FOLLOWING THE TRAIL:

OBJECT FORMATION, AGENCY AND THE CASE OF
JOSTEDALSBREEN NATIONAL PARK

MSc Thesis

WAGENINGEN UNIVERSITY
AND RESEARCH
DEPARTMENT OF ENVIRONMENTAL
SCIENCES
CULTURAL GEOGRAPHY GROUP

Skutka, Jonas
GEO-80436

WAGENINGEN
UNIVERSITY & RESEARCH

NINA
Norwegian Institute for Nature Research

STUDENT NAME:	JONAS SKUTKA
COURSE CODE:	GEO-80436
STUDENT REGISTRATION NUMBER:	900306765020
STUDY PROGRAMME:	MSc LEISURE, TOURISM & ENVIRONMENT
SUBMISSION DATE:	13TH JANUARY 2019
MSc THESIS SUPERVISOR:	DR.IR. MARTIJN DUINEVELD
	ASSOCIATE PROFESSOR,
	WAGENINGEN UNIVERSITY
MSc THESIS EXAMINER:	PROF.DR. RENÉ VAN DER DUIM
EXTERNAL ADVISER:	DR. ODD INGE VISTAD
	SENIOR RESEARCH SCIENTIST
	NINA LILLEHAMMER

This is a master thesis produced for completion of my *Master of Science program in Leisure, Tourism and Environment*.
The content of this MSc thesis does not represent an official position of Wageningen University and Research nor Norsk Institutt for Naturforskning (NINA).

All pictures and figures were taken and created by me apart from the scanned maps in *Figure 1* and *Figure 3,* which were taken from materials obtained from visitor center in *Fjærland*.

ABSTRACT

This thesis responds to the problematization of visitor monitoring in protected areas being too an-thropo-centric. When visitors are being monitored or managed within the nature protected areas, limited attention is paid to the materiality, in which the visitors navigate and to the relations that visitors co-construct to the hiking environments. Therefore, this thesis departs from the relational materialism lens and borrows elements of Actor-Network Theory to further trace the trail's materi-ality using qualitative methods and *focused ethnography case study* of Jostedalsbreen National Park (JNP) in Norway. The main findings are presented through the process of trail formation, which un-covers a rich material network of multiple relations and enactments of the trail by foreign visitors to the JNP. It shows that the ways, in which trails in JNP are enacted by the visitors are partially results of the cultural and professional backgrounds and past hiking experience of the foreign visitors. Fur-thermore, the agency of the trail's materiality is questioned through Foucauldian discipline lens, con-sequently, a slight re-configuration of the agency's location is offered through observing the foreign visitor-trail interactions.

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LIST OF ABBREVIATIONS

ANT	Actor-Network Theory
GPS	Geographic Positioning System
JNP	Jostedalsbreen National Park
LP	Lonely Planet

1 INTRODUCTION

Recreational trails in protected areas guide increasing amounts of visitors from the global north and west to their adventure destinations (Higham et al., 2016). These adventure destinations in protected areas have been studied for decades by many scientific disciplines, however, predominantly of the natural sciences domain (Hansen, 2016; Stenseke, 2012). As the interest to view, witness or experience the studied phenomena grew amongst the non-scientific public, the more the protected areas and national parks became a subject of social science disciplines (Bell et al., 2007; Hansen, 2016). After all, people started visiting these areas for recreational rather than scientific reasons, and recreation, as it often concerns people and their well-being, is regarded as a social phenomenon. Thus, various social science disciplines became involved in researching recreation, where visitor management and monitoring logically came to the fore (Bell et al., 2007; Hansen, 2016; Pickering et al., 2018). Monitoring visitors and subsequently, their management is regarded as necessary also for the natural science disciplines that advocate nature protection as visitors' access could be restricted from or enabled in certain locations of the protected areas (Eagles et al., 2009; Kuba et al., 2018). This is often done by using of various material arrangements such as trails, trail representations in maps, brochures, or by visitor centers (Gundersen et al., 2015; Kuba et al., 2018). Although there has been a subsistent body of research identified for visitor infrastructure in protected areas (Beunen, 2008; Coppes & Braunisch, 2013; Dorwart et al., 2010; Kolasinska et al., 2015; Kuba et al., 2018), the trail is often treated as a vehicle for the visitors and their management rather than treated as the main focus of the studies. As visitors engage with the recreational trails, they involve the trails in a social activity of recreation. Therefore, this thesis adopts a stance, where trails are seen as an equally important social actor in the process of hiking recreation in protected areas. The study is inspired by the need to focus on visitor infrastructure as central and by the subsequently identified knowledge gap on monitoring of recreational trails.

1.1 Visitor Monitoring

> *"Phenomenon that is not measured and reported does not exist politically. Governments, societies, communities and individuals place more value on that which is documented* (Eagles in Hansen, 2016, p. 114)*."*

As Hansen (2016) presents, visitor monitoring has come into being by the need of documenting outdoor recreational activity in protected areas. The ecological and sociological consequences of outdoor recreation brought the need to start or better manage visitors coming to the protected areas (Balmford et al., 2015; Hansen, 2016; Vistad, 2003). Outdoor recreation, as an emerging trend amongst the global western population, therefore, altered agendas of protected areas such as national parks. Higham (in Kuba et al., 2018) posits that Norwegian Environmental Agency expects national parks in Norway to have new management and visitor monitoring strategies set in place by 2020. This brings further challenges for Norwegian parks as the new strategies strive to increase the value of experience for the visitors, while strengthen nature and cultural heritage conservation ef-

forts. Therefore, visitor management focused research in Norwegian national parks has become increasingly preoccupied by monitoring where, when and how many visitors are coming to national parks and for what reasons (Hansson et al., 2009; Higham et al., 2016; Kuba et al., 2018; Pickering et al., 2018; Vistad, et al., 2017; Vistad et al., 2018). Vistad (2006) emphasises the importance of visitor monitoring is to learn about the movements of visitors within the parks, and about their motivations and attitudes towards management practices (Gundersen et al., 2015). However, there has not been much focus on whether undertaken site management actions function as intended. Gundersen et al., (2015), further posit that there is little known about how visitors interpret managerial practices and whether these practices work as intended.

The research occupied by visitor monitoring in Norwegian national parks is predominantly based on quantitative methods and generating massive amount of visitor monitoring data, upon which the new management strategies are to be developed (Pickering et al., 2018; Higham et al., 2016; Muhar et al., 2002). Consequently, current research produces mostly results based on quantitative methods of visitor use monitoring (Pickering et al., 2018) – methods well familiar to education backgrounds of park managers, conservationists and ecologists, and tourism sector (Hansen, 2016). Such quantitative datasets are useful in learning about visitors' traffic, itineraries of their trips and motives of their visits, however, limit the knowledge to 'objective facts' describing a generalised visitor journey with limited insights into how visitors navigate through the materiality of the park on their hiking holiday (Muhar et al., 2002).

Qualitative methods can, therefore, introduce new perspectives and produce different results on understanding how visitors move through the materiality of the park (Vistad, 2003). This further signalises the expansion from monitoring of the mere natural physical aspects of protected areas to the domains of social science and outdoor recreation (Pickering et al., 2018). Hansen (2016) addresses this issue with his advocacy of qualitative methods for visitor monitoring in protected areas. He investigates human-nature encounters and explores meanings of landscapes in outdoor recreation in marine protected areas. Kaltenborn & Williams (2002) and Kocis (2007) claim that qualitative methods can provide a good base for broader understandings of visitors' *"interests, perceptions, experiences and values."* Although there is research recognising the natural physicality of a protected area such as landscapes, visitor studies tend to be anthropo-centred – focused on the visitors themselves (Gundersen et al., 2015; Vistad, 2006; Vistad et al. , 2017). Studies tend to categorise findings by producing comprehensive knowledge about visitors and their experiences or sense of place (Kaltenborn & Williams, 2002; Williams & Stewart, 1998). Although studies using the concept of sense of place recognise the importance of social relations, they tend to overlook the roles and consequences of how medium of material objects installed to the protected areas constructs the social interactions (Appadurai in Dale, 2005). In other words, it lacks on investigating of the social material setting of a protected area such as trails, maps signs etc. Thus, this thesis centres the social materiality into the fore, and expands the locus of visitor monitoring on to the material plane by using elements of relational materialism and Actor-Network Theory (further elaborated in chapter 3 - Theoretical Frame). Consequently, human and non-human actors are "monitored" on the same plane.

1.2   The Need for Trail Monitoring

By monitoring the (social) material arrangements and the social on the same plane, new bodies of knowledge emerges, revealing interactions of the social materiality of a national park with its visitors. However, studies monitoring the physical geography, as well as monitoring visitor flows and visitor experience are essentially contributing to the knowledge for national park's decision making authorities, management, nature ecologists and spatial planners of a national park (Bell et al., 2007; Miller et al., 2017; Pickering et al., 2018; Vistad et al., 2017). As Gundersen et al. (2015) and Kuba et al. (2018) invite research into how managerial practices in a form of material arrangements work within a national park work, by establishing the material and the social on the same plane, such knowledge gap can be addressed by placing the arrangements into the fore of a research. There are studies that recognized the spatiality of material arrangements and recreation infrastructure in protected areas (Beunen et al., 2008; Coppes & Braunisch, 2013; Kolasinska et al., 2015) as an important arena for visitor monitoring, yet the focus remained anthropo-centric investigating conflicts amongst users of the trail (Kotut et al., 2018; Wolf et al., 2018), visitor-wildlife interactions (Miller et al., 2017), perception of a trail environment (Dorwart et al., 2010) or visitor motivations to wander off the trail (Kolasinska et al., 2015). Gundersen et al. (2015) then reveal how visitors' motivation affect their attitude towards management restrictions on trails. Kuba et al. (2018) present the role of site management, such as trails, in visitors use in a national park. This thesis, as opposed to the current research, positions the trail as viewed as a material arrangement used for managing visitors within a national park, as central.

Hence, the objective of this thesis is to provide insights into understanding how management material arrangements, especially the trail and its material network are being understood and enacted on a visit to a national park. The purpose of this thesis is two-fold; First, it intends to fill in the knowledge gap in empirical research regarding a recreational trail, its multiple understandings of its purpose, while supporting the qualitative methodology of monitoring visitor-trail interactions. Second, in terms of societal relevance of the study, this research intends to support current vulnerability studies being undertaken in national parks in Norway and the JNP (Gundersen et al., 2015; Vistad et al., 2017) as well as generate knowledge useful for management planning strategies for Norwegian national parks (Higham et al., 2016).

1.3   Research Questions

Departing from the problematization of the visitor management studies in protected areas, we ought to ask different questions. Questions less concerned with motivation and experience, but perhaps more focused on the interactions of visitors with the social material setting of the park and vice versa. Questions that would enable the researcher to observe how visitors and things act in the field and how the visitors then relate to the environment they are found in. This section indicates the direction of questions to be asked, however, questions that will be later translated in terms of the theoretical

understanding of the world, once defined and outlined to the readers perhaps less familiar with the radical constructivist approach delineated in the chapter on theory (2).

> RQ1: *How (in what ways) do foreign visitors to the Jostedalsbreen National Park learn about and navigate on a national park's recreational trail*?

> RQ2: *What role does a trail play in the foreign visitors' outdoor recreation in the Jostedalsbreen National Park?*

> RQ3: *How does a trail guide foreign visitors through the Jostedalsbreen National Park and into certain areas of the park?*

1.4 Thesis outline

This thesis is arranged in seven chapters and References (8), where the first chapter, establishes the background of the research and argues why this research is initialised. It locates the research in the context of visitor monitoring and management in protected areas and explains the need for qualitative visitor monitoring with the focus on the social materiality of the area. The theoretical framework (chapter 2) than further elaborates on different understandings of visitors and recreational materiality of a national park. It establishes the theoretical lens and justifies its fit for the study. Furthermore, the concepts used for explaining and interpreting the findings are explained; How objects come into being – an object formation debate, where the role of *multiplicity* and *modes of ordering* are explained. It further elaborates on the concept of *agency* and uses the rather old-fashioned concept of *discipline* in a new, yet to be explored, way to help explain and re-trace the *agency of an objects – the trail*. Methodology (3) chapter offers insight into the ANT methodological understanding employed in this thesis, elaborates on the selected design of the study, lists and justifies methods used, re-introduces the area of fieldwork and concludes with ethical and limiting considerations. In chapter (4) findings are presented in an ethnographic narrative manner, which is further analysed in the following chapter (5). Chapter 6 then discusses the findings, methodological and theoretical realisations in comparisons to published literature. The thesis is then concluded with a final chapter (7) reduced to provide direct answers to the posed research questions and conclusions.

2 THEORETICAL FRAME

This chapter will guide the reader through the theoretical understanding of the world used for this thesis. It commences with reviewing theories that perhaps influenced, preceded or gave basis to the adopted radical constructivist theoretical lens. Through reviewing main elements of relational materialism such as anti-essentialism (Fuchs, 2001), the trail as an object is viewed differently to current understanding of the trail in social science research. It is understood as co-formed through and existing within multiplicity of socio-material relations (Latour, 2005; Law & Singleton, 2005), which co-create networks of actors, thus the reader will better understand the rationale behind further adopting elements of Actor-Network Theory for answering the posed research questions. Particularly, the theoretical symmetry in understanding human and non-human interactions, thus endowing thigs involved in a social interaction with a certain degree of agency (Latour, 2005). Furthermore, the chapter aims to provide a theoretical tool for unfolding relationality of interactions with an object in its absence and presence, hence, provide means to uncover what is happening 'under the surface' of a recreational visit to the trails of JNP. The chapter then ends with a comprehensive summary of analytical concepts used to interpret results in chapter 5. Moreover, once able to look at the trail in a different manner, different questions can be asked. Therefore, the end of this chapter poses reconfigured research questions that help better uncover the understanding of a trail as an object influencing the way visitors navigate through the JNP, *multiplicity* of roles a trail plays in foreign visitors' visitation, and finally the unstable guiding function of a trail.

The focus of this research is thus on how national park visitors – interact with the hiking trails of the JNP. Although it may seem that such focus is rather anthropo-centred, I argue that in order to understand how visitors act on their visit to the JNP is to an extent related to the materiality they interact with. Hence, if we are to monitor visitors, we should also consider 'monitoring' the material setting they interact with to unravel hidden networks that they, as actors, are part of and that are guiding or exclude them, often unwittingly, to and from certain areas of the park. The focus is, therefore, on how visitors negotiate the socio-material mechanisms of a trail that they are inevitably part of.

2.1   On Relational Materialism

Although current research on national parks' visitors recognises the importance of some spatial material arrangements in national parks, such as trails, parking lots, entrances and other artefacts constraining the movements of visitors (Gundersen et al., 2015; Kuba et al., 2018), it is treating them as separate immutable objects in a three dimensional Euclidean space (Law & Singleton, 2005; Ren, 2011; van der Duim et al., 2013). Such settings then could be viewed from Hägerstrand's (1970) theoretical lens, where *coupling, capability* and *authority* constraints in time and space are presented to otherwise 'free' human behaviour. Similarly, the approach of symbolic interactionism (Goffman in Hacking, 2004), perhaps well-known to social scientists preoccupied by studying social interactions, assigns meaning to material objects and recognise their semiotics that affect the way people in society behave. However, this thesis inclines to *relational materialism* perspective, where objects, such

as humans or material arrangements of a national park, are not defined by their constant *essence*, because "[i]f there [is a] constant, this is because [it is] being held constant by an observer (Fuchs, 2001, p. 2)." Therefore objects, stripped from their *essentialist* existence, they become related to the network(s) they form, and within which they act together with the social. Therefore, this approach understands society, as formed of arbitrary relational networks to human and non-human objects.

The *relational* perspective further suggests cancellation of the human-material binary distinctions, thus equating the social and the material on the same plane (Franklin, 2004; Latour, 2005; Law, 2009; Ren, 2011; van der Duim et al., 2013). The perspective then suggests that human behavior is not only defined by some constraints in time and space, but is rather tangled in networks of relations to other actors. Ren (2011) further highlights that acting is, therefore, not entirely conducted by humans but by any actors related to the object. Therefore, actors, no matter their social or material nature, have the power to interact within their networks, and equipped with such *agency*, are thus equally important. In other words, human behaviour, when treated as individual, is entangled in multiplicity of networks of a certain object, therefore, the object will have a different meaning to each individual. ANT scholars, due to such relationality, often recognise this as messy objects (Law & Singleton, 2005, p. 340). Messy in such a way that they cannot be cleaned up just by structuring and making them 'fit for study' as managerial and technological studies would often attempt to, but more as a mess that from a post-structuralist perspective could be merely deconstructed and enabled to be known (Law, 2009; Law & Singleton, 2005; Ren, 2011; van der Duim et al., 2013; Vicsek et al., 2016).

2.2   On Actor-Network Theory (ANT)

Informed by *relational materialism*, and its ontological perspective on understanding the world, the central theoretical frame to answering the studied research questions will further adopt elements of Actor-Network Theory (ANT). To briefly elaborate on the borrowed 'practicalities' from ANT: Network is understood to be a set of relations to an object - to the actor(s) (Law, 2009). One can claim that such relations are unstable and in a continuous motion, as new actors constantly 'emerge in' or 'disengage from' the network (Law & Singleton, 2005; Mol, 1999; Ren, 2011).

Moreover, ANT offers a lens of general symmetry between human and non-human actors, which results in seeing the world as formed out of heterogeneous relations. Actors then can embody any form; social or material, and are to an extent endowed with agency – a social capacity to act (Law, 2009; Sayes, 2014; van der Duim et al., 2012). Latour (in Sayes, 2014, p. 141) posits that *"things might authorize, allow, afford, encourage, permit, suggest, influence, block, render possible, forbid, and so on"* and as Sayes (2014) himself emphasises, according to ANT, agency is not necessarily associated with free-will and intentionality. Thus 'the agency' of the actual agency is rather minimal, yet recognisable and social-compatible (Latour, 2005). As Sayes (2014) concludes, agency of non-human actors is related to the interactions with the social, as he posits – in ANT non-humans never act solely by themselves.

Although certain scholars posit that ANT is not a theory per se as it rather describes various acting performances than sets foundations for explaining phenomena (Law, 2009; van der Duim et al., 2013), *"it is a sensibility to the messy practices of relationality and materiality of the world (Law, 2009, p. 2)".* Empirical studies using ANT as a lens, therefore, rather produce powerful and in-depth descriptive 'stories' of the multiple realities entangled in the studied networks (Law, 2009; van der Duim et al., 2013). Applying the ontological equality of human and non-human actors, Haug (in van der Duim et al., 2012) portrays how risk, as a non-human actor, can enact multiple forms and how it acts upon tourists through unstable weather, steep fall and/or narrow edges of Norwegian mountains. She presents this by breaking down all the actors involved using a case study of Dutch tourists hiking the Besseggen trail in Jotunheimen National Park. Bærenholdt (in van der Duim et al., 2012) using three Danish cases further demonstrates how elements of ANT can uncover how non-human actors, together with the social actors can construct a destination in presence and absence. Which, together with Ren's (2011) study on how cheese can form *multiple* destinations takes us to the ontological politics of unstable and *multiple* realities. To conclude, ANT recognises reality as multiple and embedded in relations between actor-networks.

2.3   On Object Formation

The relationality and networks shift the focus from the traditionally noted three dimensional Euclidean space into geography of networks – where time and space is (de-)compressed based on the relations co-shaped by various actors (Murdoch, 1998). Therefore, as realities are formed within these time-spatial networks, object can no longer be seen in a realist perspectives in the three dimensional space, but rather as an actor tangled in these networks. Mol (1999) further elaborates in the multiplicity by using a concept of ontological politics in her study on *multiplicity of performances* on diagnostics of *anaemia.* She argues that realities are *culturally, historically* and *materially* located and that they are often overshadowed by the unquestioned *practices* of diagnostics. Objects such as the Mol's (1999) study on anaemia, or cheese, as explored by Ren (2011) in her paper on multiple tourism destination realities enactment through an object, are then considered quasi-objects. Quasi-object is forming multiple realities based on the interactions it is in, or in the words of ANT scholar – in what relations is the object entangled. It is *"a nonhuman that is necessary for the collective to exist"* (Jackson, 2015, p. 36)*.*

I intend to adopt the lens of object realities being *culturally, historically*, and *materially* located to trace the performing networks in the park and with their help uncover how a network of actors of a hiking trail in JNP makes the trail come into being. The trail, stripped of its essence established by the body of a national park, can then be recognised in multiple of ways. To add on to the spatial dimensions of realities, Law & Singleton (2005) claim that realities are simultaneously produced both in *absence* and *presence* of an object. Once a reality is produced by specific entanglement in a network of actors in presence, it inevitably generates *'perhaps deferred'* reality in absence (Law & Singleton, 2005, p. 343). This poses further questions on how national park visitors enact the realities of a trail

based on the cultural, historical, and material realities formed and co-shaped in presence and absence of an object. Furthermore, guiding questions on how they act based on 'othered' realities by other actors, which further provided guidance in the research on how the visitors interact with the set material arrangements of the park.

This being said, one can foresee the research will attempt to answer the *how* questions rather than *why* or *what*, leading us to uncover how actor-network relations actually work (Franklin, 2004; Ren, 2011; van der Duim et al., 2013). Vicsek et al., (2016) provides an example of such workings by describing how computer is being used on a daily basis without questioning its functionality. But if only one of its features such as the screen stops working, in the pursuit of the problem, we engage in the complex network of actors, enlightening the *black-box* otherwise covering it. By adopting the ANT lens, we may, therefore, uncover what is happening inside of the *black-box* of processes and practices that work, at least for now. Leaving the computer screen behind, such 'un(black)-boxing' may happen anywhere else, at any setting such as laboratory, a meeting room, fieldwork (Latour and Callon in Vicsek et al., 2016) even in a national park when looking at how a hiking trail really 'works'. Thus, this research attempts to sharpen the focus on uncovering generally hidden mechanisms and relations of actors of JNP's trails using the ANT lens.

2.4   On the kind of Agency

Uncovering '*the black box*' within JNP can provide further insights into how the material arrangements within the park define actions and behaviour of the park's visitors. It leads to establishing a bit more specific parameters of the already defined-above agency. Departing from the Hägerstrand's (1970) idea of constraints, but acknowledging the complex relational networks of actors, I further elaborate on concepts leading to a better understanding of interactions with the trail's materiality of a national park. Although Hägerstrand (1970) assigns agency to non-human actors, his ontological point of view is not compatible with the one of current relational materialist scholars. Humans, and in fact other actors, are related in specific contexts to their material and social environments, therefore, these actors co-act with any element of the network in time and space (Law, 2009). Final actor, the ultimate mover, therefore does not exist in such understanding of the world. Interestingly however, agency of things can, as Latour (in Sayes, 2014) elaborates, show in numerous forms.

For discussing agency of the trail, I intend to depart from a concept used in management studies to further elaborate on the kinds of agency, perhaps peculiar for relations of actors in national parks. Discipline is a concept coming from the Foucauldian analysis of institutions, which I further argue is represented by a national park. It is a concept that explains "way of being" within institutions for people (Barker & Cheney, 1994). Thus, it follows up with the Foucault's (1978) concept of *docile bodies*, where individuals are transformed in time and space by unwittingly coercing to the system.

> "[…D]iscipline was meant to capture those micro-techniques of power in use that rationalize and normalize not only individuals but also collective, organized bodies" (Clegg in Barker & Cheney, 1994). "

Management and organisation studies have expanded on Weber's concept of rationalisation and elaborated it with Foucault's literature in the context of normalisation of individual and collective behaviour, coercing to the disciplining practices within organisational structures (Barker & Cheney, 1994). For this thesis the concept of *docility* is used to explain how actors, be it human and non-human, become *disciplined* in their (inter-)actions between each other. Specifically then, taking the trail as a network of these 'micro-techniques of power' that work within material relationality of the subjected visitors. However, this thesis is not concerned by investigating power and who exerts it. It uses the concept of docile bodies from the bottom-up perspective, investigating the relationality of the subjected visitors towards materiality of a trail in a national park. It assumes, as Law & Singleton (2013, p. 491) state:

> *"people can be understood as an effect of the unfolding web of relations they're caught up in. (p. 491)"*

This thesis, through the relational materialism lens, recognises that similarly to humans interacting, there is certain agency of non-humans exerted over individuals and vice versa when in a social inter-action (Sayes, 2014). Holloway et al. (2011) and Maoz (2006) for instance build on how tourists con-form to the gaze of other tourists surrounding them, and hence, act as they are expected to act. Taking the material lens into account and recognising the agency of non-humans, such *disciplining gaze* then can be observed on various actors within the network of a national park – it could be visitors themselves, but also information boards, trail-marks, fences, or even personal safety. The discussion chapter (6), therefore, aims to discuss agency of a trail within a national park – the 'disciplining institution.'

2.5   On the Trail and How to View it

The national park is a body that

> *…protect[s] natural biodiversity along with its underlying ecological structure and supporting environmental processes, and […] promote[s] education and recreation, [therefore, it] …manage[s] visitor use for inspirational, educational, cultural and recreational purposes at a level, which will not cause significant biological or ecological degradation to the natural resources (IUCN, 2018).*

In other, perhaps Foucauldian, words; the national park assumes possession of certain body of knowledge, which is to be projected on the subjects i.e. the individual visitors using both human and non-human agents. Thus, similar to schools or monasteries it is also an enclosed space, partitioned into segments by '*a disciplinary machinery*' (Foucault, 1978; Hacking, 2004), however, instead of a classroom the park presents partition in a form of trails. Under the terms of ANT, where non-humans, thus the trail's materiality exerts agency in a social interaction, the trail then can be seen as an agent for effective channeling of various types or '*ranks*' of visitors within the national park (Knagenhjelm & Rudsegen, 2018). However, by putting this into the ANT context of relational materialism, where essence of these non-human agents is denied, we remain with a trail viewed through very particular modes of ordering.

A trail, as defined by English Oxford dictionary (2019) is

…[a] mark or a series of signs or objects left behind by the passage of someone or something.

The national park through its modes of ordering, maintaining and transforming the trail by leaving signs and objects behind, therefore, attempts to achieve better control over its visitors. The material network of the trail, stemming from the body of a national park, and further communicated via online platforms, information boards, visitor centers, and museums in such manner serves as instruments to communicate the national park's agenda, which is expected to educate visitors about common natural issues, cultural heritage and safety (Knagenhjelm & Rudsegen, 2018).

While putting the human and non-human on the same plane in terms of social interactions, certain agency exerted by the non-humans, yet bound to a social interaction with the human (Sayes, 2014; van der Duim et al., 2017), might be observed. Such view, therefore, assumes that the trail, as an instrument of enforcing the national park's agenda, acquires a certain level of disciplining power over the visitors if studied from the Foucauldian top-down perspective (Hacking, 2004). In other words, Foucault advocates that norms, meanings or reasons are not just socially constructed, but are imposed to the people through social structures, which could be the national park by using the materiality of the trail. However, it is the trail and the visitors navigating on it that are central to this thesis, so in order to investigate the agency of non-humans, in this case of the trail, bottom-up perspective of explaining the human – non-human interactions and leaving the idea of essentialized trail is sought for. Erving Goffman (in Hacking, 2004) further offers such perspective and provided that the material is found on the same plane as the human as defined by the ANT terms, we can better understand how people or things are being constituted, how they define themselves and are understood by others, *"in terms of exactly such interactions"* (Hacking, 2004, p. 278)*.*

Therefore, the aim of this thesis is to uncover, how the trail is made up and enacted from the foreign visitor's trail enactments and within the terms defined by the elements of ANT, and to further discuss agency of the trail in a foreign visitor's interaction with it – of a hiking journey in the JNP. The knowledge about the visitor-material interaction and how a trail is made up may be useful for future design of trails and their material network, material visitor management measures, and to the scientific community operating within the visitor management and monitoring fields of research.

Furthermore, in order to investigate the trail under the ANT terms defined in this chapter, the research questions need to be reconfigured as previously suggested. The ANT radical constructivist approach and ontology is 'emancipating' the material into the same position as the social, thus treating it as equal. Moreover, it is putting it outside of the geographically known three-dimensional Euclidean space, into the geography of networks defined through time and space (Murdoch, 1998). Thus, research questions under the ANT terms are re-configured as follows:

RQ1: How does a hiking trail in the Jostedalsbreen National Park as an object come into being?

RQ2: How is a trail in Jostedalsbreen National Park enacted by foreign hiking visitors in time and space?

RQ3: How does a trail as an object in the time-space network exert agency over the human?

2.6   Analytical Toolkit

This section aims to clarify how the theoretical underpinnings described above give grounds for an analytical toolkit used for answering the reformulated research questions by interpreting and analysing the study's chapter on Findings. There are two main parts to the analytical toolkit; the first part is concerned with *object formation* assisting the reader with understanding what makes an object real by using the above-described elements of relational materialism and ANT. The second part presents tools for uncovering how people behave in time-space and how they are influenced in their behaviour by materiality of an object, thus aims to generate answers for questions regarding agency of things. Most importantly this section aims to closely relate the analytical tools to the case study. However, each section will first remind the reader of the theoretical underpinnings of the given analytical concepts, and subsequently, put them into the context of this thesis – the JNP, its recreational trails and foreign visitors.

2.6.1   Object formation

By following the ANT reasoning, it becomes apparent that an object exists only as a part of a network of relations in time and space geography of networks (Murdoch, 1998). In order to better understand this, let's start from the fact that the world can be defined through various ontological understandings – various understandings of what reality is. Under the ANT terms what is known comes from relations to objects, things, ideas and so on as outlined by the relational materialism section above. An object comes into existence and becomes real once one of its versions is enacted through a network of actors by someone, thus co-forming a reality. To translate this into the context of this thesis, I intend to trace how a trail as an object is shaped for visitors coming from outside of Norway to the JNP. As a second-order observer (Luhmann, 1993), I will follow multiple trail enactments of foreign visitors, attempting to explore relational networks from where the trail becomes activated and real, to when it is actually used. As Luhmann (1993) defines this, it is the de-construction of the constructions of the different trail realities in the makings of the foreign visitors. Tracing such journeys reveals how visitors interact with a number of emerging actors that co-shape the trail enactments, even in its material absence and later in presence. In other words, the trail already exists for the visitors planning on visiting the JNP for hiking, there is just no materiality involved yet. Although the object

already exists, various preconceptions generated from the relational network of the trail as an object might constrain or transform the way visitors view and use the actual trail in presence.

These networks making an object (in this case the trail) real tend to be rather fragile. New objects, things or ideas engage with them, thus making the nature of the object to be fluid. The networks are constantly challenged by emerging presence of these new actors, the object is thus being re-defined or re-configured every time within slightly differing modes of ordering. In other words, visitors prepare for their hiking journeys in various ways, thus the way they enact the materiality of the trail depends exactly on these modes of ordering. Each visitor's mode of ordering is then slightly different to the other, including the way a trail is officially seen by the management of the JNP, the tourism actors or local residents. Interestingly, as given by the alleged agency of non-human actors, materiality of the trail might play a major role in how these modes of ordering manifest in the visitors' trail enactments. Therefore, this part aims to seek answers to how does a trail come to being in interaction with the foreign visitors and what role the materiality plays in this object formation.

When the visitors' ideas about the recreational trail in JNP, their backgrounds and knowledge are taken into account, the trail as an object is then being challenged or reconfigured. Therefore, anytime there is an actor that destabilises the network, newer version of the object is co-shaped by material relations manifesting through the modes of ordering. This is how an object's multiple realities are enacted, and thus is not only seen as stable immutable object in time and space but rather as a quasi-object – *object multiple*. In the analysis, I follow the network of the trail in time and space in order to describe, perhaps only a fraction, of the multiplied 'matter-realities' of the trail co-shaped through the foreign visitors' material relations.

To sum this sub-section up, I intend to first look at different versions of the trail and different ways, in which the trail comes into being, both in absence and presence of its materiality. Further, I aim to uncover how visitors, each within slightly different modes of ordering, view the trail transforming it into an object multiple.

2.6.2   Agency

The second part of the analytical toolkit aims to look at how visitors behave in time and space in relation to the materiality of the trail that they encounter on their journeys – the object that is formed. As outlined in the theoretical chapter, under the ANT lens, things can be viewed as 'having agency', or a certain capacity to act in a social interaction (Latour, 1992, 2005). However, this agency is always relational, and always conditioned by a social interaction with a human (Sayes, 2014). Therefore, an object is almost always by definition exerting a slightly different agency over every social interaction. For the national park visitors, the local inhabitants, the local tourism services, and the national park management, the trail becomes real within exactly their own relational networks and their understandings. However, each of these actors may view the trail with an essentialising tendency assuming the same outcomes of acting of certain non-human 'agents' that co-shape the materiality of the trail.

The park manager for instance, may see the trail and its materiality as an effective agent in channelling visitors and educating them about the park's natural and cultural heritage within the national park (Knagenhjelm & Rudsegen, 2018). Therefore, in this essentialised view, disciplining agents such as signs, fences etc. are employed to 'fix' individual visitors in time and space. This section, therefore, aimed at establishing a lens to look at the multiple modes of ordering of a trail that visitors enact and put such disciplining agency of the trail under scrutiny. Visitors of the JNP might each view the trail as an object in a slightly different manner, and consequently end up enacting the trail and its agency within their own modes of ordering co-shaped by their backgrounds and the materiality of the trail itself.

3 Methodology

This chapter aims to explain the methodological positionality of self as a researcher by explaining how the established theoretical approach using elements of Actor-Network Theory reconfigures the way social science research is set-up and conducted in its epistemological and methodological understanding. Further in this chapter, the research design, including re-introduction of the studied case study area, is delineated based on the relational materialism methodological understanding, as well as methods that will be used to generate data to answer the posed research questions.

The 'material turn' in social theory, which relational materialism and ANT are inevitably part of, have diminished the distinctions between subject and object (Sayes, 2014), and their ability to act independently (Ren, 2011). ANT is perceived either as a method (Gad & Jensen in Beard et al., 2016) or as 'methodological toolkit' in itself (Jóhannesson, 2005), which

> *"sees research as a performance in which the research[er] is made possible by and simultaneously taking part in constructing the field or object of study (van der Duim et al., 2012, pp. 22–23)."*

Furthermore, (Hess in Atkinson et al., 2007) claim that ethnographic scientific field is based predominantly on elements produced by the social, non-material world. The material turn, relational materialism, and ANT movement, therefore, answered by the methodological symmetry of object-subject formations. This thesis builds on such ontological understandings of reality and responds by adopting elements of the ANT methodological design of ethnography (Hess in Atkinson et al., 2007; Beard et al., 2016; van der Duim et al., 2012). For these reasons, Focused-Ethnography Case Study design (presented further in this chapter) of the study deems most appropriate to answer the research questions, as descriptions and stories provide insights into how things, in this case the trail, are enacted in absence and presence. This chapter further presents, how each method was adopted to answer the research questions.

3.1 Focused-Ethnography Case Study Design

For understanding of how a trail comes to being and how it is being enacted by multiple realities, *Focused-Ethnography Case Study* design deems the best fit. The study does not intend to provide generalisations, but rather offer differing perspectives by employing solely qualitative methods. This design further offers a 'reductionist' design to Ethnography, as it blends it with a case study design bound by time and space (Fusch et al., 2017). Elements of ethnography such as the quest for understanding values, cultural norms and roles enacted by participants are borrowed, however, the theoretical understanding of materiality and quasi-objects, the object-subject neutrality, and the context of discipline and agency of things already narrows the ethnographic scope of research. Chamraz (in Gibbs, 2013) argues that a researcher starts an ethnographic fieldwork with an open mind, with limited theoretical predispositions and conceptual assumptions that would be narrowing down the scope of the research. As I am in the position of a MSc student working on his thesis, I needed to constantly reflect on the time and available resources to the study in order to generate enough data

to be able to answer my research questions. This thesis is, therefore, designed so that data saturation, as opposed to standard ethnography design, could be reached in a realistic time scope of one month that I intend to spend in the field. This blend, by sharpening the focus of the ethnography design and limiting it in time and space of a case study and summer tourist season in the JNP, enables collection of data within the available time and with accessible resources.

3.1.1 Positionality

It is however, important to take a note of subjectivity, especially in the context of *Focused-Ethnography Case Study Design* as the time and space boundaries of the research might not offer big enough space for personal reflection as opposed to traditional ethnography (Fusch et al., 2017). The researchers bring their 'personal baggage' into the field in a form of cultural norms, and values, or even roles they enact in the field, especially in the context of a researcher/participant, insider/outsider relationships. Beard et al. (2016) further highlights that as an ANT researcher I create and shape the studied realities, thus co-construct and co-shape knowledge together with other participants and things (Hess in Atkinson et al., 2007). Therefore, in ANT research, scholars talk of "generating materials rather than collecting data (Whatmore in Beard et al., 2016, p. 103)". Qualitative studies approach this by focusing on the self and using a concept of "*I am a fieldnote*" or *"I am the research instrument"* (Pezala et al. in Fusch et al., 2017, p. 927). It is a way to better understand the position of self in the research and accept (or suppress) personal biases brought by the 'personal baggage' to the field.

3.1.2 Ethical considerations

Throughout the one-month long fieldwork, I interacted with plethora of human and non-human actors. Guided by sound scientific principles, I constantly reviewed my actions. For the events of participant observations, I acted mostly in an unobtrusive manner towards the participants, to reduce projecting personal and scientific biases on them. However, where there were potentially sensitive data generated, or when conducted semi-structured interviews, I introduced myself as a MSc student collecting data for his master thesis. I handle personal information with care, not to reveal identities of participants, therefore, I adjusted their names, when using their profiles in the thesis. I especially paid attention not to present data that would cause harm to individuals, and consequently to the scientific community and its credibility when conducting research of similar nature in the future.

3.1.3 Park and the visitors

The following section aims at (re-)introducing the case study area, in which fieldwork has been conducted. The Jostedalsbreen National Park (JNP) initiated detailed visitor monitoring in 2017. Predominantly quantitative visitor monitoring, employing wilderness purism scale as a method, was conducted in 2017. This has generated knowledge on the park's human aspects of recreational visitations, such as experience, motivations and attitudes. Material and physical arrangements of the park were considered to an extend of likability and satisfaction, however, not researched in terms of their functionality and meaning (Vistad et al., 2017). Hence, this thesis situates its focus to the

Jostedalsbreen National Park to further investigate how a hiking trail is enacted, thus 'monitor' the trail, the visitors and other non-human actors qualitatively and on-site.

The park is located in Western Norway and offers access to the biggest glacier in continental Europe, spectacular fjord and alpine mountain landscapes, and besides its physical features, it offers a plethora of recreational nature-based activities. The glacier attracts more than 600.000 visitors per year, which brings various challenges for the onsite visitor management. The area of the park covers 487km², and with its variety of landscapes attracts great variety of visitors. The visitor monitoring conducted in 2017 shows growing popularity amongst international visitors, who account for visitors ranging from nature-based 'purists' to cruise ship passers-by (Vistad et al., 2017).

The sites of participant observations were guided by the human and material network of the trail itself and by following other visitors. Like these other visitors, I used visitor centres, guidebooks, maps as sources of information about popular locations in the park. Additionally, a week in the fieldwork, I scheduled an interview with the park management and further consulted previously published reports on visitor management from the JNP. The tracing of a trail, however, is not limited to a single recreational trail in the JNP. Therefore, when mentioning trails' names in some cases, it is solely for the reasons of comparison with other observations. The material network of recreational trails in the entirety of JNP is considered as the trail and studied on the basis of materiality, multiplicity and discipline.
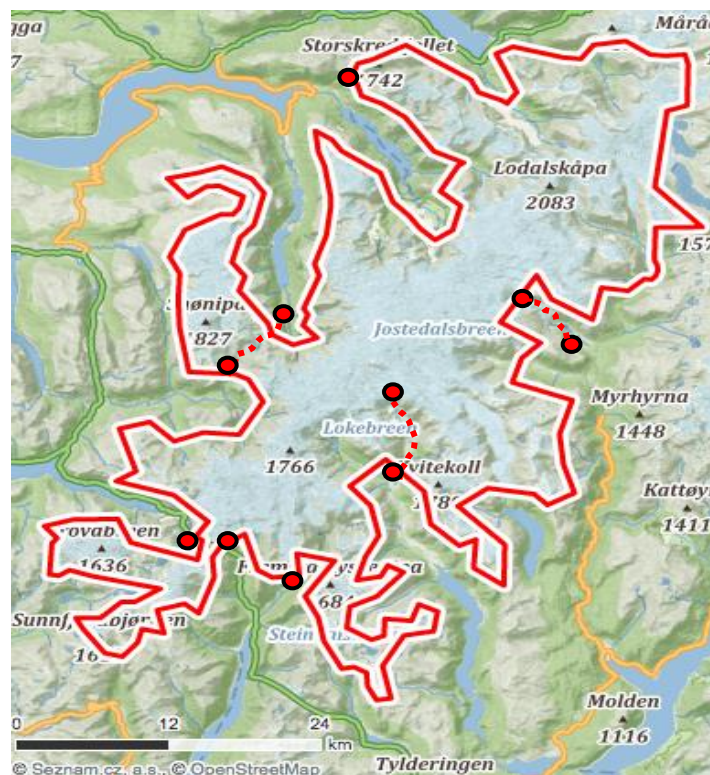

Figure 1 Map of the Jostedalsbreen National Park with participant observation sites and hiking trails covered.

Thus, when following other visitors, I let myself be driven by them and their itineraries, tracking their journeys through the material network of a trail and plans for hiking trips, which was object of the study. The material network(s) of trail physically brought me to areas and trails displayed on map of the JNP on Figure 1 (p. 16). However, for interviews I chose locations in the field based on convenience of the participants.

3.2   Methods

The fieldwork-based qualitative methods used for this thesis are derived from ANT's methodology, (auto-) ethnography and case study designs and are well suited for the thirty-one-day long fieldwork (20th August 2018 – 19th September 2018). Such methods require myself, the researcher, to constantly make sense of the phenomena around me and question the objects of the study by employing multiple methods that co-create and contribute to the (auto-)ethnographic narratives, in which the collected data are subsequently re-assembled (Bönisch-Brednich, 2018). This is further enabled extensively employing the following methods; *walking method* (20 days navigating through the field), *participant observation* (213 social interactions noted) and *informal conversations* (72 conversations noted), *as well as semi-structured interviews* (14 interviewees), and consequently, by the possibility to triangulate findings*. Therefore, rather than employing them method by method, I employ them simultaneously as a package, and depart from the qualitative research positioning of "*I am a fieldnote [and] a research instrument*" (Fusch et al., 2017)*. In the following section I outline how such method package is used in the field, why do they fit the nature of the study, how they help me answer my research questions and further elaborate on the reliability and validity of the generated data.

3.2.1   Walking Method

Walking method enables the researcher to get fully immersed into the materiality of the field, which in this thesis co-constructed the way foreign visitors and I (as a visitor) enacted the trail. I used this method to auto-ethnographically observe, how material network translates into the materiality and vice versa, which proved as an especially useful method for tracing the formation process of an object. As Ingold (2010) writes, I engaged in *thinking in movement,* where "*both the landscape and walker are constructive to each other*" (Ingold, 2010, p. 7). Goffman (in Ingold, 2004) regards walking as a social activity, as people keep constantly *scanning* the spaces surrounding them as they interact with each other. Similarly, visitors keep scanning the materiality of the trail, where human – non-human actors co-create similar social interactions, while constituting the trail. Building further on the ANT methodology, I also used this method for co-creating realities, rather than solely describing what the social realities are as I often accompanied the participants through the field (Beard et al., 2016), thus co-acted within their enactments of the trail. The method has furthermore helped me to generate data on understanding how the material network in absence stems from the material trail that visitors navigate on. By walking through the trail and with the visitors, I generated data on how visitors, including myself, enact the trails and how the materiality of the trail is constantly being negotiated and re-configured in the enactments of the visitors.

For the entire period of the fieldwork, I took notes of various material developments that I and the visitors interacted with, but also of interactions I had with visitors that I encountered. I 'deep hung out' and walked in problematic areas, visited tourist information points, visitor centres and important landmarks as well as studied maps and brochures published by the park, using which I generated my understanding of the material network of the trails and visitors' actions. I used this understanding as a basis for deepening the investigation into the visitor-trail interactions, which has lead me further to redefine my research questions and place the trail in the centre of my focus. However, I realised that realities that I (co-)shaped and (co-)constructed by my physical presence are relational to the actors I interacted with. Therefore, my actions and being present in the field co-acting with multiple actors, I became aware of my selection biases, and mutual biases projected to every situation and actor.

3.2.2   Participant Observation

While 'walking the field', wearing hiking clothes and rucksack rather for convenience than to try and go native, I also participated in co-creating the multiple visitors' realities that I also observed by directly participating in them. Participant observation as a method enabled me directly interpret and co-shape visitor-trail interactions, which helps me generate answers for my research questions, mainly about enacting the trail and the questions of material agency. DeWalt & Musante (DeWalt) (2011) advocate to start participant observations in a descriptive manner, observe everything that is happening around, generate thick descriptions and based on what is unique or unusual, direct focus into that direction. Over the period of one month, I observed over two hundred (213) individual social-material interactions, on which I generated 'thick-descriptive' field notes. Each interaction was noted by hand in a field-notepad, to which date, number and short description was added (Fieldnote template in appendix 9.1.1) . Additionally, each day after returning from the field, I wrote a summary of the day, where main elements contributing to the findings were highlighted. Throughout massive amounts of thickly described events, I followed LeCompte & Schensul, (1999), who advocate that ethnographic analysis should begin while in the field. Therefore, I began selecting important themes and points of interest. Consequently, I started conversations with more than seventy (72) visitors in the field, which were fruitful in collecting various pieces to the puzzle on the basis of selected themes. The themes emerged from the observed material interactions, focusing on *objects' use, itinerary building, communication and interaction with human and material actors, previous experience, and knowledge of national parks and JNP.*

I further joined ten visitors to hike with them in the park, additionally I let myself be invited, to five all-day or multiday events, in which I acted as unobtrusively as possible, for instance reducing reactivity by taking notes out of sight of participants. However, I informed participants on these five occasions that I collect data on material networks of the hiking trails in JNP, which I will use for compiling my MSc thesis. I probed participants to talk about their hiking experience in and outside of the park, out of which I further interpreted my findings.

For ethical reasons, I refrained from taking audio and visual recordings for participant observation purposes, as I found obtaining consent from the high number of participants unrealistic, furthermore, it would affect my reactivity in the study as a researcher. Conversations conducted in the field were based on natural flow of events and encounters, free from structures and solely based on an unplanned moment of a random encounter with the visitors. I recorded data generated through participant observation and conversations to my field notes, which I tried noting down in an unobtrusive manner, usually out of sight of human participants.

3.2.3   In-depth semi-structured Interviews

To finalise the data generation process, 15 (list of interviewees in appendix 9.2.1) in-depth semi-structured interviews were used to complement already generated data from ethnographic field methods as well as for obtaining a different angle on visitor-trail interactions within the park. Although the ANT perspective advocates that things have agency when in a social interaction with for instance a national park visitor, one might wonder why interviews are a method used in this thesis. I certainly refrained from talking to things, as no articulate answer could be obtained, however, rounding up the participant observation, and thus triangulating the knowledge by interviewing the material actors was desirable. If I could not talk to non-human actors, I approached the human elements of the non-human actors such as park management, the ranger, visitor centre manager and seasonal worker, and a tourist information worker, with whom I conducted semi-structured interviews on four occasions respectively. This has generated good enough perspectives that were still considered visitor-material interactions in the visitor journey as questions regarding the non-human actors' functions were posed. I further conducted 10 semi-structured interviews with foreign visitors to the national park and one Norwegian visitor to round up the perspectives on hiking trails.

Rubin & Rubin (2012) describe semi-structured interviews as a tool to achieve in-depth conversations that are bound to a specific topic, inspiring the interviewee to provide vivid recollections about a given topic. Furthermore, it ensures more control for the interviewer as he / she coordinates the conversations within boundaries of the topic. For each interview, depending on the location and the nature of the interview, I designed interview guides (appendix 9.2.2), where topics and pre-formulated guiding questions were fixed to answer the research questions best using the given theoretical frame. However, as the interviews were used more for obtaining unique, multiple perspectives, certain degree of freedom was encouraged in generating the data. Participants were all treated as unique, thus every encounter aimed to *perform* a unique perspective, which also affected the sequence of questions over the individual interviews and probing methods. Therefore, the length of interviews ranged anything between 25 – 50 minutes. I also accept that multiple realities are tied to the relations present and formed with various actors as well as me as a researcher, therefore, the behaviour of myself – the interviewer – and the length of each session varied amongst participants. Furthermore, Gubrium & Holstein (2003) claim that the interviewee – interviewer interactions need to already be acknowledged as a reality co-construction, thus affect the generated data. The interviews were more of a natural flow allowing for deviating from the structure and for certain degree of improvisation as unique narrative perspectives were desirable.

The interview guide was tested with hikers in a nature area close to Trondheim, during fieldwork preparation. The interviews generated good answers, however, the link to a national park was missing. The 'semi' structure of the interviews developed over the course of the fieldwork, hence, testing the interviews outside of the park enabled to foresee issues with recruitment of participants. When I arrived to the field, I started recruiting participants from the day one of the fieldwork. I approached visitors at parking lots, campgrounds, cafes and as an incentive offered a bottle of self-made home-brewed beer or alternatively a homemade granola bar. I also realised that interviewing in the field generates less information than when organised at a comfortable place with a table and chairs. Therefore, twelve of the interviews happened on various locations in campgrounds and cafes, two in my car and one in the field.

3.3   Data Analysis

> *"The Memory of clumsy, faltering fieldwork was set aside and, in its place, came the adventure of tale-telling. Quiet, safe at my desk, or in my favourite seat at the local coffee house, I luxuriated in creating with words and recreating in fantasy my own dual characters; the clever writer and the fieldworker, to whom exciting things might happen"* (Mitchell & Charmaz, 1996, p. 160).

Through triangulation of the above described methods, an immense amount of 'messy' data was generated throughout the fieldwork. I sourced from multiple notepads from the field, each used for certain occasion; small format to hide in my pocket and stay covert, waterproof one for rainy days, or a good sized one for when there was no need to be out of sight of the participant and I could comfortably scribble my observations. This has also enabled me to be more organised, as well as flexible in the field exactly because of these differing sizes and functions. However, such an immense amount of data also requires greater focus on structure and organisation of the raw data. For this, Microsoft One-Note was used, which enabled me to connect all the generated data and transcribe all the fieldnotes into virtual 'notepads', where they could further be organised, alongside with written transcriptions and pictures corresponding to each event and visually re-order fragments where needed.

Although coding of data is considered inseparable from qualitative research analysis by many mainstream qualitative handbooks (Boeije, 2010), this thesis applied a different analysis method of identifying *tokens.* Beard et al. (2016) consider this as sensitising method to clean up the messy data that ANT generates. It uses things – the tokens, to trace the material network. Tokens are usually identified throughout the fieldwork, which later enables better focus on tracing the material networks through spatiality and temporality of physical presence, but also through participant observations, semi-structured interviews and narratives (Beard et al., 2016). I gathered my transcribed virtual fieldnotes and interview transcripts of important passages and summaries and started organising them, carefully placing each piece of puzzle into the picture, based on the already emerged and yet emerging tokens. The token(s) are usually identified in the early stages of the fieldwork, which in my case

happened through uncovering the multiple stories and realities of a trail about half-way through the fieldwork. I then proceeded to trace the trail through number of other tokens, some material such as maps, visitor centres, information boards etc. or more abstract such as visitor planning, past experience, and visitors' backgrounds. Corrigan & Mills (in Beard et al., 2016) believe that 'we are influenced by dominant versions of the past and our interaction with those versions', therefore, tracing tokens can bring us to different places in time and space, which I started tracing by this analysis. Similarly, Franklin (2014) demonstrated this in his study of bucket and spades, where these became the tokens revealing relationships with British beach holidays. Through coding, the data would become neatly organised in categories, which was not desirable for this approach, as there are multiple of ways participants enable or trace a token.

Driven by identifying various tokens, I analysed my data using comparisons to the above listed tokens and using these, I transformed my raw data into composite ethnographic stories that each tell a tale from the *'exciting things happening to'* the fieldworker. Therefore, I decided to structure my thesis into Findings, Analysis and Discussion chapters, where findings are mere stories picturing the field and visitor-trail interactions, Analysis chapter then provides coherent outlook and interpretations of these stories using the 'glasses' of established theoretical lens, thus *"the analytical tools are applied to narrative knowledge produced by the researcher"* (Beard et al., 2016, p. 106)*.* Finally, the discussion provides critical insights into how the trail fits in the context of a national park, discussing the theoretical and methodological decisions.

3.4   Limitations, Reliability & Validity

Major limitation to this thesis is the time scope of the MSc thesis and planned fieldwork. I had to constantly reflect on the available time and resources, which many times brought me in doubts about the execution of the study. The park spreads over a very spacious area and it takes up to five hours drive to cover a distance from one end of the park to the other. I was limited by one month of the fieldwork, firstly because of the scope of the MSc thesis and secondly because of the available budget. End of the summer season is good time to access foreign visitors, however, obtaining Norwegian perspectives was rather challenging, especially then when out of thirty-one days in the field, twenty days rained.

Constant reflections not only unveiled opportunities to pursue and organise the planning of fieldwork, but also brought doubts. As this is my master thesis project, due to lack of experience in the field, I often questioned whether I was on the right track. This from time to time held me back from being more proactive in generating data or made me nervous when conducting interviews.

These points might project in the reliability of the study. If this thesis was conducted again and by somebody else, it would have perhaps taken a very different direction. Level of experience, timing and available resources could enable different interactions with the field and its materiality, which eventually might have lead to recognition of different tokens, thus bringing the perspectives obtained

to different dimensions. Nevertheless, as Westwood (in Beard et al., 2016) argues, a researcher should show a 'reflexive awareness' by acknowledging the differing the positions of self, the participants, and the reading audience.

However, Seale (1999) advocates a midway position in terms of validity of qualitative research and in terms of reliability and validity questions, he proposes reconfiguration of the scientific criteria for evaluating quality of a study. Qualitative research generates incomparable data to quantitative research as, for instance, it is quantitative data that aims to grasp the truth value out there from a reality, which then represents the validity of the study. By generating qualitative data a researcher re-constructs (Seale, 1999), or even co-constructs (Beard et al., 2016) the multiple realities out there. Thus, in this I follow Seale (1999), who concludes that no matter the stance or approach a researcher takes, it should be considered with respect as a craft in itself, rather than judged by criteria applicable to quantitative data as long as the study is relevant for the society and the academic world.

4 FINDINGS

Walking through the JNP, spending time 'deep hanging out' at various locations in the park, as well as talking to more than seventy participants generated an immense amount of data. It produced stories, fragments of stories, ethnographies and other pieces of information that had to be put together to present coherent stories capturing the journey of visitors through the JNP's trails. The following chapter presents a journey of a researcher and his own encounters with the trail while visiting the park himself as a visitor. The chapter commences with auto-ethnographic section, where the material background and stories are traced by the researcher himself. Further, it portrays how visitors absolve this journey by narrating four separate events – *composite stories* – unveiling the details of journeys visitors take while using the trail.

4.1 Tracing the trail – I am a foreign visitor

It's a rainy mid-August afternoon, one week before the main tourist season here in the Jostedalsbreen National Park ends. This signalises that crowds of Norwegian visitors are slowly replaced by sustained crowds of foreign visitors, seeking nature hiking experience. I was invited to interview the park managers in the Breenmuset – the Glacier Museum in Fjærland, where many tourists stop by, especially in such a rainy weather. At least the camp manager in Bøyum in Fjærland advised me to go explore the glacier museum as an alternative to hiking in such a rainy weather. This must be perfect place to get started, I thought.

The Glacier museum, about a five-minute walk from the campground I am staying at through the centre of a broad Fjærland valley, right at the tip of Sognefjorden, is located at the side of the main road, and its architecture is well aligned with the Norwegian style mountain huts and the surrounding mountainous landscape. In front of the museum, there are sculptures of mammoths that are visible from the road and lure passer-by visitors, often families with kids, to take pictures interacting with the mammoths. As I was approaching the museum building, the picturesque site became disrupted by a dozen of tour buses parked at the parking lot in front of the museum building. These tour buses bring cruise ship passengers from the north of the national park, where their vessel docks, to the most important and easily accessible sites of the national park such as the museum. These crowds of cruise-ship tourists and organised tourism delegations made me start doubting the suitability of the place for beginning tracking hiking visitors. And indeed, as it turns out through later conversations, hiking visitors often fail to even realise the importance of this building itself.

After my interview with the park manager and the park ranger, I started putting things together. The museum, built in 1994, served as an attraction to the visiting cruise ship tourists to the Fjærland valley. But most importantly, nowadays the museum serves as one of the three visitor centres in the national park, which is not that apparent for a hiking visitor, to whom the mammoth reference may as well invoke ideas of a mammoth museum, not worthy visiting for when seeking a hiking adventure.

Glacier is, however, central to the museum, which also for hikers in the Jostedalsbreen National Park is often the number one attraction (Vistad et al., 2017).

The Jostedal glacier, therefore, is, and historically has always been, key for the hiking infrastructure in the park. The alpine style hiking for leisure, however, was only brought to the Jostedalsbreen area by early European visitors in the 1800s. Historically, the trails, were important for local people, who travelled across the mountains to neighbouring valleys to exchange produce or celebrate special occasions. Glacier then played an important role for these trails as trading routes, as once embarked on by the local travellers, it was an easier and quicker way for trade routes between north and south. Historically, however,

> "[Norwegians] didn't think about recreation in the old days...not in the same way. It [...] was either hunting, checking the cows, or sheep, or berry-picking, [...] and still up in Finnmark, [...] they do not go for a Sunday hike without a mission. They have a mission, they either go berry picking, hunting or it's a kind of...it's a thing...a goal for their trip. Very much like in the old days."

Some of these trails, then maintained by the locals by placing steps and wires for easier access, are nowadays maintained by Nepalese Sherpas, who ensure the quality of hiking experience for recreational hiking.

Figure 2 Changing trails

A fence blocking an old trail and carrying a sign: 'Vulnerable vegetation – follow the path'

Enriched by such knowledge from the manager and the ranger of the park, I later start tracing similar stories through information boards hung on walls in the museum, old maps, as well as by talking to the local inhabitants. Furthermore, over the course of time, some of these hiking trails that in the past served as trade routes or as the only physical communication between valleys, nowadays either

disappear from the maps completely or are transformed in the face of contemporary recreation demand and nature protection (Figure 2, p.24).

Visit to the glacier museum, makes one question the paradoxes of tourism to the national park. On the one hand, the museum emphasises the effects of climate change on the glacier, on the other, it hosts crowds of tourists from South Korea or China, who arrive using multiple fossil fuel propelled means of travel. How does this relate to the trail itself and the hiking visitors? Crowds of tourists pouring out of a dozen of tour buses may discourage hiking visitors from visiting the same places. Hence, in the case of the glacier museum, disabling access to relevant information about the trails' past to some visitors. The glacier museum with its location on the main junction towards Fjærland, where the main road passes in the close vicinity of it, enables passer by-s to spot these crowds already from the road and make their decisions of visiting the museum or avoiding it rather easy.

Those deciding to follow through to the museum, the visit further offers screening of a rather old-fashioned panoramic movie of the Jostedalsbreen National Park, tracking a backcountry tele-mark (ski) adventure of four Norwegian locals, showing the spectacles of the park and their adventure from aerial perspective. The movie does not show much of the trails, which the locals followed, but portrays skiing in the national park as something relatively accessible.
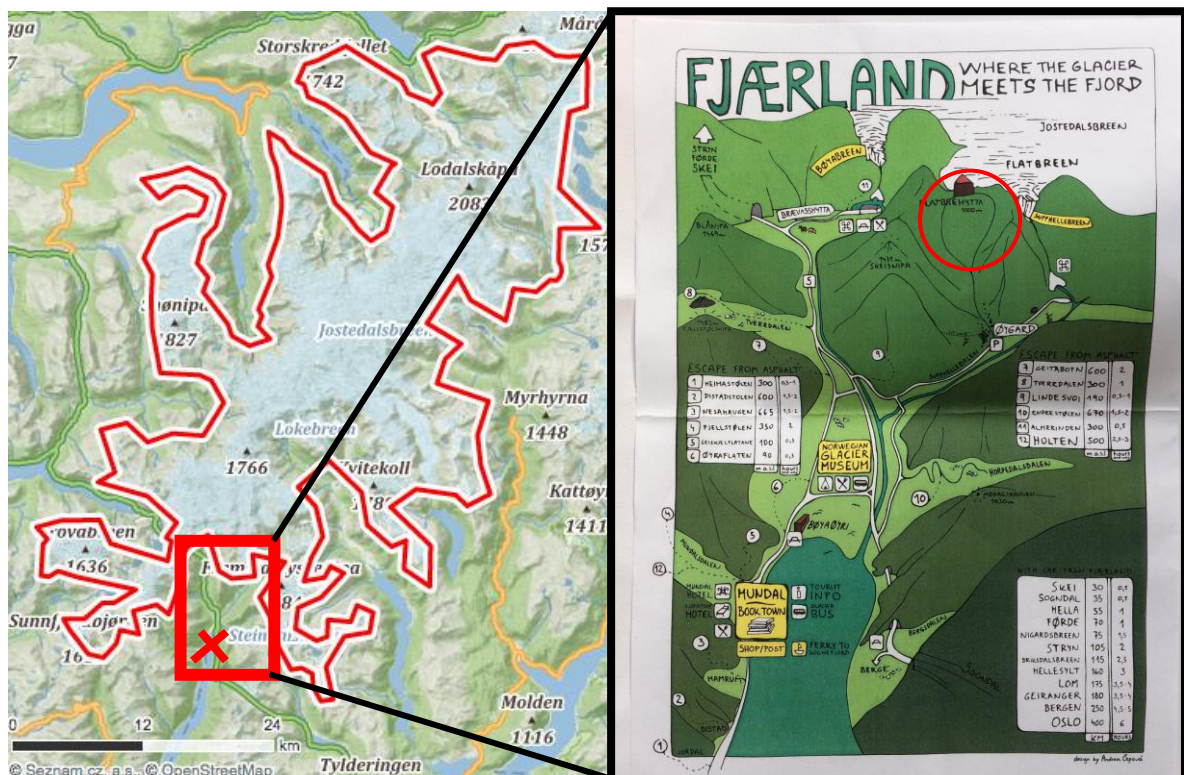

Figure 3 Illustrative map of the Fjærland

Illustrative map of the Fjærland region received from the glacier museum. The illustrative map is only a small fraction of the Jostedalsbreen National Park.

Flatbrehytta track circled in the image on the right-hand side.

Entertained by the museum exhibition, I am on my way to the exit through a giftshop and want to learn more about the actual hiking options in the valley. I re-approach the museum entrance, studying museum entrance prices, which as it later throughout my fieldwork showed may become a barrier for some visitors to come to the museum, or even to approaching the desk to find out the museum is one of the national park's official visitor centres. This time I use the desk as a curious visitor, who just arrived to the park to ask about hiking options in the whole national park. I only receive an illustrative map of the region (Figure 3, p.25), which sends me to the areas in the vicinity of the museum. The map is not very clear, however, description of how to navigate to the trailhead is provided by the visitor centre worker. I am further reassured that the trail is clearly marked and easy to navigate and that it is a popular track to hike. With the provided description I further look into my topographic map, where the trail is mostly portrayed as unmarked. Nonetheless, I set off and proceed tracing the trail and its materiality enabling visitors to further navigate through them.

4.2   Visitors tracing the trail

This section describes the material journeys of hikers in tracing the trail and intends to reveal what happens before a hiker sets foot on the physical path – the trail. Throughout my fieldwork in JNP, I stumble upon visitors ranging from very well prepared with a solid plan, to visitors who do not have anything planned and let their visit be spontaneous and improvised either by talking to other visitors, consulting accommodation providers, visitor centres, internet, guide books, maps or various combinations.

The most resonant combination for planning of trips amongst participants, either in advance or while already in the area, is a combination of guide books and internet:

> *"Well on first instance: Lonely planet, Norway's Lonely Planet. That's where I read about it, I mean I just read a couple days before about where I'm going, I mean, what's in the area and then I figured out that I have to visit this area. And then I used Google, and then I see, ok, what are the nice parts, what are the hotspots, where you have to go, what is a nice trail, see if there's any other people's recommendations on the trail, or where you have to walk."*

But not only guidebooks reveal what JNP has to offer for hiking. *"The big white spot on a map"* brings many nomadic and road-tripping hikers to the area. Visitors put JNP on their itinerary because of its central geographical location, as a site that they *"pass through anyways".* In fact, this is the notion that resonates the most amongst participants. If they do not know the area from previous visit or planning, they happen to end up in JNP because of its inevitability when travelling East-West, or on occasions South-North. Furthermore, having access to own means of transportation for when one wants to hike in the area is certainly an advantage.

Most of the hiking trails in the Jostedalsbreen National Park are only accessible from main roads by additional kilometres to cover either by foot, or by driving in, or being driven to the trailhead of the track. Visitors, therefore, use maps to inspect the surrounding landscape of the trail and select their

hiking trips based on the suitable accessibility: *"We look through the maps, see what is possible without a car, and then we just check if there's a road to it to get there".* I always drive myself, and on occasions pick up hitchhikers, who travel to the same direction to help them overcome the distance between the main roads and the trailhead. Forms of map guiding my foot-travelling or hitchhiking participants on their hiking trip that prevails are digital maps such as *Maps.me* or *Google Maps* or even GPS systems. Hiking trail then becomes a saved location in a digital space, towards which the participants have to find access to.

One of the most commonly sold paper topographic maps in the region is *Nordeca* map (2016) of the Jostedalsbreen NP. The map is detailed, the most detailed from all available maps in local accommodations and tourist points and is covering area of the entire national park, however, it is relatively scarce, also in the park's visitor centers, and expensive for tourists, who only 'trespass' JNP on their longer trips. Furthermore, some hiking users do not find all trails published in the map, resulting from measures taken from the management of the park in order to provide safe hiking experiences as well as channel visitors to safe and less vulnerable areas. Hiking a longer backcountry tour, therefore, requires either good topographic reading skills, local knowledge of the old trails or internet.

Overnight campground, cabin or hotel visitors seek new information or reassurance about their planned hiking itineraries in the area through small-talks with the local people; camp managers, local shop, tourist information points, or hotel reception desks. Visitors often enquire about information, for which they would otherwise have their own reliable channels to consult and are important for them in the areas they usually go hiking; such as weather, level of difficulty, accessibility and popularity:

> *"We heard that the Supphellebreen is a tourist hotspot here, so we went there, but we only saw about 3 other people. If that would be a hotspot in the Black forest, it's crowded."*

Such information is practically impossible to decipher out of a map regardless how detailed it is. The local knowledge of accommodation providers, visitor centers or tourist information points is, therefore, crucial for learning about features of the hiking trails.

However, how do visitors navigate through the plethora of information acquired from the locals, the maps or the guidebooks, especially when it may not always align? International guidebooks often describe Norwegian destinations regionally, therefore, the coverage of JNP in for instance Lonely Planet (LP) guidebook is rather limited compared to what is offered through local guide-websites such as VisitNorway.no. Nevertheless, information found on the web, still misses the local expertise on hiking trails, and rather provides slightly more focused version of the internationally published guidebooks such as LP. By navigating through the local sources of information, one finds herself / himself limited to the local region as the local expertise – usually sourced from people somewhat related to the region – is based on their own experience and the way they use the trails.

For generations, the trails served as the main communication within the region. The local accommodation provider or the local tourist information point assistant, therefore, grew up with the narratives describing dependence on the trails. With introduction of roads, tunnels and further infrastructure

in the second half of 20th century, even the locals adapted to the fast-growing trend of 'hiking for recreation' and learnt navigating through the trails for leisure. However, they often carry only the local knowledge of trails located in the direct vicinity of their residence, therefore, trails offering what the visiting hikers demand – viewing of the glacier – are described and recommended mostly only for those areas. Although the local residents are learning about visitors' abilities, their description of the trail often portrays the visitors' realities in a slightly different shade in relation to the visiting hikers' experience, be it regarding level of difficulty, accessibility, weather or other.

4.3   The Trail

The trail does not start with a trailhead as much as with the multiplicity of measures and human-material interactions described above that guide the visitors through the journey of a trail-hiking in JNP. Be it the local narratives, the local knowledge or economic interest in keeping visitors in the region, or other multiple channels that navigate visitors to the trail hiking, of which journeys are very unlikely to ever bring the same experiences of hiking. 'The trail' section of this thesis presents four composite stories compiled solely from findings generated through the fieldwork in the Jostedalsbreen National Park and delineates multiple enactments of the trails' materialities, which will be analysed in the next chapter (5).

4.3.1   Conversing through the trail

"Ok, so now it's 10:13AM" I noted the preciseness of measuring time while we laid our first foot-prints into the muddy start of the trailhead from Tungestølen. It is two experienced female hikers Tia and Maria that I am hiking with today, and our mission happened to be an overnight backcountry hike to the Austerdalsbreen glacier. They insisted on starting the hike early, as they do not know the area well, and did not manage to find detailed information of the track such as weather, level of difficulty etc. in advance, which makes them slightly hesitant. Although I am very well familiar with the area, I let myself be invited to this hiking adventure without being involved in planning. I learn that through likable images of picturesque landscapes belonging to the Austerdalsbreen track, which Tia and Maria found online, they decided to further investigate on how to actually get there. Finally, we arrived at the furthest possible parking lot, right before a bridge that enables visitors to cross to the other side of the glacier-fed river that separates the Austerdal valley. The track later follows the west bank of the river, so it is easy to navigate. However, to find this information, one must closely pass the campground's toilet building circa 300 metres before the parking lot, to which we arrived (Figure 5, p.40). An information board carrying description of the area can be found there. The first visible signs pointed to the direction of Austerdalsbreen and from the beginning it is rather easy to follow the correct direction.

Tia and Maria are very good friends, who previously hiked together in Nepal and Spain and separately one of them in valleys of Chilean Patagonia, Iceland and South-Tirolean Alps, while the other primarily

goes hiking in Austrian Alps. They are very talkative, while remaining technical in the sense of selecting their pathways. The dependence on any material guidance varies in its technicality. Maria carefully selects her path based on easy access and overcoming of obstacles, takes time to observe the surroundings to comfortably cross, while Tia seeks guidance in markings, and infrastructural elements.

Their focus on conversation and natural features of the park, while hiking an obvious trail, let the national park "entrance" sign without any notice. But hiking the obvious trail not only gave them the space for deep conversations, but often even mislead them from the officially marked trail. They do not question the absence of other hikers, which are to be seen in the distance, but they end up questioning the trail itself as it rather deviates from the trajectory leading to the obvious trail in distance ahead of us. Through conversations, following cairns put in place, perhaps by unofficial means, therefore gained more attention than the red spots demarcating the official trail.

"We've been hiking for an hour and a half, so that's about a half-way through."

As realising the official trail is in the distance, they take notes of time and estimate how long the track is based on the length the track they found online. Through the spatiality of the valley, we decide to aim at a direction taking us still further, while returning to the official trail that we saw in the distance. They struggled preparing themselves better for spatial orientation, as information online seemed rather difficult to access until they found a fragment of a topographic map presented on a Russian outdoor blog. They miss detailed information they are used to from the Alps, which would have further prepared and guided them for the spatial challenges of the trail while on the hike. They did not purchase any map, as the Breheimsenteret visitor centre, which they visited before, did not offer any topographic or detailed maps for neighbouring valleys and regions. They only received a small, illustrative map of the local region around Jostedal, portraying tracks in the valley. However, information on further hiking options in the rest of the JNP was not available, instead they were redirected to other visitor centres, unfortunately inconveniently located for the Tungestølen area.

For the nature of this track, the physical trail became the source of our orientation. The valley is not very densely vegetated and apart from a few raised rocky mounds, and brushes there is not much to obstruct the view on most of the trail, which makes it well visible even in the distance. But also, the physical features of the trail such as trail marks, wooden planks and boardwalks to ford streams and mud are a certain reassurance of the correct direction. While Tia follows it very closely and does not consider deviating from the trail in order to stay on the track, Maria evaluates what options are there to avoid fording mud, yet still remain in the direction of the trail. Nevertheless, the level of preparedness and attention, be it spatial or temporal made this a very safe experience. In spite of the limited online accessibility of information, perhaps their rich previous hiking experiences enabled good time organisation of their physical trail-hiking.

4.3.2 Unplanned trail

Next hiking adventure is planned with a younger couple Fabiana and Jens, who is hitchhiking through Norway. Ever since the seed of the idea of hiking together has been planted, their enthusiasm for adventure hiking has overshadowed any attempt to get familiar with the area. I again returned to the Tungestølen, which they agreed on visiting with me as this has previously been recommended to them as a picturesque adventurous area. I invited them to join as I intended to stay in the area for a few upcoming days.

> *"National parks are usually not so apart from the world, there are tourists coming in and coming out, so that's why we usually don't come to national parks"*

Despite previous conversations about camping and length of the track in relation to the Auster-dalsbreen track, they decided only to meet at noon in Sogndal, which brings us to the track only around two in the afternoon. That would not be an issue if we stayed in the valley overnight as originally planned. However, already upon our meeting I noticed their backpack is rather small and only Jens carries one. I again reminded them that I am staying in the area overnight and not coming back. They visited Nigardsbreen yesterday, and imagine the hike at Austerdalsbreen being very similar, with tourists coming in and coming out. Therefore, they expect an easy access back to Sogndal, where they left their tent and other equipment now useful for the planned overnight hike. I do not intend to leave the valley with them, which they knew when they packed. However, I am worried about them not really having thought of an alternative of how to get back to Sogndal as the valley is relatively remote and we are already coming in the valley late.

They did not plan nor study any information about the hike, which mislead them in their own strategy and judgement of not planning:

> *"Because if you plan a trip it's often that you get a book when in your country or at your hometown you get a book and look up in that book or on the internet, so you really find places where a lot of people of your country have already go and have already been. So, we usually first just go to a country and get in contact with people and let them guide us to the places."*

The failure to accustom themselves with the track and the country's national parks makes them underestimate the location of the valley and access and frequency of other tourists. National parks in Norway are very different to national parks they are accustomed to from Switzerland and Italy, and they believe that they will be able to find themselves a carpool through hitch-hiking once they return to the trailhead at the parking lot where we arrived. We set off for the hike around two in the afternoon, which considering the length of the hike of eight kilometres, is at least two to three hours of hiking time. However, they do not take a note of time of when we start. Neither they seem to take the duration of the hike into consideration nor do they seek any trail information not even at the trailhead. At the trailhead I pointed out that there are only two cars at the parking lot and that most likely those are the only two cars in the valley at the moment, which would be their potential carpool back to the closest village. About an hour and a half through the trail we meet eight people from the cars parked at the parking lot, which makes up two full cars. Fabiana and Jens do not even seem to

question how they will get back to Sogndal despite me clearly emphasising that I want to stay in the valley. They simply kept on hiking not concerned of their plans for later on once we return.

They are used to hiking in Swiss and Italian Alps, where emergency cabins for staying overnight are relatively common. Therefore, hiking with camping equipment is not something they are accustomed to. However, no similar cabins can be found in the Tungestølen valley, which makes me more concerned about their plans for overnight stay more than themselves. They rely on being able to find themselves a carpool that will take them back to the place where they are staying in Sogndal. They are convinced of themselves as successful hitchhikers and already many times emphasised that they always got picked up really quick – in twenty minutes the most.

While we are hiking, they do not take a single visible note of time, nor enquire about time despite their unsure evening transportation. We return from the hike around 7:30 in the evening. As we are approaching the parking lot, about fifteen minutes to finish the hike we see a car in the distance leaving the valley. But once we get back to the trailhead, we spot no more cars. This does not make me feel responsible for having to bring them back to Sogndal, as I mentioned multiple times that I intend to stay in the Valley, however, I felt that they really did underestimate the remoteness of some places in Norwegian national parks and the fact that the climate is not suitable to stay outside without a proper way of securing themselves warm. Eventually they realise that returning by walk or carpool is not an option and enquire about possibility to at least drop them off in the nearest village, which I do.

They did not plan, they did not read anything about national parks in Norway and enacted the trail as if they were hiking in their home region, where emergency options are available. Without preparation or things to save them overnight, they would have a difficult time and potentially face the risk of having to be rescued. They underestimated the trail, the space and time, climate, planning, infrastructure and traffic, nonetheless this is also a way of enacting a trail.

4.3.3   The (un)guided trail

It's a rainy August noon at the Breheimsenteret in Jostedal and a VW Transporter with German license plate, with heavily condensed windows is arriving at the parking lot. The van driven by Paul is full of people – his good friend Lorenz and their other friends, although as I later learn, normally there are only five of them travelling on a two weeks road-trip through the Norwegian mountains. However today, through Facebook, they stumbled upon a common friend visiting the same area with his girlfriend, so they invited them along to join their trip to the Nigardsbreen glacier. They arrive at the Breheimsenteret in Jostedal, where they start their trip by visiting the visitor centre to have their lunch. They are all dressed up leaving an impression of a well hiked outdoor individuals, so one may think they are in the area to ascend the Jostedal glacier itself.

On their way out, all of them leave with no further exploration of the visitor centre except Paul, who then talks to the visitor centre worker to inform himself about the hiking opportunities in the valley:

"I specifically emphasised that [we are] not trained to walk on a glacier, and that [we] want to avoid hiking on glaciers. She responded that a lot of people do that and that it is safe, without any further info. If I had left at that point, I would have left with the information that it is safe to walk on a glacier. I stayed and learnt that they provide all the equipment and that it is really safe to go hiking on the glacier. Puzzled, I again emphasised that I'm not trained and that I don't feel safe [hiking on a glacier]. And [I] asked if she maybe means as a part of the tour? She responded that yes, it is a guided tour, otherwise it is not safe."

They certainly do not seem interested in a glacier walking tour as the rest of the group waiting around their van was already preparing themselves for the hike. It is conveniently parked next to an information board, to which many of them keep returning and observing the plethora of hiking options displayed. Through Google Maps, and as confirmed by the visitor centre worker, Nigardsbreen seemed like the most reasonable trip to take, since they are already in the area and do not spend more days in the valley. Unlike many other foreign license plated cars on the parking lot, their car remains parked here as they decided not to drive but walk from the visitor centre towards the glacier.

In spite of the well mapped trail, the rainy weather does not allow them to fully follow the trail. The marking of the trail seems rather poor, which in combination with rainy weather creating multiple streams cutting the walkable trails causes them to walk majority of the trail on a paved road until they arrive to the next paid parking lot, to which they could have driven. As the group further proceed on the trail, without any notice they pass a 'danger' information sign. This sign is explicitly warning visitors about dangers on the trail posed primarily by the glacier and it reminds the visitors to stay within the safe areas. At the moment there are visibly too many tourists in the area for the group to worry about safety and to stop and read a warning information sign. As the group further proceeds to hike, the paths of the group members differ and often, even unintentionally, be it because of the weather or the scattered trail marks, they cross the demarcated boundaries of 'safety'. They do not walk in single file but rather scattered, chatting and taking pictures, each of them finding her / his unique hiking possibilities leading up to the glacier. Their destination is visible, so it is a matter of preference and occasion to select their path. The only moderators of their walk become the orange trail marks, either 'T' marks or dots, which rather serve as a guidance for directional orientation. The closer to the final climb to the glacier, the better the group becomes in navigating on the trail through 'a goal' like trail marks – small cairns placed on both edges of the trail clearly delineating the direction - and security ropes and strips with clear signage of danger, more in the vicinity of the glacier.

These security ropes and strips are designed to protect visitors from slipping under the calving glacier, restricting access to certain areas of the trail. In the late summer season, especially sunny days in the late afternoon cause the glacier to melt and 'work faster' (Knagenhjelm & Rudsegen, 2018), which causes a number of injuries, especially, in the Nigardsbreen area. While the group arrives to the final viewpoint of the glacier, there are families with children sitting around the ropes, respecting the signs. So is the number of other visitors taking pictures of the glacier and themselves from safely designated areas. At this moment, there are no visitors that cross the clearly demarcated boundaries. However, in next ten minutes, right after the families leave and new curious visitors arrive, it triggers a wave of misbehaving visitors. Lorenz decides to climb over the fence, and trigger a domino effect of other curious visitors, while the rest of the group remains obeying the signage. Once I point out

that it is dangerous to climb over the fence, I encounter reassurance from Paul and the remaining members of the group that obey: "he is a geography teacher", aiming to justify Lorenz's careful steps behind the ropes. He himself provides an exhaustive description of his mission; the geographical terrain, direction of the river flow, steepness of the adjacent rocks and how he was sure about the safety of his steps and position. While he may or may not be of education qualifying him to cross the boundaries, other spectators of different backgrounds and levels of geography expertise, cannot resist the same temptation to obtain the same picture from the unbearably tempting danger zone. While I hesitate at the border of the rope, other unknown visitor of an older age points out at my hiking shoes, encouraging me: *"Your shoes ok, it's ok",* gesticulating to grant me permission to proceed further and meaning I am well prepared for crossing the line. No member of the group has heard of the number of tragic incidents that happened at that exact location when a glacier buried or pushed visitors that got too close to the glacier [2014 and 2018 respectively; (The Local.no, 2018)].

The group has previously hiked in the park at a Kattanakken trail, which is accessible from the northern part of the park. It is a rather strenuous track, where they did not meet many other visitors, compared to the Nigardsbreen trail. They spotted the same signs warning them about crossing the safe boundaries at that location, where few of them also decided to proceed further, however, returned shortly afterwards considering their misbehaviour dangerous. Lorenz, however, did not see the same danger at the Nigardsbreen, as he even brings icy fragments of the glacier to the rest of the group passing it amongst other members of the group for a round of degustation. At this stage I am leaving the group as they decide to return. Another 15 minutes pass, curious misbehaving tourists are then on their ways back to the parking lots, replaced by another wave of well-behaved visitors, who respect the signs and do not attempt to cross the boundaries of the trail.

4.3.4   The bushman's trail

Only here at the parking lot, where the infamous Skåla track begins, right before we set foot to the trail, I am getting a feeling that this is going to be a very different hiking experience. I am hiking with a Dutch tourist Wouter, who is well equipped for backcountry hiking and very knowledgeable of nature. He himself worked in Zambia as a bush camp manager and ever since he was a child, he claims that him and nature were inseparable. He seems very fit, which makes me doubt whether our pace is going to be comparable.

He is a man of gadgets. His watch is telling him how many steps he has already covered, his GPS tracks where he lays his steps and the elevation he covers. His outdoor equipment is also very technical and for each situation he finds a tool to utilise. Before we even get a chance to visit the information board at the parking lot he already knew what route we are taking and approximately how long will this take us.

As we proceed with the trail, I learn a lot about his previous experiences from bush tours in Africa, and especially about his interest in tracking wild animals. And it is very often that he spots signals and signs that would be barely noticeable to another visitor. He inspects animal faeces laid on the

trail and is not hesitant to leave the trail to follow further traces of a wild animal. After all, his steps can be easily traced back using his GPS, so the chances he gets completely lost are very slim. As he leaves the trail, he carefully snaps a tall grass straw and in a smooth, steady movement of his wrist sets the broken part to the direction he follows. That's a habit, he explains, as this is done on bushman tours in Africa to indicate where one went. It is a tool for orientation from times before GPS systems were known.

Figure 4 Trail Partition

Stone barriers blending in the landscape on the left; Barely visible new trail's intersections with the old trail on the right.

Wouter constantly examines the geography of the terrain surrounding us. He recollects his close encounter with Wild Musk Oxen in Dovrefjell-Sunndalsfjella National Park also in Norway, when he circled the herd of Musk Oxen leaving the trail to get the best picture. By using the terrain to his advantage and hiding on a raised rocky surface, he got as close as forty metres, which is not advisable for visitors as these animals are of great power and could be dangerous in a close human encounter. Despite his adventurous escapades of tracing animals, and as he often hikes in national parks alone, he follows the official trails, or is at least always aware of the location of the trail in the distance and tries to navigate back to it at a soonest possible occasion as *"…using the trail is the security walk because you know…you need to know…if you can walk up and down or part because you're already out of your comfort zone...even if you're used to like hiking."* He notices how trails here at Skåla are being maintained and refurbished over time and very easy to follow. Stone barriers that already blend in with the geography of a current trail are easily revealed by his eyes, and he is immediately able to trace the plethora of old trails now more visibly interfering with the newest trail (Figure 4, p.34). As we ascend, he polemises that this is to protect the nature and landscapes surrounding the trail, which is a few hundred meters up the trail confirmed by a signpost. He no longer intentionally leaves the trail.

As much as Wouter believes in his bushman experience, he pays close attention to the signage within the park. In spite of his technical preparations, he thoroughly examined the information board at the trailhead and as we proceed past the national park signage, he proudly points out that we are now entering the national park. Throughout the hike I also notice he collects garbage along the trail, explaining that he does as the park pleases:

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"…I think it [is] really nice that you get information boards at the beginning that give you more detailed information about the whole national park […]. It's a nice thing that they really focus here in Scandinavia on rubbish that you should take your rubbish with you. And there was a really nice one...I'm actually not sure if it was here, a couple days ago, where they showed you how long it takes for like an apple or banana to decompose. And then you've got like plastic will take like, I don't know how long, and then they've got like you know cans that will take like 250 years."

Amongst collecting trash, repairing the trail, tracing animals and other stories of his bush camp life, he abruptly finds himself recollecting laying steps in Nepalese Himalayas. Without even knowing that trails in Norwegian mountains are in fact maintained by Nepalese Sherpas, he recognises the signature staircase-like trail. The Skåla trail is one of the most renowned hiking tracks re-built on the grounds of historical trails leading across the glacier and is amongst the park management also referred to as *"autobahn"*. These trails are an immense help at rocky segments of the track, where elevation gain abruptly soars. Such comfortable hiking makes even an 'African bushman' forget his life-long interest in tracing animals as he now focuses on speed hiking towards the peak. Perhaps the combination of reminiscence of his Himalayan experience, and his awareness of the national park's institution has altered the relation he historically formed with the trail, which then disabled him to further enact the bushman's trail.

5   ANALYSIS

This chapter is to be read as two main sections, in which one addresses the until now 'invisible' process of trail formation as an object (*5.1*), while the other section addresses how the trail formation influences (*5.2*) individual behaviours of the visitors. It views the previous *Findings* section as evidence, using the perspectives of reviewed theories and further employing them using the *Analytical Toolkit* designed in chapter two - *Theoretical Frame*. The main points to be discussed in the following chapter are then summarised towards the end of the chapter.

The first section of the chapter is further structured in a logical way of explaining the ways a trail forms (section 5.1.1) and comes into being; how it is activated, used, but also re-negotiated through various narratives and different modes of ordering. Furthermore, it elaborates on how the trail is ordered (*5.1.2*) and co-shaped by various factors such as cultural and professional backgrounds, but also by previous hiking experience. All these factors, or modes of order further co-shape the way each trail is ordered and enacted, and thus multiply the trail and its realities. This process is further analysed in the section *5.1.3.*

In the second part the agency of the trail is put under scrutiny by viewing it as a disciplining mode of ordering. It draws upon the trail as an object multiple uncovered in the first section and presents evidence against the trail being the disciplining agent.

5.1   Enacting the Trail

Throughout this section the formation of a trail in JNP as an object will be analysed; it will zoom in onto the formation 'process' through the trail's materiality (Forming the Trail - 5.1.1), the ways in which the trail and its materiality can be enacted (Modes of Ordering the Trail - 5.1.2) and how these enactments further 'multiply' the trail as an object (The Multiplied Trail 5.1.3).

5.1.1   Forming the Trail

As outlined above, this sub-section addresses the formation of a trail as an object. It analyses and explains the process of how a trail becomes activated for the visitors of the JNP through using various objects. Further it examines the use of the trail and how the trail's materiality is re-negotiated and co-shaped by other constantly emerging actors. It will also show that encountering local actors, the Jostedalsbreen National Park itself and the history of the area further co-shapes the way a trail formation process and its subsequent enactments happen.

Activating the Trail

It may be that the JNP visitors begin enacting the trail by turning the right page in a Lonely planet guide book, finding a breath-taking image on the internet, massive white spot on a map, through

local narratives, or simply by driving through the area. Visitors constantly negotiate the material network of the trail and are enacting the trail even in its material absence for instance through the material network of a trail. This section will present how the trail becomes real for various visitors and how it shapes the way the visitors enact the trail in its material absence and later presence for instance through guide books, imagery, variety of maps and cartographical representations.

Guide books, as viewed by several interviewees, are media that spark the idea of visiting the JNP to come and hike to the biggest glacier in continental Europe. Although the Lonely Planet guidebook does not provide specific hiking options, it states that there are numerous hiking and glacier walking options in the park accessible through the local tourist offices. Although the materiality of the trail is absent, a certain version of a trail, which will enable the visitors to go view the glacier, becomes enacted. It is rather taken for granted by the interviewed participants that a trail exists, even though its materiality is not yet defined. It becomes apparent that a trail comes into being even through a rather ambiguous description, as the Lonely Planet guidebook presents that there are numerous hiking options found in the JNP. The search for suitable areas to hike, is therefore, guided by tourist office locations or further based on other factors such as the general direction of the visitors' travel, the means of travel, the time available for their visit as JNP was considered as one of the many destinations in Scandinavia on my participants' journeys, and to an extent also internet access.

The trail also forms and becomes real through viewing of images found in guide books, or digitally through social media, the internet or via other virtual maps. The participants enact the trail through the image in a certain manner by viewing images for instance portraying a picturesque landmark or destination and further activate the network of the trail to reach these presented landmarks or destinations as shown for instance by Maria and Tia (in 4.3.1). It not only forms the trail as an object in its material absence, it also projects on the ways how a certain version of a trail will be enacted, and in some cases it may also constraint the visitor in the selection of an adequate hiking trail to follow once actually using a trail. Viewing such images and enacting presented materiality, though in absence, lead the participants to specific material locations in the park. On such image induced quest, a map is then becoming an important medium that guides some of the participants in their journeys.

A map, medium differing in forms, types, detail and covered area resonated as the focus for establishing suitable options for hiking in the JNP. It further co-shapes the trail as an object by revealing or even disclosing certain information that co-constitute the way the trails are enacted. The trails are (re-)presented in multiple of ways on maps, from a dotted to a solid line, or in some cases even not at all. This may signalise marked or unmarked trails, or trails that are no longer mapped, yet come into being through local knowledge without using a map. The trails are thus enabled and disabled respectively through viewing of a map yet made real by other factors enacting them so. However, real in a certain manner preparing the visitor further on how to negotiate its materiality while using the trail in its presence. Furthermore, some of the trails were disabled through a map that some of my participants received in a visitor centre, accommodation or tourist information points. These illustrative maps portrayed regions well familiar to those presenting the map, thus perhaps unintentionally disabling trails in the rest of the national park as can be seen on Figure 3 (p.25). These local

maps further require a good explanation or use of other media as they are, according to several of my interviewees, rather frustrating to navigate with. The maps provide rough illustrations, through which a visitor knows the trail is out there – that it exists – but yet not clearly aligned with the materiality of the trail.

To fix this issue, participating visitors, who received these illustrative maps, therefore, corrected and guided themselves using digital alternatives to accompany their search and pursuit of the trail's materiality such as; Google Maps, Maps.me, Mapy.cz, or own global positioning system (GPS) devices with uploaded maps. The trail can, therefore, re-appear through the virtual space more or less clearly portraying the geographical position of the trail and to an extent defining the materiality of the trail. The visitor then receives an idea of how the trail looks like, thus enacting the trail in a slightly reconfigured manner. The trail is co-shaped by the acquired information even though the materiality is yet to be explored. Similarly, some participants described situations when they get lost from the official trail thus the trail's materiality became absent. However, the visitor's trail, as it materialises (e.g. through GPS tracking devices) or has materialised (through Maps.me, Mapy.cz or others) in the digital locations, hence, absent from the actual material trail, helps them retrieve the original geographical location of the trail's materiality by aligning the digital trail to the actual trail's geographical locations. Therefore, the trail exists in multiple locations beyond the material path. It already exists as a network of paths that each carry a slightly different information and together constitute a trail.

Each medium then carries a certain information about the trail, however, interviewees recognise ambiguities in these trail representations. Topography and elevation gain of a trail are factors that activate representations of the materiality of the trail in a certain manner yet still in absence of the material matter. It shows through advanced media such as GPS systems or detailed topographic maps, and of course, through the ability to read them. Throughout my fieldwork, the use of GPS devices separate from mobile phones was rather scarce. Mobile phone map apps used by the participants, however, seldom combine topographic features with GPS, or the pathway representations of the trail are not available. Additionally, a detailed print topographic map was used only by one participant. The participant, one who is well familiar with the area, has claimed that at one occasion he hiked on a trail that was not marked in the map. The remaining participants found the topographic map expensive or deemed it not necessary due to their short stay visit to the park. As a result, several participants claimed to have underestimated the elevation gain of trails in JNP, and in some cases the estimated elevation gain on an illustrative map (no contours) was confused for length of the trail. Consequently, the ability to read map information differs amongst participants, and thus the trails as objects vary in its material absence.

The illustrative maps are distributed through accommodation providers, tourist information points, or visitor centres locally. Therefore, a visitor coming to for instance the area of Fjærland, will not be able to obtain a local illustrative map portraying the area of Jostedal and vice versa. Furthermore, people working at the tourist information points and visitor centres often worked as mountain guides in the region at some point. Hence, they feel comfortable making decisions about what trails to recommend for hiking to whom, but mainly in the location where they operate.

Seasonal workers, especially in the visitor centres, then recommend the same options that are similarly restricted to their knowledge of the area, in which thy work. Additionally, economic aspects of the region play a role in which hiking options are recommended. The role of the visitor centres is partially linked to strengthening the regions economically through maintain visitor traffic within the regions. This is an important factor for the recreational trail's enactments by visitors, as the network of the trail can, therefore, enable hiking locally, but disable hiking outside of the given region(s).

There is a topographic map available through a brochure freely available in the visitor centres. This map is not very detailed and for my interviewees became a second map presented to them after the illustrative map, or it was found at the information stalls around the visitor centre's front desk. It portrays various trails around the national park, however, in a small resolution, where additional guidance for hiking is necessary. Some participants then negotiate guidance through narratives and other means of planning or further seek material extensions of the trail as cues guiding them further.

Some of these cues, however, may become disabled to the visitors on the pursue of the trail's location. For instance, a visitor centre in Fjærland (seen in Figure 3, p.25), known and presented on signs as the Bremuseet – the Glacier museum, treasures invaluable, though local, information for the hiking visitors. Some of my participants, however, decided to avoid the visitation to the museum failing to recognise its visitor centre function. Some referred to crowded parking lots full of buses, others pointed out the plastic mammoths also visible from the road. In either case, regarded as not worth visiting when wanting to go hiking. Furthermore, it was not clear to the participants (neither to me before my first visit) that the Bremuseet also serves as a visitor centre, thus in certain relations it may cease to live up to its potential of becoming a solid material piece in an evolving network of a trail for a visitor.

Using the Trail

Once a visitor arrives to the 'actual' trail, he / she may encounter various actors that co-shape the materiality and the enactments of the trail. Although the visitor may be arriving at the trail that has been until now enacted in a certain manner, how the trail re-appears in presence may trigger another process of re-negotiating how the visitor navigates through the trail's materiality. This section aims to analyse these actor negotiations in material presence of the trail and indicate how they may further re-configure the modes of ordering, in which visitors navigate through the network of the trail, and through which the trail becomes real. This section unfolds the encounters with materiality taken more or less chronologically as it unravels on a visitor's hiking journey.

Signs and information boards may provide a guideline on how to use a trail, and important elements, not only material, to pay attention to while hiking. All these elements may then further reconfigure the way the materiality of the trail is enacted. Participants in general look at signs and information

boards if explicitly present, however, not every information board is fully updated, which sometimes created uncertainties amongst the participants. An information board that presents the trails' specifications then may alter the way participants enact it. For instance, visitors may become reassured of the correct direction, the trail's length and perhaps duration, the trails geography, weather conditions and so forth. Their trip becomes better relatable to the materiality of the trail and objects they encounter. It may further help participants that are not prepared for hiking the trail to make a rational decision about feasibility of the trip. The lack of up to date information, or in some cases, any information at all resonated amongst the participants visiting trails such as both trails in Tungestølen valley and Flatbrehytta. In the case of Tungestølen, one does not encounter the information board unless visiting a toilet a few hundred meters away from the trailhead's parking lot Figure 5 (p. 40). The Flatbrehytta trail is, according to the participants, difficult to find in the first place, and once found the information presented at the trailhead only describes a glacier lake outburst event that happened in 2004 rather than the trail specifications.

Figure 5 Tungestølen – Austerdalsbreen Trailhead parking lot.

As a result, visitors who start the trails with different intentions may encounter unexpected challenges. The case of the Fabiana and Jens (4.3.2) is a good example, when visitors came unprepared to the trailhead, and although they navigated rather freely, their initial steps lead them towards a directive sign pointing to the direction of the trail. They remarked that it does not say much, although the direction became clear. At this stage, perhaps an exhaustive trail specification and an information board could have revealed the nature of the trail. Few participants driving towards the Flatbrehytta trailhead oftentimes ended up at the Supphellebreen parking lot as they missed the unmarked parking, which they often discovered on their way back from the opposite direction. Moreover, once at the parking lot, visitors frequently talked to each other regarding the trail and in the late afternoon

hours to the hikers returning from the hike. These visitor interactions then further co-shape the materiality of the trail yet still in its material absence, and in a different manner than one would have expected. What is described as 'a beautifully relaxing' trail hike to stretch oneself after a long day drive by a fit American couple, is proves not so relaxing for a Spanish couple wearing jeans, who only wants to wander around and see the glacier.

Additionally, the agenda of the park, as communicated through the trail's materiality, is sparking further visitor-material negotiations. The trails' materiality is maintained to enable visitors to visit certain places in the park, but at the same time disable visitors from entering vulnerable areas as seen on Figure 4 (p.34). *The bushman's trail* (4.3.4) demonstrates how signs arranged to keep visitors out of certain areas transform the enactments of the trail's materiality into an obedient act. A visitor that initially roamed off the trail to trace wild animals, using unordinary techniques and employing various devices to orient himself suddenly remained bound to the trail that protects vulnerable ecosystems. Similarly, the materiality of the comfortably arranged stone steps and informative signs might then work as a distraction from enactments of materialities of the trails visited in the past, and at the same time serve to enable comfortable passage towards the designed destinations such as the huts at the top of the Skåla track in *The bushman's trail* story (4.3.4).

But Wouter also uses the materiality of the trail to enact it in ways of orienting himself. Maps.me provides good grounds for current orientation, although no topographic features such as elevation contours are present, while his GPS tracking device can precisely retrace steps and elevation gain(s) forming yet another form of the – *digital recreational* – trail.

> *"A GPS track[s] the route that I already did, so if something happens you can easily go back on the same track, if you don't stay on the track and just go off the track to a different location to camp or walk or have lunch...[while the dotted line on]...maps.ME gives you, you know...they show the trail, so you can easily see if you stay on the trail if you're in doubt. But I mean it doesn't show you anything else, so it just shows you that you're on the right way [...] Like I said, if I get lost, I always have my tracking in a backpack, so if I get properly lost then I can always find a trail, cause I can just backtrack my own steps. And if I didn't have my GPS, I'd still have...well you don't always have a proper connection, but maps.me should show you your location, so you should know like at least a little bit the direction where the trail might lead to."*

Trail marks also constitute the trail in guiding the visitors to their destinations and perhaps altering the material enactments of each visitor.

> *"... you spot a T in front of you and you walk there. And then you've got another "T" somewhere else and then you know the general direction of where you have to go. So even if the path itself or the trail itself is not clear in the distance you know [see] where you have to go. So that's a really nice way of orienting like that's generally speaking where the trail goes and then you could Zig-Zag a little bit..."*

However, as learnt form the foreign participants, the trail marks were not always easy to follow, thus slowing them down in choosing the right direction, or even eventually following an unofficial trail. For instance, the Flatbrehytta track at a certain point splits into two strains as seen on Figure 3 (p.25). Visitor centre information, tourist information point and campground operator all advice people to

follow the right strain at the fork. However, there is an old trail mark pointing to the opposite direction, which made the foreign participants follow the mark. What resonated amongst them was that there were not that many visible trail marks and this one pointed them into the other-than-suggested direction, thus made them hesitant about the correct direction to go to. Tungestølen, where a trail leads to the Austerdalsbreen also hosts a certain ambiguity in terms of the trail marks. Participants can easily navigate from the beginning of the track as the path is rather obvious, however, as they progress, with limited information about the track, they might be missing the official path or are from time to time presented with ambiguous marks such as seen in Figure 6 (p.42).
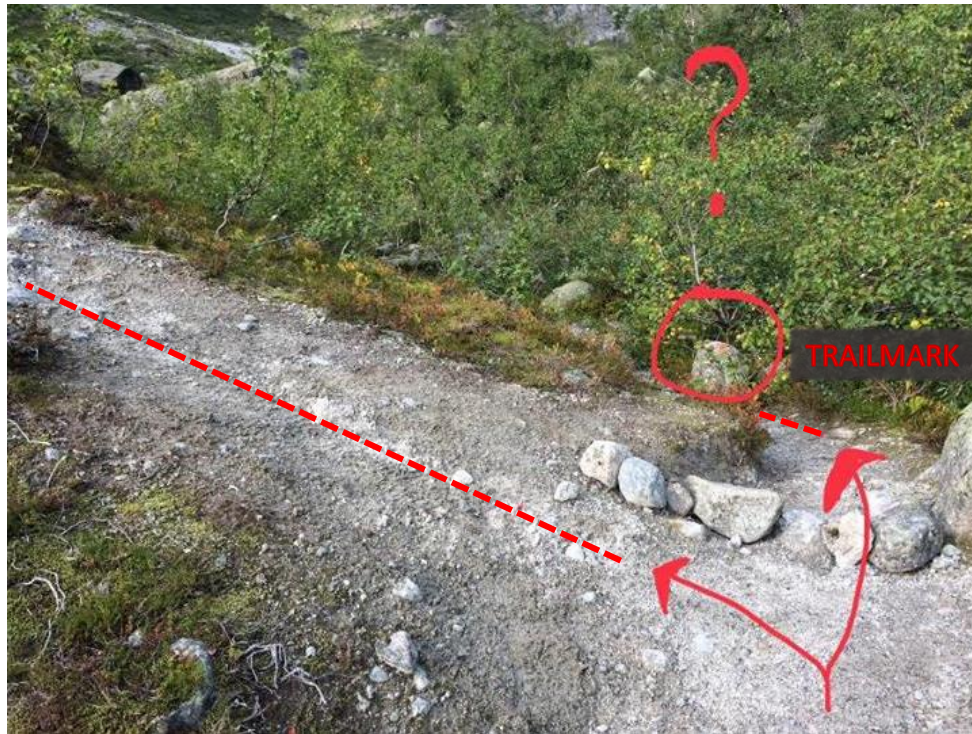
Figure 6 Austerdalsbreen's (Tungestølen) ambiguous trail-mark division

Trail-marks constitute the trail; however, for each person they might unfold in a slightly different manner. For some they are demarcating the boundaries of the trail as seen on some members of the group in *The (un)guided trail* as they followed the trail up to the glacier. Yet for others it sparks a feeling of unchartered territories as seen on Lorenz in the same story, where he as a geography teacher negotiated the demarcated safety boundaries of the trail. Additionally, one participant describes how he will always see the trail-marks as life-saviours as he through his previous experience realised that seeing a trail-mark can evoke an impression of safety, especially during bad weather. Another participant confirms that walking on a marked trail would feel safe, as he recognises it as walkable for hikers. However, what constitutes a well-marked trail for a local tourism worker, shows is not so well regarded as well marked for a German visitor. For instance, Flatbrehytta, a trail introduced as a well-marked trail by the local tourism worker, materialised as poorly marked trail to a German visitor:

> *"the guy at the Bøyabreen told me it's clearly marked, and we didn't really get lost, because it was very clear where the path goes, but there was like one dot, it wasn't marked at all, so I*

> *followed a trail, not marks […] but also what I was missing at this hike was a map at the begin-*
> *ning. At the parking lot, you know, there should be a map or some information about the path*
> *and that was missing here. You know, just roughly the path and maybe even an altitude profile*
> *other than just, you know, a guy in a cafeteria telling me it's a 1000 meters altitude and 3 hours*
> *hike..."*

Other 'features' of the trail's materiality may be expected to be present by the visitors, as perhaps based on their previous trail enactments in absence of the JNP trails' materiality. For instance, Fabiana and Jens in the *Unplanned trail* story depended on the emergency cabins, claiming they always found a solution for sleeping overnight if needed, for instance in an Alpine cabin. However, through the ordering formed in the past, which they enacted while hiking trails in the Italian Alps and from the trail at Nigardsbreen, where getting an emergency accommodation or a carpool to travel to one would be rather easy, enacting the trail at Austerdalsbreen in *presence* presented certain challenges. The objects such as the emergency cabin or a carpool did not materialise within the new hiking destination, yet they enacted the trail's materiality within unnegotiated modes of ordering from the past, which was now *absent*.

The past, the park and the local actors

Throughout the time, the materiality of the trail has been co-shaped by various events (i.e. Figure 7, p.44) and through its relations in constantly changing networks, it then materialises in different forms. For a visitor it may be a notion that

> *"someone has probably thought about the trail, so it might be the easiest path to get from*
> *where I am to where I want to go and that's where I'll end up - at something that's worth the*
> *hike."*

And indeed, for instance throughout the past, the trails were enacted as passages to neighbouring valleys, they were the shortest ways before e.g. the boat transportation became frequented or before tunnels and roads connecting the regions were constructed. The trails began (re-)shaping materially – local inhabitants connected valleys via the easiest passes, or even through paths embarking the nowadays melting glacier to travel across it. There is, therefore, a heritage left behind, enacted by books, musea, information boards, local narratives or even maps.

The local inhabitants, who remember, talk about the trails' past and the significance of the trails for them. But not every visitor gets the opportunity to get acquainted with these stories of local families, who still hold names of the area they come from. Therefore, the stories are also to be encountered in written forms on sign posts present mostly in local villages and musea serving as visitor centres. These stories are important cultural heritage that tell the past of a nowadays recreational trail and explain how objects such as the path itself, wires and stone steps were there present before the trail was ordered through other actors as recreational. The trail also served to farmers, who kept their grazing livestock in the areas, which formed the landscapes that were ordered as cultural heritage belonging to the national park. Therefore, the landscapes still need to be grazed, so that the nowadays so unique materiality of the trails as seen by the eyes of the JNP visitors, is preserved.
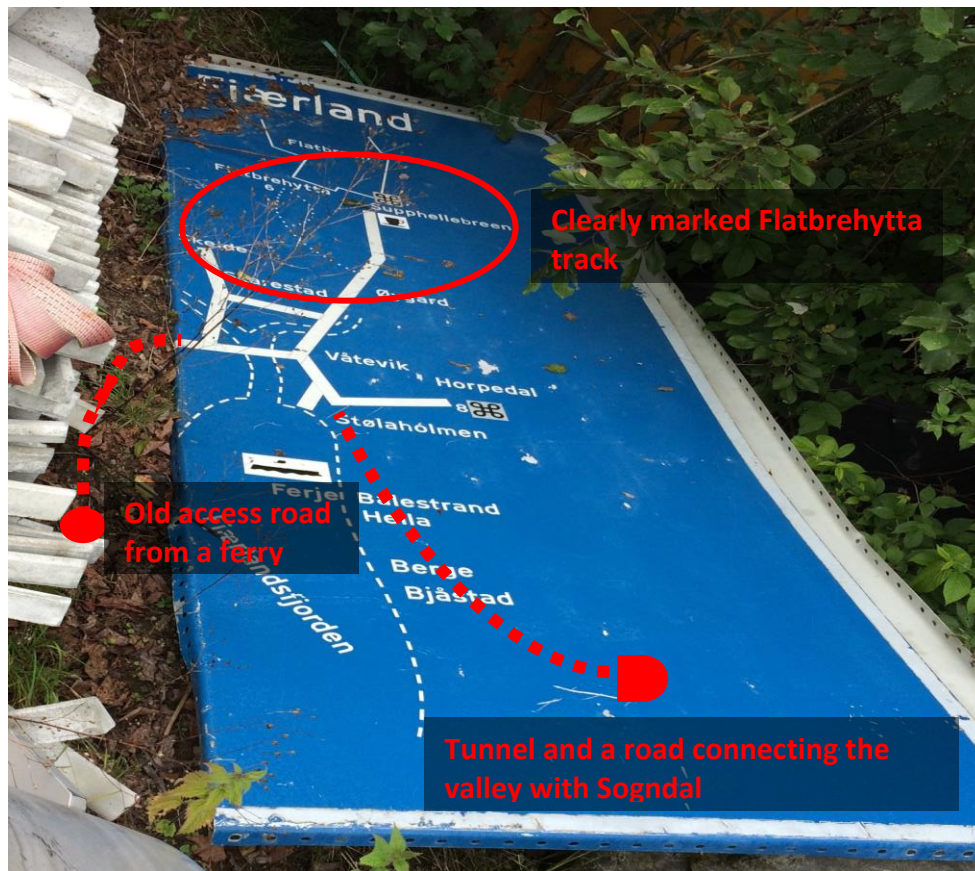
Figure 7 An event co-shaping the material network of a trail.

Image of half of an old sign representing the area of Fjærland and network of actors of hiking trail to Flatbrehytta. This sign was replaced / removed after tunnel connecting the area to other regions have been opened in 1980s.

Although the trails occupy the same geographical spaces, in different times they had different functions. The materiality of the trails is nowadays being maintained alive mainly to enable pleasant and safe hiking experiences, protect vulnerable areas of the park, and to preserve the cultural heritage and stories linked to it, while enhancing the national park experiences. Thus, no new trails are being constructed, and if anything is changing, then it is the trail's materialities that are negotiated by various modes of ordering imposed on or imposed by the visitors (Figure 8, p.45). For instance, as visitors appreciate better and easier infrastructure, Nepalese Sherpas, known for building sturdy trails in Himalayas, are re-furbishing the stone steps left behind by the past local users in Norway. The materiality of the trail then may be enacted as Norwegian cultural heritage, or even as a Himalayan Sherpa track depending on who uses the trail as further analysed in the next section.

Similarly, the materiality of a trail is shaped by visitors acting in various ways. For instance, when occasions of an accident happen, new safety measures limiting access to visitors warning about dangers are taken. These materialise for instance through a form of a sign or later also through using a fence (Figure 8, p.45) and further co-shape the way new visitors enact the trails.

Based on various events, history or the effort to preserve cultural and natural heritage, the materiality of the park evolves accordingly exactly in that triggered mode of ordering. However, the materiality itself is set or perhaps expected to further communicate this mode of ordering on the visitors coming to the JNP. Be it through viewing of websites, reading a guidebook, navigating through a map, through certain trail materialities such as signs, trail-marks, information boards or just by talking to the local residents or tourism officials. The next section will further look at the possible modes of ordering that the visitors may co-form by these and their previous interactions.

Consequently, as might have become apparent through this section, each visitor navigates through the trail from the moment of activation to the actual use in a different manner. The next section will thus look on what makes visitors navigate the trails in such manner by focusing on modes of ordering co-formed within the visitors' profiles.

Figure 8 Materiality of the trail responding to visitors acting dangerously

(Modes of Ordering imposed by visitors) and warning about danger (Modes of Ordering imposed on Visitors)

5.1.2   Modes of Ordering the Trail

This sub-section will look at modes of ordering as 'the unwritten and unspoken' ways of enacting the trail as an object – the manner, through which a trail forms real. Throughout the fieldwork, there were various events and actors that stood out as worthy of attention and that seemingly contribute more to the ways the trail as an object unfolds. However, the modes of ordering are not stable, thus subject to change as new actors emerge that might further re-define the modes of ordering, under

which the trail already exists. Therefore, there does not exist a single categorical mode of ordering, through which the way a trail is enacted could be analysed. This section will further outline how is that the case.

As previously explained, the way the materiality of a trail unravels for each visitor, their means of navigating are being constantly negotiated by various actors and (de-)stabilising networks of relations. All visitors by definition do not encounter the same objects on their pursuit of the trail. Therefore, as the object forms within their modes of ordering, the materiality of the trail will consequently unfold in similar manner, thus the trail will also be used in similar way. In other words, a visitor who arrives at the trailhead prepared, perhaps by using a guidebook or a map, will see the trail differently than a visitor, who underestimated the preparation. As a result, the information board is interpreted differently, co-shaping their unique enactments of the trail. But there are other factors that play a role in the modes of ordering in terms of formation and use of the trail. For instance, a German couple returning to the trail a year later with their children will view an information board about the glacier lake outburst in a different, more accepting way than a visitor, whose formation of the trail was reduced to maps, signs and instructions received through a visitor centre. Hence, the modes of ordering, the way, in which the trail comes to being will further differ across visitors' different activation and utility of the trail. This might be due to their background, education, experience and interactions with other normative actors such as the national park itself. Therefore, further analysis of these co-shaped modes of ordering observed through the participants follows.

Visitor's Cultural Background

Visitors to JNP come from various cultural and professional environments. Some of the participants were students, some teachers, some young professionals on their sabbatical or some even families on their summer holidays to Norway. As varied as their backgrounds are, so are their motivations for the visit, and 'things' they used or are using during their trips to navigate to the hiking trails. Some arrived to the park by using for instance maps as their curiosity brought them to the big white spot on the map representing the Jostedal glacier. Some arrived because it was on the way to Bergen, from where they continued on a ferry. Therefore, already to these journeys, many actors co-shaped the way they will once enact the trail in JNP, and furthermore, how they will end up using the trail.

A visitor, who arrives to the park by a car and seeks accommodation in a campground or a cabin will therefore encounter and negotiate different actors on the way to the trail. To some, even campgrounds are not affordable and as a result, they will stay in their car or tent on a suitable location like the German group of friends, quite often also at the trailheads of trails they intend to hike the next day. This further gives them – as they call it – 'an advantage' to the other hikers, who perhaps prefer staying in official accommodation. The direct access of the trail enables them to set off early and hike 'in solitude'. Similarly, the participants from *Conversing through the trail* story, who simultaneously enact the trail as their accommodation for the night they travel through the park as they intend to backcountry camp somewhere at the trail. As they are both students visiting Norway for

holidays, they often seek 'wilder, cheaper and nicer' alternatives to the official accommodation around the park relying on the trail to provide those.

The way Tia and Maria navigate the trail is not questioned at any point in time. They follow the trail-marks, cairns and the obvious footpath. Likewise, all the other participants, who go hiking in the JNP, the trail-marks, cairns and the obvious path are the main guiding elements in terms of direction. The understanding of these objects almost comes by definition for those, who have hiked ever before.

> *"Well I think that is a social constructed history of hiking that if you enjoy hiking that you know what to do and if...you know...if you're out with two people and you know that the second person have no experience with hiking than you're the one...the responsibility is on your shoulders and you're the one who has to make sure you're on the right track and if the other person has experience and you're like in the second position, than you trust the person in front of you to maintain course and direction and keep an eye on what's going on. But that is something that is not set but that is expected when you've got experience in hiking."*

Tourists, although aware of the Norwegian 'intrinsic' right to roam – 'the *Allemannsretten'*, are accustomed to following a trail as a way to navigate through the materiality of the trail. Visitors may be accustomed to following a trail as it is encouraged in many world national parks around the world not to leave the trail, the national park makes them obey the unquestioned notion that paths are made for walking and that the boundaries of access are clearly demarcated by the trail's materiality. For many foreign, especially German and as confirmed by a visitor centre seasonal worker also Polish and eastern European visitors, the trail-marking system is often not very clear to navigate. These visitors, locally in the region of Fjærland, often pointed out that navigating based solely on the trail-marks was difficult and often other material cues such as footpaths, cairns or human footprints replaced the trail-mark as their focus. Additionally, it appears to be a cultural matter of navigating while on a hike according to the visitor centre seasonal worker.

Moreover, following a trail may be culturally coded as working towards a reward. Visitors anticipate that the trails lead there for a reason, which in the case JNP is slightly different through the cultural representations of trail hiking. For instance, participants used to Alpine hiking anticipate arriving at a landmark, viewpoint or other monument, and believe that the trail is the most convenient way to get to the destination. Whereas some trails might only cross valleys or mountain-passes and not necessarily lead to a particular landmark. The old Norwegian trails in JNP, however, often lead towards a glacier due to its historical use to cross from East-West or South North. The fact that these trails only lead to a glacier, however, for participants usually hiking in Alpine regions works as an additional incentive to follow the trail even without realising why a certain trail officially ends at the glacier.

The extent of planning also reveals the cultural backgrounds of the participants. Some participants use as many possible means of activating the trail, to be prepared as best as possible, while some only suffice with knowing that there is a trail or in some cases their planning is also reduced to the assumption that by definition there are hiking trails in national parks. What became resonant amongst several German interviewees and the interviewed tourism workers was that planning a hiking trip and learning about the trail and its materiality in advance is regarded important for German visitors. For instance, Tia and Maria's (see 4.3.1) strong hiking background from all around the globe

and exactly this cultural sense of planning are both a good example. They enquired about hiking options in Tungestølen already in Jostedal – a relatively distant region – they also extensively studied various websites before they even set foot to the park, which even brought them to retrieving a topographic map of the trail from a Russian blog without knowledge of the language. Other German participants also often referred to lack of resources or difficult accessibility of resources to learn more about the hiking opportunities in the park, which often resulted in active seeking of tourism office or consulting their accommodation provider for help. Similarly, Fabiana and Jens (see 4.3.2) arrive to the park without planning and solely reliant on the local knowledge. However, as explained above, the cultural backgrounds of the local tourism officials were then partially involved as a mode of ordering to enacting the trails as the visitors learnt mostly about the local hiking options. Furthermore, through the couple's personal stories and background, one understands that on the one hand they rely on the local knowledge, to avoid crowds of visitors on popular places when travelling, while on the other hand, they enact the trail as the trails from their usual hiking environment by assuming material similarities in terms of facilities and accessibility.

Education & Professional Background

Some participants' professional backgrounds and education further co-shape the ways they enact the trail in ways of negotiating the trail's materiality, such as the trail's boundaries, cleanliness or even minor trail corrections. This section will provide evidence on how such negotiations happen and how the educational and professional background co-shapes the way the trail is then enacted.

Although the boundaries of the trail are given by its materiality in a form of trail-marks, the pathways or some cases even by a fence and warning signs, visitors might negotiate these through enacting the trail as deemed adequate based on their knowledge or education. By examining the example of Lorenz the geography teacher (4.3.3), it is clear that the trail is clearly delineated within a safety zone by clear signs and fence as seen in Figure 8 (p.45). Although he acknowledges the material boundaries of the trail, his alleged knowledge of glacier activity and geography enters the enactment of the trail as a 'Geography teacher mode of ordering'. He vehemently justified himself by describing how he paid attention to the direction of the water stream and that he was certain about what he was doing and about the locations where he stood and from which he took his photos. Due to this mode of ordering, he enacted the trail in a manner allowing for negotiations of the material boundaries but also of modes of ordering of the materiality of the trail as previously explained (see *The past, the park and the local actors*).

Although I was invited by other participant to step across the fence and come view the uniqueness of the glacier, I remained within the demarcated trail boundaries. My education and limited expertise on glaciers, similarly to many other present and questioned participants did not allow for further material negotiations and kept us behind the fence within the safe zones. Other reasons given by the obeying participants such as having the opportunity to previously learn about the tragic incidents further co-shaped their enactments of the trail and made them stay behind the safety fence.

Further, throughout professional background, and partially through previous hiking trips, participants may learn about the importance of keeping one's garbage away from the national parks' areas. Some participants that I hiked with furthermore helped with maintaining the trail clean by collecting garbage in the park. Plastic wraps, food scraps and paper tissues were the most common pieces of trash I observed to be found along the trails. Signs teaching participants about the behaviour in the park, therefore, may help in educating the visitors about issues linked to garbage in nature. Wouter (4.3.4) for instance, whose professional background is as a manager in a bush camp in Africa has enacted the trail in a mode of ordering similar to what he has learnt about throughout his background and through curiosity to educate himself in other national parks as he recollects descriptions of garbage decomposition times from a visit to a different national park. Consequently, he actively collected any visible trash to a side pocket on his backpack, especially reserved for this purpose. Other participant, a female German hospitality manager, claimed to only collect plastic trash, as collecting paper trash and food scraps was not regarded hygienic and not as harmful towards the environment as plastic.

Hiking Experience

Previous hiking experience arguably co-forms and co-orders the way the trails are hiked. Similarly, to participants' cultural and professional backgrounds co-shaping the way the trail is enacted, they also bring a certain knowledge developed through their past hiking experience to the field. This section will draw on evidence on participants' knowledge obtained through the previous hiking experience projecting onto their enactments of the trail in JNP. There were participants, who built on their experience obtained through local visits, but also extensively on hiking experience from around the globe.

For instance, there were a few participants that were familiar with the area, each again in a different manner. One Dutch participant, who lived in Norway for two years and some participants, who previously visited the park for holidays. These visitors then navigate through the park skilfully, either using a map, or consulting the internet or perhaps their previously acquired knowledge on the area and infrastructure, while exploring trails less visible to the first-time visitors. Therefore, more advanced and remote hiking trails such as Lundeskaret, Oldeskaret and Kattanakken are explored. The Dutch participant, with his knowledge of the area spends two weeks wild-camping and hiking in the neighbouring Breheimen and the Jostedalsbreen National Parks. He uses a topographic map, through which he even finds suitable spots to pitch his tent, and often hikes also on trails not marked in the map. However, as he hikes alone, he always follows the trail, at least the materiality of it such as the path, which is seen as an important element in staying safe and orienting himself. He advocated that if he did not know the area and how the trail system works, he would have stayed within the official trail boundaries.

Enacting the trail in a similar manner as previously in the JNP, however, can also result in some challenges or unsafe events for the visitors. Participants, then might enact an easier version of the trail, or seemingly safer. Observing Lorenz, Paul and their hiking friends (see 4.3.3) as they are enacting the Kattanakken trail, where there are danger signs, which seemed to prevent them from going all

the way up to the glacier, is an example of re-enacting the past modes of ordering. However, this time at Nigardsbreen, their desire to get even closer to the glacier got enabled by seemingly safer access. The same warning signs yet understood differently in the context of a busy, perhaps less strenuous and less danger-evoking trail might however on occasions result in an unfortunate accident. Also, Fabiana and Jens (see 4.3.2) provide a good example of when enacting a trail in a similar manner to a previous trail enactment within the park can result in them being challenged or underprepared. They assumed easy access to carpool, or accommodation as seen in Jostedal close to the Nigardsbreen trail they previously hiked. Tungestølen is, however, an example of how varied the JNP can be as there are limited options for emergency accommodation, and when late in the afternoon, also limited options for potential carpool.

To draw on the same story, and the story of the *Conversing through the trail* it becomes apparent how enacting the geographically same trail within different level of experience ordering may result in varied experiences. Fabiana and Jens (see 4.3.2), who presented hiking experience only from the Alpine regions of Italy and Switzerland, also viewed the trail hiking in Norway in similar manner. However, so did Tia and Maria (see 4.3.1), who enacted the trail similarly to their previous experiences oftentimes triggered by recalling the landscape from trails enacted in the past. For instance, the long stretching valleys formed by the glacial activity that enable access to a glacier lying in a relatively low altitude, re-trigger an adventurer in a person, who previously visited the long and remote glacial valleys of Patagonia. In her adventure mode, she is then more focused on selecting a suitable and easy to navigate path, perhaps less dependent on the trail marks as opposed to a visitor, whose past trail enactments are found around clear Alpine marking systems. Situations such as portrayed below (Figure 9, p.51). then may become observable. Wooden planks, or trail marks when submissively following them it may force the visitor to ford muddy path and perhaps scoop some of it in her shoes. This seems to be more of a rational path to choose for an Alpine tourist, whose trail is enacted within the materiality of clear signage and boardwalks. However, adventure driven visitor, enacting her past trail enactment of a trail may pause, evaluate and carefully proceed with an easy to overcome alternative path, leaving the officially marked one perhaps just for a few steps, nevertheless, returning on the same path once the obstacle is overcome.
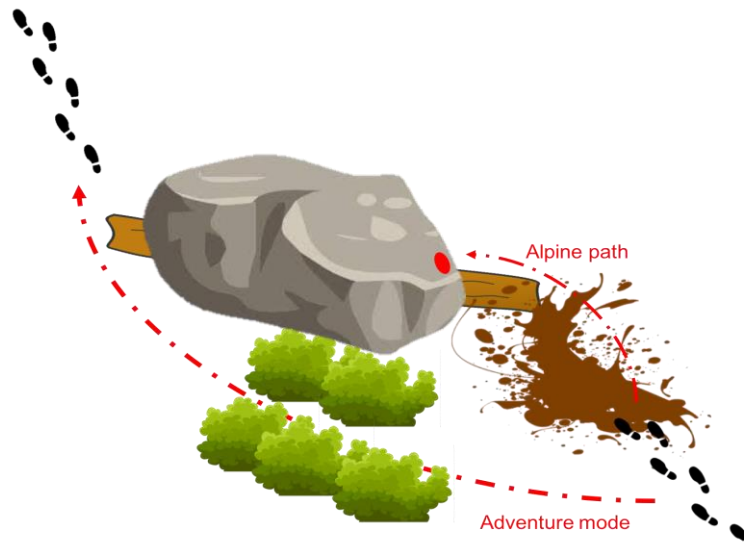
Figure 9 Illustrative example of differing enactments of the recreational trail

Similarly, Wouter (see 4.3.4) enacts trails co-formed throughout the past experience. Through his rich experience of travelling and hiking, working and living abroad he co-formed the unique ways of enacting the trail on his visit to the JNP. For instance, he enacts the materiality of a past recreational trails as he navigates through the Skåla trail by recollecting his encounter with the information board listing decomposition times of various garbage items in nature. As he collects trash on the trail, he remarks how that has made him think about garbage in nature areas even more. The previously visited national park, therefore, co-formed the way he further enacts the recreational trail in JNP. Similarly, he suddenly finds himself reminiscing pieces of his Nepalese Himalayan trip, perhaps triggered by the signature Sherpa steps, leaving behind the enactments of the bushman's trail. Similar to Tia and Maria (4.3.1) the mode of ordering is triggered upon the reminiscence of the past hiking experience, which leads to a certain enactment of the trail and perhaps re-ordering and re-negotiating his ways of enacting the trail until that moment.

What is the ultimate mode of order? Modes of Ordering Sub-conclusion

In this section, various ways how trails in the JNP may become enacted by foreign visitors were analysed. It drew upon the materiality and use of the trail (analysed in previous section) but recognised the various formations of modes of ordering for foreign visitors, under which the trail becomes enacted. All these enactments, to a certain extent became internalised and normalised by through the visitors professional and cultural backgrounds, but also further reinforced through their past hiking experience. Subsequently, this implies how individual visitors become unwittingly disciplined in their actions and understanding of various material elements. We will return to this in the section on agency where agency is traced through examining exactly the foreign visitor interactions with the material elements. To further conclude this section, no mode of ordering of enacting a trail is the same, as every enactment of the trail is by definition unique yet bounded or disciplined by the visi-

tor's personal profile outlined in this section. Once this is taken into account in the context of materiality and actual use of the trail, we can assume that the trail as an object will multiply as it may be simultaneously enacted under diverse modes of ordering. This is further analysed in the following section on *The Multiplied Trail.*

5.1.3   The Multiplied Trail

This section aims to synthesise the object formation processes, where trail comes into being for the foreign visitors to JNP. First, it presents how a trail as an object can be formed in multiple of ways even in absence of its materiality. Second, the multiple modes of ordering are further put into the context of multiplying the trail as an object. Thus, the trail as an object is co-formed as an object multiple, which is further analysed so in this section.

How does a trail multiply?

The trail is co-shaped through visitors engaging with multiple media such as guidebooks, maps, or digitally through maps, social media and websites. As participants showed, each medium than co-activated the trail in a different manner. For instance, following a Lonely Planet guidebook resulted in ambiguous notion that there are plenty of hiking options in the national park, on which close information can be found in the visitor centres. Therefore, a new network has been established for the visitor, which opens up further branching to re-ordering the trail enactment. In other words, a visitor learning about hiking options in JNP through a LP guidebook may end up in the visitor centre, which then further focuses the visit to local areas in the vicinity of the visitor centre. Furthermore, visitor centres present other information regarding the trail and hiking in the region, thus again co-shaping new relations and new ways of enacting the trail through its cultural narratives and nature protection agenda as discussed further below.

Similarly, visitors activating the trail via maps or digital maps such as through following *'the big white spot on the map'* representation. However, it also is through the national park status that already results in activating of the trail for the participants, who know that national parks offer convenient options for outdoor recreational hiking. Furthermore, there are number of other ways to activate the hiking trail, therefore, the trail is amongst the tourists each time activated as a slightly different object. Consequently, the trail becomes an object that materialise in the minds of the visitors through words in a chapter of a guidebook, as a dotted line within contours on a topographic map or as a digital trail followed through mobile devices. All these representations might point to the same geographically located trail, however, through carrying different information they co-create different ways of enacting the trail. Therefore, the trail even in its material absence is becoming real for the visitors, however, is co-shaped in different forms and through different modes of ordering even once the trail is actually used for hiking. The trail as an object becomes very fluid, thus when deconstructed from within the second-order observation, the object multiplies and can no longer be treated as a uniformly existing object that is being enacted the same. This, therefore, relates also to the various functions of the trail as examined below.

The National Park Trail

As previously explained, one of the visitors' trail enactments can commence by pursuing a national park trail. Amongst the participants, the status of national park was considered as enough of a guarantee for recreational hiking infrastructure present, which then materialises as a trail. Through visiting the visitor centres and musea, visitors get perhaps more familiarised with hiking trail options within the park. However, participants that visit the museum become exposed yet to more information about the hiking trails and the modes of ordering of the trail in national park itself. For the JNP, the trail becomes a path that aims to employ the national park's agenda of protecting vulnerable ecosystems, while preserving cultural heritage and providing safe, unique grounds for recreation. The trail is then objectified by the management of the park as an instrument for channelling visitor flows to further serve this agenda of the national park, in which the visitors are supposedly become subjected to this enactment of the trail.

> JNP Manager: …There's so much we want to tell them [visitors], but then we need the right tools.
>
> Interviewer: So you would say you want them to come prepared to the park?
>
> JNP Manager: Yes! And if they're not prepared then we want to give them the information at the parking lot or at the information centres.

It is a version of a trail that gets enacted mainly by the national park, and visitor centre management. This version of the trail is constituted by diverse material elements that assume to be ordering the trail as such within the national park. For instance, warning signs, fences (e.g. Figure 8, p.45), and the paths and their geographical boundaries delineated by trail marks and rocks (e.g. Figure 4, p.34), but also printed brochures and maps distributed at the local visitor centres (e.g. Figure 3 p.25) form a certain that exists for the JNP's visitor centres and its management. The next section will examine how the visitor's through varying modes of ordering have shown to understand various material arrangements in the park as opposed to what is expected by this perhaps a little bit *essentialist* mode of ordering of the national park trail.

The Recreational Trail

The recreational trail is then formed through exactly the multiple and unique modes of ordering in which the trail is enacted by each visitor. Each visitor coming from diverse backgrounds and with diverse experience will, consequently, see the trail differently. Although all the participants came to the JNP to enjoy the recreational trail, the way the trail appears and gets enacted by each participant differs exactly by the materiality and how they engage with it. The manner they engage with it is, as explained above, always relational and always slightly different. Every participant than enacts a slightly different recreational trail. This section will further provide illustrative examples elaborated on the stories presented in chapter 4. Nevertheless, careful second order observation of every other

visitors for each instance generates slightly different results because of the above argued configurations.

Planned, unplanned and changing trail multiple

The stories of *Conversing through the trail* (4.3.1) and the *Unplanned trail* (4.3.2) are both situated in the Tungestølen valley on the Austerdalsbreen hiking trail, yet they both picture a slightly different trail enacted in various manners. Fabiana and Jens (4.3.2) reliant on rather ad-hoc modes of ordering, being guided by the local knowledge and other visitors they interact with, their judgement of time re-configure the materiality of the trail they enact. Similar to Tia and Maria (4.3.1) as they previously visited Nigardsbreen in Jostedal. However, within their manner of enacting the trail by not planning and rather relying on the advice of local inhabitants they engage with very different networks, thus co-creating a very different trail. Unlike Tia and Maria (4.3.1), who are reliant on information they find a priori of their visit, and even try to re-configure their enactments of the Austerdalsbreen trail by consulting the visitor centre in Jostedal, and consequently arrive to what they might see as a more complete trail. Complete in a sense that by employing a thorough planning strategy, they co-form the trail in a less abstract way, with having more realistic expectations of the trail and its materiality. However, for the case of Fabiana and Jens, by avoiding planning and studying any maps, websites, or guidebooks the trail appears more as the trails they enacted in the past such as the Nigardsbreen or even trails in Italian or Swiss Alps.

Both trail realities, however, are re-negotiated throughout the entire trip through the materiality of the trail and new modes of ordering co-acting together. While following Tia and Maria (4.3.1) as they interact with the materiality their ideas and pre-formed realities of the trail begin to de-stabilise as they encounter various material actors. Their attention to planning made them enact the trail in a safe manner, however, as they use the trail they realise there are aspects that they were not prepared for and that they even did not have the means to prepare for. The trail unfolding in several directions because of conflicting cairns, trail-marks and stone boundaries (see Figure 6, p.42), while enacting past experiences and cultural backgrounds to negotiate with the materiality (See Figure 9, p.51). The planned trail changes into chaotic enactments of conversations, reminiscence of Patagonian trails, Alpine hiking backgrounds and the visible direction of the official trail in the distance. Similarly, hiking for Fabiana and Jens (4.3.2), who approached planning in a different manner, as they arrive to the valley and proceed to hike the trail through its materiality and geographical location changes into uncertain return to their place of camping. The locals advising them on the hiking options, who picked the highlights of the JNP, however, also under a different mode of ordering co-shaped by their backgrounds and experience. This modes of ordering of the locals fails to translate into how the couple enacts the trail. Materiality of the previous hiking trails, which they enacted for this hiking trip, did not materialise under the configuration of the Austerdalsbreen trail, thus co-created a slightly risky enactments of the local trail. Here the same geographical trail is enacted in multiplicity of manners and realities, thus seen as a fluid, constantly shaping object multiple.

Disabling and Enabling Trails

Teaching geography or working in a bush camp in Africa arguably co-shapes the ways of enacting a trail as discussed in the previously. But how does it affect the trail itself? The trail existing within various networks of relations of visitors will be further enacted as a different object. A geography teacher, negotiating boundaries of the actual trail, will look at the trail as an object he can re-shape based on his professional background. But similarly, cultural and professional background may result in further understanding of modes of ordering of for instance the national park, thus re-configuring own enactments of the trail for its use. This sub-section will demonstrate how a trail can be seen as enabling or disabling certain activity based on the manner, in which the trail is enacted by a participant.

To return to the geography teacher re-negotiating the material boundaries of the trail; the new geographical area behind the boundaries was enabled to him by enacting the trail as an expert on geography. Although the material boundaries of the trail he followed disabled him to venture off to unchartered areas until he reached the viewpoint on the glacier, his expertise later allowed him to re-negotiate and expand the boundaries once he reached the viewpoint. The trail, when enacted in the geographer's mode of ordering subsequently enabled him to explore areas not yet accessible to many other visitors. As other visitors followed him to the fenced area, the boundaries further expanded for them too, suddenly enacting a slightly different version of the trail to the one enacted before it became de-stabilised by the actions of the geography teacher. New version of enabling trail thus appears not only to him, but further also to the other visitors, whose enactments and understanding of the trail are again somewhat different from each other as co-shaped by their own modes of ordering.

Wouter (see 4.3.4) enacts the trail at Skåla in both disabling and also enabling manners. As Wouter proceeds with hiking, only within that time-scope of him using the trail, the trail enactments have been co-shaped multiple times by the materiality and relations to it, be it via his background, hiking experience or both. He started off as an enthusiastic wild-animal tracker, while employing his usual strategies for orientation on and off the trail such as GPS tracking device, pointing grass straws to a certain direction etc. As he hikes, the trail transformed through his interactions with the trail's materiality.

He suddenly notices boundaries in the form of stone barriers as seen in Figure 4 (p.34), which disable access to certain areas. This is later confirmed even by a sign (see Figure 2, p.24). For him, and within the modes of ordering co-shaped by his background and experience, in one moment the trail is seen as an object enabling access to tracking of wild animals, but in the other, as means to preserve vulnerable natural areas. Additionally, it also becomes an object, where fast hiking towards a certain destination is further enabled through its materiality. Although slightly distorted and perhaps unaware of it, he recognises the ways, in which the park tries to order the trail for other visitors. Nevertheless, enacts it within his own unique modes of ordering making the trail yet another differing and constantly evolving object that can simultaneously enable and disable certain enactments.

5.1.4 Enacting the Trail summary

This section aimed to demonstrate that the trail is co-constituted by number of material artefacts, which all contribute to how the trail is enacted by foreign visitors in JNP. It showed that the trail is being activated through various objects such as maps, guidebooks, the national park status, or just by conversing with the local tourism officials or local inhabitants. This is in the end challenged by the materiality of the trail and re-thought by each visitor in a certain manner. The sub-section on modes of ordering then analyses how does this re-thinking process happen and what is behind the way of this re-thinking and enactment of the trail by a foreign visitor. This resulted in establishing that the trail is enacted in multiplicity of ways, and under constant re-configuration, thus appearing as an object multiple. It further shows that the constant process of re-negotiating the materiality of the trail then forms only a part of the trail as an object. The remaining parts are embedded in exactly the ways the trail is becoming real – the modes of ordering.

5.2   Tracing agency through the Multiplied Trail

In this section of the thesis the agency of 'things' will be put under scrutiny by examining how and if agency of the trail really manifests through its materiality and material arrangements surrounding it. Previous section showed that the trail as an object is multiple, but what happens to its agency if the trail is multiplied? This section, therefore, aims to address the questions of agency and visitor behaviour in relations to the trail. Thus, it will further examine the role of the materiality in disciplining behaviour of visitors to the JNP.

What all the stories presented in the *Findings* chapter have in common, is that the trail, be it one from the past, one portrayed on a small illustrative map, information board or digital media or in fact even the one in use, seemingly enables access and at the same time restricts visitors in their ways of recreational hiking. For instance, maps a media that co-form the trail and enable the trail to come into existence by directing visitors to navigate through the trail in its geographical location. The maps, therefore, depict areas that are enabled for the visitors to access, but at the same time, it disables access to the areas not depicted as a trail. The geographical location of the trail then acts similarly – enabling access for visitors to specific landscapes and very specific coordinates that otherwise would not be accessible to the foreign visitors. But at the same time some of these areas are disabled through exactly the same configurations. Throughout the fieldwork the importance of trail infrastructure such as trail marks, information boards and maps resonated amongst the study participants. Thus, the trail, even though visitors deviate from it on negligible fragments, seemingly serves as an instrument for managing visitors and their recreational experiences. However, through the modes of ordering discussed above (5.1.2), each visitor sees the trail slightly differently and, in many instances, even re-negotiates what is seen through further interactions with the trail. The trail, is moreover, existing within endless number of relations in time and space, which results in visitors enacting it all just slightly differently. The agency of the trail is, therefore, untraceable, or when observed from the material relationalist point of view, inexistent. The following sections will analyse how agency of a trail is not embedded in the trail itself but enclosed in the multiple relations formed with the materiality of each trail.

5.2.1   Materialising Agency

This sub-section will further look at the ability of things to influence behaviour of the visitors to the JNP. Therefore, it will scrutinise the agency of the previously examined materiality of the trail and the objects within its network (5.1.1).

There are number of objects that the visitor engages with that either explicitly or implicitly suggest the way the visitor should act. For instance, there are signs that explicitly order the visitor to follow the trail as seen in Figure 2 (p.24), or trails that are guided by the trail-marks, signs or in some cases also fences demarcating the boundaries of the trail. Arguably, these signs and boundaries of the trail are acting on the visitor and assume discipline from the visitor in terms of certain degree of obedi-

ence. In majority of instances, these material features of the trail managed to live up to their essentialised expectations, however, not solely because of their power as an agent to influence the behaviour of the visitors. Participants follow these things for multiple reasons as for each participant the trail is represented through slightly different modes of ordering. Similarly, when read before and throughout the visit, maps seemingly have the power to influence the decision a visitor takes about which trail to choose for hiking. However, each decision will be formed within a slightly different manner, again co-shaped by the participants backgrounds, experience or even ability to read maps.

Visitor centres and tourist information points also possess this seemingly 'disciplining' agency. They offer closer insights into the local trail hiking and additionally provide access to historical narratives, conditions and information about the national park's agendas. This access is enabled through and exposed to the visitor yet again partially through materiality such as signs, computer screens or even plastic figurines of mammoths. There is an assumed agency of these things to discipline individual visitors on their visit to the visitor centres.

However, if agency is bound to materiality of objects, then the trail's materiality and the interactions with it need to be taken into consideration and analysed in order to trace it. After having analyzed the trail's materiality and explained why and how materiality multiplies, the questions of agency then become rather complicated to address. Participants' interactions with the trail's materiality are ground in the multiplicity of it. There is no one stable material network of a trail as it keeps evolving with constant negotiations with the visitors, tourism workers and management. Hence, due to this instability and evolving networks of relations, there cannot be any clear material agency bound to an object that would discipline individuals in time and space. The trail as an object multiple is enacted each time under slightly different modes of ordering, therefore, the materiality of the trail is negotiated each time in a different manner. The way this materiality becomes ordered is then more of an agent in itself rather than solely the object. In other words, the visitors follow the trail – navigate through its material network each in their own manner, exactly according to their current configurations of the trail's materiality.

Hence, the participants do not act docile merely as a result of the material arrangements within the national park but as a consequence of the relations to the object – the trail, which is then enacted accordingly. The way the participants interact with the trail's materiality such as the path, maps, signs, information boards is engraved in the relations formed with the objects through the elements co-forming their modes of ordering, which are slightly different for each participant. That is why participants enact even the seemingly same trail – path at Austerdalsbreen – in very different manners. Similarly, Wouter (4.3.4), who enacts multiple of trails within one hiking tour. Furthermore, through his background and knowledge, he focused on the nature protection configuration of the trail's materiality. He respected the signs and boundaries of the path that he encountered resulting from his cultural and professional background and knowledge acquired from the trail's materiality over time and space. Thus, he became disciplined as a result of the multiple relations tied to the materiality and not the materiality itself.

Comparably, one of the interviewees confirms that by stating that he follows trail-marks in exchange for his experience in nature of a foreign country.

> *"We are guests in this country, so we should not destroy their nature, I think that we sort of pay our price by [following the trail-marks] that we can experience the nature here, so I think that's actually the main reason we follow the trails."*

Again, it is not the path or the trail-marks that exerts disciplining power over his trip. It is the relations bound to his position in time and space. He recognises the nature protection aspects of a trail, as he is aware of the vulnerable aspects of a national park:

> *"we actually saw some birds up there and we were like, ok, well, we have to go back, because we knew that those birds were protected, and we didn't wanna disturb them".*

Consequently, the participant is rather disciplined by the relations he formed towards hiking in the JNP in Norway. It is not the material agency that made him decide he should follow the trail and even refrain from continuing in a certain direction, it is the relations formed towards the trail and the manner, in which the trail is further enacted. But when does the materiality matter? The next sub-section will attempt to tackle this by further elaborating on the relational agency of things.

5.2.2   When matter does not matter

The discipline does not come from the national park itself, it is engraved in multiplicity of relations formed with its materiality. These relations are then co-constructed and ordered through cultural or professional backgrounds and experience of the participants as analysed in *Modes of Ordering the Trail* sub-section. Therefore, the trail, although used by the national park as an instrument to channel visitors, does not exert the disciplining power over the visitors itself. It is the way the visitors enact the trail, the relations they form with the trail's matter-reality. For instance, the capacity of visitors to read, understand and act upon the national park's agenda through interacting with the materiality of explicit and implicit signs is also relational. The unique backgrounds and experience of each visitor then again co-shapes the way the visitor enacts the trail and whether it disciplines the individual in a way as is supposed to. Wouter (4.3.4) is a good example of being disciplined through his enactment of the Skåla track. However, was it the trail that disciplined him into a docile body navigating on the trail within the park? Wouter's background that co-shaped further the relations formed to the enactment of the trail are where the agency is located.

Lorenz, the geography teacher (4.3.3) is yet another good example to elaborate further on the location of the disciplining agent. To disprove of the material location of the agency, the fence and warning signs in Figure 8 (p.45) in fact did not matter to him as a matter. Without hesitation he climbed over the fence, examined the terrain before each step he made, but (in-)disciplined, yet again by his background, negotiated the materiality disproving of the agency of things. Through his relations to the enactment of trail co-formed through his background, in Foucauldian words constituted a higher rank to the other visitors and enabled him to venture off behind the fence. As this was seen by other visitors, he gave shape to a new version of the trail, that was also later enacted by the other visitors, here again through relationality disproving of the alleged trail's material agency.

Furthermore, what resonated amongst the interviewees was them indicating that other visitors should follow a path, as not following it can be unsafe or result in damaging vulnerable nature areas. Interestingly, this was observed in majority of interviews in the context of talking about other visitors. Consequently, other visitors may be under a disciplining gaze of other visitors and not as much of the trail's materiality. Here, yet again the agency is a result of the relationality rather than essentially given within any mode of ordering of a trail enactment.

Me myself could have also become an element in disciplining of the observed participants. It is important to acknowledge that I also co-shaped the realities of the trail the participants enact. I was mostly present, acknowledged, the participants were seldom alone out of my sight. Thus, feeling constantly under supervision, although often the intention of collecting data was not disclosed, I was present and a part of their interactions. Situations, such as described in the *Unplanned trail* (4.3.2) may then have been perceived under scrutiny of my presence, and their plotting partially assigned to acting of myself. Participants may have further felt a certain rank in me, as I knew the area and was present, thus relying with their trail enactments on mine. It may be that if I was not present at Nigardsbreen interacting and wondering about the geography teacher (4.3.3) expanding his boundaries, or expanded mine myself, there would be no hesitation amongst the remainder of the group, who allegedly expanded their boundaries beforehand on their hiking the previous day. I was part of the relation, perhaps disciplining, acting within their material networks of a trail.

Participants, therefore, act docile because of the relations they formed towards the multiple 'matter-realities' of a trail that they enact. Their background, knowledge, level of education, previous experience are all actors somewhat affecting the relations towards a trail, therefore, the relationality is more of a disciplining agent than the trail as an object itself.

5.3   Sub-summary

This chapter analysed the materiality of a trail using visitor trail interactions observed in JNP. It further examined how the trail materialises itself for foreign visitors in time and space, which inevitably suggested multiplying materiality and the trail realities. Each visitor forms a trail in her / his relational network to an object. Thus, objects are stripped of their 'essentialised' agency, and I argue that a material thing does not exert any power over individuals. It is the relationality to other objects and events in time and space that exert such power.

Every participant, therefore, navigated through their own version of the trail, which was constituted through in a way unique means of ordering and unique viewing of the materiality of the trail. The trail, each time activated in a different manner then appeared differently and had to be subsequently re-negotiated upon interactions with its materiality. However, many participants claimed the guidance, if received, was often not very clear, hence contributing and co-creating even bigger divergences amongst individual enactments. By not being able to clearly find descriptions, or only limited

descriptions of the trail online, limited access to detailed maps, or being presented distorted repre-sentations the participants relied on their internalised skills, experience, and backgrounds from what each individual has learnt about hiking, nature, geography etc. Thus, the trail as an object multiplied, and became slightly different in each enacted version. With limited material guidance, then even these versions of the trail kept rapidly changing, as seen in for instance through the story about Wouter (in 4.3.4) or less rapid change of the trail enactments through the unpreparedness of Fabiana and Jens (in 4.3.2).

The foreign participating visitors seemed to have been given 'too much of a freedom' to enact their cultural and professional backgrounds, their past hiking experiences and also freedom to enact the trails using various elements of the material network of the trail. As a result, visitors often felt under-prepared, or even became unprepared for the interactions with the trail, in which they enacted it.

6   DISCUSSIONS

To my knowledge this is a first study that aligned human and material actors within the context of visitor monitoring in protected areas to the same ontological level. The following chapter commences with a brief summary of the thesis and its findings. Further, it critically discusses the findings and interpretations, and elaborates on their further meanings and implications by comparing them to the existing body of literature. Next strengths and limitations encountered during the thesis process are revealed and discussed followed by implications for future academic research and visitor monitoring within the protected areas. The chapter is concluded with further interpretations of what does it all mean for the Jostedalsbreen National Park, the research, management and the visitors. Recommendations for the park management are provided accordingly.

The study commenced as a response to the dominant quantitative focus of visitor monitoring in protected areas (Muhar et al., 2002; Kajala et al., 2007; Gundersen et al., 2015; Kuba et al., 2018). It employs a unique approach to the visitor monitoring studies, where humans – the visitors and material arrangements of the park – the trail and its network, are aligned symmetrically, thus treated on the same ontological level. This enabled a revelation of the rich material network of actors that through interactions with visitors take part in influencing their journeys. The thesis focused on uncovering how a trail comes into being, thus examining how is the trail activated and used, but also what makes the foreign visitors understand the 'order' of the trail's multiple realities.

6.1   On Viewing the trail

As the results show, when looking through the post-structuralist and radical constructivist lens that disprove of ontological existence of single essentialised trail, there are multiple versions of a trail being constantly co-activated through networks of social and material actors. In other words, there is no trail that can be seen in the same way by different people, as every relations, within which the trail comes into existence, are formed differently. In this thesis, a trail is therefore followed in a rather unconventional manner by the researcher and that is under the ANT terms based on its network patterns. The trail then can be viewed as a network of heterogeneous relations that are co-formed by actors in its material absence as well as in its material presence, similarly as described by the studies of Law & Singleton (2005), Mol (1999) and Ren (2011). The trail, as opposed to published visitor management and visitor monitoring studies (Gundersen et al., 2015; Kuba et al., 2018; Muhar et al., 2002; Vistad et al., 2017), is no longer treated strictly separated in the material world and only within the three dimensional Euclidean space, but is regarded as a network of actors each co-forming a unique relational network. Therefore, the trail through its networks could be treated as an actor in the geography of time and space, which brings visitors each time to a different version of the trail, even though yet within the same geographical locations.

6.1.1   Actor-Network Theory

In general, qualitative visitor monitoring research recognises the variety of visitors and their diverse backgrounds, however, objects such as the trail are treated as one trail seen from a number of varied perspectives (Gundersen et al., 2015; Kolasinska et al., 2015; Kuba et al., 2018). The trail in this thesis is found to be enacted in multiple manners, observed through the foreign visitor enactments of the trail realities. Therefore, through the relational materialism lens, it is understood that there are multiple visitors, thus multiple enactments of therefore multiple trails. In other words, for every enactment of the trail, there exists a slightly different version of the trail. Therefore, as qualitative visitor monitoring tends to treat every individual as unique (Dorwart et al., 2010), this thesis argues for treating every trail enactment by the visitors as unique, which opposes the traditional approach to understanding the trail in visitor monitoring research. Every version of the trail then reveals a new information about the visitor, their actions as co-ordered through their cultural and professional backgrounds, past experience and their interactions with the trail's materiality. It further generates new information about the network of actors co-forming the trail for these visitors. Actor-Network theory inspired authors used this feature of the theoretical approach in similar manner to for instance uncover realities of cheese that produced stories of unique insights into a multiple tourism destination (Ren, 2011), realities of diseases to uncover the multiple backgrounds of diagnostics and treatments (Law & Singleton, 2005; Mol, 1999), or tourism objects uncovering the history of well-known beach tourism objects such as bucket and a spade (Franklin, 2014).

6.1.2   Essence

Another aspect of not only visitor monitoring research that has been established problematic by this thesis was the prescribed function of a trail. As it is assumed by the visitor management studies that there exists only one trail, so is assumed that the trail serves a single function. Chapter 5 provides an extensive overview of the trail's different uses and realities. The trail is not only a recreational arena, but for many visitors it is enactments of various material relations, past experiences, cultural and professional backgrounds and plethora of other activities. Moreover, the enactments are not stable, therefore, the object constantly changes as it engages with new actors and relations. However, the visitor management literature treats a trail as a tool to provide educational, recreation experience to the national park's visitors and through the trail's materiality teach them about vulnerable ecosystems and the national park's agenda (Kajala et al., 2007). As the management of JNP confirms, visitors are expected to learn from their visit to the national park, while using the trail or its extended materiality (Knagenhjelm & Rudsegen, 2018). Thus, in Foucauldian terms, the trail could be seen as a disciplining agent that transform individuals in time and space, thus as an object that changes the behaviour and ordering of the trail for the visitors. However, for the disciplining theory, as well as for the visitor management literature, there is a tendency to essentialise the trail (Coppes & Braunisch, 2013; Kolasinska et al., 2015; Kuba et al., 2018), thus also its agency.

However, this thesis demonstrates that there is possibly a better way to understand how people behave responding to these otherwise essentialised 'material agents', which is to understand the

relations the visitors form to these objects and how these relations further guide them in their inter-actions with the trail. Furthermore, the thesis found that it is important to understand how the visi-tors order the world and the trail within it, which shifts from the Foucauldian top-down perspective to a better suited Goffmanian bottom-up understanding of how the visitors 'make up the' trail and make sense of the trails and their function. Similar to how Hacking (1986, in 2014) approached un-derstanding of making up people. This further follows the Hacking's reasoning on why *"one needs to stand between the two men in order to take advantage of both"* (2004, p. 277)*.* Foucault assumes that material structures can create the *docile* bodies (Foucault, 1978), who within the context of a national park are the visitors.

Although Foucault lays material conditions, for which one internalises a certain disciplined behaviour, he seemed to disregard the individual human conditions that define the power to discipline people and the individual meaning of these disciplinary 'things'. Goffman, however, and symbolic interac-tionism address this issue by learning 'bottom-up' from the people, hence uncovering the ways of understanding what interactions with things and people mean to an individual. This thesis to an ex-tent acknowledges similar approach by recognising that the cultural and professional backgrounds and past hiking experiences take a certain part in what manner is the trail enacted and how does it form as an object for an individual visitor. Symbolic interactionism, however, assumes meanings, thus assigns essence to things. These meanings an individual attaches to things, furthermore, change or evolve upon interactions with other people (Goffman and Blumer in Hacking, 2004). Nevertheless, this thesis further argues it is not only the interactions with people, but also interactions with any socio-material or social actors that only co-shape the way a thing is viewed , thus departing from and modifying the idea that things have a social capacity to act – an agency (Latour, 1992, 2000; Sayes, 2014).

6.1.3   Essentialised Agency?

However, the concept of agency has been identified as problematic and unstable and definable through various relational networks. For the visitor monitoring studies, the site management objects such as trail marks (Kuba et al., 2018), trails (Gundersen et al., 2015) or parking lots and entrances have a specific essentialised function. Under the Foucauldian terms of disciplining visitors in time and space through a specific social structure translated to an object, it appears similar. However, coming back to the bottom-up perspective and trying to understand what is it that 'makes up' the trail, this thesis encountered further cues indicating that the trail and its materiality might not serve exactly the same function as blue-printed by the management structures. Nevertheless, in the eyes of many actor-network theorists, the trail would still seem to have an ability to act socially, even though not as originally planned (Franklin, 2014; Latour, 2000; van der Duim et al., 2012). In this thesis, the agency of things was put further under scrutiny, which as a result established that agency, perhaps also disciplining, is found in the multiple relations bound to an object rather than in the object itself. Thus, yet again, responding to the Foucault-Goffman debate, it is not the thing (the trail) that agents people as much as the order and the manner, in which the people enact the thing – the relationality. Furthermore, the multiple relations keep evolving, are unstable and change with every new engaged

actor, thus the object (the trail) is fluid and changes. Consequently, so is and does the agency related to the object – the multiple trail. The materiality of a trail is always relational, thus the ability to act is too, similarly as defended by Sayes (2014).

6.2   In question of the Empirical Studies and Methodology

As this thesis was inspired by the visitor monitoring and management studies, it would be more than fair to address the domain of visitor monitoring and management research in protected areas, discuss their results and methods within the context of the protected areas and the JNP. Pickering et al. (2018) in their review article on visitor monitoring and management in protected areas found that the majority of visitor monitoring studies are based on quantitative methods, so that the results are of a practical and straightforward use for all stakeholders involved (Hansen, 2016; Pickering et al., 2018). Consequently, quantitative methods for visitor monitoring studies in protected areas, where there is limited funding, portray more persuasive data, as results drawn from a bigger sample of participants produces generalisable knowledge that is easier to follow in quantitative figures. The only generalisable, yet not quantifiable, outcome of this thesis, is reconfiguring the way to look at the multiplicity of hiking trails. Consequently, by uncovering the black-boxed trail enactments and their networks, new research directions for quantifying, thus producing such powerful datasets, can be initiated. Therefore, this approach might add to the debate on design of guidelines for visitor monitoring and management studies in protected areas, as there is limited research on infrastructure and materiality of the areas regarding visitors' use (Pickering et al., 2018).

To further add to the qualitative and quantitative methodological debates, the study proves that mixed methods approach would lead to a better understanding of a given phenomenon, while generating convincing datasets for the official stakeholders (Hansen, 2016). This will be further discussed by the disadvantages and advantages of the selected methodological approach for this thesis.

In terms of disadvantages, creating limitations of the study, this thesis lacks on the quantifiable aspects, thus to produce empirically solid and convincing data sets for the policy makers, a follow up study needs to be initiated asking similar questions but reliant on quantitative methods as further discussed in the next section (6.3). Furthermore, for a qualitative study of a similar ethnographic approach, large amounts of data need to be analysed, which by this thesis proved to be time consuming, and furthermore, it often slightly de-stabilised the focus of the study. Hence, the study slightly shifted its focus multiple times for instance from focusing solely on the material arrangements of the park, and only later specifying the focus based on a selected token as advised by Beard et al. (2016), the study shifted its attention solely to the trail and actors accompanying it. This, however, happened approximately half way through the fieldwork, thus potential access to some data was disabled. Furthermore, throughout the analysis, away from the field, I realised that focusing on a less abstract object, or perhaps a specific trail could have generated more relatable data for the park management.

This thesis was conducted as a master thesis, therefore, the rather firm time scope for the fieldwork, analysis and report writing interfered with the entire process. Consequently, compromises in reducing and interpreting the data had to be made. Therefore, studies of a similar nature would need a longer time-frame as more focused data could be generated.

Another limitation was caused by the timing of the study. The beginning of the study was assumed to be well-timed as Norwegian summer holidays were about to end and the study's focus was primarily on foreign visitors to JNP. Nonetheless, by this decision I lost access to possibly further differing enactments of the trail in JNP by the Norwegian hikers. The study started a week before the end of Norwegian summer holidays, which is still high season for the JNP, however, access to interactions with and co-enactments of Norwegian visitors have been significantly disabled. The access to participants was further limited by bad weather, which might have further interfered with various enactments of the trail.

The study, however, took a unique theoretical approach of asking questions regarding an object – a trail –formation, while looking into the alleged agency of things. Departing from the relational materialist lens for understanding the world, it further offers a critique of theories on discipline and ANT tendency to essentialise object's agency (Fuchs, 2001; Sayes, 2014). Further considering this theoretical perspective, it pioneered in the visitor monitoring and management domain, which might contribute to interest in research in unexplored areas of materiality and objects surrounding visitors within areas where recreation and nature protection interests clash.

6.3   On Future Research

Firstly, addressing the issues encountered with this research is important when commencing a similar study; such as acknowledging the available resources; the time-scope, funding etc. Furthermore, the timing of the study is important as being able to involve all kinds of visitors during the summer / winter season i.e. the domestic visitors, bus and cruise-ship tourists is beneficial to fully study and unravel the ever-changing and evolving networks of relations. When conducting a similar study, unpredictable rainy weather is another important aspect that needs to be taken into account. The weather is after all also an important actor affecting the networks by for instance faster calving of the glacier, increased muddy obstacles on the trail or even absence of some visitors from the trail. Furthermore, focusing on one specific geographical trail or object might help bringing more concrete ideas on the interactions with visitors for the park management or planners. For instance, conducting a similar study in problematic areas, where visitors tend to concentrate, act in undesired manners or put themselves in dangerous situations.

In terms of research directions, further investigations into the specific separate social material objects forming the materiality of the trail within the national parks such as signs, fences, information boards could bring interesting insights. Once each of the objects get separated from the trail and treated as such, more concrete perspectives on various visitor enactments of the objects could reveal

how visitors behave in response to the objects. Such deepening of understanding and obtaining insights into multiple enactments of these objects could then give basis for detailed comparisons that could be quantified. These comparisons of enactments could further help with designing more standardised objects for steering visitors in the park – enabling, disabling or controlling their access. Although in the end essentialised, the essence would depart from deeper understanding of relational networks of the objects, thus tackled accordingly. Suggested questions to ask for this direction would therefore be as follows:

- *How does an object x influence the way a visitor acts?*
- *How do representations of object x contribute to the way the object is enacted?*

Further employing quantitative or mixed methods could add the missing dimension of generating convincing datasets for the stakeholders of the park.

Alternatively, expanding on investigating on the locations of the agency in relations to materiality of the park and visitors. This would contribute to the scientific quest in various disciplines on better understanding agency of 'things' as a result of relationality rather than essence. Furthermore, it would contribute to the domain of spatial planning and recreation not only within the nature protected areas and recreation but also in the context of overcrowding and over tourism. Acknowledging that things do not have much more power than the relations bound to them may re-configure the way planning of materiality is conducted. Thus, proposed questions to ask would aim to tackle this issue by questioning the alleged agency of things, similarly as conducted in this thesis. Furthermore, as in the previous research suggestion, it would enable acknowledging broader and deeper relational networks of the object, hence, richer qualitative understanding.

- *What is it that makes object x work the way it does in various contexts for various people?*

6.4   On Managerial Implications

Since the implications for research have been covered extensively, this paragraph will in short offer further interpretations of what do the results of this research imply for the park management and the visitors themselves. What resonated amongst majority of the foreign participants, regardless their level of preparation, experience or knowledge, was the access to information about hiking options within the park. Although some visitors managed to retrieve important or general information about the park, its main attractions and possibly some hiking options, their findings were often incomplete, and they sought additional information. Consequently, the national park could improve its online presence and reach, where unified information with local visitor centres and tourist offices would be well-aligned and also perhaps cross-regionally available. By further interpreting the analysis, unifying elements, although still relational, could be better interpreted by foreign visitors, alternatively, foreign visitors could be better targeted by their backgrounds and level of experience. Each trail could then carry a certain information about its accessibility, geographical features, its materiality and level of difficulty such absence or presence of trail-marks, elevation gain and its approximate

duration. Moreover, each trail could also explicitly mention its purpose be it on historical or contemporary nature protection and cultural heritage significance. This information, whether it is then presented online, in maps, on information boards at the trailheads or at visitor centres and local tourist offices should carry a unifying element to minimize divergence of the trails' enactments by the parks' visitors by providing an idea of what each trail represents. Although visitors come from these diverse backgrounds, and with varied levels of experience, perhaps a certain unifying element explicitly tackling various issues such as significance of the warning signs, trail boundaries etc will become more accessible and internalised once exposed through various media. Visitors will still enact the trails within their own manners, however, the unifying elements of media would ideally also work as a unifying element of the varied visitors' enactments of the trail.

7 CONCLUSION

This thesis responds to the problematisation of visitor monitoring in protected areas being too anthropo-centric. This means that when visitors are being monitored or managed within the nature protected areas, limited attention is paid to the materiality, in which the visitors navigate and to the relations visitors co-construct to the hiking environments in such areas. Therefore, this thesis departed from the relational materialism lens and using elements of Actor-Network Theory and case study of the Jostedalsbreen National Park in Norway further traced the trail's materiality by means of qualitative methods. The main findings are presented through the process of trail formation, which uncovers a rich material network of multiple relations and enactments of the trail by foreign visitors to the JNP. It shows that the ways, in which trails in JNP are enacted by the foreign visitors are partially results of their cultural and professional backgrounds and past hiking experience. Furthermore, the agency of the trail's materiality is questioned through Foucauldian discipline lens and a slight reconfiguration of the agency's location is offered through observing the foreign visitor-trail interactions. The conclusion is structured in a way that attempts to provide answers to both versions of posed research questions and reasoning on the theoretical underpinnings of the study, under which the answers were sought for.

By acknowledging both versions of the posed research questions, the thesis aims to enhance its societal relevance and influence on visitor monitoring policy. The trail has been observed together with the foreign visitors on the same ontological level. This enabled tackling the thesis' objectives of deeper understanding of the interactions between managerial material arrangements (such as the trail) and foreign visitors to a Norwegian national park. By its findings, it intends to support the current visitor monitoring studies in Norway and influence the methodological approaches to further investigate on 'the understanding of the visitor understandings' of materiality surrounding the recreational environment in protected areas. Furthermore, the thesis generates knowledge for the scientific audience by employing unconventional approach to visitor monitoring research and contributing to the knowledge on infrastructure in protected areas (Pickering et al., 2018).

RQ1: How does a hiking trail in the Jostedalsbreen National Park as an object come into being?

Originally, the research question of: *"How (in what ways) do foreign visitors to the Jostedalsbreen National Park learn about and navigate on a national park's recreational trail?"* was posed. In attempts to answer the original question, this thesis would arrive to rather concise answers, that on the one hand could be well generalized and quantified, but on the other limit the findings to a list of objects that visitors use for learning and navigating the trail. Therefore, answers could be provided by listing; the use of internet, use of maps, consulting visitor centers, online guides, guidebooks, information boards etc. Employing quantitative methods would be possibly a better choice for answering such question. Consequently, the thesis would arrive at quantifiable findings, perhaps more directly useful to the park management, but it would in the end generate very different results.

After revising the question through radical constructivist theoretical underpinnings, and with the use of qualitative methods, through participant observation, actually walking the trail and talking to the visitors, the thesis arrived to a lot more complex answer, which this section will attempt to summarize. By laying the trail on the same ontological level as the visitors, it became possible to depart from the trail as central in understanding how and in what ways it is being used. The thesis shows that the trail is found in relational networks that each visitor forms to it, and within which the trail is being understood and used. It does not limit the findings to a list of objects but opens up new ways of viewing the trail.

Through tracing the trail both via personally navigating and negotiating the materiality of the park and through conversing with and interviewing the foreign visitors in JNP the materiality of the trail, therefore, started unfolding in various manners. The trail comes into being by forming relational networks, however, these rich networks are unstable and often evolve and are further co-shaped by multiplicity of other (human and material) actors. It is the moment when the hiking trail comes to the minds of the hikers that it begins to be enacted, thus real. However, up until the moment the visitor engages with the trail by actually using it, the materiality of the trail keeps transforming through constant negotiations by the visitors. In other words, a sign, a map, a visitor centre etc. only offer a representation of the object, which is always different, thus do not complete the process of the trail formation. They do not form the trail but only co-shape it in a way that it might become easier to use, but because of the diverse visitors and their diverse enactments it is never the same as portrayed by these objects.

Consequently, the trail never comes to being only once as the mainstream visitor management / monitoring research sees it through the Euclidean three- dimensional space. For visitors, once the idea of a trail is activated, it is constantly being enacted through the material networks encountered before and even after they engage with the trail's materiality. Thus, the trail can be defined as an object multiple that could be enacted in multiple of ways even by different people within the same time, however, it will always exist only within the relational networks of the individual visitor.

To relate this to the case of the JNP; although always relational and slightly different, by portraying the trail in a unified manner, the JNP management may contribute to a more converging enactments of the trail. If various visitors navigate through the material network of the trail such as musea, visitor centres, guidebooks, websites etc, where the trail is portrayed in the same way, perhaps explicitly for different kinds of visitors, the trail enactments might be co-shaped in similar ways, although always within a personalised manner. Such unification would ideally contribute to the overall hiking infrastructure within the park by presenting clearer signage, standardised at each trailhead and clearer, standardised maps of various regions and accessible hiking areas within the park.

RQ2: How is a trail in Jostedalsbreen National Park enacted by foreign hiking visitors in time and space?

The originally posed question *"What role does a trail play in the foreign visitors' outdoor recreation in the Jostedalsbreen National Park?"* would already invite for employing qualitative methods, however, the findings may become limiting to the essentialized trail – understood as one single trail out there that is more or less similar in its function.

Through qualitative interviews, and participant observations, the thesis nonetheless found that the trail guides and enables access to visitors to certain areas of the park. However, interpreting the findings through the relational materialism lens and its denial of 'essence' the trail emerged as an object multiple – an object that is enacted in multiple ways, and thus found in multiple realities, serving multiple relational functions. Through recognizing the trail as an object multiple – being enacted by many visitors in many varying ways, even at the same time – the thesis gives grounds to recognizing that there is no single enactment of the trail and that every enactment is always slightly different. This is due to the co-shaping by many (f)actors in the process of objectifying the trail through a multiplicity of cues but also through its materiality.

It stems exactly from the formation process, where certain actors get (dis-)engaged in the relational network of the trail as enacted by a visitor. The way the object forms – the trail, therefore, logically unfolds the way it will become enacted. However, considering the foreignness of the visitors, each visitor then comes from varied cultural and professional backgrounds, and with varied levels of hiking experience, which then further co-shape the way the trail is enacted.

But what does this mean for the JNP? Providing clearer information on each trail, yet again under a more unified narrative way or enactments by the local tourism officials, may contribute to the convergence of foreign visitor enactments. Through maps, signs etc. and addressing the variety of visitors, be it because of their cultural or professional backgrounds or level of hiking experience with tailored information specific to them would contribute to such unification of the trail enactments, and consequently the use of the trail in a sense that the trail boundaries spatial and temporal boundaries are less negotiated. A trail that states its approximate duration, elevation and difficulty level on various accessible media can perhaps better channel visitors on their trips. This could co-shape the way visitors enact the trail in a perhaps safer manner.

RQ3: How does a trail as an object in the time-space network exert agency over the human?

The original question *"How does a trail guide foreign visitors through the Jostedalsbreen National Park and into certain areas of the park?"* could similarly be answered by using qualitative methods, however, the findings might be limited to lists of objects that help the foreign visitors with navigating through the park. The thesis with this question in mind, therefore, arrives to findings such as the geography, the trail boundaries given by trail marks, signs and other infrastructural objects.

However, when translating this research question in terms of Actor-Network Theory, thus getting rid of the human – non-human binaries, the trail allegedly gains on a social capacity to act – to agent the human. However, while employing the walking method and by participating in the field it became apparent that the trail as an object forms in multiplicity of ways, in which it is enacted by different visitors. Therefore, this thesis discovered that provided the fact that everything is relational, and the object is multiple, so might be the agency of the object – of the trail. The concept of discipline was used to examine further how it happens that upon such conditions an object has a social capacity to act without essentializing it, giving it a stable function within the multiple unstable everchanging networks.

Post-structuralist, Foucauldian disciplining theories and ANT research have quite extensively worked with this concept without questioning it too much. However, once it is accepted that the trail is an object multiple, it is almost impossible to see that the trail acts, as its ability to act will never actually be agenting, it is the multiple relations visitors form to the trail that perhaps co-produced internalized interactions with the trail. Consequently, it is argued that the material relations agent the way a visitor navigates throughout the materiality of the trail, which within certain relational network may only appear as they are obeying or disobeying the agency of the trail.

In conclusion, this thesis aims to open up a debate for reconfiguring the way the trail, and other material arrangements in places where recreation meets protected areas are being viewed and studied. Although this thesis used a case study of the Norwegian Jostedalsbreen National Park, it would be interesting to approach trails in other national parks around the world. Specifically, national parks and protected areas that host high numbers of visitors could benefit from such reconfiguration of understanding of the trail, as it may help better understand how visitors navigate and how they are being guided through the areas by trails and their material networks. Furthermore, understanding the relations visitors form towards these material arrangements can further improve the ways, in which these spaces are being planned and designed.

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9 APPENDICES

9.1 Participant Observation
9.1.1 Fieldnote Template
- **Number, Date**
- **Details**

(Brief who/what/when/how)
- **Set the Scene / Background Story**

Brief how/why
- **Description of Activity**
- **Reflections**
- **Emerging Questions / Analyses**
- **Future Action**

9.2 Semi-Structured Interviews

9.2.1 List of Interviewees

#	Name	Nationality	Occupation	Age	Duration (min)
1	Oke	German	Medical Student	23	36
2	Tia & Maria	German	Students	24/27	43
3	Thea	Norwegian	Nurse	26	30
4	Elise	Italian	Unemployed	21	32
5	Thibault	French	Dentist	29	53
6	Paul	German	Geography Teacher	31	35
7	Alex	German	Marketing Mgr.	n/a (early 30s)	30
8	Wouter	Dutch	Bush Camp Manager		25
9	Fabiana&Jens	Italian/German	Students	21/22	35
10	Isabella	German	n/a	25	38
11	Carla & Paul	Spanish	n/a	31/33	30
12	Anna Rudsegen & Maria Knagen-hjel	Norwegian	JNP Ranger / Manager	/	75
13	Julia	Polish	Seasonal Visitor centre worker	/	23
14	Trygve	Norwegian	Breheimsenteret Manager	/	25
15	Marianne	Norwegian	Tourism Info Point Worker	/	37

Every interview followed prepared questions, however, due to the 'semi-structured' nature of the interview, probing questions and follow up questions that are not noted down in the interview guide were asked. Oftentimes, the order of questions also evolved differently than planned.

9.2.2.1   Visitors

- **Building rapport**

  - Approach visitors that gaze, roam, wait, rest
  - Comment on weather, landscape, landmark…
  - Initiate short small-talk

- **Introducing myself**

  - MSc student from the Netherlands, huge outdoors fan, wanting to work in the outdoor (recreation) field
  - Ask for study participation, offer compensation for participation of a home-made granola bar or a bottle of home-brew beer (depending on the participants and location)
  - Participation is anonymous and confidential
  - Inform participant of their right to withdraw from the interview at any point
    - if so, ask if generated data can still be used.
  - Ask for consent for recording for better transcription purposes
  - ASK FOR THEIR FIRST NAME(S)!

- **Introducing the research**

  - I am collecting data for my MSc thesis
  - I decided to design a research that aims at helping the park in designing recreational experiences for visitors, while considering nature and the environment

- **Invite for answering questions**

  - Ensure recording device is recording and address them by their name(s)
  - Demographics; Age, Nationality, How long are they visiting the park for

- **Questions**

General

How do you travel / how did you arrive

1. What made you decide to travel to the Jostedalsbreen National Park?
   - What things do you use to plan your trip? (if in doubts about the question help out by naming for instance: Websites?, Guidebooks?
   - How exactly do you use these?
   - Why do you go visit the park?

2. What are your general impressions of the recreation and / or outdoor activities in JNP?

1. How do you plan your hiking?
   a. What do you look for in your hike when planning a trip here?
   b. What helps you with planning of the trip?

2. How do you find your way in the park when hiking?
   o What do you use?
   o How do you use them?
   o How is it compared to what you are used to?
   o *Share my own experience of accidentally losing the trail with the visitor. Not reveal too much! Just describe how that happened by having a conversation with my partner and suddenly realising we lost the trail.*

3. How do you orient yourself, if you get lost while on a hike in JNP?
   o What do you seek to orient yourself?

4. *Small-talk about getting lost topic*

5. If you end up or are hiking off the trail how do you navigate your way?

6. What do you think about the hiking infrastructure in Jostedalsbreen National Park compared to what you're used to?

7. Which elements of infrastructure in the park are important for you and why?
   o How do you use them while visiting?

8. How do you plan your hiking?
   a. What do you look for in your hike when planning a trip here?
   b. What helps you with planning of the trip?

9. Any memorable encounter with the infrastructure such as signs, marks, trails, fences or others within the park?

10. How do you find important information about the park when already in?

11. How do you react to signs within the park?

12. Why do you personally think the park puts up various signs?

These questions depending on a location:

13. What are the reasons you follow a trail?

14. What are the reasons you go to the visitor centre in JNP?

15. What are your thoughts on marked trails?

Park Manager Interview
This serves to generate, confirm or disprove of information used for the background of the study. The interview will be recorded and transcribed for keeping a record. Participant will be well informed of her / his right to withdraw from the conversation at any time, as well as asked for a consent to record and transcribe the interview. As I intend to generate data mainly for the background information of for the study, nonetheless important, I would like to lead this interview as a dialogue, where segments of work, or transcripts will be sent and tailored to for instance prevent revelation of undesirable information through my study.

The main focus of this encounter will be to generate knowledge on **how material arrangements are supposed to work and what was or is the purpose of maintaining them.** To specify the material arrangements: Information about visitor centres, maps, trails, boardwalks, marks, signs, roads, parking lots, bridges or entrances is of main focus. However, functions of other materials used for site management is also in the focus and can become an object for further study.

Furthermore, it is important to establish locations, where material arrangements of the park do not work as expected (such as fences to prevent people from walking and taking pictures under glaciers etc.) Additionally, places where high number of family, group of friends or other road bound visitors mingle and interact with the park's material arrangements.

Set up of the interview:

- **Establish rapport**
  - small-talk
  - weather
  - park
  - interesting locations
  - experience…
  - RECORDING?

- **introducing myself and what I do**
  - MSc Student, who approached NINA institute in Lillehammer to cooperate on a project in Norway
  - I like outdoors, hiking, backcountry camping, nature, environment, home-made stuff
  - Did multiple hiking, biking expeditions
  - Am interested in tourism and interesting sustainable developments in the sector

- **introduce my study and my intentions**
  - I am inspired by NINA on visitor monitoring studies, but I like the unexplored possibilities of qualitative research
  - I am interested in stories, interesting views on how people navigate on their visits to national parks

- I want to approach the field with an open mind and through participant observation, conversations and walking describe how visitors navigate through the network of visitor centres, maps, trails, signs etc
- I need to identify suitable places to 'participate', 'observe', and unobtrusively talk to and lead conversations with visitors in the park

- **Ask questions**

General

Can you tell me a bit about visitor management history in the National Park such as when the need to manage visitors started and why?

How do you manage visitors in the park?
What instruments do you use to manage visitors in the park?

I read that…
Do you use any physical measures for ensuring safety of the visitors?
Do you use any physical measures to protect nature?
Is there anything else?
Where can these be found?

When designing physical measures in the park do you take various kinds of visitors into account?
- What kinds of visitors and characteristics do you then consider?
- How do you see managing Norwegian visitors vs. managing international visitors?
    o Do you plan or design anything differently or same?

Trails

What is the history of trail hiking in Jostedalsbreen National Park?

What are the motivations for building a new trail or refurbishing the existing ones?

Can you describe the process behind creating a trail from the idea to the design and execution?
- What triggers the idea to build a marked trail?
- Who is involved in designing and building a trail? Why?
- What are the criteria for building a new trail?
- Why are some trails marked and some unmarked?

What are the reasons a visitor should follow a trail?
How is a visitor expected to navigate through trails?

How do you think the trails fulfil their functions and why?
How do you ensure a trail functions as intended?

Signs & Information Boards

Do they carry information that can be found elsewhere?
- Where?

Why is there a need for signs and information boards?
What determines the location of a sign?

- Information board?

How do you think various signs affect the ways visitors move throughout the park?

How do you find these signs to be effective and why?
How do you ensure a sign works as intended?

MAPS - Hiking Topographic Map & Visitor Centre Maps
Why are there freely available maps at the visitor centres?

- How are these maps created?

What are the intended differences between a standard topographic map (NORDECA) and the maps published by the park / visitor centre?

Why are some hiking trails not included on the map published by the park?

- The topographic map?

Visitor centre
Why should a visitor visit the visitor centres?
If a visitor wants to go hiking, why should he / she go visit a visitor centre?

Why are visitor centres located in the current areas?

Entrances, Parking Lots, Gateways
How is it decided on a location of a parking lot?

How is it decided on a location of an entrance?

Why should a visitor use an entrance?
How do you find parking lots and entrances significant for the movements of visitors?
How effective do you think these are in managing the movement of visitors and why?

Concluding
Is there anything else about this topic that I havn't asked you about?
Is there anything else worth for me to know?
With whom can I maybe talk more on this topic?
Could you provide any contacts? Networks that you know of?

9.2.2.3 Tourist information point

1. Can you describe what tourists usually ask specifically for hiking options?
2. What do visitors usually want to know about the tracks?
3. What hiking options do you recommend and why?
- Do you always recommend the same options?
- Do visitors ask about hiking options elsewhere in the park?

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4. What information do you provide to visitors who want to go hiking?

5. Does any local authority provide you with information about what tracks to recommend? If, what and why?
6. National park?