

Environmental Interpretation in Reykjavík's Parks and Open Spaces

Evaluation of Current Status and Development of Novel Features for Visiting Tourists and Residents



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Cover photo: Steinunn Þórarinsdóttir's *Flóð og fjara/Ebb and Tide* (1998) in front of the old Grímsstaðavör baiting sheds at Ægisíða engages visitors with the more-than-human history of the site.

Abstract

This applied research project investigated opportunities to optimize environmental interpretation in Reykjavík's green spaces. Five representative sites were selected for analysis, and thorough assessments completed for four: the "Breiðholt forest," Laugarnes, Rauðhólar, and Ægisíða. Analysis was based mainly upon direct observations using qualitative methods and the application of assessment criteria designed for this study. Novel ideas were conceived to illustrate the sites' potential for creative environmental interpretation. The study concluded that residents and tourists would benefit from a coordinated approach to interpretation in Reykjavík's recreational areas and green spaces, and an approach that would more consistently uphold principles of best practice of environmental interpretation. Furthermore, it concluded that interpretation strategies should be integrated into the revised management plans that are sorely needed for the sites in this study.

Útdráttur

Í þessari rannsókn er náttúrutúlkun á fimm grænum svæðum í Reykjavík könnuð: hverskonar túlkun er til staðar og hvaða tækifæri er að finna á svæðunum til að gera betri náttúrutúlkun. Ítarlegt stöðumat var unnið fyrir fjögur þeirra: Laugarnes, Rauðhóla, Ægisíðu og skógarbút í Breiðholti. Notast var við fyrirbærafraðilega nálgun og niðurstöðurnar settar upp í töflu ásamt ítarlegri lýsingu á svæðunum. Ásamt því voru þróaðar þrjár nýjar tillögur til að sýna hvernig skapandi náttúrutúlkun gæti litið út. Náttúrutúlkun sem væri þróuð fyrir Reykjavík sem heild, í samvinnu við alla hagsmunaaðila og með megin gildi náttúrutúlkunar í huga myndi hafa jákvæð áhrif á upplifun íbúa og gesta Reykjavíkur. Enn fremur telja höfundar mikilvægt að náttúrutúlkun verði þróuð í samræmi við betri aðbúnað og umsjón svæðanna, sem mikill skortur er á.

Table of Contents

List of Figures, Maps, and Tables	v
Introduction	1
Practical and Innovation Value of the Project.....	2
Literature Review	4
Principles of Environmental Interpretation.....	4
Revitalizing the Practice of Environmental Interpretation.....	6
Connecting with Nature: Environmental Aesthetics.....	7
Connecting with Nature: Human–Animal Studies Perspectives	10
Methods	14
Site Selection	14
Site Visits, Observations, and Identifying Highlights for Interpretation.....	15
Analyzing Current Interpretation and Engagement Strategies	17
Mapping.....	18
Conceptualizing Novel Strategies	18
Findings: Site Analyses, Recommendations, and Novel Approaches	20
A. Breiðholt Forest.....	22
Overview.....	23
Observations	24
Highlights for Interpretation	25
Analysis of Existing Interpretation and Recommendations for Improvement.....	26
Impressions from the Breiðholt forest	28
Novel Interpretation: <i>Seeds of Change</i>	34
B. Laugarnes	36
Overview.....	37
Observations	38
Highlights for Interpretation	39
Analysis of Existing Interpretation and Recommendations for Improvement.....	41
Impressions from Laugarnes	44
Novel Interpretation: <i>Rhythms of Laugarnes</i>	50
C. Rauðhólar.....	53
Overview.....	54

Observations	55
Highlights for Interpretation	57
Analysis of Existing Interpretation and Recommendations for Improvement.....	58
Impressions from Rauðhólar.....	61
Novel Interpretation: <i>I Have Had No Evening Meal</i>	66
D. Úlfarsfell	68
Impressions from Úlfarsfell.....	70
E. Ægisíða	73
Overview.....	74
Observations	75
Highlights for Interpretation	76
Analysis of Existing Interpretation and Recommendations for Improvement.....	77
Impressions from Ægisíða	80
Novel Interpretation: <i>Convergence (Four shores and seven seas ago)</i>	86
Discussion	89
Concluding Remarks	92
References.....	93
Appendices	97
Appendix 1a – Assessment chart – Breiðholt forest	97
Appendix 1b – Assessment chart – Laugarnes.....	98
Appendix 1c – Assessment chart – Rauðhólar.....	100
Appendix 1d – Assessment chart – Ægisíða.....	102

List of Figures, Maps, and Tables

Figures

Figure 1. Breiðholt forest.....	22
Figure 2. Satellite image of the Breiðholt forest	23
Figures 3–12. Impressions from the Breiðholt forest	28–33
Figure 13. Laugarnes	36
Figure 14. Satellite image of Laugarnes	37
Figures 15–25. Impressions from Laugarnes	44–49
Figure 26. Rauðhólar	53
Figure 27. Satellite image of Rauðhólar	54
Figures 28–37. Impressions from Rauðhólar	61–65
Figure 38. Úlfarsfell	68
Figures 39–43. Impressions from Úlfarsfell	70–72
Figure 44. Ægisíða	73
Figure 45. Satellite image of Ægisíða	74
Figures 46–55. Impressions from Ægisíða	80–85

Maps

Map 1. Map of Reykjavík showing selected sites	21
Map 2. Map of the Breiðholt forest	26
Map 3. Map of Laugarnes	41
Map 4. Map of Rauðhólar	59
Map 5. Map of Ægisíða	78

Tables

Table 1. Overview of selected sites.....	20
Table 2. Appendix 1a – Assessment chart – Breiðholt forest.....	97
Table 3. Appendix 1b – Assessment chart – Laugarnes	98
Table 4. Appendix 1c – Assessment chart – Rauðhólar	100
Table 5. Appendix 1d – Assessment chart – Ægisíða	102

Introduction

The notion of “connecting with Icelandic nature” might typically conjure up images of sublime solitude in the highlands or the profound remoteness sensed from a distant fjord. Most foreign tourists visit Iceland for its spectacular nature (Óladóttir, 2015), and Icelanders too have been branded (correctly or not) as a nation of environmentally conscious nature-lovers (Huijbens, 2011). However, many tourists spend significant time in Reykjavík, and a large proportion of Icelandic residents lead urban and suburban lives in the capital region. While the City of Reykjavík boasts extensive cultural offerings for its visitors and residents, the “nature” in the city has perhaps not been adequately promoted or communicated.

Environmental interpretation, the aim of which is to increase visitors’ understanding and appreciation of natural areas (Ham, 1992), is one such means of promoting Reykjavík’s biodiversity and recreational green spaces. Information about, and guidance in, natural areas enhances visitors’ experiences, and quality interpretation can even increase the recreational value of an area, making it advantageous for tourism operators and municipalities. Ultimately, the benefits of environmental interpretation can be far reaching, as it can increase environmental awareness and pro-environmental behavior through more positive feelings towards nature (Newsome, Moore, & Dowling, 2013; Ham, 1992; Jóhannsdóttir, 2011).

With the above in mind, this applied research project addressed the question of the extent to which environmental interpretation in Reykjavík has been optimized. It also sought to identify fruitful opportunities to improve existing interpretation strategies, as well as to envision entirely new strategies, features, or events serving the human and non-human life of the city. To this end, the authors studied five representative recreational sites within the jurisdiction of the City of Reykjavík: the “Breiðholt forest,” Laugarnes, Rauðhólar, Úlfarsfell, and Ægisíða. Thorough assessments and analyses were completed for four (all but Úlfarsfell, for which basic management was found to be of more importance), based primarily upon direct observations of the sites using qualitative methods as well as the application of environmental interpretation assessment criteria designed for this study. Finally, novel ideas were developed for the four sites to illustrate their potential for creative environmental interpretation.

In Iceland, formal instruction in environmental interpretation has been offered for future park rangers by the Environment Agency of Iceland (Umhverfisstofnun) and the University of Hólar since the 1980s (Jóhannsdóttir, 2011). Interpretation is mostly offered in national parks by rangers and can be a useful pedagogical tool for tour guides and teachers (Jóhannsdóttir, 2011). With this study, we propose that the scope of environmental interpretation could be widened for

application in other settings, with input from other types of professionals, and with other aims beyond simply communicating scientific knowledge. Professionals and practitioners with more experience in mediating feelings and connections, be they poets or dancers, might be best suited for the role of environmental interpreter. Moreover, the urban environment, with its pockets of green and its hybrid geographies of human and non-human life, does not stand outside of “Nature” in any way. Encouraging environmental interpretation within city limits has the potential to reach wider audiences and could foster a richer understanding of relationships between human beings and their surroundings, built *and* organic. The recent diagnosis of the Anthropocene urgently forces us to reconsider how we think about our place in the world, and the present moment thus offers a rich opportunity to involve the social sciences and humanities in research on major environmental issues to deepen our understanding of the interactions between human beings and other life forms (Pálsson et al., 2013). To this end, we also propose input into environmental interpretation from the fields of environmental aesthetics and human–animal studies.

The process and the conclusions of this project were based upon the authors’ extensive conversations, an ongoing dialogue intended to constantly challenge each other’s views and give our evaluations greater depth. We endeavored to conduct our analysis not only in terms of our immediate experiences and beliefs, but also by looking through a critical lens at our study sites as both natural areas and socially constructed spaces. What did we find in our sites, and how did our discoveries affect our perceptions? How could these places and the experiences they give rise to be enriched, strengthening visitors’ connectedness with nature while providing opportunities for environmental education at the same time? Urban and suburban green areas are more than just scenic backdrops for everyday life or pleasant spaces to pass through while on an exotic holiday. With such a mindset, we turned our curious gaze toward the environment of our city and explored its full potential as a place to inspire, a place to inform, and a place to dwell.

Practical and Innovation Value of the Project

This project will directly benefit the City of Reykjavík by providing a report on existing means of environmental interpretation in the study sites and by offering suggestions for improving or enhancing those means. It is also innovative in its development of assessment criteria for interpretive features and engagement strategies; such criteria might be used to assess interpretation in other recreational areas in the city, and they could help guide the design of new features. As the target audience of environmental interpretation includes international and domestic tourists as well as local residents, this project is of equal relevance to stakeholders in

the tourism industry and residents of the Reykjavík capital region. Environmental interpretation in localized natural settings—particularly interpretation that is well planned, well designed, and interactive—has been linked to conservation-supporting behavior on the part of visitors, and even to greater appreciation and concern for the environment in general. If the latter is indeed true, this study therefore has the long-term potential to contribute to the cause of environmental sustainability within Reykjavík and beyond.

Literature Review

Principles of Environmental Interpretation

Environmental interpretation (alternatively called natural interpretation or heritage interpretation) has been defined in various ways by scholars and professionals since the mid-20th century (Newsome, Moore, & Dowling, 2013). By all accounts, it is not a provision of information about the natural world, but rather aims at making facts and knowledge meaningful in order to strengthen people's relationship with nature (Newsome, Moore, & Dowling, 2013; Jóhannsdóttir, 2011; Ham, 1992). Traditionally environmental interpretation is provided through guided walking tours and hinges upon personal communication and human interaction. Other common forms include signs, audio guides, self-guided trails, and interactive media. Websites, apps, and brochures can be used to share information both before visitors reach an area and as aids during tours and visits in the form of self-guided audio walks (Newsome, Moore, & Dowling, 2013). While environmental interpretation is generally discussed as a means of increasing visitors' appreciation of nature through education about an area's natural history, we see benefits of expanding the traditional scope of the concept to include strategies that truly give visitors and inhabitants new ways to think about themselves, their surroundings, and the Earth.

Both the practice of and scholarship on environmental interpretation draw mainly from fields within the natural sciences such as biology, ecology, forestry, geology, and the like. The roots of environmental interpretation can be traced to Enos Mills, a mentee of the prominent American naturalist John Muir (Jóhannsdóttir, 2011; Ablett & Dyer, 2009). For Mills, the aim of a nature guide is "helping people to become happily acquainted with the life and wonders of wild nature" (Mills, 1923: ix). His book *Adventures of a Nature Guide* (1923) lays the foundation that the environmental interpretation literature has echoed since then, particularly the emphasis on the nature guide's role in contextualizing different aspects of nature and making the encounter interesting and entertaining for recreational visitors.

In 1957, Freeman Tilden was the first to formally define environmental interpretation and to introduce the idea that environmental interpretation should be its own field (Ham, 1992; Jóhannsdóttir, 2011). By Tilden's account, environmental interpretation is "An educational activity which aims to reveal meanings and relationships through the use of original objects, by firsthand experience, and by illustrative media, rather than simply to communicate factual information" (Tilden in Ham, 1992: 3). The focus is not on "formal teaching" of scientific facts, but rather on seeing the "bigger picture," putting natural elements in context and developing a meaningful relationship with them. The interpreter, present or not, serves an important role in

trying to find ways to help people connect with nature and to sustain visitors' attention in order to make the visit meaningful (Jóhannsdóttir, 2011). Visitors are not “forced” to be at the site but are *noncaptive audiences*, requiring interpretation to be engaging, focused, and appealing to the different interests of different groups, so visitors' attention is not drawn to something else (Ham, 1992).

In Sam Ham's influential book *Environmental Interpretation: A Practical Guide for People with Big Ideas and Small Budgets* (1992), Ham emphasizes the importance of organization and *themes* when developing interpretation strategies. He draws from psychology in arguing that a coherent theme with content organized in a manner that is easy to follow is crucial for maximizing the audience's attention span. Devising a theme to structure the interpretation around makes sure the *message* (the objective) it is meant to deliver gets through. Further, providing five points that guide the visitor through the message of the interpretation helps to get the meaning of the interpretation across, as it is easier to process well-organized information and to remember themes rather than many different facts (Ham, 1992). Others have argued that interpretation does not have to be limited to the site itself; it can be divided into the pre-contact, contact, and post-contact phases (Newsome, Moore, & Dowling, 2013). The pre-contact phase includes information given to people before arriving to an area and provides an opportunity to begin interpretation ahead of time. Visitors' physical presence in the area constitutes the contact phase, and the post-contact phase continues after visitors leave (Newsome, Moore, & Dowling, 2013).

The importance of making references that visitors can relate to at a personal level, as well as including bodily movement and incorporating the senses, are often mentioned as aids in making interpretation more interesting and relevant (Newsome, Moore, & Dowling, 2013; Ham, 1992; Jóhannsdóttir, 2011). Discussing a natural phenomenon in terms of how humans at other times or places have dealt with it, or how they anthropomorphize it in different ways, makes it easier for people to connect to and understand the phenomenon (Ham, 1992). Ham suggests using media and language that people will not associate with formal situations; for example, movement, colors, humor, or music could be involved (Hunter, 2012; Newsome, Moore, & Dowling, 2013). Others have suggested that environmental interpretation should revolve more around *doing* rather than passive listening and that it is essential not to feed visitors too much information, but rather to create situations for self-discoveries (Newsome, Moore, & Dowling, 2013; Jóhannsdóttir, 2011). Making personal references or asking questions that help the audience to relate the interpretation to their own life—for example, asking people what they would do in a particular situation—helps keep the audience's attention and makes interpretation relevant (Ham, 1992); this speaks to the first of Tilden's principles (Jóhannsdóttir, 2011).

Revitalizing the Practice of Environmental Interpretation

According to Mills, the “nature guide” is at his or her prime when “[giving] flesh and blood to cold facts,” moving away from mere scientific classifications in order to “appeal to the imagination” and put things into an understandable perspective (Mills, 1923: 186). Environmental interpreters ever since have attempted to follow this line of thought. Jóhannsdóttir describes Mills’s vision as moving the role of the guide from pointing out interesting things to giving visitors an opportunity to explore the wonders of nature and enhance their experience (Jóhannsdóttir, 2011). A stronger connection with a site encourages visitors to make a meaningful connection with the site and has been used as a management tool in protected areas (Jóhannsdóttir, 2011) to increase visitors’ likelihood of support.

Tilden’s second principle builds around the goal of interpretation as not to provide discrete facts, but rather to create meaning and understanding (Jóhannsdóttir, 2011). Ham describes environmental interpretation as *translation*—individual facts that help comprise interpretation are not the main goal but the *message*, and translating these “facts” into a language that visitors can understand and relate to is of utmost importance (Ham, 1992). Tilden was a philosopher and a playwright with rich insight into how to spark the human imagination (Ham, 1992), and his principles lay the foundation for much of the subsequent scholarship on interpretation. Despite this, the key literature gives little theoretical insight into art and aesthetics, the human body, the nature of sensing and understanding, or other fields revolving around the communication of meaning. Furthermore, the social sciences and humanities have been neglected in the study of the effects of environmental interpretation as well as in theorizing how and why interpretation is important (Hunter, 2012; Ablett & Dyer, 2009). In Ablett and Dyer’s (2009) view, the cognitive psychology model and related approaches that dominate contemporary scholarship on interpretation are not well suited to Tilden’s philosophy of interpretation revolving around meaning. Using interpretation as a strategic tool for management and “message-sending” devalues its aim and potential to offer people new ways to explore, feel, and connect to places.

The humanities and social sciences have much to offer to environmental interpretation. This is the case not only in terms of research methods and knowledge about how people relate to their surroundings, but also in terms of what can be mediated through interpretation. Psychology, education, and marketing are among the scholarly disciplines that provide the primary building blocks for environmental interpretation, which excludes particularly relevant disciplines like anthropology, folklore, hermeneutics, and other fields concerned with interpretation, culture, and relationships between humans, animals and their environment

(Vander Stoep in Hunter, 2012; Ablett & Dyer, 2009). Environmental interpretation is a normative cultural activity and involves telling stories and communicating knowledge and emotions. When attempting to increase personal investment and to influence cultural norms, it is fundamental to have an understanding of the complex cultural forces at play. It is important to note that such interdisciplinarity is not solely about providing science and scientific knowledge a translating mechanism to reach a broader group of people. In light of this, we will explore environmental aesthetics and human–animal studies as two relevant additions to the scholarship and practice of environmental interpretation. Both fields offer valuable perspectives on human connections with the natural world, which will be explored in turn.

Connecting with Nature: Environmental Aesthetics

The ultimate objective of environmental interpretation is to promote an appreciation of nature that will in turn promote nature connectedness and a strong conservation ethic. How are we to understand “appreciation,” and how do we connect with nature? Environmental aesthetics provides one avenue for exploring how we perceive, respond to, and appreciate the world around us, though connectedness is not always a prerequisite or an outcome. As environmental aesthetics as a subdiscipline of philosophy builds upon traditional aesthetics, one of its tasks is to distinguish between nature and art, both ontologically and experientially. It has also inherited the legacy of *disinterestedness* as a basis for the appreciation of nature; such a paradigm was established in the early 18th century by Joseph Addison and Francis Hutcheson, then developed in theories of the picturesque and the sublime that reached their height with Kant (Carlson, 2000; Brady, 2003). As a result, it is of consequence for contemporary environmental aestheticians to either build upon this lineage or distinguish their contributions from it.

It is the former path that is chosen by Carlson (2000). In his view, just as perception alone cannot suffice in guiding our aesthetic responses to art, neither can it suffice in guiding our aesthetic responses to nature: formalism alone “leads to incoherence” (p. 23), as simply observing the superficial qualities of the world around us leaves it meaningless. But according to Carlson’s natural environmental model for the appreciation of the environment, we are to appreciate nature not in an analogous fashion to art—whose artifacts were designed and created with aesthetic scrutiny in mind—but for *what it is* (natural, and an environment) and for *what we know it to be* through the natural sciences. A cognitive approach guided by knowledge derived from fields like biology and geology is fundamental, he argues, for we must be able to place the aspect of nature at hand into the scientifically correct category (a wetland as opposed to a coniferous forest, an alligator as opposed to a crocodile) if we are to appreciate it appropriately;

sometimes looks can be deceiving for the scientifically uninformed eye. Further, he claims, we have an *ethical* responsibility to view nature aesthetically from the correct category.

Building upon Carlson (though affording room for more subjective responses including awe and even mysteriousness), Muelder Eaton (2008) argues that the cognitive approach should be stressed in order to encourage simultaneous perception of aesthetic quality and ecological integrity. She thus illustrates the applied value of environmental aesthetics within the context of environmental sustainability and the development of conservation ethics, wherein “colorful native flowers will be read as an indication of soil unpoisoned by harsh chemicals” while “too rapid runoff of rainwater will go hand in hand with the perception of concrete curbs as ugly” (p. 358). Cognitive approaches like Carlson’s and Muelder Eaton’s are in keeping with a great deal of environmental interpretation practice (Ablett & Dyer, 2009), where the communication of factual information is foregrounded—or sometimes even stands alone—as a way to understand and, presumably, appreciate the natural environment. However, as we have seen, interpretation based on facts alone is not likely to be effective in promoting deep appreciation or connectedness with the natural world.

Non-cognitive theories of aesthetic appreciation of the natural environment include those by Brady (2003), for whom approaches that hinge upon knowledge derived from the natural sciences are too restrictive and do not reflect actual practice. Her integrated aesthetic seeks to combine the subjective and the objective and highlights engagement, relationality, and contextualization as hallmarks of appropriate aesthetic responses. Imagination and emotion, she argues, also deserve central roles in appreciation of nature and are not overly subjective. For Brady, the aesthetic value of nature is itself non-instrumental, but aesthetic communication is an instrumental component of environmental aesthetic education which promotes an ethics of conservation. Interpretation, in her view, should involve “a variety of imaginative ways to discover meaning in our environment, ways that increase the value we find there” (p. 75). Such perspectives are more in line with Tilden’s original principles of meaningful interpretation.

Taking the non-cognitive one step further, phenomenological engagement is promoted by Abram (1996) as a means for restoring humankind’s lost sense of connectedness with the natural world. He cites the advent of written alphabetic language as the rupture of such connection, as in his view the symbolic logic of script displaced the ability to interpret the speech of nature as intelligible. In addition, he claims the “disinterested” sciences do not suffice in explaining our daily lives, which are “deeply intertwined” with the life of the world: “The world and I reciprocate one another. The landscape as I directly experience it is hardly a determinate object; it is an ambiguous realm that responds to my emotions and calls forth feelings from me

in turn” (p. 33). While not framed as environmental aesthetics per se, Abram (1996) focuses on questions of multisensorial perception of nature as inspired by Husserl and especially Merleau-Ponty and thus does inform the discourse on aesthetics.

Abram (1996) also serves as a point of departure for Lund & Benediktsson (2010), who propose the metaphor of conversation as a mode of engagement with landscape; they trace the origins of such a metaphor to the disparate traditions of Romanticism and Transcendentalism in Europe and North America and Aboriginal worldviews in Australia. The conversation model adds to the *content* of Abram’s reciprocal, embodied engagement with the natural world; it also builds upon the notion of “dwelling” within the landscape as described by Ingold (1993). To converse with landscape involves not reading a passive setting as a text, but rather seeing with a “touching eye” (Lund, 2005; Lund & Benediktsson, 2010) and it is informed by human positionality and intentionality as well as politics and power.

All of the authors mentioned above point out that meaningful aesthetic appreciation of the natural environment must move beyond the visual. Regardless, the primacy of vision that characterizes traditional aesthetic theory lingers on in much environmental aesthetics literature, a stubborn default that seems difficult to surmount in practice. The phenomenological and conversational models described here hinge upon bodily engagement and the exchange of content, respectively, and are thus useful in conceiving environmental interpretation strategies that engage other faculties besides vision. However, thanks to biology as well as culture, humans in the Western world *are* a largely visual species, and environmental interpretation should attend to the manner in which visitors to natural areas are encouraged to depart from this comfort zone.

Western art in the historical sense has both informed and undermined the ideal aesthetic appreciation of nature, with the environment reduced to a two-dimensional landscape to be enjoyed from a distance and elements (and other residents) of the natural world reduced to discrete sculptural objects (Carlson, 2000; Saito, 1998). However, certain trends in contemporary art—namely, process- and research-based artistic practice, site-specific artwork, participatory art, and an interest in interdisciplinarity—have much to offer in terms of promoting understanding of, admiration of, and connectedness with the environment. In fact, it is surprising that explicit crossover between environmental interpretation and public and/or environmental art is not more commonplace, and that the theoretical discourse within these fields seems to be entirely disconnected. With this in mind, Emslie (2015) illustrates the power of certain environmental artworks to promote the same type of awareness and appreciation of nature that environmental interpretation seeks to accomplish. Her study emphasizes the relevance of the arts in fostering a

greater conservation ethic amongst the public, for art's affective potential is able to invoke emotional responses to the natural world that exceeds the same potential offered by traditional environmental interpretation. It is outside the scope of the current project to address the art historical literature on environmental public art (a genre that does not currently exist, though numerous artists have used public art as a medium for increasing environmental awareness). However, we believe that practitioners and professionals from all branches of the arts can and should be involved in developing and delivering interpretation within Reykjavík's green spaces, given their predilection for aesthetic concerns.

Connecting with Nature: Human–Animal Studies Perspectives

To read certain scholarly texts on “nature” or “the environment” is akin to walking through an empty forest: the absence of other sentient life is often conspicuously absent. This is certainly the case in some of the environmental aesthetics and environmental interpretation literature discussed above. Benediktsson (2010) sums up the problem—though with reference to the same oversight in the landscape studies literature—by pointing out that “the presence of animals tends to be either very limited or simply assumed without many questions asked. [...] [They] are not really included in the stories as active co-constituents of the landscape” (p. 173).

One of the objectives of the interdisciplinary field of human–animal studies (HAS) is to repopulate those empty forests, as it were, with their original inhabitants—to correct for the neglect of animal subjects within the scholarship in nearly every field of inquiry (Freeman & Leane, 2011; Shapiro & DeMello, 2010). The HAS perspective is certainly one that informs the current project on environmental interpretation within Reykjavík, despite the fact that Iceland is not particularly known for its diverse fauna (besides for its relatively rich birdlife). Still, the individual wild and domestic animals in, around, and above the city limits are to be treated not as inert objects to be viewed or described when convenient, and even then described through the objectifying lens of the natural sciences. Rather, to adapt Benediktsson's (2010) phrase, they are to be treated as active co-constituents of Reykjavík's green spaces.

Practices of “new animal geography” have emerged within the traditional social science disciplines as a means of investigating how space and place help define human relationships with animals both wild and domestic, relationships that are typically complicated by ecological codependence, modes of production, and imbalances of power (Philo & Wilbert, 2000; Urbanik, 2012). Understanding the social construction of animals—for instance, as pests, pets, or products; as useful or harmful; as wild or not—is also a project of new animal geography, and as such, representations of animals are of equal scholarly importance. Furthermore, “animal

moments,” or incidents when animals are perceived as being “out of place,” transgressing human expectations about social and/or spatial order, can be particularly valuable windows into our relationships with other species (Freeman & Leane, 2011).

Of particular relevance to environmental interpretation involving animal subjects in the wild is Philo & Wilbert’s (2000) call for animal geographers to “exercise their imaginations in trying to glimpse something of these beastly places as lived by such animals themselves, in part to gain a better sense of the implications that follow for wild animals when humans turn up and start altering the configurations of their worlds” (p. 20). These implications are as significant for wild animals in urban spaces as they are for wild animals in the “wilderness.” Philo & Wilbert (2000) also explore the human interest in classificatory schemes for non-human species, an interest that seems to be as old as human history itself but that, they argue, has led in modern times to the biological sciences assuming the overly privileged voice of authority for non-human animals. Environmental interpretation that hinges upon identification of wildlife (complete with Latin binomials) and fact-based descriptions of animals’ natural history serves to uphold biology as the proper lens through which to understand animals, keeping other species “in place” at a conceptual and spatial remove from human lives. On the other hand, interpretation that challenges such approaches has the potential to disrupt scientific “ordering” and encourage the reconsideration of scientific authority on animals; this might give way to empathetic engagement and the value of other ways of knowing the world.

The emphasis on non-human agency recurs as a crucial motif throughout the HAS literature, with a number of authors drawing from actor-network theory (ANT) to discuss the ways in which all forms of life mutually shape and reshape their relationships and their worlds (e.g., Philo & Wilbert, 2000; Whatmore, 2002; Freeman & Leane, 2011; Urbanik, 2012). However, the exact nature and implications of “agency” are far from clear, particularly in the Anthropocene (see especially Lorimer, 2015). Low (2011), for example, provides an alternative (albeit somewhat rhetorical) account of the contemporary “environmental crisis” by demonstrating that the global expansion of grasslands, rather than humans, could be considered the most significant cause of biodiversity loss since the late Miocene. He cautions that “our language limits our thinking about nonhuman agency” and that “we [human beings] should see ourselves as not always operating alone when we cause environmental harm” (Low, 2011: 203–204). Insofar as Low (2011) and Lorimer (2015) challenge mainstream environmentalism that pits humans against a timeless yet vulnerable Nature, they offer valuable perspectives to the practice of environmental interpretation if it wishes to move beyond reductive accounts of human domination of the natural world. In fact, this is in keeping with Tilden’s original interest

in using interpretation to cast light upon the mutual influence of humans and the environment, thereby undermining the nature–culture binary (Ablett & Dyer, 2009).

Related to discussions of agency and ANT, the notion of hybridity—whether in terms of human/animal, wild/domestic, nature/culture, biology/technology, or even subject/object (Whatmore, 2002; Haraway, 2008, Lorimer, 2015)—speaks to heterogenous “more-than-human worlds” in which “all of the actors are not human and all of the humans are not ‘us’ however defined” (Haraway, 1992: 67). Interpreting Reykjavík’s green spaces as hybrid environments acknowledges the complex relationships between Icelandic residents, international tourists, and native and introduced flora and fauna that work together alongside social and ecological processes to constitute these spaces. It also acknowledges that Icelandic “Nature” and “Culture” are neither static nor finite but dynamic and pervasive, always in a state of becoming, always reshaped by the more-than-human creatures and forces claiming a place therein.

To return to animals themselves, honoring agency in representations of other creatures is also essential; Watt (2011) points out, for instance, that while in contemporary visual art there is a “general postmodern avoidance of the animal as pure symbol,” animals nevertheless tend to be present “as generic signifiers for the natural world, rather than as individual, sentient, and self-interested beings” (p. 121). Snæbjörnsdóttir & Wilson (2010) also argue that artistic representations of animals often render them as static and oddly immortal, contributing to the tendency today to imagine animals as conveniently “disappearing” from the wild rather than *dying*. Representations of animals—visual, verbal, or otherwise—for environmental interpretation should thus take animals’ lives into account as particular, finite, and individually valuable.

This begs the question of whether the anthropomorphic, sentimental narratives about animals promoted in some of the environmental interpretation literature (e.g., Ham, 1992) are appropriate ways of encouraging audiences to relate to animal subjects. Certainly not all HAS scholars will agree on an answer. Baker (2000) provides an account of the appeal to rationality, rather than sentimentality, by pivotal animal rights advocates (i.e., philosophers Peter Singer and Tom Regan) in the 1970s and ’80s, the subsequent criticism of anti-sentimentalism by feminist writers in the 1990s, and the postmodern fear of sentiment in contemporary representations of animals by professional artists. Further investigating this history, Armstrong (2011) argues that “the emergence of a cultural and intellectual contempt for sentimentalism—especially in relation to nonhuman animals—had everything to do with the simultaneous rise of positivist science and industrial capitalism” (p. 176), but that sentimental relationships with animals have played formative roles in shaping the environmentalist movement. Such sentimentality, he predicts, will continue to be influential in shaping public opinion and policy concerning other animals. As for

anthropomorphizing animals by projecting their voices in the form of human speech, Tiffin (2011) provides an account of literary representations of talking animals that move beyond typical satirical or metaphorical approaches and do justice to the creatures as subjects-of-minds. The authors are in agreement with Tiffin's (2011) view that the scientific establishment has unjustly conferred voicelessness on animals, and that furthermore there is a place in environmental interpretation for anthropomorphism and sentimentality if used in ways that can stimulate interest in other species and ultimately promote animal welfare.

In sum, “interpreting” animals, and animals’ relationships with humans and their environments, in urban green areas must be more than simply pointing out the coexistence of other species. It will be at its richest if it disrupts mainstream ways of conceptualizing our fellow creatures and their place in the world. It can even offer insight into new models for conservation as *living with* wild animals rather than “protecting” them. Nature interpretation within urban borders—where conservation stakes are generally perceived as lower—might even be envisioned as having more leeway for embracing the experimental, the creative, and the confrontational, and as such it might have greater potential to influence audiences at a deeper level.

Methods

As indicated in the literature review, principles and practices of environmental interpretation fall mainly under the auspices of environmental education, tourism studies, and park management, but it is the authors' belief that these horizons could be expanded. Our collaboration combined our respective backgrounds in art history and anthropology with our current studies in environmental science in order to contribute to the field. Overall, the study can be characterized as qualitative and creative. This section addresses the steps in our process and provides rationale for our approaches.

Site Selection

Rather than conducting a comprehensive but superficial assessment of all of the recreational green spaces in Reykjavík, we opted for more thorough analyses of a small handful of sites. Four main considerations guided our selection: diversity, relevance, accessibility, and appeal.

Diversity. Our aim was to survey a representative sample of the city's many green spaces. Thus, our site selection accounted for geographical diversity (relative location within city limits; level of embeddedness within the urban fabric; level of connectedness with other green areas) and ecological diversity (species composition; geological characteristics). We also considered recreational diversity (availability of activities and points of connection; current and potential user bases). Finally, we considered our own diversity of experiences with the sites: we aimed to include both areas that were familiar and unfamiliar to us. The sites we came to choose further represent different locations on the nature–culture spectrum, or rather, different nuances in terms of their status as hybrid spaces.

Relevance. How much would this study mean for a particular green space in question? We ruled out certain sites due to their already having a considerable number of interpretation strategies in place (i.e., Viðey) or current attention from the City of Reykjavík (i.e., Elliðárdalur).

Accessibility. Due to time constraints and the desire to conduct multiple visits to each site in the study, we also ruled out potentially interesting areas that are less accessible (i.e., the smaller islands in Faxaflói Bay; Mount Esja).

Appeal. Finally, we took into account our subjective reactions to different areas under consideration, as we predicted that our enthusiasm and ability to connect meaningfully with each area would play a significant role in our ability to formulate novel interpretation for the site. For this reason, one potentially interesting area (Seljatjörn) was ultimately taken off our list.

An overview of the five sites selected—the “Breiðholt forest,” Laugarnes, Rauðhólar, Úlfarsfell, and Ægisíða—is provided in Table 1 in the Findings section.

Site Visits, Observations, and Identifying Highlights for Interpretation

Direct observation during repeated site visits was our primary means of gathering information about the areas included in the study. Our methodology was a mixed-methods approach combining phenomenological engagement and collaborative autoethnography.

Moving into a place, familiar or not, with a phenomenological agenda means trying “to let your sense(s) go wild,” trying to perceive things in the world as *things in themselves* (Abram, 1997: 35). The word *try* is important: “doing phenomenology” is best conceived as an approach rather than an achievable end (Graumann, 2002). Our initial visits also involved the first steps of traditional ethnographic methods, i.e., trying to grasp every aspect of a place before knowing too much about it (Emerson, 1995). We walked around the spaces as thoroughly as possible and took note of everything we encountered, and we talked about what our experiences had in common and how they diverged. Instead of looking at the body merely as a vehicle for our “thinking selves,” we recognized our knowledge and perceptions as created and understood within our bodies (Abram, 1997) which are also products of our culture(s). We carefully attended to all details we noticed and their effects on our bodies and moods, which meant going beyond the traditional five senses. Paterson (2009) describes three additional senses necessary in a full account of perception: *kinaesthesia* (awareness of bodily motion), *proprioception* (an internal feeling of the body’s position), and *the vestibular system* (feelings of balance and direction).

Giving sense to the senses leads the ethnographer to richer insights concerning the focus of her research (Pink, 2009). We noticed different textures of the earth through our steps, and how a space can change in the presence of new company or with a different mood. We pointed out unfamiliar things to each other, things that surprised us—and pointed out what was not so surprising. We responded to the living landscapes as they were at any given time and observed the sensations and feelings they stirred, making no distinctions between our reactions to buttercups, ravens, or manholes. We let the sites “lead the way” in terms of where to go and what to see, allowing ourselves to be surprised (Pink, 2009).

Why was phenomenology rather than, for instance, natural history, an appropriate way to approach the green areas we would eventually attempt to interpret? As Abram (1997) describes Husserl’s vision for phenomenology:

Unlike the mathematics-based sciences, phenomenology would seek not to explain the world, but to describe as closely as possible the way the world makes itself evident to awareness, the way

things first arise in our direct, sensorial experience. By thus returning to the taken-for-granted realm of subjective experience, not to explain it but simply to pay attention to its rhythms and textures, not to capture or control it but simply to become familiar with its diverse modes of appearance—and ultimately to give voice to its enigmatic and ever-shifting patterns—phenomenology would articulate the ground of the other sciences. (Abram, 1997: 35)

Conceived thus, phenomenology itself might be described as a form of environmental interpretation. Furthermore, while nature and heritage interpretation in practice often relies on scientific and historical “facts” to communicate meanings in the environment, Graumann (2002) points out that “in some of the natural sciences we observe an increasing awareness that natural phenomena must not be (mis)taken as primarily or even exclusively physical facts and processes” (p. 97). Hence our primary goal was not to take note of the topography of each area, the frequency of visitor use, or the taxonomic names of plants found therein, but rather to steer our senses towards every phenomenon we encountered, to evaluate our experiences in each site, and to try to realize the sites’ potential for interpretation and visitor engagement.

Engaging our bodies with our surroundings and paying attention to our senses, we were better equipped to let go of cultural notions of what things are and what they mean. That is not to say we could let go of our backgrounds or our subjective opinions, but that we were critically aware of how those influenced our judgements and perceptions during this research. Thus a high degree of personal reflexivity was involved (Hennink, Hutter, & Bailey, 2011; Braun & Clarke, 2013). Bouncing ideas back and forth helped us gain a better understanding of how our bodies and movements are cultural agents. We also gravitated toward our own preferred modes of engagement: Guðbjörg tended to look “up and out” while Shauna tended to look “down and in.” This resulted in a fuller joint experience of each place, and a fuller understanding of what interpretation strategies might draw from and reveal. We found ourselves continuously “*reporting back*” (Paterson, 2009: 784) and comparing our sensory experiences with each other. This ongoing self-focused and context-conscious dialogue as a fundamental part of our research process can be considered collaborative autoethnography (Ngunjiri, Hernandez, & Chang, 2010).

At times, however, we also walked with others during site visits to identify other ways of moving and looking. This brought an element of balance to what would otherwise be immersion in our own and each other’s modes of engagement, and it also afforded us new perspectives. For instance, walking with our advisor Snorri, a biologist employed by the City, offered different insights than walking with our advisor Katrín, a professor of geography and tourism.

Dialogue was particularly crucial in identifying highlights for interpretation. After the initial site visits, our conversation moved from seeing the unfamiliar in the familiar toward the consequence of such observations for our study. We often found ourselves discussing infrastructure and management issues; it was difficult to conceptualize how a place might *work for*

visitors without considering such practicalities. A study on needs and preferences of visitors to Reykjavík's green areas could be useful in order to optimize management; however, that fell outside the scope of this research. Here we retained our focus on the potential of our selected areas to offer a stronger connection with “nature” and a stronger understanding of environmental matters in general.

It should also be noted that we took our cameras to the field and used them frequently, even if not systematically. Looking through the lens aided us in seeing things unnoticed while on site, and our photographs served as useful mnemonic devices while at our desks. Our cameras were thus not intended for use in rigorous visual ethnography or thorough site documentation, but rather as a form of note-taking and to assist us in discussing and reaffirming our speculations.

Finally, while observation and dialogue were by and large our main tools for researching the study sites, we also had meetings, telephone conversations, and email correspondences with selected stakeholders. Additionally, some anecdotal information was gathered informally from various acquaintances concerning their use and perceptions of the sites in question.

Analyzing Current Interpretation and Engagement Strategies

Assessment criteria for existing features were developed based on principles explored in the literature review. A standardized assessment chart was used for the relevant features in each site. (Paths, benches, and other infrastructure elements were not analyzed, as we considered these to be management features.) Basic information about each feature—parties responsible, date of creation, intended audience, language, and condition—was also collected in this chart.

Some of our criteria speak to general principles of best practice in environmental interpretation. For instance, does the interpretive element respond to the site by addressing its most characteristic features and communicating them in a way that is relevant to the target audience (“Relevance of content and approach”; “Specificity to site and area”)? Is the style of communication appropriate and interesting (“Style/accessibility of content”)? Such questions also spurred us to investigate what values are communicated through each feature based on whose authority: is the message presented as an “ultimate” truth, reaffirming the authority of the natural sciences or portraying history as singular account of how things were? Further criteria explored whether the feature in question fits within any interpretation theme at the site (“Harmony with interpretive features”), and if it fits aesthetically within the natural and built environment of the area (“Harmony with environment”). We also considered whether the feature is aligned with visitor and site management principles (“Support management

strategies”), and whether it promotes understanding of environmental issues at local or global levels (“Connection to environmental issues”).

Two further assessment criteria underscore the perspectives from environmental aesthetics as outlined in the literature review (“Personal, affective, invites reflection”; “Engages multiple senses”). These also, however, speak to general interpretation principles about providing ways for visitors to connect meaningfully with the natural history and heritage of each site through embodied engagement. A final criterion emphasizes the animal studies agenda (“Considers multiple perspectives”—that is, more-than-human perspectives).

As with all aspects of this study, a high degree of reflexivity was involved in completing the assessment charts: we reflected upon how our different backgrounds might affect our perceptions of the sites and the features found therein. We aimed to balance our own responses to the interpretive elements with the responses of other visitors, whether actual (i.e., those accompanying us on site visits) or imagined. A certain amount of speculation was therefore involved, though the goal was to be fairly objective within the bounds of our chosen criteria.

Using the findings recorded in the assessment charts, we were then able to conduct a gap analysis to identify which highlights are not adequately addressed through current interpretation and engagement strategies. The process of identifying gaps between existing and optimal interpretation was not as rigorous as the assessment of the current features, but was based on deductive reasoning through discussion. The results formed the basis for our general recommendations and guided us in our creative process of proposing new features.

Mapping

As part of the analysis of existing engagement strategies, maps were made to indicate locations of physical interpretive features. We recorded GPS coordinates with a mobile app (*My GPS Coordinates*) and projected them onto data from the City of Reykjavík (*LUKR*) through ArcGIS. This gave us a spatial overview of the relative positions of on-site features and provided a means of communicating their density. Comparing the different sites and the interpretive features therein gave us insight into what type of new environmental interpretation might fit within each location.

Conceptualizing Novel Strategies

The new interpretive elements suggested for each site are the result of a collaborative creative process based on extensive reflection and dialogue. They also take into account principles from

the literature review, the highlights we identified for interpretation, and the gap analysis described above.

We considered the interests of current user groups in each area and how future interpretation strategies could be “true” to each site, with the aim of channeling and *enhancing* the site’s richness. Imagining ourselves in the modes of engagement of visitors to each place, we thought about ways to reach to people—many of whom might not be seeking out nature interpretation—and to spark interest. We tuned in to different rhythms to understand how differently each space might be perceived depending on how one moves through it or dwells within it. A space can contain many places simultaneously: for some, a landscape might afford a scenic route during bike training; for others, it affords an inner journey of self exploration while lounging in a hammock. Through visitor management as well as site interpretation, efforts should be made to mitigate clashes between the different needs of different users, and we took this into account when developing our new ideas.

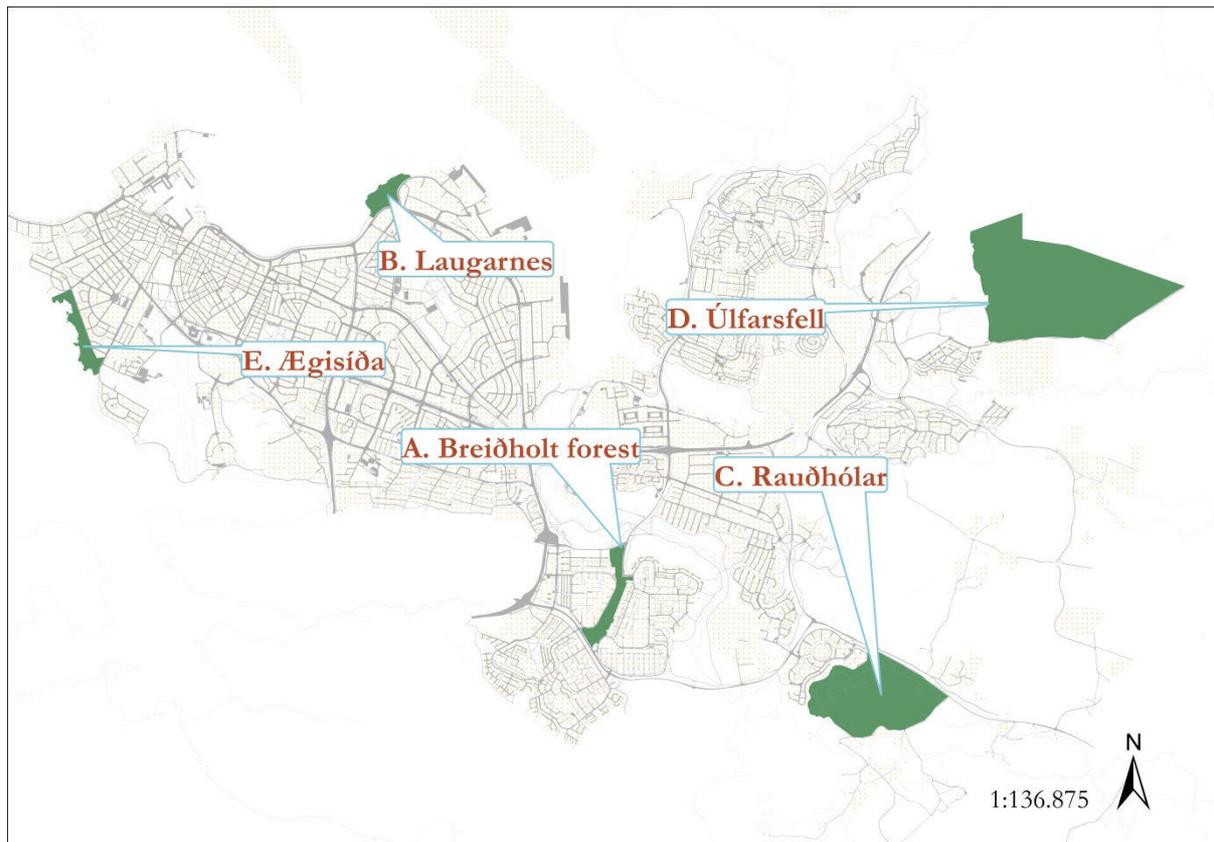
During the course of the project we shared with each other our immediate thoughts, no matter how pedestrian or bizarre, about potential new interpretation strategies to further understand what elements within these ideas might be important. We also often used existing on-site phenomena for inspiration (for example, playing on the fitness equipment at Ægisíða—such as gazing at the clouds from a backward-reclining position with the blood rushing to our heads—offered us different viewing angles and altered our bodily states [see Figure 49, p. 82]). Between the last visits for the project we reviewed the highlights for interpretation for each of the sites, reflected on their tempos, and considered how much interpretation each site could bear. Thus we commenced the process of developing ideas for new projects that exemplify each site’s potential for creative, meaningful, and thought-provoking interpretation.

Findings: Site Analyses, Recommendations, and Novel Approaches

Five green spaces within Reykjavík city limits were selected for analysis based on the considerations described in the Methods section above. Table 1 and Map 1 provide an overview of these areas. Thorough analyses were conducted for four sites (the “Breiðholt forest,” Laugarnes, Rauðhólar, and Ægisíða); Úlfarsfell was not fully analyzed as it was found that the need for basic site management overshadows the need for environmental interpretation. Reports on the individual sites, including general recommendations for improved interpretation as well as specific ideas for novel features, are found below. (Novel features are not intended as project proposals, rather as illustrations of each site’s potential for creative interpretation.)

Table 1. Overview of selected sites.

Site	Description	Main recreational offerings	Use (observed)	Main interpretation/ engagement strategies	Novel interpretation
Breiðholt forest	Semi-natural forest between Upper and Lower Breiðholt	Walking, jogging, biking, dog run	Used by Breiðholt residents	Outdoor classroom, signage	<i>Seeds of Change</i> – sculptural play equipment
Laugarnes	Seashore along northern coast (Laugarnestangi to Sundahöfn)	Walking, jogging, biking, artwork, Sigurjón Ólafsson Museum	Heavily used by cruise ship tourists; moderate use by residents	Heritage interpretation signage	<i>Rhythms of Laugarnes</i> – narrative environment audio guide
Rauðhólar	Pseudocraters and surrounding land comprising protected site within Heiðmörk	Horseback riding, walking	Significant use by equestrians; some use (walking) by residents and tourists	Signage, horseback tours	<i>I Have Had No Evening Meal</i> – participatory ballet performance
Úlfarsfell	Small mountain on the border of Reykjavík and Mosfellsbær	Hiking, mountain biking, ATV trips, horseback riding	Used by residents of capital region, some tourists	Hiking tours, horseback tours, ATV trips, signage	No new interpretation proposed
Ægisíða	Seashore along southwestern coast (Hofsvallagata to Suðurgata)	Walking, jogging, biking, football, picnics, Grímsstaðavör relics, artworks	Heavily used by residents, moderate use by tourists	Signage, site-specific artworks, hammocks	<i>Convergence (Four shores and seven seas ago)</i> – concert series on four N. Atlantic coasts



Map 1. Map of Reykjavík showing selected sites.

A. Breiðholt Forest



Overview

The site is an unnamed strip of semi-natural forest between the neighborhoods of Lower and Upper Breiðholt, oriented parallel to the contours of the hillside (Figure 1, p. 26). The southwestern end is bordered abruptly by Breiðholtsbraut, while the northeastern end connects the site to Elliðaárdalur (despite being crossed by Fálkabakki and Höfðabakki). For our purposes, Stekkjarbakki was chosen as the northern border—particularly because this would result in the inclusion of an existing outdoor classroom within the site’s boundaries—resulting in an area of roughly 18.6 hectares.



Figure 2. Satellite image of the Breiðholt forest.

The forest is comprised of native birch woodland species alongside pine trees first planted in the 1970s or 1980s; this serves as habitat for small forest-dwelling birds. Conspicuous alien species include the invasive lupine (lúpína, *Lupinus nootkatensis*) and rosebay willowherb (sigurskúfur, *Chamerion angustifolium*) as well as garden plants that have spread from the adjacent residential neighborhoods but are less likely to become invasive. In addition to the native and introduced vegetative features, dolerite bedrock is also visible in certain areas within the site.

A network of unmarked paved and unpaved paths, as well as user-made shortcuts, allows access by foot throughout the site. Most prominently, a paved path runs longitudinally through

approximately two-thirds of the strip, making the site more easily usable by elderly visitors, children, and bikers. Other notable features include the outdoor classroom at the northern end and a dog run at the southern end. Three parking lots along Arnarbakki unofficially serve the site, which is also readily accessible by four bus lines (3, 4, 12, and 17).

Observations

Site visits were conducted on June 23, July 8, and August 4 and 12. Biologist Snorri Sigurðsson of the City of Reykjavík accompanied us on the second visit, and on the third visit we were joined by local artist Kathy Clark, her dog Charlie, and eighteen-month-old Elísa. The first two visits were under pleasant weather conditions; the third was on a particularly warm day; the last was on a grey and rainy morning.

The site was entirely unknown to us prior to the study but struck us as a surprisingly appealing place for a calm, meditative forest stroll either in solitude or with a familiar companion (Figure 12, p. 33). Though we found the sound of neighboring automobile traffic to be quite noticeable, and though apartment buildings are visible from many places within the site, at times we found it easy to imagine ourselves in a natural area far from the city.

Anecdotal information and direct observation suggest that the site is used regularly and enjoyed by Breiðholt residents of all demographic groups. Users encountered on our visits included a quiet elderly couple walking their dog, multiple joggers and bikers, a mother pushing a baby carriage with another small child in tow, a father and his elementary-school-aged daughter strolling quietly, and a lively trio of teenagers smoking on a bench. The presence of litter and graffiti testified to usage by people who might not be seeking out the site specifically for its value as a natural site but rather as an extension of their urban environment (Figure 4, p. 29). A significant amount of trash around the outdoor classroom suggests some visitors' desire to spend time in the forest itself rather than on benches alongside the paths (Figure 7, p. 30). We were unable to observe the classroom in use by its target audience, schoolchildren, but a meeting with a kindergarten administrator gave us insight into the extent and type of use of the site by neighboring schools.

During our second site visit, Snorri himself provided impromptu environmental interpretation and demonstrated—albeit unintentionally—the value of a knowledgeable nature guide (Figure 8, p. 31). Among other things, he highlighted the often overlooked conservation value of the dolerite bedrock, discussed his own views on the conservation of “original” natural areas, and pointed out both native and invasive species of note. The unexpected presence of the

rare native blue moor grass (blátoppa, *Sesleria albicans*) was of particular interest to him; this detail would have certainly gone unnoticed by us (Figure 3, p. 28).

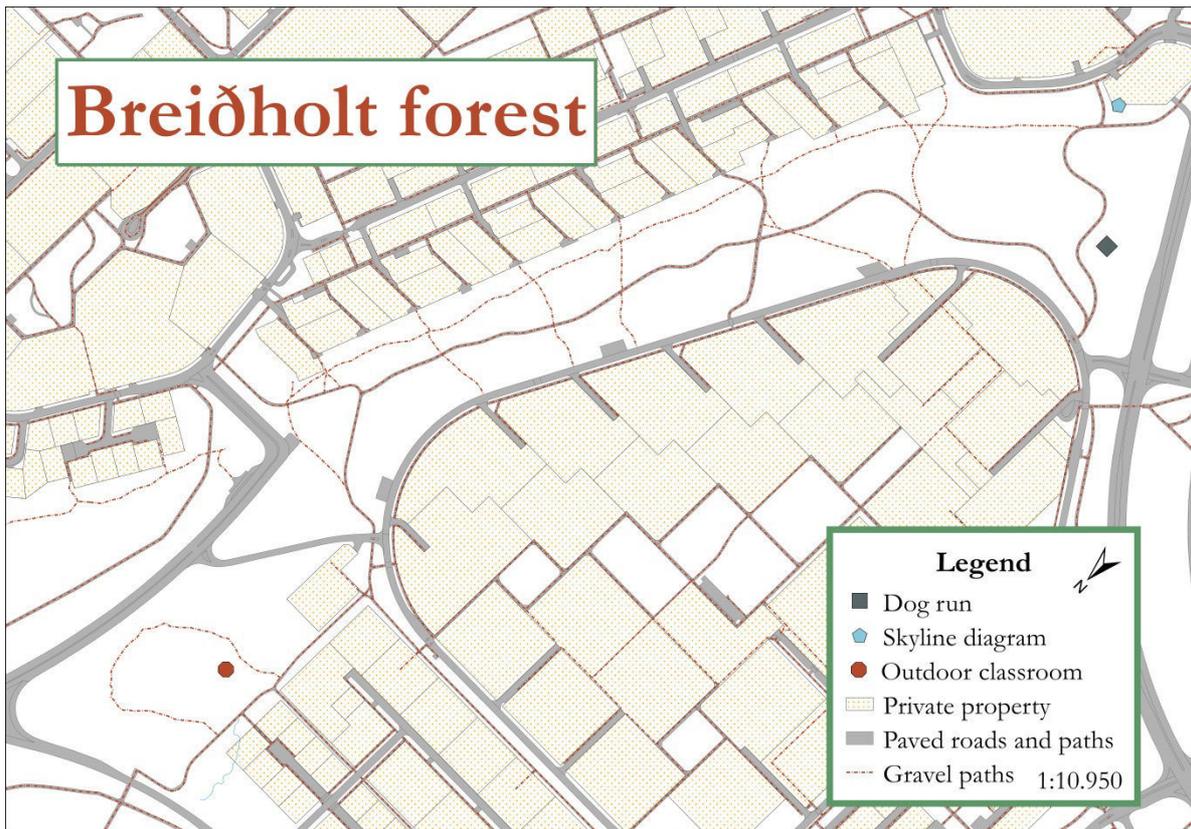
Visiting the site with Charlie the dog enabled us to assess the dog run at the southern end and to better appreciate the entire forest strip from an animal’s point of view (Figure 9, p. 31). We had initially found the barren gravel that constitutes half of the enclosed dog run to be a strange feature: why not make this run specific to the site by having it entirely forested? Was it for the human conveniences of better visibility and easier maintenance? Seeing Charlie in action in this open area—chasing a ball at full speed and enjoying the smells in the gravel just as much as those in the forested half—demonstrated to us that the “unsightly” gravel is of interest and utility to the canine visitors the dog run is meant to serve. Moreover, not only was the fenced-in run enjoyable for Charlie, it also provided a place for Elísa to enjoy watching and playing with him, suggesting the potential benefits of such a space for more than just the target user group.

Highlights for Interpretation

In a number of ways, the Breiðholt forest strip has the potential to be used as a teaching tool to illustrate issues of environmental concern. Because of its embeddedness within a dense residential area and its mixture of native, afforested, and invasive vegetation, this site provides an excellent opportunity to educate visitors about intentional and unintentional human impacts on forest ecology, including the dynamics of alien invasive species. As a narrow strip of forest extending out of Elliðaárdalur, it could prompt discussions on the importance of habitat corridors and the connectivity of natural areas. There is also a contrast between the visual feeling of isolation and the auditory reminder of the surrounding traffic that could serve as the basis for reflection upon the value of “nature islands” within urban environments.

Perceptually and phenomenologically, the forest strip has further interpretive potential. The contrast between the flat paved path on the one hand and the steep rocky paths and user-made shortcuts on the other hand speaks to different modes of motion and different levels of mobility as well as to sanctioned and anarchic passage through the space (Figure 11, p. 33). Dense patches of rosebay willowherb and field horsetail (klóelfting, *Equisetum arvense*) in the summer are of textural interest (Figure 6, p. 30; Figure 10, p. 32). Some of the wild-growing alien garden flowers, out of place even to an untrained eye, are surprising punctuations of color and form within the fabric of the forest.

Finally, the dog run could be an interesting starting point for contemplation of interactions—particularly power dynamics—between humans and animal companion species.



Map 2. Map of the Breiðholt forest.

Analysis of Existing Interpretation and Recommendations for Improvement

The forest strip between Lower and Upper Breiðholt already enjoys a fair amount of use, but little has been done in terms of environmental interpretation (see Map 2 above and Table 2 in the appendix). Developing new interpretive features for this site therefore has great potential to enrich users’ experiences. Environmental interpretation efforts or engagement strategies in this area are best geared toward local residents rather than tourists, who are not likely to visit this site given its location.

Simply naming and labeling the area would by itself do much to elevate the forest strip from a “space-in-between” the neighborhoods, or “land-connected-to” Elliðaárdalur, to an urban green area destination in its own right. A naming competition, open to participation and voting by Breiðholt residents, could be an interesting way to accomplish this task while at the same time drawing other city residents’ attention to the area.

The sole on-site interpretive feature intended as such is a skyline diagram at the southern end with area heritage interpretation (Figure 5, p. 29). This sign does not reveal much about the specific site, however: the textual information in Icelandic and English speaks to the human history of Breiðholt in general and to the nearby natural and recreational area of Elliðaárdalur, of which this forest strip can hardly be considered truly a part. Further, the skyline diagram—of

very limited utility, given the fact that the trees block nearly all of the landmarks identified—suggests inappropriately that the main amenity value of this site is as a viewpoint rather than as a place and space in and of itself. Future signage for the area should remedy these problems by providing more specific information about this particular stretch of land. An integrated approach to discussing the site’s social and natural history would be most appropriate given the afforestation, presence of native and alien species, and the embeddedness of the forest within the urban fabric of the city.

The addition of the fenced dog run in 2012 is likely to have elevated the status of the site, both in terms of providing a new recreational offering and reflecting preexisting local interest in the area. The dog run was elected by Breiðholt residents as part of the City of Reykjavík’s *Betri hverfi* (Better Districts) program, which empowers residents to help the city decide how to prioritize the allocation of funds on a neighborhood level. While a dog run cannot be said to be a form of environmental interpretation, it provides a site for a certain type of activity and engagement within the environment, both for dogs and their human companions. Might it be developed to more explicitly encourage engagement *with* the environment, or with issues pertaining to animal inhabitants of the city? As a managed area within the managed area of the forest strip, this could be a fruitful site for creative interventions by artists interested in non-human animals.

As gleaned from our meeting with a kindergarten administrator, the Breiðholt forest is used periodically for outdoor education by the kindergartens Arnarborg, Bakkaborg, and Fálkaborg as well as the primary school Breiðholtsskóli. According to this source, no specific curriculum has been created for the area; rather, the style and content of the lessons are largely dependent upon the interests and knowledge of individual teachers. Developing age-appropriate lesson plans that tap into the unique qualities of this forest, rather than forests in general, could enhance the site-specificity and meaningfulness of outdoor education there. In addition, our observations upon two occasions of trash at the outdoor classroom points to a need for tighter site management, or even a new community watch system.

In general, community-based monitoring or “citizen science” projects could be an interesting option to explore in the Breiðholt forest. Such projects have the potential to educate members of the public about environmental issues that are relevant to their lives, contribute to scientific knowledge and/or to ecological integrity, encourage frequent engagement with the natural world, and empower communities to participate actively in the management of their surroundings. Bird or plant population monitoring in this forest strip could be one option; another could be invasive species management.

Impressions from the Breiðholt forest



Figure 3. The presence of blue moor grass (blátoppa, *Sesleria albicans*), a rare native species, might raise the conservation value of the Breiðholt forest.



Figure 4. Creative graffiti testifies to the forest as a cultural extension of its urban surroundings.



Figure 5. The skyline diagram (designed by Árni Tryggvason), which identifies urban and natural landmarks as seen from this viewpoint, might have been more suitable at an earlier stage of forest growth.



Figure 6. An area of the forest floor covered with a dense blanket of field horsetail (klóelfting, *Equisetum arvense*).



Figure 7. The simple outdoor classroom used by several neighborhood schools was strewn with litter during our site visits.



Figure 8. Snorri serves as our impromptu nature guide, discussing both scientific facts and conflicting personal opinions about alien and invasive species within Icelandic ecosystems.



Figure 9. Elísa enjoys watching Kathy and her dog Charlie playing fetch in the dog run.



Figure 10. A thick patch of rosebay willowherb (sigurskúfur, *Chamerion angustifolium*), an alien species, forms a forest within the forest.



Figure 11. A user-made path cuts through an opening in the forest.



Figure 12. The Breiðholt forest provides opportunities for intimate, immersive encounters with nature.

Novel Interpretation: *Seeds of Change*

Amidst the native *birki*, between the planted pines, seeds uninvited to the Breiðholt forest are scattered by breezes and birds. They have given rise to thick patches of rosebay willowherb, forests in the forest; they blossom into showy garden flowers poking their colorful heads through beds of horsetail. To what extent are alien plants like these in place or out of place in semi-natural urban forest ecologies? To what extent are they considered threats by scientific communities and members of the general public? Do they undermine or enhance our recreational enjoyment of the forest? Do they endanger our children, or enrich their lives?

Seeds of alien plant species found in the Breiðholt forest are both the inspiration behind and the forms of *Seeds of Time*, pieces of sculptural play equipment created for the site. These play sculptures are made from natural materials also found in the forest, such as dolerite and birch, ensuring that they harmonize visually with the environment and age well. (The sculptors' collaboration with play equipment safety specialists is of course an essential part of the process.) Scaled up, the giant seeds and seed pods are elegant shapes that appeal to the eye and invite playful physical interaction by children, not least in that they are scattered throughout the forest and provide opportunities for discovery. Their monumental size and graceful presentation draw attention to serious questions about ecological integrity in a manner that is provocative and ironic. At the same time, they function as a way of activating children and their adult companions within the forest environment through kinetic and tactile means. The play sculptures thus operate on multiple levels—as works of art and as environmental education teaching tools with the potential to connect cognitive knowledge with bodily engagement.

Large-scale sculptures of seeds and seed pods by contemporary artists include those by British sculptor Tom Hare (www.tomhare.net), whose woven willow pieces have been installed in the Royal Botanic Gardens at Kew in London, and those by Singaporean artist Han Sai Por (www.hansaipor.com), internationally known for her sleek sculptures of organic forms including stylized seeds. American artist Troy Corliss (www.troycorliss.com) has created seed-inspired play sculptures for the Cleveland Botanical Garden (*Sprouted Seeds*, 2005). Free play on nature-inspired sculptural objects like Corliss's (or like those by numerous artists working in playground design) must certainly encourage healthy childhood development alongside connectedness with nature (see for instance Herrington & Studtmann, 1998).

For the new play sculptures in Breiðholt's forest, an open lupine seed pod nestled into the hillside doubles as a slide. The pod is empty, prompting speculations about where the seeds are and whether we should be looking for them. As children step into the pod and slide down, they feel with the motion of their bodies the ridges and the hollows in the carpels where the

seeds once were. In rainy weather the sculpture becomes a gentle waterfall, with rainwater collecting in the top hollows of the pod and trickling down the carpels. When the sun is shining, it can serve as a resting place to contemplate the meaning of life together with a friend.

Another sculpture resembles the ruptured pod of the rosebay willowherb releasing its downy seeds. Its funnel-like form spins around like a merry-go-round. A single child-sized orange hawkweed seed (roðafífill, *Pilosella aurantiaca*) is affixed to the ground with a bouncy spring. Seeds of other garden flowers found in the forest assume simpler sculptural forms that children can climb on and around in free play. Near each sculpture an unobtrusive sign indicates, with an air of supposed scientific neutrality, the Latin name of the species.

Beyond the sculptures' use in play, outdoor education lessons can use the seeds as a starting point for exploring ecological questions at age-appropriate levels. Which species grow in the forest? Where does each type of plant grow and what does it need to thrive? Where do these species come from originally, and how do they interact with other species in the forest? Being able to view and touch the larger-than-life seeds, observing their magnified forms and feeling the different textures of their different parts, makes for a memorable and meaningful learning experience.

Are there parallels between the discourse on alien plant and animal species in Iceland and the discourse on Icelandic residents and citizens of foreign origin? (See Benediktsson, 2015, for a recent analysis of “floral hazards” and Icelandic nationalism.) Are these parallels that are appropriate to discuss, or are they somehow taboo? Situating this project in Breiðholt, a neighborhood known for its human diversity, is thus additionally provocative on this social level and is likely to spark some debate. A public symposium proactively addressing these questions of “environmental purism” and nationalism is to be held shortly after the installation of the sculptures in an attempt to keep the discourse productive. Regardless of possible connotations, the City of Reykjavík's considerable investment in this project that is geared toward enjoyment by children while simultaneously boosting the artistic capital of the area—an endeavor recently begun in earnest with the commissioning of several high-profile murals—makes a strong statement about the City's support of the neighborhood.

As the seasons pass, the Breiðholt seed sculptures give us cause to reflect on how real seeds survive through the winter and where they will sprout and grow in the spring. In the midst of full summer bloom, the sculptures are reminders of common origins and purpose: every plant and tree we see grew from a seed and dwells now in this forest, no matter where it came from, playing its part in creating a place of wonder and adventure.

B. Laugarnes



Overview

Laugarnes is a historic landscape along the seashore in north-central Reykjavík with diverse features of interest including art, history, ecology, geology, and an exceptional view over Faxaflói Bay (Figure 13, p. 36). It lies between the downtown area to the west and Skarfabakki, a harbor for cruise ships, to the east. Cruise ship passengers walking through the area are thus a common sight. The area is enclosed and separated from the city by the streets Sæbraut and Klettagarðar, and for our project we defined the southwestern edge of the site as the sewage treatment plant in Kirkjusandur and the northeastern border as a short pathway connecting the shoreline path to a pedestrian path in Klettagarðar. It is roughly 12.3 hectares and contains three private residences as well as the Sigurjón Ólafsson Museum (now a special division of the National Gallery of Iceland).



Figure 14. Satellite image of Laugarnes.

The only original stretch of shoreline on Reykjavík's northern border, Laugarnes has a long and rich history, including as the site of a settlement-era farmstead, a leprosy hospital, and a British military base. This history is presented on a series of signs scattered around the area, and some of the precise archaeological sites are marked in the landscape with varying degrees of accessibility and visibility. In addition to these mostly grass-covered ruins, Laugarnes is

characterized by low-growing moss heathland vegetation and rocky beaches. A few rocky outcroppings of columnar basalt make for excellent viewpoints over Faxaflói Bay to the center of Reykjavík and across the water to Snæfellsnes, Akranes, Skarðsheiði, Mount Esja, and the islands in the bay.

For pedestrians and bikers, Laugarnes can be entered from the southwest or northeast by means of a paved path along the shoreline, or from the sidewalks along Sæbraut and Klettagarðar. Bus lines 12, 15, and 16 have nearby stops. The primary parking lot for the site is at the end of Laugarnestangi in front of the Sigurjón Ólafsson Museum; additionally, there is a nearby parking lot servicing the Viðey Ferry Terminal. Accessibility within the site is fairly high: the main path is paved and easily traversable for wheelchairs and strollers, although benches are situated sparsely, making it more difficult for people with impaired walking.

Observations

Site visits were conducted on June 25 and July 2, 21, and 28. While the first three visits were under fair-to-pleasant weather conditions, the last was on the morning of an exceptionally beautiful day (warm sun, no wind, low tide). During two visits we were accompanied, respectively, by our advisors Katrín and Snorri, and during two we were accompanied by eighteen-month-old Elísa, who stayed mostly in her stroller.

Neither of us was particularly familiar with Laugarnes prior to the study, despite having driven and biked past the area many times before (Figure 25, p. 49). We had both been under the impression that the Sigurjón Ólafsson Museum and the private residences were the only reasons to visit the area. Anecdotal evidence (including from Katrín) suggests that we are far from the only residents to have had this mistaken idea. Signs and markings for the site are not visible until one is already within the area, save for the heritage interpretation sign facing Sæbraut—a sign with little relevance to drivers. In this sense, Laugarnes for us was hidden in plain sight and therefore all the more appealing once we had “discovered” it.

Given the character of its historic landscape, Laugarnes has great potential as a site for visitors to reflect upon how humans and nature work dialectically to create a place within green or urban space (Figure 19, p. 46). The border of busy Sæbraut separates the area for pedestrians from the rest of the city, and within the site one may have a sense of peaceful isolation or separation from urban life while simultaneously gazing at the “distant” cityscape (Figure 16, p. 45). The paved path within Laugarnes leads walkers and bikers away from the seashore to archaeological sites at the southern corner of the site where the street disturbs the experience (although the traffic does offer opportunities to further reflect on how time has changed—what

sort of soundscape, rhythms, and tempos would have dominated the area in the past?). However, we observed that the vast majority of visitors (including several in wheelchairs) did not follow the paved path but rather took the gravel strip connecting to the path along the shore, suggesting that the natural attraction of the seascape is a more compelling attraction than the historical features (Figure 22, p. 48).

We also noted on each of our visits that while many people move through the area, few seem to stop and dwell for a longer time, especially those whom we could identify as residents. The majority of visitors walked slowly but steadily, stopping at irregular intervals and locations for a short time. Others (presumably residents) were biking or running, making use of the area as a venue for athletic recreation and coming *to* Laugarnes to pass *through* it. We also observed several residents with dogs arriving at and departing from the site by car, suggesting that the area is seen as a desirable destination for dog walking. At low tide, several visitors were noted to approach the water. During our two afternoon visits, visitors were observed sitting at picnic benches, though not for picnics (Figure 24, p. 49). Some litter was noticeable along the paths, though it cannot be said to be a major problem.

Botanical diversity in the area seems much more noteworthy than diversity of animal life, although some sea- and shorebirds as well as marine mollusks, such as the dog whelk (nákuðungur, *Nucella lapillus*), were observed (Figure 15, p. 44). Despite lupine and giant hogweed (bjarnarklór, *Heracleum mantegazzianum*) encroaching on the site from the western edge, thistle growing in patches around the fields, and dandelions dotting the grass, the shoreline itself is still dominated by native plant species. The juxtaposition of the mossy heathland vegetation, the buttercup-filled meadow, and the view across the bay struck us as feeling “quintessentially Icelandic.”

The area has reached its limit with regard to signage. Information on the multiple existing heritage interpretation signs is redundant, suggesting a sort of “competition” between the parties responsible. Few visitors were observed stopping for long at the signs. Many visitors, however, approached a survey marker, a conspicuous vertical concrete post on a small outcropping not far from the museum (Figure 23, p. 48). While the original purpose of this survey marker is irrelevant to visitors, its location emphasizes the natural viewpoint over the bay and thus serves an indirect practical purpose.

Highlights for Interpretation

As the only natural stretch of coastline on the northern side of Reykjavík—yet flanked by the city, adjacent to an industrial zone, and steeped in history—Laugarnes is a unique place to reflect

upon the nature/culture dialectic. The abundance of archaeological relics offers opportunities for discussion of the longstanding human presence that has in more recent times been sidelined in attempts to preserve the site's historical landscape.

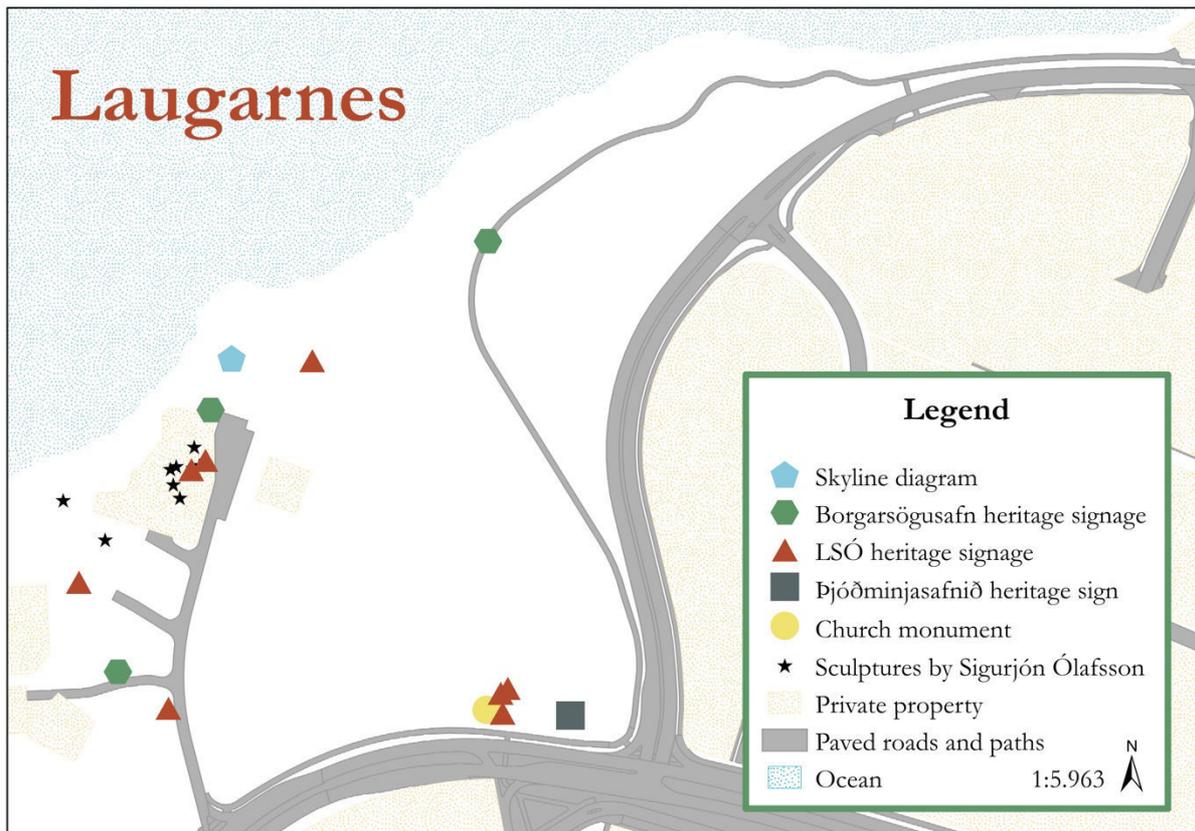
The species composition of the flora at Laugarnes, particularly toward the eastern shore end of the site where wild thyme, heather, and small flower varieties flourish, is thought to be representative of the vegetation in much of Reykjavík prior to urbanization (Figure 17, p. 45; Figure 18, p. 46). In this regard, the heathland vegetation can also be considered a historical relic of sorts. The same can be said of the columnar basalt along the shoreline.

Unlike the other areas under consideration in this study, Laugarnes includes a relatively flat stretch of grassy meadow that could serve as the basis for interpretation opportunities dependent upon open space and/or open sky (Figure 20, p. 47). (During our study, the meadow was fittingly used to host a kite festival on Culture Night, presumably the first of its kind.) This meadow, a former hayfield, is incidentally one of the few phenomena in the area whose character has remained fairly stable over the centuries. It has been maintained in order to preserve evidence of a technique (*beðasléttur*) of leveling the marshy ground with irrigation channels to prevent new hummocks from forming after repeated freeze-thaw cycles.

Visually, Laugarnes is rich with textural contrasts: in addition to the fine textures of the aforementioned heathland vegetation and the rougher texture of the basalt, the meadow buttercups and dandelions dotting the grasses also create pleasing patterns for the eye, particularly along the field where the parallel lines from historical plowing methods are still visible. At low tide, the layered textures of stones on the shore, seaweed on the stones, and snails on the seaweed are striking.

Further, contrasts between the historical landscape, the Reykjavík skyline, and Faxaflói Bay (along with Viðey and the other islands) prompt reflections on perspective; Laugarnes offers an exceptional view, but one that also suggests the possibility of being the subject of a view.

As a final, and crucial, point, many of the cruise ship passengers docking at Skarfabakki stop for a very limited time in Reykjavík (Figure 21, p. 47). This means that the historical landscape at Laugarnes not only serves as the first point of entry for many tourists to the country, but also might serve for some tourists as the only point of contact with the natural environment in the capital region. The “quintessentially Icelandic” feel of the landscape is thus of great interest when considering environmental interpretation opportunities for this tourist base.



Map 3. Map of Laugarnes.

Analysis of Existing Interpretation and Recommendations for Improvement

Current heritage and nature interpretation at Laugarnes is not optimal, which in part reflects unresolved issues of site management. Formal registration of the area as a protected cultural landscape through the Cultural Heritage Agency of Iceland (Minjastofnun Íslands) is pending (Birgitta Spur, personal communication, August 13, 2015). It remains to be seen whether such protection will resolve gaps in management and the stakeholder conflicts that came to light during the course of this study. Invasive species management is of particular concern, especially in terms of the highly noxious and phototoxic giant hogweed that has spread from a private resident’s garden. Improvements to interpretation strategies at Laugarnes are thus less of a priority than addressing health and safety matters and clarifying the legal status of the site as a protected area, but an analysis of interpretation features and recommendations nevertheless follow.

Between the signs installed by the National Museum of Iceland (Þjóðminjasafn Íslands), the Sigurjón Ólafsson Museum, and Reykjavík City Museum (Borgarsögusafn Reykjavíkur), heritage interpretation at Laugarnes has been well attended to, perhaps even overly so (see Map 3 above and Table 3 in the appendix). Information provided by the various parties is redundant from sign to sign and emphasizes “authoritative” facts pertaining solely to human history. While

the series of small signs by the Sigurjón Ólafsson Museum are the least relevant to tourists (given that they are only in Icelandic), are problematic in their lack of contextualization of the information provided, and are weak in terms of installation and design (i.e., low-budget materials unsuitable for outdoor conditions), their approach is the most engaging, as they encourage visitors to walk through the landscape to discover the precise archaeological locations of various historical sites. Overall, visitors to Laugarnes would be served better by a coordinated effort from stakeholders to consolidate and enliven this interpretive material. (Perhaps this will be streamlined when Laugarnes gains protected status and is assigned a formal management plan.) A more affective, rather than fact-based, approach would particularly make the site more relevant and meaningful for tourists to the area.

While the heritage interpretation has essentially been overdone, there is very little in terms of nature interpretation at Laugarnes. This is surprising given the area's biodiversity (particularly in its native plants), its geological features (the natural shoreline and the columnar basalt), its scenic beauty, and its accessibility to tourists. The only onsite feature that could be argued to provide nature interpretation is the city and mountain skyline diagram; however, it speaks only to the value of the site as a viewpoint rather than as a place with its own intrinsic value. Given the abundance of heritage interpretation signage at Laugarnes, we are hesitant to advocate the installation of additional nature interpretation signs. Rather, nature interpretation signage should be incorporated into the revamped heritage interpretation strategy as recommended above.

Beyond signage, integrating the natural and the social in all interpretation at Laugarnes would result in an approach that would speak to the area's more-than-human history: that is, the intertwining presence of humans, other forms of life, and geological forces as they mutually influence each other over time. Including the natural history of the area in the site's heritage interpretation would only strengthen the status of Laugarnes as a cultural landscape worthy of protection as such.

The outdoor sculptures by Sigurjón Ólafsson effectively connect the museum with the surrounding landscape, although the installation could be reconsidered to maximize aesthetic appeal and bodily engagement. As Ólafsson's sculptures speak almost solely to the sense of vision, additional artistic interventions could be welcome at the site insofar as they would engage additional senses. However, any such additional artistic input should also respect and reflect the mission of the Sigurjón Ólafsson Museum.

Guided tours and activities at Laugarnes would also be a welcome feature. Considering the number of tourists, especially those arriving and departing on cruise ships, who pass through

the area, self-guided audio tours could be an appealing option. These could be accessible through smartphone technology and/or rented from the Sigurjón Ólafsson Museum and the tourist information center near the ferry terminal. While the site might not be suitable for large events, resident- and family-oriented activities or workshops on a smaller scale could take advantage of the area's accessibility as well as its many natural highlights as mentioned in the section above.

Impressions from Laugarnes



Figure 15. A dogwhelk (nákuðungur, *Nucella lapillus*) along the Laugarnes coastline waits for the tide to return.



Figure 16. A tourist snaps a photograph of flowers growing along the shore. The natural basalt shoreline and Reykjavík's old harbor area are visible in the background.



Figure 17. Standing among the native species found at Laugarnes, including the bright purple blooms of wild thyme (blóðberg, *Thymus praecox*).



Figure 18. Laugarnes boasts an exceptional view over Faxaflói Bay. Here Mount Esja can be seen in the distance, with moss heath vegetation in the foreground.



Figure 19. In Laugarnes as in many places, the boundary between “nature” and “culture” may at first seem obvious, but careful observation reveals otherwise: dandelions grow amongst the native buttercups, and plants and moss find a way to grow on, around, and within the concrete.



Figure 20. The old hayfield, with the irrigation ditches barely visible under the grass. The Sigurjón Ólafsson Museum is visible in the background.



Figure 21. Many of the visitors to Laugarnes arrive by cruise ship. The area is thus the first point of contact on land that some tourists have with “Icelandic nature.”



Figure 22. Visitors were observed sticking mainly to the path along the shoreline, but sometimes venturing closer toward the water.



Figure 23. A survey marker provides the unintended benefit of leading visitors to a scenic viewpoint.



Figure 24. Two tourists enjoy the view from atop the grass-covered basalt.



Figure 25. From the corner of Laugarnes, looking out at Sæbraut and Klettagarðar. It is likely that many residents drive by the area without realizing that it is a destination in its own right.

Novel Interpretation: *Rhythms of Laugarnes*

The hayfield: ...I hear the endless stream of cars speeding by. When they pause at the traffic lights, the thrumming of the engines gives way to the low rumble of a cruise ship coming to port on the other side. The lights on Sabraut turn green again and I feel the gasoline-tinged breeze stirring each blade of my grass. A cyclist hums through on the paved path, while the scrambling of rocks is a giveaway for a wheelchair being pushed on the path nearer to the shore. In the summer months I sometimes hear the aggressive sputter of a tractor passing over the land, mowing the lawn but ever so gradually softening the corrugated surface of my irrigation channels dug over 150 years ago. After centuries of service as a periodically lumpy hayfield, they carved me out this way with the hope of permanently flattening my hummocky ground—so that despite the annual cycles of freeze and thaw of my once-marshy earth, I would remain reliably level for the farmers who called this land home. As the tractor moves over me and I feel the slice of each blade of grass, sweet juices flow and a fresh green scent wafts over Laugarnes, more potent than the car exhaust. Regardless of the technique they use, it produces the same vital smell that has drifted across Laugarnes so many times before...

Rhythms of Laugarnes is an interactive narrative environment tour whose aim is to interpret the more-than-human history of the landscape at Laugarnes. Audio recordings present a motley chorus of interwoven voices, sometimes harmonious and sometimes dissonant, that speak from different perspectives and touch upon the soundscape and the smells of the area at different points in time.

The redshank: ...The humans mostly stick to the gravel path along the shore; I thought my nest would be safest here, closer to the paved path, slightly inland and uphill. But here comes another person and yet another, and I fear for my four vulnerable eggs. Tyyu-huu-huuuuu, tyyu-huu-huuuuu! I rise up from the grass and fly down towards the water, hoping to distract the intruders with my shrill call that pierces through the fog of the man-made sounds. Legend has it that so very long ago, we feathered ones had this land to ourselves. Now the other birds rely on us redshanks to sound our alarms at the first whiff of danger...

Both Icelandic and English versions of the tour are accessible through several platforms. First, it takes the form of a hand-held audio guide device rentable for a modest fee from the visitor information center at Skarfabakki or the Sigurjón Ólafsson Museum. QR codes placed on signs and benches also make the same format of the guide available on visitors' own smartphones. Finally, an online version of the project exists as well. Users can choose to follow a preset sequence that guides them through the historical landscape or to jump from voice to voice at will.

The maid at Laugarnesstofa: ...I hear the bishop approaching Laugarnesstofa before I look out the window and see him: his feet make a loud and undignified squelch as he treads across the soggy ground. Cold droplets of rain collect on his ruddy cheeks, then run down his neck under the collar of his coat. When he opens the

door, he inhales deeply and smiles at the smell of my deep-frying kleinur that greets him. I, on the other hand, cringe as he removes his coat and the heavy stench of damp wool, worn-out skin shoes, and sour sweat fills the room...

The cast of characters incorporates both humans and nonhumans from the past and present, some historical and some fictional. These include the age-old hayfield, the nervous redshank, and the maid at Laugarnesstofa who have spoken above. Other voices are flora such as the gentle wild thyme and the noxious hogweed, and yet others are animals such as a horse from the old farm, a goose from a former man-made pond, and a dog whelk from the intertidal zone. Human figures include Hallgerður Langbrók, a historical figure from Njáls Saga; a patient from the Oddfellow leprosy hospital; a resident of one of the Nissen huts left by the British army; a current Laugarnes resident; a biologist; a runner; and a driver passing by along Sæbraut. Other longstanding voices are those of the columnar basalt along the shore and the ever-present sea.

The runner: ...*I love running through here really early, when it's just me and the landscape and the sea. The beat of my music pulsates from my headphones and vibrates through my body, propelling me forward, until my own heartbeat takes over and syncs with my shoes hitting the ground underfoot. I'm lost in my own private rhythms, but I can also see the empty silence around me, with only the occasional redshank flying overhead and calling as if to greet me. I swear the salt from the sea smells strongest in the morning, too, but maybe it's just because the smell of car exhaust hasn't taken over yet. I've kinda gotten sick of living in the city, but at least my morning run through Laugarnes brings me a quiet taste of my own private Iceland, the stuff the tourists' dreams are made of...*

These narrative audio tracks range from approximately 30 seconds to two minutes in length. Some are written and recorded by the characters themselves (in the case of living human subjects); others are penned by commissioned writers selected for their ability to tune in to the subjective perspectives of historical figures and nonhuman entities. Certain characters explicitly confront each other (for example, the native wild thyme and the invasive giant hogweed), while some occupy the same place at different points in time (the early 21st-century biologist and the late 19th-century leprosy patient) and yet others serve as more omniscient narrators (the sea and the hayfield, who have witnessed changes at Laugarnes over the course of many centuries). Interspersed within the narratives are short sound clips, ambient field recordings that bring further to life the sounds alluded to by each character.

The concept of a narrative environment has been of increasing interest to museums and heritage sites as a way to present historical information in an engaging, affective manner while allowing visitors a sense of autonomy as they move through and engage with physical spaces

(e.g., Sharples et al., 2013; Patel & Tuck, 2008). Artists have also worked with this framework; most prominent are Canadian sound artists Janet Cardiff and George Bures Miller (www.cardiffmiller.com), whose works include a sound installation in a forest near Kassel (*Forest [for a thousand years...]*, 2012) and a guided walk through a historical landscape in Jena, Germany (*Jena Walk [Memory Field]*, 2006). This interpretive feature at Laugarnes can be compared to some of Cardiff and Miller's work, but it differs from theirs in that ecological concerns and more-than-human histories are foregrounded.

By allowing the story of Laugarnes to be told from a wide range of voices, some real and some speculative, this project challenges the notion of historical neutrality so often encountered in heritage interpretation: here, there is no one authoritative account of the area, but countless subjective and intersubjective realities. It is a living landscape whose story continues to unfold as thistles spread toward the old hayfield, as tourists tread the ground where barracks once stood, and as golden retrievers mark their territory where redshanks once wished to nest. Evoking the faculties of hearing and smell—senses tied to experiencing the ephemeral, the intangible, the elusive—stirs the visitor's perceptual imagination while underscoring the passage of time.

The columnar basalt: ...*I stood silent while the first settlers landed here, over a thousand years ago. I was silent when they dried up the rich fragrant peat of the marshy land to make their hay, when they leveled the ground over there to build their church, when they leveled the ground over here to build their hospital. I kept quiet while the British built their barracks, while the Icelanders moved into the Nissen huts and then out again, and while they opened the sculpture museum. I even held my tongue when their new plants started growing here, the burning hogweed and the spiny thistle and the insatiable lupine, the plants that overtook the subtle sweet scent of the buttercups and wild thyme that more and more have to fight to blossom in the summer. I stand silent, because for the rocks the busy pace of humans is but a buzz, an unruly chorus whose individual parts are hard to differentiate, much less respond to. Some are concerned over the changes at Laugarnes, this tiny fragment of land that might be a microcosm for terrestrial life on a human-dominated earth, but I don't worry that the pendulum swing of time will eventually quiet the human clamor until all that's left is the sighing of the rocks and the breath of the sea...*

C. Rauðhólar



Overview

The area known as Rauðhólar is situated along the northern border of Heiðmörk, a sizable nature reserve within the boundaries of the City of Reykjavík and the municipalities of Garðabær and Kópavogur (Figure 26, p. 53). Inside Reykjavík city limits—where Rauðhólar is located—Heiðmörk is managed by the Reykjavík Forestry Association (Skógræktarfélag Reykjavíkur) along with the City of Reykjavík and Reykjavík Energy (Orkuveita Reykjavíkur). Rauðhólar is a cluster of 5,000-year-old pseudocraters, originally over 80 in total. Wetlands encircle the area, but the vegetation on the craters is sparse, exposing the dominating red color that the site takes its name from. The Environment Agency of Iceland (Umhverfisstofnun) lists the size of the protected area at Rauðhólar as 130.2 hectares; our study area is 115 hectares, as it excludes the hills to the south of the road Heiðmerkurvegur.



Figure 27. Satellite image of Rauðhólar.

During the first half of the 20th century, Rauðhólar's pseudocraters were heavily mined for scoria (porous basaltic lava rocks), with the material used for road construction and for the Reykjavík airport. The hills were subsequently perceived as damaged (*raskaðir*), according to signage, but part of the site's present recreational appeal is the ability to see and approach the craters' interiors. Relics from World War II are still present in the area but remain unmarked. In

the 1980s, an outdoor theater was in use at the site, and it was also the setting for Vorboðinn, a daycare center for children from low socioeconomic backgrounds. Today Rauðhólar is used recreationally by hikers but especially by equestrians, with a number of riding companies frequenting the site. It has been protected as a historical landscape since 1974 (Umhverfisstofnun, n.d.) to ensure both conservation of and public access to the area. The Environment Agency and the City of Reykjavík are currently in the early stages of formulating a new protection plan and management agreement with the hopes of improving conservation efforts (Umhverfisstofnun, n.d.).

Located alongside Highway 1 at the outskirts of Reykjavík's residential zone, Rauðhólar is easily accessible by car from Heiðmerkurvegur with three parking lots serving the area. Riding trails lead into the area from the east and west, although visual evidence on trails indicates that other paths are used for riding as well. Rauðhólar can also be reached by foot from Norðlingaholt, where bus number 5 stops. Lines 51, 52, and 53 stop in Norðlingaholt as well.

Observations

Site visits were conducted on June 23, July 24, and August 21. The first two visits were under pleasant weather conditions; the third visit began in the rain, which subsided after a short time. On the second visit we were accompanied by a tourist from New York visiting Iceland for the first time. A fourth visit on September 8 was part of a horseback riding tour with the company Íslenski hesturinn/The Icelandic Horse.

The landforms and contrasts at Rauðhólar make for a dynamic and visually dramatic setting, conjuring up comparisons to landscapes of the Wild West or of Mars. Sweeping lines of the hills lead the eye skyward; the textures and colors of the vegetation stand out against the harsh forms of the rusty-hued volcanic rock, all the more striking under grey and stormy skies (Figure 30, p. 62). The state of much of this patchy vegetation appears very fragile, as if it is about to blow away from the inhospitable ground (Figure 34, p. 64). Approaching the hills, one might have the sense of being an intruder.

To the untrained eye, the disruption of the site from the mining activity in the mid-twentieth century is not immediately evident but offers a welcome opportunity to walk around and inside the craters. The widening and branching of the many unmarked paths is rather what appears superficially to be the most serious disruption to the area, and the erosion of the hills seems all the more pronounced in contrast against the more fecund wetlands around them (Figure 32, p. 63; Figure 37, p. 65). Anecdotal accounts suggest that some Icelanders believe the

natural history of the site to be “ruined” as a result of past and present overuse (this perspective is also reflected in current signage).

During our visits, the majority of other users encountered were on horseback tours, ranging from small parties of three to groups of fifteen or more (Figure 31, p. 62). These included both foreign tourists and groups of Icelandic children and youth. Prior to participating in a riding tour as part of this study, we tried to envision the experience of the “average” equestrian tourist at Rauðhólar: the otherworldly landscape would make for an appealing backdrop for a ride, with the winding trails and the slope of the hills adding to the excitement for inexperienced riders. Even for visitors on foot, the sounds of hooves and of guides clicking to their horses add to the soundscape of the area, and hoofprints and droppings on the trails are constant reminders of the animals’ frequent presence at the site. Only a few hikers were observed at Rauðhólar during our first two visits, and none during our third, underscoring the current primacy of the site as one for equestrian use. While on our third visit we seemingly took one group of riders by surprise; the guide said to us that the horses “are not used to seeing people here” (at this particular place within the site, or in general?). While that same guide was overheard instructing her group about the importance of riding single file on a section of trail experiencing erosion, leaders of another group—one comprised of younger riders—were observed repeatedly straying from the trail. It seems that horses and their riders are truly a significant force reshaping the Rauðhólar landscape at present.

Our subsequent trip with Íslenski hesturinn confirmed the magic of the site for equestrians, and the city felt even farther away than before as we were lost in the world of the ride. This experience additionally provided insight into potential user conflicts from another point of view (Figure 36, p. 65). We appreciated having Rauðhólar to ourselves on our small tour of four riders and two guides. Further, one of our guides pointed out a deeply eroded tread caused by a bicycle riding on the trail, as well as the recent slash of bicycle tires across a rocky hill and car tire treads in several places. Poor trail conditions are not only of ecological concern but also cause problems for horses and their riders.

Older intrusive use of the area is also still visible: several concrete building foundations laid during the British occupation in World War II remain as holes punched into the hills, uncanny in their unexpected presence and their sharp rectangular forms (Figure 29, p. 61). Vegetation is steadily overtaking these wartime ruins (Figure 33, p. 63). We also observed a small wooden boat half-buried in the earth near the site of the former children’s residence, similarly uncanny (Figure 35, p. 64).

Thus any initial impressions of the “otherworldliness” of the site gradually give way to a sense of the significant past and present human interactions with the land. The condition of the trails through this landscape that is simultaneously strong in terms of its striking forms and vulnerable in terms of its susceptibility to use, as well as the encroachment of invasive species like lupine, are testament to the need for strong site management of this protected area if its distinctive features are to remain intact.

Highlights for Interpretation

The geology of Rauðhólar is the site’s most noteworthy aspect, one that can be approached from multiple angles. Learning from a scientific perspective about the formation of the pseudocraters as molten lava flowed over the wetlands must certainly be of interest to many visitors; from an aesthetic perspective, the peculiar shapes of the hills along with their striking colors, and the contrasts between the colors and textures of the lava rock on one hand and the vegetation on the other, are rich for exploration. Even the sound of the rocks is distinctive, whether crunched underfoot or tapped together percussively, a sound that lends added perceptibility of the low density of the porous scoria.

Other phenomena contributing to the soundscape at Rauðhólar are the noises of the horses and their riders, the rasping calls of ravens (*hrafur*, *Corvus corax*) and plaintive whistles of golden plovers (*lóa*, *Pluvialis apricaria*), and the wind and automobile traffic echoing between the hills. The acoustics in the concrete foundations are notable as well. These foundations could be interesting and suitable settings for small performances, in lieu of the outdoor theater that the site once was home to; they might be conceived as windows into another place and time.

As for the stories behind these foundations, as well as of the half-buried boat, they beg the question: why here? The human history of Rauðhólar is one of changing perceptions of the value of this land, from a resource base to a protected area with high amenity value for a specific user group (equestrians). This still-unfolding story of shifting attitudes toward the landscape is perhaps more fascinating than historical details about the ruins themselves. Further, it is a story that touches upon major environmental issues, namely, overexploitation of resources, wetland ecosystem integrity, soil erosion, and the pros and cons of natural area tourism in sensitive areas. In this way the site can be used to help deepen visitors’ understanding of environmental problems and their potential solutions.

The story of Rauðhólar is also one of the role of domestic animals in shaping landscapes, a role that is often either overlooked or attributed entirely to anthropogenic causes. Here horses are a significant factor affecting the geology and ecology of the site, even if they are not there of

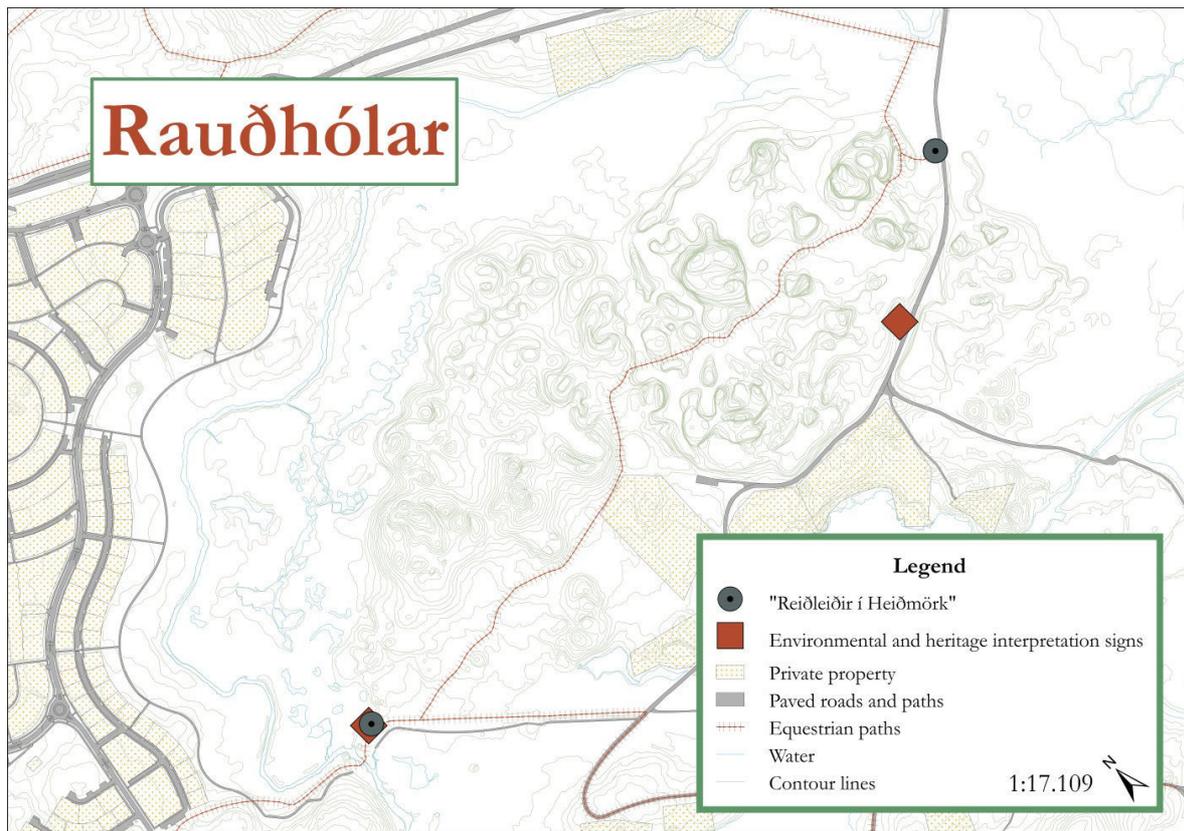
their own accord and acting entirely through their own free will. This dynamic could prove to be interesting grounds for discussions of human–animal relationships in terms of the Icelandic horse as a working “companion animal” who brings new meanings and realities to the landscapes it occupies.

Analysis of Existing Interpretation and Recommendations for Improvement

Environmental and heritage interpretation on site at Rauðhólar is provided by two identical signs created by the City of Reykjavík (*Garðyrkjudeild Reykjavíkur*) in 1997 (see Map 4, p. 59, and Table 4 in the appendix). (The Forestry Association’s 2006 signage with rules of use for equestrians is prescriptive and cannot be considered interpretive.) While one of the signs is still in fair condition, the other is not: half of the installation—a map of the site—is missing (Figure 28, p. 61). Further, information on the signs is only provided in Icelandic. The Environment Agency recognizes the opportunity to increase or improve the information on site (*Umhverfisstofnun*, n.d.), and this is our finding as well. The text on the current signage is straightforward and does address environmental issues insofar as human impacts on the site are concerned. However, future signage would benefit from a more affective approach emphasizing that despite its protected status, the geological and ecological nature of Rauðhólar is still rather delicate.

The Environment Agency also expresses the need for signage about the relics at the site (*Umhverfisstofnun*, n.d.). As mentioned above, discussion of the changing attitudes toward the landscape as reflected by human and equine use might be more engaging for visitors than a purely fact-based historical approach to describing the archaeological remains.

Trail conditions at Rauðhólar speak to a considerable management issue, with observable trail widening and erosion. As summarized by Newsome et al. (2013), many experts on natural area tourism concur that horseback riding has greater negative impacts on trail conditions than other forms of recreational use, and that horses also pose ecological threats in terms of the spread of invasive plant species. The maps as part of both the City’s and the Forestry Association’s signage indicate one main riding trail cutting through Rauðhólar, but during our site visits we noted riders also using hiking paths and straying from trails. On the other hand, Bergljót Rist, licensed tour guide and manager of the riding company *Íslenski hesturinn*, has observed that hikers are much more likely than riders on guided tours to stray beyond the paths and contribute to ecological damage (personal communication, August 26, 2015). She has also observed and reported damage to trails as a result of bicycle and motocross riding. It is Rist’s position that horseback riding at Rauðhólar can and should be done sustainably, and the licensed



Map 4. Map of Rauðhólar.

guides that lead the company's tours speak to their riders about environmental issues at the site as well as informing them about its natural history.

Our experience as participants of a tour with Íslenski hesturinn confirmed Rist's views, and furthermore underscored the value of environmental interpretation communicated interpersonally. The head guide (Rist herself) provided information about Rauðhólar that touched upon the ecological and geological value of the area, its natural and human history, and its vulnerability to anthropogenic influences. Her personal, passionate style as well as her excellent sense of timing made for interpretation that was equal parts informative and engaging. Rauðhólar and its visitors would be well served by ensuring that all equestrian guides are similarly educated in and concerned about the site's conservation. Considering that Rauðhólar is a nationally protected area, the new management and protection plan between the Environment Agency and the City of Reykjavík should strongly consider assuming responsibility of such oversight of tour providers.

Management problems at the site cannot be solved through environmental interpretation alone, but it is worth considering whether interpretation can be incorporated into the new management and protection plan currently in its early stages. The Environment Agency has

indicated the need for marking the riding and hiking trails (Umhverfisstofnun, n.d.). Can this be done in a way that simultaneously clarifies the boundaries of the trails (through improved signage at the periphery and/or markers along the trails themselves) and communicates the reasons why sticking to the trail is important? Care should be taken regarding the visual disturbance that trail markings or additional signage might impose; however, the conditions of some of the currently unmarked trails are themselves rather unsightly, in addition to posing geological problems. It should also be investigated whether entirely separate trails for horses and hikers could be created in order to best meet the needs of these two distinct user groups.

Beyond use by equestrian tourists, Rauðhólar is certainly of potential interest as a day-trip destination for international tourists to Iceland seeking an easy hike in a distinctive setting. It thus seems fitting that the City would promote the site, along with other natural area destinations within its borders. The English version of the City of Reykjavík's website does not provide information about recreational areas, but does provide a link to Visit Reykjavík, which includes Heiðmörk in its list of nature-based destinations (<http://www.visitreykjavik.is/heidmork-nature-reserve>).

Impressions from Rauðhólar



Figure 28. One of two signs with information about the natural and human history of Rauðhólar. The map of the site is missing.



Figure 29. The concrete foundations built amongst the pseudocraters are relics from World War II.



Figure 30. A large piece of scoria (porous volcanic rock) appears to have landed like a heavy meteor on the sparsely vegetated earth.



Figure 31. Equestrians and their horses on a riding tour. Lupine borders one side of the wide equestrian trail.



Figure 32. Equestrian and walking trails through Rauðhólar are unmarked and of varying condition. Some erosion and deep bicycle treads were observed in the delicate landscape.



Figure 33. The view from within one of the concrete foundations, where vegetation is steadily reclaiming the ruins.



Figure 34. Sea campion (holurt, *Silene uniflora*) blooms from the seemingly inhospitable lava rock.



Figure 35. A wooden boat slowly decomposes in the land adjacent to the craters.



Figure 36. Potential user conflicts as well as trail widening, erosion, and abrasion of vegetation might result from equestrians and hikers sharing trails.



Figure 37. Soil erosion testifies to the delicate nature of the Rauðhólar landscape.

Novel Interpretation: *I Have Had No Evening Meal*

Small contributions to greenhouse gas emissions can turn the Earth's climate around; one footstep too many can devastate a fragile ecosystem; a certain look can break your heart. The disfigured landscape of Rauðhólar continues to suffer from aggregate intrusions, as loose rocks bleed from deep cuts in the volcanic hills and delicate vegetation is under constant threat of being trampled, displaced, or blown away.

I Have Had No Evening Meal is a participatory ballet performance that spotlights the vulnerability of human beings and the rest of the natural world through a site-specific reflection on Rauðhólar. The title of the piece is appropriated from a passage in *Egils saga Skallagrímssonar*. After the death of his son Böðvar, Egill is overwhelmed with sorrow, and with no other means of grieving he decides to starve himself to death. To show her love and loyalty, Egill's daughter, Þorgerður, claims she will starve herself as well and go to Fólkvangr, the afterlife presided over by the goddess Freyja. Þorgerður announces to her family:

I have had no evening meal, nor will I do so until I go to join Freyja. I know no better course of action than my father's. I do not want to live after my father and brother are dead. (*Egils Saga*, 2001: 151)¹

Þorgerður's plan was to trick her father into eating. Although her duplicity was for a noble cause and did save Egill's life, her false threat had a limited ability to ease the heartache of a grieving father. Much like Þorgerður's empty promise to seek deliverance in Fólkvangr, the nature protection category Fólkvangur (or "country park," similar to IUCN's Category V: Protected Landscapes; see *Nature Conservation Act*, 44/1999, Article 3.3) is a display of good intentions with limited recourse to true ecological restoration. Although the designated status of Fólkvangur might prevent a landscape from being flattened by bulldozers or exploited for resources, tenuous protection laws cannot guarantee ecological health or fulfilling encounters with nature, sometimes merely serving as a small plaster for a big wound. Such is the perspective, at least, acknowledged by *I Have Had No Evening Meal*, which responds to the physical environment at Rauðhólar but also serves as a critical social commentary about perceptions of the area's irrevocable degradation.

Narrative and formal aspects of the performance are for now left unresolved, but the following provides a sketch of how its three acts might unfold—preferably on a brisk October day. The challenge of the first act is to establish the tone, arousing participants' curiosity but also a sense of insecurity. It could begin in the parking lot of the gas station in Norðlingaholt, where

¹ "Engvan hefi ek náttverð haft, ok engan mun ek, fyrr en at Freyju. Kann ek mér eigi betri ráð, enn faðir minn, vil ek ekki lifa eftir föður minn ok bróður." *Egils saga Skallagrímssonar*, 1892: 243.

participants are greeted by ballet dancers shivering from the cold and guided to Rauðhólar through the marsh in silence. The close contact with the dancers, who visibly struggle to remain en pointe, nudges the participants toward an empathetic state as they too feel the discomfort. Halfway there, the participants are blindfolded and led into the hills by the dancers. Finally at their destination but still unable to see, the participants are directed to experience Rauðhólar through their tactile and bodily senses: perhaps they can feel variations in the ground underfoot, the crunch of the lava rock indicating its lightness. Perhaps they become more attuned to the faster pace of their heartbeat and the quickening of their own breath. A sense of vulnerability creeps in as participants fully relinquish control over their bodily navigation and rely upon guidance from a stranger.

With the mood thus set, the participants remove their blindfolds for the narrative of the second act. They find themselves atop a hill, looking down at a makeshift stage in a concrete building foundation. A ballet performance then commences, self-consciously melodramatic; the parable is loosely inspired by Þorgerður Egilsdóttir's duplicitous promise to her grief-stricken father as well as by the natural and human history of the area. Here, the main characters include the anthropomorphized figures of Rauðhólar and Fólkvang(u)r. The once-heroic Rauðhólar is sentenced to a death by a thousand cuts and is about to abandon hope when Fólkvang(u)r sweeps in, providing a momentary glimpse of salvation.

While the figure of Rauðhólar struggles to regain strength, the participants are led through the landscape again for the third act, with the dancers indicating the damage done to the hills—the “wounds” from the mining, the erosion alongside the trails, the autumnal remains of the summer's lupine. Who is to be held accountable for the area's past, and for its future? Will the designated status of Fólkvangur save the site? What does its “salvation” even entail—salvation by its own standards, or by ours? By the end of the performance, the participants will hopefully be able to reflect thoughtfully on such questions, answering for themselves whether or not Rauðhólar is “doomed.” Or perhaps they will see there is no answer: only a layered history, various stakeholder perspectives of humans and nonhumans alike, and the rusty red earth that will stay forever silent on the matter.

D. Úlfarsfell



Úlfarsfell is a small mountain with an elevation of 195 meters that straddles the border of Reykjavík and Mosfellsbær. It was initially selected for inclusion in order to diversify the green areas in the study, which it would do so in terms of topography, geographical location, and recreational offerings. During our site visit on June 22, we were struck by the very poor trail conditions (including erosion, braiding, and widening), inadequate trail markings, and insufficient signage. We were also struck by the high potential for user conflicts between hikers, equestrians, bikers, and ATVs, as well as by the environmental impacts caused by off-road driving. These direct observations of site management problems were explained by anecdotal reports that the two municipalities responsible for the site do not see eye to eye on principles or practices of natural area tourism.

We thus came to the conclusion that resolving questions of basic site management at Úlfarsfell is of much greater consequence than improving interpretation offerings there, and did not conduct a thorough assessment of the area. The site is nevertheless mentioned here in order to highlight the importance of resolving management issues and stakeholder differences, problems that we encountered to varying degrees in all of our study sites.

It bears restating that environmental interpretation in natural areas is conceived as *supporting* site management; it cannot substitute for sound management practices (Kuo, 2002; Munro et al., 2008). However, it is certainly possible to integrate interpretation into management principles and implementation, as discussed for the other four sites in the study, and integrated strategies might in fact be ideal. For this reason, we would encourage the City of Reykjavík and the Town of Mosfellsbær to include approaches to interpretation in future discussions on site and visitor management at Úlfarsfell. As tourism there seems to be ever on the rise, the authors find it vital that the two municipalities resolve their differences and adopt a joint plan for the site.

Impressions from Úlfarsfell



Figure 39. An unexpected find. As unmarked trails led us astray, we found ourselves at a training site for firefighters, where various uncanny objects were strewn across the landscape.



Figure 40. Another unexpected find, but this one without an explanation.



Figure 41. Poor trail conditions were observed throughout the site.



Figure 42. The top of Úlfarsfell. ATV riders on the mountain are contributing to site management problems and user conflicts.



Figure 43. Near the top of Úlfarsfell.

E. Ægisíða



Overview

Part of Reykjavík's coastline to the southwest, the semi-natural seashore along Ægisíða is a major recreational area for residents (Figure 44 p. 73). In particular, its paved paths enjoy heavy year-round use from pedestrians, joggers, bikers, and dog-walkers, and several football fields also see regular use. The northeastern border is the eponymous street Ægisíða, which has steady but not heavy vehicular traffic, and for the purposes of this study, Hofsvallagata and Suðurgata form the site's northwestern and southeastern borders, respectively. The result is a land area of approximately 10 hectares.

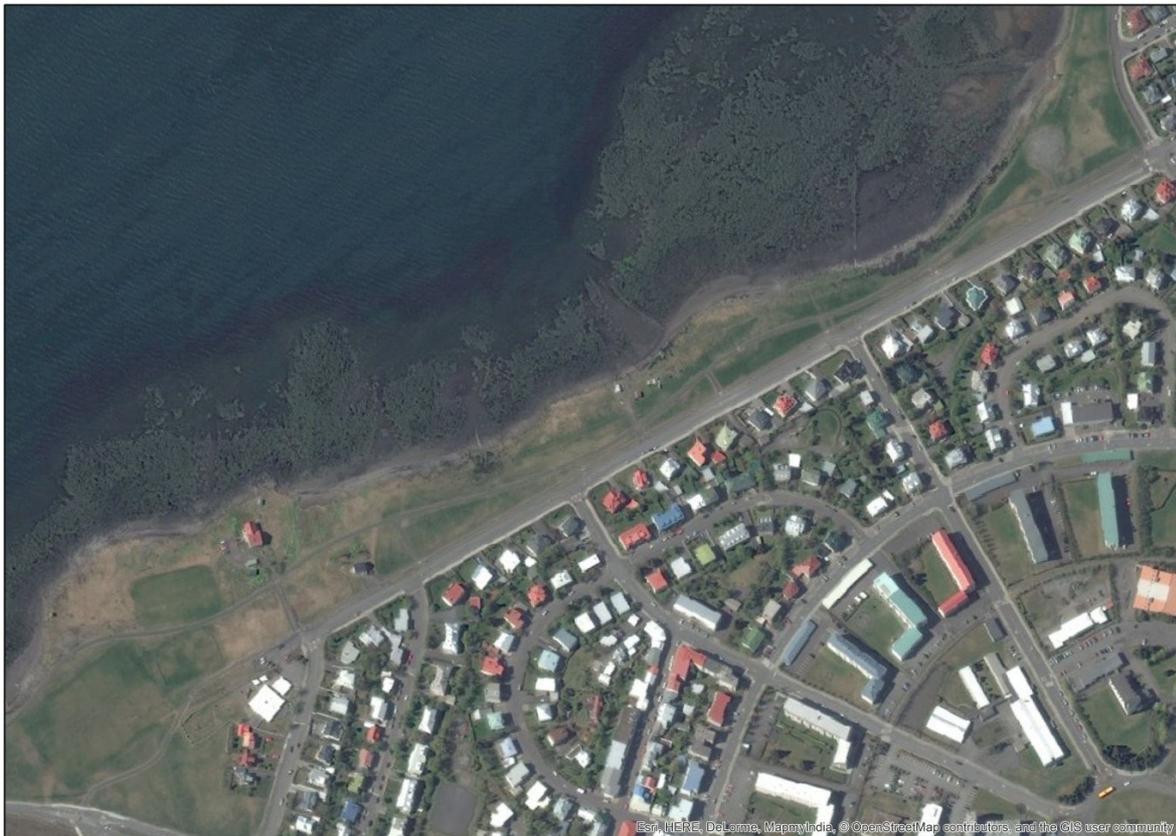


Figure 45. Satellite image of Ægisíða

While this section of the rocky Skerjafjörður coastline itself is natural, the shore not far from the ocean's edge is landscaped, with the grass lawn regularly maintained. Closer to the water, however, species such as angelica (hvönn, *Angelica spp.*), sea mayweed (baldursbrá, *Tripleurospermum maritimum*), and lyme grass (melgresi, *Elymus arenarius*) grow wild. Seabirds, shorebirds, and marine life are readily observed throughout the year. In addition to several private residences and a preschool, the site also includes old baiting sheds preserved for their historical significance and rustic charm. Further, Ægisíða contains public artworks, football fields, exercise equipment, benches and picnic benches, hammocks, and more.

Street parking and the nearby bus lines 12 and 15 make the site accessible by car and public transportation, though it is likely that the vast majority of visitors to Ægisíða arrive by foot or bicycle. Accessibility within the site itself is high: two flat paved paths are designated for pedestrians and bikers, respectively, and the rocky beach is accessible from multiple points.

Observations

Formal site visits were conducted June 1, July 22, August 3, and September 4 under weather conditions ranging from fair to excellent. Some visits were accompanied by eighteen-month-old Elísa. It should also be noted that both of the authors visit the site regularly for recreational use, and one of us (Shauna) lives nearby and drives along Ægisíða almost daily. This high degree of familiarity certainly colored our site visits and subsequent analysis, but it also heightened our senses and critical approach due to our desire to see the area through the fresh perspective of a new agenda.

More so than the other green spaces in this study, Ægisíða has the feel of being a thoroughly human-dominated landscape. This can be attributed largely to the significant number of human visitors at the site throughout the day (particularly in good weather), but also to its location along a densely populated neighborhood coastline, the long and narrow shape of the land that affords high visibility of the entire area at once, and the density of built and interpretive features (Figure 51, p. 83). At the same time, moving from the flat grassy lawn to the rocky shoreline and into the tidal zone brings a surprising feeling of separation from the “cultural” and connection with the “natural”, or perhaps rather a downshift to a slower tempo and gentler tune (Figure 50, p. 82). The dense, unmanicured vegetation between the shoreline and the lawn contributes to this sense of distance or transition. And while the landscape at Ægisíða may be anthropogenically oriented, the ocean itself is no small presence; as explored below, some of the interpretive elements further underscore the sea’s vital force. Furthermore, the tidal zone is teeming with animal life (and the washed up remains of former lives): species encountered on our visits ranged from eiders (æður, *Somateria mollissima*) and sanderlings (sanderla, *Calidris alba*) to crabs, jellyfish, and even a seal (Figure 54, p. 84; Figure 55, p. 85).

Human visitors encountered during our site visits were as diverse as they were numerous. Joggers and dog walkers shared a path with slower moving elderly pedestrians and parents pushing baby carriages and/or accompanying small children; meanwhile bikers and even roller skiers raced by. The separate paved paths marked and designated for pedestrians and bikers, respectively, are intended to reduce visitor conflicts, but nevertheless bikers are regularly seen on the pedestrian path. Ægisíða appears to be frequented much more by residents than by tourists,

although some tourists were certainly observed. Children and adolescents also frequent the site, whether passing through, hanging out, or using the football fields. During one visit, one of the football fields was additionally in use by a golfer.

Just as *Ægisíða* attracts a wide variety of visitors, it also affords a wide range of modes of engagement. Many people were observed using the site as a place to pass through while walking, running, or biking, but many were also seen dwelling there, particularly younger visitors and tourists. A number of built and interpretive elements encourage such dwelling, and we noted that most of the on-site features are indeed frequently used or considered (Figures 47 and 48, p. 81). Benches, picnic tables, hammocks, and a drinking fountain attend to visitors' bodies while artworks attend to their imagination (and to bodies, too: children were seen climbing on Ásmundur Sveinsson's sculpture *Björgun úr sjávarháskæ*, Figure 46, p. 80).

The old Grímsstaðavör baiting sheds near the geographic center of our study area are a sort of center of gravity for the site (Figure 52, p. 83). Grímsstaðavör was originally one of seven boat landings on the Skerjafjörður coast, from which small-scale fishing from rowboats was conducted since the middle of the 19th century. The last such fishing boat landed for good in 1998, but the corrugated iron sheds and the nets once used by fishermen have been allowed to remain and gradually give way to wind and weather. In May 2015, a new committee was formed through the Culture and Tourism Board (Menningar- og ferðamálaráð) of the City of Reykjavík with the aim of preserving Grímsstaðavör as a heritage site. Lack of funding has stalled restoration of the sheds and further proposed development in the surrounding area (personal communication with the Grímsstaðavör committee, September 8, 2015). Despite the lack of regular upkeep—or perhaps *because* of the lack of upkeep—Grímsstaðavör is still a strong presence along *Ægisíða*. Its locked and somewhat inscrutable sheds stare out at the sea like silent witnesses to past and present activity along the shore, guardians of the site and all its secrets.

Highlights for Interpretation

The story of *Ægisíða* could be told as a story of changing human perspectives on the sea, from a perception of the ocean as an all-powerful source of life and death to a view of it as a desirable recreational destination—or as a backdrop for recreation. The Grímsstaðavör remains and the Ásmundur Sveinsson sculpture speak powerfully to the first: the catch historically hauled in by fishermen was life sustaining, while the sea still reserved the right to claim those fishermen's lives. Today, however, *Ægisíða* is a place to dwell by the seaside, or perhaps a pleasant place to pass through while out on a jog or a bike ride. The linearity of this stretch of the shore ensures visibility of the ruins and keeps the present history perceptually intertwined with the past.

Further, Ægisíða has the feel of a true neighborhood community space. Between the football fields, the KP football league monument, the lifting stones, the artwork, and the bonfire site, traces of the community's investment in the site are manifest (Figure 53, p. 84). Members of the community are, of course, often manifest as well. It should be again stated that the authors both visit the site regularly and thus have more insight into the communal life of this area than the other study sites. However, we believe the conspicuous presence of Ægisíða's many features along with the high visibility afforded by the shape of the site would lead us to a similar conclusion had we not been familiar with it beforehand. It is not a place that readily provides opportunities for solitude within a natural landscape, but this should be taken as a highlight of the area: it borders on being a social space where one may see and be seen. Likewise, it offers a view both from the site and within it.

Moving away from the paths and closer to the water, the unmanicured strip of dense vegetation between the grass lawn and the tidal zone is ecologically and perceptually interesting. The prominence of native species like angelica and lyme grass are in stark and refreshing contrast to the mowed grass strewn with dandelion and clover.

The animal life in and around the tidal zone is another key opportunity for interpretation, from the resident and migratory birds to the marine life. Yet other animals too have a strong presence at Ægisíða: the many dogs out for walks with their owners and the cats who roam the shore are also a part of this landscape.

Finally, nearly every seashore offers the possibility to engage the public with issues of environmental importance. Overexploitation of fish stocks, ocean acidification, marine pollution, and rising ocean levels are among the many problems linking the seas worldwide. Ásmundur Sveinsson's sculpture acknowledging the sublime power of the sea may seem to reflect an anachronistic concern, and yet in a way, the underlying moral is still the same. We may try to control life in the oceans, and our actions may impact them greatly, but ultimately our dependence upon them is what makes us vulnerable.

Analysis of Existing Interpretation and Recommendations for Improvement

The human-made elements along Ægisíða comprise a motley assemblage of features not particularly in harmony with one another or the natural environment (see Table 5 in the appendix and Map 5, p. 78). However, the authors disagree to some extent as to whether this reflects (negatively) the lack of a cohesive site management vision or (positively) an organic development of the area based on the interests and activities of different user groups. In either case, the conspicuous visibility of the site's enjoyment by a wide cross section of society adds to



Map 5. Map of Ægisíða

its value and charm. Though the Grímsstaðavör baiting sheds speak to the shoreline at Ægisíða as a historical landscape, its history is still very much alive and still being written.

In the authors' view, the lack of regular upkeep of the Grímsstaðavör relics contributes to the appeal of the area as well as to the feeling of "randomness" that can be considered an asset of the site. However, we are aware that stakeholders—namely, the Culture and Tourism Board and the Cultural Heritage Agency of Iceland (Minjastofnun Íslands)—are concerned with the bureaucratic and financial situation that has allowed management of Grímsstaðavör to fall somewhat through the cracks (personal communication with the Grímsstaðavör committee, September 8, 2015). It is beyond the authors' capacity to propose a management solution for the site, though we urge the Grímsstaðavör committee to incorporate environmental and heritage interpretation into the management plan that will hopefully someday go into effect.

We also believe there is untapped potential for community engagement at Ægisíða, and that this is something the Grímsstaðavör committee and the City of Reykjavík should consider when revisiting management strategies for the area. Though the area does see some use by tourists, including but not limited to those on guided bicycle tours, it remains primarily a neighborhood space. Among Ægisíða's many "regulars" might be some who would be interested in contributing to community-based scientific monitoring projects. Others might enjoy the

opportunity to establish an image within the community by helping care for the site through maintenance or surveillance efforts. As a sort of “action landscape,” it lends itself well to the notion of active participation and caretaking by neighborhood residents.

Aside, perhaps, for the Grímsstaðavör relics, infrastructure at Ægisíða is sufficient, with a saturation of paths, benches, trash cans, and even a drinking fountain. However, the saturation of interpretive elements and other features for engagement suggest that a comprehensive vision for managing these features could be useful. Despite the charm of the “chaos” at the site, such chaos can go too far: for instance, the KÞ football monument is, in our assessment, misplaced within the Grímsstaðavör area.

Many of the features at Ægisíða speak to the relationship between humans and the sea, and maintaining this thematic focus seems fitting. Though in our view the site has reached its limit in terms of built features, maintenance and renewal are still crucial, particularly in terms of signage. The skyline diagram sign does not serve the site particularly well, and it merits replacing given its fair condition. The heritage interpretation signage at Grímsstaðavör, meanwhile, is sorely in need of replacing, between its poor condition and the fact that it is only in Icelandic. Perhaps new short-term signage could be installed even as the Grímsstaðavör committee awaits funding for further renovation and development efforts. Future signage throughout the site should bear in mind general principles of environmental interpretation (the aim to be engaging and affective, sparking curiosity and affording possibilities for personal connection, speaking to multiple senses, etc.). It should further consider the more-than-human aspects of this living landscape—that is, the current and historical interactions between humans and non-human species that help define the area—and touch upon issues of environmental concern.

The artworks at Ægisíða, while not necessarily conceived as environmental interpretation per se, constitute some of the richest means of engagement that the authors encountered during this study. As described above, Ásmundur Sveinsson’s monumental sculpture *Björgun úr sjávarháskæ* readily communicates the power of the sea; it is also a strong landmark for the area and helps visually frame the site. Kristinn E. Hrafnsson’s bronze drinking fountain sculpture *Aqua Aqua – Vatn Vatn*, which takes the shape of a coiled water hose on a pedestal, serves a practical purpose and playfully reinforces the water-oriented theme. Finally, Steinunn Þórarinsdóttir’s *Flóð og fjara*, in the form of aluminum lumpfish scattered on the ground, is at first glance simple and straightforward (see cover photo). But it prompts a strong emotional response that in turn invites reflection on the human history of the area, on human–environment relationships, and on the lives of the fish represented. It is well worth maintaining as an appealing and effective form of interpretation at Ægisíða.

Impressions from Ægisíða



Figure 46. Ásmundur Sveinsson's sculpture *Björgun úr sjávarbáská* (Rescue at Sea) is a strong landmark at the northwestern end of the Ægisíða study site and a reminder of the sublime power of the ocean.



Figure 47. Children from a nearby school walking toward the southeastern end of the study site, where they were observed playing on the fitness equipment and engaging with the skyline diagram.



Figure 48. Hammocks designed by Betristofa borgarinnar resemble fishing nets and give visitors a relaxing place to dwell at Ægisíða.



Figure 49. Playing on the fitness equipment can provide unexpected views of the familiar.



Figure 50. A family enjoys the beachside access at the southeastern end of the study site.



Figure 51. A true neighborhood space, Ægisíða is often full of a wide range of visitors both passing through and dwelling in the area.



Figure 52. The weather-worn sign near the old Grímsstaðavör baiting sheds provides heritage interpretation for the site.



Figure 53. Lifting stones were historically used to prove one's physical strength as a prerequisite for fishing work. These weights were added to Grímsstaðavör in 2013.



Figure 54. Traces of plant and animal life along the intertidal zone make Ægisíða a source of never-ending discovery for beachcombers.



Figure 55. The sense of vibrant community life at Ægisíða is matched by the diverse non-human life along the shore.

Novel Interpretation: *Convergence (Four shores and seven seas ago)*

Spring Equinox. A small crowd gathers along Ægisíða as the sky dims. At the same time, modest crowds gather on the Cape Cod National Seashore in Provincetown, Massachusetts; the Wia Wia Nature Reserve, a coastal area near Paramaribo, Suriname; and Yoff Beach on the northern coast of Dakar. The Icelanders, the Americans, the Surinamese, and the Senegalese remain divided by their national identities but at this moment are united in their intentions, as they have all come for a concert by the sea and for the sea. Along each of the four shorelines, audience members are invited to join the performers in submerging their hands in the water, coming into contact with the vital and universal force of the ocean. Then the concerts begin.

Here in Reykjavík, a local composer has worked with scientists at the Marine Research Institute (Hafrannsóknastofnun) to identify and come to understand an animal of interest in Skerjafjörður whose life is more or less confined to the intertidal zone. The flat periwinkle (þangdoppa, *Littorina obtusata*), perhaps, or the common shore crab (bogkrabbi, *Carcinus maenas*). To human eyes, it might be a humble creature; from its own perspective, it is the possessor of a life worth living to the fullest. And now it is the subject of a song, the focus of program music meant to evoke its essence. The instrumentation doesn't matter, but the style draws from Iceland's musical past, whether the nationalism of symphonic works by Jón Leifs (who also sought inspiration in the nature of his homeland) or older folk song traditions.

At the other three concert venues, the formula is the same: local composers, local marine scientists, local intertidal zone creatures, and local musical motifs. The simultaneous concerts celebrate the meeting of the land and the sea, the resident humans and the resident non-humans, and of course, the coming of spring.

Summer Solstice. Crowds gather at the same moment again at the four shores in Iceland, Massachusetts, Suriname, and Senegal. Once again, the audiences and the performers dip their hands in the Atlantic waters as a prelude to the music.

This time, however, the focus of each piece is shifted beyond the intertidal zone to a creature who lives entirely in the water farther from the shore. The same local composers have again worked with scientists to pinpoint and study a species to inspire the music; in Reykjavík, it very well might be the lumpfish (hrognkelsi, *Cyclopterus lumpus*), once caught as part of small-scale fishing ventures off the Skerjafjörður coast. But this time the composers have also begun to work with each other, having listened to recordings of the Spring Equinox concerts and reviewing each other's scores. Into the Summer Solstice concert in Iceland comes a bit of instrumentation from Senegal, a short melodic motif from Massachusetts, a quick rhythmic

passage from Suriname. Similar allusions to the other locations are made by the other three composers.

Similar to the concept of Sister Cities, the four coastlines have become Sister Shores, mutually self-interested and celebrating a new connection with one another—the beginning of multilateral environmental diplomacy between the distant coastal locales.

Fall Equinox. Crowds gather; hands submerge; concerts begin. But the air of celebration has become an air of concern. The human hands that have touched the ocean waters remain unclean, as these are the hands of a species that has muddied the seas. Too many fish caught; too much waste dumped; too much water chemistry changed. The oceans as we once knew them—the oceans with their endless abundance and vast resilience—might not ever recover.

The four composers have spoken with each other, along with the scientists involved, to begin to understand the specific marine ecology concerns faced by the four nations. They have discussed their local species of interest that roam farther into North Atlantic waters. From Iceland's end, perhaps it is the harbor seal (landselur, *Phoca vitulina*); or it could be a bird like the common eider (æður, *Somateria mollissima*), of favorable conservation status internationally but on the decline in Arctic waters. They have also borrowed more from each other musically, reviewing the other scores while still in progress and making modifications accordingly. Just as the composers' taxonomical subjects and environmental interests have begun to converge, so too is the music converging.

They are far from the first to compose for the sea. In recent years, Hanna Tuulikki's *Away with the Birds* (2013), a site-specific vocal performance on the Isle of Canna, Scotland, honored the lives and ecologies of local shorebirds and has been likened to environmental interpretation (Emslie, 2015). Acclaimed American composer John Luther Adams won the Pulitzer Prize for his orchestral work *Becoming Ocean* (2013), which both evokes the sublime landscape of the sea as well as the rising waters that are the consequence of melting polar ice (Ross, 2013). And it is hard not to mention the work of Ægisíða's most famous and environmentally concerned musician, Björk, who has credited the humbling mountain- and oceanscapes in Reykjavík as among the inspirations behind her 2011 *Biophilia* album (Richards, 2011). What distinguishes this Fall Equinox concert, then, is not necessarily its subject matter but the unique collaboration, a cooperation that brings together music and science as well as four distinct geographies connected by the tides of the North Atlantic.

Winter Solstice. A large crowd gathers along Ægisíða in the dim midwinter twilight. At the same time, large crowds gather on the Cape Cod National Seashore in Provincetown, Massachusetts; the Wia Wia Nature Reserve, a coastal area near Paramaribo, Suriname; and Yoff Beach on the northern coast of Dakar. The Icelanders, the Americans, the Surinamese, and the Senegalese transcend their national identities and are united by conscience, as they have all come for a concert by the sea and for the sea. Along each of the four shorelines, audience members are invited to join the performers in submerging their hands in the water, coming into contact with the vital and universal force of the ocean. Then the concert begins.

It's just one concert this time, though it's held in four places at once: the composers' collaboration has resulted in a single score to be performed simultaneously on the four Sister Shores. One animal species of joint concern—perhaps that great migrator and musician in its own right, the humpback whale (hnúfubakur, *Megaptera novaeangliae*)—is the programmatic focus, but the subject is more than that. The subject, or maybe rather the moral, is the connectedness of life and lives in the ocean, the global nature of ecology, and the drive for a fulfilling existence that all biological organisms share.

We humans share that drive, too, of course. And as a part of it, many of us also crave ritual, community, and—for those of us far north of the Equator—warmth in the darkness of December. By this fourth concert in the series, the neighborhood performance on Ægisíða begun on the Spring Equinox has gained great publicity, and so the crowd gathered by the sea is big enough to generate its own heat. Standing there in the audience, I visualize the men and women standing in their own audiences near Provincetown, Paramaribo, and Dakar, all with their attention turned toward the waters of the Atlantic and the creatures therein. I feel at this instance the convergence: it is a feeling of hope and resolve.

Discussion

Overall, analysis of the five sites selected for this study revealed that the ad-hoc, site-by-site approach to environmental interpretation in Reykjavík does not maximize the potential of the city's green areas as places to connect with or appreciate nature. In terms of physical features (e.g., signage), there is little coordination of visual appearance, structure and style of content, and thematic approaches, resulting in an erratic, chaotic feel to interpretation within the city. In some areas, it is clear that multiple stakeholders have “competed” with one another in providing interpretive features or engagement strategies that do not harmonize well with each other or with the environment. Further, existing environmental and heritage interpretation features as a whole demonstrate an overwhelming emphasis on cognitive engagement (i.e., fact-based, rather than affective, approaches), the sense of vision alone, and a highly anthropocentric bias (i.e., focusing on humans and human concerns). Issues of serious environmental and social concern are not addressed critically, if at all. Certainly there is an appreciative audience for the existing interpretation features fitting this general description, and some of the fact-based and anthropocentric features found in Reykjavík's recreational areas are of high quality and intellectually stimulating. It is rather the lack of diversity that is most problematic.

Beyond on-site physical features, a thorough assessment of interpersonal interpretation strategies (i.e., guided tours and educational programming) was more difficult to complete due to time constraints and the level of complexity. Environmental education in Reykjavík's schools is supported by the Reykjavík Nature School (Náttúruskóli Reykjavíkur), though in practice, it is in the hands of individual teachers or schools. Curricular use of three of our five sites (the Breiðholt forest, Laugarnes, and Ægisíða) was confirmed by neighboring schools. As for guided tours, offerings by private companies were identified but varied considerably from site to site (none in the Breiðholt forest or Laugarnes; bicycle tours in Ægisíða; horseback tours in Rauðhólar; and horseback, hiking, and ATV tours in Úlfarsfell). No current offerings supported by the City of Reykjavík are in place in the five study areas. Guided walks and other interpersonal means of environmental interpretation, when led by a skilled and knowledgeable guide, have a high potential to uphold the principles of interpretation set forth in the literature review. We would thus encourage the City to diversify its public walks and related programming in its green areas, both in terms of location and type.

Residents and tourists in Reykjavík would benefit greatly from a more coordinated approach to interpretation. A clearer vision of the purpose of environmental interpretation within city limits would aid the City of Reykjavík and other stakeholders in designing and

implementing suitable strategies that would be educational, meaningful, and inspiring for a wide user base. Such a mission should also be incorporated into Reykjavík's overall tourism strategy, and would also support the City of Reykjavík's aims of becoming a green and child-friendly city (Reykjavíkurborg, 2011: 13). The analysis of the selected green areas in this study are based on an understanding of general principles of environmental interpretation, but also on the authors' individual interests as reflected in the literature review above; it is not within the scope of this project to propose a comprehensive mission statement or framework for environmental interpretation for Reykjavík. Rather, we encourage the City to continue working with other stakeholders (possibly including, but not limited to, Mínjastofnun Íslands, Náttúruskóli Reykjavíkur, Skógræktarfélag Reykjavíkur, Umhverfisstofnun, Ferðamálastofa, Listasafn Reykjavíkur) to develop such a framework based on their overlapping priorities and principles.

One basic interpretation principle we would like to stress, however, is that of the cohesive theme. Though the environmental interpretation literature mainly discusses thematic approaches to particular natural areas, it might be worth considering whether an overarching theme could apply to many of the city's recreational green areas. Examples could include the following:

- Local/Global: A way of connecting Reykjavík's environmental concerns to those of other places around the world
- (Habitat) Islands: A focus on the special ecological characteristics of islands, with a link to the environmental problem of habitat fragmentation
- Bird's-Eye View: A focus on avian biodiversity and birds' perspectives of Reykjavík
- Culture of Nature: An emphasis on the value of biodiversity and green spaces within Reykjavík's city limits, and a celebration of hybrid nature/culture geographies

Another major consideration is that meaningful interpretation is relevant to its audience. As a result, interpretive elements need to be refreshed periodically in order to reflect changes in ecological and social circumstances, the evolution of environmental knowledge, technological advances, aesthetic shifts, and so on. (Certain artworks may be considered exempt from this proviso.) For this reason, we urge the City and other stakeholders not to consider signage and other on-site features to be permanent installations to be replaced only when absolutely necessary (though as we have seen, some existing signage has been permitted to remain despite being in very poor condition). While we understand that there are financial and organizational considerations that might suggest the best investment is in features designed to last as long as possible, such features are less likely to serve visitors well in the long run if the style and content

become stale. Replacing signage and refreshing other interpretation strategies on a more regular basis—even changing overarching themes—might also help the city’s residents find new meaning in, and new ways of engaging with, familiar green areas.

A third point that we would like to stress is that a citywide environmental interpretation strategy need not be confined to the areas conventionally described as “green areas.” Following Pálsson (2013) and his call for a rethinking of the notion of “nature-based tourism” in Iceland, it is our belief too that

Rather than disciplining the landscape into the natural, the inhabited, and the untouched, [...] recognizing the hybridity of the landscape allows for the possibility that a most memorable and engaging ‘nature-based’ experience can take place anywhere—on the highway, in derelict lots, in trash heaps, and in ruins. (Pálsson, 2013: 174)

Expanding interpretation features to other public sites on various points along the nature–culture spectrum has the potential to (1) benefit residents by connecting them in new ways to their urban surroundings and thereby deepening their investment in the city environment; (2) appeal to tourists who are drawn to the image of Iceland as a nation concerned about its nature; and (3) foster pro-environmental behavior through awareness-raising. As part of this study, we initially hoped to propose specific interpretation ideas for a handful of Reykjavík’s “microsites” such as a selected traffic island and a halted construction site, but time did not permit the development of such ideas. Nevertheless, we believe this would be a fruitful possibility for the City to consider, particularly insofar as artistic interventions would be concerned.

Finally, it should be emphasized that the novel interpretation features we have described for the Breiðholt forest, Laugarnes, Rauðhólar, and Ægisíða are initial ideas rather than proposals. Technical, formal, and logistical details may thus remain unresolved. Development of these or other features should be undertaken only after consultation with all stakeholders, and ideally would proceed with stakeholder participation. They are included here primarily as illustrations of potential innovative approaches to environmental interpretation for each of the sites in question.

Concluding Remarks

One of us was born here; the other chose to immigrate. One has fond memories of the local nature from her childhood; the other is discovering it anew through the eyes of her child. Both authors call Reykjavík home, and while we experience it in our own individual ways, we share an experience of the natural environment in, around, and of the city as a source of great insight and inspiration.

It is our hope that this study communicates the potential of Reykjavík's green spaces to similarly touch other residents and tourists alike, as well as the role of environmental interpretation to facilitate education and a sense of connection. We encourage the City of Reykjavík to take an active, critical role in shaping a new strategy for interpretation within its borders, whether based upon suggestions given in this study or principles of its own choosing. Urban nature in Reykjavík, like urban nature everywhere, is more than an amenity feature: it is a crucial form of sustenance, and a sustenance whose many interdependent lives and histories have their own precious worth.

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Appendices

Appendix 1a. Assessment chart – Breiðholt forest

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audience	Language	Style/accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?
Signage	Skyline diagram and historical information	Designed by Árni Tryggvason for Reykjavíkurborg	2007	Fair condition	Residents, tourists	Icelandic, English	Both Icelandic and English text straight-forward. Installation of sign misaligned with view, limiting utility of diagram	Historical information somewhat relevant. Discrepancy between textual reference to the area and diagram indicating distant features. Amenity value as a viewpoint more appropriate at earlier stage of forest growth	No other features onsite, but skyline diagram is similar to others around Reykjavík (including in Elliðaárdalur, Ægisíða, and Laugarnes)	Materials and scale both fairly harmonious. Installation of sign slightly skewed and trees obscure the view	No – does not emphasize ecological or social/historical importance of this particular site	Historical information specific to Breiðholt area but not to site	No – limited connection to social or environmental concerns	No – fact-based approach	Engages vision, visual imagination (actual view is partly obscured)	No – diagram and text both highly anthropocentric
Artwork	None found															
Other onsite features	None found															
Guided tours	None found															
School use	Outdoor classroom	Collaboration between Arnarborg, Bakkaborg, Fálkaborg, Breiðholtsskóli, and Skógræktarfélag Reykjavíkur	Benches installed 2013, though site previously used for environmental education	Condition of benches good, but site filled with rubbish at site visits (July 8 and August 12)	School-children	Icelandic (language of instruction)	Dependent upon interests and agendas of particular teachers using the site at any given time	Content dependent upon interests and agendas of particular teachers using the site. Approach of outdoor instruction relevant to educating children about the natural world	No	Physical structure of the classroom is harmonious with the environment	Yes, in terms of maximizing potential of the forest for education and enjoyment, but presence of rubbish shows need for adjustments to management	Depends upon level of environmental knowledge and awareness of individual teachers	Dependent upon interests and agendas of particular teachers using the site at any given time	Dependent upon interests and agendas of particular teachers using the site at any given time	Dependent upon interests and agendas of particular teachers using the site at any given time	Dependent upon interests and agendas of particular teachers using the site at any given time
Other use	Dog run	Reykjavíkurborg (part of suggestion followed through Betri hverfi)	2012	Good condition	Dogs and their owners	Signage in Icelandic	N/A	Relevant for dogs' enjoyment of freedom of movement	Signage bears Reykjavíkurborg logo	No – much of area is gravelly and barren	Yes – responds to user interests (Betri hverfi initiative); emphasizes law of curbing dogs except in designated areas	No – much of enclosed area is barren; does not maximize forest setting	Not explicitly	No	Allows dogs an open area to run and play (engages movement)	Yes – designed for use by dogs and encourages active interaction between dogs and humans
Online information	None through Reykjavíkurborg															
Multimedia features	None found															

Appendix 1b. Assessment chart – Laugarnes

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audience	Language	Style/accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?
Signage	Borgarsögusafn heritage signage (3 large text-based signs with map and photos)	Borgarsögusafn Reykjavíkur	2013	Excellent condition	Residents, tourists	Mostly Icelandic, English summary	Icelandic text long, detailed, and dry; English text short and repetitive from sign to sign. Map useful in visually framing site and locating other points of interest (including other signs in series)	Content more relevant than approach: historical details unlikely of interest to tourists, perhaps only of limited interest to residents because of high degree of detail. Similar information as other signs on site	Three signs in series are consistent with each other, but not in harmony with other interpretive features on site	Materials and placement fairly harmonious	Supports conservation of archaeological remains but does not acknowledge environmental importance	Very specific to site and area	No	No – fact-based approach	Attempts to engage the senses of time and place	No – aims for historical “neutrality” and is anthropocentric
	LSÓ heritage signage (small text-based signs)	Listasafn Sigurjóns Ólafssonar	1992	Poor condition	Residents	Icelandic	Texts excerpted from other sources and lack context	Approach more relevant than content: sign placement connects visitors with specific archaeological sites, but information loses meaning due to lack of context. Similar information as other signs on site	Signs in series are consistent with each other, but not in harmony with other interpretive features on site	Materials are visually inharmonious with environment and not suitable for weather conditions (texts are printed on office paper and stapled under plastic to low wooden signs)	Supports conservation of archaeological remains but does not acknowledge environmental importance	Very specific to site and area	No	No – fact-based approach	Attempts to engage the senses of time and place	No – aims for historical “neutrality”; anthropocentric approach
	Þjóðminjasafnið heritage sign (large sign with historical information and map)	Þjóðminjasafnið (sponsored by Landsvirkjun)	2001	Good condition	Residents, tourists	Icelandic; shorter texts in English, German, Danish, French	Text straightforward, but reads as a list of historical details	Content and approach relevant, especially as sign is in keeping with other Þjóðminjasafnið signs around Iceland. Similar information as other signs on site	Part of series of signs by Þjóðminjasafnið, but not in harmony with other interpretive features on site	Fairly aesthetically harmonious, but placement along Sæbraut uncomfortable	Supports conservation of archaeological remains but does not acknowledge environmental importance	Very specific to site and area	No	No – fact-based approach	Attempts to engage the senses of time and place	No – aims for historical “neutrality”; anthropocentric approach
	Skyline diagram	Designed by Árni Tryggvason for Reykjavíkurborg	2006	Fair condition	Residents, tourists	N/A (text consists entirely of place names)	Diagram clear and would be easily accessible, but installation of sign is misaligned with view and thus limits utility	Relevant, as the shoreline provides an excellent viewpoint over the bay, but emphasizes points of interest offsite	No harmony with other interpretive features on site. Part of skyline diagram series around Reykjavík (including in Elliðaárdalur and Ægisíða)	Scale and materials fairly harmonious, but installation of sign misaligned with view	No – does not emphasize ecological or social/historical importance of this particular site	Specific to site	No	No – fact-based approach	Engages vision	No – anthropocentric approach

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audience	Language	Style/ accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?	
Artwork	Sculptures outside Sigurjón Ólafsson Museum	Listasafn Sigurjóns Ólafssonar	1984 (museum founded)	Mixed (unfinished wood sculptures in fair condition; stone sculptures in good condition)	General public	N/A	Figurative and abstract sculptures likely to be at least superficially accessible to general public	Relevant approach for the museum to display sculptures outdoors as a way of integrating the museum with the natural/historical site	Little harmony: Borgarsögusafn sign references S. Ólafsson's residence at Laugarnes; museum's signs do not mention the artist or artworks	Sculptures individually harmonious in use of natural materials; installation of the outdoor collection fairly harmonious	Emphasize cultural value of site and underscore presence of the museum	Specific to site (not as site-specific artworks, but because of artist's residence at the site)	No	Yes, as works of art	Engage vision	Not particularly	
Other onsite features	Monument marking location of former church	Rótarýklubburinn Reykjavík – Austurbær	2003	Good condition	Residents	Icelandic	Very accessible	Relevant to those interested in Christian history	No harmony with onsite features, but stone column style monument in keeping with other memorials elsewhere throughout Iceland	Not harmonious with the environment despite use of natural materials	Supports conservation of archaeological remains but does not acknowledge environmental importance	Very specific to site and area	No	No – fact-based approach	Attempts to engage the sense of time	No – anthropocentric	
Guided tours	Tours offered as per request. No formal program established	Listasafn Sigurjóns Ólafssonar															
School use	Periodic use by nearby preschools and primary school*	Confirmed use by Langhótskóli, Laugaborg, Lækjaborg	Various	N/A	School-children	Icelandic											
Other use	None found																
Online information	None through Reykjavíkurborg																
Multimedia features	None found																

* School use not assessed due to complexity and time constraints

Appendix 1c. Assessment chart – Rauðhólar

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audience	Language	Style/accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?
Signage	“Reiðleiðir í Heiðmörk” – map of equestrian paths in Heiðmörk and rules for use (two)	Skógræktarfélag Reykjavíkur	2006	Fair	Equestrians	Icelandic	Text and map are straightforward	Relevant for the site as an area heavily used by equestrians	Signs are consistent with others in Heiðmörk but not in harmony with Rauðhólar signage	Materials and placement fairly harmonious	Yes, encourages users to take care of vegetation and other users	Specific to Heiðmörk, not Rauðhólar in particular	Yes, mentions fragile vegetation in Heiðmörk	No	No	No, anthropocentric – only concerns horses insofar as they are to be managed
	Map and environmental/heritage interpretation signs (two)	Garðyrkjudeild Reykjavíkur	1997	One in fair condition; one in poor condition (map missing from sign)	Residents	Icelandic	Text and map are straightforward	Relevant geological and historical information about the site. Fact-based but clear approach	Not in harmony with equestrian signage	Materials and placement originally harmonious, but compromised by poor condition	Yes, insofar as it discusses human alterations to site and history of protection, but does not emphasize current management of geological and vegetative features	Very specific to site and area	Yes, gives an overview of human impacts on the site and its history as a protected area	No	No	No, anthropocentric approach
Artwork	None found															
Other onsite features	None found															
Guided tours	Riding tours	Íslenski hesturinn / The Icelandic Horse	2011 (company founded)	N/A	Tourists	Icelandic, English, Danish, Norwegian, French, some Swedish and Faroese	Accessible for experienced and inexperienced riders. Personal and engaging style	Introduction to history of the Icelandic horse and pre-riding instruction relevant and engaging. Information on Rauðhólar given during tour relevant and meaningful	Signage speaks to the equestrian usage of the site. Tour guides provide information about geology and natural history	Horses seem to be a positive aesthetic contribution to the landscape, though horse trails perhaps unappealing for some hikers	Company managed by licensed tour guide who aims to ensure riding at Rauðhólar is practiced sustainably	Distinctive geological features make for an appealing setting for riding tours	Tour guides speak to environmental issues on site (erosion, delicate vegetation, resource use)	Highly affective	Engages vision; engages the body	Yes, guides encourage riders to connect with their horses
	Riding tours	Other companies not assessed individually including Horse Riding in Iceland, Reykjavík Riding Center, Reykjavík Safari, Viking Horses	Varies	N/A	Tourists; young Icelandic riders	Icelandic, English, other international languages (as found on tour companies' websites)	Unable to assess (likely to vary by company)	Unable to assess (likely to vary by company)	Signage speaks to the equestrian usage of the site	Horses seem to be a positive aesthetic contribution to the landscape, though horse trails perhaps unappealing for some hikers	Likely to vary by company, but some observed use contributed to site management problems (trail widening and branching)	Distinctive geological features make for an appealing setting for riding tours	Unable to assess	Unable to assess, but likely to be highly affective	Engages vision; engages the body	Anthropocentric tourist activity, but riders likely to take interest in horses' perspectives. Guides' ability to promote understanding likely to vary

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audience	Language	Style/accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?
School use	No (confirmed by neighboring schools and Skógræktarfélag Reykjavíkur)															
Other use	None found															
Online information	Page on Heiðmörk on Reykjavíkurborg website*	Reykjavíkurborg	Date not specified	N/A	Residents	Icelandic	Text is straightforward	Relevant in terms of promoting Heiðmörk as a recreational destination. Gives historical background and description of area's natural history	Not particularly in harmony with signage at Rauðhólar	N/A	Yes, encourages recreational use and enjoyment of Heiðmörk and respect for geological and biological diversity	Specific to Heiðmörk; Rauðhólar mentioned as interesting geological feature	No – describes ecology and (to a limited extent) geology of Heiðmörk, but does not address environmental issues	No	No	No
	Page on Heiðmörk on Visit Reykjavík website**	Visit Reykjavík	Date not specified	N/A	Tourists	English	Text aims to market Heiðmörk as a desirable destination	Relevant in terms of promoting Heiðmörk as a recreational destination	Not particularly in harmony with signage at Rauðhólar	N/A	Yes, encourages recreational use and enjoyment of Heiðmörk and mentions management	Specific to Heiðmörk; Rauðhólar mentioned as interesting geological feature	No. Mentions positive effects of fencing the area	No	No	No
	Page on Rauðhólar on Umhverfisstofnun website***	Umhverfisstofnun	Date not specified	N/A	Residents	Icelandic (Rauðhólar listed on English page for Country Parks, but no description available)	Text is straightforward	Relevant – describes environmental problems and opportunities for environmental management	Harmonious with Rauðhólar signage addressing environmental problems	N/A	Yes, addresses current and potential considerations for the site	Specific to site	Yes, deals with ecological condition of the site	No	No	No
Multimedia features	None found															

* <http://reykjavik.is/stadir/heidmork>

** <http://visitreykjavik.is/heidmork-nature-reserve>

*** <http://www.ust.is/einstaklingar/nattura/fridlyst-svaedi/sudvesturland/raudholar-reykjavik/>

Appendix 1d. Assessment chart – Ægisíða

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audience	Language	Style/ accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?
Signage	Grímsstaða-vör heritage sign	Borgarminja-vörður for Reykjavíkurborg	2005	Poor	Residents	Icelandic	Straightforward text is interesting for residents, but inaccessible by tourists. Images illustrate text well	Relevant treatment of social history of the site	No harmony with interpretive features on site or other known signage offsite	Location of installation appropriate. Sign design has strengths ("open book" shape, photos) and weaknesses (layout, color). Poor condition of sign stand out as inharmonious	No, not as is – signage needed to communicate value of sheds and rationale for unkempt appearance, but sign's condition undermines ability to support management	Specific to site	No	To some extent, but could be more so	Engages vision	No, but text and images do highlight the fish historically caught in the area
	Skyline diagram	Designed by Árni Tryggvason for Reykjavíkurborg	2006	Fair	Residents, tourists	N/A (text consists entirely of place names)	Diagram clear and would be easily accessible, but installation of sign is slightly misaligned with view and thus hinders utility	Relevant, as the shoreline provides an excellent viewpoint, but this view is perhaps not the main attraction at this site. Also emphasizes points of interest offsite	Not in harmony with other interpretive features on site. Part of skyline diagram series around Reykjavík (including in Laugarnes and Breiðholt forest)	Integration of natural and built environmental features in diagram disrupts nature/culture binary in an interesting way. Scale and materials fairly harmonious. Installation misaligned with view	No – does not emphasize ecological or social/historical importance of this particular site	Specific to site	No	No – fact-based approach	Engages vision	No – anthropocentric approach
Artwork	Björgun úr sjávarháská (sculpture)	Ásmundur Sveinsson; in collection of Listasafn Reykjavíkur	1936 (original sculpture designed); 1986 (gift to Reykjavíkurborg)	Good	General public	N/A	Figurative stylized bronze sculpture easily accessible	Relevant location along the coast given subject matter of a sea rescue	Harmony with other features connected to themes of sea and water	Location of installation appropriate. Helps visually frame straight stretch of coastline in appealing way	Yes, helps increase cultural and artistic value of site	Specific to the sea	Debatable. Speaks indirectly to historical human relationship with the powerful sea, but human interests and vulnerability are foregrounded	Yes, as a work of art	Engages vision; engages the body	Anthropocentric approach, but challenges the notion of supreme human power and authority
	Flóð og fjara (sculpture)	Steinunn Þórarinsdóttir; in collection of Listasafn Reykjavíkur	1998	Good	General public	N/A	Figurative aluminum sculpture easily accessible	Fish on the shore is relevant subject matter; superficially straightforward, but prompts further reflection	Harmony with other features connected to themes of sea and water	Location of ground installation along path near baiting sheds harmonious and engaging	Yes, helps increase cultural and artistic value of site	Specific to site	Prompts reflection on (over)harvesting of fish from the sea	Yes, as a work of art	Engages vision; engages the body by forcing the gaze downward, inviting a tactile response to texture	Yes, considers perspective of fish

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audiences	Language	Style/ accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?	
Other onsite features	Aqua Aqua – Vatn Vatn drinking fountain	Kristinn E. Hrafnsson; commissioned by Orkuveita Reykjavíkur	1999	Excellent	General public	Icelandic and Latin words for "water" inscribed on pedestal	Bronze water hose sculpture is a playful approach to a public drinking fountain. Very accessible	Relevant to themes of water. Particularly useful for joggers	Harmony with other features connected to themes of sea and water. Lettering resonates with that on lifting stones	More harmonious than not – appropriate location (thematically, functionally); elevates an infrastructure element to artwork	Yes, helps increase cultural and artistic value of site and responds to well-being of users	Specific to water theme and appropriate along a jogging path	Yes, offers reflection about what water is used for	Yes, as a work of art	Engages the body by allowing visitors to drink; engages vision	No	
	Hammocks	Betristofa Borgarinnar for Reykjavíkurborg (Torg í biðstöðu project)	2013	Good	General public	N/A	N/A	Relevant to encouraging longer engagement in the area, changing it from a "passing-thought" to a dwelling place	Net material in harmony with themes of interpretive features onsite, the relationship between humans and sea through fishing	Yes, materials and placement very harmonious	Yes, responds to user interests	Visual connection with fishing nets resonates well with site	No	Yes, through its use	Engages the body; engages vision	No	
	KP football club monument	Knattspyrnufélagið Próttur	2009	Excellent	Residents	Icelandic	Accessible and straightforward	Relevant to supporters of KP	No harmony with onsite features, but stone column style monument in keeping with other memorials elsewhere throughout Iceland	Not harmonious with the environment despite use of natural materials	Keeps the living history of the landscape alive and helps increase cultural value of site	Yes, specific to neighborhood	No	No – fact-based approach	Engages vision	No	
	Lifting stones (Hálfsterkur, Hálfdrættlingur, Amlóði)	Reykjavíkurborg (part of suggestion followed through Betri hverfi)	2013	Excellent	Residents	Bronze lettering on weights in Icelandic	Readily accessible as a feature to actively engage with, but specific cultural meaning not explained	Relevant to history of baiting sheds: lifting stones historically used to prove one's physical strength as prerequisite for fishing work	Bronze lettering resonates with that on drinking fountain	Yes, harmonizes well with area around and including sheds	Yes, responds to user interests (as Betri hverfi initiative); connects with cultural history of the site	Yes, specific to fishing work	No	Yes, for those who understand the historical reference: affectively engages the body with work formerly done on site	Engages the body	No	
Guided tours*	Bicycle and Segway tours	Reykjavík Bike Tours/ Reykjavík Segway Tours (same company)	2009	N/A	Tourists	English, German, Danish, Dutch, Icelandic											
School use**	Used regularly by local preschools and primary school	Confirmed use by Grandaskóli, Hagaborg, Sæborg	Various	N/A	School-children	Icelandic											

	Description	Creator or party responsible	Year installed/initiated	Condition (physical features)	Target audiences	Language	Style/accessibility of content?	Relevance of content and approach?	Harmony with interpretive features?	Harmony with environment?	Supports management strategies?	Specificity to site and area?	Connection to environmental issues?	Personal, affective, invites reflection?	Engages multiple senses?	Considers multiple perspectives?
Other use	Bonfire site	Reykjavíkurborg	Date unknown, long established – likely before mid-20th century)	Acceptable***	Residents	N/A	N/A	Relevant use of much-used public site as place for community gathering	No harmony with other onsite features	Barren patch of ground rather inharmonious	Yes, helps sustain community presence and investment in the site	No	Not explicitly	Yes, New Year's Eve bonfire invites reflection on symbolic act of "burning up" the old year and welcoming the new	Engages the body; engages vision, hearing, smell	No
	Fitness equipment	Reykjavíkurborg (part of suggestion followed through Betri hverfi)	2010	Excellent	Fitness-oriented adults, but also used by children	N/A	N/A	Relevant, as the area is heavily used for fitness activities (walking, jogging, biking, football)	No harmony with other onsite features	Not particularly harmonious	Yes, responds to user interests (as Betri hverfi initiative)	Not specific to site or area, but relevant for user base	No	Not explicitly	Engages the body	No
	Football fields	Reykjavíkurborg	Date unknown, long established	Varies from field to field	Residents	N/A	N/A	Relevant use of community open space	No harmony with other onsite features	Fairly harmonious (no infrastructure around fields except for goals)	Yes, helps sustain community presence and investment in the site	No	No	Not explicitly	Engages the body	No
Online information	None through Reykjavíkurborg															
Multimedia features	Literary retreat bench (audio recording of prose/poetry by Óskar Árni Óskarsson)	Reykjavík Bókmenntaborg UNESCO under Reykjavíkurborg	2012	QR code sign in fair condition	Residents, tourists	Icelandic, English	Poetry and prose uses accessible, straightforward language. Accessible onsite only to those with smartphones	Some content loosely relevant to site. Approach relevant to encouraging longer engagement in the area	No harmony with onsite features, but part of series of literary retreat benches around Reykjavík	Harmonious – QR code inconspicuous from a distance	Yes, helps increase cultural and artistic value of site	One piece about a fictional bench; two pieces refer to the sea. Others have no connection to site or area	Not explicitly, but one piece seems to concern a fictional environmental issue	Yes, as poetry/literary prose	Engages hearing; one piece concerns sense of vision; others concern bodily positionality	No – anthropocentric concerns

* Bike and Segway tours not assessed due to time constraints

** School use not assessed due to complexity and time constraints

*** http://www.umhverfisraduneyti.is/media/PDF_skrar/Nidurstodur-ur-maelingum-a-dioxin-i-jardvegi.pdf