

Article

Negotiating Improved Multifunctional Landscape Use: Trails as Facilitators for Collaboration Among Stakeholders

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Abstract: Trails are significant features in landscapes, and many ancient pathways have developed into routes of great importance for recreation and tourism in contemporary societies. Nevertheless, international research on recreational trails has hitherto mainly focused on managerial and environmental aspects of trails and less on trails from a social science perspective, such as conflict management. This study explores the role of recreational trails as a potential tool for managing conflicts in a multifunctional landscape. The findings originate from a case study of the southern Jämtland mountain region in Sweden, an area where land-use conflicts exist and where tourism is a major concern. The study examines the recreational trail as an applied example where actors in the mountain landscape “negotiate” and collaborate. Through the recreational trail, dialogue and discussions are made possible among stakeholders. Findings show that trails can function as facilitators for communication and can thus enhance the possibilities of building trust and promoting collaboration between actors. This research contributes to the existing literature on handling multiple land-use interests and adds to previous knowledge by taking on a rather new approach, where the recreational trail becomes a facilitator for communication.

Keywords: trails; tourism; conflict management; collaboration; communication; mountain landscape

1. Introduction

Many ancient pathways, some of great importance historically, have developed into significant routes for recreation and tourism in contemporary society [1]. Trails constitute a valuable asset in many natural landscapes and in touristic and recreational settings, as they provide infrastructure and access to nature, offer interpretation, guide visitors to cultural features, and reduce the risk of becoming lost or of damaging ecologically sensitive places [2–4]. In this paper, we will discuss trails at two levels: First, trails in general—whether caused by humans, nonhumans, or both—and where present-day use may vary and, second, one of the common uses of trails in many parts of the world is for recreation, and this is also most visible in the present study, although other uses of the same trail may exist [4,5]. We take as the starting point in this study that the existence of trails can affect interactions between groups that use the same landscape for different purposes or that use it in different ways with different intentions. By following the notion that trails can have an impact on land-use stakeholder groups, the central purpose of this study is to explore the role of trails from two central perspectives: creating conflicts and reducing, preventing, and perhaps even solving conflicts. Thus, we build on the suggestion posed by MacLeod [3] that well-planned and well-developed trails can contribute to a socially, economically, and environmentally responsible tourism product, which can play a crucial role in managing resources.

Findings from a systematic quantitative literature review of 195 articles in scientific journals revealed that research on trails for tourism and outdoor recreation in nonurban settings is limited and has largely been carried out by natural scientists with the focus being environmental and on administrative management aspects of trail use [6]. The review identified research gaps about recreational trails, in particular from a sociocultural perspective on topics such as heritage, public health, and conflict management. Moreover, it could be expected that there would be more studies addressing the issue of conflicts surrounding trail-use, as there is evidence of increasing trail-use for recreational purposes in natural areas and a diversification of trail-based activities. Activities such as mountain biking, trail running, and mountaineering are becoming increasingly popular, thus competing for the same space as the more traditional trail-based activities of, for example, hiking and cross-country skiing [4,7–9]. This, however, does not appear to be reflected in the scientific literature.

There are, nevertheless, studies that have concluded that trails in and through landscapes can be used as a management tool to handle conflicts between different interests and user groups, e.g., Jackson et al., Mann and Absher, Schneider et al. [10–12]. This research is, however, mainly focused on conflicts between different recreation activities and within recreation groups and less on how trails can prevent or handle conflicts between different users of the landscape as a whole, i.e., not only those practising outdoor recreation [6]. We will, therefore, argue that many of the identified ideas for using trails, whether defined as recreational or other, to reduce tension and conflicts can be transferred to other types of trails and to other types of land-use conflicts, not only recreational. Although the present case study looks only at trails in rural areas, certain results may be relevant also in urban and peri-urban settings.

The results presented here come from a study of the southern Jämtland mountains in Sweden, an area where many different land use interests coexist and where tensions and conflicts are present concerning who uses the landscape for what and when. However, organisations, authorities, and unofficial interest groups at different levels in this area work to connect different stakeholders to minimize and prevent tension and conflict. Recently, there has been an increasing number of visitors engaging in different outdoor recreational activities in the case study area [13,14]. This has led to significant challenges in balancing the multifunctional use of resources in ways that combine sustainable livelihood for local populations, reindeer herding, conservation, recreational use, and local business development with national environmental goals related to a sustainable management of the natural and cultural environment. There is also an ongoing national park process in the area, which is a source of conflict, primarily between government agencies, reindeer herders, and local population [15–17].

The existence of trails can be one reason behind conflicts, but they can also reduce and potentially prevent conflicts [18,19]. This paper studies trails as an applied example of where actors in the mountain landscape can negotiate and collaborate around the multifunctional use of space to handle conflicts of interests. The aim of this study is to discuss the handling of multiple land-use interests by viewing trails as a resource, which can facilitate communication and collaboration among stakeholders. The following research questions are addressed in this paper:

- What are the perceived conflicts surrounding trail use and the management of trails (in the specific landscape) among various stakeholders, be they local, regional, or national?
- How can trails be used as a means to handle multiple and sometimes conflicting interests and, thus, to further a sustainable development of mountain landscapes?

Following this introduction, the paper will turn to the concept of multifunctional landscapes, land-use conflicts of interests, and important components of collaboration in natural resources. The empirical evidence in this paper is extensive, employing a number of data collection methods such as qualitative interviews, focus groups, and workshops as well as quantitative surveys from a period of five years. The data highlights different forms of landscape-use among stakeholders, and from this material, we have identified and distilled the conflicts surrounding trails from the perspectives of different actors and interest groups in the southern Jämtland mountains. We end the paper by

discussing that there are reasons to consider revised forms of planning and management of trails, where trails can function as a conflict management tool. This article thereby attempts to address research gaps in the literature on trails for tourism and outdoor recreation and to broaden the understanding of the use of such resources in multifunctional landscapes.

2. Theoretical Framework

The geographical context of the study is characterised by multiple land-use interests which aim for local economic and sustainable development: Thus, in a multifunctional landscape where local, regional, and state interests need to consider different resource uses and users—and where resources constitute a combination of the natural and the cultural [13,20]. Here, power relations, unresolved historical legacies, a high biological diversity, as well as other processes and values are in focus. A study of trails is one of several useful lenses to analyse the present and to suggest future directions [20]. In this paper, we employ the term landscape as an environment that has evolved through a combination of natural and cultural processes, a dynamic that continues, e.g., Wylie [21]. In addition, the concept of “land-use conflict” is central, e.g., Mann and Jeanneaux [22]. There exists no clear consensus of what defines a “land-use conflict”, but a definition that more clearly combines the spatial and social is increasingly promoted [23–25]. Abrahamsson [26] suggested that conflicts between land-users can arise if (1) land-users shift their activities, (2) land-users increase/decrease their use in time or space, or (3) new land-users appear. However, these elements are mainly concerned with spatial issues and less with social aspects. Mann and Jeanneaux [22], on the other hand, argued that land-use conflicts are social disputes between stakeholders over interests, hierarchies, and norms, thus ignoring the spatial and ecological component. Here, we use the definition suggested by von der Dunk et al. [23] (p. 149): “A land-use conflict occurs whenever land-use stakeholders (=conflict parties) have incompatible interests related to certain land-use units (=geographical component)”, thereby integrating social and spatial aspects.

2.1. Multifunctional Landscapes

This paper takes as its starting point that all landscapes are multifunctional, although to what extent has varied over time and place. Research, internationally as well as in Sweden, has shown that stakeholder conflict over resource use and between multiple land-use interests, i.e., in multifunctional landscapes, remains an important obstacle for sustainable management in many landscapes [27–29]. For example, Steinhäuser et al. [25] found in their research on land-use conflicts in Germany that stakeholders are becoming increasingly aware of the scarcity of land as new forms of land-uses appear and that the competition over this resource has resulted in conflicts not only within both national and regional authorities and interest organizations but also between levels of governance. Wall-Reinius et al. [30] argue on a similar note that the discrepancy between local, regional, and national interests and the perceptions of landscape need to be addressed when discussing the management of land-use conflicts in multifunctional landscapes, as the differing viewpoints of what a landscape represents can be difficult to overcome.

The issue of commons and management should be mentioned in this brief overview of some of the theoretical issues concerning the concept multifunctional landscapes. Adams et al. [31] discuss how multiple use interests in common pool resources can cause conflicts and how a more sustainable management of these can be promoted by fair negotiations between stakeholders. Likewise, Vejre et al. [32] using case studies from Denmark to discuss the concept of commons in relation to multifunctional landscapes. They conclude that one has to determine the dominant functionality (or functionalities) of a landscape and that this, rather than only ownership or juridical status, should play an important part in discussions and decisions on most suitable management forms. This argument, however, presupposes that one (or more) landscape functionality can be assessed as paramount to others, which is often problematic.

Debarbieux and Price [33] argue that mountain landscapes display many of the features that distinguish a common good. These landscapes are often collective properties, with either private or public status, and access to mountains is open to anyone and independent from the property regime. It is difficult to exclude people from using the mountain landscape, and one group's exploitation can reduce the benefit for another, which is an essential characteristic of a common pool resource [34]. Placing conflicts of interests over common pool resources in a multifunctional mountain landscape context, it can be argued that infrastructure in the mountains such as trails, bridges, and shelters constitute a common good, as these attributes are available to anyone. In Sweden, this is particularly prominent due to the Right of Public Access. Fredman [35] argued that the free access to trails can cause problems of crowding on popular trails, as competition between interests, such as those of hikers and mountain bikers, emerges. Thus, trails in mountain landscapes display characteristics of a common resource as an increased number of users reduce the benefits for other users, yet it is complicated to exclude people from using the trail [35]. However, conflicts relating to increased competition over the trail as a resource not only are limited to conflicts between recreational activities but also can involve other land-use interests [36]. Trail conflicts can occur between trail users and other recreationists, such as between hikers and hunters, e.g., Reis and Higham [37], but there can also be conflicts between trails users and adjacent private landowners, for example, between snowmobilers and second homeowners, as suggested by Brown et al. [38]. Pröbstl-Haider et al. [19] found in their work on mountain bike tourism in the Austrian Alps that increasing numbers of mountain bikers disturbed farmers and foresters, thus pointing out trail-related conflicts between recreationists and non-recreational land uses. In a multifunctional landscape with the characteristics and attributes of a common pool resource, it is therefore highly relevant to analyze who uses what part of the landscape, when, and for what—and what types of conflict occur and how these can be minimized.

An argument stressed in Adams et al. [31] is that policy debates about the use of common pool resources, as exemplified in the study area with free access to the mountains and to many of the resources they offer, are often flawed in that they assume a shared understanding and tend to hide uncertainties, tensions, and contested issues. By making these explicit, the transparency and effectiveness of negotiations over land-use may be improved, although the results of these may not be a win-win scenario [31]. The discussion about whether to strive for win-win outcomes or to accept trade-offs has been particularly intense concerning nature conservation versus other land-use strategies, see, e.g., Dahlberg and Burlando [39]. However, it would potentially be helpful to not consider these as opposites but rather to perceive the need for trade-offs as the starting point and to perceive that a transparent negotiation where trade-offs are shared fairly should be considered as win-win.

This is not the space to conduct an extensive review of the concept multifunctional landscapes (or land use) but rather—based on extensive reading of studies where the concept is explored in different ways—to highlight some issues of specific relevance to the present study. However, firstly one can wonder if a multifunctional landscape differs from “a landscape” and are not all landscapes multifunctional to different degrees depending on the selected scale as well as between different landscapes selected for comparison? Furthermore, one needs to be aware that the application of specific concepts, often in vogue for a limited time period, may hide useful experiences and findings. Studies on multiple and often conflicting landscapes, e.g., Collier and Scott, Linke and McDermid, Work and Thuon [40–42], seldom use the term multifunctional landscapes but instead talk about conflicting land use interests, mosaic landscapes, portfolios of land uses, multiple land use, land uses in transition, and so on. Thus, it must be recognized that the research (and policy) field of multifunctional landscapes is not new—even if the term has gained popularity since the late 1990s. Otte et al. [43] stated in their article that recently the interest in the concept of multifunctional landscapes had increased immensely among scientists, policy makers, and the general public, and when reviewing research papers and policy documents since then, it is clear that this interest has not declined. Thus, the concept has contributed to an increased interest in a situation that is common, previously researched,

and potentially very important for future sustainability [44] but, as noted above, can also result in disguising relevant studies that did not explicitly use the term.

The somewhat sparse use of the term multifunctional landscapes in academic papers does not, however, imply that the concept has not been described, explored, and dissected into different types of multifunctionality, see, e.g., O'Farrell and Anderson, Naveh, Stück and Verburg [44–46], of which have. It could be argued that the absence of a clear definition of the concept multifunctional landscapes is not necessarily negative since all landscapes, including those we chose to define as multifunctional, are unique and dynamic over time, and thus, a single static definition may cause more confusion than clarity. A subdivision of the concept often referred to and of relevance to this study on trails and their uses and users is the concept of Brandt and Vejre [47], who differentiated between three forms of multifunctionality: spatial segregation (different functions at the same time in different spatial units), temporal segregation (functions occurring on the same land at different time periods), and concurrent multifunctionality (functions occurring at the same time in the same place).

Another popular theme in the research literature on multifunctional landscapes are studies that explore the concept in relation to inter- and transdisciplinary research approaches, as exemplified by a special issue of *Landscape and Urban Planning*; see O'Farrell and Anderson, Naveh, Fry, Tress and Tress, Tress et al. [44,45,48–50]. Although somewhat unclear whether this research aims to promote transdisciplinarity with multifunctional landscapes as an example or vice versa, the main arguments here are 1) in planning for future sustainable land use, multifunctional landscapes are a key factor and 2) multifunctional landscapes include ecology, culture, and economy and thus multiple experiences, knowledge systems, and interests must be taken into account. Thus, scientists must collaborate over disciplinary borders as well as with various stakeholders involved in any particular landscape, such as authorities, organisations, and especially local people who represent among themselves many different interests [30,49].

2.2. *Components of Collaboration in Multifunctional Landscapes*

Dialogue and collaboration are increasingly promoted to instigate fair negotiations between stakeholders with different interests and power, as suggested by Adams et al. [30]. Multi-stakeholder partnerships to manage common-pool resources (CPRs) are identified as crucial for sustainable development [27,51–53]. Collaboration is a process which takes time and requires effort from all stakeholders to be successful, to build trust, to learn together, and to establish mutual goals [54–56]. A fruitful collaboration between actors enhances the capacity of agencies and communities to manage common resources in multifunctional landscapes [57,58]. Thus, it is strongly suggested that collaboration is an important means to handle conflicts between stakeholders [59,60]. Here, it is useful to take advantage of existing social networks to build trust and to promote social relationships [28,60–63]. This will affect how management decisions are received and socially accepted by communities as well as authorities [54,62].

Building trust is an essential component in the success of collaboration and conflict management processes [64–66]. In order to build trust between actors, especially when there are disagreements between government agencies and local interests, it is, according to, e.g., Davenport et al. [67] and Graci [68], important to focus on building informal relationships and to provide opportunities for repeated interactions. Also, other studies, such as those by Stern [55] and Towner [56], promote the creation of platforms where stakeholders can meet and where representatives of different interests can come together and learn about each other's perspectives, thus promoting increased trust between parties. Communication that builds trust between stakeholders is considered an essential element of conflict resolution regarding disputes over common natural resources in multifunctional landscape [28,54,58]. Westberg et al. [69] suggest that a central point regarding natural resource conflicts resolution is that stakeholders enter into a dialogue about the roots and nature of the conflict to express and explore their different perspectives. However, communication can obviously be problematic, and participants may not raise disputed issues to avoid compromising future relationships. This may mean, according

to, e.g., Lee Jenni et al. [70] and Westberg et al. [69], that motivation to participate in a collaborative effort are low when important issues are not expected to be discussed and when underlying conflicts are not made visible. Creating forums where dissenting opinions and experiences are allowed and encouraged can have several benefits for improved and more sustainable decision-making. Visibility of conflicts in organized forms may lead to increased involvement by all stakeholders, to a better understanding of different perspectives, and to the stimulation of creative solutions [70]. As emphasised by Peterson et al. [71], it is important that persons with professional training in communication skills are present in such forums to guide participants, e.g., in active listening.

3. Methods

During the time period of 2013–2018, we collaborated with stakeholders in the study area, and the present paper uses interviews, a workshop, and a survey, as well as field trips, including walks along trails together with stakeholders, to capture the multitude of uses, experiences, and perceptions found in the area. To use multiple methods strengthens the results, since one learns different aspects of the issue under study from each method employed. By combining the separate analyses, a broader and more complete understanding of the roles and experiences of different stakeholders can be pieced together, including their use and need of trails in this particular landscape. Here, we follow the examples described by Creswell and Plano Clark [72]. Many of the respondents interviewed separately also attended the workshop, but this also included numerous additional stakeholders with an interest in the area and/or in mountain trails in general. How the different data sets were collected over time and how they feed into each other are explained in detail below.

Data collection has been carried out in two phases. In the first, qualitative interviews with a broad range of stakeholders were conducted to provide a background to land use, experiences, and perceptions about challenges in this landscape. Thereafter, interviews were conducted with a specific focus on the role of trails and conflicts of interests. In phase two, a survey and workshop in collaboration with a member organisation in the study area were carried out to give answers to the specific aim of this paper. The data is of a qualitative nature and has been analysed accordingly. Interviews and workshop discussions were coded manually in order to find patterns and disparities on how respondents talk about trails and conflicts in landscape use, see, e.g., Boeije [73], and to be able to set individual responses in their relevant context. The results of the survey were described by using descriptive statistics, which provided basic features of the data in the survey [74].

3.1. Phase One

3.1.1. Qualitative Interviews with Stakeholders

To gain a deeper understanding of how different stakeholders viewed the multiple use of the study area, 37 people were interviewed during fieldwork in 2014 and 2015. Respondents were selected to cover a wide range of interests, responsibilities, and locations. Participants were selected based on their key roles among public authorities on national, regional, and local levels; among regional and national organisations; and among local organizations, for example, representatives for community associations and Sami villages. In addition to this, people living and working in the area without any formal connection to any organization were interviewed. Apart from the initial selection of respondents, more individuals were identified through snowball sampling while on fieldwork [75]. Small communities bordering the mountains to the north, east, and south were visited, and 18 of the respondents were from these communities (e.g., several entrepreneurs, one representative from a snowmobile organisation, and several representatives from local associations). Interviews were semi-structured, using similar lists of themes for all. However, the interviews included many follow-up questions, which varied between respondents [76]. Interviews lasted from one to two hours and were recorded and transcribed when necessary, and detailed notes were taken. The respondents were asked to talk about experiences of landscape use, perceptions of landscape change, conflicts of interests, and their thoughts about

future development. There was no specific question about trails included in the list of themes used in these interviews, but the respondents often brought up the issue of trails in connection with several of the different themes discussed. For the purpose of this study, we reviewed the transcripts of the initial 37 interviews again to be able to highlight respondents' views on trails specifically to detect patterns and differences in how respondents view trails in the mountain landscape. This preliminary study was followed by another round of in-depth-interviews but, this time, with a focus on trails. Some respondents had already been interviewed while new ones were also added. The format of these interviews was the same as those described above.

3.1.2. Qualitative Interviews with a Focus on Trails

This round of interviews included 15 people representing the state and regional agencies (7 respondents), tourism businesses (4 respondents), and Sami villages (2 respondents); one landowner; and one private consultant working on a mountain bike project organized by the County Administrative Board. All respondents were selected prior to the interviews based on their roles in the organizations they represented. The interviews were conducted in the spring of 2016, and five of the 15 interviews were done by telephone. The interviews were semi-structured and allowed for follow-up questions and elaborations on the topic. The questions were concentrated to issues of trail use and management in the case study area, with a focus on conflicts relating to trails. The questions followed the same theme for all interviews; however, some questions were specifically designed for each respondent.

Of the 15 interviews, 12 were audio recorded with the approval of the respondents. The remaining three interviews were recorded through notes. The interviews lasted for about one to two hours and were afterwards transcribed.

3.2. Phase Two

3.2.1. Participatory Workshops with Fjällforum

In the second phase, which followed after the two interview studies, the research team together with the association *Gränsfjällen Sylarna i samverkan* organized two lunch-to-lunch workshops—in two consecutive years—together with stakeholders in the area. One of these workshops focused on trails, including conflicts about them. The workshop took place in April 2016 during the association's meetings called Fjällforum. The purpose of the workshop was to discuss topics that stakeholders had expressed to be pressing and important and to involve the stakeholders in the research process, including presentations of recent research to co-generate knowledge through communication and collaboration [54,77]. The parts of the workshop organized by the researchers was much strengthened by the knowledge gained through the interviews and field walks, as well as our increased familiarity with various stakeholder groups.

The workshop focused on current and future use and management of trails and included about 40 participants. Following the presentations, participants discussed in groups of three to six people, with one researcher assigned to each group. Each group was given the same set of questions, and the participants discussed topics such as the definition of a trail, the use of trails in the area, management and information of trails, conflicts associated with trails, future needs, changes in the trail system, future challenges in trail management, finance, and responsibility, etc. The group discussions on the first day lasted about an hour, and the session on the second day lasted 45 min. The groups appointed one secretary to take notes, and the moderating researcher also took notes. When the sessions had been concluded, the moderating researchers from each group presented a summary of the discussions in front of the whole group, which led to some issues being discussed in the larger group.

3.2.2. Web-Based Survey to Stakeholders Invited to Fjällforum

Prior to this workshop with Fjällforum, a web-based survey regarding trails in the case study area was distributed to 107 invited people in order to explore attitudes towards and opinions on trails. The

survey was available online between 4 and 21 April 2016, and two reminders were sent out. The survey concerned a number of issues, such as the role of trails in general and potential conflicts associated with trails, marked trails in the area, historical trails and unmarked trails, and the respondents' own use of the trails in the case study area. In total, 54 persons answered all questions in the survey, and 10 persons completed parts of the survey, which gives a response rate of 60% ($n = 64$). Answers were provided anonymously.

Two-thirds of the respondents were from Sweden and one-third was from Norway. Among the respondents, 59% were male and 41% were female, 48% represented public authorities, 24% represented local businesses, 17% were nonprofit organizations, and 6% represented private persons or local landowners.

4. Case Study Area

The empirical study concerns the southern mountains in the county of Jämtland in Sweden (Figure 1). The study area is about 2250 km² and includes mountain peaks with glaciers, highlands, valleys, open and forested lands, lakes, and rivers. The study area is located at a distance from the population centers, where local stakeholders live in dispersed villages. No one lives permanently on the bare mountains, and the highlands and forested lands are sparsely inhabited. No exact statistics exist for the study area, but less than 1000 people live in the surrounding villages of Handöl, Enafors, Östra and Västra Vålådalen, Ottsjö, and Ljungdalen [78,79]. However, in the two municipalities where the case study area is located, the total number of inhabitants is almost 18,000 [79] and most live in small towns. For people living in the study area, it is common to have several occupations, often combining small-scale tourism businesses with other work [30]. Apart from local stakeholders, the study explores other interests in land use, which includes the municipalities, the county, and the state, as well as private entrepreneurs, i.e., people not necessarily residing in the study area.

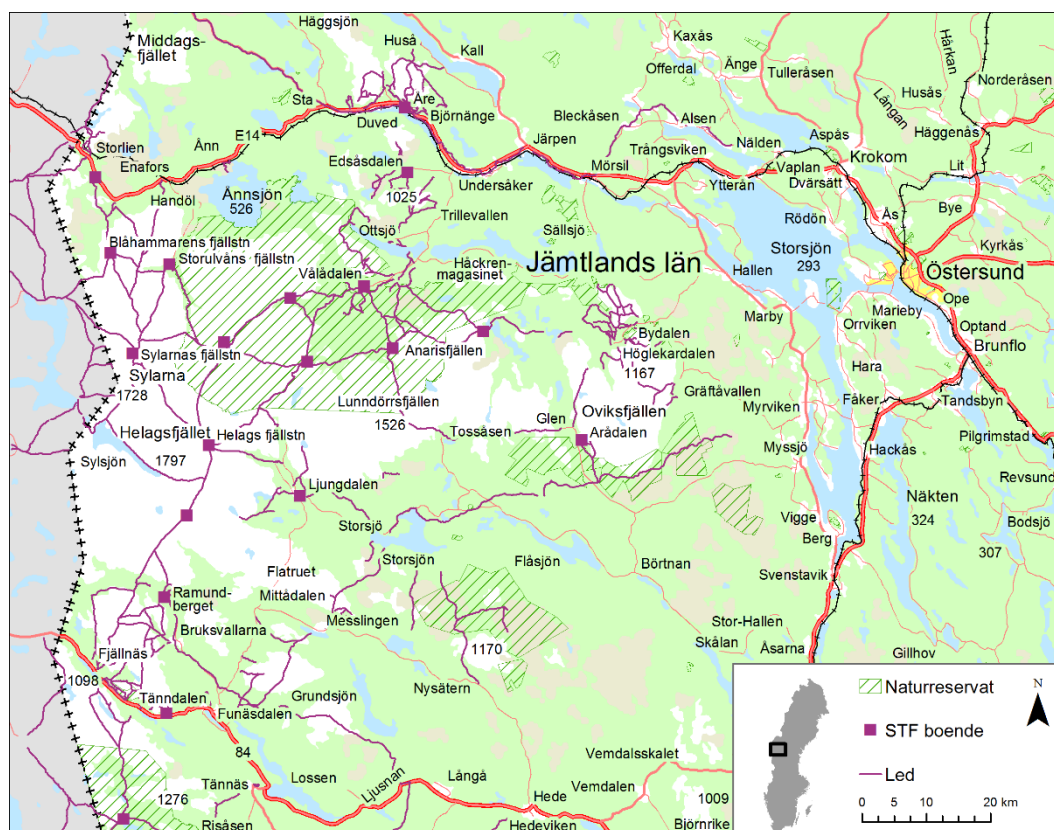


Figure 1. Map of the case study area and the trails within: Map by Marika Wennbom.

The southern Jämtland mountains are characterized by a multifunctional use, such as extensive reindeer herding, nature conservation, local outdoor recreation and businesses, nature-based tourism activities and facilities, hunting, fishing, berry picking, and small-scale farming. In the study area, a nature reserve (also a Nature 2000 area), Vålådals nature reserve, is found, where special regulation exists concerning motorized activities, dogsledding, hunting, and fishing [80]. In addition to the present protected area, state authorities have suggested the establishment of a national park and initiated a process to create this [80].

Reindeer herding is an activity distinct to the indigenous Sami people. The study area and its proximities involve three Sami villages, of which one has their calving area and summer grazing land in the same location as the most frequently used areas for tourists and local leisure activities. Reindeer herding is a business that largely relies on opportunities of flexibility, as the semi-domesticated reindeers move over vast areas throughout the year. However, reindeer herding is not only an economic activity but also the basis of Sami culture, heritage, and identity [81]; see also Rydberg [82]. The Swedish Tourist Association (STF) is in charge of ten mountain cabins in the area, connected through various trail networks [83]. In 2017, the number of guest nights in STF cabins in the study area was nearly 62,000, an increase of about 12% from 2016 [84]. Digital counters on a popular trail showed that the number of visitors had increased by a factor of five between 2013 and 2017 and that the proportion of bicycle passages had gone from 14% in 2015 to 33% in 2017 [14]. Thus, the total number of visitors, whether local, tourists from Sweden, or from abroad, had increased. Most of the popular activities among recreationists, both locals and visitors, are trail-based such as hiking in summer [85,86] and cross-country skiing in winter [87]. Recently, there has been an increase in new forms of recreational activities, such as mountain biking, trail-running, mountaineering/alpinism, river rafting, guided tours with an educational focus, and organized sport events [14,88]. With few exceptions, these activities also depend on existing trails.

In the study area, there are about 500 kilometers of marked trails managed by the County Administrative Board [13]. In the Swedish mountain region as a whole, the state managed trail system consists of 5500 kilometers in total of marked trails in four counties. This network includes summer trails, winter trails, bridges, wind shelters, signs, and footbridges [16]. The purpose of the Swedish mountain trails is to make the mountain area more accessible to visitors, to increase mountain safety, and to channel visitors so as to safeguard other values, such as, wildlife and reindeer [35]. Swedish Environmental Protection Agency (SEPA) representing the state, is in charge of planning and coordinating the trail network, including the principles of this, the standards of signage, marking and facilities (e.g., wind shelters), and allocating funds for maintenance to the County Administrative Boards [16]. The counties are responsible for the direct coordination and maintenance of trails and facilities, such as wooden boardwalks, shelters, and bridges. SEPA [16] has recognised that changes in recreation activities and inadequate financial resources has affected management negatively and that major parts of the trail system are in need of extensive restoration. Furthermore, the County Administration Board also stated that the increased number of visitors and new types of activities have caused land erosion, litter, and conflicts between different trail users to increase, including disturbances to the reindeer and thereby to the Sami people [13]. The present study will contribute to increasing the understanding of uses and conflicts, and thereby, the results and conclusions of this study will have important societal and managerial relevance.

5. Results

5.1. Perceived Conflicts

Many existing conflicts, explicit or more hidden, were mentioned in the interviews from phase one of the research project. There were multiple complaints about how authorities did not take responsibility or how interest groups did not seriously listen to other needs, as well as a gap in trust between different groups. It was also clear from the interviews in the first phase of the project, where

there were no specific questions about trails and conflicts, that wear and degradation are significant sources of conflict. Many respondents mentioned that degradation of the environment could be linked to trails—or the lack of trails—including trails used for different purposes such as walking, biking, skiing, riding, running, and snowmobiles. Before providing some examples of respondents' experiences, we should note that, when there were complaints about damage to the environment along trails, there was no comparative comment concerning what the effect on the landscape would be if more people walked outside the trail system. For example, a Sami reindeer owner complained about the littering along the hiking trails: "The visitors have less knowledge and are less inclined to take care of their litter, as well as being less familiar with and used to the mountain environment". Another respondent who owned a holiday cabin in the area stated that, although the season for tourism had increased as well as the number of visitors, he saw no sign of damage to the environment. This difference in opinion was clear throughout the interviews, with some complaining about damage and others claiming there was none or none to worry about.

Interviews in the second phase of the project included direct questions about the use of trails and conflicts in the case study area. All respondents stated that trails can cause conflicts between users and interests, but the answers from the respondent groups differed somewhat regarding what types of conflicts were in focus. For the interviewees representing tourism businesses, the primary conflict mentioned was between recreational activities, for example, hiking and mountain biking. One of the tourism entrepreneurs with a business located in the area also expressed irritation over mountain bike rentals in Åre village that would recommend tourists to go to the southern Jämtland mountains to bike on the trails without knowing the conditions of the area and where mountain biking is suitable. He claimed that this counteracts his own business' efforts to minimize conflicts between interests by providing information to visitors on where mountain biking is recommended.

All of the tourism business representatives mentioned the conflict between tourism and reindeer herding as prominent in the area, and they are aware of the fact that popular trails are located where there are many reindeer and that the tourists often scare the reindeer. Another prominent cause of discontent expressed by tourism businesses was the maintenance of the trails by the regional administrative board, and they perceived the trails in the area to be worn and in need of restoration.

The two respondents representing reindeer herding interests brought up conflicts between them and the tourism businesses and between specific recreational activities and the reindeer herding as the most pressing issues related to trails in the area. In addition, the reindeer herding representatives expressed irritation with the state and regional management agencies for not changing the location of some trails to more (in their opinion) suitable places and for not being able to properly handle the issue of tourists and recreationists disturbing the reindeer.

The state and regional management agencies brought forward a number of conflicts related to trails but primarily discussed conflicts between tourism and the maintenance and management of trails and between tourism and nature conservation interests. The respondents stated that the lack of adequate resources to maintain the trails has resulted in wear, erosion, and littering adjacent to the trails as the number of visitors in the area has increased. The representatives of the regional administrative board working out in the field, thus meeting many recreationists, stated that recreationists in the area often express dissatisfaction with the state of the trails. It is also interesting to note that the respondents managing the trails on a regional level expressed frustration over the lack of financial resources, which are governed at a state level, and over goal conflicts in trail management between governmental levels.

The representatives of the regional and state agencies also mentioned conflicts between reindeer herding interests and tourists as a problematic issue in the area, but it is clear that the officials on different levels talked about conflicts between these user groups from different perspectives. The officials working on an overall level, dealing with a variety of tasks relating to natural area management, appeared to have a more distanced view on these conflicts and talked about them as being between reindeer herders and tourists. The personnel working in the field, on the other hand, stated that they became drawn into this conflict as, for example, reindeer herders tell them to keep track of "their"

tourists so that they do not disturb the reindeer. In addition, field personnel stated that tourism businesses contribute to the issue of trail degradation by encouraging trail running, which can cause boardwalks to break.

State and regional management representatives also underlined the importance of working proactively to handle conflicts between interests and expressed frustration over the feeling of always being one-step behind the development in the area, for example, when it comes to recreational activities. Some of them were of the opinion that solutions and management actions are often ad hoc instead of proactive and that there is a need for more resources to work with information and interpretation to reduce conflicts.

Discussions in the Fjällforum workshop also revealed that the stakeholders associated trails with conflicts and that a change in the current trail system is called for. The most discussed conflicts surrounding trails concerned reindeer herding and recreational use, tourism and nature protection, and conflicts between recreational activities such as between biking and hiking and between snowmobiling and cross-country skiing.

A prominent theme that emerged from the interviews in phase one was that of trails and snowmobiles. The only specific use of trails mentioned in these interviews by almost all respondents was that of snowmobiles, and respondents' opinions on this covered the full range from very negative to very positive. One reason for this interest was that, when the interviews were conducted, there were heated discussions concerning the suggested new national park and the future use of snowmobiles in the area was seen as threatened. Another reason was that the local population have a strong dependence on snowmobiles during the long winters, for daily life, own income, and recreation. An important aspect that many local residents highlighted is to retain access through trails to important places on the mountain, e.g., holiday cabins and fishing lakes. One respondent expressed, "I am against a national park because I do not know what will happen. For example, I do not know if coming generations will be allowed to drive a snowmobile to our fishing cottage".

One local resident who organized snowmobile trips for tourists described how the use of snowmobiles was regulated in 1976 and that, while before the use of them in the landscape was relatively free, they were now restricted to specific trails. Although he himself was dependent on the use of snowmobiles for his business, he viewed this regulation as positive "to steer people; [it] will increase safety plus provide for other spaces where it is calm and quiet. It will also increase concern for the fauna and other nature." None of those interviewed in the first phase, irrespective of their own use of snowmobiles, wanted to abolish this regulation, and several mentioned the same beneficial effects, especially the safety aspects. However, among the local people, there were those who expressed concern that the use of trails was not always enforced, i.e., people got away with driving outside the trails. For example, it was mentioned that this caused degradation of the moors. Overall, the view on wear and degradation due to snowmobiles varied among the local residents, with some claiming that this occurred and others claiming that it did not.

One opinion expressed was that, with the trails, the disturbance from snowmobiles was greatly reduced although the number of users has increased and that "people respect the trails". The representatives from different authorities at the local, regional, and national levels did not overall mention snowmobiles specifically, although there were many views on trails in general. However, one respondent was of the opinion that snowmobile trails preferably should be reduced, referring primarily to the issue of noise but added "We do not have to develop the trail system for snowmobiles, but we cannot close down existing trails". The impression gained from various authorities was that they perceive snowmobiles as a problem, i.e., that it reduced the sense of wilderness of the area, but that they fear the local protests that further restrictions and regulations would lead to.

5.2. Channeling Landscape Use through Trails

An aspect raised by a few local tourism entrepreneurs interviewed in the first phase—but potentially valid for several—was the need for trails that link the geographical location of their business

with the wider trail system. The main tourist trails link the different cabins operated by STF, but there are also other, local, tourism businesses located around the mountain area, and these representatives consider access to the mountains central for the survival of their business. One of these operators suggested that one trail could have a varied system with “specified trails in certain areas and then other areas where one could move more freely, and in these areas, one could limit the number of visitors per time period or not make access so easy”. A representative for tourism businesses at the regional level also had thoughts about trails and how they can aid both tourism and nature conservation, and these included the ideas shared by many that people will primarily move along trails irrespective of where they are located but that detours may be perceived as negative. In these cases, the respondent thought that tourists must be informed about the reason for a specific route, e.g., to avoid causing degradation and disturbance, but that there should also be efforts to make the selected route attractive.

A representative from the County Administrative Board, which is an advocate for a new national park, stated in the first phase of the project that she led tours for visitors away from the demarcated trails, which is somewhat surprising. She said that, since the overall area has so many trails and so many visitors, it is good that there still are areas where one can be more alone and find calm. However, a thought here is that only those really familiar with the area can find these places or dare search for them, while others need to remain on the designated trails, especially if channeling through trails is emphasized in future planning. The same respondent stated that, by making sure that the existing trails fulfil their purpose and are in excellent condition, visitors will choose to use the trails instead of going off-trail and risking damaging sensitive species. A SEPA representative expressed a similar view, stating that he thought restrictions of how the landscape is used should be kept to a minimum. He also stated that uses that may cause damage (e.g., biking, riding, camping, and making fire) should be handled through more information and education and through making less sensitive areas more accessible through trails and different forms of adjustments. However, between—and within—the different authorities involved in the area, it appeared that opinions also differed as to future restrictions and channeling through trails.

The outcome from the discussions at the Fjällforum workshop and the associated survey support the interview findings that stakeholders perceive trails as an effective management tool for channeling recreational activities and visitors in the landscape. Stakeholders argued that the increasing number of visitors coming to the area in combination with new recreational activities has resulted in negative impacts on reindeer herding, wildlife, and vegetation, which makes new approaches to the planning, design, and management of trails necessary. Results show that stakeholders find trails helpful in channeling visitors away from sensitive vegetation, wildlife, and reindeer herding, and as much as 98% of the respondents in the survey think trails are an important means to reduce negative impacts from humans.

5.3. Reducing Conflicts through Hard Management Approaches

The respondents representing state and regional authorities were all very clear that the best way to reduce conflicts between interests is zoning and channeling visitors in time and space, which the tourism business representatives supported. One tourism provider suggested that some trails that are not used extensively should be removed and that resources should be focused on the most used trails. Respondents representing state and regional authorities also stated that strategic planning is necessary and that there is a need for alternative ways of thinking about the trail system and to try innovations. One example that was mentioned is adaptive trails that can be closed or can change directions certain times of the year to steer visitors away from the reindeer calving areas or other sensitive nature areas. The governmental representatives were also in consensus that it is necessary to thoroughly examine the trail system in the area and to restructure it by redirecting certain problematic trails and by closing some trails.

It is obvious that the activity of mountain biking is a concern for all stakeholder groups, and representatives of all interests suggested management actions such as restricting mountain biking in

certain areas, forbidding mountain biking, or even constructing separate mountain bike trails. In the survey associated with Fjällforum, just over 60% of the respondents stated that they want separate mountain bike trails constructed in the area, which further indicates that mountain biking is an activity that causes tensions between land-use interests. This is illustrated by two quotes from the open-ended questions in the survey: “Bikers on the trails are irritating to many people. This year I even met bikers in wintertime.” and “The increased mountain bike activity destroys the trails and makes it more difficult for hikers.”

The respondents representing reindeer herding stated that governmental agencies must work proactively to restrict activities because regulations are essential to direct tourists. One of the Sami reindeer herders who was interviewed in the first phase of the project stated that, in order to handle the negative effects from decreased knowledge among visitors on how to properly behave in the mountain environment, there is a need for a revision of the present trail system. The purpose of the revision, he thought, should be to avoid the disturbance of reindeer and to make sure that tourists need to keep to designated trails.

5.4. Reducing Conflicts through Soft Management Approaches

Irrespective of where the respondent lived, which interests he/she represented (often multiple), and how he/she used the various trails that exist, many respondents emphasized the need of dialogue between different actors, be they Sami reindeer herders, STF, government authorities, small-scale tourism entrepreneurs, hunters, or other. The respondents from all groups, in both phase one and phase two of the project, highlighted soft management approaches as a necessary complement to restrictions and regulations. There is a consensus among the groups that communication, collaboration, and information can be effective means to handle and reduce conflicts between interest groups in the southern Jämtland mountains. For example, a municipality representative interviewed in phase one stressed how “central it was for people to get to know each other and gain an increased understanding for other interests”. A respondent representing the local community stated, however, that it is very difficult to initiate collaboration between interests and to make it work because many of the conflicts are long-standing and infected. The respondent expressed that there is a great fear in the local community that a national park would bring restrictions to the everyday lives of the locals and reduce their quality of life, which makes collaboration with governmental agencies difficult. Nevertheless, the same representative believes it is possible to make collaboration between parties work through dialogue and communication, but it will take much time and efforts. Several respondents brought up the Gränsfjällen Sylarna i Samverkan and the mountain bike project as good example of collaborative platforms and expressed the need for such platforms in the area in order for conflicts to be manageable. One of the tourism business representatives suggested that it is important for an impartial facilitator to be present in the meetings, as he experiences state authorities to be biased and favoring certain interests.

The respondent representing management on a state level and one of the reindeer-herding representatives both stated that there is a need for more information about visitors in the area. They expressed a need to examine trends in outdoor recreation and to approximate how many visitors come to the area during winter- and summer season and where most of the activities take place in order to be able to work proactively. They suggested more research and visitor surveys to obtain an information base to support management decisions. In addition, there is also a need for an effective information system that can inform visitors about conditions in the area, for example during calving, according to these two respondents. There is no such system today, which makes getting the information out to the visitors difficult. Several of the respondents highlighted that conflicts often occur because visitors to the area do not know they are disturbing the reindeer or trampling sensitive flora because they do not have the right information. The issue of reaching visitors with information about the area and how to behave in it is essential, according to a majority of the respondents, but so far, there are no concrete suggestions of how such an information system could work and who would be responsible for it.

6. Discussion

6.1. Conflicts Over Trails in a Multifunctional Landscape

Our study of trails as a cause of conflicts but also as a potential facilitator for collaboration in a conflict-ridden landscape began with the recognition that there are multiple different land-use interests—and different discourses over the concept of landscape—in the past, today, and in visions for the future. A majority of local stakeholders as well as visitors use the trails and consider them essential for facilitating access and to increase safety. Conflicts of interests in the study area have briefly been discussed in policy documents, see, e.g., Country Administrative Board [13], and in previous scientific studies, [30] but here, we examine these conflicts more in-depth specifically in relation to trails. What are the conflicts over land-use with a focus on trails, and how can trails be used as facilitators for collaboration and communication? As in all research based on empirical data from a specific study area, in this case the southern Jämtland mountains, i.e., an area with a distinct history and unique ecological and social relationships, the results and conclusions should be extrapolated with care. Nevertheless, the findings and lessons from this study will be useful in other areas dealing with similar issues.

Our findings show that conflicts connected to the location, use, and management of trails exist at many different levels. Stakeholders view these conflicts differently depending on their role in and relation to the mountain landscape. There are conflicts between actors that use the landscape differently, for example, between tourist entrepreneurs and reindeer herding companies and between hikers and mountain bikers. There are also conflicts between different levels of use and governance, e.g., state, county and municipal agencies and local populations, for example, concerning issues of nature conservation. We found that these conflicts, to a large extent, were an effect of what was considered by some to be unsuitably located trails, an increase in numbers of visitors, as well as new and more diverse interests in how to use the mountain landscape. Land-use conflicts between the national, regional, and local levels are, however, by no means exclusive to the mountain landscape, as they are also visible in agricultural landscapes [25], forest landscapes [29], and watersheds [63].

In land-use conflicts, underlying conflicts may not be visible, such as power relations and unresolved historical legacies. One example and an interesting argument posed by Taylor [89] relating to this study is that the trail itself is a powerful place for representation and that, through attributes such as location, design, and signage for visitors, it becomes a coproducer of a landscape important to specific groups. In his study of an interpretive heritage trail in East Jerusalem, it became clear that, by bringing dominant narratives forward through the trail, it possesses the privilege of excluding other stories of the urban landscape. Our study shows similar findings where specific groups, predominantly the reindeers herders and the local population, experience that touristic and governmental interests are manifested through the trails and are thus allowed to represent the dominant narrative of the area, leaving others excluded.

Other conflicts are of a more material nature, and in the study area, these can be exemplified with erosion and worn and overused trails. Other, but related, conflicts relate to the ongoing fragmentation of the landscape, the detrimental effects on sensitive vegetation, and the displacement of wildlife, a fear of reduced access favoured places and a strong feeling (with historical connotations) of a top-down imposition in relation to local knowledge and use of the land. These examples of conflicts can be related to different views on mountain landscapes, of land use, of nature conservation, and of regulations and possibilities to influence decision-making. Perhaps most important are feelings and thoughts of mistrust and the lack of understanding of needs and interests in how, where, and for what the landscape is used—whether you work at county level or live in a nearby village.

Mann and Jeanneaux [22] argue that land-use conflicts expose the evolution of rural areas and because these conflicts point out differences in values and interests between stakeholders over time. This is relevant to apply to the present study area, as we found evidence that local residents experienced feelings of disadvantage in relation to nature conservation and tourism interests, as described by Wall-Reinius et al. [30]. This could indicate that land-use conflicts in the study area reflect an identified

global phenomenon: that of centre-periphery relations and the urban/rural divide. Urban discourses and interests in rural areas are likely to cause conflicts [25,90,91] and not because of powerful urban interests in terms of tourism, images, and definitions of landscape values, e.g., Wall-Reinius et al., Riseth [30,92].

In the study area, this can be exemplified not only through the fact that a majority of the visitors come from urban areas but also in multiple interviews which express suspicions and concern related to contacts between local people and authorities [30]. The conflicts in the study area include both spatial and social components, as described also in a study by von der Dunk et al. [22], and present data suggest that it is desirable that both components have an equally prominent role in strategies for management and conflict resolution. Connecting multifunctional landscapes (multiple uses and multiple ecosystem functions) to land-use conflicts involves trails—perhaps specifically in the mountains but also in many other types of landscapes.

The concurrent multifunctionality, as described by Brandt and Vejre [47], where different functions occur at the same time in the same place, is applicable to the southern Jämtland mountains. The findings show that this concurrent multifunctionality has intensified conflicts relating to trails as these are now used more extensively and for new activities. Extending the discussion on concurrent multifunctionality to include CPRs, we found that the increased number of visitors, resulting in an increased competition over the free resource of trails in the mountain landscape, combined with increased difference in use, was perhaps the most prominent source of conflict in the study area. This is in line with other studies on conflicts over CPRs [31,59,60], where the increase of resource-users was found to result in conflicts.

6.2. Collaborative Arenas and Trails as Facilitator for Communication

The empirical findings of this study showed clearly that stakeholders considered collaboration and communication important means to handle land-use conflicts. An advantage when attempting to initiate collaborative efforts around trails was that stakeholders, regardless of what interest they represent or in what phase of the research project they were heard, had similar perceptions of the importance of trails. Stakeholders stated that trails were very important for channeling visitors and for increased safety for everyone. Thus, there is already a sense of “shared ownership”, as discussed by Bryan [93] (p. 882), of trails and a collective recognition that they are a valuable asset. A sense of shared ownership can entail an acceptance that everyone must take responsibility for resolving conflicts and problems, and this insight can translate into a common purpose [93]. Thus, it can be a valuable point of departure in future conflict management processes, as exemplified or indicated in several other studies [29,69].

It is nevertheless important to recognize that a resolution where all demands and desires expressed by all stakeholders are accommodated is highly unlikely, and therefore, planning and management agencies must strive towards a general agreement that trade-offs are inevitable. Although a sense of shared ownership of trails provides an advantage for conflict management, it is still a challenge to convince stakeholders that collaboration is a better alternative than conventional decision-making processes and that the former allows for a more effective negotiation procedure. In conventional decision-making processes, legislation and regulations can limit public participation and the decisions made can be perceived as lacking accountability and transparency [54,94]. The difficulties and challenges of building trust and social relationships should not be understated, as found in studies by, e.g., Eckerberg et al. [27] and Hamm [64]. In the study area, there are long-standing and infected conflicts, which several of the respondents emphasized. Although there is evidence for a successful collaboration process to reduce conflicts surrounding trails in the study area, a continued dialogue between stakeholder groups will require substantial efforts when it comes to available time and money [54]. In order to even consider and plan for a relocation and restructuring of problematic trails in the study area, a trusting environment among stakeholder groups ensuring that all interests are looked out for has to exist. One means to achieve this is to use an external facilitator trained in communication and conflict management who can guide stakeholders as well as plan practically [56,58,94].

However, apart from external facilitators, our results show that using existing organizations considered legitimate among stakeholders, such as Gränsfjällen Sylarna i samverkan, to create platforms for collaboration and dialogue is important to increase the understanding between different interests. Also, other studies, see, e.g., Cole [95] and Prager [28], have shown the value of such platforms in conflicts over land-use and CPRs. In the study area, organizing collaborative arenas for discussion and dialogue, such as the Fjällforum workshops, also proved to be valuable for creating social networks between stakeholders, and such efforts are important tools for handling conflicts over resources, e.g., Arnold and Fernandez-Gimenez, Coleman and Danks [61,62]. One of the most important contributions this research makes to the existing literature on multiple land-use interests is its new approach on the recreational trail as a facilitator for communication. Trails can function as facilitators for communication and can thus enhance the possibilities of building trust and promoting collaboration between actors.

Managing conflicts over resources are highly dependent on effective communication, and it is crucial that sensitive issues are raised and made visible in collaborative platforms for the process to be perceived as meaningful, as suggested by Lee Jenni et al. [70]. In the workshops organized as part of the research, there was a consensus among the participants that there are conflicts surrounding trails in the area, although only a few participants expressed confrontational opinions regarding trail issues and the use of the mountain landscape. Westberg et al. [69] argued that there is often an avoidance of raising sensitive issues in collaboration forums, as there might be a concern of jeopardizing good relationships and creating an uncomfortable atmosphere. This can lead to a low motivation for engaging in such forums, as the underlying problems are not exposed. During the workshop, however, it was clear that the majority of the stakeholders perceived the conflicts surrounding trails in the area as rather obvious and in need of resolution. It can, therefore, be argued that, as all stakeholder groups acknowledge the trail conflicts and are able to talk about them in an open forum, the process of handling trail-conflicts in the southern Jämtland mountains has an advantageous communicative starting point.

7. Conclusions

In conclusion, our paper adds to research on how land-use conflicts in multifunctional landscapes can hinder sustainable management of such landscapes and highlights the need for land-use planning and management to allow for multifunctional uses. The study identified trails as an important source of conflicts and resource to resolve conflicts.

This research project contributed to identifying conflicts related to trails, examined stakeholders' views on how these can be minimized, and assisted in laying the foundation for a possible collaboration project on how land-use conflicts can be managed through collaboration around trails. We argue that resources in the landscape can constitute a valuable asset in managing land-use conflicts, where collaborative processes can be facilitated by identifying and focusing on a specific resource that is significant for the involved stakeholder groups. Even so, it is likely that external facilitation is needed for the conflict management process to continue forward. Therefore, governmental agencies should make efforts to initiate such a process that is bound to go on for a longer period and that can also focus on consensus over the practical issues of revising planning and management forms of mountain trails. In addition, we conclude that researchers involved in a community-based project have an important communicative role to play, as they can serve as a link between local communities and the public sector. Researchers may also be able to provide decision-making agencies and authorities with knowledge about relevant natural, social, and cultural issues that are important for improved collaboration [96], as was the case in this research project.

As land-use is becoming increasingly diverse and where commercial and recreational interests compete for the same space [19,28], future research should continue to examine what role existing resources in multifunctional landscape can play in balancing such interests. As MacLeod [97] argued, the trail is under-theorised within scientific research and there are reasons to believe that the trail will become an increasingly important feature in the planning and management of natural areas through channeling and interpretation. Although the results from this specific study area are not generalizable,

they are likely applicable to other landscapes, thereby possibly providing an introduction to further investigations of trails (or other resources) in the context of land-use conflict management. Our findings contribute to new knowledge on how resources can be utilized in unexplored contexts and can encourage researchers, governmental agencies, and commercial interests to consider innovative approaches to use, both practically and theoretically, the flexible asset that the trail constitutes.

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