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Tourists Perception of Recreational Opportunity Spectrum as a Management Tool in Fulufjället National Park

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Preface

This thesis is submitted in connection with my obtaining of a Master in Natural Resource Management at the Norwegian University of Life Sciences. It has been an exciting, instructive and demanding journey getting to this point, both regarding the education and regarding the thesis.

I want to thank my friends and family for encouraging and supporting me in the decision of studying my master here in Norway. As do I want to thank the Department of Ecology and Natural Resource Management for two highly educational years, with room for academic as well as social development. I especially want to thank the Nature-based Tourism group, for inspiring courses with many relevant guest lectures combined with well-planned and motivating excursions. But of course all of this would not have been the same without good class mates, and the discussions on time relevant topics we have had together.

In relation to this study; I want to thank my supervisor Dr. Peter Fredman, who have encouraged, guided and given constructive feedback during the last year. He also made this study possible by establishing opportunity to use the data, for which I want to thank Mid Sweden University for letting me use. Without this study would not have been possible.

A handwritten signature in black ink, reading "May Birkemose". The script is cursive and elegant, with the first name "May" and last name "Birkemose" clearly distinguishable.

May Birkemose

Ås, Norway
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Abstract

At a time where the amount of wilderness is critically declining, while the demand for nature experiences are rising, multi orientated management becomes increasingly important. One management tool for visitor planning is the Recreational Opportunity Spectrum. The intention with Recreational Opportunity Spectrum is to create a variety of recreational opportunities to meet various expectations. Since Fulufjället was designated as a national park, the Recreational Opportunity Spectrum system has been implemented as a management tool, and has proven useful in minimizing conflicts, as well as aiding in local anchoring during the designation process. The Swedish part of Fulufjället National Park is divided into four zones based on each area's physical, social and managerial settings. The purpose of this study is to examine whether this management approach is suitable for dealing with the different demands in a way that guarantees satisfaction for all visitors regarding their wishes for recreation opportunities.

In order to meet the objectives of this study, data collected from research conducted in Fulufjället National Park in the summer of 2014. Here 1425 respondents have participated in an online survey regarding their visit in the area, the management, the journey and expenses, as well as a more general part about mountain region information. The respondents are for presentation and comparison reasons divided into groups based on which areas of the park they visited during their stay. For all results regarded relevant for this study, analyzes and Chi-square tests have been conducted to test for significant differences between user groups. The results indicate a high degree of satisfaction among all groups of visitors regarding their stay at Fulufjället National Park. Moreover, results indicate that the information about the purpose of the zoning, and what to expect in each of the different zones have been received and used for matching of experience, wishes and actual available opportunities. This is concluded to be an indicator that the dissemination of the zoning is working as intended for the visitors of the park. More surprisingly, the results indicate another factor to be crucial for the satisfaction of the visitors: the beforehand expectations of the area they choose to visit.

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Introduction

National parks

Today 12.5 % of the planet is protected all under a variety of names and specifications (Watson et al. 2014). One of the most common and well-known forms of nature protection is *national parks*.

In most national parks, the main goal is to protect the biological diversity and, depending on the individual national park reforms, some have recreation as a part goal (Vorkinn 2008). Since the first national park in Europe was designated in Sweden in 1909, the number of national parks has increased rapidly, with associated increases in annual visitors (Fredman & Margaryan 2014; Raadik et al. 2010a; Stensland et al. 2014). More visitors have led to a higher activity level in the parks, and provide excellent opportunities for a nature-based tourism industry, which has seen an important upsurge lately (Fredman & Margaryan 2014; Vorkinn 2008). In Sweden and Norway, national parks are a popular destination (Haukeland et al. 2010), and a boarder survey from 2013 showed that about 15 % of tourists, who visited Sweden, visited a national park during their stay (Tillväxtverket 2013). While most national park visitors are from within the same country as location of the park, in Sweden and Norway, studies has shown that visitors from Germany come in second (Fredman et al. 2005; Stensland et al. 2014).

Management of Visitors

In managing national parks and other protected nature areas, there are typically need to consider multiple uses and take the following into account: nature protection and conservation, recreational use, and interest from different groups with affiliation to the area such as the local population. We know that an increase in visitors may not only lead to some degree of negative consequences for the environment and sensitive types of nature, but may also cause conflicts between different groups of interest (Reinius & Fredman 2007; Raadik et al. 2010a). Consequently, a difficult management decision is to determine the balance between nature preservation and accessibility. Important in management is not only visitors' access to certain areas, but also facilitation for different groups with different needs and wishes for recreational opportunities.

In Norwegian and Swedish national parks, tourist activities must take place within the broader framework of nature preservation. In the past, this meant that management plans did not pay particular attention to providing services to visitors (Vorkinn 2008). Today, managerial decisions are increasingly including services to cater for visitors (Fredman & Sandell 2009; Haukeland 2011; Lundmark et al. 2010; Vorkinn 2008). This shift in management is part of a larger trend in public planning. Since the 1980's, a new management ideal called *New Public Management* has developed. Together with *Network Governance*, the *New Public Management* is the foundation of the modern public management, which has shifted the old *Top-Down* management paradigm towards a higher degree of inclusion of locals in management processes (Aarsæther et al. 2012).

Management tools

With a decrease in the global areal amount of wilderness there is an increasing need – not only for protection – but for sustainable management orientated towards user experience and recreational activities in the remaining wilderness areas.

This study examines the use of one particular management tool – the Recreational Opportunities Spectrum (ROS). ROS is a tool suitable for creating opportunities for a variety of recreational uses by managing with a varying degree of facilitation depending on the natural setting in the specific areas; typically dividing greater nature areas into somewhat smaller zones with each their different functions and opportunities for natural development and recreation (USDA 1982).

Research objectives

The aim of this study is to examine how management through zoning in protected areas can include tourism as an objective, and meet the expectations of different visitor groups. Fulufjället National Park has been chosen as case study to answer these research questions in a real live setting.

In a Scandinavian context, the area of Fulufjället is special in more than one way. Its geographical placement as the furthest inland area in Scandinavian gives it a unique climate, and it is the first Swedish protected nature area that uses the Recreational Opportunities Spectrum (ROS) as management tool. Furthermore, the area has been an object for other studies which provides us with a certain amount of useful information for instance about the visitors at the park, amount and main activities.

The research objectives will be answered with the use of empiric data collected amongst visitors in Fulufjället National Park during the summer of 2014 by Mid Sweden University. The literature part will focus mainly on theory which underlies the management of protected areas; legislation and the recreational opportunity spectrum as planning and management tool.

Research questions

- 1.) Which management instruments, including legislation, policies, and management plans are applied at Fulufjället National Park?
- 2.) What was the motives and main activity for visitors in the different zones, and how was their experience of Fulufjället National Park?
- 3.) Is the zoning approach applied at Fulufjället National Park suitable for dealing with the diversity of demands in a way that guarantees satisfaction for visitors regarding all their wishes for recreation opportunities?

Theoretical framework

Recreational Opportunity Spectrum

Vision and management often differ not only between different protected nature areas, but also within protected areas of a certain size, such as national parks. Although the same legislation applies to the whole park, it can be advantageous to divide the area into different zones for management and user purposes. One planning and management tool ample for this is the Recreational Opportunity Spectrum (ROS), which is a framework developed in U.S. Forest Service in the 1970's (Clark & Stankey 1979). Recreational opportunities are here defined as "*combination of physical, biological, social, and managerial conditions that give value to a place*" (Clark & Stankey 1979).

The idea about a ROS model was first developed in the early 1960's (Carhart 1961), but it was not until the late seventies that the model was expanded to include the six opportunity classes we still use to this day. These classes describe the area setting and range from primitive to modern urbanized. Since then, ROS models have been adapted to ecotourism, marine recreation, a New Zealand version, the U.S. have made a eastern region supplement (Lynch & Nelson) and later the user's guidebook specific for ROS water management (Joyce & Sutton 2009). Moreover, there have been experiments with using ROS for services within the area of nature-based tourism, such as transportation and coral reef snorkeling (Sarbanes 2011).

ROS is originally an instrument meant to help resolving dilemmas of multiple-use of forest resources, but has since proven to be suitable for most types of nature (Brown 1982; USDA 1982). It offers a qualitative framework for the understanding of interactions between users groups and the surroundings, by classifying and dividing areas into different zones, depending on which recreational experiences they have to offer. The goal of ROS planning and managing is to define opportunities available, and create the best quality of recreational experiences, while at the same time managing for other uses (USDA 1982). This is to be accomplished by subdividing larger nature areas into zones according to the empirically assessed user preferences. The idea is that the manager is unable to control the users different experiences of the area; however by using ROS, an attempt is made to facilitate different settings, and thereby provide a range of opportunities for different recreational experiences (Wollmuth et al. 1985).

In area planning, there will often be tradeoffs when managing for use of natural resources, recreation and nature conservation. The consequences of these are important to consider and counterbalance before making planning decisions. As Brown (1982) states, is it not only important to look at how recreation affects the resources, but also how recourse management (as for instance harvesting of timber) affects recreational opportunities. Harvesting of timber does not merely affect the area where the trees are cut down, as constructional work and needed infrastructure will affect a much larger area. At the same time, the quality of recreation in the remaining areas will most likely decline due to a higher degree of fragmentation, a decrease in area, and presumably an increasing use of the remaining untouched area. Since it is not possible to provide a common unit for measuring tradeoffs, it seems to be the case that managers have difficult – but very important – planning decisions to make.

Zoning

In order to create the best kind of quality for different recreational experiences, the ROS model defines six different recreational opportunity classes. These include: primitive, semi-primitive non-motorized, semi-primitive motorized, roaded natural, rural and urban. Moving from the primitive towards the urban zone, the naturalness and the size of the area becomes progressively smaller, whereas the concentration of visitors, degree of management, and amount of facilitation increases (Brown 1982; USDA 1982).

In recreational management, an important task is to identify these three characteristics of primary concern: the type of opportunity, amount of opportunities, and quality of opportunities. In order to map which areas currently are providing which types of opportunities it becomes necessary to analyze the physical, social, and managerial setting components of each area. The main elements of the physical component concerns the remoteness, area size, and degree of human impact, whereas the social component concerns user density and the managerial component concerns the regimentation and notice-ability (USDA 1982).

Once the settings components have been mapped it is possible to classify the opportunities for providing different activities, and the capacity for providing these can be estimated. The ROS management is intended to be a national planning tool- and therefore does not every area needs to provide the entire array of opportunity classes (USDA 1982).

Physical setting

The physical setting is defined by the absence or presence of humans or human activity, also in counting cultural modifications and use of the landscape. The physical size of the area is also an important factor for the physical setting, as is the degree of remoteness.

Remoteness in this context is measured by: amount and size of trails, distance to infrastructure for motorized vehicles, airplane traffic, and buildings. For instance, if we take a look at the primitive category, there is a size criterion at a minimum of 5000 acres (2023 ha), whereas the same criteria for the semi-primitive non-motorized category is 2500 acres (1012 ha) see Table 1 (USDA 1982).

Table 1 The physical setting criteria for ROS

Physical setting criteria					
Primitive	Semi-primitive non-motorized	Semi-primitive motorized	Roaded natural	Rural	Urban
2 023 ha	1 012 ha	1012 ha	No size criteria	No size criteria	No size criteria
At least 4.8 km from: roads, railroads and all trails with motorized use	At least 0.8 km from: roads, railroads and all trails with motorized use. May include primitive roads	Within 0.8 km from primitive roads and trails used for motor vehicles, but	Within 0.8 km from railroads and better than primitive roads	No distance criteria	No distance criteria

and trails for non-motorized use

no closer than 0.8 km from better than primitive roads

Unmodified natural environment. Evidence of human would be unnoticed by a wandering observer	Natural setting may have subtle modifications that would be noticed but not to draw attention of a wandering observer	Natural setting may have moderately dominant alterations but would not draw the attention of a motorized observatory	Natural setting which may have modifications ranging from easily noticeable to strongly dominant	Natural setting is culturally modified to the point that it is dominant. May include pastoral, agriculture intensively managed landscapes and utility corridors. Observers are almost constantly in view of cultural changed landscape	Setting is strongly structure dominated. Natural or natural-appearing elements may play an important role but be visually subordinated. Observers are constantly in view of artificial enclosure of spaces
Evidence of trails is acceptable, but should not exceed standard to carry expected use	Little or no evidence of primitive roads and the motorized use of trails and primitive roads	Strong evidence of primitive roads and the motorized use of trails and primitive roads	Strong evidence of designed roads and/or highways	Strong evidence of designed roads and/or highways	Strong evidence of designed roads and/or highways and streets
Structure are extremely rare	Structures are rare and isolated	Structures are rare and isolated	Structures are generally scattered, remaining visually subordinate. Structures may include power lines, microwave installations and so on	Structures are readily apparent and may range from scattered to small dominant clusters including power lines, microwave installations, local areas and recreational resorts	Structures and structure complexes are dominant, and may include towns, industrial sites or second home development

Social setting

The social setting criterion is defined by the effect of user density; in other words, the frequency with which individuals or groups encounters one another. Mapping of social setting can be difficult, but it is never the less an important factor in planning. The social criteria for the primitive category is usually less than six parties counted on the trail per day, and less than three visible on campsite. For semi-primitive non-motorized these numbers are usually six to fifteen per day, and six or less on the campsite. For the remaining categories on the table, the criterion ranges from low to moderate frequency, moderate to high, and high frequency of meetings with other parties (see Table 2).

Table 2 The social setting criteria for ROS

Social setting criteria					
Primitive	Semi-primitive non-motorized	Semi-primitive motorized	Roaded natural	Rural	Urban
Usually less than 6 parties per day encountered on trails, and less than 3 parties visible at campsite	Usually 6 to 15 parties per day encountered on trails, and 6 or less parties visible at campsite	Low to moderate contact frequency	Frequency of contact is moderate to high on roads, low to moderate on trails and away from roads	Frequency of contact is moderate to high in developed sites, on roads and trails, and water surfaces. Moderate away from developed sites	Large numbers of users onsite and in nearby areas

Modified from USDA (1982).

Not only the size and visitor density changes, but also, the closer the setting gets to urban zone the more tolerant are the visitors to crowding. While when in the primitive settings, there is shown to be a negative relation between satisfaction and level of interactions with other users. This means that density alone is not significant to whether people experience crowding, or how their general experience was. Areas close to primitive settings are therefore said to have a low social carrier capacity, whereas settings closer to the urban one has a high acceptable social norm(Kim & Graefe 1996).

Managerial setting

The third category is the managerial setting, which reflects the amount and type of administration. The managerial setting is intimately linked with both the physical and the social setting. It revolves around the degree of management in a given area. If the area is strongly tilted towards the urban classification on the scale, the level of users and thereby the social setting will be higher, and the management will tend to move towards a higher degree of facilitation (see Table 3). Whereas a

wilderness area with a very low rate of visitors will have fewer requirements for management and facilitation due to lower wear on the area.

Table 3 Managerial setting criteria

Managerial setting criteria					
Primitive	Semi-primitive non-motorized	Semi-primitive motorized	Roaded natural	Rural	Urban
On-site regimentation is low with controls primarily off- site	On-site regimentation and controls present but subtle	On-site regimentation and controls present but subtle	On-site regimentation and controls are noticeable, but harmonize with the natural environment	Regimentation and controls obvious and numerous, largely in harmony with the manmade environment	Regimentation and controls obvious and numerous

Modified from USDA (1982).

When mapped, these three categories will create a setting from which the practical classification into the six categories can be accomplished.

Fulufjället National Park

Area presentation

Fulufjället National Park is located on the Swedish-Norwegian boarder at 62° northern latitude, in the southern part of Swedish mountain region. The area has been declared a national park on both sides of the boarder; on the Swedish side the area was designated to be national park in 2002 under the name *Fulufjällets Nationalpark* (Naturvårdsverket 2002), and in Norway the designation was in 2012 and the park is here called *Fulufjellet Nasjonalpark* (Miljøverndepartementet 2012). This study will concentrate mainly on the Swedish part of the park, which has also earlier been focal for studies regarding recreation and nature based tourism (Fredman et al. 2005), as well as studies including visitor survey before and after the designation (Fredman et al. 2006), perceived crowding and visitors satisfaction (Fredman & Hörnsten 2004), increased visitation from national park designation (Fredman et al. 2007), motives, actors and processes in protected areas (Zachrisson et al. 2006), protected nature areas as tourist attractions (Wall-Reinius & Fredman 2007), outdoor recreation monitoring (Fredman et al. 2009), preferences for recreational experiences (Raadik et al. 2010c) and economic impacts of having a national park (Fredman & Yuan 2011).

The area, which is now called Fulufjället National Park, is located in Dalarna country in the municipality of Älvdalen. Before the national park designation, the area had been established in 1973 as a nature reserve, and before that, since 1964, it was a nature park (Naturvårdsverket 2002). In 2002 it became the 28th national park in Sweden (Nationalparkförordning 1987; Naturvårdsverkets-författningssamling 2002). The park covers 38483 ha, of which most is low alpine and heathland, and large areas are covered with lichen (Naturvårdsverket 2002).



Figure 1 View of the area of Fulufjället

Fulufjället is the furthest from the ocean one can possibly get in Scandinavia, and have a continual climate with about 175 - 200 days, annually, with snow cover (Naturvårdsverket 2002). This, and the fact that the area here is not used for reindeer grazing, leads to great a diversity of lichens, with up to almost 400 different species of which 30 is red-listed. The most common ones in the area are reindeer lichen (*Cladonia cladina*) and star-tipped reindeer lichen (*Cladonia stellaris*). In addition, mosses thrive here, and 359 different species are registered in the park. Other dominating types of vegetation worth mentioning are mountains birch, coniferous forest, and more than 2000 ha of wetlands in addition to the 661 ha of lakes and rivers (Naturvårdsverket 2002).



Figure 2 Lichen at the more central parts of Fulufjället

Wildlife

The area is well-known for its wildlife, and is home to many of Scandinavia's large animals (e.g. lynx (*Lynx lynx*), western capercaillie (*Tetrao urogallus*), common crane (*Grus grus*), bear (*Ursus arctos*), moose (*Alces alces*), wolf (*Canis lupus*) and different birds of prey). The most common fish are char (*Salmonidae salvelinus*), brown trout (*Salmo trutta*) and burbot (*Lota lota*). Fulufjället is also home to around 30 red-listed animals; either listed in the categories of critical endangered, endangered, or vulnerable (Naturvårdsverket 2002).

Human impact

Fulufjället is the southern most major mountain chain in Sweden, with soft mountain tablelands at an elevation of 900-1000 meters. The largely undisturbed mountain area where humans have had very little impact on nature and the natural alpine heaths, mountain forests, marshes, lakes, and watercourses is classified as a wilderness area. Traditionally, locals have used this area for

domestic grassing, collection of winter feed for the husbandry, hunting, and berry and mushroom collecting, which add a great cultural value to the area (Naturvårdsverket 2002).

With an annual visitor amount between the 38000 estimated for 2001 and 58000 in 2003 (Fredman et al. 2007), the park is an important tourist attraction, as well as an important recreational area for the local community. About 80 – 90 percent of all visits are made during the summer period, and most of these are one-day visits with short hiking trips as the main recreational activity (Naturvårdsverket 2002).



Figure 3 Viewpoint at Njupesjär waterfall

The major attraction of the park is Njupesjär, which is 90 meters tall and thereby the highest waterfall in Sweden. Access to the waterfall has been made easy by facilitating, so that the trail from the main entrance will lead you on a 4 km round trip to the fall and back to the parking lot (Länsstyrelsen n.d.). At the main entrance there are parking opportunities, a cafeteria and a visitor's center. This is the most developed part of the park from here the visitors can hike down different trails, and use the network of small cabins throughout the park.

Designation process

Fulufjället National Park works within the Recreational Opportunity Spectrum (ROS) management framework, which was implemented as part of the designation (Naturvårdsverket 2002; Wallsten 2003). Due to the very strong focus on local participation, the process of designation was special in a Swedish context (Zachrisson 2009). Much time and energy were spent on dialog and negotiations with the local population. Ten percent of the locals were interviewed during this process, in which they had their chance to express their wishes and concerns for the

transformation of the area into a national park. This led to a zoning proposal, which allowed the most contentious activities such as fishing, hunting, and snowmobiling, in some zones and not in others (Naturvårdsverket 2002).

The Swedish Environmental Protection Agency used the designation of Fulufjället as a blueprint to increase participation (Regeringen 2002). Even though the degree and intentions of this participation have been discussed, and have been criticized for only enouncing the designation and not been adopted in the management of the park (Zachrisson 2009).

Management and vision

Legislation

The main purpose of national parks in Swedish is conservation and display of the national nature heritage. Each national park is furthermore appointed to a particular purpose, and most common among these is the preservation of an area-specific landscape types or vegetation. For Fulufjället National Park the purpose is *“to preserve a southern mountain area with distinctive vegetation and large nature areas in their essentially unaltered condition”*((Naturvårdsverkets-författningssamling 2002) § 1.28). Being the reason for appointing the area national park, it is thereby the purpose from which the management plan has its focus. The County Administrative Board (Länsstyrelsen) has the responsibility for managing the area, but a national park board has also been appointed (Nationalparkförordning 1987).

Unique for Fulufjället National Park is that the area is divided into four different zones for administrative purposes. The zoning and the regulations for the areas are specified in the national park regulation (Naturvårdsverkets-författningssamling 2002), and is further described in the chapter Recreational Spectrum Opportunities in Fulufjället National Park.

In Fulufjället National Park, the ROS planning system is implemented to create the best experience for the visitors. The two main purposes of conservation and display require management not only of the nature, but also of the users. Management of visitors can be done in a direct manner by making regulations and laws; or indirectly by providing users with information at a chance to influence the decision-making process. Generally, indirect management is the preferred type of strategy in the park (Naturvårdsverket 2002).

An important factor to be aware of, when dividing an area into zones, is the carry capacity. There are three factors used to define the carry capacity for an area: the management vision for the area, visitors' tolerance, and the tolerance of the natural environment. Njupeskär, which is the main entrance to the park, and the area holding the major attraction, needs to be able to have a high user intensity and are therefore facilitated for hosting many visitors (Emmelin et al. 2010). Approximately ninety percent of all the visitors at Fulufjället National Park visit this area during their stay. Boardwalks protect the vegetation, and signs are set up to encourage visitors to walk the circular trip to the waterfall in the same direction, to avoid crowding. Moreover, this zone is in the management plan classified to be high facilitated and high levels of visitors are therefore to be expected. In the other end of the scale is, having very few visitors and presumably a very low degree of wear on the natural environment, is zone I; this zone does therefore require a minimum of facilitation (Naturvårdsverket 2002).

Management Regimes

There are two types of planning conducted by the County Administrative Board: the physical planning and the planning for nature management (Fredman et al. 2005). The physical planning aims at both short and long term perspectives, planning for the use of physical areas and resources. Whereas the nature management plan, on the other hand, is a tool for complex planning. These two types of planning are often called *adaptive planning* and engage each other.

The goal of the planning is to work continually towards a goal, while changing the path to get there as new knowledge gets available.

The Administrative County Board (Länsstyrelse) is the management authority in Fulufjället National Park. As advisory body is the Management Board, in which representatives from Älvdalen and Malungs municipality, associations and other stakeholders with a relation to the park are included. This board is to meet a minimum of 1-2 times a year and regularly discuss current management issues. The board is a forum for discussions, and has no legal function in the decision making process (Naturvårdsverket 2002). Administration is different in the Norwegian part of the park. It is managed by a national park board, consisting of appointed politicians and a national park manager, who functions both as a secretary to the board, and as an advisor without any legal voting function on the board itself (Miljøverndepartementet 2012).

Recreational Opportunity Spectrum in Fulufjället National Park

In 2002, when Fulufjället National Park was established, it was as a part of the Protected Areas Network (PAN Park). The zoning was an ultimatum from the former PAN Park, together with certain other criteria for visitor management (Naturvårdsverket 2002; Wallsten 2003). The zoning is meant as a facilitation strategy that tries to provide the park with a structure and capacity that meet the visitors' expectations and needs. Visitors' studies show that the majority of the visitors, at Fulufjället National Park, visit Njupeskar waterfall and thereby zone IV exclusively (Fredman et al. 2005; Naturvårdsverket 2002).

Fulufjället National Park was the first place in Sweden, where the Swedish Environmental Protection Agency allowed for such a strict zoning of a park. The zoning is defined after the natural environment, what can be seen and experienced, the degree of human impact, and which activities are allowed and encouraged, all following the international ROS standards.

The zoning is a tool for area planning, but is to some extent also used by the visitors to gain information on what to expect in the different zones of the park (Naturvårdsverket 2002). Furthermore, the zoning was a useful management tool for fulfilling the local's wishes, to carry on their traditional activities in zones where it was seen appropriate. A way to combine national and local interests in a comprehensive spatial way with a low level of user conflicts (Wallsten 2003).

Table 4 Experience opportunities

	Zone I Wilderness zone	Zone II Low activity zone	Zone III High activity zone	Zone IV Facilitated zone
Degree of human impact	Low			High
Facilitation	Low			High
Trace from other visitors	Few			Several
Inter-party contact	Low			High
Possibilities of experiencing:				
Secludedness	High			Low
Quietness	High			Low
Natural environment	High			Low

Modified from Naturvårdsverket (2002).

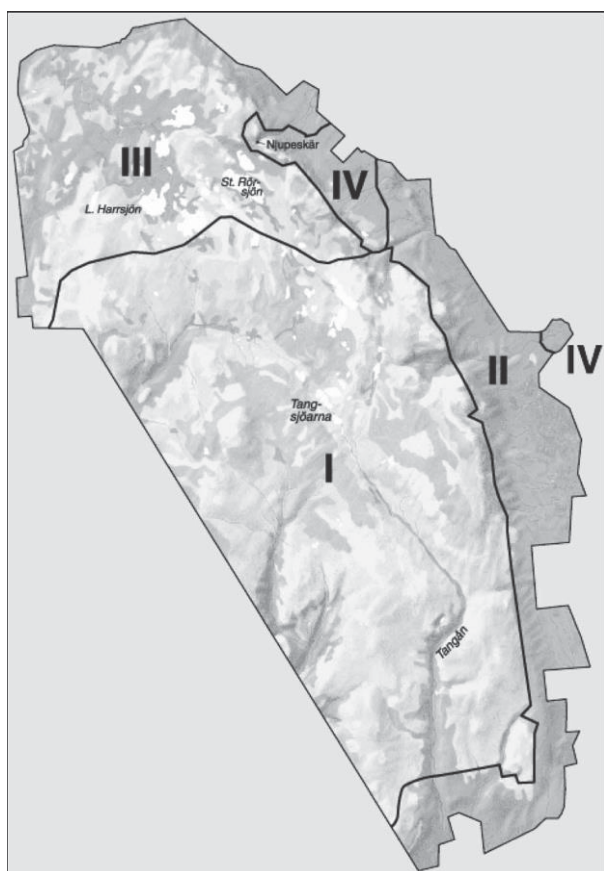
Fulufjället National Park is divided into four different zones: wilderness (zone I), low activity (zone II), high activity (zone III), and facilitated (zone IV). See Table 4.

The zoning makes it possible to meet the various expectations of the users in different areas of the park, under the general purpose of conservation. It also helps to anchor the local roots in the park management, by allowing different traditional activities in some of the zones (Naturvårdsverket 2002).

The four main reasons for the zoning is to:

- Concentrate hunting, fishing, and snowmobile use to the parts that are most suitable for it in order to avoid conflict with strict conservation and the users' experience.
- To develop a high degree of service for the easy accessible excursions points such as Njupeskar, Göljå and Rösjös.
- Develop the trail and cabin system in the well-used northern parts of the tree line.
- Keep the main part of the tree line as untouched as possible.

Zone description



Zone I – Wilderness

Zone I is the most untouched nature area in Fulufjället National Park. The zone covers an area of 23000 ha and is mainly bare low alpine mountains. There is a minimum of human impact on the area and it is forbidden to hunt, fish, lime deal, snowmobile and nor is airplane traffic allowed. In all of zone I the ecosystems are to develop freely, there are no new facilitation allowed, and organized tourism is only allowed at a low level. There are a few hiking trails for use all year around, but in general, this is an area where only few parties encounter each other. Recreational activities in this zone include hiking for several days and staying overnight, cross-country skiing, dogsledding, and nature studies. Within the zone is a designated wildlife area covering 6000 ha without trails and cabins (Naturvårdsverket 2002).

Figure 4 Map showing the Swedish part of Fulufjället National Park and the zoning

Source Fredman et al. (2007) map by Hans Sjögren

Zone II - Low activity

This zone is about 6000 ha and consist of forest in the southern and eastern parts, including a variety of wetlands surrounding it. One difference from zone I is that moose hunting is legal, as is flying to bring out the prey. Only few trails are to be found in this zone, but there is a greater amount of old buildings and traces from earlier land use. Outside of hunting season it is uncommon for parties to encounter one another. Recreational activities in this zone include hiking, cross-country skiing, moose hunting, dogsledding, and nature studies. The management have been allowed a limited amount of new tourism facilities, and the moose hunt is to be observed for impacts on the area (Naturvårdsverket 2002).

Zone III - High activity

Zone II is located in the northern part of the park and covers about 9000 ha. The regulation here allows for moose hunting, fishing, and snowmobiling on certain tracks, as well as dealing lime in the most important fishing lakes. There is a major system of trails for summer and winter use, and

cabins as well as wind shelters; some of the cabins offer the possibility of renting a boat. When seen as necessary there will be further facilitated with trails and information. Here you have the opportunity to experience a certain degree of quietness and to have the feeling of fending for yourself, while still having some facilitation, such as trails and overnight cabins. Typical activities in zone III is hiking for one or more days, nature studying, skiing, snowmobiling on tracks, dogsledding, fishing, and in certain areas moose hunting (Naturvårdsverket 2002).

Zone IV - Facilitated

This zone covers only about one percent of the total park area (around 500 ha) and consists of the three major attraction areas in Fulufjället National Park: Njupesjär, Göljå and Brottbäck. In this area the facilitation for visitors affects the physical environment. The frequency of meeting others (larger groups included) is relatively high. As it is close to the parking lot and roads, noise is also more common here. It is a good place to experience and learn about the nature and culture in the area, and is easy accessible due to boardwalks and other type of facilitation.



Figure 5 Boardwalk leading to the waterfall in zone IV

This is also the area where most visitors come to and human impact on the zone is therefore very high, which leads to a higher demand for management. Main activities in this part of the park is short hikes, getting information about the area, viewing the waterfall and landslide site (Naturvårdsverket 2002).

Method

Data collection

The data used for this study, is collected during the second step of a data collection, conducted at Fulufjället National Park during the summer of 2014. The first step consisted of eight self-register boxes, strategically placed around the most popular places to visit. See Figure 6.

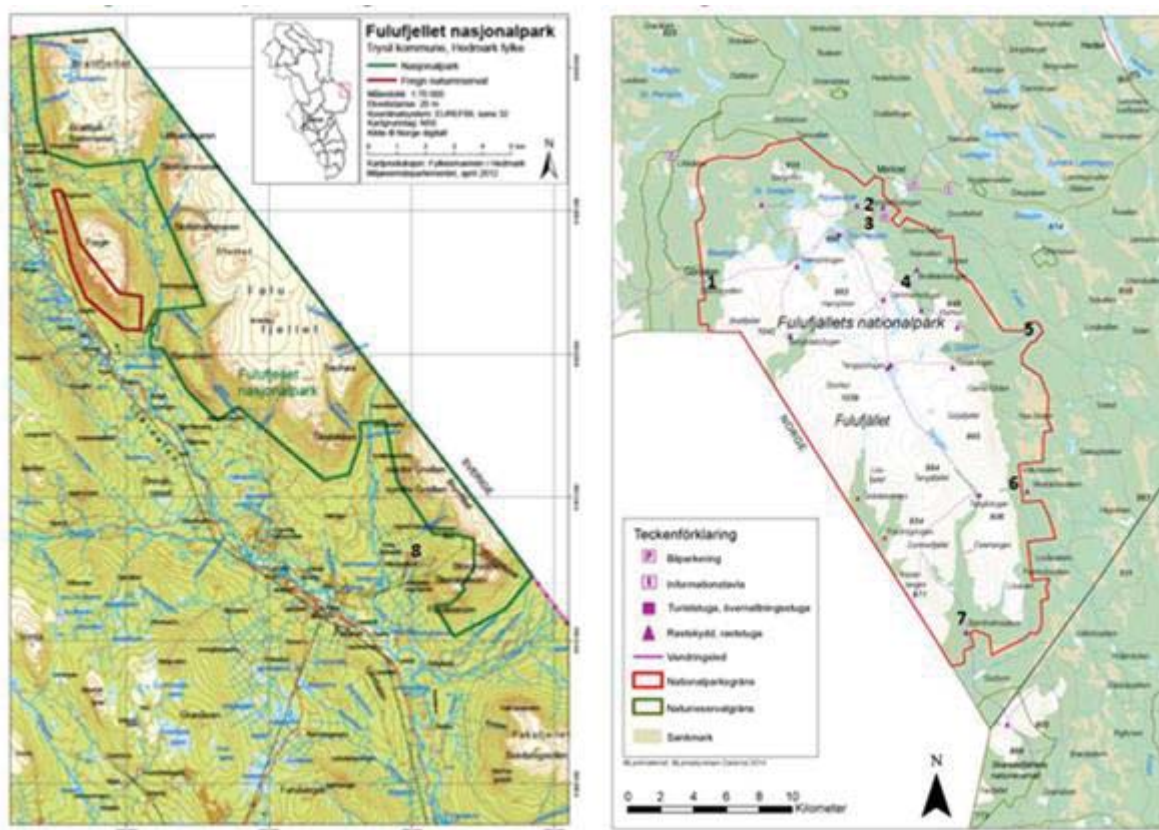


Figure 6: Placement of self-register boxes (numbers 1-8). On left hand side Norway and on the right side Sweden.

To have most people possible seeing and using the boxes, they were all placed clearly visible from the trail, and with a sign in Swedish saying: *"Welcome to Fulufjället! Important! To manage Fulufjället National Park in the best possible way we examine the use of the area. For this, we need your help. We kindly ask you to open the box and participate in the survey. Thank you for your help!"*



Figure 7 Self-register box; to the left placement near trail, to the right an open box

In the box there was information in Swedish, English and German, pens and self-register cards, where visitors more than 15 years old were asked to fill in date, time, year of birth, nationality, sex, postcode and email address. On the register-card, respondents were also asked to indicate which language they preferred for further contact (i.e. follow-up web-based survey). In the box there was a chink to drop down the filled out cards. The purpose of collecting the email address and the language was to get in touch with respondents for the second step, the online survey. All the register boxes were on-site and in operation from 4th of June to 22th of September 2014. Three times during this period the boxes were emptied: The 9th of July, 14th of August and 26th of September. After each removal of registration cards, an email with an interactive link to the survey, was sent to all the collected email addresses, for all those who did not respond, two reminders were later sent out. In total 2605 different email addresses received the invitation to participate, and 1425 participated in the online survey having an overall response rate of 55 % (see appendix 1 Table 1).

The survey was conducted in the Netigate software, and consisted of 41 questions (see appendix 2 for a full word-adapted version). The themes for the questions were as follows:

- The stay in Fulufjället National Park
- The management of Fulufjället National Park and the presence of various services
- Experiences during the visit in Fulufjället National Park
- Views on management of Fulufjället National Park, e.g. what should be permitted in the park
- The journey to Fulufjället National Park and expenses in the area
- Tourism in Fulufjället National Park
- Information retrieval and information resources regarding mountain regions in general
- Information and background of the respondents

Data processing

In total, there were 1425 users of Fulufjället National Park who answered the online questionnaire. Not all respondents answered the question regarding which zones they visited, but a total of 1041 got far enough to answer the last question, and thereby completed the online form. To investigate the research questions by using the results, the data will hereafter be divided depending on which part of Fulufjället National Park the respondents visited during their stay. The dividing started from the Norwegian part of the national park, excluding visitors who stated they visited the Norwegian side. Moving to zone I, selecting all respondents who answered they visit places located in this zone. Most of these respondents have also been to other parts of the park, but will be referred to as visitors in zone I, since it is the most remote zone of their visit. Moving on to respondents from zone II and zone III the same argument will apply. The last two groups are respondents who exclusively visited zone IV, and the sixth group, called *all respondents*, is used to show the combined data. The distribution in the different zones is shown below, and for the full version of the dividing see appendix 1 Table 2.

Table 5 Dividing of data into categories

Name	Amount	Description
Norway	74	visited the Norwegian side of the park
Zone I	193	have been to this zone
Zone II	27	have been to this zone
Zone III	317	have been to this zone
Zone IV	779	visited exclusively this zone
All respondents	1425	respondents participated with information

As the data for this study comes from a larger research project on tourism in Fulufjället National Park, not all questions in the questionnaire are relevant for this study. Only data considered directly relevant for the research questions are included. Most of the results included, are illustrated graphically, while some are only described in the text. The data processing and statistical analyses were conducted in Excel, and the graphics represented are likewise made using Excel diagram tools. For the results presented in the study, a Chi-square test has been made to test for statistical significance with a 95 % confidential interval. The Chi-square test is used to test groups of data for statistical significance. Using this method one sets up a null hypothesis and tests for truth. The null hypothesis for this study is that all respondents groups are the same, and the groups are tested against each other rather than against an expected value. For this test a minimum of five degrees of freedom are required to give a statistical true result, this was due to the low number of observations in some categories not possible for all questions to be presented in the results.

Results

In the following the chosen results from the visitor survey conducted at Fulufjället National Park in the summer of 2014 will be presented. The results submitted in this section is selected on basis of the research questions and the theory, and are subdivided into categories related to Figure 4.

Resonance information

Table 6 shows age distribution, main education, country of residence and gender for the respondents respective to the zones.

Table 6 Respondents information

	Zone I	Zone II	Zone III	Zone IV	Norway	All respondents
Age						
15 – 25	12 %	11 %	6 %	4 %	11 %	6 %
26 – 35	21 %	5 %	16 %	17 %	15 %	17 %
36 – 45	23 %	26 %	24 %	22 %	15 %	22 %
46 – 55	22 %	37 %	21 %	22 %	37 %	23 %
56 – 65	13 %	5 %	21 %	18 %	17 %	17 %
Over 65	10 %	16 %	13 %	18 %	4 %	15 %
Education						
University degree	72 %	47 %	67 %	59 %	80 %	63 %
Country of residence						
Sweden	50 %	47 %	64 %	73 %	33 %	65 %
Germany	31 %	26 %	21 %	13 %	17 %	18 %
Norway	1 %	0 %	1 %	1 %	39 %	3 %
Gender						
Females	44 %	37 %	49 %	56 %	48 %	52 %
Males	56 %	63 %	51 %	44 %	52 %	48 %

Looking at the age distribution, 45 % of all respondents are in the age group of 36 to 55 years old. The proportion of respondents in the age group under 26 is the smallest with just 6 %, whereas the other external group with respondents over 65 counts for 15 % of all the respondents. In zone I the visitors' age distribution is more towards younger respondents compared to the distribution in the other zones, and the highest amount of visitors over 55 is found in the most facilitated areas (zone III and IV).

Regarding nationality, most of the respondents are from Sweden. This is with one exception - the respondent group from the Norwegian part of the park, whom are mainly Norwegians. The second most common country of residence is Germany, and further down the list is the Netherlands and Denmark.

There are roughly as many females as males in the respondent groups, though it is not the case in zone II, which might be due to the low response rate at just 19 people. The same holds true for education where zone II has the lowest rate of visitors with a university degree. Amongst all of the respondents, as many as 63 % have a university degree, and this number is in particular high in zone I and Norway where it is respectively 72 % and 80 %.

Activity and visitation rate

Fulufjället National Park has three main functions for visitors: being a remote recreation area for hikes of several days, being an attractive area for one-day trips and being a recreation area for locals (Naturvårdsverket 2002). The data from this and earlier research (Fredman et al. 2005; Fredman et al. 2006) shows the majority of the visitors use the park as a one- or half-day attraction.

Looking at the Figure 8 it shows that about half of all respondents had this as their first visit to the park, about 20 % answered they visit the park less than once a year, and only 10 % answered *more than once a year*. Looking at the Norwegian distribution this looks somewhat different. The amount of first time visitors is much lower, and there is a significantly larger group who answered that they visit *more than twice a year*, compared to other groups. Testing for statistical significance the p-value between zone I and zone IV is 0.71 and 0.08 between zone III and IV. Both values imply that there is no significant difference between the visitors in those zones. Conversely, testing the Norwegian part with any of the Swedish zones the very low p-value indicates a significant difference between how often they visit the park.

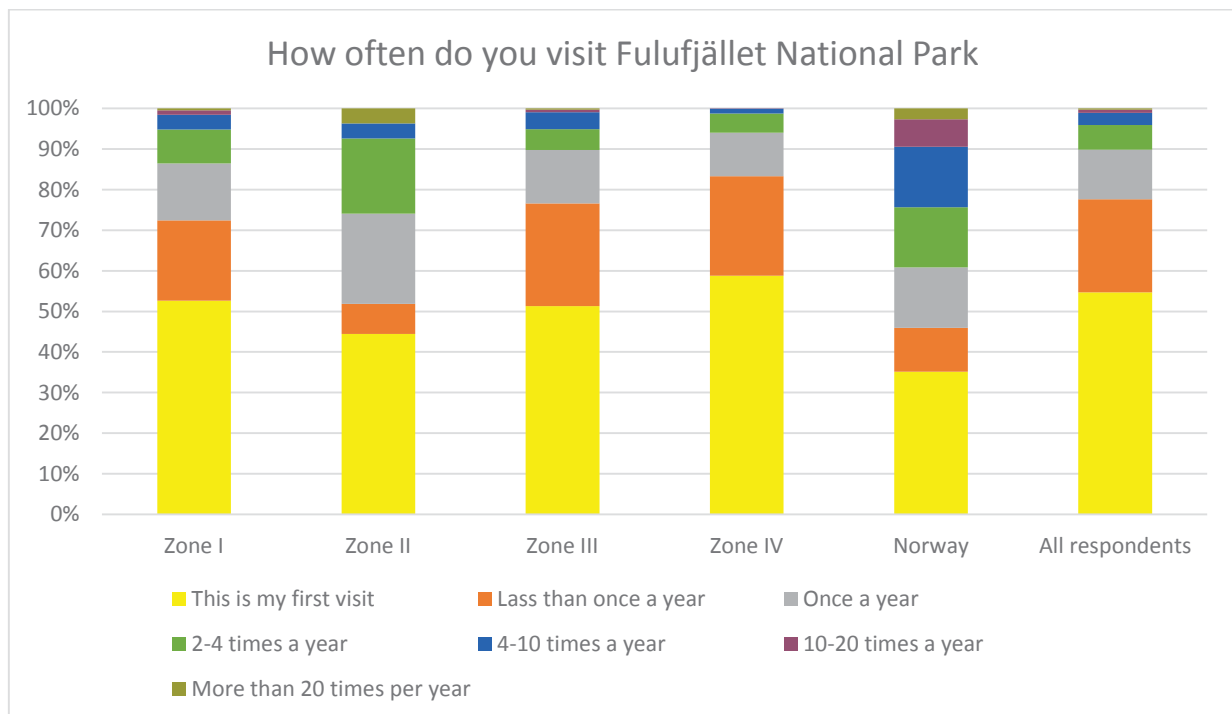


Figure 8 (Q7): Approximately, how often do you visit Fulufjället National Park?

As shown in Figure 9, a majority of the visitors at Fulufjället National Park engage in hiking of various lengths. Only a smaller proportion participate in activities such as berry picking, nature photography and bird-watching. Zone I is characterized by a large share (almost 50%) of *hiking for several days* including overnight stay and *day-long hikes* (about 40%). Zone II and zone III also host many day-hikers, but considerable less overnight hikers. Zone IV is quite different from zone I and zone III given the large proportion of short walks (about 65%). Visitors at the Norwegian part of the park have a similar activity pattern as seen in zone IV, except for the share of overnight hikers, which is higher in the Norwegian part. The Chi-squared test shows no significant difference between the Norwegian part and zone IV ($p=0.69$), but for the rest of the areas there were significant differences.

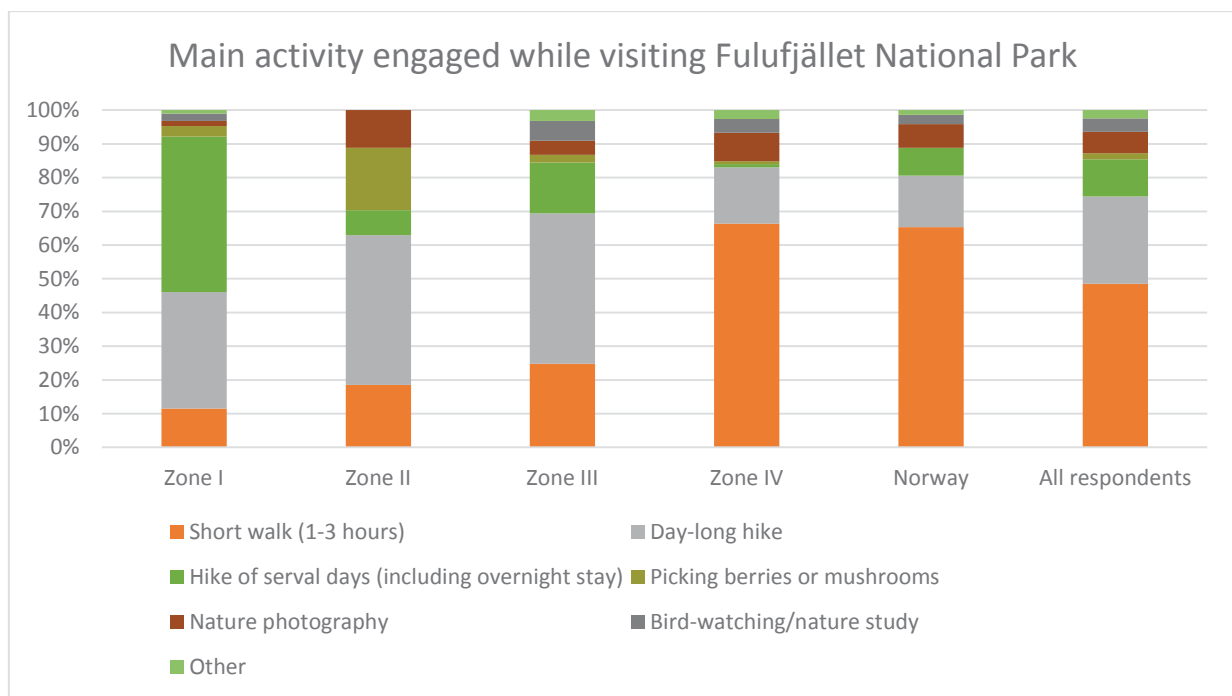


Figure 9 (Q3): Check of the activity which was the most important for you during your visit to Fulufjället National Park?

Degree of human impact

Being in a wilderness area is important for many of the visitors, and for many the opportunity to be in a wilderness area has influenced the choice of Fulufjället as a destination. There is general agreement among the visitors that Fulufjället National Park is a wilderness area, and of all respondents, just 3 % answered *no* to whether they experience the area as wilderness. As shown in Figure 10 about 50 % of all respondents in the park answered *yes* to whether Fulufjället being a wilderness area has influenced their choice to visit this particular area. In the more remote zones of the park, this number is higher, whereas for respondents visiting zone IV this was less than 40 %. The Chi-squared tests show that there is no significant difference between the respondents in zone I and those in zone III ($p=0.15$), but that there are differences between respondents in the remaining group comparisons.

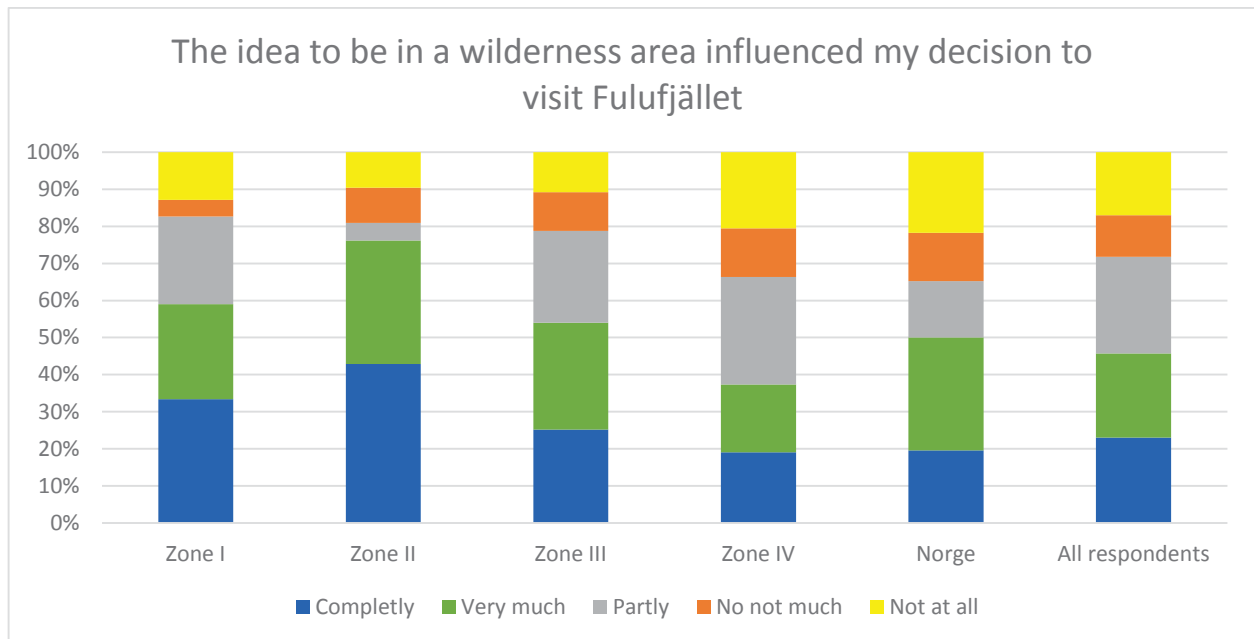


Figure 10 (Q19): To what extent do you agree with the following statements? – The idea to be in a wilderness area influenced my decision to visit Fulufjället

For most of the respondents wilderness is very attractive to visit, and to question 19 regarding wilderness, less than 20 % of all respondents in the park answered *not at all* whereas more than 50 % answered *very much* or *completely*, to whether they like nature better when it is wilder. Of other important factors for the visitors at Fulufjället National Park is to recreate in a primitive environment. Almost 80 % of visitors in zone I rated this as *important to very important* for them. For zone IV only 13 % felt this was *very important* and less than 60 % answered, it was *important to very important*.

Facilitation

Regarding the attitude towards the degree and type of facilitation existing at Fulufjället National Park, there is a general fondness of information displays, but more dislikes for the café at the main entrance. More than 80 % of all respondents answered *yes* to whether information displays, brochures and the naturecenter added value to their visit (Figure 11). Conversely, less than 45 % of the respondents answered *yes somewhat* regarding whether the café added value. The Chi-square test revealed non-significant results between the users in zone I and zone II with a p-value of 0.5, unlike the rest of the group comparisons.

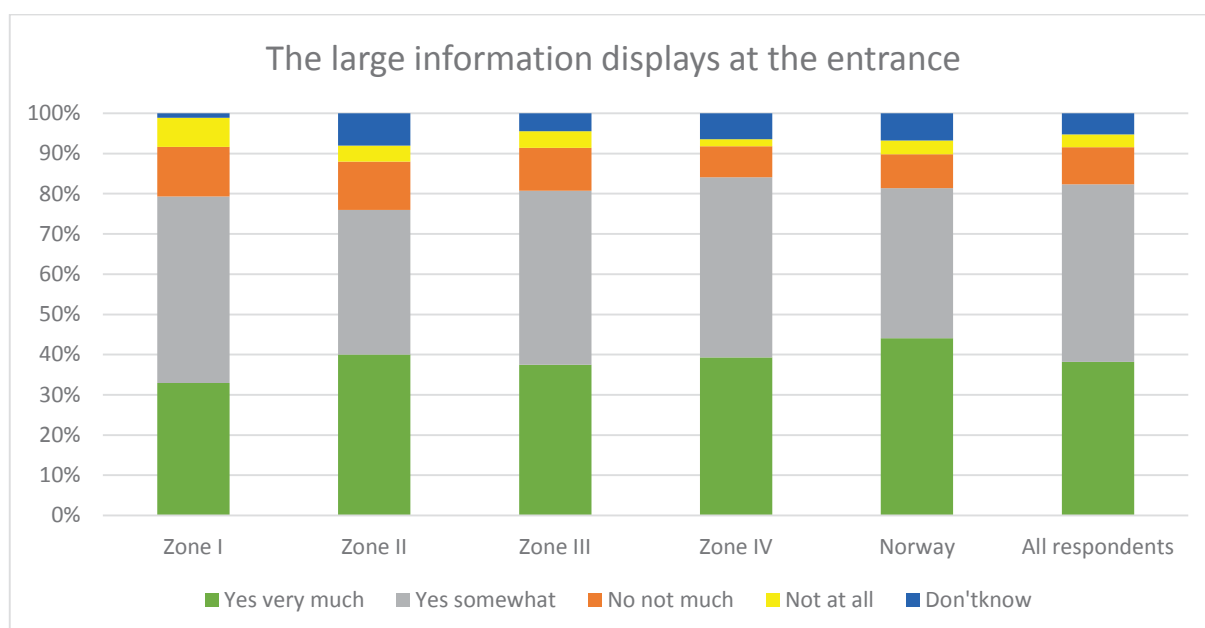


Figure 11 (Q11): To what extent did the following add value to your visit in Fulufjället National Park? – The large information displays (with maps, illustrations, descriptions ect.) at the entrance to the national park

Since most people visiting nature areas mainly tend to follow marked trails, the amount and quality of these must be regarded as important for the users' experience. As shown in Figure 12 the majority (about 70 %) of all respondents find the amount of trails to be sufficient. Though in the less facilitated zones of the park more respondents answered *too few*, as is the case for zone I respondents where about 20 % answered *too few*. In zone IV, which is the zone with the most marked trails and several boardwalks, more than 20 % said *no opinion* to the question regarding the presence of marked trails.

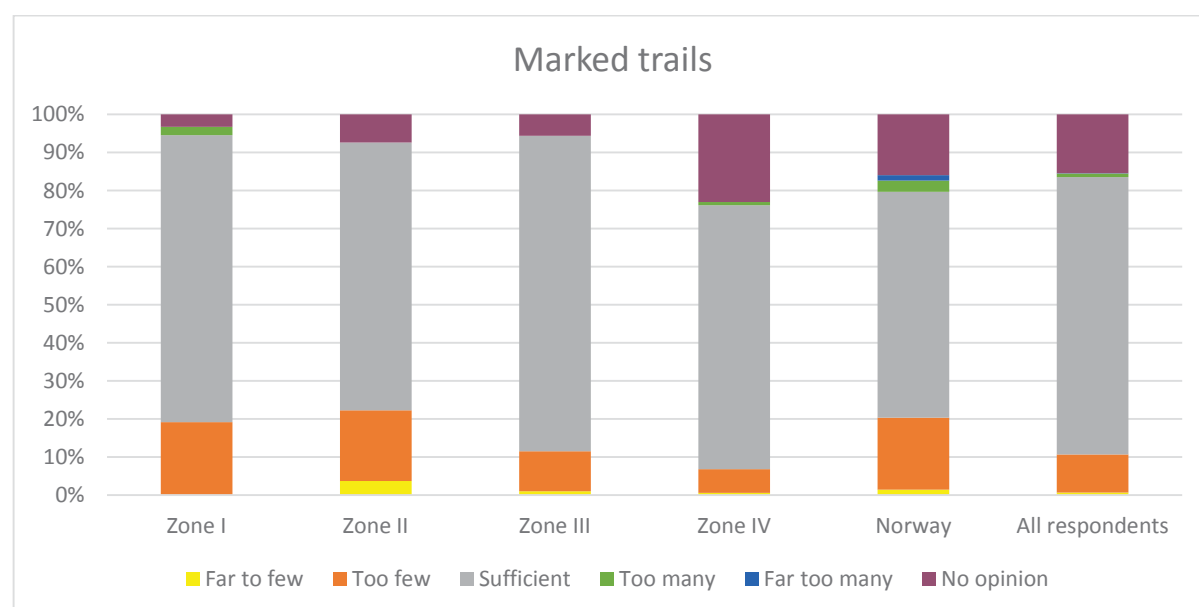


Figure 12 (Q8): What is your opinion regarding the supply of cabins, trail, boardwalks, ect. in Fulufjället National Park? – Marked trails

Trace from other visitors

Regarding how the visitors experience traces from other visitors, most did not see any problems related to wear, littering or noise. Figure 13 displays the distribution of answers to whether the respondents consider wear along trails, rest areas etc. a problem. Of all respondents, more than 80 % answered *no* they did not consider wear to be a problem. In zone II there is a bit more variation, here 92 % answered *no* 4 % answered *yes, somewhat* and 4 % answered *yes, very much*. The respondents from the Norwegian part and from zone I have the highest percentages answering *yes*, and in zone I no one answered *no, not at all*.

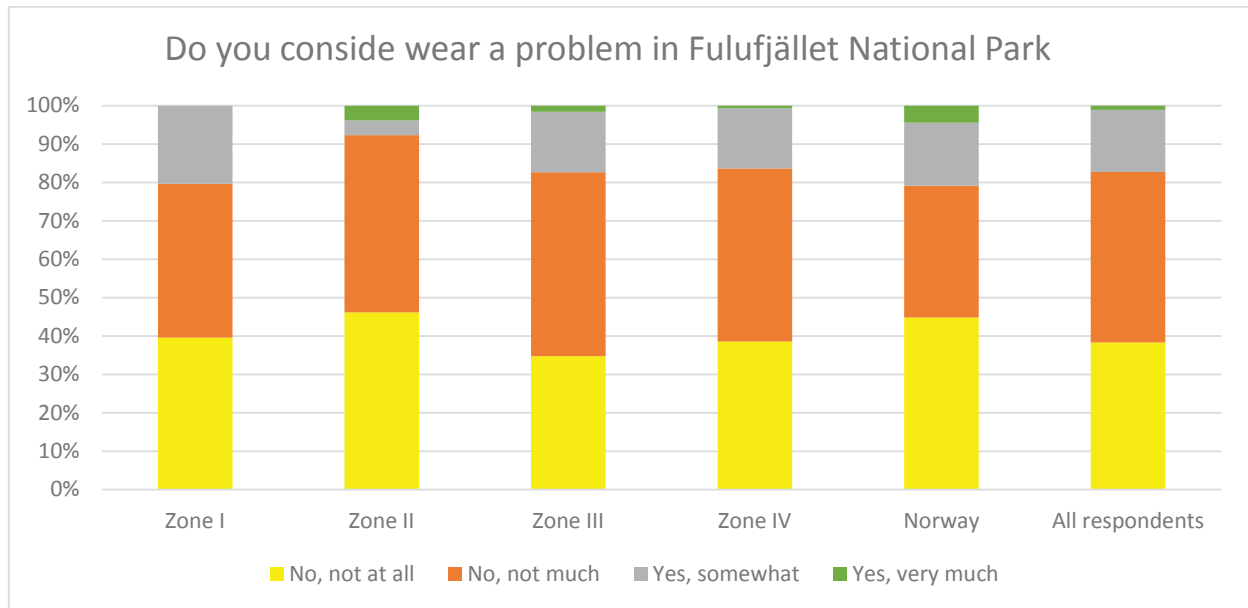


Figure 13 (Q10): Do you consider wear, littering or noise a problem in Fulufjället National Park? – Wear (along trails, rest areas etc.)

Interparty contact

In question 15 (Figure 14) the respondents were asked how important being free from observation from all other people was for their decision of choosing Fulufjället National Park as a destination. Of all the respondents almost 40 % stated it to be *not at all important*, while 35 % said *very important* to *important*. The greatest difference is between zone IV and zone I. In zone IV 45 % answered *not at all important* and only 4 % *very important*. For zone I this was 31 % for *not at all important* and 19 % for *very important*. Likewise more people from zone I stated it as *somewhat important* for them. The Chi-squared test showed no statistically significant difference between the respondents in the different groups. This indicates that it is more important for the visitors in the remote zones to feel free from observation, than it is for the visitors in e.g. zone IV.

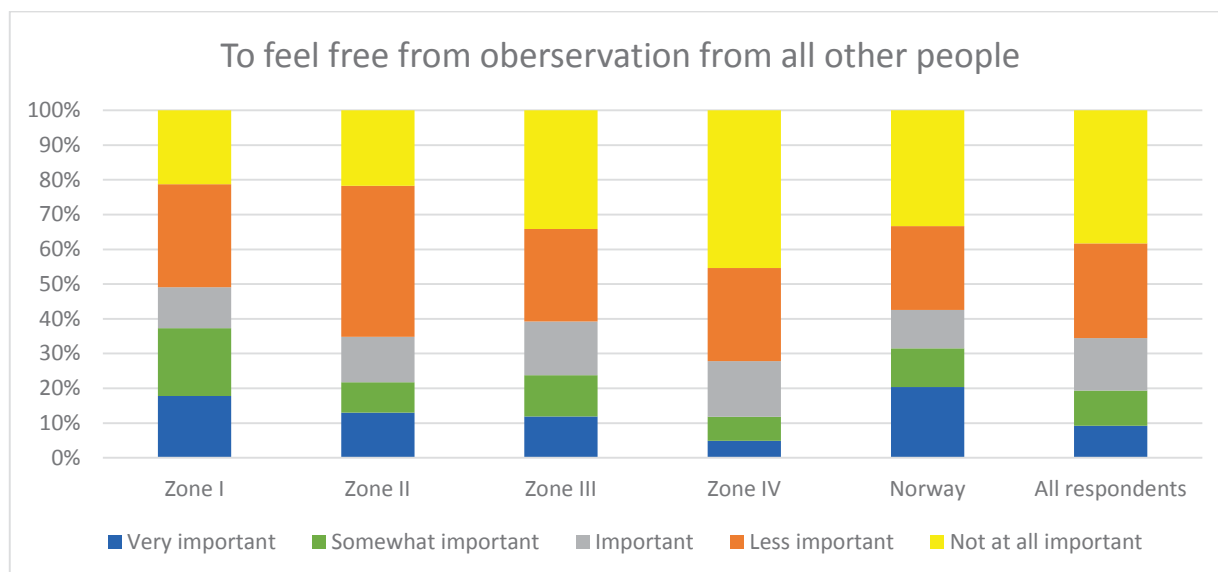


Figure 14 (Q15): How important were the following elements for your decision to visit Fulufjället National Park? - Free from observation from all other people

The experience of being secluded

As shown in Figure 15, when asked about the importance of being alone and experiencing a feeling of solitude, this is less important for the visitors in zone IV and most important for visitors in zone I. Among all the respondents, about half find it *very important* to *important* and half find it *less important* to *not at all important*. For the respondents from zone I, 58 % answered *very* – or *somewhat important*, and just under 10 % answered *not at all important* to be alone. Whereas for zone IV this number is only 19 % for *somewhat important* and 32 % answered *not important at all*. Statistical testing showed significant differences between all of the different groups of respondents.

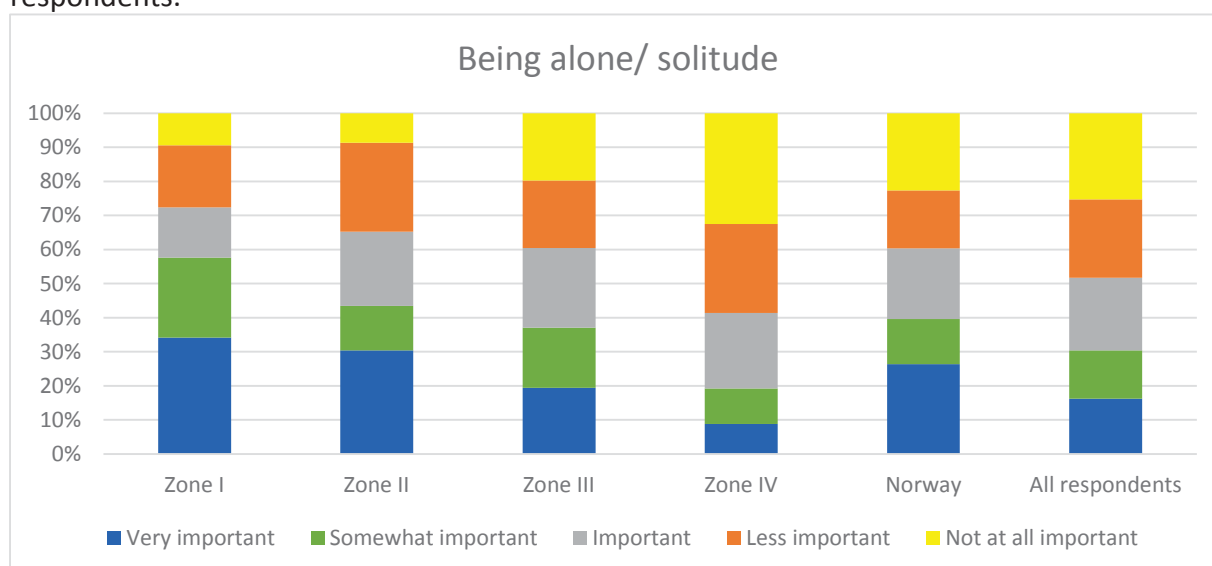


Figure 15 (Q15): How important were the following elements for your decision to visit Fulufjället National Park? -Being alone/ solitude

The experience of quietness

The experience of undisturbedness does vary between the different groups. Of all respondents about one third said *partly* which together with *to a large* – and *to some extent* counted for more than 85 %. Whereas for zone I, 51 % of the respondents felt it *to a large extent*, and furthermore 30 % *to some extent*. For the respondents in zone IV this number was only 35 % and 26 %, respectively (Figure 16). Since there are found no statistical significance between the groups, are there here a difference between the reported opinions regarding which zone the respondents have visited.

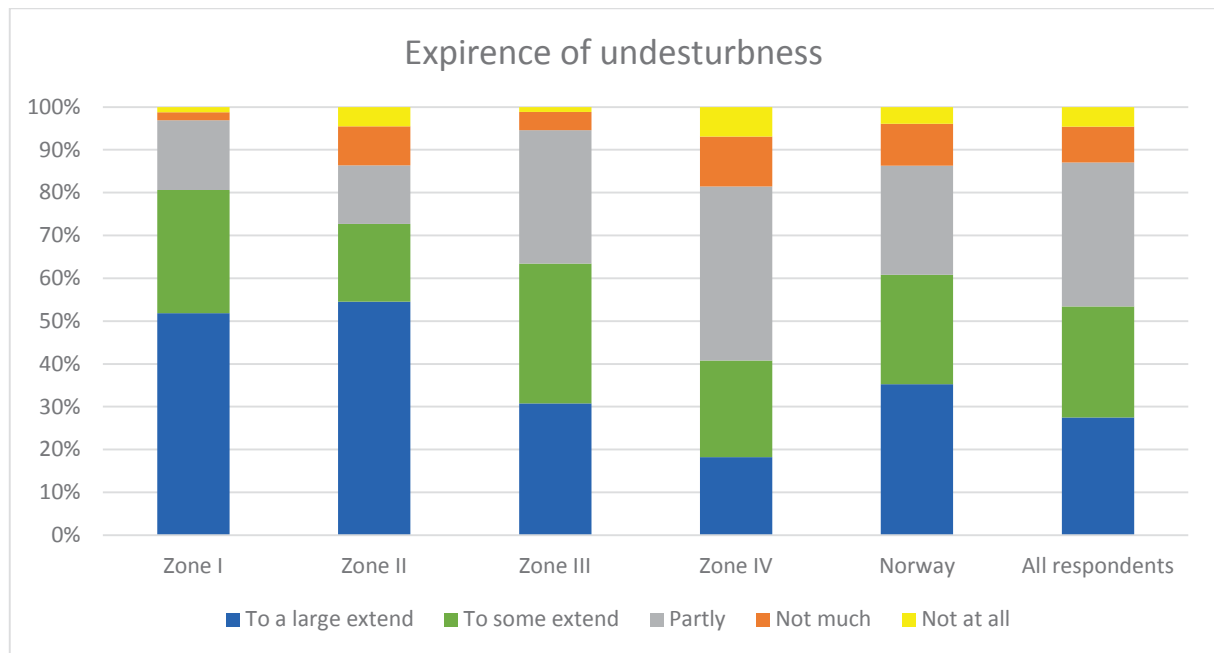


Figure 16 (Q16): To what extent did you experience the following during your stay at Fulufjället National Park? – Undisturbedness

A very high degree of satisfaction is seen regarding noise, where 70 % of all respondents answered that they did not experience noise in the park. The results from the different zones are very similar to each other and it seems there are no differences related to amount of people in the area. Here the groups are dependant (zone I and zone IV $p=0.68$, zone I and zone III $p=0.70$ and zone II and zone IV $p=0.91$), so the degree of noise experienced is the same in all zones regardless of the amount of visitors.

Natural environment

Figure 17, displays that developing oneness with nature is most important for the visitors who visited the most facilitated areas of the park. Among the respondents from zone IV 60 % answered that developing oneness with nature was *very important* to *important*, and 21 % said *not at all important*. For Zone I these numbers are 31 % for *very important* to *important* and 38 % for *not at all important*. For this question there are found statistical difference between the groups, showing the greatest difference between zone I and zone II ($p=0.94$).

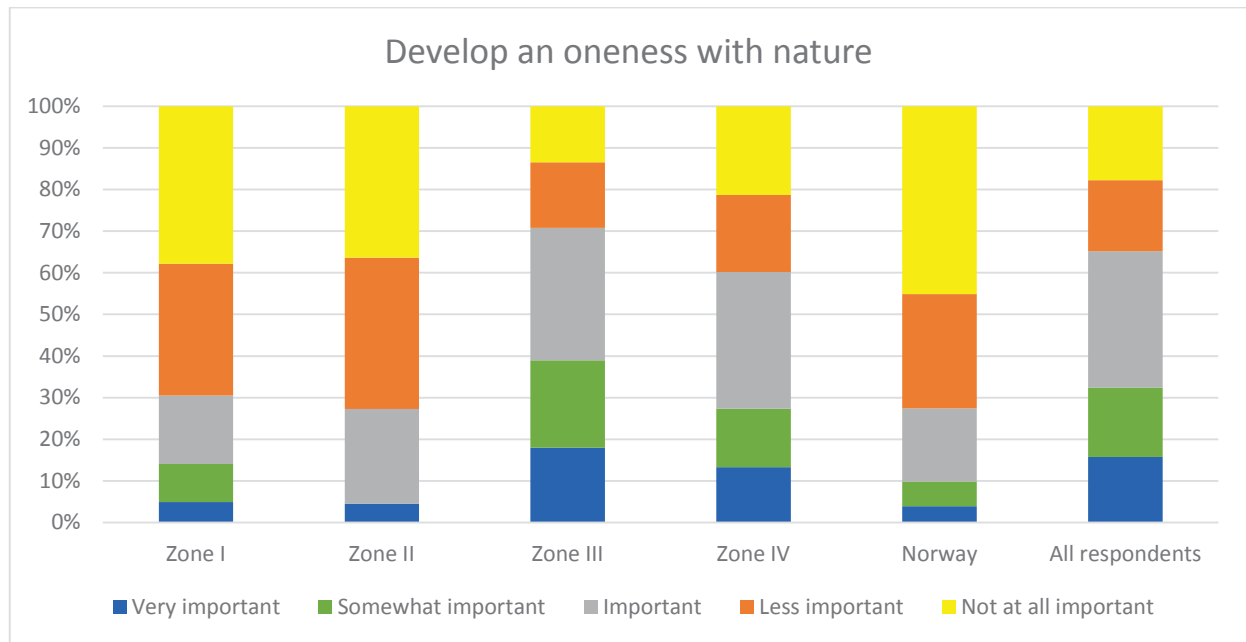


Figure 17 (Q15): How important were the following elements for your decision to visit Fulufjället National Park? - Develop an oneness with nature

Getting in touch with the true self is most important for visitors in zone I and II where over 70 % answered *important* to *very important*. It is the least important for visitors in zone IV where only about 5 % answered it was *very important* and over 70 % think it is not important. There was no significant difference between zone I and zone III difference was observed between zone III and zone IV. It does not seem developing oneness with nature is related to getting in touch with the true self.

Management

Regarding the management, some questions were asked about what the respondents thought about allowing different activities in Fulufjället National Park. When asked whether the amount of visitors should be regulated in wilderness to preserve biodiversity the majority (about 40 %) of all respondents answered *partly*. Of all the respondents, 30 % answered *completely* or *very much* whereas only 28 % answered *no not much* or *no not at all*. There are no statistical differences between the groups.

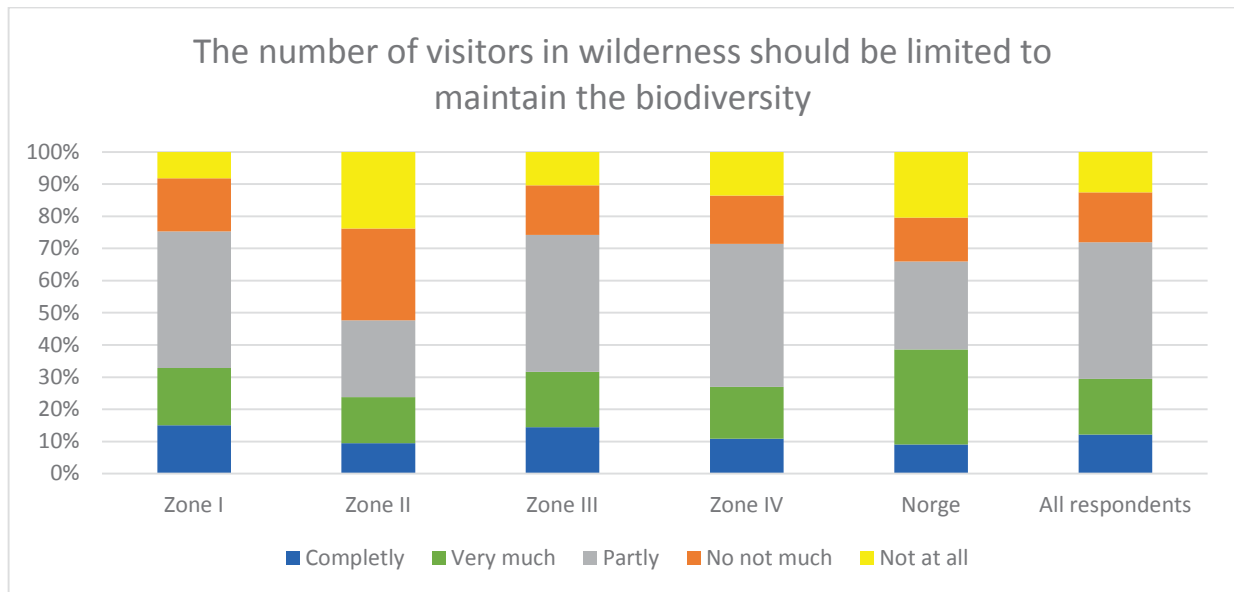


Figure 18 (Q19): To what extent do you agree with the following statements? – The number of visitors in wilderness should be limited to maintain the biodiversity

When asking to whether more specific activities such as berry picking should be allowed for all, there was great agreement that it should be allowed for all. More than 80 % of all respondents answered *should be allowed for all*. It is in zone IV where there was most disagreement with 78 % saying *should be allowed for all* and 10 % for *should be forbidden for all*, whereas in zone I 91 % said, berry picking *should be allowed for all*.

In the same question, when asked about whether bird hunting should be allowed there was a much lower percentage of respondents saying it *should be allowed for all*. In zone I 7 % think it *should be allowed for all*, in zone IV this is 8 % whereas in the Norwegian part of the park this number is 38 %. For the alternative *should be allowed for local inhabitants only* the answer are respectively 29 %, 31 % and 34 % for the three areas.

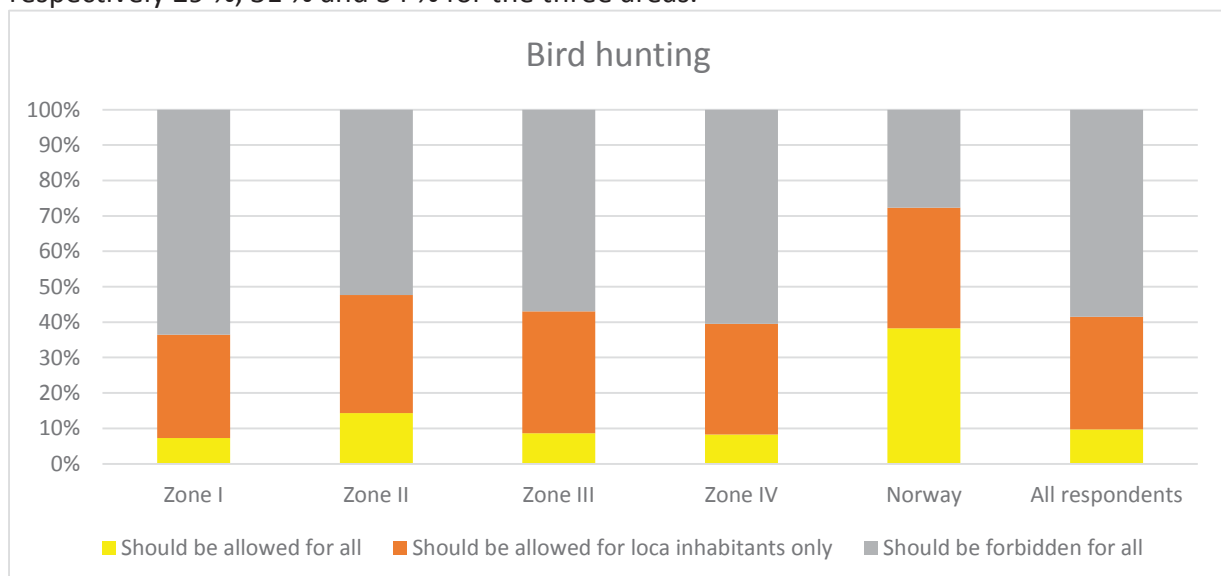


Figure 19 (Q22): What regulations a national park has depend on the values to be protected, but can also differ with respect to local inhabitants and visitors. What is your opinion about the following activities in Fulufjället National Park? – Bird hunting

Management impression

As the zoning is an important part of the management in Fulufjället National Park on the Swedish side, question 11 related to how this zoning was perceived by the visitors. Figure 20 shows to what degree the participants felt that the zoning added value to their visit, and since the Norwegian part of the park is not divided into zones it is omitted from this table.

Of all the respondents, more than half answered that they *don't know* and similar values were obtained for the various zones. 68 % of zone IV visitors said *don't know*. There was a the greater difference in responses by zone II visitors where 29 % answered *yes* and 54 % answered *no*. Whereas in zone I 38 % answered *yes*, and 34 % answered *no*.

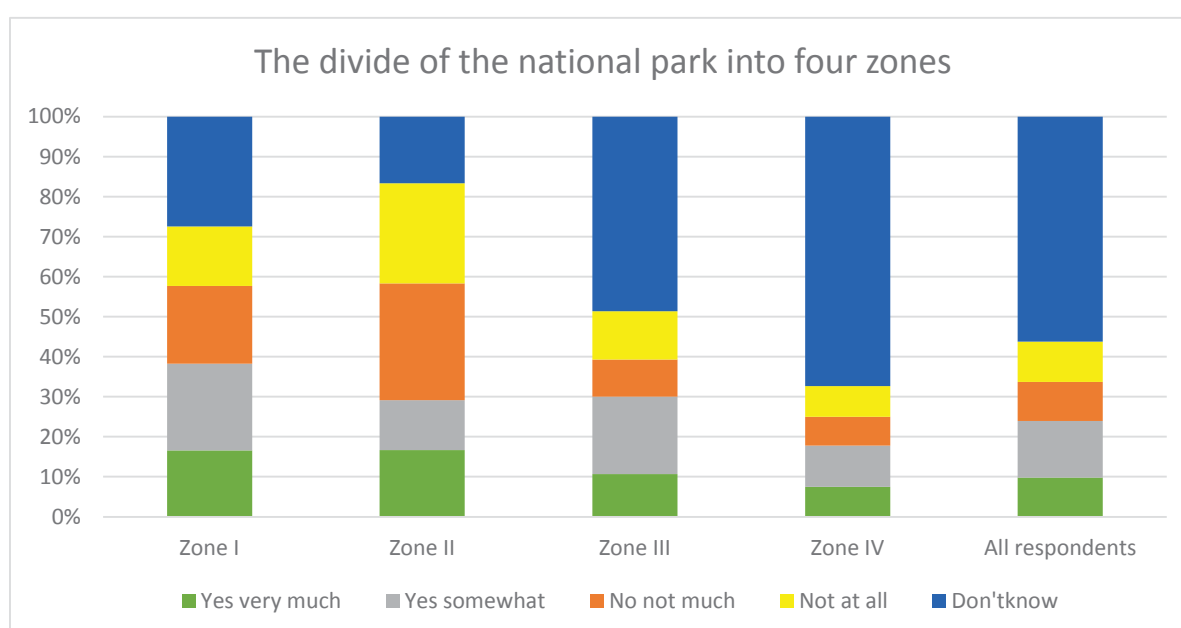


Figure 20 Q11: To what extent did the following add value to your visit in Fulufjället National Park? – The divide of the national park into four zones

The overall impression of the visit at Fulufjället National Park is shown in Figure 21, and illustrates a general high degree of satisfaction among the respondent groups. Between 44 % in zone I, and 62 % in zone II saying the overall impression was *very favorable*, and for all the zones, less than 3 % expressed the visit was less than *favorable*. The rest of the respondents being 32 % in zone I, 52 % in zone II, 38 % in zone III, 45 % in zone IV and 48 % in the Norwegian part answered that the overall impression from Fulufjället National Park was *perfect*. No significant difference was found between zone I and zone IV respondents, which were the only groups where Chi-square testing was possible.

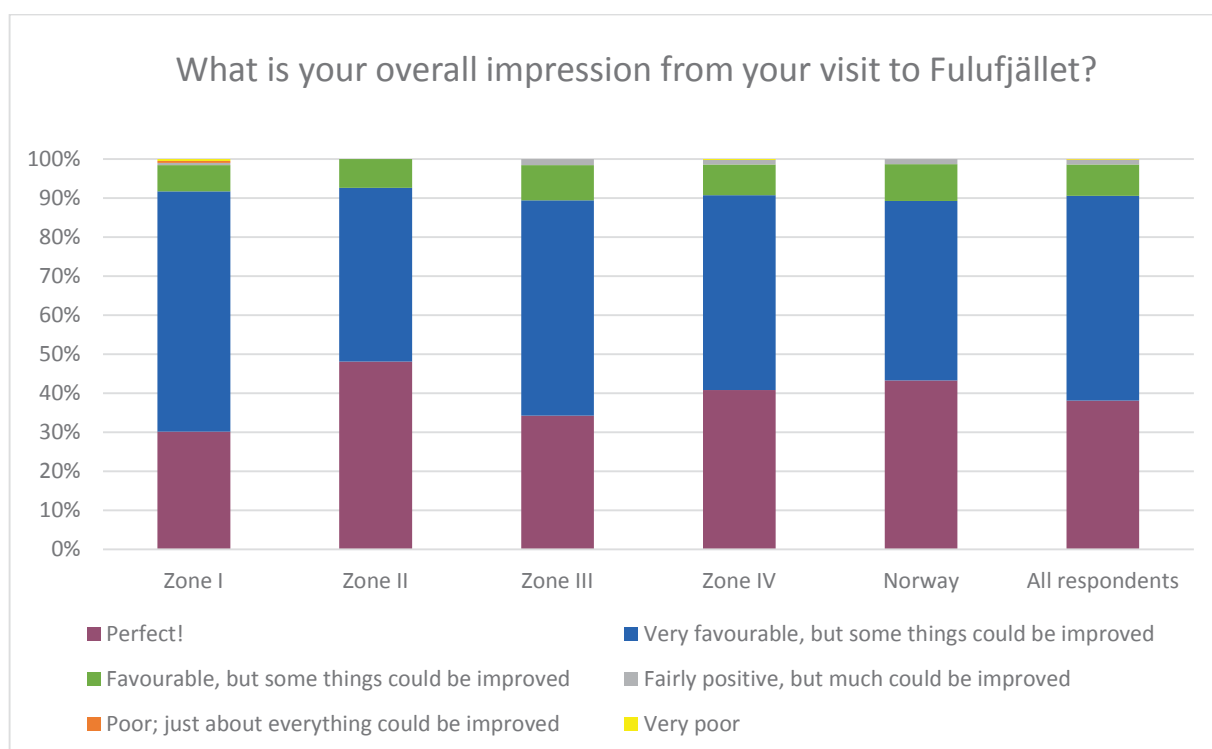


Figure 21 (Q6): What is your overall impression from your visit to Fulufjället?

Discussion

Implementation and management

The area of Fulufjället was designated as a national park to preserve it as a southern mountain area with large ranges of untouched nature. This designation sets the park under the national park law with the two-sided main purpose of conservation and display of the area. Fulufjället National Park was furthermore part of the former PAN Park, which led to the implementation of the Recreational Opportunity Spectrum. The Recreational Opportunity Spectrum has been utilized on the Swedish part of Fulufjället for over 10 years, and has for some problematics proven to be sufficient. Regarding local participation and especially conflict management in the designation process, the zoning has proved to solve some users' conflicts, by allowing activities that are more controversial only in areas that are suitable for it (Wallsten 2003; Zachrisson 2009). Nevertheless, as also discussed by Zachrisson (2009) there have been disagreements regarding whether the level of participation was actually as high as claimed, and it has been criticized that the decentralization was only in the designation process and not for the further management of the park. Because the Management Board is only advisory and have no legal rights, it is not possible from this study to conclude if they have any influence on the management.

The Recreational Opportunity Spectrum provides a systematic framework for the distribution of outdoor opportunities; however, it does not seem to offer any formula for creating these opportunities. It can be discussed, whether high degree of facilitation and allowing a high amount of tourists easy access to the park are a sustainable way to manage nature heritages. However, in this case concerning display only, and knowing that without the conservation there will be nothing to display (Eagles & McCool 2002), the ROS system seems to counterbalance nature conservation with nature display, e.g. with boardwalks and indirectly creating visitor' management around Njupesjär, while more or less leaving the remote areas to natural development. It is therefore reasonable to argue, that the ROS management is working as intended for both main purposes of Fulufjället National Park, even though it mainly seems to consider the tourists' needs.

Regarding the opportunities that the zoning offers, it is important to consider, as also discussed by Clark and Stankey (1979), whether visitors' preferences merely reflect the available supply, rather than actually showing what visitors prefer. This is tempting to believe is the case in a survey like this, where the participants are questioned what they think about different things, rather than asked to describe in their own words what is important, what their preferences are, or whether they have preferences for opportunities not currently available in the park. There might for instance as discussed by Oishi (2013) be respondents who prefer remote area and natural environment with higher degree of facilitation, which does not correlate with the ROS theory.

Motives and activities

The visitors who participated in the survey, are to a large extend, satisfied with Fulufjället National Park and their visit. This is despite that the respondents in the different zones, not always agreed upon which matters was important for them. However since there was no tendency towards differences between the groups, in the questions regarding rating of their experiences, it must be concluded that the degree of satisfaction do not correlate with the types of opportunities. This finding could indicate that different groups of users have different preferences and that the

management succeeded with the dissemination of the ROS system, in a way that the visitors use this knowledge to plan their visit to the park. However, it does not explain why there seems to be higher degree of satisfaction among some groups of visitors than others, which might be due to e.g. the used stratification.

The amount of respondents, who participated in this data collecting – and finished the questionnaire, who have a university education is very high. This might indicate that certain visitors are more likely to participate in surveys than others, and the sample may not be representative for the population. Conversely, it could indicate that users of the national park generally have a higher education than the general public. The main part of the respondents, are from the country in which the park is located, respectably Sweden and Norway. Second most common respondents are from Germany, which correlates well with other studies (Fredman et al. 2006; Haukeland et al. 2010) showing that many Germans visit both this national park, and national parks in Scandinavia in general. Another important factor to notice is that the questionnaire was available in the languages: Swedish, German and English, so respondents with one of these as main language may have been more likely to participate in the survey.

The most common activity at Fulufjället National Park is hiking. The hiking trips available then depends on the zone, if the zone is more remote, it is more likely that the hiking trips become longer, often several days with overnight stay. In zone IV, where the major attractions are located within closest distance to the parking, short trips of few hours are most common. The majority of the visitors at Fulufjället National Park comes to zone IV and goes on short hiking routes around the waterfall. This is most likely due to the degree of facilitation and information available.

In the Norwegian part of Fulufjället, some of the differences are probably because more visitors there are locals or people having second homes in the area, using the area for more frequent recreation. This presumption is made due to the results showing more than 50 % of the respondents in this area, have answered they visit the park more than once a year. The fact that a greater part of the respondents are locals, or people having second homes in the area, will likely result in them having a different view upon especially management and use of the park. This is for instance expressed very clearly in results regarding hunting regulations.

The study did however not manage to reach all the users of the park, and there are reasons to believe that certain groups are underrepresented and some groups may have been excluded all together. A group, which is typically harder to get to complete surveys, are the users who are less satisfied with the visit. Looking at the results for this survey, it may very well be the case, as hardly any answered *less than favorable*, when asked about their overall impression. Conversely, it may be the case that visitors at Fulufjället National Park were very satisfied with the park and their visit. Others groups may have been left out of the survey, due to the method. When using the self-register box approach there will, no matter how strategically good they are placed, always be people who will not pass by them during their visit. There will also be crowded situations, where the boxes are occupied by visitors, which may cause others to pass by. Due to the period of data collection, other groups will most likely be missing; The winter visitors, and the hunters. Another weakness is that there have not been any analyses regarding the non-participants in this survey.

The perception of ROS

Results from this study, indicate that while the Recreational Opportunity Spectrum to a great extent concentrate on physical area planning, the expectations of the visitors may have a greater effect upon how they experience the visit, than the offered opportunities has. It is therefore extremely important that the management makes sure that the zoning, and how it can be used by visitors to their advantage, are mediated to the visitors while planning their visit. So using ROS, to provide for the growing demand in nature-based tourism dissemination and expectations aligning is very important. This relates to the findings of Vogelsong et al. (n.d.) who found a clear link between preferred activities and the zone the respondents visited. Though there is some degree of uncertainty to whether all visitors received the zoning information, since when asked questions directly about the zoning, each area had a group of respondents answering *don't know*.

When it comes to traces from other visitors, the survey asked whether the visitors consider noise, littering and wear a problem in the park. The results shows that these were not considered a problem. Surprisingly, the results showed it is in zone I, the highest number of visitors expressing wear to be somewhat of a problem. Even though the visitors in zone IV did not experience noise, their feeling of undisturbness was shown to be much smaller than for zone I. Being in zone IV on a warm summer day, during the holiday season, walking in line on the boardwalk to Njupesjär waterfall, it is hard to experience privacy and experience undisturbness, whereas noise might not be noticed in the same way when you are not expected to be alone at the very place and time. Since zone I is the most remote, and the visitors experienced wear there and zone IV being the most visited and the visitors did not experience more noise there. In addition, other results indicate that it is not the amount of visitors in an area that is essential to whether the respondents experience wear. This suggests other factors crucial, such as expectations, which can lead to a higher social carrying capacity for an area. If visitors have expectations of an area closer to an urban area than a remote setting, they are perhaps more likely to tolerate more crowding, and maybe more wear (Manfredo 1992). If this is the case, it is vital for the management to improve at communicating the purpose of the zoning and which opportunities to expect where.

Regarding other traces it might on one hand, be regarded as problematic not to have trails, or at least no marked trails, as people then will walk everywhere and the degree of wear may seem higher. On the other hand, people will tend to walk where it is easy, or where they see tracks from other hikers, and this will eventually create trail like patterns, in an area which is supposed to be trail free. Therefore, a high degree of facilitation in areas with sensitive vegetation can create a more tolerated carry capacity, due to less wear on vegetation due to boardwalks. This can affect the way the visitors experience the amount of wear on the area in zone IV.

To the question regarding the visitors' opinion on the supply of facilitation, there is general agreement that there is a sufficient amount of marked trails in the park. Zone IV, which has the highest amount of marked trails relative to the size has the most visitors with no opinion on this. This could be because the visitors did not have many expectations beforehand, and perhaps did not think about it while following the clearly marked trails and boardwalks. Only few have answered *too many marked trails*, which could be because they expected more remote surroundings. It is different in zone I, where most visitors have an opinion on the supply of marked trails. Only very few think there are too many trails, but perhaps a bit more surprising, almost 20 % say there are too few marked trails. Though it cannot be excluded that, the difference may not

have been that big, as there are no test for significance due to low amount of categories, which could indicate that these visitors did not perceive the full purpose of the zoning. By not perceiving the purpose, they had different expectations regarding the facilities and opportunities the particular zone has to offer. The same goes for zone II, where a few respondents also answered *far too few* marked trails, however this number is from a very small sample group.

Validity

In the empirical data there are some unavoidable uncertainties and limitations, such as measuring of e.g. feeling secluded. Since there were no definitions of any of the terminology or experiences, which the questionnaire asked about, some degree of uncertainty must be expected. To feel secluded depend very much on the individual's expectations, habits, and how he or she defines the feeling of being secluded. Yet another limitation with this research is how to measure suitability of a management tool applied on a protected area is a complicated matter. Both regarding the question suitable management for whom, on who's expense and compared to what.

Furthermore, the questionnaire used in this survey was not conducted for this study, and is therefore not angled for the object of research that is here undertaken. Consequently, the results are drawn from the available data, rather than creating a questionnaire specifically for this survey. For this study, a questionnaire with more focus on the zoning might have offered a more complete picture. The questions could for instance revolve around; whether, and to what extend the visitors experience the zoning, if they were aware of it when planning their visit, what kind of facilitation is desirable in which zones and much more. It would also be Interesting to know where the respondents spent most time since dividing the respondents into groups relative to the most remote area they visited during their stay, does not regard which and how many of the other zones the visited. So regardless which zone they are categorized into, many visitors who have been to zone I and II, have also been to zone III and IV, either to see the waterfall or the nature center, using the parking facilities, or just passing through on their way to the main destination. This may have affected the way they have answered the questions, as they perhaps have answered according to their experience in a different zone, or according to their total experience at Fulufjället Park.

Conclusion

The results from this study show a very high degree of satisfaction amongst the respondents. There were no areas neither physically nor regarding management where the respondents indicated dissatisfaction. What the study must conclude by linking theory and results is that reconciliation of expectations might be crucial for giving the visitors the best experiences. Since more of the results indicate that the information about the purpose with the zoning, and what to expect in each of the different zones have been received and used for matching of experience, wishes and actual available opportunities. Which then will be an indicator that the dissemination of the zoning is working as intended for the visitors of the park.

If it is not only the most satisfied users of the park who answered the questionnaire, it must be concluded that the Recreational Opportunity Spectrum as a management tool entails a high degree of satisfaction. It will therefore be enticing to believe the ROS system is suitable for dealing with the different demand in a way that guarantees satisfaction for all visitors regarding all their wishes for recreation opportunities.

Further research

As it is the case with many quantitative researches, this one has its limitations. One of these are lack of more in-depth knowledge about decision-making and management practice. It would be interesting to look into which considerations the County Administrative Board have for the coming management plan. Whether they are planning to do any changes after 13 years, as it would be interesting to look at the ROS system from the management side. To examine not only whether the visitors are satisfied with the management, but also on which expense the visitors are kept happy. Does the manager experience the zoning as a sustainable way to manage Fulufjället National Park, and if so both sustainable for tourism and conservation? Also, to what extend are the managers happy with the tourists, are there any conflicts between the two? Further research could be based on extensive interviews with management authorities of Fulufjället National Park, to give a broader understanding of how the management institution experiences ROS as a tool for tourist management.

Of other interesting stratifications would be to divide the respondents based on age, country of residence or whether they are local to the area- to see if one of these can explain some of the differences in the results seen in the Norwegian part of the park.

To address some of the limitations found in this study, it could be interesting to know how many of the visitors actually had knowledge about the zoning. In addition, whether they had the knowledge before the visit or found out during their stay and if they used the zoning to plan their visit. As well as some qualitative analysis of whether the visitors have a wish for opportunities that have not occurred here because this survey merely reflects on the opportunities currently available. For further research, it would also be relevant to attempt mapping the respondent's definition of some of the feelings and terms that have been used in the questionnaire. Do the visitors in zone I for instance have a different view of what wilderness is, or what it means for them to recreate in a natural environment. As well as attempt to evaluate whether the zoning is

correctly conducted, if different physical settings, boundaries or other things could give a better result of zoning.

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Appendix 1

Table 1 Respondents frequency based on language and date for received emails

Date for first email and reminder	Language	Amount	Respondents	Respond frequency
9th July, 21th July, 29th September	Swedish	305	171	56 %
	English	76	33	43 %
	German	67	40	60 %
14th August, 25th August, 29th September	Swedish	892	514	58 %
	English	175	83	47 %
	German	170	97	57 %
26th September, 6th October, 14th October	Swedish	567	314	55 %
	English	125	56	45 %
	German	228	117	51 %
Totally		2605	1425	55 %

Table 2 Zone dividing of the respondents based on the places they visited

Place	Zone	How many visits	Sum	Divided data
Brynflået	Norge	45		
Ljøratunet	Norge	29		
Storbekksåsen	Norge	21	95	74
Klirdalen	Zone 1	30		
Girådalen	Zone 1	11		
Bergådalstugan	Zone 1	44		
Tangsjöstugan	Zone 1	92		
Tangåstugan	Zone 1	76		
Altarringen	Zone 1	31		
Göljåstugan	Zone 1	55	360	193
Björnholsstugan	Zone 2	55		
Skärvallen	Zone 2	31	86	27
Rörsjöstugan	Zone 3	286		
Harrsjöstugan	Zone 3	134		
Lorthån	Zone 3	50		
Old_tjikko	Zone 3	144	614	317
Göljådalen	Zone 4	226		
Njupeskar_waterfall	Zone 4	1174		
Cafe_at_Njupeskar	Zone 4	647		
Naturum	Zone 4	808	2855	779
Not answered this question				37

Appendix 2

A. To start with, a few questions regarding your stay at Fulufjället National Park

1. In what company did you visit Fulufjället National Park? *Check all alternatives that apply.*

- ☐ I visited the park alone
- ☐ Members of my family
- ☐ With children
- ☐ Relatives
- ☐ Colleagues
- ☐ School class
- ☐ Friends
- ☐ Other company, specify: _____

2. Which of the following activities did you engage in during your visit to Fulufjället? Check off one or more alternatives.

- ☐ Short walk (1-3 hours)
- ☐ Day-long hike
- ☐ Hike of several days (include overnight stays)
- ☐ Fishing
- ☐ Hunting
- ☐ Picking berries or mushrooms
- ☐ Nature photography
- ☐ Bird-watching/nature study
- ☐ Biking/mountain-biking
- ☐ Trail-running
- ☐ Competition
- ☐ Outdoor swimming
- ☐ Geocaching (treasure hunt with GPS)
- ☐ Organized event/meeting
- ☐ Other, please specify: _____

3. Check the activity which was the most important for you during your visit to Fulufjället National Park?
Check off one alternative.

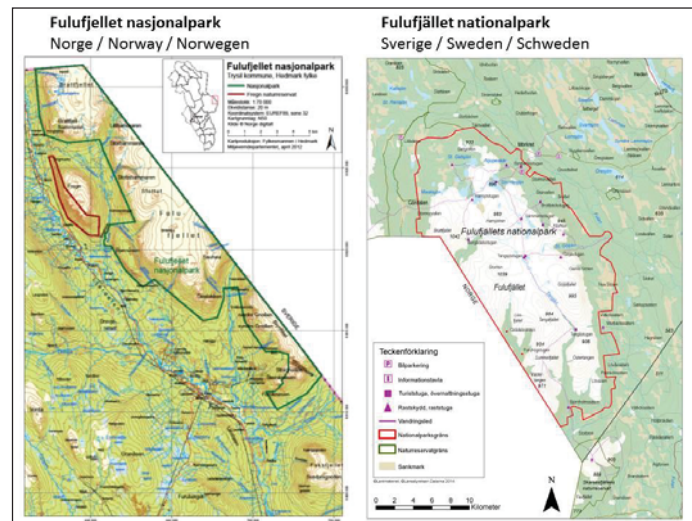
- ☐ Short walk (1-3 hours)
- ☐ Day-long hike
- ☐ Hike of several days (include overnight stays)
- ☐ Fishing
- ☐ Hunting
- ☐ Picking berries or mushrooms
- ☐ Nature photography
- ☐ Bird-watching/nature study
- ☐ Biking/mountain-biking
- ☐ Trail-running
- ☐ Competition
- ☐ Outdoor swimming
- ☐ Geocaching (treasure hunt with GPS)
- ☐ Organized event/meeting
- ☐ Other, please specify: _____

4. During your visit to Fulufjället National Park, did you visit any of the following places?

(Also see attached map)

- ☐ Göljådalen (area severely affected by great storm in autumn of 1997)
- ☐ Klordalen
- ☐ Rörsjöstugan

- ☐ Girådalen
- ☐ Harrsjöstugan
- ☐ Bergådsstugan
- ☐ Tangsjöstugan
- ☐ Tangåstugan
- ☐ Altar ring (west of Tangsjöstugan)
- ☐ Göljåstugan
- ☐ Björnholmsstugan
- ☐ Njupeskärs waterfall
- ☐ Café beside trail to Njupeskår waterfall
- ☐ Naturum beside trail to Njupeskår waterfall
- ☐ Skärvallen
- ☐ Lorthån
- ☐ "Old Tjikko" (oldest tree in the world)
- ☐ Strbekkāsen
- ☐ Brynsflåe
- ☐ Ljøratunet



5. Approximately how many kilometers did you walk altogether during your visit to Fulufjället National Park?

Approx. _____ km

6. What is your overall impression from your visit to Fulufjället?

- ☐ Very poor
- ☐ Poor; just about everything could be improved
- ☐ Fairly positive, but much could be improved
- ☐ Favourable, but some things could be improved
- ☐ Very favourable; only a few things could be improved
- ☐ Perfect!

7. Approximately, how often do you usually visit Fulufjällets National Park? Check the alternative which best applies to you.

- ☐ This is my first visit
- ☐ Less than once a year
- ☐ Once a year
- ☐ 2-4 times per year
- ☐ 4-10 times per year
- ☐ 10-20 times per year
- ☐ More often than 20 times per year

B. Now a few questions concerning the management of Fulufjället National Park and services in the area

8. What is your opinion regarding the supply of cabins, trails, boardwalks, etc. in Fulufjället National Park? Check the appropriate alternative for the items listed below.

	Far too few	Too few	Sufficient	Too many	Far too many	No opinion
Overnighting cabins	1	2	3	4	5	0
Wind shelters/rest cabins	1	2	3	4	5	0
Marked trails	1	2	3	4	5	0
Boardwalks	1	2	3	4	5	0
Bridges.....	1	2	3	4	5	0
Rubbish bins	1	2	3	4	5	0
Signs/trailposts	1	2	3	4	5	0
Information displays on Fulufjället	1	2	3	4	5	0
Restrooms	1	2	3	4	5	0
Trails for disabled	1	2	3	4	5	0
Fire-places/barbecue areas.....	1	2	3	4	5	0
Picnic tables.....	1	2	3	4	5	0
Parking lots	1	2	3	4	5	0

9. What is your opinion regarding the quality of cabins, trails, boardwalks, etc. in Fulufjället National Park? Check the appropriate alternative for the items listed below.

	Very poor	Poor	Accept-able	Good	Very good	No opinion
Overnighting cabins	1	2	3	4	5	0
Wind shelters/rest cabins	1	2	3	4	5	0
Marked trails	1	2	3	4	5	0
Boardwalks	1	2	3	4	5	0
Bridges.....	1	2	3	4	5	0
Rubbish bins	1	2	3	4	5	0
Signs/trailposts	1	2	3	4	5	0
Information displays on Fulufjället	1	2	3	4	5	0
Restrooms	1	2	3	4	5	0
Trails for disabled	1	2	3	4	5	0
Fire-places/barbecue areas.....	1	2	3	4	5	0
Picnic tables.....	1	2	3	4	5	0
Parking lots	1	2	3	4	5	0

10. Do you consider wear, littering or noise to be a problem in Fulufjället National Park?

	No, not at all	No, not much	Yes, somewhat	yes, very much
Wear (along trails, rest areas etc.)	1	2	3	4
Littering	1	2	3	4
Noise	1	2	3	4

11. To what extent did the following add value to your visit in Fulufjällets National Park?

	No, not at all	No, not much	Yes, somewhat	Yes, very much	Don't know
The large information displays (with maps, illustrations, descriptions, etc.) at the entrances to the national park					
The nature centre (Naturum) located near the café at the start of the trail to the Njupesjär waterfall					
Information displays along the trail to the Njupesjär waterfall					
The information brochures about Fulufjället National Park?					
The viewpoint on the road from Särna to Fulufjället National Park?					

The café at the start of the trail to the Njupeskär waterfall					
The divide of the National park into four zones					

12. How did you get information about Fulufjället National Park?

	Not at all		Partly		To a large extent
Visitor center (Naturum)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tourist bureau	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Relative/friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brochure/guidebook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Newspaper/TV/radio	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Road sign	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Social media (e.g. Facebook)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I know the place from before	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

13. Have you visited any of the following Internet pages before, or during, your visit to Fulufjället National Park?

	Yes	No	Don't know
sverigesnationalparker.se			
fulufjallet.se			
fulufjallet.nu			
trysil.com			
trysil.no			
skistar.com			
lJORatunet.no			
fulufjallet.no			

14a. Did you find enough information about the National Park before your visit?

- ☐ Yes
☐ No

14b. If you answered "no" to the previous question, what information was missing or deficient?

C. Now a few questions about your experiences from the visit to Fulufjället National Park

15. How important were the following elements for your decision to visit Fulufjället National Park?

	Not at all important		Important		Very important
Experience the scenic quality of nature	1	2	3	4	5
Physical challenge	1	2	3	4	5
Having a sense of discovery	1	2	3	4	5
See dramatic landscapes	1	2	3	4	5
Tranquility and peace	1	2	3	4	5
Being alone/solitude	1	2	3	4	5
Free from observation from all other people	1	2	3	4	5
Develop a sense of remoteness from cities	1	2	3	4	5
Get away from daily routines	1	2	3	4	5
Physical health/ and exercise	1	2	3	4	5
Simplify daily priorities	1	2	3	4	5
Enjoy outstanding views	1	2	3	4	5
Explore the natural environment	1	2	3	4	5
Observe/ hear wildlife	1	2	3	4	5
A clean and unpolluted environment	1	2	3	4	5
Enjoy comfort in natural surroundings	1	2	3	4	5
A small intimate group	1	2	3	4	5
Privacy from most people but personal relationship	1	2	3	4	5
Feel a special closeness with others in my group	1	2	3	4	5
Other group members were accepting me for who I am	1	2	3	4	5
Feel connected to a place that is important	1	2	3	4	5
Recreate in a primitive environment	1	2	3	4	5
Feel a connection with others who value wilderness	1	2	3	4	5
Observe and appreciate the ecosystem	1	2	3	4	5
Develop a sense of self confidence	1	2	3	4	5
Share my skills with others	1	2	3	4	5
Chance to think/ solve problems	1	2	3	4	5
Develop an oneness with nature	1	2	3	4	5
Get in touch with true self	1	2	3	4	5
Opportunity for self-discovery	1	2	3	4	5
Reflect on life	1	2	3	4	5
Stimulate creativity	1	2	3	4	5
Having an adventure	1	2	3	4	5
To have a story to tell	1	2	3	4	5
Experience places I have read about	1	2	3	4	5

Feel like I was the one of the first people to use this place	1	2	3	4	5
Freedom of choice as to actions and use of time	1	2	3	4	5
Experience nature's magic and mysticism	1	2	3	4	5
Obtain a deeper connection in life	1	2	3	4	5
Find inspiration in natural surroundings	1	2	3	4	5

16. To what extent did you experience the following during your stay at Fulufjället National Park?

	Not at all		Partly		To a large extent
Undisturbedness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Plants and animals in a natural environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calm and peaceful environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possibility to recover	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nice and tidy environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safe and secure environment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Possibility to be healthy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Risk-taking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enjoyable smells and sounds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learn about nature	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Views/outlooks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Physical activity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Contact with other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. How do you think the visit to Fulufjället National Park has affected your physical, social and mental health?

	No at all	Partly		To a large extent	
Better physical health (e.g. movability, condition, balance, strength)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased social wellbeing (e.g. social relations, friends)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Increased mental wellbeing (e.g. independence, happiness, stress reduction)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

18. We would like to know what spontaneously comes to your mind when you hear the word "wilderness". Please name the most important "key words".

19. To what extent do you agree with the following statements?

	Not at all		Partly		Completely	Don't know
Fulufjället National Park is a wilderness area						
The idea to be in a wilderness area influenced my decision to visit Fulufjället						
The visit to Fulufjället have changed my idea of wilderness						
The wilder the nature the more I like it						
Wilderness areas are important retreat areas for animals and plants						
Observing large animals (e.g. bear, moose) belongs to a wilderness experience						
The number of visitors in wilderness should be limited to maintain the biodiversity						
Wilderness areas should be only accessible via guided tours						

D. Now a few questions about the management of Fulufjället National Park and what should be allowed in the area.

20. Were you aware that Fulufjället is a national park before you visited the area?

- ☐ No
☐ Yes

21. Did the existence of the national park influence your decision to visit the Fulufjället area?

- ☐ No
☐ Yes → **In what way did it influence your decision? Specify with a few words.**

22. What regulations a national park has depend on the values to be protected, but can also differ with respect to local inhabitants and visitors. What is your opinion about the following activities in Fulufjället national Park?

	Should be allowed for all	Should be allowed for local inhabitants only	Should be forbidden for all
Moose hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bear hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bird hunting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fishing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Berry picking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snowmobiling (<u>on</u> marked trails)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Snowmobiling (<u>outside</u> marked trails)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Horseback riding	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mountain climbing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hiking outside marked trails	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Overnight camping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

E. In this section we ask questions about your trip to Fulufjället National Park, your stay in the park and the surrounding region, and your economic expenditures

23. During which type of trip did you visit Fulufjället National Park? *Check one alternative.*

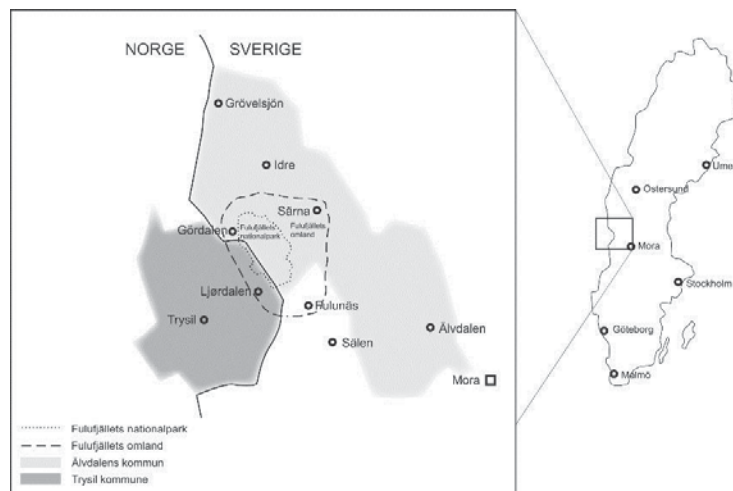
- | | |
|--|--|
| <input type="checkbox"/> Private travel → → → → → | Please specify type of private travel: |
| <input type="checkbox"/> Organized group excursion | <input type="checkbox"/> Excursion from home |
| <input type="checkbox"/> Other type of travel | <input type="checkbox"/> Excursion from resort, second home or similar |
| | <input type="checkbox"/> Part of round- or through trip |

24. How many days did your trip last? *Include the total number of days from the time you left home until the time of your return.*

_____ days

25. Here is a map of Fulufjället National Park and the surrounding region with the following areas outlined:

- Fulufjället National Park – dotted line
- Fulufjället Gateway Area (omland) – broken line
- Älvdalen municipality (kommun) – bright shaded area
- Trysil municipality (kommune) – dark shaded area



Think about the trip you did to Fulufjället National Park and specify how long you stayed in the following areas. *If your stay was shorter than one day, please specify the number of hours instead.*

Fulufjället National Park (Swedish part): _____ days _____ hours

Fulufjället National Park (Norwegian part): _____ days _____ hours

Fulufjället Gateway Area (omland): _____ days _____ hours

Älvdalen municipality (kommun) outside the National Park and Gateway Area: _____ days _____ hours

Trysil municipality (kommune) outside the National Park and Gateway Area: _____ days _____ hour

26. Now think about the economic expenditures you had during your visit to Fulufjället National Park. This can be hard to remember precisely, but try to give the approximate amounts for each area. In completing the chart, please keep in mind the following:

*If you were accompanied on the trip, note only your share of expenses
 Include expenses paid by others (relative, employer, etc.) on your behalf
 Note expenses for the areas in which they were paid
 Specify the amounts in Swedish kronor (1 NOK = 1,15 SEK; 1 EUR = 9 SEK)
 If you did not have any expenses for a given item, leave that section blank.*

If you travelled with a package tour, indicate your total costs for the tour and all related expenses in the last section of the chart.

	Fulufjället National Park (Sweden + Norway)	Fulufjället Gateway Area (outside the National Park)	Älvdalens municipality (outside Fulufjället Gateway Area)	Trysil municipality (outside Fulufjället Gateway Area)
Lodging	_____ SEK	_____ SEK	_____ SEK	_____ SEK
Food, restaurant, café	_____ SEK	_____ SEK	_____ SEK	_____ SEK
Shopping (except food)	_____ SEK	_____ SEK	_____ SEK	_____ SEK
Activities	_____ SEK	_____ SEK	_____ SEK	_____ SEK
Transport (fuel, car rental, train, bus, air travel etc.)	_____ SEK	_____ SEK	_____ SEK	_____ SEK
Other expenses	_____ SEK	_____ SEK	_____ SEK	_____ SEK
I participated in an organized package tour and my total costs were:	_____ SEK			

27. If you were to estimate your willingness to pay, i.e. the highest amount you would pay for the visit you did at Fulufjället National Park. How much would that be?

I would be willing to pay at the most _____ SEK for this visit in the national park.

F. Now a few questions about tourism in Fulufjället National Park.

28. How do you feel about the idea of developing tourism in and around Fulufjället National Park?

	Very	Negative	Neutral positive	Positive	Very negative
<u>Within</u> the national park	-2	-1	0	1	2
In the <u>surrounding area</u>	-2	-1	0	1	2

29. In your opinion, how important are the following measures to develop tourism in and around Fulufjället National Park?

	Not at all important		Important		Very important
Wider range of activities	1	2	3	4	5
More lodging facilities	1	2	3	4	5
Higher standard of lodging	1	2	3	4	5
More camping facilities	1	2	3	4	5
Wider range of restaurants and cafés	1	2	3	4	5
More guided tours.....	1	2	3	4	5
Better communications	1	2	3	4	5
More information about Fulufjället	1	2	3	4	5
Other, please specify: _____					

30. Have you been in contact with any company or other organization providing commercial services for tourists during your visit at Fulufjället National Park or the surrounding region?

	Yes	No
Company/organization providing lodging	<input type="checkbox"/>	<input type="checkbox"/>
Company/organization providing food services	<input type="checkbox"/>	<input type="checkbox"/>
Company/organization providing activities and tours	<input type="checkbox"/>	<input type="checkbox"/>
Company/organization providing transport	<input type="checkbox"/>	<input type="checkbox"/>

31a. To what degree do you think that companies and organizations providing services for tourists in Fulufjället National Park or the surrounding region add value to your experience of the area?

- ☐ Not at all
☐ Partly
☐ To a large extent

31b. If you answered partly or to a large extent, please specify in what way companies and organizations providing services for tourists in Fulufjället National Park or the surrounding region add value to your experience:

X. This section has a few questions concerning search for information about the Swedish mountains (fjällen) in general

32. Where do you find most of the information about experiences in the Swedish mountains (fjällen) in general?

- ☐ Traditional media (newspapers, TV, radio)
- ☐ Friends/family (or other private sources)
- ☐ Internet (web-pages, blogs, social networks etc.)

Please specify your primary source of information (web-page) on the Internet

Please specify your primary community/social media platform forum/blog (TripAdvisor/Twitter etc.) on the Internet

33. How often do you use Internet to read about experiences in the Swedish mountains (fjällen)?

- ☐ Several times every day
- ☐ Once every day
- ☐ A few times every week
- ☐ Once every week
- ☐ A few times every month
- ☐ Once every month
- ☐ Less than once every month
- ☐ Less than once every six months
- ☐ Never

G. Finally a few questions about yourself. We need this information to compare different groups of visitors and will never report records for individual persons.

34. In what year were you born? _____

35. I am: ☐ Male ☐ Female

36. How many of the following categories live in your household?

_____ children aged 0 – 12
_____ young people aged 13-18
_____ adults (18+)

37. In what country/region is your permanent residence?

Dropdown list over the most common countries: Sweden, Norway, Denmark, Finland, Germany, Holland, France, Rest of Europa, North America, Rest of the world

If you live in Sweden, please provide your postal code: _____

If you live in Norway, please provide your postal code: _____

38. Do you have a permanent residence or second home in the proximity of Fulufjället National Park (within 10 km of the park border)?

- ☐ Yes, I permanently live in the proximity of Fulufjället National Park
- ☐ Yes, I have access to a second home in the proximity of Fulufjället National Park
- ☐ No, none of the alternatives above apply to me

39. What is the size of your place of residence?

- ☐ City with over 200,000 inhabitants (including suburbs)
- ☐ Town with 20,001 – 200,000 inhabitants
- ☐ Town/village with 2,001 – 20,000 inhabitants
- ☐ Village with 2,000 or fewer inhabitants
- ☐ Rural area

40. What is your highest level of education?

- ☐ Primary school
- ☐ Secondary school
- ☐ High school
- ☐ University degree
- ☐ Other (specify): _____

41. What is the approximate monthly income of your household? After taxes but including eventual subsidies (1 EUR = 9 SEK)

_____ SEK

Many thanks for your help!



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