WINNER OF THE MAGNUS MAGNUSSON ESSAY PRIZE (2016)

Negotiating contested landscapes: The lupin controversy in Iceland

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Introduction

MOBILITY IS a ubiquitous part of our globalised world and affects not only the social, but also the natural sphere. Though not a new phenomenon,[1] the movement of animals and plants around the world has elicited increased scientific and public concern over the last decades, especially when they are being seen as 'invasive'. Under the category of 'alien invasive species', these species are now widely treated as 'one of the greatest threats to the ecological and economic wellbeing of the planet'.[2] Preventing the introduction of such species has been identified as a particularly urgent matter in the Arctic region, where climate change and increased human activity, transport, and energy development are expected to make the region more vulnerable to 'invasive' species.[3]

While the standard view within the relatively young field of 'invasion biology' states that 'any new introduction warrants concern',[4] the scientific debate surrounding alien invasive species is much more varied.[5] For instance, highlighting that the spatiotemporal belonging of a species is often ambiguous and rather arbitrarily defined, the value of the discipline's underlying distinction between 'alien' and 'native' species has been questioned.[6] Others

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1 Crosby 1986
2 McNeely et al. 2001, viii
3 Lassuy and Lewis 2013
4 Simberloff 2012, 39
5 Helmreich 2005; Chew and Hamilton 2011
6 Kendle and Rose 2000; Warren 2007; Davis et al. 2011

have turned attention to how introduced, and indeed 'invasive' species, do not always harm, but can even be beneficial to their new environments.[7] Furthermore, the use of highly emotive and manipulative language, such as the terms 'invader', 'coloniser' and 'enemy', has come under scholarly critique.[8] Some have argued for disturbing parallels between this language and xenophobic and racist social discourses.[9]

As the debate develops, the idea that 'native' species are 'good' while introduced species are 'bad' is giving way to a 'growing recognition of complexity and ambiguity'[10] and to a call for a more nuanced understanding of the processes surrounding biological introductions. Furthermore, a diverse range of human relationships with such plants or animals exists on a local level. Communities that resist 'native only'-policies often find themselves in a conflict over space and the right to define and create it. This article explores one instance of such a conflict surrounding an 'alien invasive' plant which is welcomed by some and despised by others: the Alaska lupin (Lupinus nootkatensis) in Iceland. Because debates surrounding alien invasive species are complex, the relationship between people and the lupin in Iceland offers much to untangle. This article aims to provide a critical overview of the topic.

The lupin in Iceland

The lupin in Iceland has come under criticism for its fast spread, ability to 'invade' ecosystems, and outcompete 'native' species.[11] However, while the lupin has attracted concern for this 'invasive' behaviour, it is an introduced plant that serves a certain function in its 'new' environment and can positively impact ecosystems. While it is mostly used as a garden plant in the rest of Scandinavia, the lupin was deliberately introduced to Iceland for soil erosion control, due to its ability to establish itself in barren areas and its nitrogen-fixing qualities.[12] Initially, the lupin's spread was actively encouraged by specialists, governmental agencies, as well as the public, seen as part of the project of 'healing the land'[13] and reversing the damage that humans have caused to the environment.

It was used by the Icelandic Forest Service and the Icelandic Soil Conservation Service, the two biggest institutions concerned with land

7 Chew 2009
8 Brown and Sax 2004; Larson 2007
9 Sagoff 2000; Subramaniam 2001; Olwig 2003; Warren 2007
10 Davis 2009, 10
11 Magnússon 2010, 8; see also Magnússon et al. 2004
12 Arnalds and Runólfsson 2004
13 Crofts 2011

Figure 1: Lupinus nootkatensis spreading on a mountain site in NE Iceland following land reclamation. *Photo by Borgþór Magnússon*

reclamation in Iceland. The lupin is still highly valued for its soil-enriching properties, especially by forestry advocates involved in the project of reforesting a treeless land.[14] However, the spread of the lupin has become the subject of considerable worry for ecologists, wary of the way it outcompetes low-growing, 'native' vegetation. On these grounds, the plant's status has experienced a shift from 'miracle plant' to 'invader' in Icelandic public discussion, as well as on an institutional level. For instance, while many forestry advocates continue their support for the lupin, the Icelandic Soil Conservation Service has seen a complete change in attitude toward the plant, and was instrumental in putting forward a set of new guidelines concerning the management of the lupin, leading up to its recent categorisation as an 'alien invasive species' by the Icelandic Ministry for the Environment.[15]

Framing the lupin in this way does more than just describe its attributes, as Marte Qvenild et al. have argued: '[…] when plants are categorised within environmental politics as invasive alien or native respectively, they are simultaneously cast as wanted or unwanted nature'.[16] However, what constitutes 'wanted' and 'unwanted' nature is a contested issue in Iceland. It

14 Eysteinsson 2004
15 Icelandic Institute of Natural History and Icelandic Soil Conservation Service 2010
16 Qvenild et al. 2014, 23

is in this sense that the recent emphasis on the control of alien invasive species has resulted in a heated debate about the lupin's (un-)rightful place in the country. Disagreements go beyond the plant's status as 'alien' or 'native', and discussions have arisen as to whether the very environments that it brings about are desirable or not. Here, then, the lupin enters into debates over the very basis of what is to be considered 'natural', and 'authentic' Icelandic nature, and how it should be defined in times of global environmental change.

Untouched nature or devastated wasteland?

Though often imagined as a place of untouched nature, and currently heavily advertised as a destination to experience 'Nature the Way Nature Made It',[17] Iceland actually has a long history of land degradation. Some argue that it is the most ecologically devastated country in Europe: estimates show that since the first human settlement in the 9th century, around 90 percent of forests and 40 percent of the Icelandic surface have vanished due to deforestation and soil erosion.[18] Even though considerable disagreement exists over the historical, as well as present, context of environmental destruction, it is acknowledged that today, only a little over one percent of the country is forested and wide areas of Iceland are classified as near-barren deserts.[19]

While factors such as harsh climate and volcanic activity played their part, the poor state of the land was to a large extent brought about by unsustainable land practices introduced by the first human settlers.[20] For a long time, these circumstances were met with indifference, but in the 20th century the Icelandic public started to acknowledge this human story of land degradation, and land reclamation efforts became part of the national agenda.[21] By the time the lupin was introduced to the island, these efforts were couched in terms of a moral obligation of every modern Icelander to reverse the damage that humans had caused the environment. Former president Vigdís Finnbogadóttir, a big supporter of land reclamation efforts, has described this sentiment as follows:

> And although we have long since learned to understand beauty and rural prosperity, learned to value naked mountains and craggy lava – there is, nevertheless, something in each of us that protests calling wasteland, that man has himself created through his activities, beautiful. There is something disagreeable about such landscapes, something that is downright morally wrong …[22]

17 Sæþórsdóttir 2009, 140
18 McGovern et al. 2007, 29; see also Arnalds et al. 2001
19 Arnalds and Kimble 2001
20 Arnalds 2015, 153-160
21 Crofts 2011, 43-45
22 Finnbogadóttir 1988, in Crofts 2011, 161

In this sense, reclamation and reforestation became widely acknowledged as some of the most important tasks in Iceland, and ideas of 'repaying the debt to the land' were of central importance.[23] They also gained legitimacy by referring to Iceland's lost environments: a famous passage in the Book of Settlement by Ari the Wise described Iceland at the time of settlement as being 'covered by woods between the mountains and the shore'.[24] Planting trees (and, as an extension, lupins) therefore became a symbol of national pride and patriotism. However, as the quote above by Vigdís Finnbogadóttir indicates, there also exists a different perception, indeed an appreciation, of Iceland's barren landscapes, which has led to a debate over what to preserve and/or restore in Icelandic nature.

Green vs. dark protectionists

Iceland's deserts are not only perceived as wastelands, but also bestowed with aesthetic quality and beauty. Starting in the 19th century, Karen Oslund says that in Iceland, 'There was a gradual redefinition of what a 'beautiful' landscape was'.[25] However, these different visions of Icelandic nature went beyond aesthetics. They served certain interests and became meaningful in political, economic, and socio-cultural contexts. For instance, within the Icelandic independence movement that emerged in the 19th century, the barren landscapes left behind by the 1783 Laki volcanic eruption, which had devastating ecological consequences and resulted in natural and social crises in Iceland, were used as a symbol of the neglect and failure of the Danish colonial state. Signalling stagnation, apathy and oppression, these landscapes were set in stark contrast to the imagined productive nature of the Icelandic Commonwealth period, and its golden days of freedom and prosperity.[26] At the same time, the conflation of natural and social history found expression within Iceland's nationalist movement in another way, as the idea of a unity between nation and nature also came to be particularly persuasive.[27] Therefore, these lava fields became representative of the very essence of Icelanders' uniqueness: their independent character, shaped by the survival in their harsh nature and times of oppression.[28]

In this context, the lupin is part of a wider debate between two visions of Icelandic nature, namely 'whether dark sands or green forests should be the

23 Aradóttir et al. 2013
24 Benediktsson 1968, 525
25 Oslund 2011, 39
26 Oslund 2011, 45-46
27 Sigurðsson 1996
28 Oslund 2011, 46-47, 52-60

image of Icelandic nature'.[29] In the 1980s, the two sides of this environmental debate were coined as 'green' and 'dark' protectionists, respectively. While the former argue, as outlined above, for the importance of reclaiming land and restoring it to the state of settlement times, the latter claim lava fields and dark deserts to be uniquely Icelandic and worthy of protection themselves.[30] Thus, lupins provoke questions of belonging in Iceland not only because of their 'alien' or 'native' status, but also because they enter into negotiations over what constitutes the 'natural state' of Icelandic environments, and therefore what authentic Icelandic landscapes look like. Regarded as part of a process of restoring Iceland's lost environments by some, the lupin is deemed Iceland's biggest environmental destruction by others: 'Nothing else will change the look of the country as much, not even the high-voltage power lines and power stations that some are dreaming of'.[31]

Progress vs. conservation

Comparing the impact of a plant to that of heavy industrial development, even though surprising at first, becomes meaningful when considered in the context of a struggle between progress and conservation that is inherent to most (nature) politics in Iceland. Through its varying meanings within the independence movement, Icelandic nature became embroiled in a contradiction: desired to be made more productive and harnessed for its natural resources, and at the same time conserved as the very essence of a direct bond between 'nature' and 'nation'. Both, the presence of hydropower stations and lupins in the Icelandic Highlands, an uninhabitable area that covers much of the country's interior, are perceived as examples of the former. While hydropower stations and high-voltage power lines are quite a straightforward matter of harnessing Iceland's resources of water and unbuilt space, the lupin is a matter of development in a subtler way, by being introduced to increase ecosystem functioning. Both do not only invite negotiations of different images of 'authentic' nature, but also about how nature should be used. In this aspect lies their perceived similarity, as they both find themselves in opposition to the argument of conservation: a human obligation to protect the 'untouched' and 'unique' nature of the Icelandic Highlands from outside influences that could alter it forever.

This movement for preserving Icelandic nature often frames the protection of landscapes as equal to the protection of the whole national heritage. As

29 Jóhannesson 2005, 497
30 Jóhannesson 2005, 498
31 Translated by the author from Árnason 2015

an expression of the 'remarkable continuity in the image of 'Icelandicness'',[32] the struggle for preserving what is seen as particularly Icelandic, in light of increasing international influences, is a thread running through most spheres of Icelandic life. Various aspects of Icelandic society and nature have been described as particularly 'pure', through a special continuity with the past. For example, the protection of the purity of the Icelandic language against foreign influences and other changes over time has been stressed by the nationalist movement and is still meaningful today.[33]

As for the lupin, its favourability for degraded land and poor soils often means that it does not stop at boundaries drawn up by humans in Iceland, such as those between lowland and highland areas, or the boundaries surrounding national parks. Furthermore, it often creates conditions that are disadvantageous for already present forms of vegetation. But just as the Icelandic Highlands are depicted as worthy of protection in their current state, Iceland's low-growing plants, such as lichens and mosses, seem to have a claim to a right of residence, described in a newspaper article as follows: 'They are small, delicate and incalculably resilient. They have survived erosion and overgrazing, extreme weather, volcanic eruptions and Icelandic agriculture'.[34] In many ways, the article seems to assert, those small-growing plants have been shaped by the harsh conditions of this island over centuries, just like Icelandic people. The article follows:

> […] the lupin destroys large areas of heath that give us the berries that have brought pleasure to the gums of Icelandic children for hundreds of years. In the opinion of the chief of forestry, heather is the last stage of vegetation before complete erosion; thereby the hardy nature of the Icelandic flora is used against itself, has become a testament to that it is 'primitive'.[35]

Here, then, centuries of adaption to Icelandic conditions are not a sight of embarrassment, in need of improvement, but a sight of pride and something Icelandic people can relate to: a shared natural and cultural history. Irrespective of their productivity, these low-growing plants, just as Icelandic people, have a right to be here because they have resisted the Icelandic natural forces for centuries. In this depiction, the lupin does not only impact Icelandic nature, but also disrupts a distinctively Icelandic experience of it, and a direct bond between the people and land.

32 Hastrup 1998, 46
33 Friðriksson 2008; Þórarinsdóttir 2011
34 Translated by the author from Thorsson 2010
35 Translated by the author from Thorsson 2010

Maintaining boundaries in a globalised world

The lupin debate has not restricted itself to arguments put forward on a national level, as references to international obligations have become particularly powerful in Iceland.[36] For instance, proponents of the lupin have argued that Iceland has a moral obligation to the world to help climate mitigation. As the country has such vast areas available for land reclamation, through planting lupins and trees, it can store high amounts of Co2 from the atmosphere.[37] In the same manner, proponents of a precautionary attitude to species introduction have highlighted Iceland's global responsibility to international agreements on biodiversity conservation and to protecting the integrity of one of the largest uninhabited areas of Europe.

This protection of the integrity of 'native' ecosystems often goes hand in hand with a claim to preserve difference in a world of increasing globalising forces.[38] Here, similarities to arguments about the impact of globalisation on human societies become apparent. As a response to a critique of the field of 'invasion biology', including the argument of underlying xenophobic and racist parallels, Daniel Simberloff et al. have stated the following:

> The wish to maintain the global diversity of native communities and ecosystems has nothing to do with xenophobia. On the contrary, it stems from principles similar to those that defend the right for every human society to retain its cultural distinctiveness.[39]

In a similar fashion, pro-lupin voices in Iceland have been deemed advocates of biological uniformity. The newspaper article discussed in the previous section has the following to say:

> […] we may perhaps liken the cultivation of lupins to when chain stores eliminate small and delightful local stores so that everything will be economical, quick, standardised and identical. Or when McDonald's locations eliminate diverse family restaurants. Or anywhere where diversity gives way to uniformity.[40]

In many respects, then, the lupin debate resembles a wider, current discussion within nature conservation. Accelerating global environmental

36 Jóhannesson 2005; Aradóttir et al. 2013
37 Arnalds 2002
38 Warren 2007, 427-428
39 Simberloff et al. 2013, 63
40 Translated by the author from Thorsson 2010

change has led to profound disagreements on how to manage nature in the Anthropocene. While one reaction to this dominating influence of humans on the global environment is to highlight the responsibility of nature conservation 'to maintain the boundary between the natural and the non-natural, between human and non-human processes',[41] this very approach is criticised as unsustainable by others. Paul Robbins and Sarah Moore argue that at the core of such a critique lies the realisation that '…if there ever was a 'rightful' natural condition to which to return, it is inaccessible to us in a world of global environmental change'.[42] Energy and resources put into this form of 'boundary maintenance'[43] might be better put to use by embracing emerging 'novel ecosystems',[44] and the increasing functions that introduced and invasive species will take on in these systems.

Conclusion

This article brings forward a vital argument for the debate surrounding introduced species: while a wish for more objectivity in the scientific study of alien invasive species has led some to argue that '…it is time for conservationists to focus much more on the functions of species, and much less on where they originated',[45] this focus on species behaviour does not necessarily solve conflicts surrounding introduced species. Whether or not the lupin's behaviour is seen as harmful is essentially based on human values.[46] In Iceland, this is observable both in the scientific discourse between forestry and ecology, and within the public debate, where perspectives on the lupin vary according to a diverse set of factors: the way it influences people's immediate surroundings, livelihoods and enjoyment of the landscape, different aesthetic appreciations, knowledge of the environment, and ideas of authentic Icelandic landscapes.

Disputes surrounding alien invasive species have been described as involving, as Stephanie Lavau has put it, 'A contemporary concern with patrolling the physical and conceptual boundaries of "proper" places'.[47] This is particularly relevant in Iceland, where 'the facts of nature are part and parcel of Icelandic history'[48] and the nation is still coming to terms with

41 Milton 2013, 111
42 Robbins and Moore 2013, 5
43 Milton 2013
44 Hobbs et al. 2009
45 Davis et al. 2011, 154
46 Sagoff 2009
47 Lavau 2011, 44
48 Hastrup 2008, 63

what constitutes natural and authentic Icelandic landscapes. Faced with the increasing pressure of global change, the lupin debate demonstrates the significance that powerful narratives of a continuity with the past and ideas of Icelandic purity have for current concerns with nature in Iceland. Sometimes, this idea of 'pastness' is conflated with another very persuasive idea that has gained importance over the last few decades, that with increasing references to scientific and international, arguments, concepts of 'naturalness' and 'natural integrity' in the 21st century have found their way into Icelandic nature politics. In the lupin debate, different 'natural' landscapes are invoked to different ends, but they do not represent Icelandic nature the way it is. Rather, they transport powerful images that connect to certain nationalist, moral and emotional values.

Finally, this entanglement with the social world has led some voices in Iceland to regret that the lupin has become symbolic of the issue of introduced species in the country. This is mainly due to the fact that the plant's ambiguity doesn't allow for a straight-forward national conversation on introduced, invasive species. As Susanna Lidström et al. have shown, the knowledge surrounding such complex environmental problems 'is replete with uncertainty and tends to resist formation into easily comprehensible narratives'.[49] However, while this may be regrettable for some, embracing the ambiguity that surrounds many invasive species, and the politics behind it, might ultimately be more constructive than trying to seek an objective account.

As this article aimed to show, a field of lupins provokes more than a discussion on practical matters that come with its presence: it prompts profound reflections on what constitutes naturalness, why it is important to care for nature, and which nature to care for. No ultimate solution to these questions has yet to been found in Iceland. What has become explicit, however, is that any attempt at answering them will need to consider the plant from a variety of perspectives, as the lupin has become meaningful beyond its ecological context.

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49 Lidström et al. 2015, 3

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