

Overview of research on
experiences of landscape and wilderness
conducted and used by expert group 2

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Workshop on behalf of The Master Plan for Nature Protection and Energy Utilization
Reykjavík, University of Iceland

The aim for expert group 2

- Evaluate the value of nature tourist destinations
- Evaluate the effects of power plants on tourism and recreation



Attributes used in the assessment by work group 2 in the Master Plan

Attribute categories	Subcategories	Weight	Number of attributes included in evaluation
Experience		0,330	
	Wilderness, size and continuity	0,135	all 3
	Beautiful, spectacular, powerful landscape	0,135	
	Protected area	0,010	
	Hot springs and geothermal heat	0,050	highest 2
	Evidence of volcanic activity		
	Lakes, rivers and waterfalls		
	Ravines, canyons and rifts		
Recreational opportunities		0,340	
	Nature observation (e.g. fauna, flora, geology)		highest 4
	Hiking tours		
	Super-jeep tours		
	Riding tours		
	Hunting/fishing		
	Nature baths, pools		
	Boat tours		
	Bicycling		
	Heritage, history		
Usage		0,330	
	Tourist infrastructure (accommodation, lavatories, markings, patrol)	0,030	higher score
	Roads	0,100	all 3
	Distance from market		
	Number of tourists		
	Tourism and outdoor recreation	0,100	

Landscape and wilderness are of great importance in the work of expert group 2

27%

Perceiving natural landscape

- The way people perceive and understand landscape is a **complicated psychological process**
- Individuals perceive their environment through various senses, such as hearing, touch, smell and taste. Still, **visual perception** dominates them all (e.g. Urry, 2002)
- Visual perception is affected by the **physical landscape attributes**, as well as the **psychological process between the physical landscape as such and the mindscape** (e.g. Bourassa, 1991)
 - Thus, the aesthetic quality of the landscape is **subjective** and in the eye of the beholder (e.g. Tveit, 2009)

Social construction of nature:

knowledge is socially constructed

Desert landscape due
to overgrazing and
overexploitation?

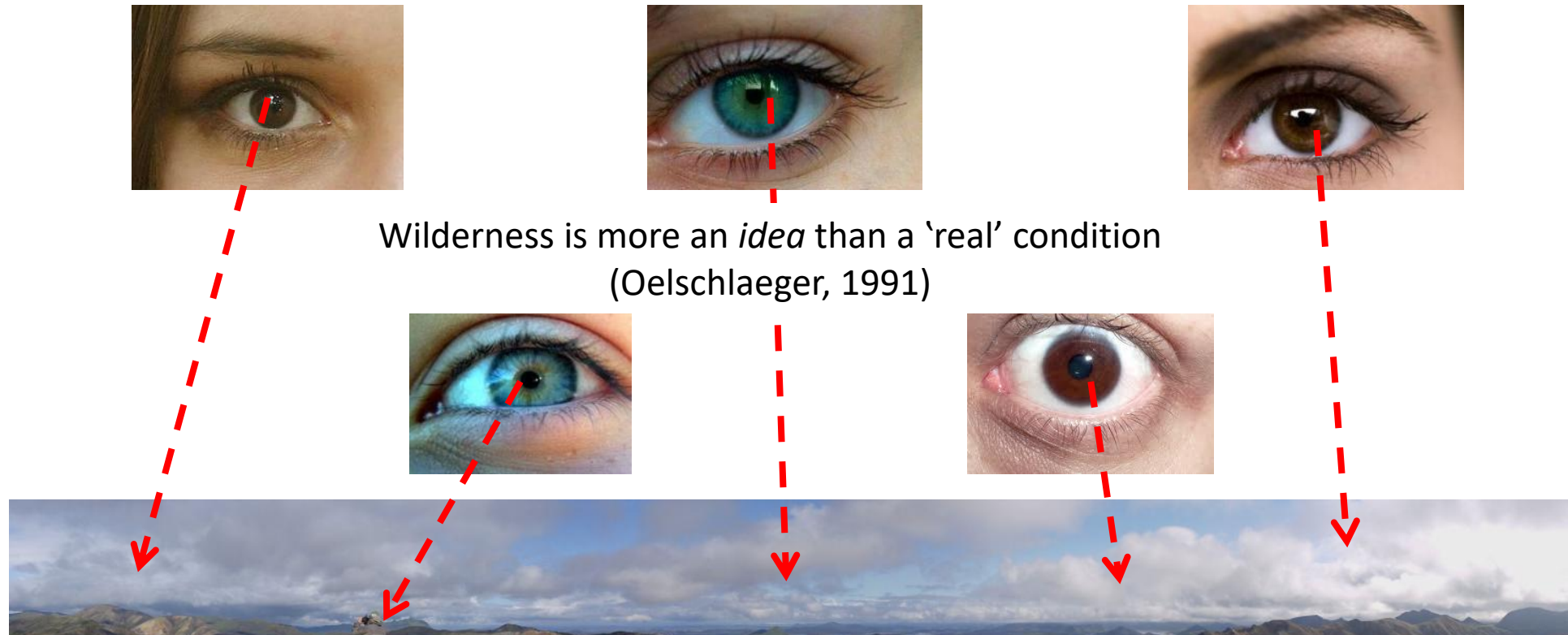
Wilderness?

Mountain
lake?

A reservoir?



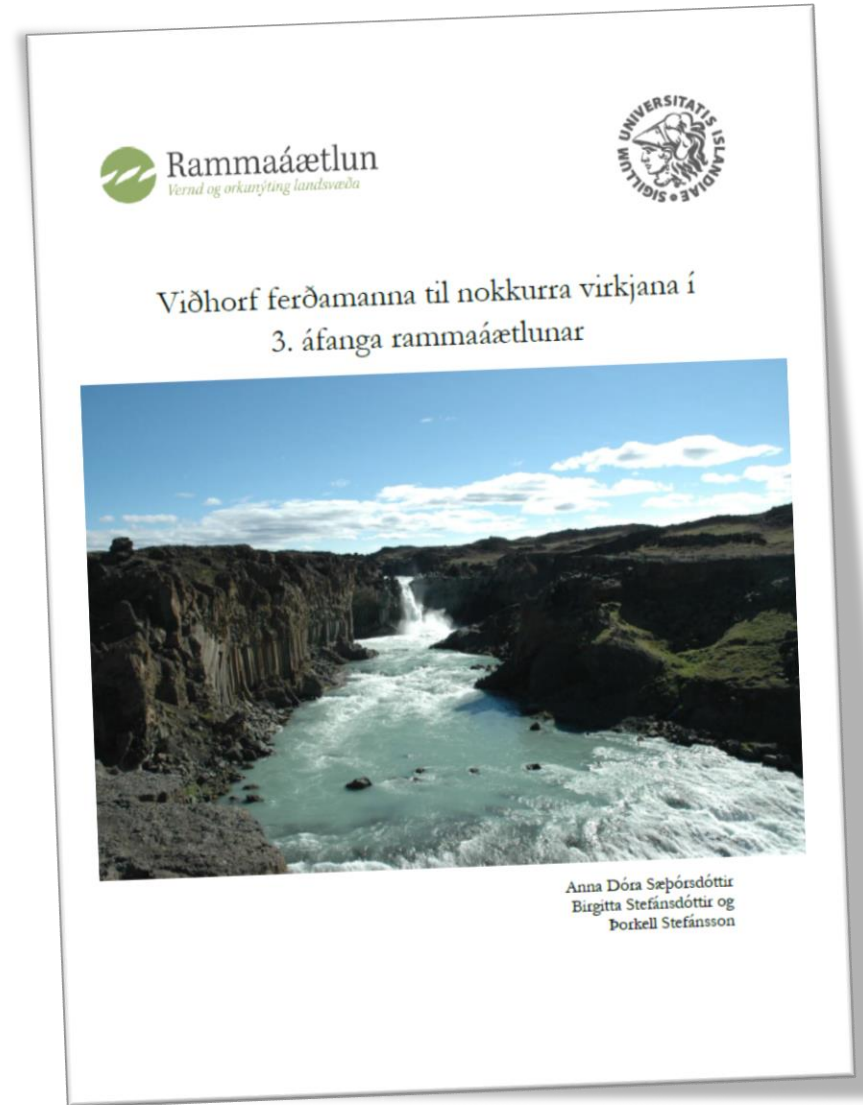
““Wilderness” cannot be defined objectively: it is as much a state of the mind as a description of nature.” (Tuan, 1990)



- There is no agreement on one specific meaning of the wilderness concept
- Different opinions exist on whether wilderness should be viewed as something real (objective) or as a socially constructed idea (subjective)

Research conducted by expert group 2

- Effects of a proposed power plant in:
 - Skaftá
 - Skagafjörður
 - Skjálfafljót
 - Hágöngur
 - Hagavatn
 - Seltún
 - Trölladyngja
 - Hverfisfljót
- Icelanders' views and experiences of wilderness
- The tourist sector's views on the proposed power plants in the 3rd phase of the Master Plan



Surveys among travelers (international and Icelanders)

Quantitative and qualitative methods

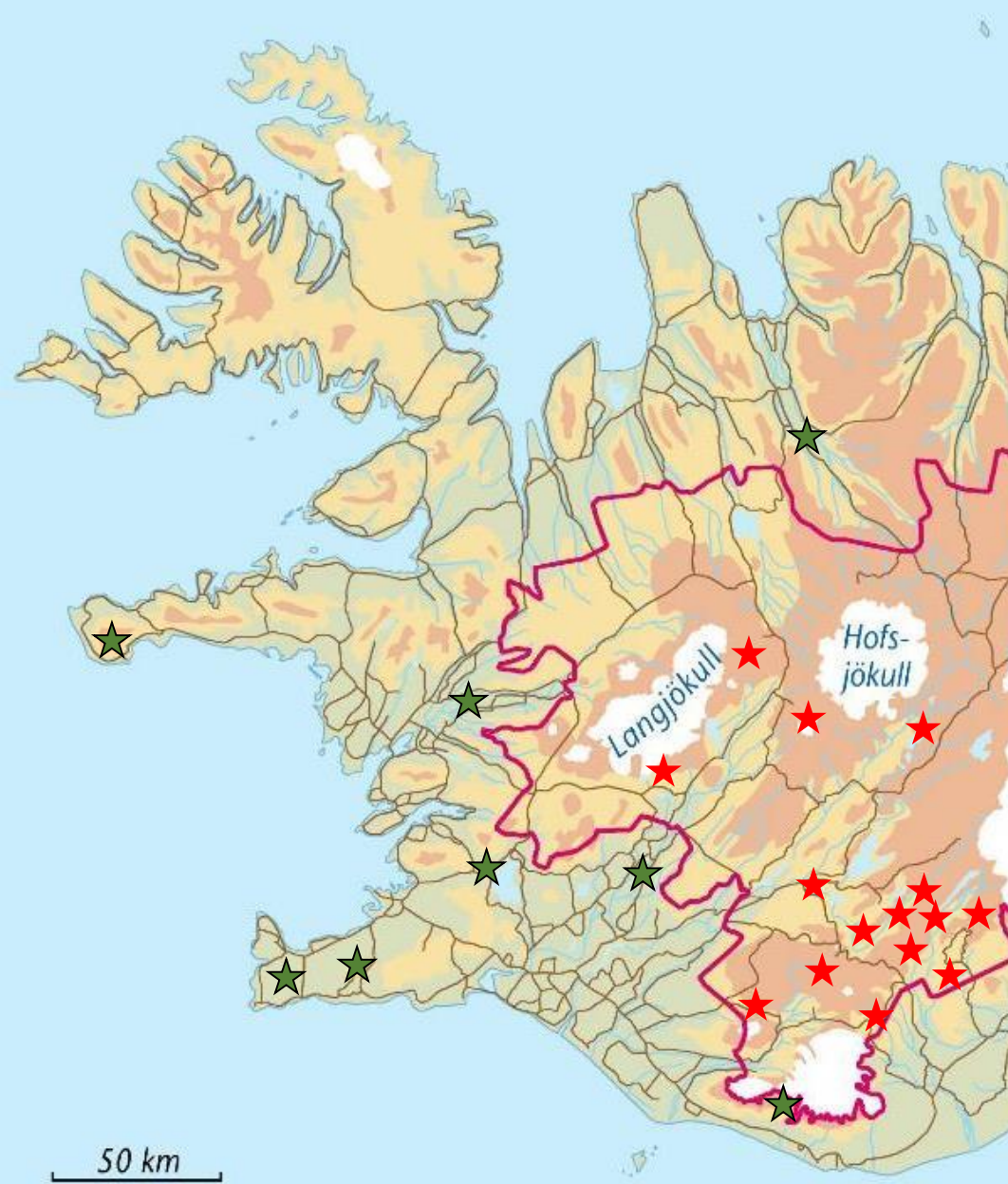
Highland

Lowland

Research area	Year of data collection	Questionnaires (N)	Interviews and diaries	Research area	Year of data collection	Questionnaires (N)
1 Landmannalaugar	2000	546	21	1 Skaftafell	2000	662
2 Langisjór	2000	19	20	2 Jökulsárgljúfur	2001	1.111
3 Lónsöræfi	2000	95	22	3 Mývatn	2001	746
4 Laki	2007	397	24	4 Jökulsárgljúfur	2013	965
5 Hveravellir	2008	525	20	5 Mývatn	2013	1.637
6 Kerlingarfjöll	2008	128	16	6 Skaftafell	2013	1.420
7 Landmannalaugar	2009	1.105	23	7 Djúpálónssandur	2014	1.110
8 Álftavatn	2011	219		8 Geysir	2014	7.683
9 Eldgjá	2011	437	22	9 Hraunfossar	2014	2.096
10 Hrafninnusker	2011	366	20	10 Jökulsárlón	2014	3.100
11 Landmannahellir	2011	188	21	11 Seltún	2014	2.016
12 Öldufell	2011	58	20	12 Sólheimajökull	2014	2.758
13 Askja	2013	671		13 Þingvellir	2014	6.893
14 Kverkfjöll	2013	149		14 Aldeyjarfoss	2015	338
15 Langisjór	2013	138		15 Seltún	2015	751
16 Lónsöræfi	2013	56		16 Skagafjörður	2015	230
17 Búrfellslundur	2014	1.351	20	17 Trölladyngja	2015	132
18 Þórsmörk	2014	535		Total		33.648
19 Hagavatn	2015	94				
20 Hólaskjól	2015	442				
21 Nýidalur	2015	88				
22 Blanda	2016	1.078				
23 Hverfisfljót	2019	32	20			
Total		8.685	269			

40 samples in 33 locations

Research financially supported by the Master Plan



Reasons for travelling in the Highlands:

*„...this is very exciting **landscape**. You have lava and volcanoes, boiling hot springs, ice caves and glaciers, desert, colourful mountains and all kind of high contrasts like the endless black sand and then the extreme green moss where water dribbles out... I think it is very **wild** and unique area.”*

*„It's not like anything in the UK, this **landscape**.
It's just so **wild** and **unpopulated**.”*

*“Beauty of the **landscape**, **wilderness**, mountains, the geothermal areas, waterfalls... I also love the quiteness and the history, the old tracks people used to use many centuries ago. ... and that this is such a **vast continuous area – uninterrupted by manmade constructions**.”*

Components of the wilderness experience

Unspoilt nature

- Experience the forces of nature
- Landscape with no constructions
- Uniqueness
- Beauty
- Increase knowledge of natural processes

Spiritual experience

- Adventure, mystery
- Experience of unknow territory
- A place where one can release tension

Simplicity

- Primitive forms of recreation
- Lack of technology

Solitude

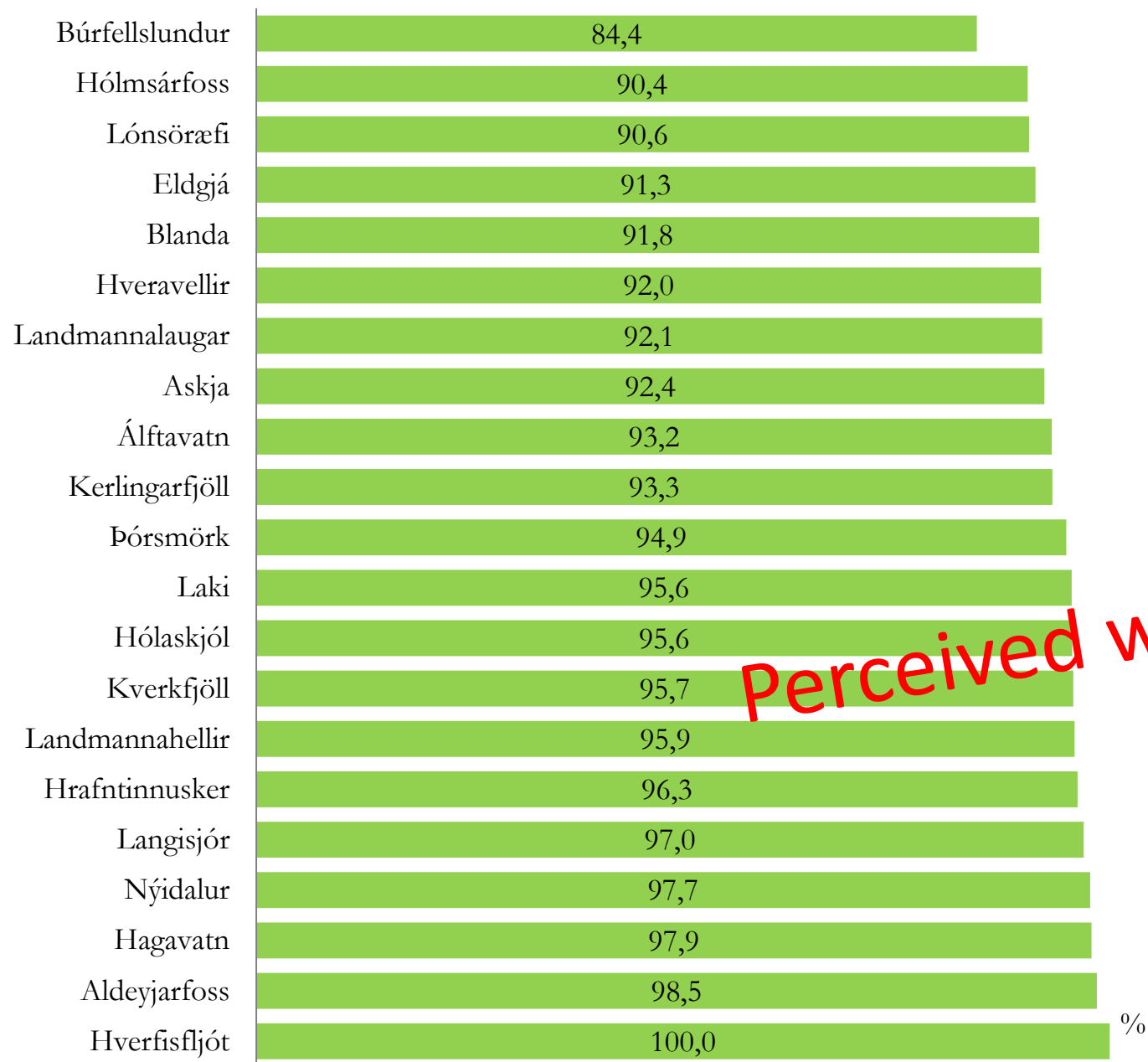
- The thrill of being alone or in a company of few

Inaccessible, remote

Playground

- Challenge: Mental and physical
- Self-reliance
- Risk

Do you think wilderness is a part of the appeal of the area?

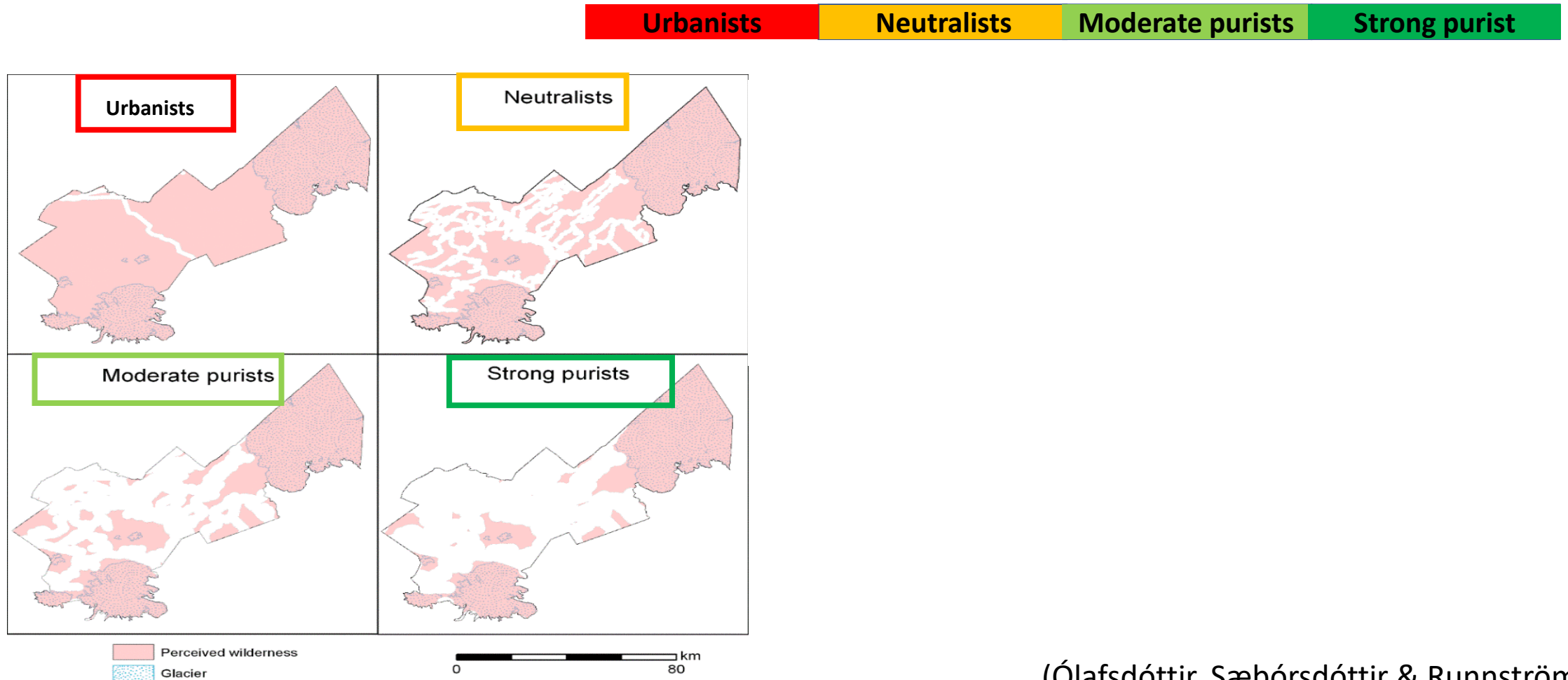


Perceived wilderness

%

Tourists' experience of wilderness in the Southern Icelandic Highlands

The purist scale



Comparison of perceived beauty of landscape

-with and without man-made structures

Table 2. Comparison of perceived beauty of landscape, with and without man-made structures.

Photos compared	Landscape type	N	Without transmission towers		With transmission towers		Paired t-test	
			Mean ₁	Stdev. ₁	Mean ₂	Stdev. ₂	t	p
A and B	Grassland, Hekla volcano in background	1264	4.86	0.407	3.08	1.244	49.110	<0.001
C and D	Grey sandy desert	1256	4.23	0.914	2.94	1.108	34.432	<0.001
E and F	Semi vegetated land with palagonite mountain	1262	4.45	0.716	3.02	1.210	37.226	<0.001

Note: Means based on a five point Likert-scale: 1 = Very ugly and 5 = Very beautiful.

Landscape without power plant constructions is perceived as more beautiful



Photograph A



Photograph B.



Photograph C



Photograph D



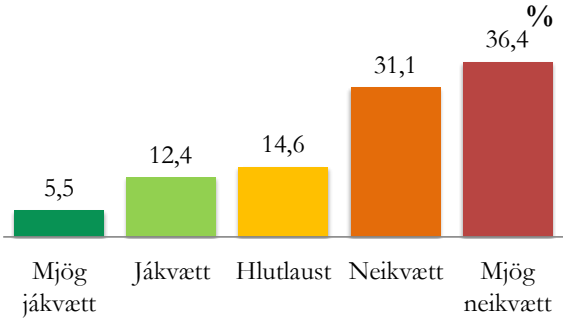
Photograph E



Photograph F

(Sæþórsdóttir & Ólafsdóttir, 2017)

A wind farm in Icelandic landscape

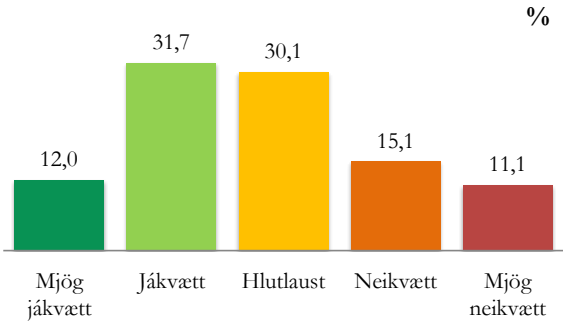


A wind farm is perceived negatively in scenic landscape

Table 4. Comparison of 64 m wind turbines in the various landscape

Photos compared	Landscape type	N	Mean ₁	Stdev. ₁	Mean ₂	Stdev. ₂	Paired t-test	
							t	p
S and T	Semi vegetated landscape vs. desert landscape	1263	2.38	1.183	2.64	1.210	-13.795	<0.001
S and U	Semi vegetated landscape vs. the volcano Hekla	1264	2.38	1.184	2.20	1.211	7.869	<0.001
T and U	Desert landscape vs. the volcano Hekla	1262	2.64	1.210	2.19	1.210	16.967	<0.001

Note: Means based on a five point Likert-scale: 1 = Very negative and 5 = Very positive.



Homogeneous landscapes are perceived to be more suitable locations

Víðernis-gildi / Wilderness value



Icelanders opinion:

*Attributes with negative wilderness scores
the lower the score, the lower is the perceived wilderness perception*

Myndaspjald 7: Engin sýnileg mannvirki í landslaginu



Myndarammi 16: Landslag einkennist af hríkaleika og mörgum áberandi formum og litum (s.s. klettabeltum og -brúnum, jökum, jökulurðum, jökulám, og/eða úfnum hraunum) og er erfitt og óöruggt yfirferðar



Myndaspjald 5: Ummerki um ferðapjónustu, s.s. göngustígar, göngubrýr, vegaslóðar, utanvegaakstur, fjallaskálar, þjónustumiðstöðvar.



Myndarammi 14: Byggð svæði s.s. þorp og bæir



(Ólafsdóttir & Sæþórsdóttir, in review)

Tourism operators' attitudes towards the various forms of power production

Power Plant Infrastructure

Wind farms in the Highlands *

Wind farms in the lowlands

Geothermal power plants in the Highlands *

Geothermal power plants in the lowlands

Hydro power plants in the Highlands *

Hydro power plants in the lowlands

Reservoirs in the Highlands *

Reservoirs in the lowlands

Transmission lines in the Highlands *

Transmission lines in the lowlands

The tourism industry prefers power plant constructions in the lowlands, rather than in the Highlands

Means based on a 5 point Likert-scale where 1 = Very negative → 5 = Very positive (N = 216). * Significant difference between effects of power infrastructure in the lowlands and Highlands at the 0.05 level.

