastaðir	80	pre-1300	1766/17th-18 <sup>th</sup>
Ey-135:017	08	Hólssel	Hóll*	10	1104	1300
EY-176:031	09	sel	Sakka	60	1300	1766/16th c.
EY-154:014	10	sel	Kónsstaðir	10	pre-1300	Uncertain
EY-258:007	11	Steðjasel	Steðji	10	1300	1766
Ey-136:009	12	Auðnasel	Auðnir	20	uncertain	Uncertain

but in site 03 no traces of that tephra could be found, and the abandonment date is therefore uncertain. According to the tephrochronologist it is likely that the shieling of Sakka (site 11) was abandoned by the 16th century based on soil accumulation rates on top of the ruins, but no such judgements could be made for the other sites.

Four of the sites trenched and cored (Figures 5 and 6) (site 05 Bægisársel, site 06 Selhjalli/Stóru-Hámundarstaðir, site 07 Urðarsel/Atlastaðir and site 10 Kónsstaðir) showed evidence of occupation before 1300 but their precise origin could not be refined further because of lack of preserved tephtras. At two of these sites (site 05 and 06) trenches into a ruin only showed occupation after 1300 but cores showed occupation below the same tephra layer in other locations of the sites. In the other two sites, occupation before 1300 was seen in both the trenches and cores. Two of the sites had been abandoned before 1766 (site 06 and 07) but the third (site 05) was occupied at least used into the 17th/18th

century (Bægisársel -site 05) based on chronological assessment of finds recovered from the site. In Bægisársel some evidence was found of the shieling being out of use for some period after 1300 before being re-occupied. Site 10 (Kónsstaðir) was only cored, and no evidence of an abandonment date was found in the coring.

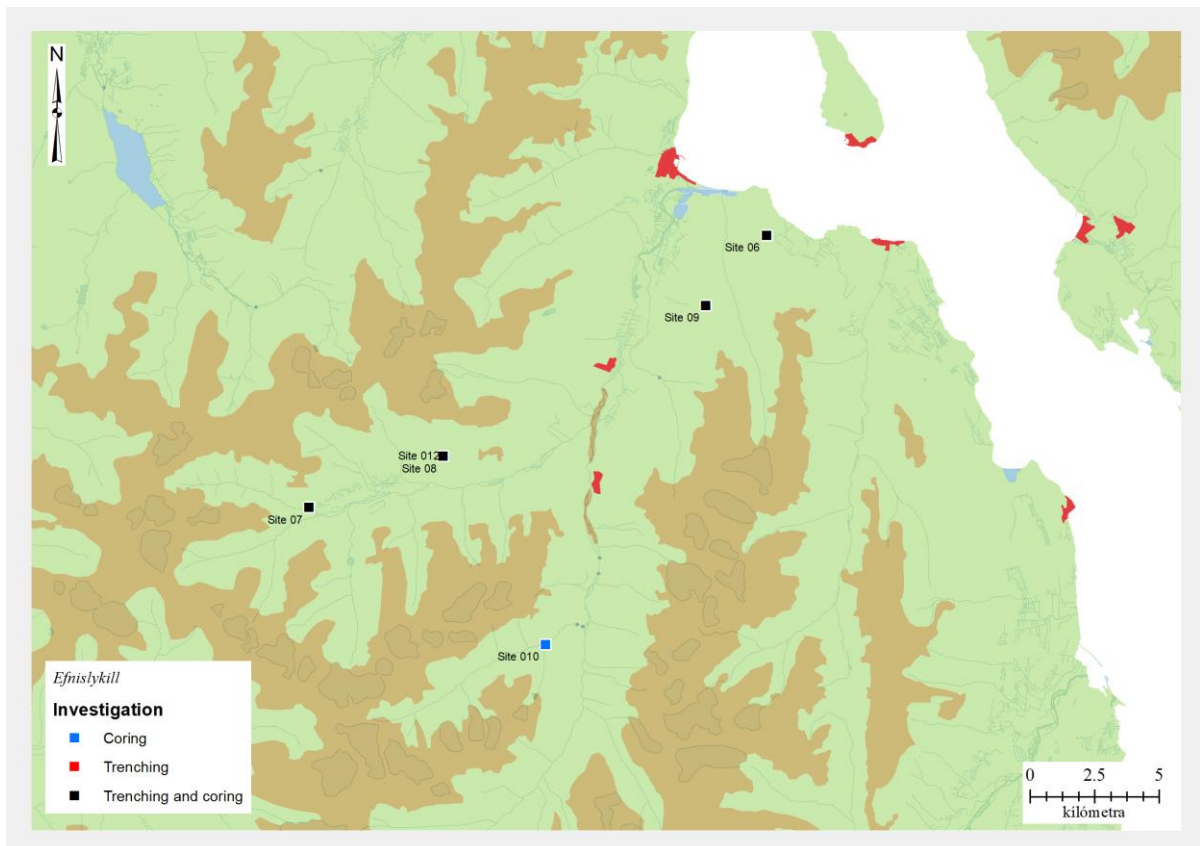
The trenching showed that at least three of the shielings had a fairly early origin (site 02, 04 and 08) and thereof two might have had a relatively short life span (site 02 and 08). Both sites were dated on the basis of trenches alone. In Gráskriðusel (site 02) no coring was done in 2022 but the trench into a



**Figure 5:** Location and site numbers of trenches excavated/cored in Hörgárbyggð in 2022. Map O. Aldred

boundary of the shieling suggested that it was built soon after the falling of LNS and that it was not kept/rebuilt after the falling of the H1104 tephra. Ruins close by could indicate more than one building phase of that part of the site, but further research is needed to confirm this. In Hólssel (site 08) the trench into a building showed that it was built after the falling of H1104 and not rebuilt after 1300. A considerable amount of coring was done around and in other ruins in Hólssel but as none of the cores showed traces of tephra from 1104, 1300 or 1477, they could only confirm that occupation was well under tephra from 1766. The last site to be mentioned is Möðruvallasel (site 04) where trenching into





**Figure 6:** Location and numbers of trenches excavated/cored in Dalvíkurbyggð in 2022. Map: O. Aldred.

a ruin suggested that it was built soon after the falling of the LNS, more specifically V-940 and sealed by the only other tephra visible in the trench, which was H1766, well above collapse and accumulation up against the wall. A cleared section into an eroding boundary close by suggested that it was also built early but was out of usage by 1300 and possible even by 1104. It is uncertain whether if the dating of the boundary gives a clue about the dating of the structure as well, or if the ruins were kept up longer than the boundary, but the site was at least used well beyond that date and was for example rebuilt as a sheepfold and grazing house (beitarhús) in the 18th-19th century.

When looking at the location of the shielings various factors must be kept in mind, e.g. the distance from the farm, slope, vegetation, access to water, shelter from weather etc.. It is often assumed that a determining factor in the location of a shieling would have been the presence of fertile pastures. The trenching this summer revealed that this does not seem to have been the case for a fair proportion of the shielings, especially in Hörgárbyggð. The trenches in Hörgárbyggð showed that most of the shielings were built up on what would have been fairly barren ground, on top of gravel or screes, and may in fact have been a deliberate attempt to cultivate/enhance the vegetation in the area. For

example, Grænhólasel site 01, Gráskriðusel - site 02, Bægisársel site 05 and even Selhóll – site 03 were built straight on top of a gravel surface or screes in what can only be interpreted as an attempt to cultivate a previously barren area, even if most of the sites are fairly well vegetated today. This is in some ways similar to later attempts at land cultivation, where livestock are introduced to fertilize and enrich the ground of a fairly unfertile area (see for example the spreading of nátthagar (i.e. overnight, fenced off pastures) in the late 19th century). Shielings have not been looked at in this context in Iceland before. The high number of sites built in this manner in Hörgárbyggð is interesting as the ground is generally less fertile in the area, and it is possible that the same need for fertilization was not present in Svarfaðardalur. It is something that will be further explored in year 2 of the project.

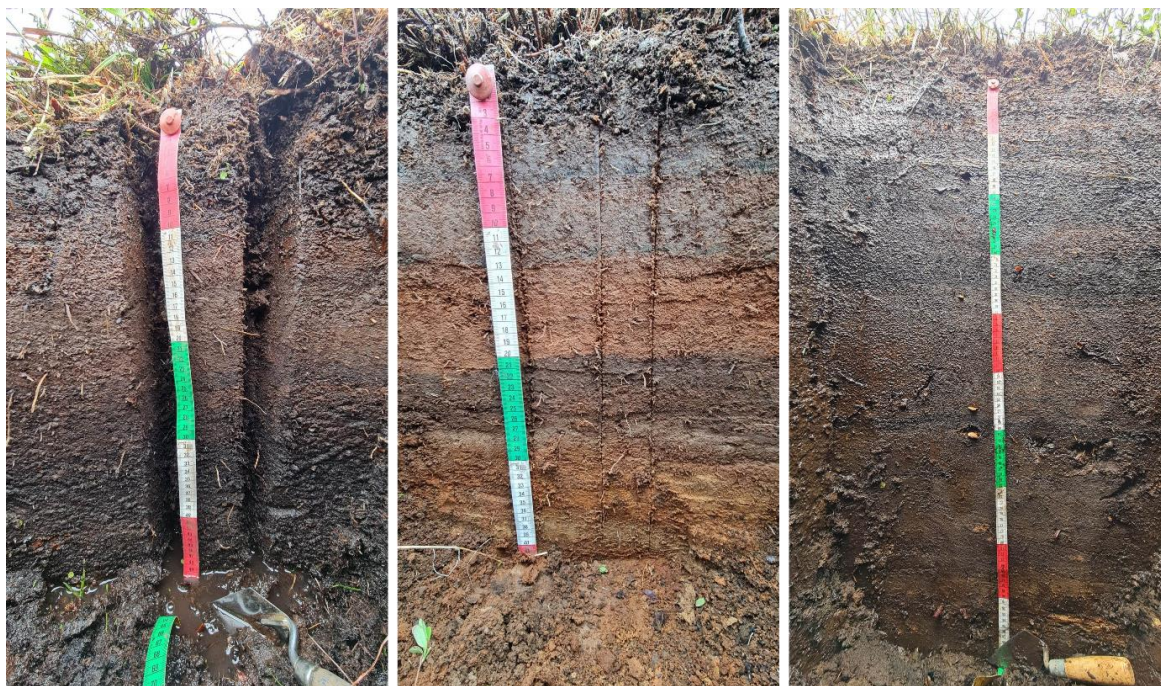


### WP3:

The focus of WP3 is designed to tackle specific activities, site use history, as well as their environmental context and contemporary resource base. The results of WP3 will be strengthened through comparison with historical and spatial data: do the paleoenvironmental data indicate continuity in the use of shieling sites? What specific activities took place at the shielings, and did they change over time? If so, how? Can the available natural resources, e.g. meadows and plants, be scored in terms of nutritional return for inhabitants and animals, as a measure of site feasibility for use? What are the differences and similarities between the environments and activities at shieling sites in the various focus areas of the palaeoecological research?

The WP sought to attract a MSc student to perform the necessary analyses for N Iceland from 2022. This did not go to plan but a PhD student, Julia Rose Esch, has been hired through funding from the UI doctoral fund to perform research within WP3. The position was advertised in Iceland and abroad and Julia was appointed from the those who applied. She has been registered into the PhD programme at the Faculty of Life and Environmental Sciences, UI.

Important work within the WP has taken place. Fieldwork, as proposed for 2022 is completed. EE took part in the archaeological fieldwork and the team decided to focus the resources for environmental work on the shieling site within the farmland of Sakka. Three profiles for palaeoecological research have been acquired (Figure 6). EE extracted a 50 cm long peat block sample from a wetland about 70 m from the shieling ruins. The sample is stratified and well suited for palaeoecological work and field identification of tephra layers suggests the presence of Hekla 1766, Hekla 1300, Hekla 1104 and two layers belonging to the Landnám Tephra Sequence (LTS, ca 800-940). This sample is intended for pollen analysis. Another sample from dryland soil downslope from the shieling ruins was extracted, specifically intended for XRF analysis, as this site should capture runoff from the shieling area. Field identification of tephra layers in this sample suggests the presence of Hekla 1766, Hekla 1300 and two layers belonging to the LTS. Samples for the analyses of soil thin sections and Coleoptera (beetles; insects) were also extracted at Sakka (see above). A third sample for WP3 was extracted from a wetland about 60 m from a shieling complex with the farmland of Stóru Hámundarstaðir. The sample is about 80 cm long and field identification of tephra layers indicates the presence of Hekla 1766, Hekla 1300 and two layers from the LTS.



**Figure 6.** Peat/Soil sequences sampled by WP3 in 2022. Left: Sakka peat section. Middle: Sakka soil section. Right: Stóru Hámundarstaðir peat section.

As part of the work which belongs to the environmental research, samples from the shieling ruins at Sakka have been examined for insects. The results are shown in Table 5 and Attachment 3.

The species/taxa which belong to the Icelandic fauna, and which appeared in the two samples, indicate the presence of wetland and woodland in the vicinity of the sampling site. The assemblages that arose from the two samples are comparable in their taxonomic composition, although a considerable greater number of taxa was identified in sample 912 and this included a number of taxa which find habitats in human dwelling houses (such as shielings). It can be argued that sample 912 was extracted from within a building that may have served as a roofed shelter for people or hay storage, whereas this can not be assumed for sample 907.

Another feature of the environmental WP is the analysis of soil micromorphology to assess floor layers of the ruins for seasonal occupation (inferred to represent transhumance). These were collected from floor layers in the shieling ruins in Sakka. Samples have been sent for preparation in Belgium, but a backlog in the laboratory has enforced the postponement of these analyses until the early months of 2023.

**Table 5.** Number of taxa and Icelandic names (analyst: Hrönn Konráðsdóttir).

Taxon	Sample no		Icel. names
<b>Coleoptera</b>	<b>907</b>	<b>912</b>	
<b>Carabidae</b>			
<i>Patrobis septentrionis</i>	1	2	Fjallasmiður
<b>Staphylinidae</b>			
<i>Acidota crenata</i>	1	1	Dreyruxi
<b>Xylodromus concinnus</b>		1	Töðuuxi
<i>Stenus</i> sp.		4	
<i>Omalius</i> sp.		1	
<b>Latridiidae</b>			
<i>Latridius</i> sp.		1	Húsavinarætt
<b>Scarabaeidae</b>			
<i>Aphodius lapponum</i>	1	7	Taðýfill
<b>Curculionidae</b>			
<i>Otiorhynchus nodosus</i>	1	8	Hélukeppur
<b>Total individuals</b>	<b>4</b>	<b>25</b>	

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## Milestones reached

The applicants proposed one milestone for 2022 in their proposal. This was reached via lecture by EE (see below). The project has nonetheless exceeded expectations through the submission of a paper (WP1) and by contributing to a book published by ÁDJ (WP1) (see below). Key features of the research of 2022 are completed: data gathering and processing within WP1, fieldwork for WPs 2 & 3 was successfully executed and data processing within WP2 is at an advanced stage.

### WP1

Members of the WPI (ÁDJ and GH) contributed to a manuscript for publication, using historical documents and GIS technology process data. The manuscript, titled “Sustainable transhumance practices in European landscapes. A comparative study”, has been sent for peer-review in the journal *Human Ecology*. The lead author is Professor Vidal-González at the Catholic University of Valencia. The draft of the manuscript can be found in an attachment to this annual report.

### WP2

The progress of WP2 has been as planned, and even exceeded proposed research plan. The fieldwork went according to plan and the post-excavation analysis is well on its way and will finish in the early spring of 2023. The first publication of this part of the project is due in year 2 but the members of WP2 have contributed to the general outreach of the project through the Facebook and Twitter accounts of the project.

### WP3

Egill Erlendsson introduced the Transhumance project and its theoretical background in lecture at the 28th EAA Annual Meeting in Budapest, 31 August - 3 September 2022 as a fulfilment of a milestone proposed in 2023 (see below and Attachment 4).

Fieldwork proposed for 2023 is successfully completed.

Insect analyses are completed (see Attachment 3).

## Publications

List publications, manuscripts and conference proceedings, PhD and MSc thesis resulting from the project. Report how publications are in accordance with the IRF's open access policy.

1: Draft manuscript submitted to the journal *Human Ecology* (see attachement):

Pablo Vidal-González, Gylfi Helgason & Árni Daníel Júlíusson (in review). "Sustainable transhumance practices in European landscapes". Submitted to *Human Ecology*.

2: Árni Daníel Júlíusson (2022). *A Tale of Two Valleys - Settlement, land use and ownership in medieval Iceland*. Háskólaútgáfan. ISBN: 978-9935-23-302-8

3: Egill Erlendsson & Guðrún Gísaldóttir (2022). *Transhumance in Iceland: successful historical land management or a vector for land degradation?* Lecture at the 28. annual EAA meeting, Budapest August 31 – September 3, 2022.

4: The project disseminates highlights of its research activities and achievements to the general public via:

<https://twitter.com/Transhumice>

<https://www.facebook.com/search/top?q=%C3%BEr%C3%B3un%20seljab%C3%BAskapar%20%C3%A1%20%C3%ADslandi%20-%20transice>

## Changes to the research plan (if applicable)

Few changes have occurred in 2022 and none which affects the overall aims, methods and proposed outcomes of the project. Mostly, this involves change in tasks among team members and slight delays in other specific tasks. As follows:

WP1:

Very few changes were made to the research plan. One change was made to the personal of WP1. This year, GH took over GP's works because of schedule conflict on GP's parts, but it is anticipated that in year 3, he will return to this project and finalise the geospatial data, so it will be accessible in a way that meets the FAIR standards of data management as stated in the project's proposal.

WP2:



The research plan of 2022 was largely unchanged from the submitted application of the project apart from the fact that 12 sites were examined instead of the 10 in the original plan and more extensive coring and tephra sampling took place due to the fact that preservation of tephra in the cores turned out to be fairly good.

WP3 and administrative items:

As a search for MSc student to work within WP3 proved unsuccessful, EE acquired funding from the UI doctoral fund to finance a PhD student to work within the project for three years, in collaboration with other team members and through operational cost provided by Rannís. We argue that this has the potential to be a more fruitful way to perform the research proposed within WP3 than was previously planned.

Due to difficulties in attaining a suitable time slot for XRF scanning of cores at the University of Copenhagen, the XRF analyses have been delayed to 2023. These analyses will be performed in the second week of March. As a result, the processing of these data will be paid for in 2023.

Due to a delay in sample processing, the micromorphological analyses will push into the summer of 2023.

Insect analyses are completed, but invoice is yet to arrive. This will be paid for in 2023.

Database work as proposed in the application has been performed by Pablo B. Vaquero and Gylfi Helgason, invoice is yet to arrive.

A post-doc was to be hired for two months in 2022 as part of WP4. The decision was made to postpone this to 2023 and merge the finance earmark for post-doc salaries over the two years, as this will allow for a better continuation in the work of the person appointed. We plan to hire a post-doc in the latter half of 2023 for five months, when the 2023 field season is over and data/materials are available.

## CONTINUATION OF THE PROJECT IN THE NEXT GRANT YEAR

Describe the research plan and milestones for 2022. Foreseeable changes to the proposed research plan, management and/or participation must be explained.

### Highlights of the research plan

#### WP1:

Concerning WP1, the research plan is still in line with the project's schedule. In 2023, we aim to delve further and analyse material gathered from DI, especially from volumes VI-VX. In addition, material on shielings found in documents by Dr Jón Þorkelsson, archived at the National Archives of Iceland, will be gathered, and analysed. This work will be published in a peer-reviewed journal by ÁDJ. The translation work of Hitzler's book into English will continue and the writing of a draft of the introduction chapter in the book on new shieling research in North-Atlantic will commence. The introduction chapter will give an opportunity to compare research into shielings in Norway, Scotland, the Faroe Islands and Greenland with the Icelandic transhumance and its development during the last two millennia in these countries. We also aim to continue inputting all data on shielings and other material of relevance (e.g. peat cutting areas, farms, environmental details) into GIS and analyse the spatial pattern to try to answer if shielings were located near other types of natural resources, for example water, peat for cutting or woodland? The material gathered and will be used for publications (see below).

#### WP2:

Highlights of the research in 2023 will be: **1)** Continued processing of field data from 2022, and the writing of a detailed field report which can lead to a publication as an archaeologically-focused paper or in collaboration with other WPs. **2)** Fieldwork season in SW Iceland is planned in the summer of 2023. In the proposal we propose to archaeologically investigate 10 sites, their selection will be finalised in March/April 2023, but work on this is already underway.

#### WP3:

Research of the environmental context in 2023: **1)** Work of the PhD student Julia Esch has commenced on the chronology and palaeoecological analyses of the peat samples collected in 2022. We aim to finalise the pollen analysis of samples from both Sakka and Stóru Hámundarstaðir in 2023 and to prepare a manuscript for submission as part of Julia Esch's PhD thesis. Pollen analytical work continues

over most part of 2023, XRF analysis of profiles gathered in 2022 takes place in Copenhagen in March 2023 and geochemical analysis of tephra layers takes place in April 2022 (both financed by the 2022 budget). **2)** Fieldwork in collaboration with WP2 in SW Iceland in summer of 2023 to analyse the environmental context of shielings. Processing of the arising samples starts in autumn 2023 (XRF scanning and geochronology). **3)** Analysis of the geochemistry of tephra from samples arising from coring of contexts within shieling ruins in SW Iceland to assess their age. **4)** EE organises a team meeting in March 2023 to discuss and outline the field season of 2023 and publication strategies for 2023. **5)** EE hires a post-doc on a five month contract (salaries applied for in 2022 and 2023) to undertake processing and synthesizing of the diverse data gathered by the project in North Iceland to prepare for publication in an interdisciplinary-focused journal.

### **Milestones**

List the proposed milestones, with reference to the milestones specified in the application.

The milestones listed for 2023 in the project plan and we foresee will be reached are:

- 1: Contribution of all WPs to a manuscript (joint or individual WPs) prepared for publication before the end of year 2023.
- 2: Project workshop by end of year 2023.

*Other key features of the year 2023:*

- 1: Accumulation of field data and sampling in and around 10 shielings in SW Iceland.
- 2: Participation of ÁDJ, GH, EE and Julia Esch in a conference session organised by project members, which focuses on the findings of the Transice project.

### **Foreseeable changes to the research plan (if applicable)**

There are no changes foreseen which will interrupt the plan of the project or its outcomes. The changes we foresee are:

- WP1: GH will continue to replace Gísli Pálsson in GIS related work
- WP2: No foreseeable change in the research plan.
- WP3: As a MSc student could not be found to work within the project, the proposed milestone of MSc graduation in 2023 will not be reached. As explained above, this problem has been solved by the hiring of a PhD student (Julia Esch) via funding from the UI doctoral fund. This will not affect the progress of the project.