



# Characterising Grímsnes- & Grafningshreppur

## A Methodological Case Study

Gísli Pálsson

Ritgerð til M.A.-prófs  
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HÁSKÓLI ÍSLANDS

**Háskóli Íslands**

Sagnfræði- og heimspekideild

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## **Abstract**

This thesis is inspired by Historic Landscape Characterisation, a landscape assessment programme conducted by English Heritage and local county councils over the past decade and a half. Currently no comparable programme exists in Icelandic heritage practice, and in this thesis I developed a methodology of historic characterisation and applied it to Grímsnes- & Grafningshreppur, a district in the south-west of Iceland. The principal result of the characterisation was compiled in a GIS database of some 1300 entries, represented with maps throughout the thesis.

Takk:



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# Chapter 1

## Landscape & mapping

Archaeology has, in the words of Matthew Johnson, moved beyond the site (2005, p. 156). After early forays beyond the trench that would perhaps better be described as ‘sites-based’ rather than landscape-based (e.g. Beck, 1995), recent developments within archaeology and heritage studies have begun to consider the environment not simply as a Cartesian container of archaeological features but as a human artefact in itself (Fairclough, 2002; Tilley, 1994). Icelandic archaeology has long been characterised by regional awareness, and the current landscape of Icelandic archaeology is populated by several recently completed and on-going projects with a strong emphasis on landscape (e.g. Aldred, forthcoming; Gunnarsdóttir, 2002; Maher, 2009; McGovern, et al., 2007; Vésteinsson, et al., 2002; Woollett, 2008). The development and potential of landscape approaches to Icelandic archaeology has been outlined in recent works (Aldred, 2006; Mímisson, 2004); conversely the idea of landscape in Icelandic heritage management has been left largely unexamined, with the works of Hallgrímsdóttir (1998) and Aldred & Friðriksson (2008) being the notable exceptions.

In the past two decades, many national heritage agencies have formed landscape-focused heritage management programs; in the same period, the Icelandic national heritage agency has made some tentative inroads towards landscape. The state of landscape-focused heritage

management in Iceland is in its infancy, however, and there is much room for development. In this thesis I will address some perceived shortcomings, principally the way in which archaeological information and understanding about the historic dimensions to the landscape are presented to professionals in landscape management and planning. I will do this by applying the technique of historic characterisation on a district in the south-west of Iceland known as Grímsnes- & Grafningshreppur, but so far no such project has been underdone in Iceland at that scale.

The first chapter of the thesis is concerned with outlining some theoretical foundations of landscape studies and mapping. In chapter two, I will outline the way in which the concept of landscape is used in heritage management in Europe as well as describing the English process of Historic Landscape Characterisation, which was used as a framework when developing the methodology for the historic characterisation undertaken in Grímsnes- & Grafningshreppur. In chapter 3, I will review landscape approaches in Icelandic heritage management, primarily based on the discourse of *menningarlandslag* and *búsetulandslag* in archaeological publications and planning documents. Chapter 4 is concerned with the case study, where I describe the methodology devised as well as describing some of the patterns that surface as the characterisation results are mapped out. Chapter 5 concludes with a summary of the project, including some shortcomings of the characterisation and potential for further research.

### 1.1 Landscape: a new paradigm of heritage?

Heritage management has traditionally been concerned with a preservationist ethic and protecting what experts have considered the very best according to Western aesthetic sensibilities, mainly limited to prehistoric monuments and polite architecture, an ideology rooted in notions of nationhood, edification and monumentalism (Hafstein, 2009; Kearney, 2009; L. Smith, 2006). Recently however, alternative approaches have emerged to challenge traditional conceptions of heritage. Along with greater public participation and a focus on management of change rather than protecting the fabric of the past, heritage management has begun to use broader holistic and comprehensive definitions of the historic environment (Fairclough, 2008b, p. 297). The scale and spatial dimension of heritage has increased gradually from site to setting, areas, cities, to finally the landscape itself (Fairclough, 2008a).

What is landscape? Makarow describes landscape as a “powerful, diverse and dynamic cultural resource ... whereas the environment is the inescapable physical setting for human existence, landscape, both urban and rural, offers more. It provides a concept of ‘place’ linked to

community, an ability to transform perceptions of the world across physical and psychological borders, a frame for people's lifestyles and identities (which in the past shaped nationhood but now contribute to emerging sub- and supra-national identities), and an interface (through concepts such as biodiversity) between people and nature" (Makarow, et al., 2010, p. 3). Landscape is a multiplicity of elements central to all areas of life, and a central concept in understanding the public's engagement with the past.

Why does landscape matter to effective heritage management? The idea of representing heritage as a collection of points has been under sustained criticism in the past two decades. The criticism is twofold. Firstly the idea that cultural activity only took place where traces of cultural activity are present misses the point that being in the landscape is an all-encompassing engagement with the environment, and understanding past peoples requires a scope beyond the site. Secondly, the idea that human impact on the environment is localized in recognizable anthropogenic features is an oversimplification of the complexity of the interaction between the human and non-human.<sup>1</sup> The points in this light can be seen as spatially scattered fragments lacking a conjoining context. The landscape itself also tells a different story to that found in historical archives (Clark, et al., 2003, p. 1). Clark, Darlington & Fairclough have argued that landscape is a medium of understanding the past, a "pathway into our memories" (2003, p. 1). It is also seen as a medium to manage issues "where people and land come together" (Makarow, et al., 2010, p. 2), and to combine the efforts of academic disciplines and governmental bodies traditionally scattered across several research domains.

The broadening of scope from site to landscape began in the late 1980s and continued to develop throughout the 1990s, led by the initiative of English Heritage. The agency acknowledged the theoretical issues in protecting only sites on a list such as the *Historic Environment Record* (HER) and began to argue for a conservation ethos based on a broader view of heritage. Initially, the focus was still on monuments (now in their landscape context), but then moved to the historic and archaeological dimension of the entire landscape, whether site-based or not (Fairclough, 2002).

A similar development can be seen in the process leading to the European Landscape Convention (ELC), and indeed the two developments were led by many of the same people. Initially, the aim was to define and list Heritage Landscape Sites (Darvill, 1993); essentially a register of the 'best' components of the landscape, based on various criteria mostly concerned

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<sup>1</sup> This will be discussed in more detail below.

with aesthetics and closeness to a supposed 'natural origin' with little signs of obvious change, while undervaluing other types of landscape and ignoring entirely certain types, such as industrial landscapes (Fairclough, 2002, p. 26). Successive iterations of Council of Europe recommendations moved away from this representative bias toward recognizing the heritage value of the environment in its entirety, through the interim step of 'cultural landscape areas' (Council of Europe, 1995) and reaching its most comprehensive form in the European Landscape Convention charter (Council of Europe, 2000).

The charter states that landscape is "an area, as defined by people, whose character is the result of the action and interaction of natural and/or human factors" (Council of Europe, 2000; article 1). There is much to unpack in this pithy definition. The term area denotes a move away from thinking of cultural resources in terms of point-based registers, the traditional method of defining heritage in spatial terms (Fairclough & Turner, 2007) and toward what may be called an area-based landscape conceptualisation.

The second part of the definition acknowledges that landscape has been argued to be a *way of seeing* (cf. Cosgrove & Daniels, 1988); a matter of perception and hence not amenable to strict and 'objective' criteria based on expert analysis. Inherent in the definition is the notion that landscape cannot be adequately described without accounting for those who experience it. The many cases of conflict and dispute over value and meaning of places with heritage designations exhibit the degree to which perceptions of landscape can differ (see, for example Logan & Reeves, 2009). The recognition of the multiple readings of landscape can be seen in an increasing emphasis on public archaeology aimed at diminishing the specular bias of the expert (English Heritage, 2008). It is important to ask not just how to protect heritage, but why and for whom (Fairclough, 2008b, p. 299).

Finally, the recognition that perceived landscapes can result from natural and/or cultural processes acknowledges that cultural landscapes exist everywhere – in shopping malls, in traditional agricultural areas, in untouched wilderness areas – and that valorising any one landscape above others is a judgement based on culturally contingent values and subjectivities. The landscape is seen as a continuous surface with 'heritage-depth' rather than as a series of isolated sites where heritage valorisation is concentrated.

The development of landscape as a paradigm for heritage has furthermore effected a temporal shift toward the present. While a collection of sites can be conceptualised in some way as consisting of materiality belonging to specific historical periods, conceiving of the landscape as

the medium of heritage necessarily situates heritage in the present. The past is always a phenomenon of the present (Holtorf, 2010; Lowenthal, 1985); that is, beyond a recognized temporal past there is also a pastness which is manifestly present in the here and now. While it may be stating the obvious, the experience of a Neolithic site is always situated in the present.

The implications of this rather banal observation are important, however. It suggests a need to go beyond thinking of the past in the landscape as frozen time-slices in various states of disintegration. Rather, there is always residuality and an agency of earlier settlement remains on later peoples. One of the oldest tropes of landscape archaeology is to describe the landscape as a palimpsest (cf. Hoskins, 1955), that is an artefact where the traces of several phases of use can be detected. This is a clear visual metaphor, but in its clarity there is a danger to oversimplify the way in which landscape develops. A landscape palimpsest is more agentic than the reference to vellum suggests. The surface is rarely scraped clean and overwritten, at least before the advent of the bulldozer, and any construction must on some level come to terms with earlier remains. Whether that is done through avoidance, integration or some other means is beside the point; in every case there is a relationship between successive generations of use, forming a continuum of historic processes leading up to and constituting the present. The Bronze Age landscape is not a successor to the Neolithic landscape, but a continuation of it.

Finally, the adaptation of comprehensive terms such as historic environment and landscape has brought heritage management into much closer dialogue with other disciplines concerned with landscape management, resulting in a more coherent management plan for the archaeological heritage. In a sense, landscape can be seen as a medium of communication – a common language – between professionals with significantly different disciplinary histories and methodological practices (e.g. Benediktsson & Lund, 2010). A more conciliatory approach to managing the archaeological heritage can be seen in the outline proposed by the ELC for managing the landscape, where landscape protection is only one of three instruments along with landscape management and landscape planning (from Chapter 2, Article 5 of the European Landscape Convention charter).

Although it would be misleading to see the ELC as panacea for all issues relating to managing the historic environment, the framework has the potential to capture some of the ambiguities and entanglements of landscape. As Bender notes, echoing Spinoza:<sup>2</sup> “landscapes refuse to be disciplined. They make a mockery of the oppositions that we create between time

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<sup>2</sup> “Each thing, as far as it can by its own power, strives to persevere in its being” (2000; III.6).

(History) and space (Geography), or between nature (Science) and culture (Social Anthropology)” (Bender; quoted in Massey, 2006, p. 34),<sup>3</sup> and attempting to reduce the landscape into a register, whether it is point-based or polygon-based will inevitably result in something fundamentally incomplete. Reducing heritage conceptualisations to relict cultural features in the landscape is a case in point: landscape is a multiplicity, and as Deleuze and Guattari note, “a multiplicity is defined not by its elements, not by a centre of unification or comprehension. It is defined by the number of dimensions it has; it is not divisible, it cannot lose or gain a dimension without *changing its nature*” (Deleuze & Guattari, 1988, p. 275). Deleuze and Guattari see the whole of Nature as a “multiplicity of perfectly individuated multiplicities” (p. 280), which is a definition that fits well with the ELC conception of landscape: an assemblage of individual engagements with the environment, perfectly individuated yet exhibiting an infinite potential for connectivities.

## 1.2 Landscape, cartography & GIS

It is perhaps surprising to argue that landscape refuses to be disciplined in the introduction to a project of landscape representation. Can historic characterisation, or any mapping for that matter, hope to adequately account for this abovementioned sense of the multiple? A printout of a characterisation map done in geographical information systems software (GIS) clearly shows its limitations. The maps are necessarily Cartesian; there tend to be clear spatial demarcations between areas of supposedly distinct character. Indeed, the efficacy of spatial representations has been under fire for a long time in academia, often traced back to the writings of Henri Bergson on time (Foucault, 1980, p. 70). The rhetoric is that there is an association between spatiality and a divisible fixation of meaning; that the spatial lacks the dynamism that Bergson (and followers) associates exclusively with temporal duration (Bergson, 1971; Boundas, 1996; Deleuze, 1988). Hence any cartographic representation becomes a virtual ‘time-slice’, ossified and at odds with current social theories emphasising dynamic social processes over structuralist approaches (Massey, 2005). I believe this strain of criticism only holds if one maintains that a cartographic representation necessarily depicts the landscape in its totality. I do not think it is possible to do

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<sup>3</sup> The source of the quote by Bender is not known (even by Bender herself), but Doreen Massey attributes the quote to her.

justice to the theoretical framework of landscape described above through a single map. That belief, however, does not make the map redundant.

As stated above, my theoretical position is to regard landscape as a Deleuzian multiplicity. Following on from that position, I regard any attempt at representation to be akin to extracting dimensions from the multiplicity. Representation is extraction, but cartographic representations do not purport to describe totalities. Cartography is not a neutral procedure, but a political one (Crampton, 2010); maps are not objective realities but social documents (Harley, 1990). The map itself is not simply a social object but requires culturally learned knowledge to be understood (Crampton, 2010, p. 43). Maps are not ‘transparent’, allowing the user to peer through the map onto the underlying landscape, but ‘opaque’ – a process of creating knowledge rather than a window onto knowledge. As Liben and Downs point out, “maps are creative statements about the world, not merely degraded reflections of it” (Liben & Downs, 1989, p. 148).

Mapping produces space. As Pickles argues, “mapping and the cartographic gaze have coded subjects and produced identities” (Pickles, 2004, p. 12). Through the manipulation of scale, places are produced that are only perceptible on maps – Iceland as an island, for example, can only be experienced on the ground through a cartographic representation. As Robert Smithson remarked, “you cannot visit Gondwanaland, but you can visit a map of it” (Smithson, 1996, p. 122).

Decisions regarding what to depict on maps have, naturally enough, significant implications. The *Atlaskort*,<sup>4</sup> for example, only maps permanent residences while leaving seasonal residences unmapped. Thus a map of rural locations with numerous summer houses, the study area for this project included, differs significantly from aerial photographs. The implication is that there are experts, in charge of mapping, who decide what to include on maps, whose decision-making process can serve political, aesthetic, historical ends, and so on. The recent upsurge in a more democratized ‘counter-mapping’, or ‘user-mapping’ has diffused the power to make maps through the internet and the availability of tools like Google Earth and handheld GPS devices, allowing users to create maps suiting their needs, which often differ radically from the maps produced by national survey bodies who, until recently, were the only ones possessing the means to produce and distribute Cartesian maps (Crampton, 2010, pp. 25-38).

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<sup>4</sup> Produced by the Danish *Geodetisk Institut* in the first half of the 20th century and *Landmælingar Íslands* in the latter half.



Recent democratizations do not, of course, alter the fact that decisions of what to include and what to exclude are essential to cartography. As Monmonier observes, “not only is it easy to lie with maps, it’s essential” (Monmonier, 1991, p. 1). A map is defined equally much by its exclusions as its inclusions. A map with too many inclusions would cease to function as a map, becoming too opaque and illegible, concealing the object of representation. As Crampton argues, “mapping creates specific spatial knowledges and meanings by identifying, naming, categorizing, excluding, and ordering” (Crampton, 2010, p. 45). It is the understanding of these choices and processes that enable the cartographer and the user to understand the potentials and limitations of the map.

GIS is often seen as a watershed in cartography, and has become a standard tool in archaeological research (Conolly & Lake, 2006), and its use is widespread in Icelandic archaeology (e.g. Aldred, forthcoming; Aldred, et al., 2007; Gunnarsdóttir, 2002; Isaksen, 2011; Maher, 2007, 2009). The potential of GIS is only hinted at by displaying a single form of data representation. Every GIS polygon has a potentially infinite number of dimensions, through the database tables with which it is joined, and any one of these can be represented with a number of

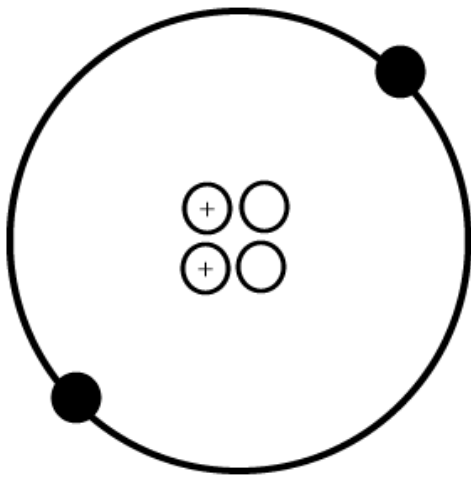


Figure 1: A helium atom.

patterns, colours, transparencies. It is this ability to include several polygons, lines and raster cells associated with multiple sets of data that enable GIS-based mapping to address many of the criticisms of traditional cartography. Generalisations can be fragmented by map users with a certain function in mind; phenomena can be mapped in several ways according to scale; colours and transparencies can be easily modified. Most importantly, any number of

interpretative representations can be made for a given feature, and can (at least in theory) be represented

simultaneously. While any ‘print-out’ from GIS will be, to draw on Deleuzian terminology, an extraction from the multiple, the possibility for an endless proliferation of distinct cartographic images of the same feature enables GIS to approach a representation of the multiplicity of landscape; to multiply the readings of the landscape (cf. Lefebvre, 1996, p. 159).

Thus any given GIS representation has a stronger affinity with the conventions of atomic representation rather than any cartographic convention. Whereas a cartographic representation aims to accurately depict the environment in generalized form, an atomic representation is clearly at odds with the current state of atomic knowledge. Electrons are thought to behave more as a field than a bounded sphere with a clearly defined orbit, but that is precisely how it tends to be represented (see figure 1). It is, however, expressly stated where appropriate that the ‘billiard ball’ representation of the atom is a purposefully simplified representation; the electron is in constant motion, its journey indiscernible from the cloud enveloping the nucleus. A GIS map is better thought of as an atomic map; a representation of a mobile entity, purposefully simplified for the sake of clarity, but concealing a multiplicity of dimensions approximated by the depth of the spatial database. Seemingly unrelated polygons may possess affinities hidden deep within the database, but revealing them may consequently conceal countless other affinities, hidden from view for the sake of representational clarity.



# Chapter 2

## Landscape in European heritage management

Many national heritage programmes in Europe have been established in recent years to characterise and manage heritage on a broader scale, many as a response to the 2000 European Landscape Convention. In Denmark, the *Digital Atlas on Cultural Environments* focuses on *kulturmiljø* (Stoumann, 2002); essentially a site-based approach on a regional scale where ‘white spaces’ (cf. Doron, 2000) characterised by features from recent time periods are left unexamined. This follows from the Danish archaeological tradition that Møller argues is mostly point-based (Møller, 2008). In Belgium, the *Landscape Atlas of Flanders* (2001) is similarly focused on relict features with white spaces in the atlas where the landscape is dominated by post-1850s features. In Norway, landscape has long been a feature of archaeological research (e.g. Brøgger, 1925), and landscape characterisation has been undertaken since the 1990s (Puschmann, 2005). This work, however, is entirely based on land cover morphology and does not attempt to explain or characterise culture-historical processes (Jerpåsen, et al., 2008, pp. 210-212). In Spain, a strong and interdisciplinary tradition of landscape research has not yet markedly influenced heritage

practice (Árbol, et al., 2008); Estonian and Swiss landscape experts have voiced similar frustrations (Bürgi, et al., 2008; Printsmann & Palang, 2008).

The heritage agencies in Wales and Scotland utilize systems of characterisation based on non-archaeological features such as land cover, land-use and social concerns such as community identity and sense of place (Dixon, et al., 1999; Gwyn, 2002). What most thoroughly set the British landscape programmes apart from others in use are their comprehensive approaches. Heritage value is to be found everywhere in the landscape, and characterisation is not preceded by a value judgement excluding certain types of landscape from the heritage management's field of vision (cf. programmes above). It is for this reason that the English system of Historic Landscape Characterisation (HLC) has been chosen as guiding methodology for the case study outlined in the latter half of this work.

It is not by coincidence that the English tradition is chosen as a guideline. There are clear connections between the English landscape tradition and the charter of the European Landscape Convention (Fairclough, 2002; Fairclough, et al., 1999; Fairclough & Turner, 2007). Many of the 21 European countries participating in the recent COST 27 LANDMARKS project aimed at management and protection of landscape note the strengths of the English landscape tradition. For instance, Rizopoulou-Egoumenidou points out that the Greek term for landscape, *topio*, is too narrowly concerned with place and not suited to imply a shaping over time or large contiguous surfaces (2008, p. 33), and it is worth noting that a majority of the landscape-based archaeology projects undertaken in his native Cyprus have been directed by Anglophone archaeologists in collaboration with Cypriot colleagues (*ibid.*, 34-40). Similarly, landscape as a conceptual instrument in archaeological research was introduced into Greece by the work of Anglophone archaeologists (Doukellis & Mendoni, 2008, p. 131). What follows is a disciplinary history and description of HLC.

## 2.1 Historic Landscape Characterisation

The origins of HLC can be traced to the 1990 White Paper environmental assessment report, *This Common Inheritance* (1990), in which English Heritage was invited to consider listing landscapes based on historic importance. An experimental fermentation throughout the early 1990s led to developments of historic characterisation methodologies (Landscape Design Associates, 1994). These methodologies aimed at characterising the landscape comprehensively

rather than singling out certain places for inclusion on special registers. The intention was to deliver multiple objectives for multiple users, in particular to serve as a document of historicity and time-depth in the landscape to be used in conjunction with other landscape assessments for various purposes such as spatial planning, conservation and cultural resource management (Aldred & Fairclough, 2003, p. 6).

Toward the end of the experimental period (in 1994), the first systematic attempt to put some of the emerging ideas into practice was undertaken by the Cornwall Archaeological Unit. Many of the methodological elements that were to characterise much of the later projects were first put to work in Cornwall (Landscape Design Associates, 1994). Subsequent development led to a degree of standardisation, but variability in method and ideology was always present, and still is (Aldred & Fairclough, 2003, pp. 15-20).

Other characterisation methodologies are also used in the British Isles (such as Landscape Character Assessment), based less on the built environment and more on other criteria such as environmental factors, but the aim of characterisation projects tends to be the same – to inform planning and decision-making of those involved in making decisions affecting the landscape (Scottish Natural Heritage & Countryside Agency, 2002, p. 1). A thorough review of HLC projects undertaken in England would be exhaustive, and it suffices to outline some of the ideologies underlying characterisation.

In the 1999 document *Yesterday's World, Tomorrow's Landscape*, English Heritage identified a range of applications for HLC, such as “developing awareness of local identity, academic understanding, designations and planning policies, development appraisal, management or grant assessment” (Fairclough, et al., 1999, p. 56). The application of HLC therefore goes beyond archaeological research to other disciplines studying, managing and planning the built environment. In a way it is a medium of communicating bodies of knowledge built through archaeological processes. Through the interface of GIS, the results of characterisation can be represented at various scales of complexity and with various different teleologies depending on the needs of the recipient. A scholar of agrarian developments may want to see a detailed morphology of field patterns while a spatial planner may be more interested in seeing dominant regional character types, whereas a heritage manager may want to see characteristic landscapes that seem to be disappearing.

Any characterisation process – HLC included – begins with the acknowledgement that landscape is ever-changing, and always in the present. By characterising and understanding the

present landscape, it becomes possible to understand processes of becoming and to represent time-depth, which is what distinguishes historic characterisation from other characterisation methodologies. The celebration of change in the landscape follows logically to an acceptance of further change, especially as “many aspects of HLC depend on living, shifting, ever-changing semi-natural patterns” (Clark, et al., 2004, p. 3). It is not simply that it is impossible to fossilise the landscape, but it is also undesirable (ibid.). At the same time, change in the landscape should be understood and managed – or at the very least documented.

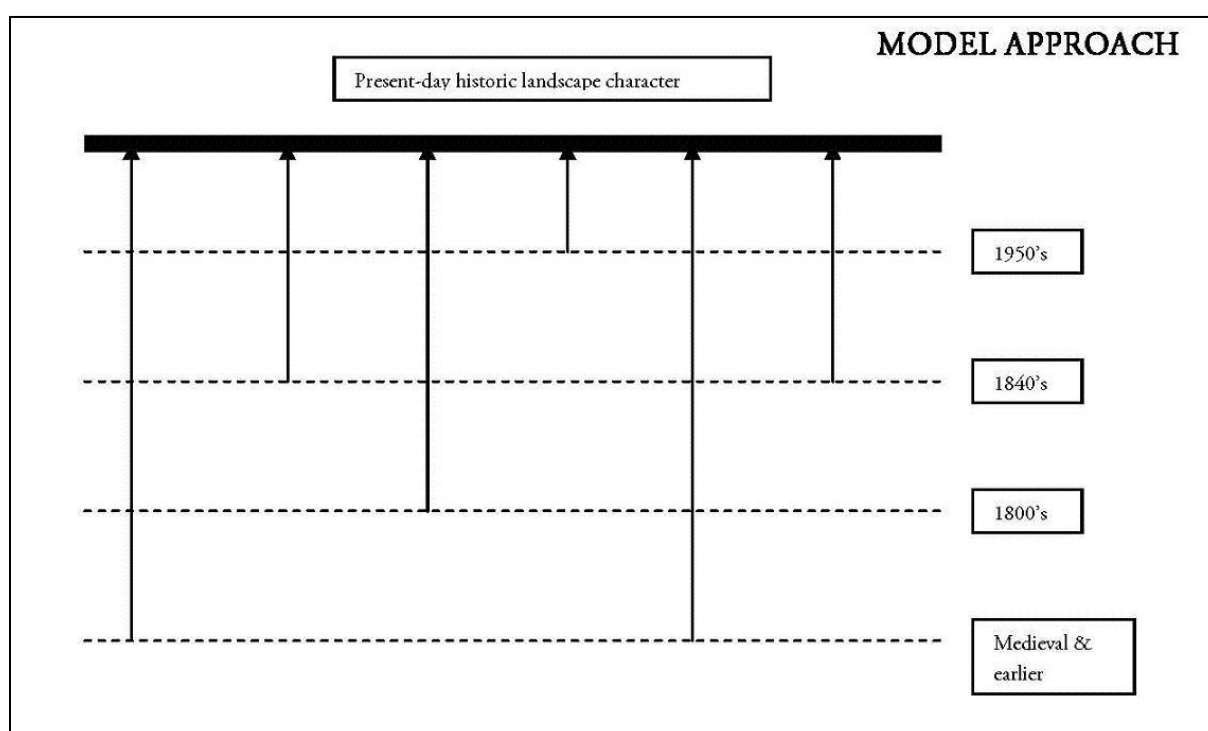


Figure 2: Connecting interactions that have contributed to the form of the present-day landscape. From Aldred, 2002.

It is important to stress that HLC does not demarcate the landscape into ‘natural’ and ‘cultural’ components. Living features of the landscape cannot be separated from its character; furthermore the ontology of many supposedly ‘natural’ or ‘untouched’ elements of the landscape have been influenced by cultural processes. For example, Andy Dugmore has suggested that the change in the soil profile from primarily podsol to andisol at Vatnsfjörður, in the Westfjords of Iceland taking place in the Medieval Period may be attributed to increased erosion elsewhere in the country, most likely due to settlement pressure (Dugmore, et al., 2005; Milek, 2010, p. 52). If the soil profile in the Westfjords is the result of historic, cultural processes, it becomes difficult to

draw a line where the effect of human inhabitation on the supposedly natural environment stops. Likewise, unaltered parts of the landscape, such as mountain ridges and open seas will have an effect on the way in which ‘culture’ develops in the region, both through quite easily imaginable processes of adaptation as well as in less tangible ways. Separating the cultural (or human) from the natural overlooks a complex interrelationship between humans and the rest of the environment (see, for example Castree, 2005; Ingold, 2000; Latour, 1993; Macnaghten & Urry, 1998). As Gavin Lucas has pointed out (2001, p. 74), the process of archaeological excavation relies on the idea of the ‘natural’ as a backdrop to the archaeological (or cultural) – essentially the vertical limit of archaeology – but this use of the word is better understood as referring to the sterile, or undisturbed. A similar notion of the ‘unaltered’ is used in HLC to demarcate areas where historic processes of becoming cannot be determined, but with the proviso that, as can be seen with Dugmore’s work cited above, further analysis may lead to better understanding of the processes that are constitutive of the present landscape. As Holtorf points out, there are several examples of features in the landscape recently conceived of as ancient (Holtorf, 2010, p. 34), as developments in archaeological knowledge changes the way in which the past is constructed.

The untenable nature of the distinction made between ‘natural’ and ‘cultural’ landscapes can also be shown by the way in which supposedly natural areas are defined and demarcated. In 1998, the Icelandic Ministry for the Environment released a document outlining the definition of the term *ósnortið víðerni*. Translating roughly to ‘untouched wilderness’, it is defined by the following criteria:



Ósnortið víðerni er landsvæði:

- þar sem ekki gætir beinna ummerkja mannsins og náttúran fær að þróast án
- sem er í a.m.k. 5 km. fjarlægð frá mannvirkjum og öðrum tæknilegum ummerkjum, s.s. raflinum, orkuverum, miðlunarlónum og þjóðvegum (sbr. vegalög),
- sem er a.m.k. 25 km<sup>2</sup> að stærð eða þannig að hægt sé að njóta þar einveru og náttúrunnar án truflunar af mannvirkjum eða umferð vélknúinna farartækja á jörðu,
- þar sem maðurinn hefur ekki bein áhrif á ásýnd lands eða lífríki, býr ekki þar eða nýttar beint,
- þar sem dreifing plantna og lífvera er óheft og ræðst ekki af athöfnum mannsins,
- þar sem umferð er haldið innan þeirra marka að skaðleg áhrif verði sem minnst, t.d. með einfaldri merkingu göngu-, reið- og/eða akleiða - eftir eðli, stærð og staðsetningu svæða,
- þar sem framkvæmdum og/eða mannvirkjum er haldið utan svæða, nema hugsanlega í þeim tilgangi að halda áhrifum umferðar í lágmarki.

(Umhverfisstjórnuneytið, 1998)

An untouched wilderness can therefore have underground cables, roads and paths. Furthermore, archaeological sites do not preclude an area from being called 'ósnortið', effectively imposing a culture:nature dichotomy onto inhabited:uninhabited houses. In any case, these issues seem quaint and naïve compared with the insistence of vegetation in wilderness areas being 'untouched by man' – as seen above by Dugmore's work, anthropogenic environmental impacts do not operate at a local scale, but affect whole countries and even whole geographical regions. Indeed, the climate itself is arguably a human artefact, enveloping and 'touching' the whole globe.

Such designations are certainly important for landscape management, it would be remiss of me to suggest otherwise. It is nevertheless important to point out that such usages of terms such as 'natural' or 'untouched' in spatial planning are based on the sort of subjective criteria

cited above, and do not reflect categorically untouched areas yet to succumb to human influence. Such designations reflect value judgement based on dominant aesthetic sensibilities rather than a fixed hierarchy of natural purity.

HLC is not point-based, as registers of sites are;<sup>5</sup> instead it uses site registers along with other historic data to elucidate time-depth in the landscape. HLC is not meant to replace the register of sites (Sites and Monuments Record) but to complement it, and be integrated with it, adding both spatial and temporal dimensions to the official, point-based heritage site register. Indeed, HLC should be integrated with several other records, such as environmental risk assessment documents, environmental conservation plans as well as less overtly value-laden representations of landscape produced by environmental sciences.

HLC is furthermore not meant to distribute heritage value in the landscape – an area made famous by an historic battle or an area associated with literary sources is treated no differently than similar areas with no associated historic references.<sup>6</sup> There are no ‘special areas’ in characterisation, although characterisation documents can be consulted at a later date to inform such designations.

HLC is always an interpretive process; while the characterisation methodology aims at producing a repeatable result, a degree of subjectivity is unavoidable. This should not be seen as a great issue, as it chimes well with the ELC conceptualisation of landscape as a matter of subjective perception, as well as undermining the hegemony of the expert in heritage interpretation – if the expert’s view is recognized as a subjective account, it is open to re-interpretation. While this does not often take place at this point<sup>7</sup> the fact that HLC is GIS-based makes reinterpretation by members of the public technically possible. As seen above, one of the major developments in cartography has been the development of user-mapping and participatory GIS, and HLC is readily amenable to this form of counter-mapping. The collaborative result of an initial, expert-led characterisation with additions from other users offers an intriguing avenue for effecting a democratization of heritage, and although the weight of the expert view will probably always hang heavy on the final result, the fact that a GIS spatial database has a potentially infinite depth of columns means that any reinterpretation can be included within the primary database, and so a

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<sup>5</sup> Such as the *fríðlýstar fornminjar* for Iceland, or the *Sites and Monuments Record* for England.

<sup>6</sup> This has a bearing on the time-depth methodology for the case study, see below, chapter 5.

<sup>7</sup> Indeed the only GIS HLC database available online is the one for the Black Country: ([http://archaeologydataservice.ac.uk/archives/view/blackcountry\\_hlc\\_2009/](http://archaeologydataservice.ac.uk/archives/view/blackcountry_hlc_2009/)). HLC results are generally readily available upon request, however (Quigley, 2011).

process beginning with an expert-led characterisation and continued by public reinterpretations resulting in a database continuously *becoming* can go some way to achieving a representation of landscape as multiplicity. A participatory characterisation methodology may perhaps be difficult to achieve, as characterisation requires highly technical knowledge, access to a number of sources and some degree of training in the fundamentals of the methodology, but it is important to keep the avenue towards participatory characterisation open and unhindered by ensuring transparency and access to relevant information.<sup>8</sup> Participatory cartography may have seemed ludicrous some twenty years ago, but currently through interfaces like Google Earth it has become ubiquitous (Crampton, 2010, p. 27).

The HLC methodology is based on sources relevant to the English countryside – most prominently OS maps – and the particulars of the methodology itself have limited application outside of the country, as well as varying with regions within the country based on the sources available for particular regions. The ideology and aims of the process, however, are readily applicable to other countries. The principles outlined above have had a major influence on this case study, while at the same time the methodology used differs markedly from any HLC project reviewed during the undertaking of this case study. The next chapter will direct the focus towards the country of Iceland itself, first by reviewing landscape approaches in Icelandic heritage management, followed by a review of work done to characterise the Icelandic environment.

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<sup>8</sup> For that reason, the master database producing during this case study is available to anyone by demand.

# Chapter 3

## Landscape approaches to Icelandic heritage

The 2001 revision of the National Heritage Protection Act updated the definition of *forminjar* (e. archaeological remains) to include the word *búsetulandslag*. It is sometimes translated as cultural landscape, or settlement landscape, but definitions of landscape terms in Icelandic are characteristically vague. Although it is tempting to simply translate the Icelandic *landslag* into *landscape*, that presumption of ontological parity between the two terms has been shown by Edda Waage to be quite misleading (Waage, 2010, p. 55). A significant point of departure for the term *landslag* from similar words in related languages is its focus on nature as a phenomenon separate from aspects of the environment visibly shaped by human inhabitation. Waage's definition for *landslag*, based on historical sources and interviews with environmental policy makers is that *landslag* is "an aesthetic relation between humans and inanimate nature; a relation that is brought to existence by way of ocular perception of the world, and that centres upon nature's morphological quality" (Waage, 2010, p. 56). The definition implies a dichotomy. According to the definition, *landslag* is seen as an inanimate, natural backdrop upon which layers of *menning* are superimposed; nature in the background, culture in the foreground. The word *landslag* is

hence not suited to a built or inhabited landscape. This is clearly problematic when using *landslag* as a concept for archaeological or cultural resource management. The idea of *landslag* as uninhabited nature perversely suggests that it is impossible to live in a *landslag*.

The word *landslag*, then, seems unsuitable for describing the landscape in totality, being limited to that part of the landscape that does not show visible signs of inhabitation. This is borne out in management and planning practice where the term *landslag* is not used to denote the built environment; instead the terms *búsetulandslag* and *menningarlandslag* occur. The term *búsetulandslag*, as mentioned above, is included in the National Heritage Act from 2001 where it refers to traces of human inhabitation predating the present by 100 years or more. It is hence a term that refers to archaeological features. In practice, however, the meaning of the term is somewhat obtuse as it has not yet been mobilized by the national heritage agency (*Fornleifavernd*) for the purposes of heritage management in any real sense (Aldred & Friðriksson, 2008), although these issues are on the agenda for the relatively young agency.<sup>9</sup>

The earliest definitions of the terms *menningarlandslag* and *búsetulandslag* found in archaeological publications is from Hallgrímsdóttir's *Menningarlandslagið Reykjavík og Búsetulandslagið Laugarnes* which is the only Icelandic publication to come out after a Nordic conference held on the subject of cultural landscapes in Norræna Húsið in 1997 (Hallgrímsdóttir, 1998, p. 142). As the title suggests, here the term *menningarlandslag* is defined as “*landslag sem manneskjan og sagan hafa sett mark sitt á með búsetu eða starfsemi hvers konar*” (p. 142); roughly corresponding to the definition of relict landscapes used by Darvill *et al.* (1993, p. 564). *Búsetulandslag*, on the other hand, refers to a Viking Age settlement whose character is thought to be mostly unchanged (p.148). It is thus according to Hallgrímsdóttir highly valued for protection, while *menningarlandslag* does not fall within the authorized heritage discourse and does not seem to be suitable material for heritage management. It seems, then, that the less a landscape is thought to have changed since the Settlement Period (incessant taphonomic processes notwithstanding), the more imbued it is with heritage value. Heritage value appears here to be firmly placed within a paradigm valorising the expert view, valorising the Settlement Period above all later periods, and places a clear emphasis on the untouched.<sup>10</sup> It therefore seems that *búsetulandslag* transcribes the Icelandic paradigm of *landslag* – an uninhabited, *ósnortið*

<sup>9</sup> *Fornleifavernd ríkisins* was founded in 2001.

<sup>10</sup> In the article, Hallgrímsdóttir refers to Laugarnes, an area rife with archaeological and modern features, as “sem næst ósnortið” (p.149).

natural area – onto the remains of Iceland’s earliest settlements, and the less it appears to have changed, the better. As such the term is wholly unsuited for a heritage system that purports to treat equally all material culture older than 100 years. Likewise, the term is incongruous with the use of the term landscape by, for example English Heritage, where change is seen to be a salient quality (Fairclough, 2002).

What is perhaps the most significant insight to draw from Hallgrímsdóttir’s article is that, almost 14 years later it is still the only Icelandic article written about the terms *menningarlandslag* and *búsetulandslag* and their relevance to heritage. Hallgrímsdóttir’s contribution does not seem to have had a noticeable impact on heritage management or archaeological scholarship in Iceland, and it is only with the work of Aldred that the concept of landscape in Icelandic archaeology has begun to be problematized (Aldred, 2006, 2007, 2010, forthcoming; Aldred & Friðriksson, 2008).<sup>11</sup> His work does not seem to have had a noticeable effect on Icelandic heritage management at the time of this writing, however. It is safe to assume that there is no framework for the application and usage of Icelandic landscape terms to the management of heritage. The one noticeable exception might be the term *landshættir* (Aldred & Friðriksson, 2008, p. 146), promoted by the University of Iceland’s Department of Archaeology as a term not based on the morphological *landslag* but rather something closer to Tim Ingold’s *taskscape* (1993).<sup>12</sup> While promising, the term has yet to be taken up by the wider Icelandic archaeological community, much less by *Fornleifavernd ríkisins*.

The other body of publication where the two terms tend to appear is in planning documents. In Iceland, Fornleifavernd is involved in the planning process and any site is to be protected unless Fornleifavernd sanctions its destruction. Planning documents should therefore reflect heritage policy in practice. Every planning document has a section on archaeological remains where it is stated that every archaeological site is to be protected. It is clear from the wording of the documents that value is distributed unequally between sites, with the relatively tiny number of sites listed on the *fríðlýstar fornminjar* document given priority.<sup>13</sup> In some cases it seems that those sites are the only ones considered unassailably of value, and the only sites that

<sup>11</sup> The term *menningarlandslag* does occur in archaeological scholarship (e.g. Hermannsdóttir, 2011), but its meaning is rarely defined and never adequately problematized.

<sup>12</sup> Taskscape is meant to refer to the socially constructed space of human activity in the landscape.

<sup>13</sup> The *fríðlýstar fornminjar* document is a register of ca. 350 sites that were protected by law before the 1989 law declared that all sites older than 100 years should be protected. Currently the sites do not have any higher legal status in heritage management although sites on the list tend to be given higher status in heritage discourse than sites not on the list.

make it into the planning documents leaving the question of the precise nature of the policy towards the vast majority of archaeological sites (see block quote; from Árborg, 2005, p. 28):

Samkvæmt þjóðminjalögum nr. 107/2001 eru allar fornleifar friðaðar og má ekki spilla þeim, granda né breyta, ekki heldur hylja þær, laga né aflaga né úr stað flytja nema með leyfi Fornleifaverndar ríkisins. Til fornleifa teljast hvers kyns leifar fornra mannvirkja og annarra staðbundinna minja sem menn hafa gert eða mannaverk eru á svo sem hús, tún, forn garðlög, leifar af verbúðum, naustum og vörum, forn vígi og rústir af þeim, hellar, áletranir og myndir á klöppum, átrúnaðar-, þjóðsögu- og sögustaðir. Minjar 100 ára og eldri teljast til fornleifa, en heimilt er þó að friðlýsa yngri minjar. Í Árborg hafa eftirfarandi staðir verið friðlýstir skv. Fornleifaskrá, skrá um friðlýstar fornleifar frá 1990, en friðlýsing felur í sér kvöð á viðkomandi landareign. Þessar friðlýstu fornminjar eru merktar inn á aðalskipulagsuppdrátti með merki Fornleifaverndar ríkisins fyrir friðlýstar minjar:

**Eyrarbakki, Óseyrarnes.** Hin gömlu bæjarstaði Dreppstokks og Óseyrarness, sem standa nærri hvert öðru norðvestur frá kaupúninu Eyrarbakka, vestur undir Ölfusá. Skjal undirritað af ÞM 28.07.1981. Þinglýst 12.08.1981.

**Eyrarbakki, Skúmsstaðir.** Forn samfelld bæjartóft með grastorfu að ofan, þar sem nú kallast Gónhóll. Liggur sjógarðurinn um hólinn framanverðan, framundan Garðbæjarhúsinu. Sbr. Árb. 1905: 13. Skjal undirritað af MÞ 05.05.1927. Þinglýst 07.09.1927.

**Stokkseyri, Skipar.** Leifar Hásteins-haugs, Ölvis-haugs, Atla-haugs og Hrafnshaugs við Barnaness-vað (áður Haugavað). Sbr. Árb. 1882: 47-52; Árb. 1900: 29. Skjal undirritað af MÞ 05.05.1927. Þinglýst 07.09.1927.

**Hellir.** 1. Leifar eyðibýlisins Fjalls, sunnan undir suðausturhorni Ingólfsfjalls. Sbr. Árb. 1897: 1819. 2. Hellir fremst í túninu, skamt austur frá bænum, austan í grasivöxnum blágrýtishól. Skjal undirritað af MÞ 05.05.1927. Þinglýst 07.09.1927.

While the document pays lip service to the archaeological legislation, the extent of archaeological features in the region is not even mapped; rather it is deemed sufficient to list the fraction of sites that are on the *friðlýstar fornminjar* register. Nowhere in the document are the archaeological features discussed – neither is there any explication of time-depth or historic character. Neither is there any discussion of what exactly *friðlýsing* entails in terms of conservation or what protected sites' place is in spatial planning, although the implication seems that these four places are simply to be avoided.

A thorough analysis of the value assigned to archaeological sites by Skipulagsstofnun is beyond the scope of this work, but a cursory perusal of planning documents does shed some light on the use of the three landscape terms in use – *landslag*, *menningarlandslag* and *búsetulandslag*. *Landslag* is by far the most common of the terms to occur in planning documents, occurring 22 times in the Árborg planning documents and just over 40 times in the Grímsnes- og Grafningshreppur planning documents (Árborg, 2005; Grímsnes- og Grafningshreppur, 2009). The term *menningarlandslag* occurs in neither, and the term *búsetulandslag* only occurs in the Grímsnes- og Grafningshreppur planning documents. The usage there appears to be somewhat different from the use by Hallgrímsdóttir, referring to traditional agricultural landscapes. Its usage does not seem to include archaeology,<sup>14</sup> nor does its use imply a presumed custodianship by *Fornleifavernd* or any onus of documentation. It appears to refer to landscapes that are vaguely traditional, perhaps in some sense reflecting pre-industrial agricultural practices. It does not seem to be held in particularly high regard – the authors of the document recognize that such landscapes have some value worth noting, but that such value should not be a hindrance to land development leading to increased agricultural or industrial activity (see block quote; from Grímsnes- og Grafningshreppur, 2009, p. 10):<sup>15</sup>

Aðalskipulagið 2008-2020 opnar fyrir víðari heimildir um íbúðarbyggð í strjálbýli og á landbúnaðarsvæðum. Afleiðingar þeirrar stefnubreytingar eru nokkur óviss en gæti leitt til hraðari og aukinna breytinga á hinu hefðbundna búsetulandslagi. Opnari ákvæði um atvinnustarfsemi á landbúnaðarsvæðum eru hinsvegar talin hafa jákvæð áhrif á efnahag og atvinnustig og styrkja búsetu á núverandi bújörðum, þó ekki sé um hefðbundinn landbúnað að ræða. Þessi breyting er í samræmi við markmið jarðalaga.

These two definitions both fall short of the definition outlined in the European Landscape Convention.<sup>16</sup> *Menningarlandslag* refers to that part of the landscape immediately identifiable

<sup>14</sup> If anything, the current politics of *búsetulandslag* are detrimental to archaeology, as it is deemed preferable to avoid visual impact by burying power and communication lines in the ground, hence posing as a risk to archaeological features.

<sup>15</sup> A quick perusal of several other county plans yielded similar lack of landscape concerns and a focus on *fríðlýstar fornminjar*.

<sup>16</sup> “An area, as perceived by people, whose character is the result of the action and interaction of natural and/or social factors”



with past human inhabitation. It is thus point-based rather than area-based as the ELC advocates.

*Búsetulandslag* seems in some ways to have more potential as a term to describe the landscape as a whole, rather than only the bits associated with human inhabitation. The problem, however, is that in its most comprehensive usage by a heritage manager,<sup>17</sup> it refers to a landscape thoroughly in the past – a settlement landscape – essentially dead and separate from the present, to be protected and possibly reconstructed by removing evidence of later change. *Búsetulandslag* is a time-slice; the scholar's fossilized imaginary of the landscape of the Settlement Period as well as being closely linked to *búseta*, or abode. Whereas historical reconstruction has some merit, it is only ever appropriate for a fraction of the landscape and hence *búsetulandslag* is not appropriate for the management of the ever-changing environment.

The terms *menningarlandslag* and *búsetulandslag* furthermore seem to reflect only an expert's perception of the environment as it is the experts who survey, classify and map those features considered to be anthropogenic or resulting from human inhabitation. There is no room for a democracy of perception, and hence no need for public involvement. Thus a central tenet of the definition of landscape in the ELC, that landscape is an area *as perceived by people* is overlooked. In order to avoid the propagation of hegemonic, expert views of landscape in planning and in order to ensure that heritage management reflects the interests of everyone invested in the landscape it is essential that heritage practice remain open to contestations and ambiguities, to be amenable and receptive to the views of every member of society. It is perhaps fitting that the word *landslag* has no plural in Icelandic; a unifying term describing a purportedly objective phenomenon of *nature* needs no second opinion.<sup>18</sup>

As shown above, the terms *búsetulandslag* and *menningarlandslag* are culturally constituted perceptions on what constitutes Iceland's heritage firmly placed within what Laurajane Smith has termed the authorized heritage discourse (2006). The terms are rarely used, and when they are used, they represent a 'sites-based' approach to heritage management while not coming to terms with the landscape itself, and overlook both past landscape perceptions based on

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<sup>17</sup> Hallgrímsdóttir, M. (1998). Menningarlandslagið Reykjavík og Búsetulandslagið Laugarnes. *Árbók hins íslenska fornleifafélags*, 1998, 141-150.

<sup>18</sup> Clearly the same criticism of a reliance on expert analysis can be levelled at HLC. Characterisation is done by an expert using techniques that require a certain amount of academic training. There are notable differences, however. HLC is based on a transparent methodology, and as it uses GIS, the result can be checked by anyone against any spatial datasets. This transparency allows the characterisation process to be checked and critiqued, allowing for a proliferation of varying characterisation methodologies based on differing perceptions of landscape.

less tangible elements (such as historic and toponymic evidence for ceremonial landscapes) as well as the place of archaeological features in present-day landscapes. Neither *menningarlandslag* nor *búsetulandslag* refer to an area of land, a key component of the ELC definition of landscape. Even when referring to a landscape containing a cluster of sites, the terms imply a hierarchy of value in the landscape; essentially a two-tiered system of ‘cultural’ (archaeological, heritage, valued) and the rest (modern, non-heritage, undervalued); hence landscapes that are not considered *búsetulandslag* do not fall within the heritage industry’s field of vision, and hence have no time-depth; arguing for change in such a landscape can be done solely in terms of economic growth. Since the terms *menningarlandslag* and *búsetulandslag* are rarely if ever used in heritage management, this applies to almost the entire built environment. The very terms themselves limit the discursive space afforded to heritage conceptualisations. As Smith and Waterton argue, heritage management and designation, or the authorized heritage discourse is an implicitly regulatory practice. It acts as a mechanism of social regulation “by virtue of the fact that it is difficult to approach heritage in ways that sit outside the parameters of the authorized heritage discourse ... the social practices of heritage management are regulated not only by the formal legislative texts we recognize as Acts or documents of public policy, but also by a discursive pressure to conform what appears to be normalcy” (L. Smith & Waterton, 2009).

The management ideology for archaeological heritage in Iceland is point-based even when terms suggesting a wider focus, such as *menningarlandslag*, are used. The paradigm of landscape as described in Chapter 1 has therefore not entered Iceland’s authorized heritage discourse. In order to convey the time depth of the present landscape, to illustrate the historical processes that have created the present-day landscape, and in order to reformulate heritage as holistic rather than point-based, Icelandic heritage practice needs to come to terms with the paradigm of landscape as outlined in the European Landscape Convention of 2000. Characterisation offers an intriguing way to approach landscape in terms of heritage. Through the medium of GIS, several specialists can contribute to a reading of the landscape, including archaeologists who study historic formation processes and are trained in reading traces in the landscape to infer prior use and settlement patterns. In the following section, I will survey the characterisation work done in Iceland.

### 3.1 Characterising the Icelandic environment

Icelandic landscape studies have mostly been conducted by natural scientists, and thorough data have been compiled for geology<sup>19</sup> and land cover.<sup>20</sup> Other landscape characterisations based on landscape types have been done; Preusser's 1976 doctoral thesis was based on visual and aesthetic features in the landscape (Preusser, 1976), while a recent group of characterisation projects evaluated the landscapes of Iceland based on more quantitative methods (Bárðarson, 2009; Thorhallsdóttir, 2007). It is difficult to assess the contribution of such characterisations, however, as the results are generated from very small sample sizes – Bárðarson's and Thorhallsdóttir's work rely on just over 90 locations for the whole country, resulting in an overly generalized and rudimentary characterisation of the country where historical, infrastructural or 'patial' factors are ignored. A recent characterisation approach by Hildur Stefánsdóttir (2008) is limited to a 262 hectare island and is consequently much more thorough, utilizing a methodology based on Historic Scotland's Landscape Character Assessment and the Danish *Landskabet i Kommuneplanlægning* (although it must be stressed that the island is an extremely small area). Stefánsdóttir's characterisation does not, however attempt to show time-depth in the landscape and is not based on historical sources or archaeological survey reports.

Sigmar Metúsalemsson and Matthildur Elmarsdóttir at the planning consultancy ALTA have developed a characterisation methodology that was used in making the planning document (*Aðalskipulag*) for Norðurþing in the northeast of Iceland (ALTA & Sveitarfélagið Norðurþing, 2010). The methodology is based on both the English Landscape Character Assessment and the Norwegian *Nasjonalt referansesystem for landskab*. Consequently while the work is informed by historic processes and archaeological presence, as well as the idea of *búsetulandslag*, it is more concerned with distinguishing that part of the landscape falling outside what could be termed 'the built environment', and there is no great distinction between different types of agricultural landscapes, earlier use patterns or teasing out historic processes. The Norðurþing characterisation is currently the only thorough landscape characterisation done in Iceland, and it is interesting that, in spite of its thorough and detailed nature, there is still much room for improvement in further articulating the distinctions in the built environment. A complementary characterisation of the region based on historic processes – a *historic* landscape characterisation – would not detract in any way from the characterisation already done; rather it would provide information to

<sup>19</sup> <http://www.ni.is/jardfraedi/jardfraedikort/>

<sup>20</sup> <http://www.ni.is/grodur/grodurkort/>

further tease out the distinct character of the region. The Norðurping characterisation should give archaeologists interested in landscape management some cause for hope, as it shows that there is a foundation for landscape characterisation in Icelandic spatial planning, and that archaeology can most certainly contribute to this characterisation work.

So far the only characterisation based on a HLC ideology was conducted by Aldred in 2007, but was limited only to a 10x10 km area (Aldred, 2007). To address this paucity I have developed a characterisation methodology and applied it to an area of ca. 650 km<sup>2</sup> in the southwest of Iceland. The following chapters will outline the characterisation case study, providing both results as well as some reflections on the potential applications of this type of work for Icelandic heritage management.



# Chapter 4

## Grímsnes- & Grafningshreppur: A methodological case study

Grímsnes- and Grafningshreppur is a district to the east of Reykjavík, spanning from Mosfellsheiði in the west to Hvítá in the east. Grímsnes- & Grafningshreppur covers an area of 634 square kilometres, where Grafningur refers to the area west of Úlfljótsvatn & Áltavatn and Grímsnes to the eastern part. The county can be broken down into several broad categories. In the west there is a large heath (Mosfellsheiði); moving eastward it is bounded by a large lake (Þingvallavatn) to the north and a mountain range to the south, separated by a plateau with sparse agriculture, although archaeological remains and historical sources testify to a more substantial agricultural activity in earlier times. Further east, the 100m contour line roughly divides these zones from large and relatively dry plains with high agricultural activity. What follows is a pair of lakes (Úlfljótsvatn & Áltavatn) connected by rivers running south from Þingvallavatn. On the other side of the lakes are mostly seasonal housing, brushwood and some agricultural land, as well as a small semi-urban core including a hydroelectric power plant providing some social services to the region. Further east, past Búrfell mountain changes the proportion of summer housing and agricultural land towards the latter, although both are present in abundance. To the north, in the centre of the county is another large heath (Lyngdalsheiði), and moving eastward towards the county's eastern limits – the river Hvítá – the seasonal housing

remains relatively constant while agricultural land increases, especially through reclaimed agricultural land as the eastern part contains much more wetland than the centre or west. There are two lakes in the east of Grímsnes as well as two fells, and planted woodland is relatively common while ancient brushwood is non-existent.

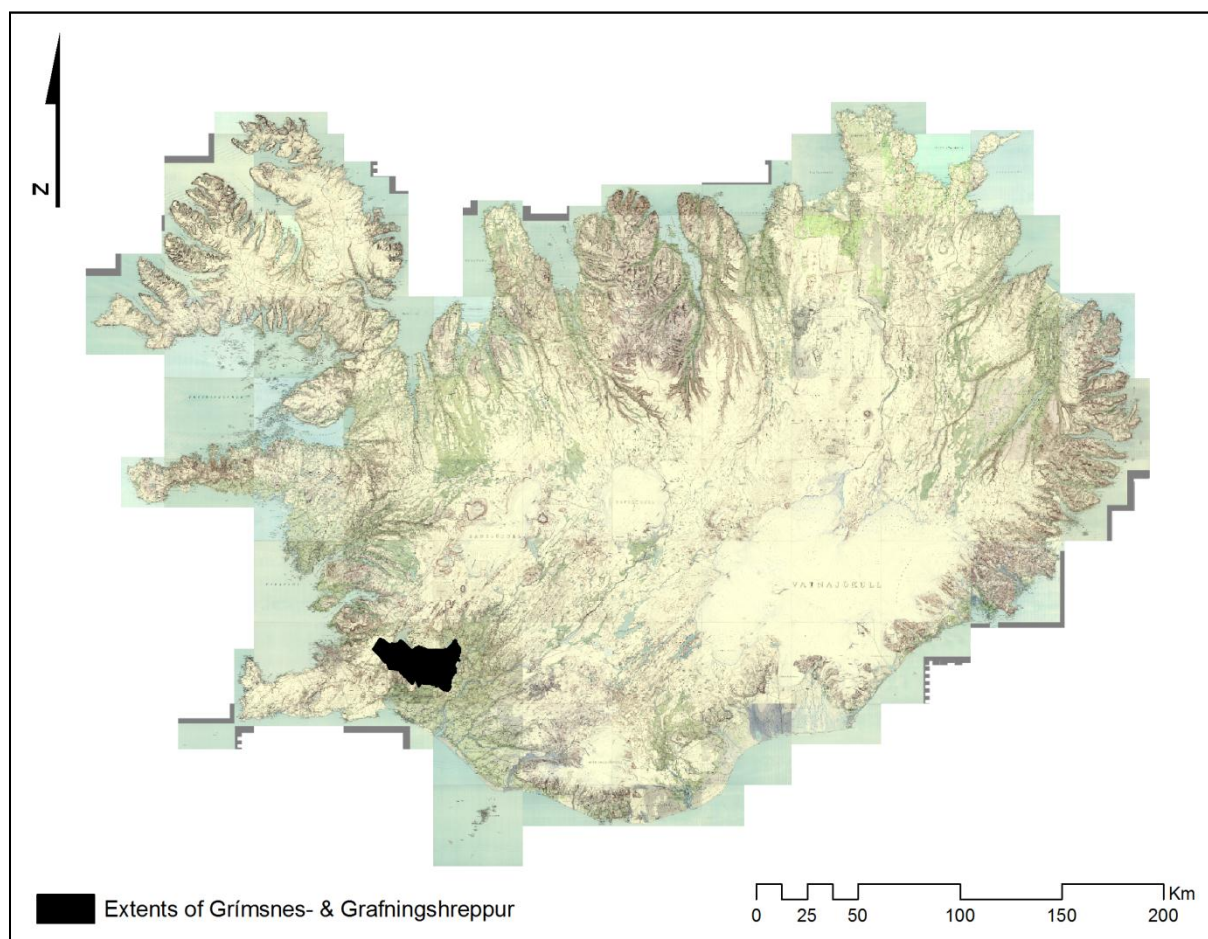


Figure 3: Grímsnes- & Grafningshreppur.

Although the only archaeological evidence for pre-Christian settlement is the pagan burial at Kaldárshöfði and a possible burial at Snæfoksstaðir (Eldjárn & Friðriksson, 2000, p. 70), the settlement pattern seems to have been established early and remained largely unchanged until the 20<sup>th</sup> century aside from change of ownership; there are relatively few farms abandoned before the 20<sup>th</sup> century in the region. Boundary markers seem to be relatively stable as well (Vésteinsson & Lárusdóttir, 1999, pp. 9-10). A palynological sample taken from Hestvatn gives further evidence that settlement had begun before 920 (Hallisdóttir, 1996). As such, the area is stable, and the population movements that take place in other parts of the country from the 17<sup>th</sup> century to the



20<sup>th</sup> did not greatly affect the settlement structure in Grímsnes (Lárusdóttir & Vésteinsson, 2001, p. 8).

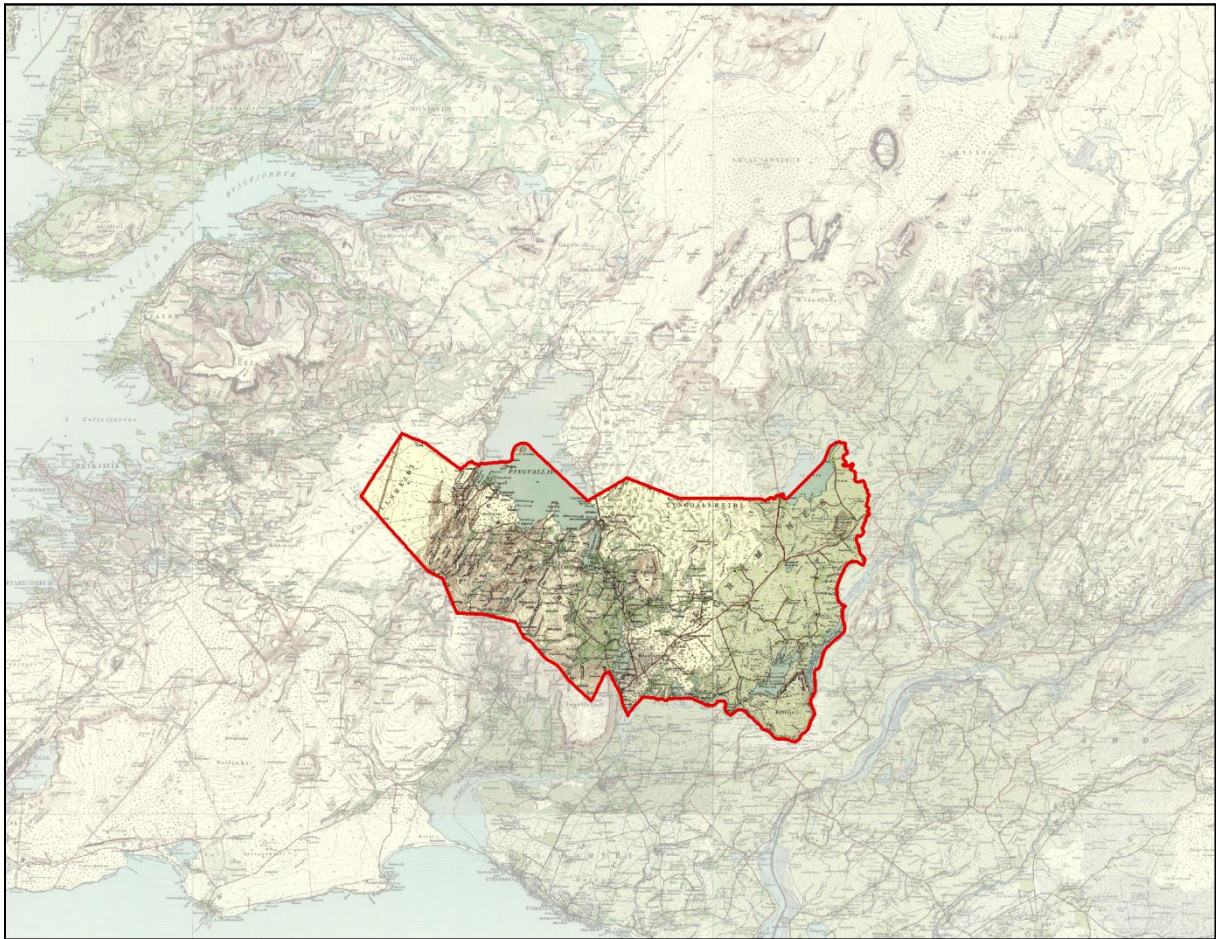


Figure 4: Grímsnes & Grafningshreppur and neighbouring areas.

Consequently, inhabitation in the Grímsnes region has likely been concentrated at the same locations for over a millennium, in a settlement structure of single household farms surrounded by homefields and larger outfield grazing areas. It is safe to assume that most of the time spent by earlier inhabitants centred around the farmstead, reflected by the high archaeological concentrations at these areas, but it is likely that most of the landscape has been utilized in some form from the Settlement Age. There are also several paths between farmsteads, often more than one between any two. These may reflect a temporal sequence, but more likely the paths were used concurrently, perhaps differentiated by suitability in different seasonal and meteorological conditions. Many areas where several paths meet have a number of archaeological features, suggesting that such areas were important places in the region.



There is much less productive agricultural land in Grafningur compared to Grímsnes, and the settlement is characterised by a relatively dense core of farms in the lowlands between Ingólfsfjall & Bíldsfell, and more sparse distribution of farms to the northwest toward Þingvallavatn, where the elevation increases above 100 m.a.sl. The farm boundaries further differentiate the two zones. In the southeast, the boundaries are roughly circular, with the farmstead placed either centrally or by an edge very close to another farm, suggesting that the two

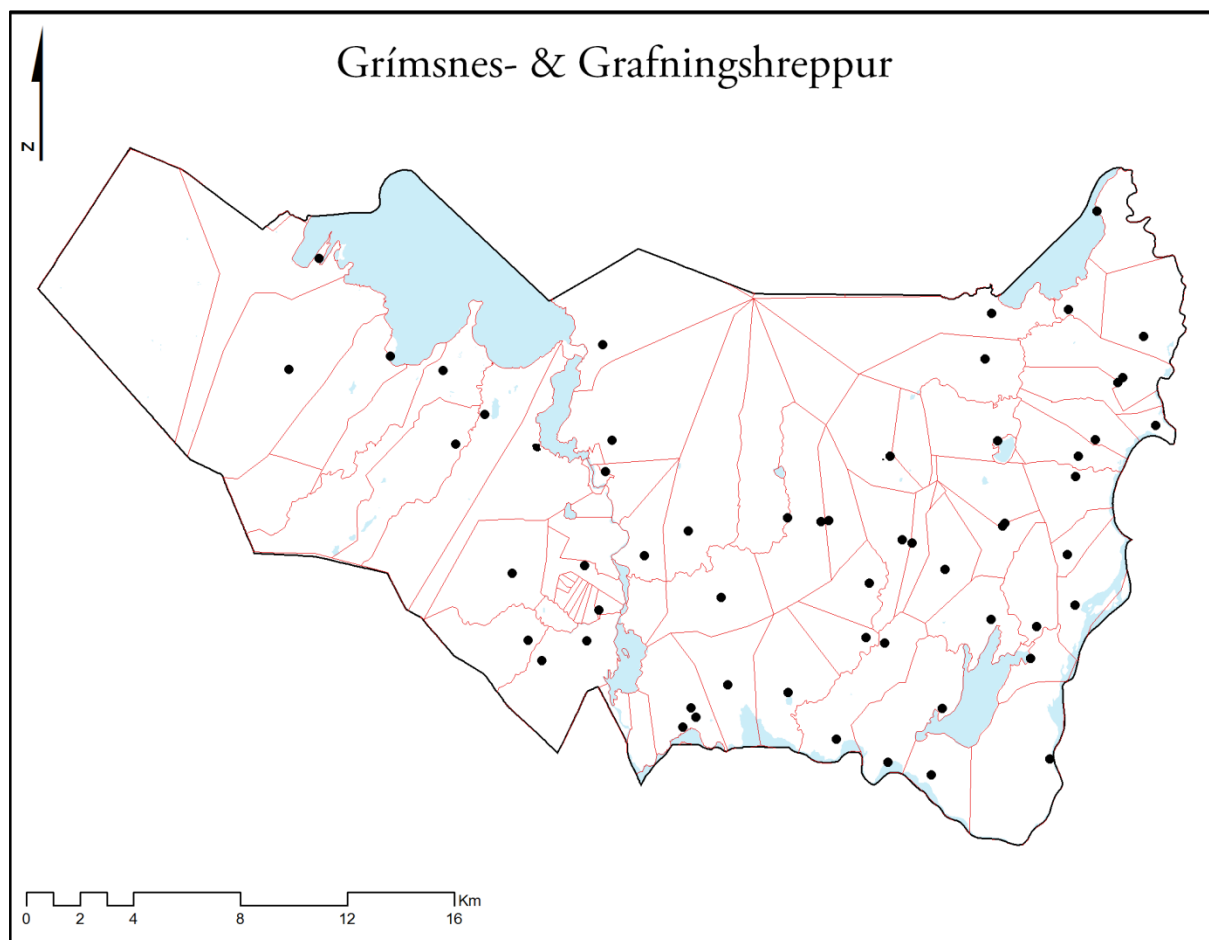


Figure 5: Boundaries and farm locations in Grímsnes- & Grafningshreppur. Farms abandoned in the 20<sup>th</sup> century are also included

had at some point in the past existed as a single entity, or at the very least as closely connected households, perhaps settled by members of the same social unit. The same pattern is common in Grímsnes (see figure 5). To the northwest, boundaries run parallel to each other forming large thin strips leading into the mountains. The regular formation of these boundaries may suggest that they were parcelled out of a larger landholding centred at Ölfusvatn. The bulk of the agricultural land in Grafningur is to the southeast, and the northwest farms may have placed

proportionally more emphasis on fishing; every farm in the northwest has boundaries touching on Þingvallavatn.

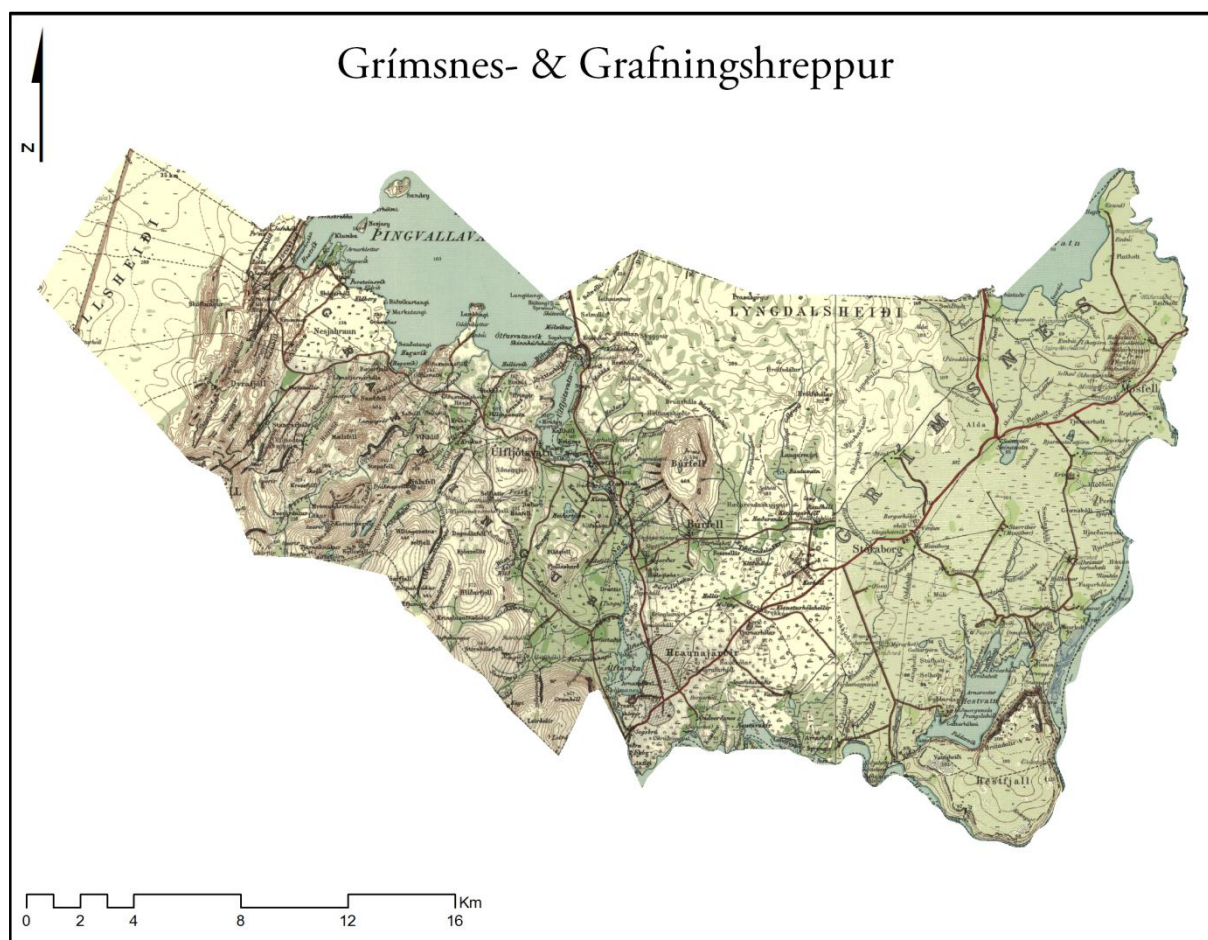


Figure 6: Early 2000s Atlaskort of Grímsnes & Grafningshreppur.

Despite the long settlement history of Grímsnes- & Grafningshreppur, it is difficult to make detailed temporal distinctions between archaeological sites in the region based on visual analysis and survey documents alone. Unlike neighbouring countries such as England where the anthropogenic features from different phases can be tentatively distinguished by visual analysis due to changes in the nature of land-use and architecture, this is not the case with Icelandic land-use through the Medieval period and well into the 20<sup>th</sup> century. While tephrochronology and other dating methods may well reveal reliable dates for features in the region, such work is expensive, intrusive and is not undertaken when compiling archaeological survey reports (*skráningarskýrslur*) in Iceland. Such documents may have some comments regarding age of sites, often taken from literary sources, but such remarks are not consistently used and not reliable as dating methods. In terms of documenting change, this is perhaps not a serious shortcoming. In

recognition that farming practice changed little before the advent of mechanisation, a temporal distinction between pre- and post-mechanisation<sup>21</sup> (with some further articulations explained below) was thought to be sufficient for the characterisation project undertaken for this thesis. Further temporal distinctions may be undertaken at a later stage, if a reliable method can be found; such work would be possible as a continuation of the characterisation as GIS always allows for further distinctions as new data become available and methodologies change.

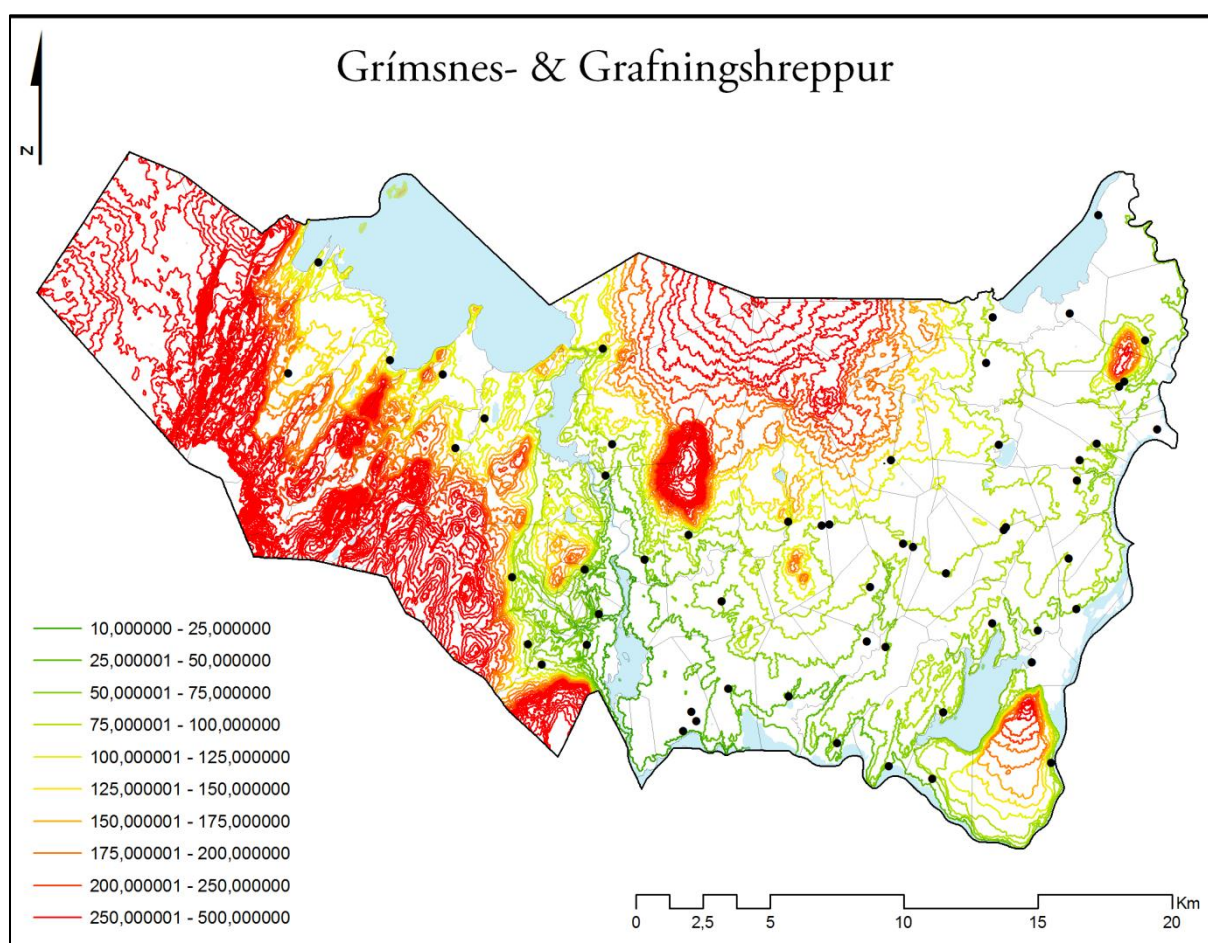


Figure 7: Elevation maps for Grímsnes- & Grafningshreppur. Farm locations and boundaries can also be seen, including farms that were abandoned in the 20<sup>th</sup> century.

#### 4.1 Methodology & the phases of characterisation

As stated above, one of the key questions of this work is whether a methodology based on English Heritage's HLC is suitable for the Icelandic countryside. The prime focus of the pilot

<sup>21</sup> Mechanisation refers to the advent of using of heavy machinery for farming. Pre-industrial will sometimes be used but for the purposes of this thesis the terms are interchangeable.

characterisation done in Grímsnes- & Grafningshreppur was on the built environment, and it is hence fundamentally different from characterisation projects based on Landscape Character Assessment (including ALTA's characterisation of Norðurþing; 2010), where the focus is on the uninhabited landscape. It soon became clear that the methodological approaches developed for HLC in England were unsuitable for the task of characterising the study area in Iceland. The reason for this is that the historical sources available for the two countries differ significantly. The principal historical source of HLC is a body of 1:10000 maps drawn by The Ordnance Survey, beginning in the mid-19<sup>th</sup> century, and the HLC methodology relies heavily on comparing successive generations of Ordnance Survey maps. A similar body of maps exists for Iceland, drawn to a scale of 1:50000 by the Danish *Generalstabens Topografiske Afdeling* and later by *Landmælingar Íslands* and are known in Icelandic as *Herforingjaráðskort* before *Landmælingar Íslands* took over the responsibility for keeping the maps up to date, while the later versions are called *Atlaskort*. Consequently, the initial methodology was primarily concerned with changes documented on the four generations of the abovementioned maps for Grímsnes and Grafningur, published in ca. 1910, 1938, 1973 and 2001,<sup>22</sup> along with the latest version of the GIS database of Iceland, IS 50 3.0, published by *Landmælingar Íslands* in 2011.

Unfortunately, the maps proved of little help in understanding historical processes taking place in the 20<sup>th</sup> century. This stemmed chiefly from two issues. Firstly, the topography of the landscape is not updated on the maps; the extents of wetlands, the morphology of rivers and so on remain constant on the four generations of maps. Hence it is unfeasible to document the impact of human inhabitation on the environment using the *Herforingjaráðskort* and *Atlaskort* as a sole source of information.

Secondly, there are a variety of anthropogenic factors that are simply not recorded on the abovementioned maps. Two of the most salient anthropogenic factors of change in the region – drainage ditches and seasonal housing, both originating roughly in the mid-20<sup>th</sup> century and still on-going – are not surveyed at all, and the same applies to much of the agricultural architecture and land transformation that has taken place in the 20<sup>th</sup> century, such as agricultural constructions, boundary demarcations, and cropland expansions. The only anthropogenic features that seem to be comprehensively surveyed on the abovementioned maps are farm locations, homefields and transport routes. Effectively, the *Herforingjaráðskot* and *Atlaskort*,

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<sup>22</sup> As the maps cover an area much smaller than the case study region, a single generation includes maps published over a period of 2-3 years.

beforehand presumed to become the primary source of information for the case study were helpful only in documenting homefield expansion and changing transport routes.

Other sources served to meet the needs of the case study. What follows is a brief description of the nature and usage of sources (a more detailed account can be found in Appendix 2). The IS 50 GIS database compiled by *Landmælingar Íslands* is a relatively recent endeavour<sup>23</sup> and could not be used to document time-depth to any notable degree, but served as the basis for the present-day landscape. Other more specialized sources were used when appropriate, such as woodland data from *Skógrækt ríkisins*, drainage ditch, land cover and farm boundary data from *Rannsóknarstofnun landbúnaðarins* (RALA), archaeological data from *Fornleifastofnun Íslands*, planning documents from *Skipulagsstofnun*, historic farm and parish registers as well as various other documents. The data sources determine to a large degree the direction of characterisation because, as a desk-based study, the framework is provided to a large degree by available documentary sources. Fieldwork can be used to test various hypotheses based on documentary analysis but the cost of characterisation becomes prohibitive if it must be done through fieldwork.

The project is best not thought of as an HLC (with capital letters) but as simply a historic characterisation, with a methodology suited to Grímsnes- & Grafningshreppur as the methodological particularities of HLC projects reviewed in preparation of the case study were deemed unsuitable. The ideological foundations of HLC (outlined in Chapter 2) were, however, used in formulating the methodology. The main guiding themes taken from HLC were 1) using GIS in order to compare all relevant data spatially, as well as producing a database that can easily be used in conjunction with other spatial data; 2) seeing heritage value in the *entire* landscape and not in isolated areas separated by white space; 3) situating the characterisation in the present as opposed to reconstructing past time-slices.<sup>24</sup>

The characterisation project began with a single polygon covering the entire area. Subsequently, the polygon was cut down based on ever-more exclusive criteria. The first phase involved identifying landscape groups, with a varying degree of complexity going from a dichotomy of **upland** and **lowland** to much more finely grained distinctions. The second phase of the characterisation involved a synthesis and generalisation of the first phase in order to clarify the findings. In many ways the second phase was a new characterisation based on information

<sup>23</sup> The first version was published in 2002.

<sup>24</sup> That is, areas that have been occupied since the Settlement Period may still have a 20th century *character* if more recent developments dominate the surroundings. At the same time, however, areas that have changed little in the 20th century can with some justification be said to have a 19th century character.

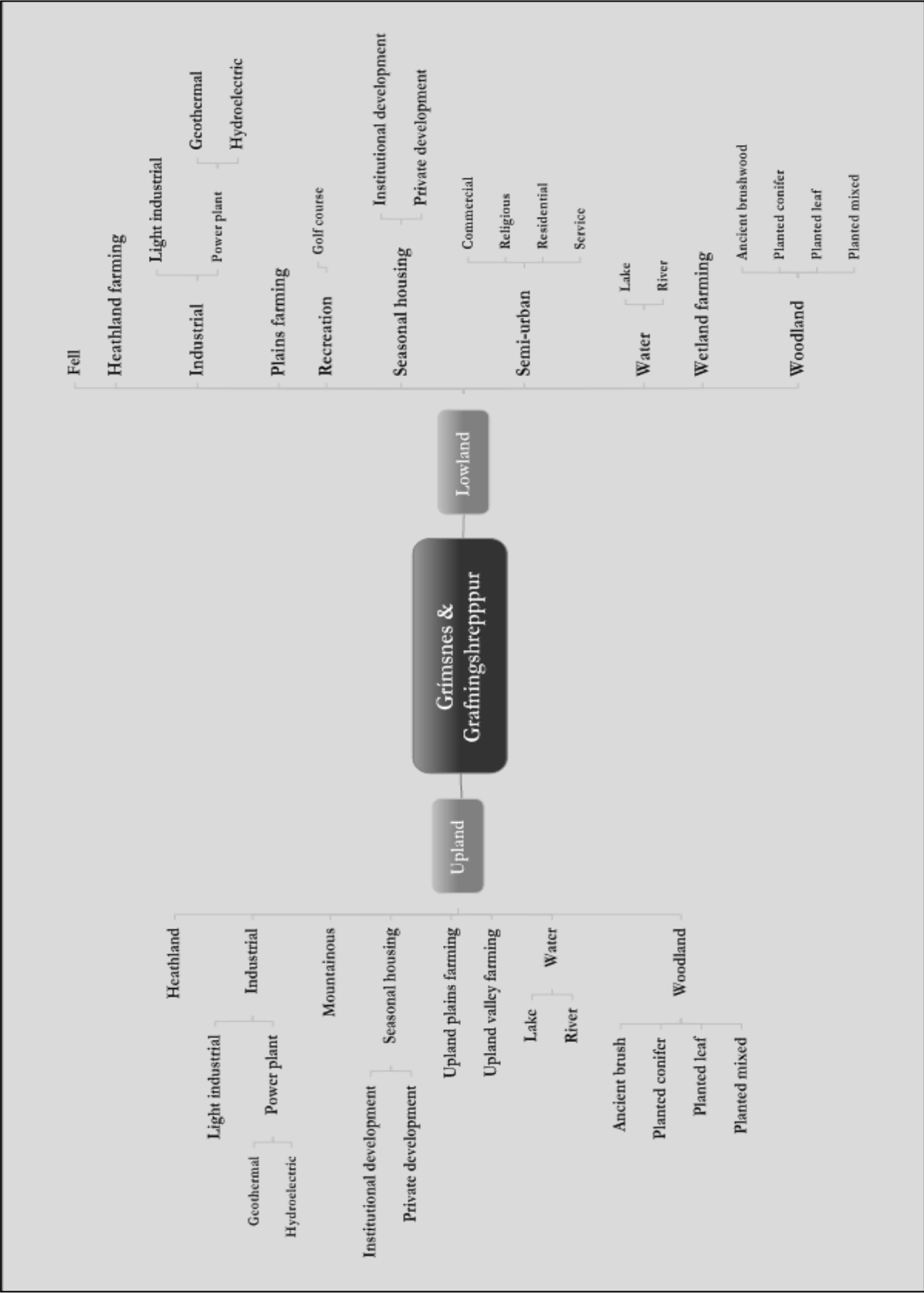


Figure 8: Groups, Subgroups and Types and a selection of Subtypes. Farmland subtypes are shown in Figure 9.

gathered during the process of completing the first phase. The details of the characterisation are in a very real sense in the formation of the categories; for that reason the reader is encouraged to study Appendices 1 and 2 to get a better sense of how the categories were formed and how sources were utilized. In the following section, I will describe the main themes of each tier in the characterisation. It is important to keep in mind that while the characterisation is hierarchical, beginning with broad categories and leading to more specificity, there are elements that undermine this tree-like representation. For example many of the **upland** and **lowland** subcategories are the same, in the recognition that, as discussed in Chapter 1, the landscape is a multiplicity, and that a division along one axis may conceal affinities along numerous other axes.

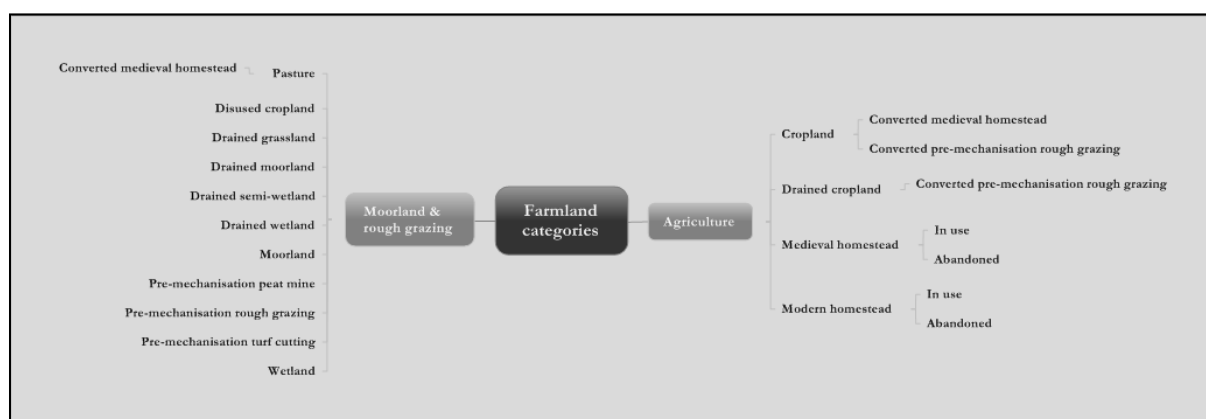


Figure 9: Farmland subtypes.

## 4.2 Groups

The initial division in the characterisation is to divide the region into an upland and lowland category, both a single contiguous polygon. The areas were differentiated by elevation; the upland area is between 100-500 m.a.sl. while the lowland area is 1-100 m.a.sl., although there are isolated areas that spike above 100 m.a.sl. in the lowland zone, such as Mosfell and Hestfjall. This division is done to a large degree in anticipation of characterisation projects elsewhere in the country, where highland areas are more prominent.



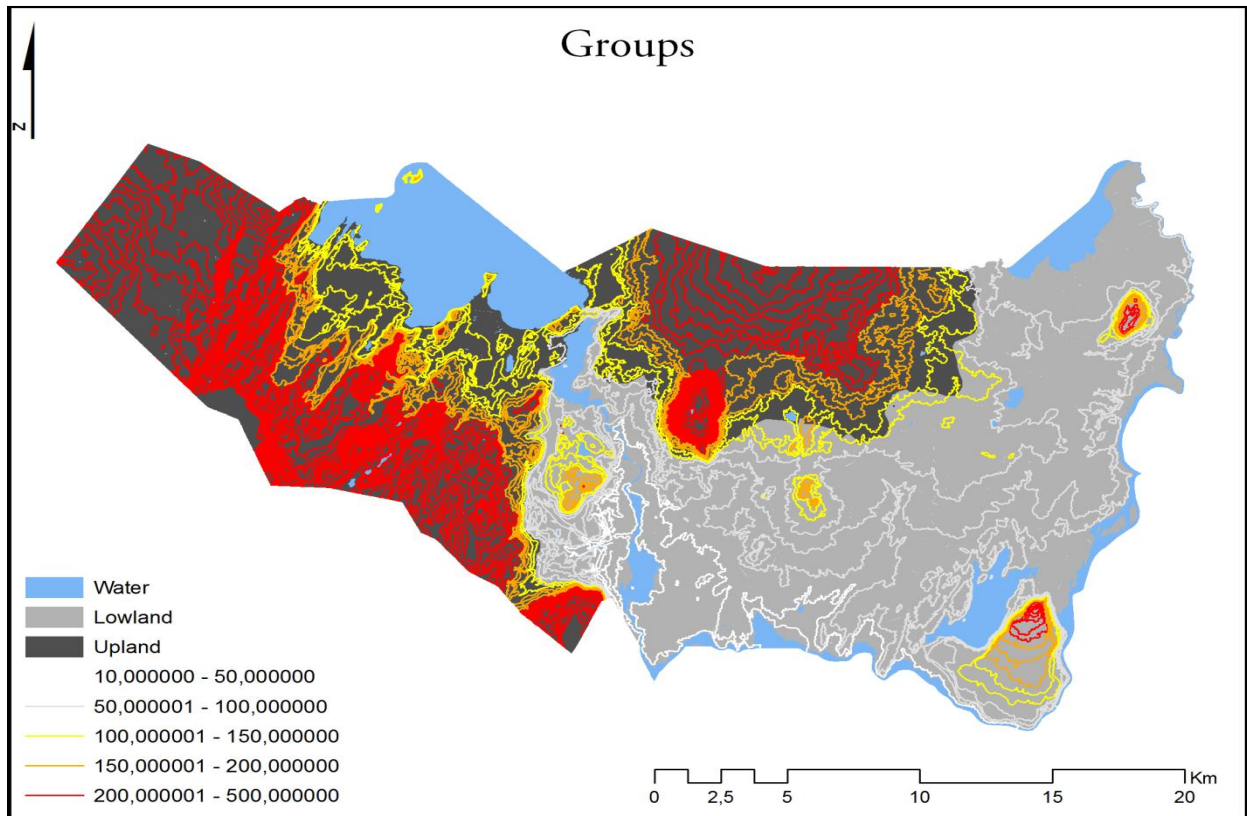


Figure 10: Groups.

### 4.3 Subgroups

The subgroup division is firstly concerned with identifying broad categories in both the built environment and secondly with identifying areas showing limited visual anthropogenic influence. The former are marked off into the following categories: **industrial**, **recreation**, **seasonal housing**, **semi-urban**, as well as the traditional agricultural categories (*búsetulandslag*): **heathland farming**, **lava field farming**, **plains farming**, **upland plains farming**, **upland valley farming** and **wetland farming** (see section 4.4 for a detailed description of these categories). The latter group of categories consists of **fell**, **heath**, **lava field**, **mountains**, **water** and **woodland**.

At this stage, several characteristics become apparent. Wetland farming, characterised by large flat wetland zones, often heavily drained and reclaimed as cropland, appears only in the east of the region. Furthermore it is relatively contiguous; only small pockets of woodland and recreational areas break up the large bloc. In the centre of the county, characterised geologically by igneous rock, it is clear that the traditional agricultural landscape **lava field farming** is under steady retreat. In its stead, large areas of seasonal housing have been developed. Furthermore, most probably as an effect of diminished grazing over the 20<sup>th</sup> century, brushwood is widespread



as are areas of planted woodland. There is a strong correlation between planted woodlands and seasonal housing, which explains some of the prevalence of planted woodland in the area, but there are also areas set aside for tree planting by the Icelandic forestry agency, *Skógrækt ríkisins*.

Both the west (Grafningur) and the east (Grímsnes) of the region have upland areas, but whereas these areas are exclusively heathland in the east, there is a variety in the west. Both the western heathland zone and the mountainous zone are single, contiguous regions, however. Other topographic particularities evident on this tier are that there is only one area characterised by exposed igneous rock, and that is Nesjahraun to the northwest.

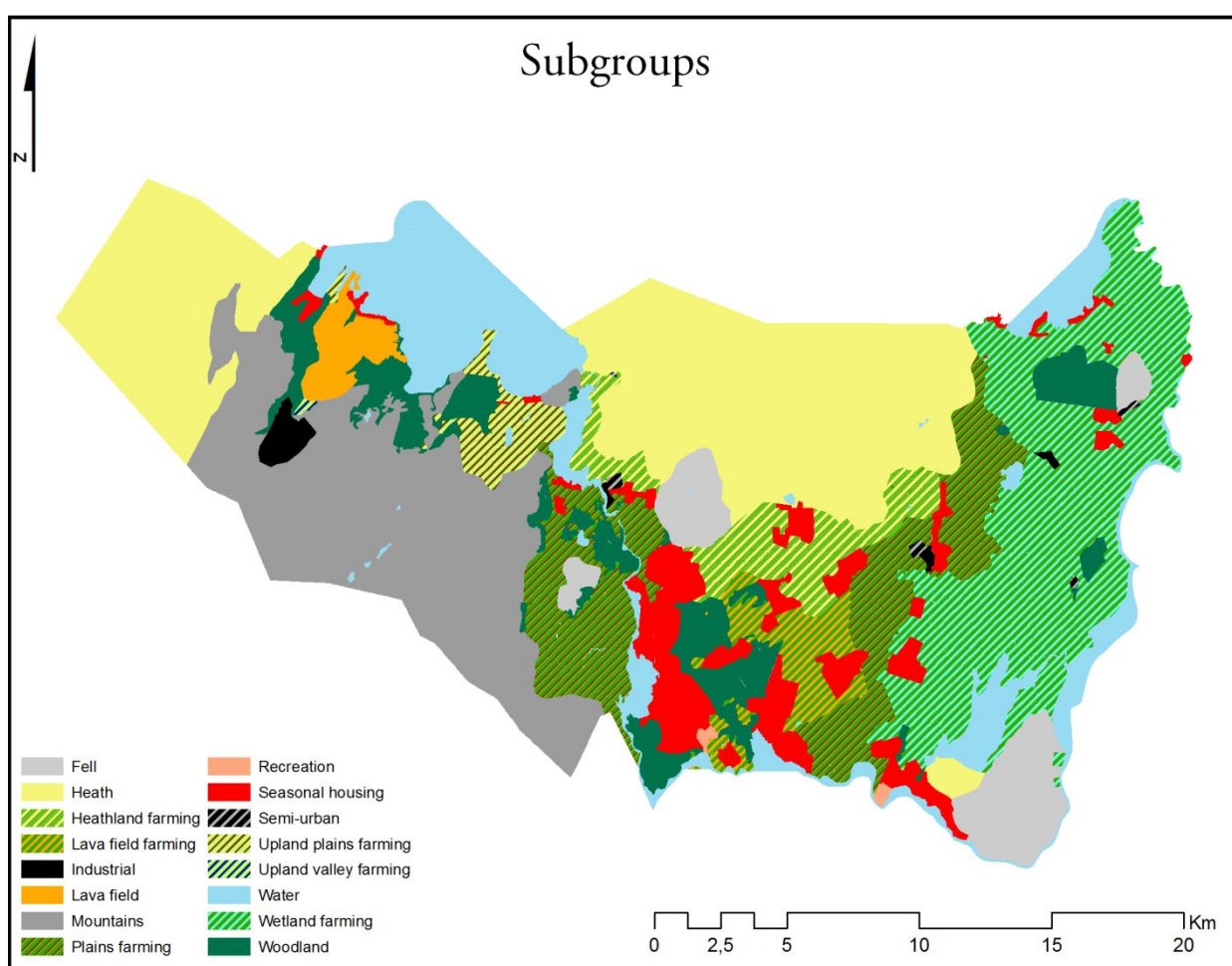


Figure 11: Subgroups.

4.4 Types

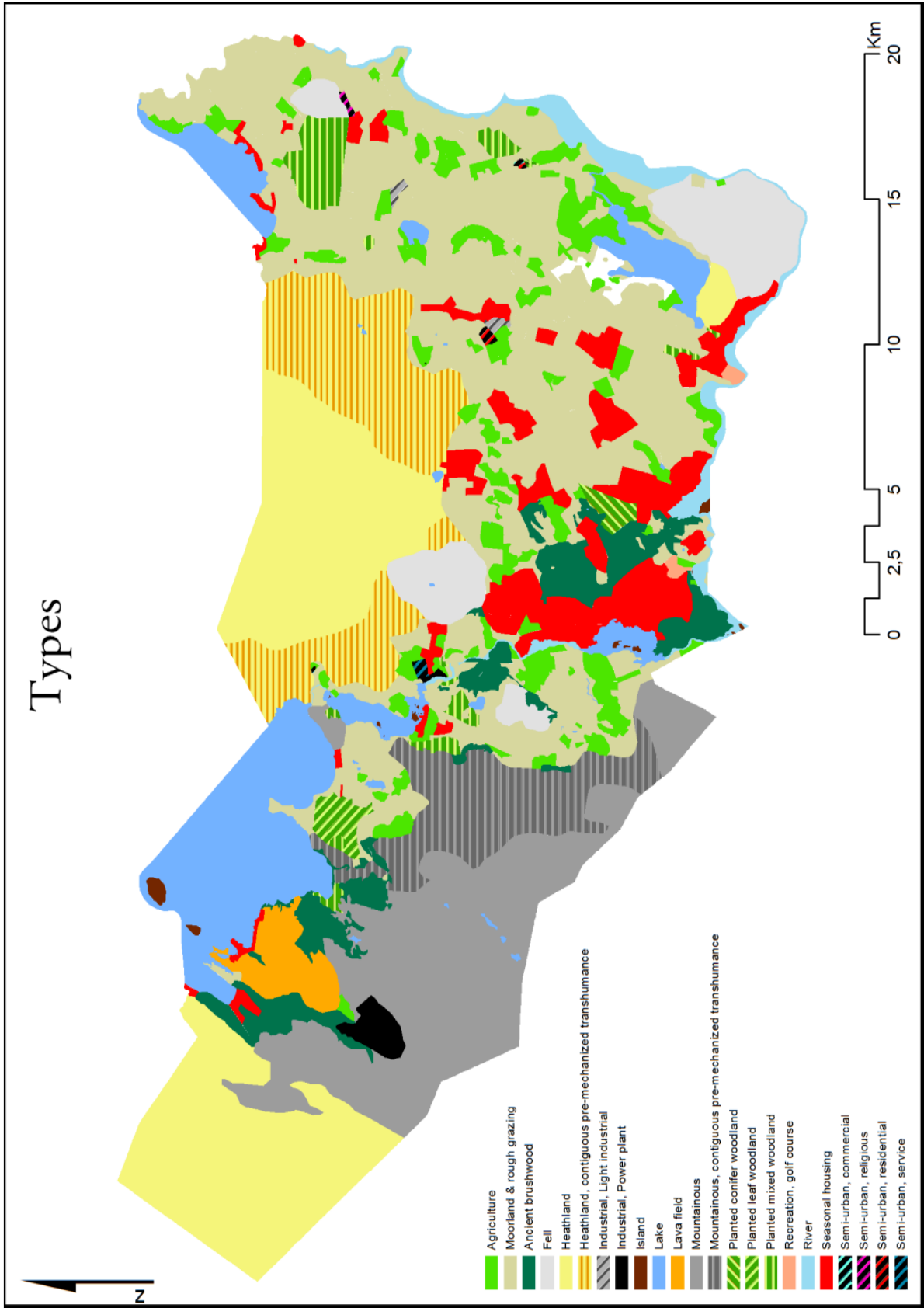


Figure 12: Types.

The type class operates along two axes, one of generalisation and the other of differentiation. Firstly, the differentiation into distinct agricultural landscape types is simplified so that all areas within the six *búsetulandslag* categories are placed in one of two types – **agriculture** or **moorland & rough grazing**. This is done in recognition that there are degrees of utilization of land within a given agricultural landscape.<sup>25</sup> The areas categorized as **agriculture** are utilized with comparative intensity, and consist of homesteads and cropland, as well as disused areas that still bear a strong visual character of prior use, such as turf cutting and peat mining areas.<sup>26</sup> **Moorland & rough grazing** refers to areas that may be used for rough grazing, or may not be used much at all but are still constitutive of what is defined in this study as an agricultural landscape. Thus a small knoll of gravel surrounded by rough grazing areas is not distinguished from surrounding areas, but seen as an element in constituting a typical Icelandic agricultural landscape.

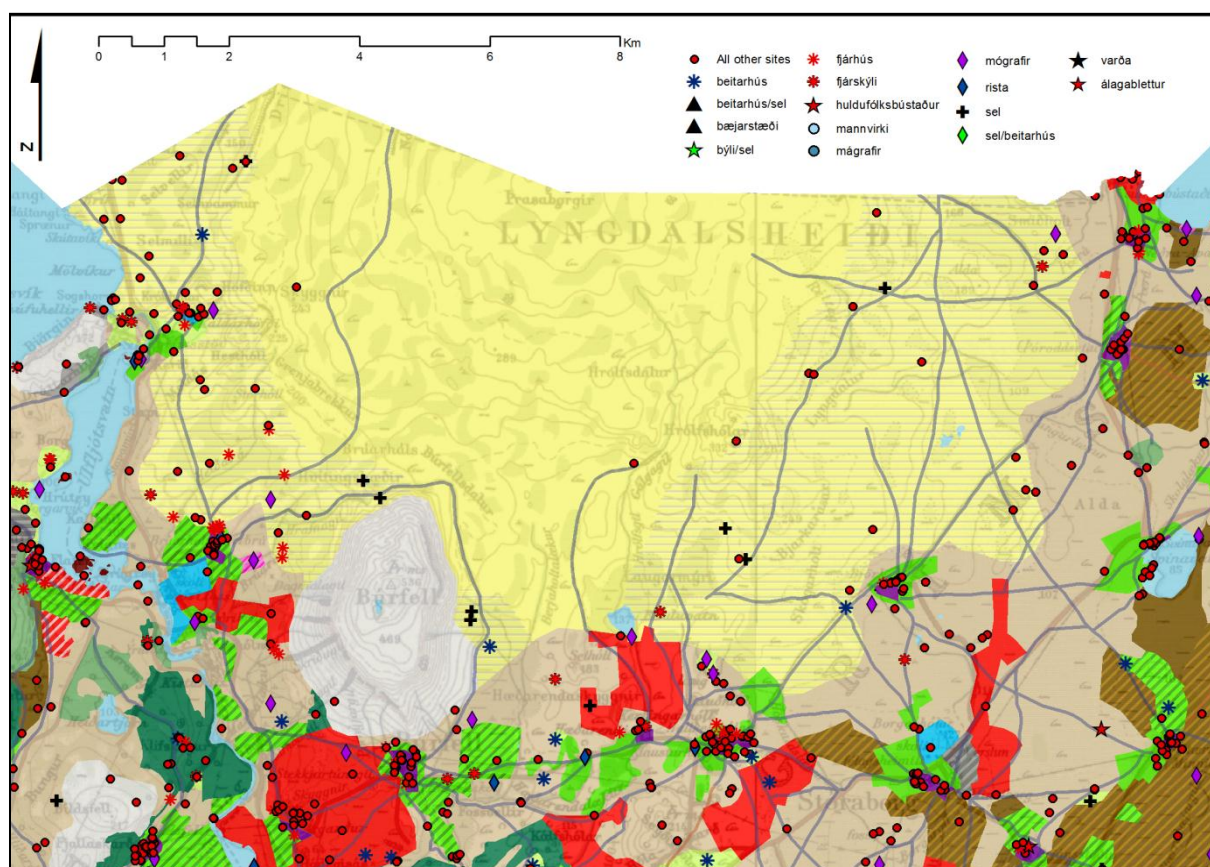


Figure 13: Distinguishing transhumance - areas with high archaeological presence and path systems were marked out as transhumant zones (striped beige areas). For a thorough explanation of categories, see Figure 22 and Appendix 2).

<sup>25</sup> It is worth stating, however, that while it is possible to represent **agriculture** as a uniform zone with a single colour, it is still possible to further differentiate polygons within this zone through mapping types concurrently with subgroups. This has the effect of differentiating **agriculture** polygons based on which of the traditional agricultural subgroups they fall within.

<sup>26</sup> In Iceland, the term cropland refers almost exclusively to improved fields that are used for hay production; wheat fields can be found in Iceland but they are exceedingly rare.

The other categories within the type class serve to introduce further complexity to the Subgroups. Woodland is differentiated into three types of planted woodland – **conifer**, **leaf** and **mixed**, as well as **ancient brushwood**. Heathland zones showing strong visual characteristics of transhumance are distinguished using the category of **heathland**, **contiguous pre-mechanized transhumance**, and a corresponding distinguishing category is used for mountainous zones. **Semi-urban** zones are further differentiated into **commercial**, **religious**, **residential** and **service** zones. All zones in the **recreation** category are **golf courses**, but more subdivisions will be needed if other areas in the country are characterised using the methodology formulated for this case study. **Industrial** zones were further differentiated into **light industrial** zones including gravel quarries as well as into **power plants**. As with the recreation category, further categorical refinement will be possible when other regions in the country are characterized.

#### 4.5 Subtypes

Out of the categories defined for the type class, only **agriculture**, **moorland & rough grazing** and **power plants** required further differentiation. **Power plants** were differentiated into **geothermal** and **hydroelectric**, while the other subtypes required a much greater articulation. As outlined in Chapter 4, the area became, for all intents and purposes settled fully during the Settlement Period. Consequently the area has been an agricultural region for over a millennium. Although this point is not made to suggest any great statement about visual continuity in the region, it is arguably possible to presume that, at its most stable, the whole region could have been described as an agricultural zone. As seen on Figure 14, however, the farmland subtypes cover less than 50% of the region. An explanation of why this is so may help in understanding the changes that have taken place in the region. The way the methodology is structured is, naturally enough, one factor in why agricultural land makes up less than 50% of the region. Heathland and mountainous zones are important regions in traditional Icelandic agriculture as they are used as transhumant grazing areas, which is a factor accounted for at the level of Subgroups and Types (see figures 11 and 12). Other areas deemed ‘sterile’, such as water bodies and lava fields were characterised separately from agricultural zones, as were 20<sup>th</sup> century developments such as large industrial zones and semi-urban cores. The relationship between agricultural zones and woodland is somewhat uneasy in the characterisation. While there is essentially no reason why agricultural



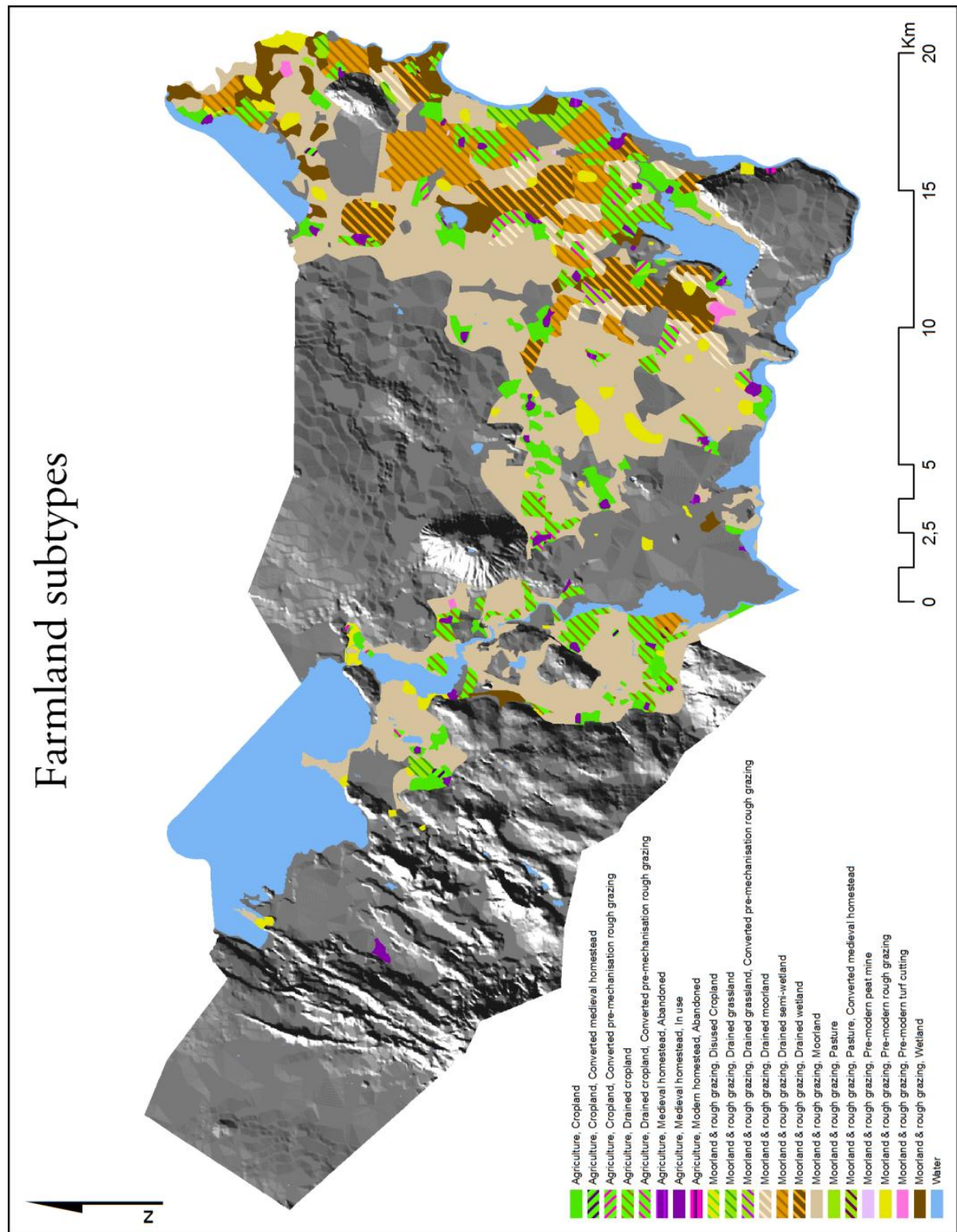


Figure 14: Subtypes.

zones cannot have woodland areas, it is thought that the way in which Icelandic farmers have utilized the land through history has led to a retreat in woodland cover (K. Smith, 1995; Þórarinnsson, 1974). Hence for the purpose of the characterisation, woodland cover is thought of as being where agriculture is *not*, either because agriculture never became established in a specific area, or that agricultural activities in the region ceased. This both refers to planned allotments for planted woodland, often in areas that have been used as grazing or cropland (see, for example the area west of Mosfell), as well as areas once cleared that have now been reclaimed by brushwood. It is perhaps no surprise that the majority of brushwood in the region is in the two areas with the highest frequency of abandoned farms, where agricultural activity has been largely abandoned (see below). Seasonal housing is the other major factor in creating gaps in the present agricultural landscape.

As can be seen on Figures 12 and 14, there are several ‘gaps’ in areas with flat, arable lands. The fewest gaps are in the east, and consist of planned woodland and seasonal housing. The major gaps are in the centre, in the so-called **lava field farming** *búsetulandslag* and in the northwest, an area that has historically been the least agriculturally productive in the region. With changing emphases in agriculture, beginning with mechanisation and continuing to the present day, these two zones seem to be the most vulnerable to change, giving way both to reclamation by nature and to redevelopment away from agriculture (towards, most often, seasonal housing and planted woodland).

## 4.6 Rebuilt I

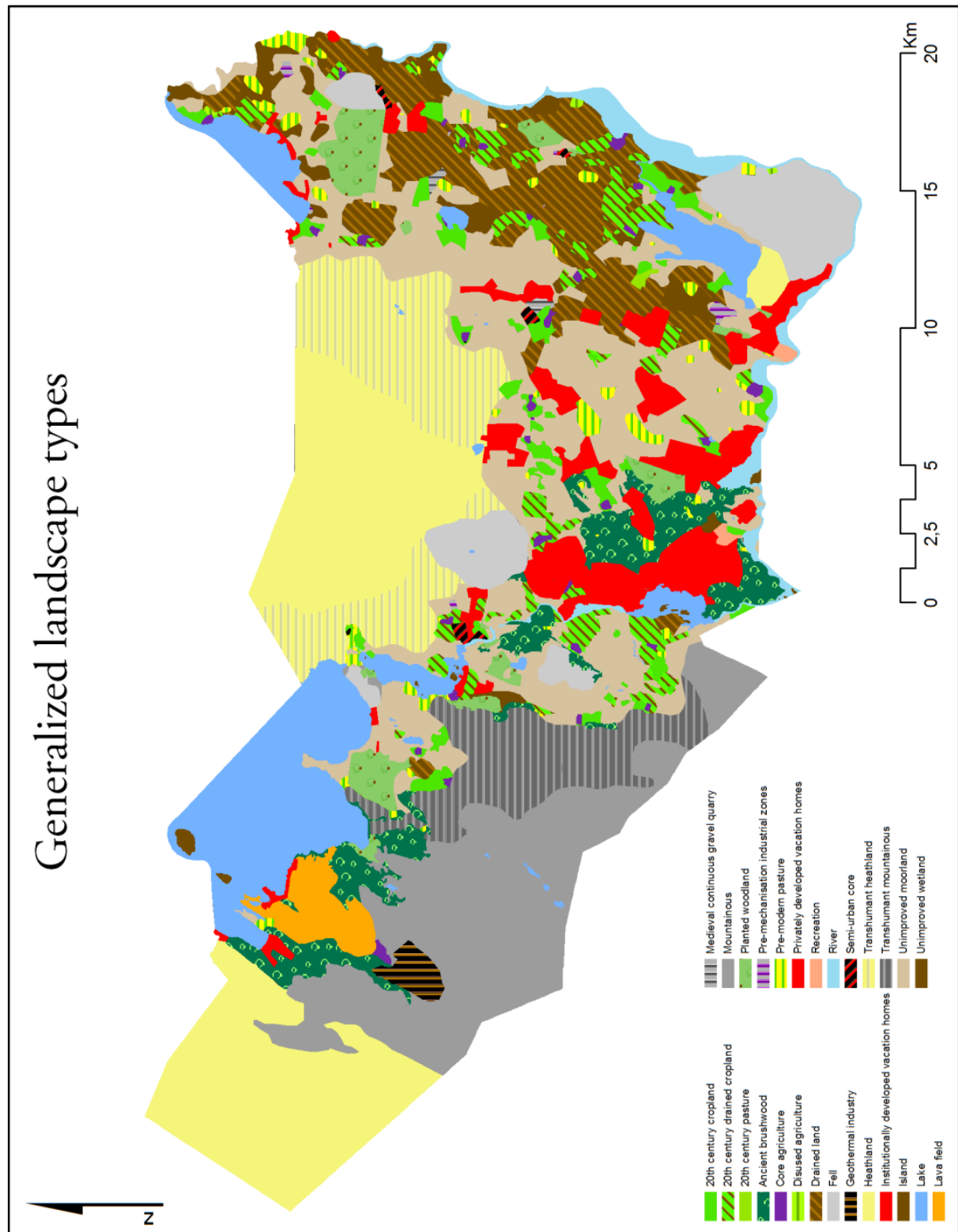


Figure 15: Rebuilt I categories.

The Rebuilt I and II categories comprise the second phase of the characterisation. The intention with the Rebuilt I attribute was to simplify and synthesize the categories formulated during the first phase, in order to make the data more accessible. As can be seen in Figure 15, the categories are primarily concerned with visual characteristics.

#### 4.8 Rebuilt II

The last character map is a simplified representation showing a measure of time-depth in the landscape. The ‘sterile’ categories remain much the same as on earlier maps, and heathland and mountainous zones are divided into the same categories based on transhumance patterns. Brushwood areas are classed according to whether there are visible traces of human use, although it was not possible to distinguish between areas where the woodland preceded human inhabitation/usage and those areas where the brushwood seems to have reclaimed abandoned ‘cultural’ areas. The areas characterised by a salient anthropogenic presence were classified based on whether they are characteristically modern or pre-industrial, and whether they exhibited visible signs of earlier usage. These last categories (shown as blue and pink on Figure 16) are hence a measure of clearly visible time-depth, as well as a way of showing change in the landscape. These last categories have the potential to be quite relevant to heritage management. **20<sup>th</sup> century landscape with traces** (light blue on the map) shows areas that have a primarily 20<sup>th</sup> century character (such as seasonal housing and planted woodland), but that have traces of earlier use. This designation can be used to identify areas where archaeological features are likely to be at risk from development, not only through the direct threat of being destroyed by construction (which is guarded against by *Fornleifavernd*), but also through indirect damage from root action. Furthermore, the context between sites – the heritage value of the landscape *itself* – is likely to be at severe risk in such areas as the current legislation in Iceland tends to focus on the sites themselves as points rather than seeing them as parts of a whole. The areas labelled **19<sup>th</sup> century** (and **with traces**; pink and magenta on the map) can also aid heritage management in identifying relatively unchanged areas that may serve well for more significant measures of protection.



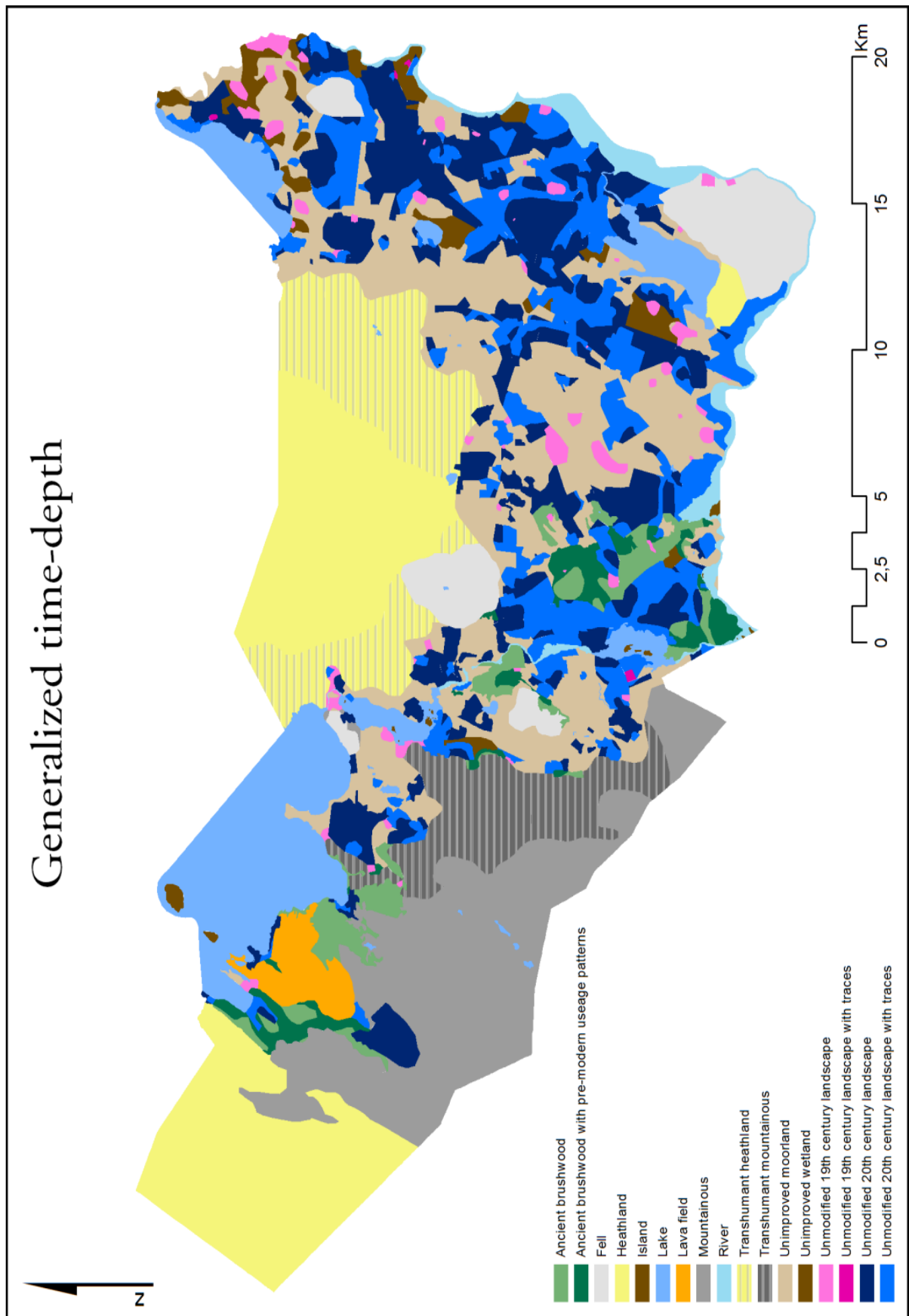


Figure 16: Rebuilt II categories.

# Chapter 5

## Concluding remarks

The stated aim of the project was to determine whether a historic characterisation methodology devised for the Icelandic countryside would yield meaningful and useful results for archaeology, heritage management and planning. I believe the aim was met in several ways. The methodologies used by HLC projects were rejected as the source material was thought to differ too much between the two countries, and unsurprisingly due to the markedly different landscape in Iceland it was never thought likely that an unmodified HLC methodology would be effective in characterising the Icelandic countryside. The ideology behind HLC did, however prove very useful in formulating a methodology based on the source material available, and the methodology formulated proved resilient enough to characterise the entire region, and there is little doubt that it could further be developed to characterise the entire country in the future. It is also my belief that the characterisation did not simply work, but yielded findings that have bearing on the current state of archaeology and heritage management in Iceland, discussed below.

The characterisation showed that the region has undergone significant change throughout the 20<sup>th</sup> century. The transportation infrastructure has changed, industrial developments have been built, there are many areas of recently planted woodland, large areas of the region have been

drained through ditch systems and last but not least, seasonal housing plots now cover large tracts of former agrarian land. Some of these changes clearly follow the way in which the area has been utilised for centuries. Geothermal energy has been sourced in one form or another for centuries, even if the methods have changed; similarly, drainage through systematic ditch digging is simply a rather recent way of land improvement in Iceland, although the practice of modifying land has always been a fundamental element of agricultural practice. Other trajectories of change are more radical. The seasonal housing development are fundamentally changing both the way Grímsnes- & Grafningshreppur looks, as well as the way in which land is used in the region. One can say with good justification that the area is changing from a primarily agrarian landscape to a landscape of summer houses, as this is both the most rapid and impactful agent of change and shows no signs of abating in the near future – there are several proposed seasonal housing developments currently accepted or under review by *Skipulagsstofnun*.

I believe this of great relevance to heritage management in the region. However, I feel the current legislative structure is not suited to dealing with the sort of issues at stake in Grímsnes- & Grafningshreppur. While it works well in theory for the sort of sites that merit strict protection from any development,<sup>27</sup> a heritage programme that fundamentally opposes change is at odds with what makes heritage a valued resource in today's society. Heritage celebrates change, celebrates both continuity and difference between then and now, so a heritage ideology that rejects further change needs to be problematized (Fairclough, 2008a). Landscape is constantly in the process of becoming (cf. Deleuze & Guattari, 1988), and effective heritage management needs to be aware of this. It is suitable to mark off certain places conceptualised as relatively 'untouched' for strict protection measures certainly has its place, and meets a need of the public for spaces of reflection (Butler, 2006; Huyssen, 1995). However, this sort of heritage intervention is only appropriate for a fraction of the landscape. It seems that Icelandic heritage management is primarily concerned with heritage interventions in this sense as well as damage limitations which, is certainly required, but should not be the only way in which heritage management is practiced. Documenting change should be a prime concern; characterisation offers a non-intrusive method of studying change and time-depth in the landscape, and should ideally be repeated in an area with regular intervals in order to document the way in which the landscape in its entirety is changing through the interactions of human and/or natural factors. By being able to demonstrate

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<sup>27</sup> Although protecting archaeological features while the entire surroundings change is of questionable heritage value.

change in an accessible medium such as a series of maps with an underlying GIS database, heritage management can be more actively involved in sensible landscape management and development (Fairclough & Turner, 2007), providing planning professionals with a view into the past and providing insights into why the landscape became the way it is in the present, both in terms of continuity and rupture with the past. Such insights *may* lead to programmes of protection, but that should not be taken as the sole purpose of turning the heritage gaze onto landscape. Heritage management should not only be concerned with protection of archaeological remains, but also with providing quality of life to people in society.<sup>28</sup> The heritage industry has a lot more to offer to landscape management than simply identifying zones to be avoided.

The following sections deal with some issues that surfaced during the process of characterisation. As it is a pilot study, much of the content of this chapter relates to potentials identified and future research trajectories rather than a sense of completion.

## 5.1 Common ground

What is often apparent from reading planning documents and speaking with planning professionals is that, while there is an interest in integrating historic dimensions into planning and design, the information compiled by archaeologists is often difficult to obtain and hard to understand by those without a background in archaeology or related disciplines. This is one reason why the focus in planning documents is on the few listed sites on the *fríðlýstar fornminjar* register as the map of sites is available in a digital format, is of a manageable size and the sites usually have a historical description that is readily accessible. The majority of archaeological sites in spatial databases such as IS 3.0 from *Landmælingar Íslands* are not presented with background information – they are simply points. On the other hand, archaeological survey documents are paper based and obtaining a digital register of the site distribution seems to be difficult for planners to obtain.

A characterisation project can ameliorate some of the difficulties in applying archaeological knowledge to spatial planning. Characterisation is done using geographical information systems (GIS) software, which is the industry standard for working with spatial data

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<sup>28</sup>Similar arguments have been made regarding the justifications for nature conservation in Iceland (Jónsson, 2007).

on a large scale. A historic characterisation can therefore easily be integrated with other information sources about the landscape, including both legislative factors such as the register protected zones of natural significance (*Náttúruminjaskrá*) as well as morphological factors such as elevation and land cover. Indeed these sources are used in the characterisation process itself. An archaeologist could be employed to undertake a characterisation of a region as part of the process in making development plans (*Aðalksípulag*). The characterisation could be used to inform decision-making, such as singling out contiguous areas where change is to be avoided, as well as showing historic processes and distinct character types such as historic architectural style, relict boundary systems and routes that could be used as design elements. An example of this in planning is ALTA's recent planning proposal for Garðaholt in Álftanes, Gullbringusýsla (Metúsalemsson & Elmarsdóttir, 2011), where time-depth plays a central role in the development guidelines. The planning proposal utilizes boundary walls visible on aerial photographs from the mid-20<sup>th</sup> century (that have since partly disappeared) as a guideline for laying out hiking paths in the region, places high emphasis on sites (such as a disused well) that were central in the social life of the region in the past, and while further development in the region is planned, the housing pattern is to be as similar to the historic pattern as possible.

The production of historic characterisation projects during the planning process would enable heritage management to be involved earlier in the process, but currently *Fornleifavernd* only needs to be consulted after planning drafts are made in order to either accept or reject them based on whether the proposed development is thought to be harmful to archaeological remains. The position of *Fornleifavernd* therefore tends to be reactive rather than proactive. If the information regarding the historic dimensions in a region were readily accessible in coherent and easily understandable form to planners from the beginning, then the historic environment has a greater potential to be not simply a list of potential problems best avoided but a source of enriching the planning proposal for a place, as it is used by ALTA in Garðarholt.

## 5.2 Revealing patterns: the pathscape

What became clear during the study was the close relationship between paths and archaeological sites in the landscape. While this relationship may seem obvious, it is not always apparent in archaeological scholarship in Iceland. Currently only two studies of path systems have been carried out by archaeologists (Edwald, 2004; Þórsdóttir, 2011) and one forthcoming (Aldred,

forthcoming), as well as a handful of studies in related disciplines (e.g. Ingvarsson, 2001; Þorláksson, 1989, 1991). However, the archaeological documents most relevant to heritage management, the survey reports (*skráningarskýrslur*) rarely have path systems shown with the archaeology. Usually only the rarely used paths are recorded and only as single points rather than lines. By displaying the path system along with archaeological sites, a more comprehensive representation of dwelling in the landscape can be achieved.

During the characterisation process the importance of the paths recorded on the early 20<sup>th</sup> century *Herforingjaráðskort* quickly became apparent. As a result, the so-called pathscape was constructed in order to marry the paths mapped on the early 20<sup>th</sup> century *Herforingjaráðskort* maps and the archaeological sites in the region. It is essentially a polygon covering the mapped path system as well as nearby sites. There are also five areas with a large concentration of archaeological sites but no path recorded on the *Herforingjaráðskort* maps. Every polygon in the database has one of three attributes: **path-central** areas are within the pathscape, **off-path** areas are outside of it and **path-peripheral** areas are those with a high archaeological presence outside of the pathscape. It is perhaps meaningful to posit that the pathscape may have more time-depth than off-path areas. The established farmsteads in the region form nodes in the pathscape as these are the places where the archaeological density is at its highest, and the majority of the paths lead either to or from a homestead. What is interesting when the pathscape is analysed is the frequent occurrence of relatively large areas with several paths and sites, which have probably seen centuries of use as landscapes of transit, transhumance and other activities. Such areas have traditionally not been a subject of heritage management, which has tended to focus on the farmsteads themselves as well as historic (or Saga-relevant) sites. Furthermore the character of the so-called path-peripheral areas is an interesting subject for heritage management. These areas are characterised by remoteness, and that feature has resulted in a relatively good preservation conditions. The remote character may also have had an effect in how the areas were used.

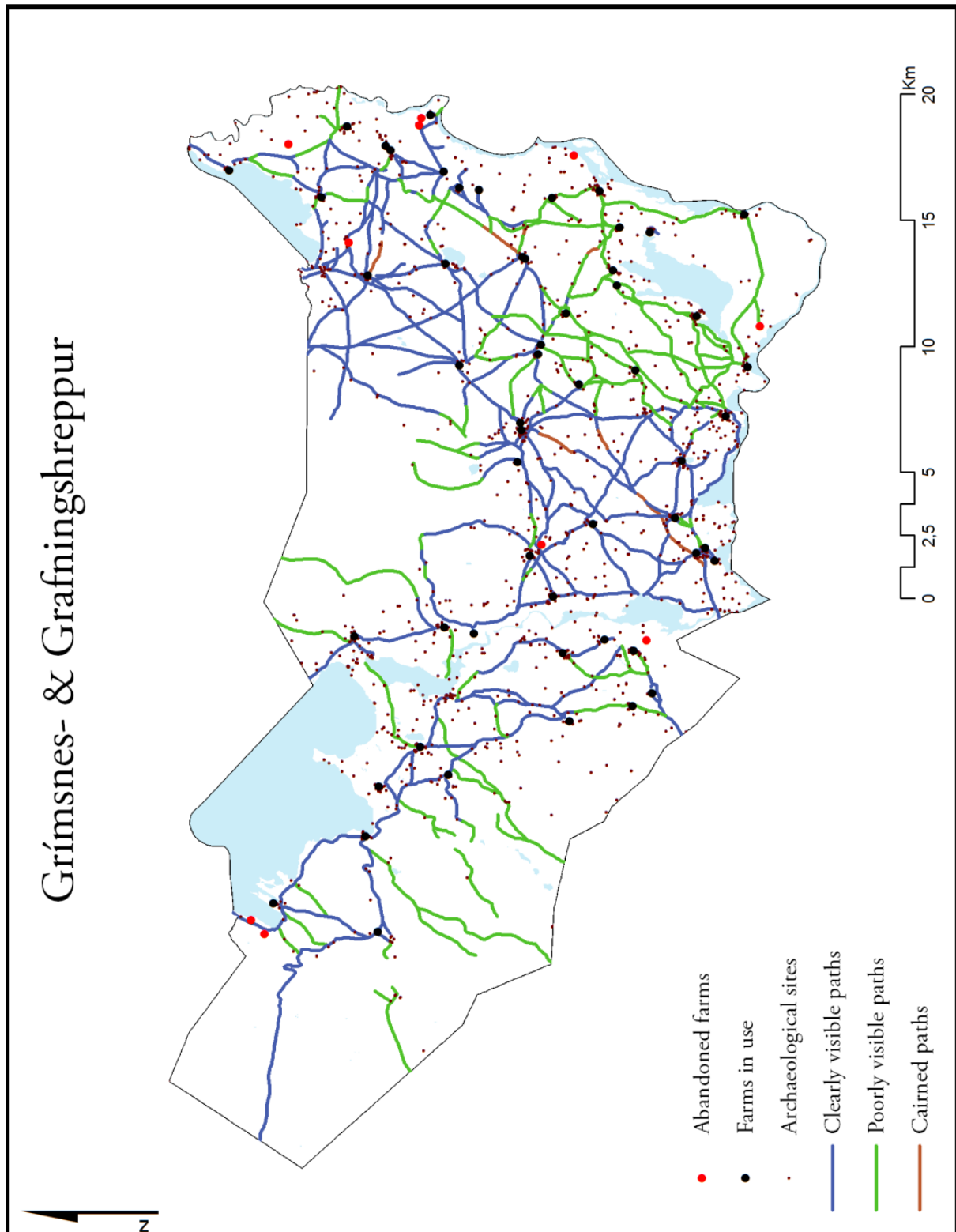


Figure 17: Strong links exist between farm locations, paths and the distribution of archaeology in Grímsnes- & Grafningshreppur. Red dots refer to farms abandoned at the time when the paths were surveyed in the early 20<sup>th</sup> century.

It is perhaps too tenuous to classify the three categories on the basis of temporality. There are, however, some indications that some of the peripheral areas were already abandoned by the time the path system was surveyed. One area contains an abandoned farm – Lónakot – as well as signs of a path which is not recorded on the early 20<sup>th</sup> century *Herforingjaráðskort*. A further two path-peripheral areas similarly have records of paths in the archaeological survey documents. Further study in this area or an application of the methodology in other areas may help to shed light on the efficacy of a pathscape characterisation as a temporal indicator.

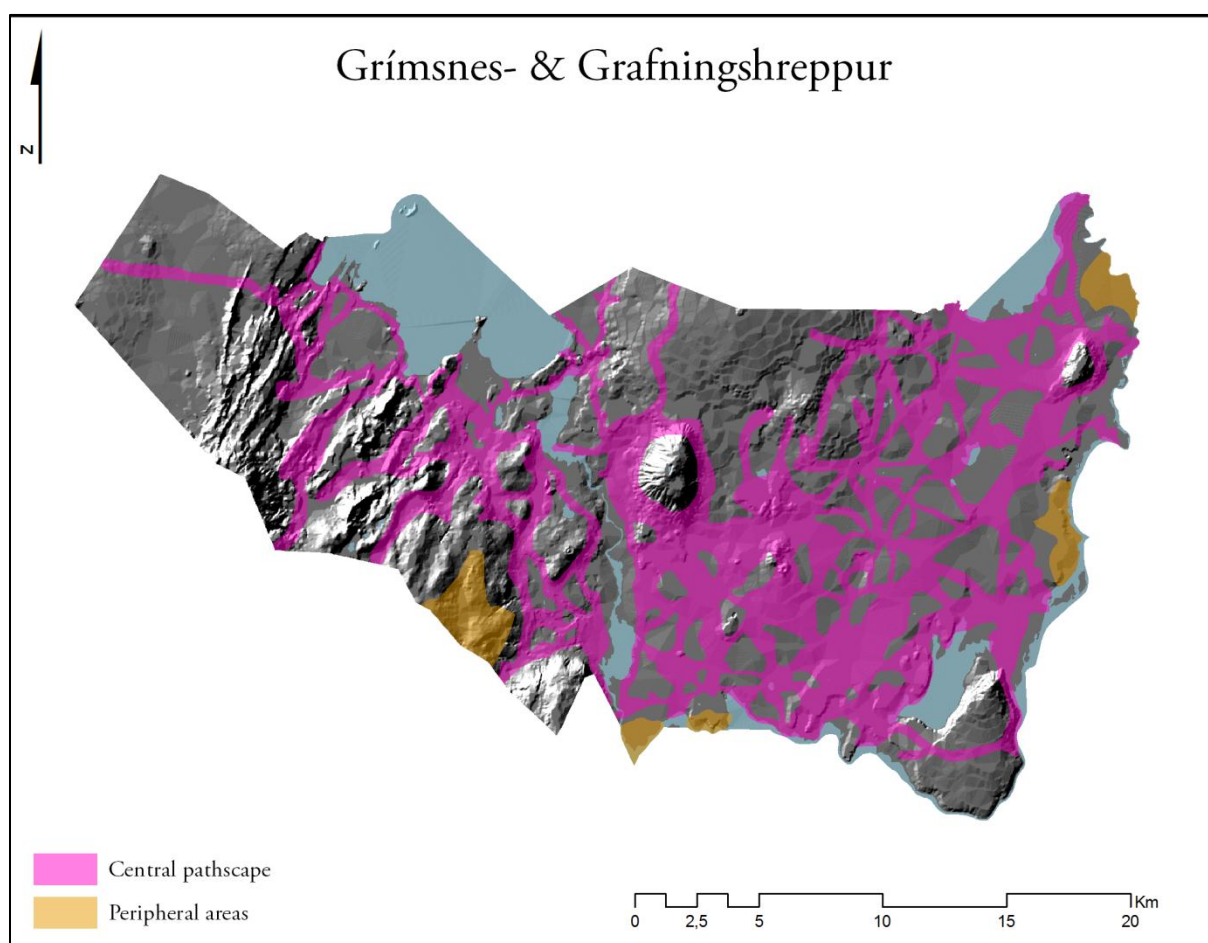


Figure 18: The pathscape

The most significant contribution that the pathscape makes to the characterisation is not as a temporal indicator, but rather as a facilitator in relating archaeological data to the character types. The area bounding the paths and the significant majority of the sites in the region can be thought of as the space where people lived the majority of their lives while the paths were being used. The pathscape includes channels of movement between central nodes through which goods, animals,



information and people flowed, influencing the landscape both materially through the formation and maintenance of paths through use (cf. Tilley, 1994, p. 31) and vernacular architecture, as well as ideationally through the social construction of space. Note, for example that every place in the region associated with supernatural occurrences such as the appearance of elves and otherworldly creatures is within 50m of a path (see Figure 19). The pathscape is in a sense a reconstruction of a 19<sup>th</sup> century taskscape, and as mentioned above, there is justifiable reason to presume that the settlement structure in the region did not change overly much from the Settlement period until the process of mechanisation so the pathscape arguably has some bearing as a representation of a society in movement through a millennium. While it is a reconstruction to a degree, there are still strong archaeological traces of the pathscape in the present landscape. Furthermore, while the paths may not be used for much beside recreational hiking and horseback riding in the present, the way in which people moved through the landscape at the beginning of the 20<sup>th</sup> century had an effect on the development of the region later in the century. Unsurprisingly the current road system is based to a large degree on pre-existent paths. The vernacular architecture associated with travelling, such as cairns, *áníngarstaðir*, *vöð* and similar places still effect an agency on where development takes place today, mostly through avoiding such places of heritage. There are also more subtle agentic traces; for example, the locations of elevation points on contemporary *Atlaskort* in the lowland seem somewhat randomly chosen until the 20<sup>th</sup> century path system is superimposed on the contemporary maps: every lowland elevation point was recorded in the early 20<sup>th</sup> century along the path system drawn on the earliest *Herforingjaráðskort*.

These accounts of the agentic relationship between the pathscape and the present landscape are anecdotal at best, and are simply meant to re-iterate the point raised in Chapter 2, that landscape is a palimpsest that is always in continuum through time, that any reconstruction is simply a representation of a stage in the historic processes constituting the landscape. The pathscape may be relict to a degree, ossified in hallowed heritage registers and protection measures, but at the same time it constitutes the present, living landscape.

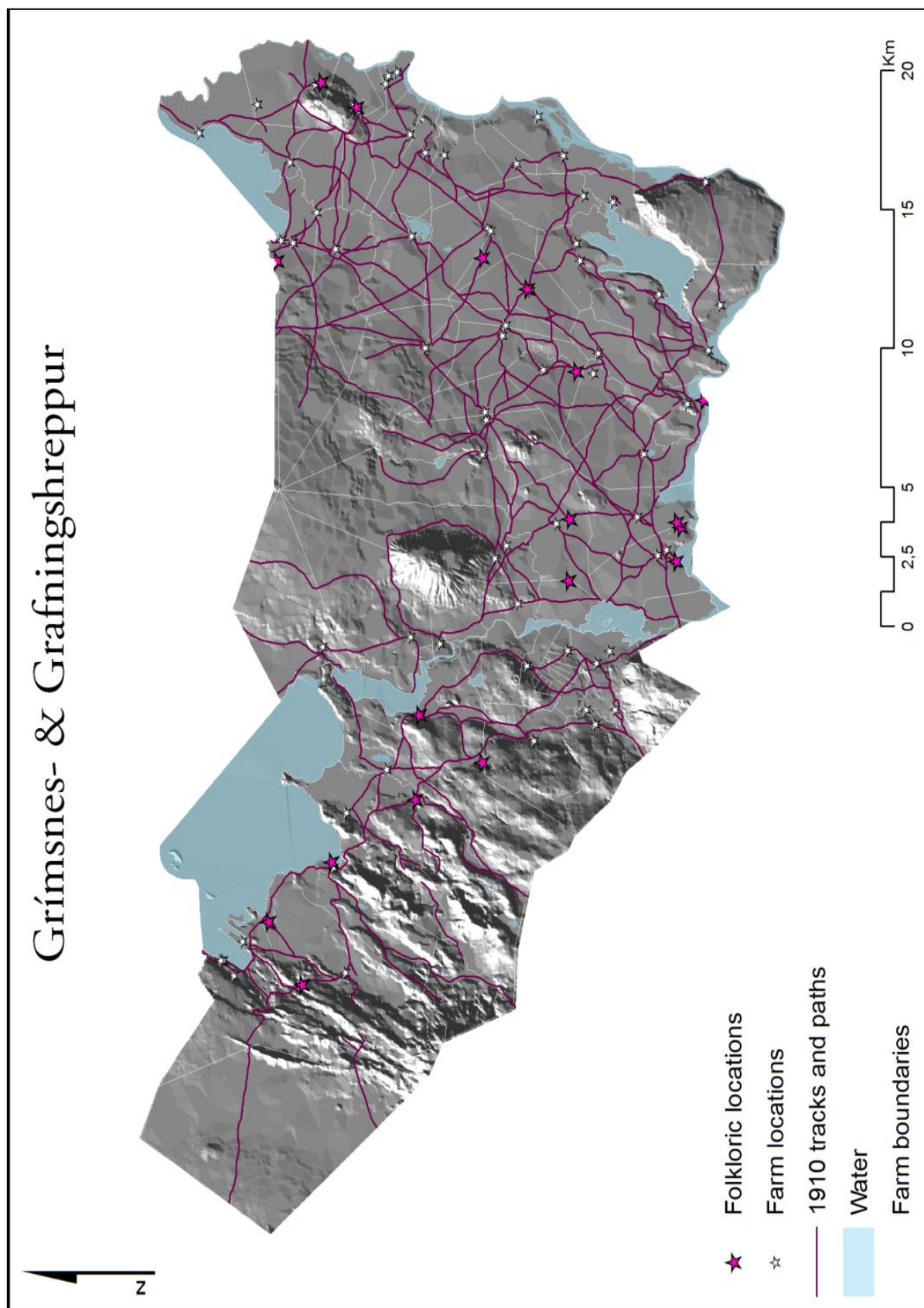


Figure 19: The relationship between places associated with folklore and the 1910 path system. Note also the strong link between farm boundaries and folklore sites; indeed all folklore sites not within 75 metres of a path fall on farm boundaries.

Due to time constraints, the pathscape characterisation is somewhat incomplete. An interesting further development in characterising the region would be to do a similar pathscape characterisation of the road system and infrastructure currently in use, as well as suggesting prior pathscales. Such work could shed light on changes in communication and transportation flows in the region, identifying how and when areas become path-peripheral and whether that has an effect on settlement structure. For example, a new road built in the mid-20<sup>th</sup> century leading certain areas becoming peripheral may lead to a higher rate of farm abandonment. Such analyses must be left unexplored at present.

### 5.3 Approaching *búsetulandslag*

A major theme in the characterisation was the concern whether it is feasible (and sensible) to distinguish between agricultural character types. This concern has its roots in the observation (touched on in chapter 3) that the usage of the term *búsetulandslag* in planning documents and archaeological scholarship is quite unclear at present (see pages 23-29). Whereas archaeologists tend to use it to refer to Settlement Period time-slice, planners' use of the term seems to suggest any agrarian landscape. Since this term is included in the 2001 Heritage Act it is important to define it properly and discuss its possible uses. It is my belief that defining types of *búsetulandslag* should aid in heritage management as it clarify what factors are characteristics of agrarian practices and landscapes in a given region as well as identifying the principal factors of change. In some cases, the realization of an agrarian landscape type on the wane may help in formulating the emphasis for heritage management, making it possible to predict future disappearance of a given historic landscape type as well as identifying areas that are likely to be developed in the future.

In my characterisation I have attempted to use the term to distinguish between certain broad types based on the way in which locals refer to parts of Grímsnes (*hraunajarðir*, *mýrarjarðir*, *heiðajarðir*), with some additions. There are six separate categories of this type (see Figure 11): **heathland farming**, **lava field farming**, **plains farming**, **upland plains farming**, **upland valley farming** and **wetland farming**. The two upland categories only cover a relatively small area and would require a different area of the country to be fleshed out more fully, but the other four are more typical of the region. After the characterisation had been done, the subdivisions of the four groups were compared to check whether they could be distinguished statistically. In order to do this effectively, some of the later non-agrarian developments were also included if they fell within the farm boundaries associated with a specific agrarian category. That is to say, if an area

of planted woodland or seasonal houses were within a cluster of polygons predominately labelled as wetland farming, they were treated as being part of the wetland farming area for the purposes of compiling the tables below. This is done so that it is possible to see the present composition of areas that would have been primarily agrarian before the 20<sup>th</sup> century. In so doing, it is possible to see if a certain type of agrarian landscape has undergone more significant changes toward non-agrarian land use.

Subgroup	Type	Subtype	Total
<b>Heathland</b>	Heathland		<b>74.68%</b>
<b>Heathland farming</b>	Agriculture	Cropland	2.10%
		Drained cropland	2.03%
		Medieval homestead	0.43%
	<b>Agriculture Total</b>		<b>4.57%</b>
	Moorland & rough grazing	Moorland	13.27%
		Pre-industrial peat mine	0.01%
		Pre-industrial rough grazing	1.19%
		Pre-industrial turf cutting	0.07%
	<b>Moorland &amp; rough grazing Total</b>		<b>14.54%</b>
<b>Heathland farming Total</b>			<b>19.11%</b>
<b>Industrial</b>	Power plant	Hydroelectric	<b>0.14%</b>
<b>Seasonal housing</b>	Seasonal housing		<b>5.90%</b>
<b>Semi-urban</b>	Commercial		<b>0.03%</b>
<b>Woodland</b>	Ancient brushwood		<b>0.13%</b>
<b>Grand Total</b>			<b>100.00%</b>

Table 1: The composition of heathland farming areas and associated recent developments.

Unsurprisingly, heath figures as the main component of heathland farming areas (Table 1), but as can be seen on Figures 5-7, the farms at the base of the heath in Grímsnes (Lyngdalsheiði) have properties stretching far up the heath and very little to the south. The industrial and semi-urban components represent recent developments at Ljósafoss. Other factors of note is the almost complete lack of woodland in the area. Note that within this ‘farming’ category, less than 5% of the area is actually improved land. It is important to note that a typical agrarian landscape in Iceland is not intensively cultivated, but consists of a scatter of improved fields between stretches of gravel and moorland, as well as upland areas such as heaths and mountains. Even in the most densely improved areas in the region (plains farming and wetland farming), the proportion of land classed as agriculture – that is, improved fields and homesteads – never reaches 16%. The improved areas in the region fall roughly equally between farmland and seasonal housing, while there is also an equal proportion between cropland and drained cropland.

Subgroup	Type	Subtype	Total
Lava field farming	Agriculture	Cropland	2.63%
		Drained cropland	0.67%
		Medieval homestead	0.67%
	Agriculture Total		3.98%
	Moorland & rough grazing	Moorland	22.76%
		Pre-industrial rough grazing	2.49%
		Wetland	0.65%
Moorland & rough grazing Total		25.90%	
Lava field farming Total		29.88%	
Recreation	Golf course		0.89%
Seasonal housing	Seasonal housing		39.02%
Woodland	Ancient brushwood		26.62%
	Planted conifer woodland		3.59%
Woodland Total			30.21%
Grand Total			100.00%

Table 2: Composition of lava field farming areas and associated recent developments.

Just over one-fifth of the lava field farming area consists of moorland, and less than 4% is farmland, mostly cropland with no drainage. The two major components of the area are seasonal housing and woodland, both ca. 30%, while in other areas neither category reaches beyond 10%. The reason for the fact that seasonal houses tend to be found within this region may be aesthetic; the uneven igneous rock overgrown with brushwood and moor are a sight to behold, but it may also be that these areas were simply readily available when the development of seasonal housing began around 1940. It may be that there was little land suitable for improvement in the region, and mechanisation would not have led to the sort of increase in yield that was possible in more suitable areas, but a thorough exploration of this was not possible given the timeframe of the thesis.

The main difference in the final two categories lies in the composition of the moorland & rough grazing category, which is primarily composed of moor in the case of plains farming category but mostly wetland and semi-wetland in terms of the wetland farming category. This difference is based on land cover data from RALA (see Appendix 1). Land use proportion is similar in the two categories, but while the proportion of drained cropland is similar between the two categories, drainage ditches are much more common in the wetland farming area. Much of the drainage system falls within areas that are classified as either wetland or semi-wetland by RALA, however, which may suggest recent or ineffective drainage systems.

Subgroup	Type	Subtype	Total
Industrial	Light industrial	Gravel quarry	0.46%
Plains farming	Agriculture	Cropland	4.76%
		Drained cropland	9.14%
		Medieval homestead	1.36%
	<b>Agriculture Total</b>		<b>15.26%</b>
	Moorland & rough grazing	Drained semi-wetland	0.77%
		Drained wetland	0.91%
		Moorland	62.11%
		Pasture	0.18%
		Pre-industrial rough grazing	1.48%
		Wetland	0.75%
	<b>Moorland &amp; rough grazing Total</b>		<b>66.21%</b>
<b>Plains farming Total</b>			<b>81.47%</b>
Recreation	Golf course		0.55%
Seasonal housing	Seasonal housing		9.31%
Semi-urban	Residential		0.39%
	Service		0.42%
<b>Semi-urban Total</b>			<b>0.82%</b>
Woodland	Ancient brushwood		4.61%
	Planted mixed woodland		2.78%
<b>Woodland Total</b>			<b>7.39%</b>
<b>Grand Total</b>			<b>100.00%</b>

Table 3: Composition of plains farming areas and associated recent developments.

Subgroup	Type	Subtype	Total
Heathland	Heathland		4.49%
Industrial	Light industrial	Gravel quarry	0.26%
Seasonal housing	Seasonal housing		3.80%
Semi-urban	Commercial		0.06%
	Religious		0.19%
	Residential		0.05%
<b>Semi-urban Total</b>			<b>0.29%</b>
Wetland farming	Agriculture	Cropland	4.00%
		Drained cropland	8.57%
		Medieval homestead	1.40%
		Modern homestead	0.06%
	<b>Agriculture Total</b>		<b>14.03%</b>
	Moorland & rough grazing	Disused Cropland	0.10%
		Drained grassland	2.88%
		Drained moorland	8.69%
		Drained semi-wetland	14.52%
		Drained wetland	11.32%
		Moorland	20.08%
		Pasture	0.37%
		Pre-industrial peat mine	0.07%
		Pre-industrial rough grazing	2.88%
		Pre-industrial turf cutting	0.57%
		Wetland	9.26%
	<b>Moorland &amp; rough grazing Total</b>		<b>70.74%</b>
<b>Wetland farming Total</b>			<b>84.77%</b>
Woodland	Planted mixed woodland		6.38%
<b>Woodland Total</b>			<b>6.38%</b>
<b>Grand Total</b>			<b>100.00%</b>

Table 4: Composition of wetland farming areas and associated recent developments.

The four tables above and the corresponding descriptions do bear out some differences between the four categories, but many other relevant factors need to be explored in this context. A coherent characterisation of *búsetulandslag* is a project in itself that would be beyond the scope of this thesis, and would require a comparison between different regions in the country.

#### 5.4 Limitations

As the characterisation was a pilot study there were many limitations discovered during the process. For instance, several of the datasets conflicted somewhat. The IS 50 3.0 database, used as the standard geographical information source for the region (see Appendix 1), sometimes had clearly less accurate and less detailed information about a given element compared with more specialized data sources. For example, the ditch system data from RALA and the archaeological site distribution from Fornleifastofnun Íslands (FSÍ) was clearly superior to corresponding information in IS 50 and therefore used instead.

Other conflicts were less readily resolved. For example, the paths recorded on the *Herforingjaráðskort* did not conform well to corresponding recorded co-ordinates in the archaeological survey documents from FSÍ. There are inaccuracies in both datasets; Oscar Aldred has surveyed some paths recorded on *Herforingjaráðskort* and found discrepancies (*pers. comm.*), while Birna Lárusdóttir, during her survey of sites in the region between 1999-2001, used a GPS rover without a geo-rectifying base station, meaning that the recordings may be off by dozens of metres. A thorough review of the accuracy of early GPS recordings done in Icelandic archaeology is needed to establish the precision with which they can be used.

In other cases, information that would have led to a more detailed characterisation was not available. For example, a more detailed description of flora than the one presently compiled by RALA (see Figure 20) would aid in further distinguishing subdivisions in broad character types (such as in moorland and wetland). Other data, such as sun hours and wind speed averages have not been compiled for the region. The seasonal housing character types were also not articulated as thoroughly as originally intended as the early seasonal housing developments in the region did not leave a traceable paper trail. Most of these issues could have been resolved with extensive fieldwork or documentary research, but unfortunately that was outside the scope of the thesis.

### 5.5 Further research

The characterisation process supplied a healthy amount of unanswered questions, as is to be expected of a pilot study. In most cases, issues were identified that would take too long to adequately research given the limited time frame of the project. A further study based on the groundwork formulated in this thesis would hopefully be able to address some of these questions. Some issues have already been touched upon in sections 6.2-6.4, particularly relating to the pathscape and *búsetulandslag*, but a brief mention of others follows.

One of the most extensive processes of change in the 20<sup>th</sup> century Icelandic countryside is drainage. This is done by digging large channels in wetland areas in order to make the land more suitable for haymaking. Reliable data exists for the present ditch system, but the provider of the data (RALA) has not distinguished ditches in terms of historical sequence. This could be done by consulting aerial photographs as well as conducting interviews with people involved in the process, which primarily took place from ca. 1950-1970 but continues to the present.

Seasonal housing areas could be further distinguished. There are at least two ways in which this could be done. Firstly, the legislation regarding house size changed in 1997<sup>29</sup> from a maximum of 50 m<sup>2</sup> to allow for much larger seasonal housing. Hence there is a clear visual distinction between houses built before the legislation, even in cases where the owners have expanded the houses built before the legislative change, as those properties tend to have a rather quaint older house with extensions that are larger than the original building. The other ways in which seasonal housing areas could be distinguished is by looking at how the zones came to be developed. Again there is at least a dual division possible here. Firstly, there are many areas in Grimsnes- & Grafningshreppur that were bought by an institution, such as a union or a company in order to build several seasonal housing for its members. Such areas tend to have identical looking buildings along ordered, often parallel streets. On the other hand, there are areas developed by private initiative, often by a landowner. The scale of a typical private development project is smaller than an institutional development, and tends to be less structured, as an area may have been developed in phases over a few decades with less of a guided design than areas developed in one phase. It is possible to tease out these two dual divisions, and others that may surface by going through property documents, but such an undertaking was not possible now due to the short time frame of this thesis.

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<sup>29</sup> Skipulags- og byggingarlög 73/1997, see <http://www.althingi.is/lagas/139a/1997073.html>.



The most significant improvement to the methodological framework formulated for this thesis would be to continue its development by applying it to other regions in Iceland. Many of the categories only have a handful of occurrences in the region, and to be fully developed would need a larger area. Furthermore, one of the aims of the characterisation is to identify features that make a place unique in a larger whole, which is not possible without comparative data from other parts of the country. Ideally, the aim should be to compile a historic characterisation for the whole country, similar to what has taken place in England over the past 15 years.

# Appendix 1

## A note on sources

Numerous sources were used in the characterisation process. When possible, all data sources were spatialised in a geographic information database. ArcGIS 10 was used as an interface to interpret the data and create the characterisation polygons. What follows is a description of the source material.

### **A.1.1 Sources from *Landmælingar Íslands***

**IS 50 3.0** – The primary source for the characterisation was the latest version of the IS 50 database managed by Landmælingar Íslands, released in 2011. The database contains a large amount of data, including elevation lines, infrastructure, roads, water, and so on. However, specific datasets contained in IS50 are much less detailed than datasets collected by agencies more specifically working with certain mappable elements. For example, the archaeological data in IS50 is clearly no match for the information contained in ÍSLEIF, collected by Fornleifastofnun Íslands; likewise data collected by RALA for various aspects of agriculture is significantly more accurate than corresponding IS50 data. Hence certain dimensions of the IS50 dataset were

replaced by more dedicated datasets collected by various institutions. **Type:** Various feature classes.

**Herforingjaráðskort, 1908-1941** – The maps produced in the early 20th century by *Generalstabens topografiske Afdeling* were essential in establishing some geographical information for the region at the time. The maps formed a basis for the temporal sequence of agricultural improvements such as draining taking place in the 20<sup>th</sup> century. That said, the maps appeared to be somewhat inaccurate. In particular, archaeological surveying of paths did not always conform well to path systems recorded on the map. **Type:** Scanned map. **Scale:** 1:50.000.

**Atlaskort, 1970-1972, 2001** – Produced by *Landmælingar Íslands* as updated versions of earlier *Herforingjaráðskort*, the 1970s and 2000s *Atlaskort* were used to build a phase in the temporal sequence of agricultural development. **Type:** Scanned map. **Scale:** 1:100.000.

**CORINE 2006** – CORINE is an acronym for the Coordination of Information on the Environment<sup>30</sup>, a European project providing information about land type and use based on surveyed data and remote sensing. Initial excitement about the application of CORINE data to the characterisation project quickly turned sour as the CORINE character types are too generalized, especially in comparison with vegetation data from RALA. CORINE was used sparingly, mostly as an aide to paper-based planning documents used in locating seasonal housing zones. **Type:** Polygon feature class.

#### A.1.2 Other sources from governmental institutions

**Woodland data from Skógrækt ríkisins** – This dataset was used to define woodland character types. **Type:** Polygon feature class.

**Ditch data from RALA** – This dataset was used to assess the extents of drainage. **Type:** Polygon feature class.

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<sup>30</sup> <http://www.lmi.is/english/corine/>

**Land cover from RALA** – This raster was a central source in defining several character types related to land use and visual character. Contains several vegetation and land cover types (see figure 20). **Type:** Raster. **Resolution:** 14x14m.

**Farm boundaries from RALA** – Used as an aide in assessing farmland types. **Type:** Feature class.

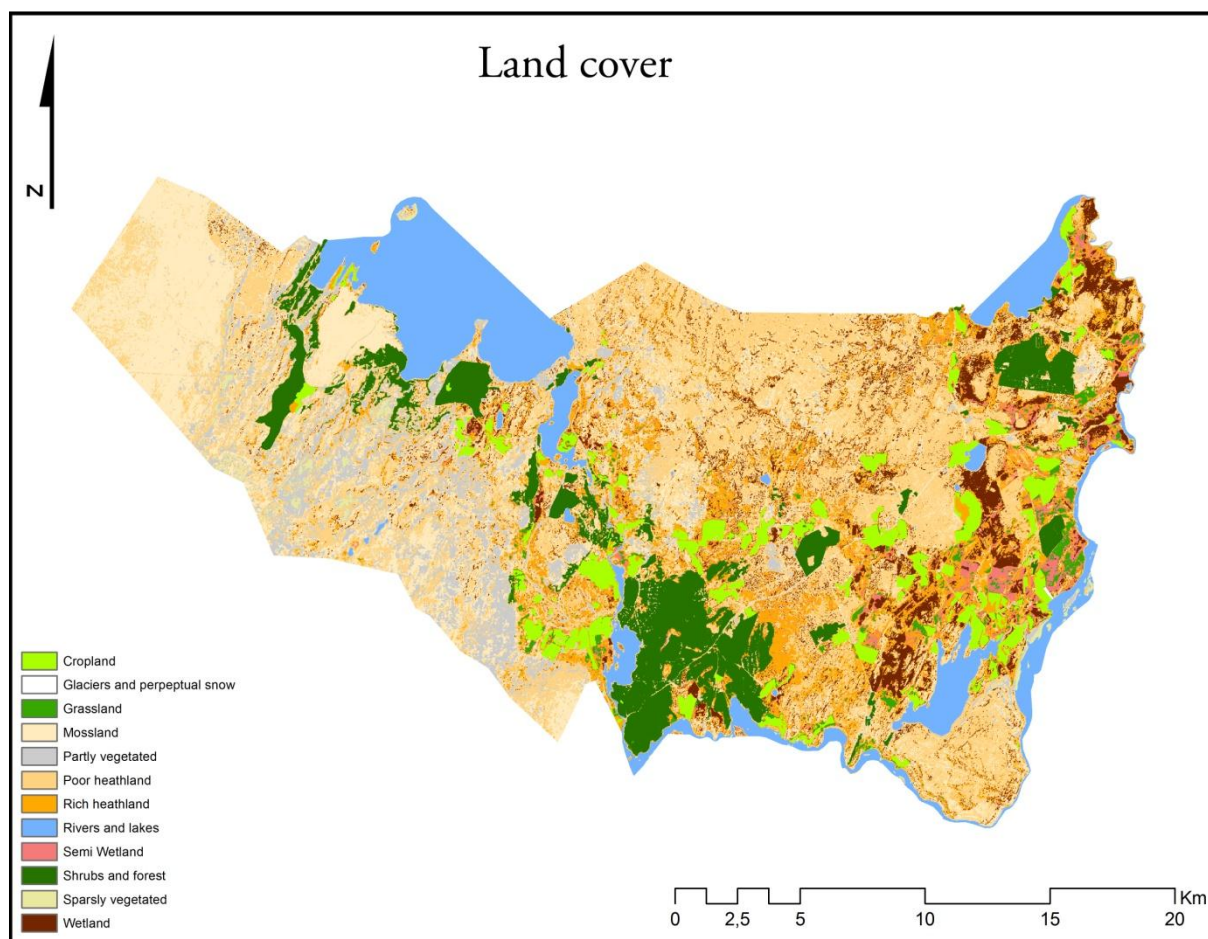


Figure 20: Land cover. Source: RALA.

### A.1.3 Other sources

**ÍSLEIF archaeological data** – compiled by *Fornleifastofnun Íslands*, database contains over 92.000 sites, roughly 1600 of which are in Grímsnes & Grafningur and recorded by Sædís Gunnarsdóttir, Orri Vésteinsson, Birna Lárusdóttir *et al.* in the late 1990s and early 2000s (see **Archaeological survey documents**, below). The database contains information of presumed use, toponym where applicable, notes on morphology and preservation conditions. **Type:** Point feature class. **Precision:** 5-100m.

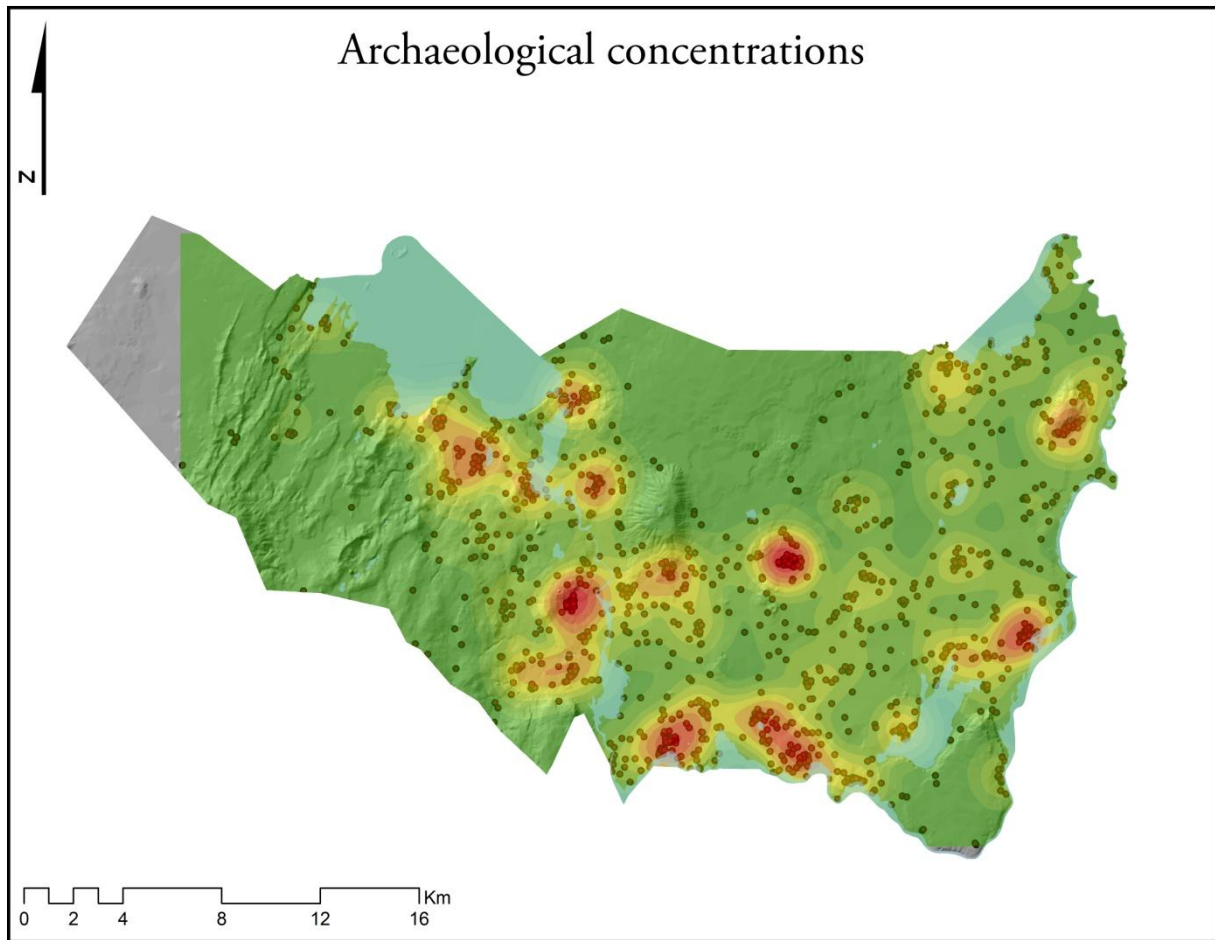


Figure 21: Distribution of archaeological sites in Grímsnes & Grafningur.

**Archaeological survey documents** – the four survey documents for the region were used to provide historical context as well as further information on the nature of the points recorded in the field. The documents, one of which is for Grafningur and three for Grímsnes have the following document numbers: FS69-98181, FS103-99061, FS138-99062 & FS164-99063 (1998; 2002; 2001; 1999). **Type:** Paper reports.

**Historical & literary sources** – Several written sources were consulted, such as Jarðabók Árna Magnússonar & Saga Grímsness (2002). **Type:** Paper documents.

**Planning documents** – Both aðalskipulag and deiliskipulag documents from the planning body for Grímsnes & Grafningur were used in the project. **Type:** Paper documents.

# Appendix 2

## Explanations of categories

### A.2.1 Groups, Subgroups, Types and Subtypes

**Fell** – Mountains and fells that do not form part of mountain ranges. Anthropogenic features are rare in fell areas but when they occur, they tend to be either associated with transhumance or transportation. This category is derived mostly from elevation data as well as map elements. No subsequent divisions. **Example:** Búrfell.

**Heath** – A large relatively flat area with both barren zones as well as zones vegetated with species such as mosses and shrub. The most common anthropogenic features in heathland are shielings, routes and cairns. This category is derived primarily through elevation data, vegetation data and map elements. **Example:** Lyngdalsheiði.

- **Contiguous transhumance:** constituting this subtype are contiguous heathland zones containing extensive indicators of transhumance, such as shielings, paths, cairns and toponyms. This category is derived by the same methods as heathland, as well as 1910 path data and the archaeological sites in ÍSLEIF. **Example:** Zones on the eastern and western edges of Lyngdalsheiði.

**Heathland farming** – Lowland farms whose land contains large areas of heathland and relatively meagre amounts of arable land. This category contains both improved land, such as infrastructure and cropland, as well as unimproved land used for rough grazing and other activities. This category is primarily based on maps, vegetation data and aerial photographs. **Example:** The farms east of Búrfell.

- **Agriculture:** areas that have been modified for the purposes of agriculture.
  - **Cropland:** improved fields harvested with heavy machinery. In Iceland, cropland is predominately made up of grassland yielding hay, while wheatfields are rare. This category is based on RALA vegetation data. Temporal divisions are based on changes in *Herforingjaráðskort & Atlaskort* through the 20<sup>th</sup> century.
    - **Converted medieval homestead:** cropland areas that still bear visible evidence (such as farm mounds and outhouses) of homesteads. This category is derived by locating archaeological sites within cropland areas, but the areas are dated according to changes in 20<sup>th</sup> century maps.
    - **Converted pre-mechanisation rough grazing:** cropland areas that still bear visible evidence (such as shielings and sheephouses) for prior use as outfield grazing for animals. This category is derived by locating archaeological sites associated with grazing within cropland areas.
  - **Drained cropland:** drained wetland areas converted to cropland. This category and temporal subdivisions are based on changes in *Herforingjaráðskort & Atlaskort* through the 20<sup>th</sup> century, as well as the ditch extents data gathered by RALA.
    - **Converted pre-mechanisation rough grazing:** cropland areas that still bear visible evidence (such as shielings and sheephouses) for prior use as outfield grazing for animals. This category is derived by locating archaeological sites associated with grazing within cropland areas.
  - **Medieval homestead:** an area containing the location of homesteads found in the 1708 A.D. Jarðabók Árna Magnússonar. As there is no older comprehensive register for farms in Iceland, it is impossible to give a definite date before 1708, but some of the farms in this category are referred to in 13<sup>th</sup> century sources, as

well as in *Landnáma*. The area also includes cropland drawn on the early 20<sup>th</sup> century *Túnakort*; consequently the 1900's *Herforingjaráðskort* & *Túnakort* are the primary sources for this category.

- **In use:** area still in use for agricultural purposes.
- **Abandoned:** are no longer in use for agricultural purposes.
- **Modern homestead:** homesteads established after the census done by Árni Magnússon & Páll Vídalín in the early 18th century, including cropland drawn on the early 20<sup>th</sup> century *Túnakort*.
  - **In use:** area still in use for agricultural purposes.
  - **Abandoned:** area no longer in use for agricultural purposes.
- **Moorland & rough grazing:** agricultural areas that show no signs of agricultural improvement such as draining, planting and ploughing, but contain grazing areas. This category is derived from RALA vegetation data and maps.
  - **Pasture:** grassland areas used for grazing.
    - **Converted medieval homestead:** pasture areas that still bear visible evidence (such as farm mounds and outhouses) for prior use as homesteads. This category is derived by locating archaeological sites within pasture areas, but the areas are dated according to changes in 20<sup>th</sup> century maps.
  - **Disused cropland:** former cropland now used for grazing or in disuse. This category is derived by locating cropland areas on *Atlaskort* & *Herforingjaráðskort* that now have a different vegetation profile.
  - **Drained grassland:** drained wetland areas now predominately vegetated by grass, but not used as cropland. Derived by locating grassland areas within ditch systems.
  - **Drained moorland:** drained wetland now classified by RALA as moorland. Derived by locating moorland areas within ditch systems.
  - **Drained semi-wetland:** drained wetland now classified by RALA as semi-wetland. Derived by locating semi-wetland areas within ditch systems.
  - **Drained wetland:** drained wetland still classified by RALA as wetland. Derived by locating wetland areas within ditch systems.



- **Moorland:** areas predominately characterised by moorland vegetation, with little or no visible signs of anthropogenic modification.
- **Pre-mechanisation peat mine:** areas where peat mining has a visible impact, based on descriptions in ÍSLEIF.
- **Pre-mechanisation rough grazing:** grazing areas showing clear signs of pre-20<sup>th</sup> century use, such as sheep houses and *kvíar*, based on descriptions in ÍSLEIF.
- **Pre-mechanisation turf cutting:** areas where turf cutting (*torffrista*) has a visible impact, based on descriptions in ÍSLEIF. Given a notional date of 1900.
- **Wetland:** areas characterised as wetland by RALA, with little or no visible signs of anthropogenic modification.

**Industrial** – Contiguous zones set aside for industrial activity. The anthropogenic remnants in industrial areas depend on prior use of the landscape. This category and all subcategories are borrowed from the CORINE 2006 characterisation. As every industrial zone has a historical record, initial dates can be given precisely.

- **Light industrial** – Zones set aside for small-scale industrial activity, such as harnessing of resources by landowners.
  - **Malarnáma:** gravel quarries, often used by landowners for local development.
- **Power plant:** zones devoted to the generation of energy and harnessing of natural energy such as heat.
  - **Geothermal:** power stations relying on geothermal energy to generate both electricity as well as harnessing heat. **Example:** Nesjavallavirkjun.
  - **Hydropower:** power stations harnessing the flow of water to generate energy. The construction of hydroelectric power plants and consequent damming of water bodies often results in the creation of artificial reservoirs submerging areas of dry land with significant changes to the local environment. **Example:** Ljósafossvirkjun.

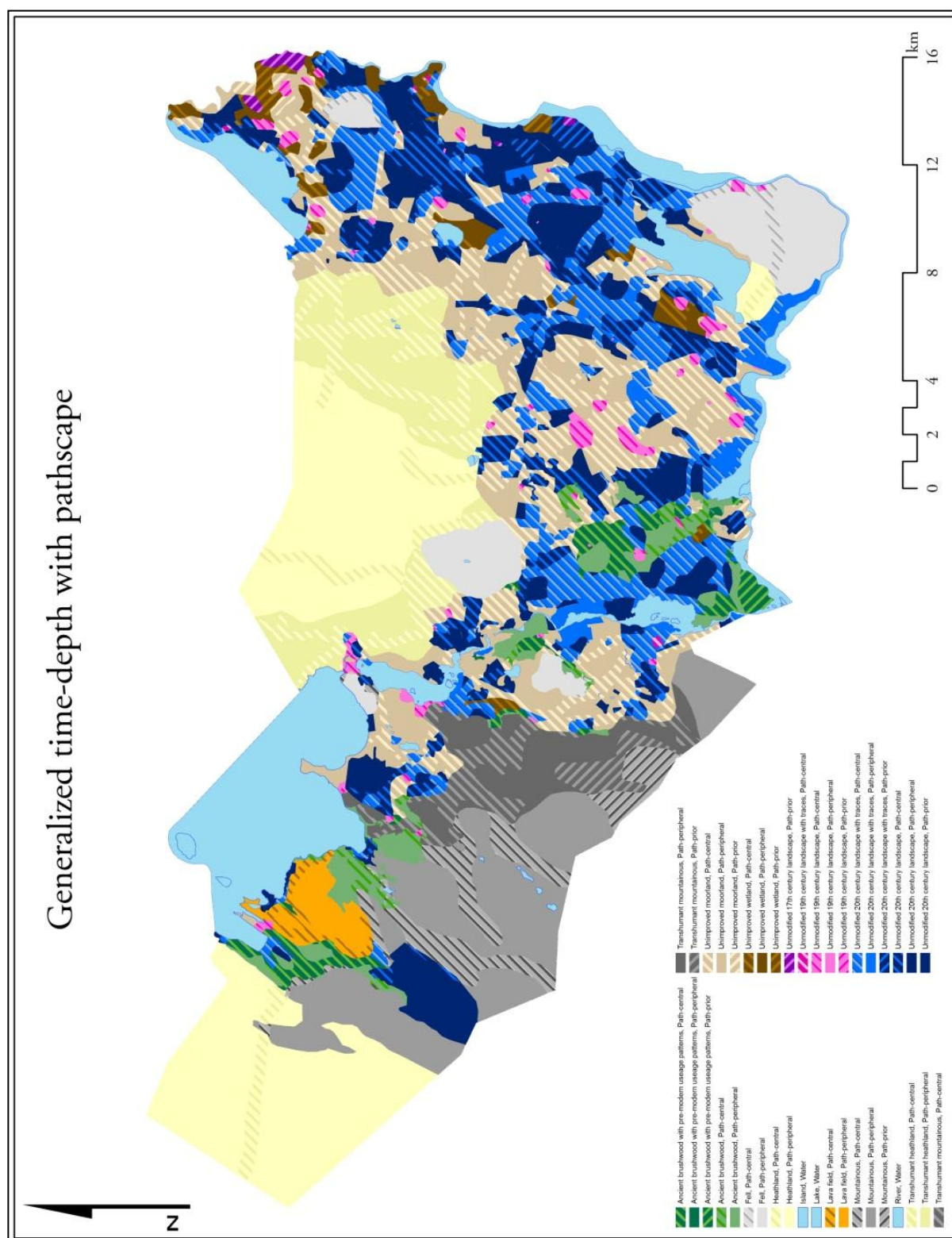


Figure 22: Rebuilt 2 categories with pathscape.

**Lava field** – Areas of exposed igneous rock. Lava fields are often vegetated with moss, shrub and brushwood. Anthropogenic features in lava fields are rare, but when found they tend to be

associated with transportation. No further subdivision. This category is derived from geological data and the latest *Atlaskort*. **Example:** Nesjahraun.

**Lava field farming** – farms in areas where igneous rocks are predominant, often covered with shrub and brushwood, while cropland is meagre. This category contains both improved land, such as infrastructure and cropland, as well as unimproved land used for rough grazing and other activities. This category is primarily based on maps, vegetation data and aerial photographs. **Example:** Environs of Snæfoksstaðir & Öndverðarnes.

For subcategories, see **Heathland farming**.

**Mountains** – Mountains and fells forming large contiguous zones, or mountain ranges. Anthropogenic features tend to be associated with transhumance or transportation. This category is derived from elevation and map data. **Example:** The area stretching from Hengill to Ingólfssfjall.

- **Contiguous transhumance:** constituting this subtype are contiguous mountainous zones containing extensive indicators of transhumance, such as shielings, paths, cairns and toponyms. This category is derived by the same methods as the Mountains category, as well as from 1908 path data and the archaeological sites from ÍSLEIF. **Example:** Areas in Ingólfssfjall.

**Plains farming** – farms in predominately flat lowland areas. This category contains both improved land, such as infrastructure and cropland, as well as unimproved land used for rough grazing and other activities. This category is primarily based on maps & vegetation data. **Example:** The environs of Bær & Borg

For subcategories, see **Heathland farming**.

**Recreation** – Areas set aside for recreational activities. This category and all subcategories are derived from planning documents.

- **Golf course**

**Seasonal housing** – Seasonal residences and associated areas. Seasonal housing areas are closely associated with woodland areas, both as ancient brushwood areas are often chosen for seasonal housing zones as well as because owners of seasonal houses tend to plant trees on their land. This category is derived from planning documents and historical sources dealing with 20<sup>th</sup> century settlement history. **Example:** Several, most notably in western Grímsnes.

- **In development:** areas planned for seasonal housing but still under construction.

**Semi-urban** – urbanized cores in rural areas.

- **Commerce**
- **Religious**
- **Residential**
- **Service**

**Upland plains farming** – Farms on plains above 100 m.a.s. This category contains both improved land, such as infrastructure and cropland, as well as unimproved land used for rough grazing and other activities. This category is primarily based on maps, vegetation data and aerial photographs. **Example:** The environs of Villingavatn.

For subcategories, see **Heathland farming**.

**Upland valley farming** – Farms on plains above 100m.a.s. This category contains both improved land, such as infrastructure and cropland, as well as unimproved land used for rough grazing and

other activities. This category is primarily based on maps, vegetation data and aerial photographs.

**Example:** The environs of Nesjavellir.

For subcategories, see **Heathland farming**.

**Water** – Bodies of water. Derived from the IS50 database. **Example:** Several, notably between Grímsnes and Grafningur.

- **Lake** – Bodies of water located in a basin.
- **River** – A watercourse, usually flowing from one body of water to another, or between other rivers.

**Wetland farming** – farms in predominately wetland areas. Wetland farming areas tend to have high amounts of drainage ditches. This category contains both improved land, such as infrastructure and cropland, as well as unimproved land used for rough grazing and other activities. This category is primarily based on maps, vegetation data and aerial photographs.

**Example:** Eastern Grímsnes

For subcategories, see **Heathland farming**.

**Woodland** – Areas characterised by woodland, both planted and unplanted. Often found in close association with seasonal housing areas (see Seasonal housing). This category is derived from woodland cover data from *Skógrækt ríkisins*. **Example:** The area west of Nesjahraun.

- **Ancient brushwood:** brushwood that has not been planted.
- **Planted leaf woodland:** planted woodland areas consisting predominately of angiosperms.
- **Planted conifer woodland:** planted woodland areas consisting predominately of conifers.
- **Planted mixed woodland:** planted woodland areas consisting of a mixture of tree genera.

### A.2.2 Explanation of Rebuilt I categories

**20<sup>th</sup> century cropland** – This category consists of cropland that is still in use. This category is derived from RALA vegetation data and early 19<sup>th</sup> century *Herforingjaráðskort*.

**20<sup>th</sup> century drained cropland** – This category consists of drained cropland that is still in use. This category is derived from RALA vegetation data and early 19<sup>th</sup> century *Herforingjaráðskort*.

**Ancient brushwood** – The vast majority of ‘natural’ forest in Iceland is made up of brushwood. Furthermore, brushwood is rarely planted; therefore, all brushwood areas in the present landscape are presumed to be either ancient (or with origins stretching back some centuries) or outgrowths of zones covered by brushwood for a substantial amount of time. Anthropogenic features are frequently found in brushwood areas but since brushwood does not grow tall, there is no reason to presume neither that brushwood is construction-prohibitive nor that the anthropogenic features predate the brushwood cover. This category is derived from forest cover data from *Skógrækt ríkisins*.

**Core agriculture** – Core agriculture zones consist of presently occupied farms. This category is derived from IS 50 map data.

**Disused agriculture** – This category consists of areas whose character is recognizably agricultural but has fallen into disuse, including abandoned homesteads, disused fields, etc. This category is derived from archaeological data, maps and vegetation cover.

**Drained land** – This category consists of areas with drainage ditches that are nevertheless not classified as cropland in the RALA vegetation raster. This category is derived from vegetation cover and drainage ditch data from *Landmælingar Íslands*.

**Fell** – The fell category consists of isolated mountainous areas surrounded by relatively flat land. Compare with **Mountainous**. This category is derived from elevation and map data.

**Geothermal industry** – Power stations relying on geothermal energy to generate electricity as well as harnessing heat; this category is derived from planning documents and aerial photographs.

**Heathland** – A large relatively flat area with both barren zones as well as zones vegetated with species such as mosses and shrub. The most common anthropogenic features in heathland are shielings, transportation channels and cairns. This category is derived primarily through elevation data, vegetation data and map elements.

**Institutionally developed vacation homes** – Plots of vacation homes developed by companies, institutions, unions or other large collectives meant for a particular sodality. This category is derived from planning documents.

**Island** – Land mass surrounded by water. As all islands in Grímsnes & Grafningur are quite small, there is no further characterisation of island areas.

**Lake** – Bodies of water located in a basin. This category is derived from IS 50 map data.

**Lava field** – Large zones where the dominant character is sparsely vegetated igneous rock. This category is derived from geological and map data.

**Continuous gravel quarry** – Gravel quarries presumed to have been in use for an extended period of time, often used only sparingly for local development. This category is derived from planning documents.

**Mountainous** – Large contiguous mountain zones make up this category, derived from elevation and map data.

**Planted woodland** – Zones of planted woodland, derived from woodland cover data collected by *Skógrækt ríkisins*.

**Pre-mechanisation industrial** – Zones showing salient visual evidence of pre-mechanisation mining activity, such as peat mining and turf cutting. This category is derived from archaeological data and satellite imagery.

**Pre-mechanisation pasture** – Grassland areas with indicators of pre-mechanisation use, such as clearance cairns, boundary walls and livestock structures. This category is derived from vegetation, map and archaeological data.

**Privately developed vacation homes** – Plots of vacation homes developed by private initiative and not necessarily meant for a predetermined group. This category is derived from planning documents.

**Recreation** – This category consists of areas set aside for recreational purposes; derived from CORINE 2006 and planning documents.

**Religious** – This category consists of religious areas; derived from IS 50 and satellite imagery.

**River** – A watercourse, usually flowing from one body of water to another, or between other rivers. This category is derived from IS 50 data.

**Semi-urban core** – Small urban areas in rural environments, such as small villages, service areas and residential zones for nearby industry. This category is derived from IS 50 data.

**Transhumant heathland** – Constituting this category are contiguous heathland zones containing extensive indicators of transhumance, such as shielings, paths, cairns and toponyms. This category is derived by the same methods as heathland, as well as 1908 path data and the archaeological sites in ÍSLEIF.

**Transhumant mountainous** – Constituting this category are contiguous mountainous zones containing extensive indicators of transhumance, such as shielings, paths, cairns and toponyms. This category is derived by the same methods as heathland, as well as 1908 path data and the archaeological sites in ÍSLEIF.



**Unimproved moorland** – This category consists of areas predominately characterised by moorland vegetation, with little or no visible signs of anthropogenic modification. Derived from RALA vegetation data.

**Unimproved wetland** – This category consists of areas predominately characterised by wetland vegetation, with little or no visible signs of anthropogenic modification. Derived from RALA vegetation data.

### A.2.3 Explanation of Rebuilt II categories

**Ancient brushwood** – The vast majority of ‘natural’ forest in Iceland is made up of brushwood. Furthermore, brushwood is rarely planted; therefore, all brushwood areas in the present landscape are presumed to be either ancient (or with origins stretching back some centuries) or outgrowths of zones covered by brushwood for a substantial amount of time. Anthropogenic features are frequently found in brushwood areas but since brushwood does not grow tall, there is no reason to presume neither that brushwood is construction-prohibitive nor that the anthropogenic features predate the brushwood cover. This category is derived from forest cover data from *Skógrækt ríkisins*.

**Ancient brushwood with Pre-mechanisation usage patterns** – Ancient brushwood areas with extensive indicators of pre-mechanisation activity; derived by the same methods as **Ancient brushwood**, as well as using early 20<sup>th</sup> century maps and the archaeological sites in ÍSLEIF.

**Fell** – The fell category consists of isolated mountainous areas surrounded by relatively flat land. Compare with **Mountainous**. This category is derived from elevation and map data.

**Heathland** – A large relatively flat area with both barren zones as well as zones vegetated with species such as mosses and shrub. The most common anthropogenic features in heathland are

shielings, transportation channels and cairns. This category is derived primarily through elevation data, vegetation data and map elements.

**Island** – Land mass surrounded by water. As all islands in Grímsnes & Grafningur are quite small, there is no further characterisation of island areas.

**Lake** – Bodies of water located in a basin. This category is derived from IS 50 map data.

**Lava field** – Large zones where the dominant character is sparsely vegetated igneous rock. This category is derived from geological and map data.

**Mountainous** – Large contiguous mountain zones make up this category, derived from elevation and map data.

**Post-mechanisation landscape** – Zones characterised by anthropogenic activity associated with post-mechanised agriculture.

**Post-mechanisation landscape with traces** – Zones characterised by anthropogenic activity associated with post-mechanised agriculture but showing signs that the area had earlier been used for different purposes or different means.

**Pre-mechanisation landscape** – Zones characterised by anthropogenic activity associated with pre-mechanised agriculture.

**Pre-mechanisation landscape with traces** – Zones characterised by anthropogenic activity associated with pre-mechanised agriculture but showing signs that the area had earlier been used for different purposes or different means.

**River** – A watercourse, usually flowing from one body of water to another, or between other rivers. This category is derived from IS 50 data.

**Transhumant heathland** – Constituting this category are contiguous heathland zones containing extensive indicators of transhumance, such as shielings, paths, cairns and toponyms. This category is derived by the same methods as heathland, as well as 1908 path data and the archaeological sites in ÍSLEIF.

**Transhumant mountainous** – Constituting this category are contiguous mountainous zones containing extensive indicators of transhumance, such as shielings, paths, cairns and toponyms. This category is derived by the same methods as heathland, as well as 1908 path data and the archaeological sites in ÍSLEIF.

**Unimproved moorland** – This category consists of areas predominately characterised by moorland vegetation, with little or no visible signs of anthropogenic modification. Derived from RALA vegetation data.

**Unimproved wetland** – This category consists of areas predominately characterised by wetland vegetation, with little or no visible signs of anthropogenic modification. Derived from RALA vegetation data.

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