



# Participatory comprehensive planning to handle competing land-use priorities in the sparsely populated rural context

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## ABSTRACT

Rural areas supply the planet's natural resources while simultaneously harbor refuges for most of the world's remaining biodiversity and intact, resilient ecosystems. Since traditional extractive activities must increasingly co-exist with non-exploitative activities such as tourism and conservation, sustainable land use planning is essential for managing trade-offs between incompatible interests in rural areas. With "communicative planning" being promoted since decades, participation is considered crucial for reconciling different planning interests. However, the implementation of participation remains patchy and uneven, not least in sparsely populated regions with low capacity where participation could be a game-changer. Here, we consider municipal comprehensive planning as an existing arena to explore participatory planning approaches potentially capable of simultaneously managing competing land uses and promoting sustainable development in sparsely populated rural contexts. Collaborative work between researchers and public managers resulted in the co-development of an approach based on qualitative village- and interest-based focus groups that facilitated the formulation, negotiation, and legitimization of concrete and detailed local guidelines that prioritize between different land uses. Consequently, the resulting comprehensive plan draft was more readily adopted than the output of a traditional planning process. We found that citizens in sparsely populated municipalities seem willing to actively contribute to rural development processes if they have significant influence.

## 1. Introduction

Most of the planet's natural resources are situated, produced, and processed in rural areas that also harbor the vast majority of the world's remaining biodiversity and intact, resilient ecosystems (Watson et al., 2018). This is perhaps unsurprising because – somewhat remarkably – urban land use is estimated to account for only 0.2–2.4% of the earth's terrestrial land surface (as of roughly the year 2000) (Seto et al., 2011). Arctic Sweden, including the north-western municipality of Vilhelmina, is mostly sparsely populated and characterized by a vast landscape of forests and mountains. Natural resource use forms the backbone of the economy, but there are many different industries that compete for space: forestry, hydropower, indigenous reindeer husbandry, fishing, hunting, recreation and increasingly tourism and wind power. The situation is

similar in many other rural regions all over the world where the issue of how to handle land use conflicts is also pressing (such as for instance in China (Ma et al., 2020), Romania (Hersperger et al., 2015), Germany or France (Mann and Jeanneaux, 2009)). Rural areas are today subject to great transformative pressures caused by climate change, biodiversity loss, and the sheer scale of humanity's general environmental impact, increasing and diversifying natural resource demands, urbanization, and loss of capacity among rural societies. These challenges ought to be handled through physical planning (Scott et al., 2019a).

However, there are a number of constraints rendering rural planning difficult. First of all, planning theory and practice remain dominated by an urban norm (Hibbard and Frank, 2019) that does not sufficiently aid rural areas to handle land use challenges given the considerable differences in both physical and societal preconditions (Schiff, 2020). Rural

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communities – if approached at all during planning – are treated as "downscaled cities, cities in waiting, or backdrops for sectoral agendas such as environmental planning and economic development" (Frank and Reiss, 2014: 386). Moreover, rural space is often perceived as peri-urban or exurban – as part of a city-region – which reinforces a hierarchical, core-periphery perspective where the rural is marginalized (Hibbard and Frank, 2019). In addition, there is a vivid, long-standing discussion on what "rural" is and whether the concept is even useful to employ (Dymitrow and Brauer, 2018). Here, we adopt the perspective of Harrison and Heley (2015) who argue that rural areas have a key role in producing and supplying society (including, of course, urban areas) with natural resources and therefore they constitute important spaces that should be brought into an in-depth conceptual focus. At the same time, there is a wide range of heterogenous countrysides and rural experiences across the globe, yet the diverse and nuanced meanings of the "rural" are often dismissed (Scott et al., 2019a). Most of the practically oriented rural planning literature actually concentrates on the urban fringe or rapidly developing exurban areas, thus tending to ignore the "deep rural" areas facing declining or chronically poor economies and/or populations (Frank and Reiss, 2014). Le Tourneau (2020) instead prefers the term "sparsely populated regions" for these areas that he also considers the most heavily impacted by energy transformation and biodiversity policies. Sustainable land use is therefore an even more crucial planning issue for these sparsely populated areas than for other rural areas, at the same time as they suffer under additional constraints such as weak political control, heterogenous populations, and isolation.

Yet, participation may overcome such constraints (Pitt and Bassett, 2014). When "disabling structures of paternalism and welfare dependency are replaced with bottom-up programmes", disadvantaged rural populations can be empowered (Cheshire, 2006, p. 1). Rural planning in general must address conflicts and social tensions for which practices of conflict resolution and consensus building are particularly well suited (Frank and Reiss, 2014). The development of municipal comprehensive plans<sup>1</sup> (MCPs) may serve to identify land-use prioritizations as a way to overcome differing expectations about future land use (Brown and Raymond, 2014). This is not something new: participation in planning processes has been on the agenda at least since the introduction of Arnstein's (1969) "ladder of participation". Despite the overall shift towards more communicative forms of planning (Lane, 2005), there is skepticism about whether participation actually fulfills its promises (Brownill and Parker, 2010). A recent overview of European spatial planning systems found many new channels for engagement in the 32 surveyed countries, "but often only for certain groups, and with patchy implementation" (Nadin et al., 2020). The study did not investigate rural areas or the actual influence of citizens and called for more case study research to determine whether increased citizen engagement actually leads to democratization. A novel approach is to engage researchers in long-term collaboration with various stakeholders to operationalize participation in landscape approaches (Arts et al., 2017; Bürgi et al., 2017). This could realize untapped potential to work towards sustainability more effectively (Zeemering, 2018, Ansell and Gash, 2018).

To summarize, current transformations to mitigate climate change, biodiversity loss and poor health conditions pose ever-increasing demands on land use in rural areas. This is particularly true in sparsely populated areas for which relevant landscape planning tools are lacking due to the dominance of an urban perspective in planning theory and practice and a tendency to treat all rural areas as the same. Researchers could contribute to develop such tools through developing MCP practices to be more participatory and empowering. The objective of this paper is therefore to explore the potential to address urgent land-use and

sustainable development issues in sparsely populated areas through an enhanced, more participatory MCP process organized jointly by public managers and researchers. We use Vilhelmina municipality (hereafter referred to as "Vilhelmina") as a case study. We address the following research questions:

- 1) What are the constraints for rural planning and practice to handle land use issues in sparsely populated areas?
- 2) How could a participatory process be conducted to overcome these constraints and handle land use issues constructively?
- 3) What are the results of such a participatory and land-use focused process in terms of democratization, land use management and plan acceptance?

## 2. Constraints and a potential solution for "rural" planning in "sparsely populated areas"

### 2.1. The fuzziness of the "rural" as a constraint

The concept "rural" has since more than a century been criticized for lacking analytical and explanatory power, while it has continued to be employed even by many critics (Dymitrow and Brauer, 2018). Both definitions and classifications of the "rural" has therefore been constantly developing; from emphasizing functional "positivist" definitions (e.g. Cloke, 1977) to a "post-rural" social construction of space (e.g. Halfacree, 1993). According to Le Tourneau (2020), the Handbook of Rural Studies points out a third (re)definition that links "rurality" with social characteristics such as small-scale, coherent societies. This conceptual development is related to how understandings change and diverge as a result of constantly ongoing urbanization and counter-urbanization trends (Gallent and Gkartziou, 2019). For instance, today people move to the countryside for outdoor recreation, while they continue to work in cities and thus commute over long distances and enjoy urban culture (Tietjen and Jørgensen, 2019). This growing demand for new recreational and residential uses of rural space is accompanied by a decline of many traditional rural economic industries, leading to the emergence of a "differentiated countryside" (Scott et al., 2019a), and increasingly blurred boundaries between the "urban" and the "rural". This "fuzziness" of what the "rural" is has surely contributed to the dominance of urban perspectives in planning (e.g. Hibbard and Frank, 2019), at the same time as those new patterns of diversity and differentiation urgently challenge existing governance and regulative processes. We therefore need "to reinvent rural planning for the twenty-first century" and push its boundaries "beyond the urban fix" (Scott et al., 2019a, p. 1).

The kind of "rural" that we are dealing with in this paper is the "sparsely populated" type. Le Tourneau (2020) argues that the characteristics and dynamics of "sparsely populated regions" only partially are covered by the concept of "rural" that they are generally put in. These areas are significant; areas with less than 1 inhabitant/km<sup>2</sup> account for the majority of the planet and a large portion of those areas are inhabited by indigenous peoples. No global threshold can be defined though since the definition of sparsity is culture dependent; the definition of a sparsely populated region is in itself relative and depends a lot on the national context and on the spokesperson (Le Tourneau, 2020). In the next section, we will employ Le Tourneau's arguments in discussing how the challenges and particularities of "rural" planning play out in sparsely populated regions. And despite the acknowledgment of the fuzziness of the "rural" concept, "rural planning" is often used in a very general fashion, without distinguishing between what kind of rural areas or "ruralities" it applies to. When we accordingly use it in this way, we will employ quotation marks to signify its fuzziness.

<sup>1</sup> The term "comprehensive plan" is used in the Swedish and US contexts. Different terms are used in other geographic contexts; examples include "strategic spatial plans" and "master plans".

## 2.2. Constraints for "rural planning" - particularly in sparsely populated regions

In "rural" areas in general, agriculture and forestry are traditionally dominant land uses (Hibbard and Frank, 2019), while in sparsely populated regions agriculture is seldom important as much land is "unproductive" and therefore rather allows for extensive land use like cattle ranching (Le Tourneau, 2020). In all kinds of "rural" areas, there are now increasingly a number of other land uses, such as wind power (Avila, 2018) and other renewable forms of energy production (Tomaney et al., 2019), tourism and nature conservation (Jonsson et al., 2019). Exploiting the "rural" resource base for other, "non-commodity uses" such as natural heritage, cultural landscapes, and historical sites, e.g. tourism, recreation, and nature conservation in addition to commodity production is generally believed to strengthen economic development while also supporting social and environmental sustainability (Frank and Hibbard, 2019). Achieving such diversification is therefore a key public policy goal in advanced economies; the environment adds value to the economy via *multifunctionality* without depleting natural resources (Scott, 2019). However, this rather idealized view that "rural" landscape protection and economic development priorities can be "brought together" is challenged by other researchers (c.f. Phillips and Dickie, 2019; Frank and Hibbard, 2019). In sparsely populated areas, the situation is more complicated as large portions are indigenous territories (Le Tourneau, 2020) protected under national and/or international law. This contributes to even more diverse land uses (and conflicts) as well as populations not characterized by the homogeneity often assumed in "rural" areas, but instead a high degree of heterogeneity created as a result of newcomer settlements emerging in specific places for specific purposes such as a mine or a church (Carson and Carson, 2014).

"Rural planning" in industrialized countries has instead since long largely focused on landscape preservation, creating an image of the "rural" as "a picturesque backdrop to urban development" (Scott et al., 2019b, p. 634), thus neglecting the social and economic sustainability dimensions of well-being. This makes economic actors to consider planning and the environment as major barriers to economic growth (Scott, 2019). Such views may well result from overly rigid land-use planning systems and approaches to development control that have mainly served to protect landscapes (Woods, 2019). These problems can be expected to be even more aggravated in sparsely populated areas, since according to Le Tourneau (2020) a lot of the protected areas have been established there the last two decades. He explains how sparsely populated areas seem "empty" in the eyes of most governments (cf. the "terra nullius" doctrine) and the political cost to establish protected areas is therefore believed to be much lower and with less resistance. Yet, the imposition of nature conservation in such marginalized areas nurtures growing feelings of "territorial dispossession" (Le Tourneau, 2020).

Planning systems usually regulate land-use through a statutory system of spatial plans and development controls. Local actors play key roles in this system, which allows them to control and support diversification strategies (Scott, 2019). However, many "rural" communities have inherently small administrations without the knowledge and structural, fiscal and political resources needed to do this effectively (Wolf, 2011). This limits their capacity to develop spatial and land-use plans (Tomaney et al., 2019; Homsy et al., 2016; Morrison et al., 2015). In sparsely populated regions, this problem is probably more aggravated due both to the sparsity of population distribution and the size of the areas. The state control of these areas is also incomplete and inferior to that of more densely populated areas, and rules are more difficult to enforce (e.g. Le Tourneau, 2020). This influences the important function of spatial planning to coordinate public policies within a multi-level spatial framework, which plays a central role in supporting "rural" multifunctionality but often fails to provide the necessary support in practice (Scott, 2019). The support of regional administrations is particularly important, but many countries do not achieve the required level of vertical coordination between levels of

government or horizontal coordination between the spatial dimensions of different sectoral policies, such as tax or tourism policies that do not pursue explicit land-use outcomes (Tomaney et al., 2019). The sectoral policies that junior levels of government must comply with often constitute administrative silos (Homsy and Warner, 2019) and/or are rather vague as they apply to many different places (Drescher et al., 2019).

American "rural" experts advocate building capacity because local actors tend not to understand the value of planning (Frank and Hibbard, 2019). Previous studies shows that many "rural" leaders view planning negatively due to experiences of limited applicability, communication gaps, and inadequate staffing and funding (Frank and Reiss, 2014). In sparsely populated areas, these constraints are often exacerbated by strong feelings of place ownership and a mentality characterized by individualism, self-reliance and defiance towards centralized government (Le Tourneau, 2020). Planning processes therefore often only satisfy minimal legal requirements (Björstig et al., 2018).

## 2.3. Participatory planning as a solution?

The constraints to planning in sparsely populated areas presented in sections 2.1 and 2.2 – the fuzziness of the "rural" as a concept, the central importance of competing or synergetic land uses, the presence of indigenous people and a high degree of social heterogeneity, a focus on landscape preservation, insufficient local planning resources and failing multilevel planning frameworks – point to a need for more effective tools to monitor and analyze land-use changes (cf. Tomaney et al., 2019). "Rural planning" should be made more participatory and wide-ranging, going beyond mere consultation and "bounded state co-option", with plans whose content addresses both physical development and social, economic, and cultural sustainability dimensions (Murray, 2019). This would potentially develop the governance capacity and information required to support such planning processes (Frank and Hibbard, 2019). Despite being on the agenda for ages, the research regarding participatory planning is still inconclusive (Brownill and Parker, 2010). Sweden, as an example, has only succeeded to develop "partial engagement where citizens actively participate in certain parts of the planning process" (Nadin et al., 2020). Only 23% of 60 Swedish municipalities included citizens/interest groups/non-governmental organizations during the development of energy and climate strategies (Fenton et al., 2016).

As "participatory planning is a notoriously tricky endeavor" (Drescher et al., 2019, p. 457) there are no tools that fit all situations. Common recommendations emphasize that conversations should be characterized by creativity, openness, flexibility, and respectful listening by those steering the participatory process (Murray, 2019). Such approaches may be employed within a statutory planning system by establishing a non-statutory "soft space" for interactions (Tietjen and Jørgensen, 2019). Face-to-face engagement in the form of focus groups and interviews appeared to successfully capture intangible and conflicting values when researchers invited citizens to identify cultural heritage sites in Canada. As participants largely agreed on threats and challenges and the key identified cultural landscape sites, the results were believed to stand the test of community acceptance and added richness and nuance to the policy recommendations (Drescher et al., 2019). However, there is a risk that community planning groups will not reflect the full diversity of local interests, and hard-to-reach groups should be encouraged to attend (Murray, 2019). Researchers may therefore need to proactively contact potential participants (Drescher et al., 2019).

This overview of earlier research has discussed how the fuzziness embedding the "rural" and the accelerating development of differentiation of "rural" areas constitutes a constraint for functional and diverse "rural planning" strategies. It has also highlighted other constraints for planning in particular in sparsely populated regions (that are in focus of this paper) and how participation is generally believed to be a solution,

though a difficult one with uncertain results.

### 3. Background: Swedish comprehensive planning

In Sweden, other Nordic countries, and the US, municipalities have the authority to develop MCPs (Woodruff and BenDor, 2016) while municipalities in other European countries and Australia have less territorial control (Frank and Reiss, 2014). In Sweden, municipalities have the main responsibility for physical planning of land and water areas through MCPs. An MCP is an instrument for integrating many different policy sectors with the overall aim of assigning physical spaces for specific development purposes. For example, it might specify where and how new houses, industries and infrastructure should be built so as to avoid adversely affecting other important interests such as cultural and natural values (Thellbro, 2017). An MCP is thus also a tool for achieving national and international policy objectives, such as those expressed by the European Landscape Convention: landscape protection, management and planning (European Council, 2000). Chapters 3 and 4 of the Environmental Code designate *national interests* (NIs) that reflect public land use prioritizations (for examples, see Appendix, table 1) under the presumption that different land uses can co-exist (cf. Kløcker Larsen and Raitio, 2019). This provides a legal foundation for promoting integrated comprehensive planning in multi-functional landscapes. However, there is no official guidance on how to prioritize overlapping and often conflicting interests. Instead, this must be done at the local level according to the Plan and Building Act. Consequently, an MCP must state how NIs should be prioritized in planning and licensing matters. If different NIs overlap geographically, the MCP should prioritize the NI that is most important for sustainable development.

In line with the European Landscape Convention, the Planning and Building Act (chapter 3, §9) requires citizen involvement when developing MCPs through consultation and exhibition of a draft MCP. Public authorities, associations, and individuals with significant interests in the plan should also be consulted. The National Board of Housing, Building and Planning supports municipal planning, while Regional County Administrative Boards (CABs) are responsible for monitoring environmental policy implementation and NIs in the MCP, along with many other areas of public interest including health, security (SEPA, n.d.), rural development in waterside areas (NBHBP, n.d.), and intra-municipal coordination.

## 4. Material and methods

### 4.1. The overall project design and the case of Vilhelmina

This study is a qualitative transdisciplinary case study where researchers collaborated with practitioners to explore which constraints exist in a sparsely populated area in the Arctic, whether those constraints may be handled through a participatory planning process and what the results are of such efforts. The Swedish EPA-funded project "Green planning: Vilhelmina as a testbed for innovative land use planning in the mountain region" started in 2016 and ended in 2018. The research team consisted of three senior researchers (two political scientists and one ecologist) together with a coordinator employed 50% by the municipality (with funding from the project) and 50% by the Swedish University of Agricultural Sciences as a PhD Student (working on a different research project, PLURAL; reported in Thellbro, 2017). The political scientists have expertise in collaborative governance theory and practice (i.e., organizing and facilitating focus groups), while the ecologist's expertise is in ecosystem services and environmental data. This team together with four head officials from municipal departments (a GIS coordinator, and two politicians representing the political majority and opposition parties) comprised the executive steering group responsible for planning and designing the participatory process (see Table 2 for a description of the specific activities undertaken by this group). The coordinator was the main person responsible for preparing,

**Table 1**

Descriptive statistics of the rural municipality of Vilhelmina in northern Sweden. Source: Confederation of Swedish Enterprises (n.d.) and SCB (n.d.) (for population density marked with \*).

Statistics	Vilhelmina	National mean
Surface (km <sup>2</sup> ) (land areal)	8047	–
Population in 2019 (number)	6668	35 612
Population change 2016–2019 (%)	–2.0	+3.3
Population density (inhabitants/km <sup>2</sup> )*	0.8	25.1
Average age	45	41,3
Percentage of population with tertiary education	14.2	28.2
Unemployment rate 2019 (%)	7.3	7.0
Median household income (in USD/euro)	25 800/22 232	29 974/25 830
Tax rate (%)	34,75	32,28
Municipal expenses (SEK)	84 743	55 841
Rate of entrepreneurs	9.2	6.1

facilitating and documenting the meetings, while the researchers presented, participated, and observed.

Vilhelmina is situated in the mountainous region of northern Sweden (64°37' N 16°39'E, Fig. 1), far from cities (250 km to the regional capital Umeå (ca 125 000 inhabitants) and 700 km to the national capital Stockholm). It has a large territorial area with a low and declining population density (Fig. 1 and Table 1). Half of the population lives in or within a few kilometers of the town of Vilhelmina, while the rest lives in the numerous villages. Average age and unemployment rates are higher than the national mean, while median household incomes and particularly the percentage of highly educated citizens are significantly lower. The number of entrepreneurs and newly started companies are higher than the national mean, while the municipal expenses per inhabitant are the highest in Sweden (Confederation of Swedish Enterprises, n.d.). The population decline is related to a lack of employment opportunities, but also to the lack of housing in expansive mountain tourist sites. Trade, industry, and employment have traditionally been closely related to forestry, agriculture, and reindeer husbandry, while the service sector dominates today. Small business owners are active within several sectors and often have direct or indirect connections to local natural resources (Thellbro, 2017).

### 4.2. Initial data collection and analysis

We collected public data sources/websites and documents including laws, government commission reports, official strategies, and guidelines to first characterize Vilhelmina as a sparsely populated region and then explore whether those pose constraints (as guided by the earlier research presented in 2.1 and 2.2). One step in this analysis was to identify and map how heterogeneous land use is in Vilhelmina and whether land uses are overlapping (which would complicate multi-functionality). We thus calculated the degree of spatial intersection between 10 different NIs and forested areas (Appendix). Additionally, we categorized the NIs based on the values they represented, which included landscape, nature conservation, recreation, culture, and exploitation of terrestrial surfaces. To reflect forestry interests and areas of forest potentially available for forestry, we considered all forested areas except those with formal protection. All spatial analyses were done in ArcMap 10.4.1. (ESRI Inc, USA). The relevant public and research data of spatial character such as NIs, different land uses, and protected areas (see Svensson et al., 2020) was then assembled into a GIS to be tested as a potentially relevant tool for participatory planning (see also 4.3). It was further employed to do an inventory/analysis of relevant green infrastructure approaches and ecosystem services produced in Vilhelmina. This latter analysis was included as an appendix in the draft MCP and presented to municipal politicians during a workshop (see 4.3).

**Table 2**

The events of the participatory MCP process. Events in bold are mandatory and events in italics are usually undertaken by municipalities.

Event	Participants	Time	Purpose
<b>Autumn 2015</b>			
Informal start-up	Research team and municipal officials	19/8, 6/10, 21/10	<ul style="list-style-type: none"> <li>• Discuss and clarify roles and expectations</li> <li>• Discuss and clarify roles and expectations</li> </ul>
Political meeting	Research team and municipal political steering group (Ksau)	3/11	<ul style="list-style-type: none"> <li>• Discuss and clarify roles and expectations</li> </ul>
<b>Spring 2016</b>			
Planning meeting	Research team and municipal politicians and officials	11/1	<ul style="list-style-type: none"> <li>• Formally start up, determine, and legitimize (? Förankra) the planning process</li> <li>• Present and discuss MCP statutory requirements, and limitations as well as the participants' expectations on the project</li> </ul>
Kick-off	Research team, municipal politicians and officials, and state and regional authorities	16/2	<ul style="list-style-type: none"> <li>• Present and discuss MCP statutory requirements, and limitations as well as the participants' expectations on the project</li> </ul>
<i>Background research</i>	Coordinator, municipal officials	April–May	<ul style="list-style-type: none"> <li>• Compile sectoral descriptions of current state and future challenges</li> </ul>
Pilot focus group	Research team, citizens, and municipal officials as observers	10/5	<ul style="list-style-type: none"> <li>• Test and refine the methodology</li> <li>• Collect data</li> </ul>
Political meeting	Research team and town council	23/5	<ul style="list-style-type: none"> <li>• Consult about the MCP process</li> </ul>
Steering group	Research team, municipal politicians and officials	21/6	<ul style="list-style-type: none"> <li>• Update and planning</li> </ul>
<b>Autumn 2016</b>			
Youth workshop	Municipal officials, politicians, and young citizens (20–25 years).	28/9	<ul style="list-style-type: none"> <li>• Collect opinions and experiences of young people</li> </ul>
Focus group Round 1	Research team, citizens, representatives of businesses and organizations. Municipal officers as observers.	Aug–Nov	<ul style="list-style-type: none"> <li>• Data for a joint vision</li> <li>• Data of opinions and experiences of land use and municipal development through mapping and post-it exercises</li> </ul>
Mini survey (paper)	Citizens, representatives of businesses and organizations	Focus groups	<ul style="list-style-type: none"> <li>• Collect individual opinions and experiences</li> </ul>
<b>Spring 2017</b>			
Workshop	Research team, representatives of focus groups, municipal politicians and officers, state and regional authorities	7/2	<ul style="list-style-type: none"> <li>• Present, discuss and validate focus group results</li> <li>• Discuss the continued process</li> </ul>
E-survey Schools	Students 13–15 years old	Dec 2016–Feb 2017	<ul style="list-style-type: none"> <li>• Collect individual opinions and experiences of young people</li> <li>• Discuss the relationship of the MCP to other municipal plans</li> </ul>
Steering group	Research team, municipal politicians and officers	15/3	<ul style="list-style-type: none"> <li>• Discuss the content of the MCP and the role of the CAB</li> </ul>
<b>Plan consultation</b>	Research team, municipal politicians and officials, and CAB officer	16/3	<ul style="list-style-type: none"> <li>• Discuss the content of the MCP and the role of the CAB</li> </ul>
Focus groups Round 2	Research team, citizens, representatives of businesses and organizations,	Apr–May	<ul style="list-style-type: none"> <li>• Present results of the focus groups</li> <li>• Validate and adjust proposed MCP</li> </ul>

**Table 2 (continued)**

Event	Participants	Time	Purpose
	municipal officials as observers		priorities through discussions
Mini survey (follow-up)	Citizens, representatives of businesses and organizations	Focus groups	<ul style="list-style-type: none"> <li>• Detect changes in individual opinions and experiences since focus group round 1</li> </ul>
Informal review	Officer at the CAB planning unit	Jun–jul	<ul style="list-style-type: none"> <li>• Present results of the MCP process and receive early feedback of the MCP draft</li> </ul>
<b>Autumn 2017</b>			
Steering group	Research team, municipal politicians, and officials	21/6	<ul style="list-style-type: none"> <li>• Discuss the MCP draft</li> <li>• Update and planning</li> </ul>
Political review process	The established parties in the municipality	Aug–Nov	<ul style="list-style-type: none"> <li>• Validate and adjust proposed MCP priorities</li> </ul>
Workshop with politicians	Research team, and municipal politicians	2/10	<ul style="list-style-type: none"> <li>• Inform about concepts and models behind the MCP process</li> <li>• Opinions about the valuation different land uses</li> </ul>
Draft MCP transfer	Research team, municipal politicians, and officials	Dec	<ul style="list-style-type: none"> <li>• The draft MCP is transferred from the research team to Vilhelmina municipality</li> </ul>
<b>Spring 2018</b>			
<b>MCP consultation</b> (post, web, meetings)	Authorities, organizations, corporations, political parties, and citizens	Feb–Mar	<ul style="list-style-type: none"> <li>• MCP draft sent out for opinions on the totality of the MCP and presented at three public meetings in Vilhelmina, Saxnäs and Dikanäs</li> </ul>
<b>MCP exhibition</b> (post, web)	Authorities, organizations, corporations, political parties, and those who submitted comments during the MCP consultation.	Aug–Oct	<ul style="list-style-type: none"> <li>• MCP exhibition document sent for final review</li> </ul>
<b>MCP adoption</b>	Municipal council	10/12	<ul style="list-style-type: none"> <li>• Final approval</li> </ul>

#### 4.3. The participatory planning process

Table 2 shows all the events of the participatory process, including planning meetings. The reference group decided that geographically based and thematic focus groups would be the foundation of the process – to increase the input from "ordinary" citizens and usually under-represented groups such as indigenous communities and women – as guided by the earlier research briefly presented in section 2.3. The geographic focus groups gathered people from different districts of the municipality (e.g. Nästansjö, Dikanäs/Henriksfjäll, Nästansjö, and Saxnäs/Klimpfjäll) in order to allow for confidence building and a common local understanding. To encourage the empowerment and inclusion of a marginalized group – indigenous Sami reindeer husbandry communities and organizations – a thematic and homogenous group with only Sami representatives was organized. The number of participants in the focus groups ranged between 6 and 27 in the first round and between 2 and 10 in the second. In total, 78 different individuals participated, with ages ranging from 15 to 88 years old (the average age was about 50); 46% were women. Young people were underrepresented; to overcome this limitation, based on a suggestion from municipal officers, we conducted a youth workshop for participants aged 20–25 and distributed a short e-survey to the secondary schools in the municipality.

Participation in the focus groups was open to all citizens. We distributed invitations via the local press, the municipality's website, a

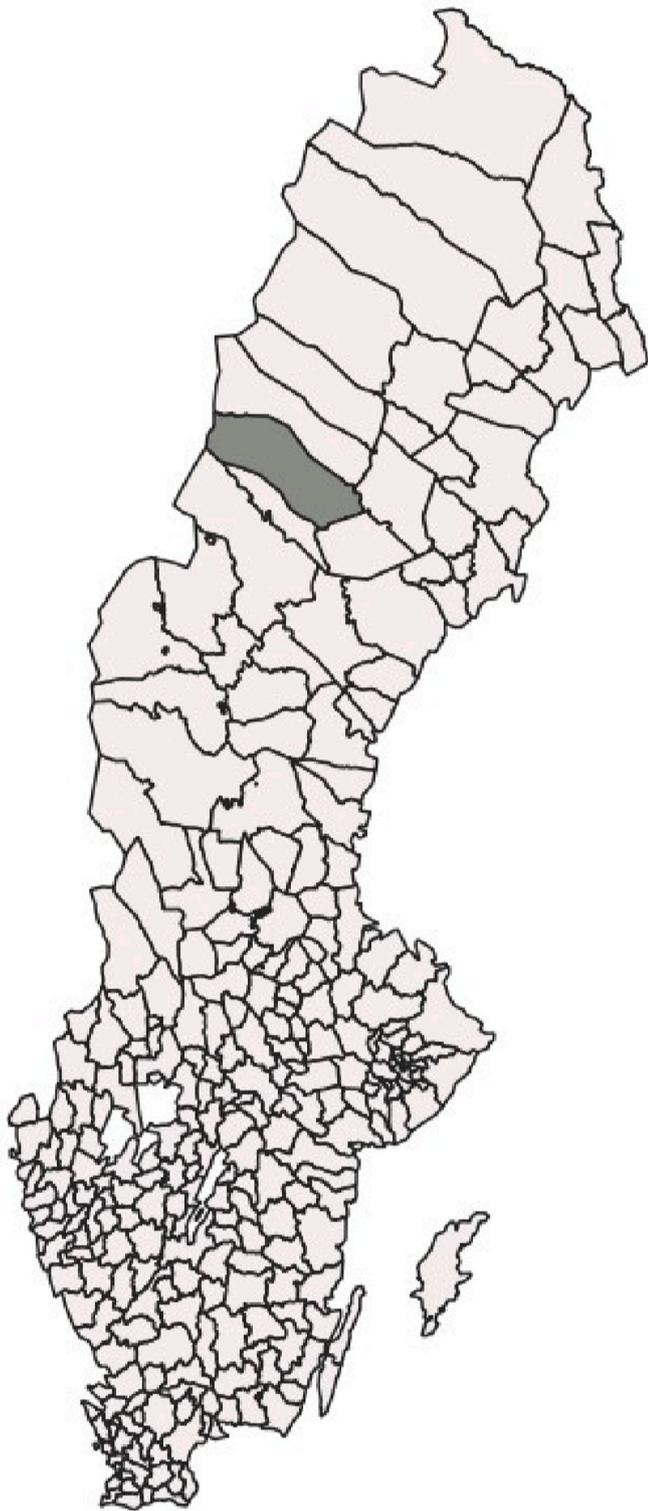


Fig. 1. Map over Sweden with all municipalities; Vilhelmina marked by dark grey.

radio broadcast, local posters in the districts we planned to visit, social media (Facebook), and local networks as well as personal contacts. Participants representing specific interest groups were sent direct invitations via e-mail and telephone calls to members of local organizations/networks. The research team additionally encouraged participation by visiting the prospective participants (rather than expecting them to travel to the community center). We considered this

particularly important given the geographically large but sparsely populated nature of Vilhelmina. In cases where participants had to travel, or if their participation resulted in a loss of income, they were offered retroactive financial compensation based on a flat rate. The result of these efforts was that the geographic focus groups included heterogeneous interests (e.g. locals, forest owners, entrepreneurs, Sami, hunters, and snowmobile riders) that well represent the range of different interest groups in these villages.

We conducted two consecutive rounds of focus groups (Table 2). First, we organized four focus groups (another five were cancelled due to low interest) to identify the issues that citizens considered most important. Various land uses were illustrated on maps of different scales (using the GIS created for the project), which were complemented with local/traditional knowledge proffered during the meetings. In this round, the participants prioritized land uses and defined associated geographical areas while discussing challenges and possibilities regarding their prioritization. The research team then summarized and grouped the prioritized land uses and geographical areas as well as issues of concern to formulate MCP guidelines for future land-use decisions. In the second focus-group round, the participants validated and refined these guidance texts. In both rounds, participants were asked to complete a short questionnaire to capture individual opinions and determine whether the process had provoked any changes of opinion.

All meetings were documented using individual short questionnaires ("mini surveys"), notes, material collected from exercises (e.g. post-it notes written by participants and drawings on maps), and photos together with audio, and video recordings (used with the participants' consent). The mini surveys, the written notes of the research team, and the exercise material from each focus group were compiled into a report that was e-mailed to each of that group's participants. These data were thematically analyzed (based on themes of social services, culture, and land uses) using matrices to reveal similarities and differences between focus groups. Common themes were included in the text and/or guidelines of the MCP after validation by the participants in the second focus group round. Focus group-specific suggestions were also formulated as text/guidelines and "tested" during the second focus group round.

Between the two focus-group rounds, we held a half-time cross-group workshop to share experiences between focus groups, politicians, and public officials (Table 2). Before finalizing the MCP draft, an informal consultation was arranged with an official at the CAB's planning unit to verify that the collaborative process had addressed all legally required issues. We then held another workshop with politicians to get additional input for the MCP guidelines (Table 2). After presentation of the concepts, participants defined their land-use priorities using an anonymous online survey ([www.mentimeter.com](http://www.mentimeter.com)). To strengthen political input and commitment, we implemented a referral process that allowed political parties to discuss matters internally and submit written statements. After revising the MCP draft, the research team handed it to the municipality (Table 2). Authorities, associations, and interested individuals could comment during the final statutory consultation process and the public exhibition (which is usually the sole participatory element during MCP drafting), before the municipal council adopted the MCP.

## 5. Results

### 5.1. Constraints to land use planning in vilhelmina

#### 5.1.1. Overview of land uses and their overlap

The landscape of Vilhelmina is characterized by multiple active uses – notably, forestry, hydropower, Sami reindeer husbandry, wind power, tourism, recreation, fishing, and hunting. In addition, there are promising mineral deposits in several places. Protected areas cover large land areas; approximately 34% of the municipality's land base area has been designated as an NI for nature conservation. Recreation is the geographically largest NI, followed by Forestry land, and Reindeer Husbandry (Appendix, Table 2A). The land area used for extensive semi-

domesticated reindeer husbandry in Vilhelmina is, however, much larger than the areas designated as NI reindeer husbandry zones that are the most important to protect the traditional usage rights of indigenous Sami people. The analysis presented in the appendix (table 2B) further revealed substantial overlaps between different land uses, particularly for Material and Minerals (100% overlap with Recreation and Reindeer

Husbandry) and Reindeer Husbandry (83% overlap with Recreation, 21% overlap with Forestry and 1% overlap with Material and Minerals). The purpose of the "conservation NIs" (Nature Conservation, Natura 2000, and Contiguous Mountains) is to protect the relatively unexploited natural areas on which landscape and nature conservation, recreation and reindeer husbandry depends. Their geographic overlap

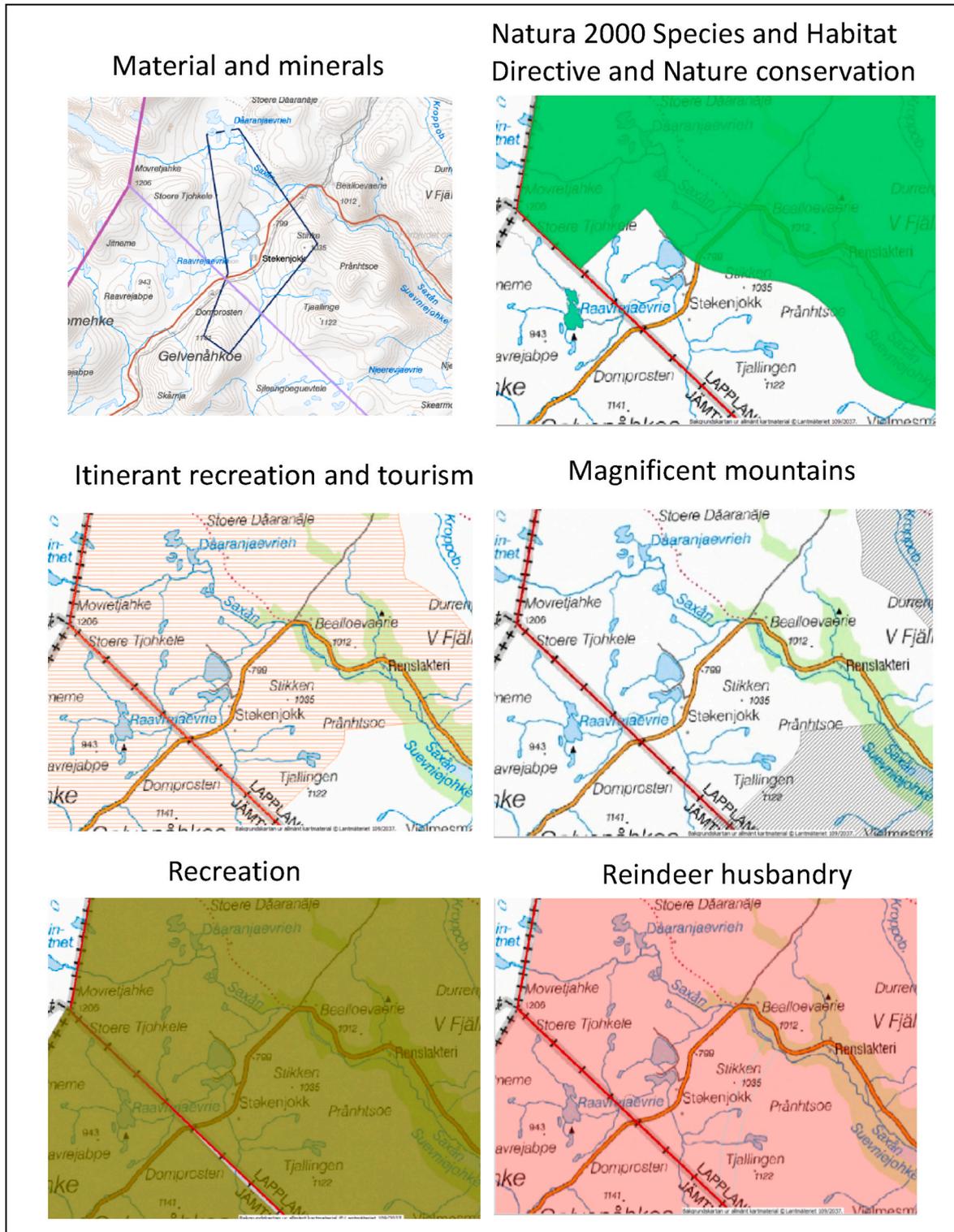


Fig. 2. Coinciding and overlapping NIs in the high alpine western corner of Vilhelmina (Stekenjokk area): Material and minerals, Natura 2000 Species and Habitats Directive and Nature conservation (same polygon), Itinerant recreation and tourism, Magnificent mountains (nearby and overlooking), Recreation, and Reindeer husbandry.

with the Reindeer Husbandry NI ranges between 50 and 60% (Appendix, Table 2B). An illustration of an area with substantial NI overlap, a "hot spot area" is Stekenjokk (Fig. 2).

### 5.1.2. Complementary or conflicting land uses?

The discussions in the focus groups shed light on whether the different land uses are complementary or conflicting. Three out of four focus groups and most of the politicians were skeptical about mineral extraction that was perceived as a hindrance to almost all other land uses. Similar perceptions were expressed regarding hydropower.

The agreement was lower regarding tourism, which is among the most rapidly growing industries in Vilhelmina. The Saxnäs group was the most strongly pro-tourism, as reflected in post-it note comments such as: "Develop the ski tourism", "Infrastructure for tourists", and "Increased second home development positive". This is unsurprising since Saxnäs, with its "Stair Step Waterfall" and the Marsfjällen Mountain Range, is one of the main tourist sites of Vilhelmina. Some of the participants were also tourism entrepreneurs. However, there were also more critical views expressing that tourism competes with other land uses, such as this quote "The increased tourism should be accompanied by education so that nature is conserved ... Preferably some basic rules on how rights of public access work.". The Sami focus group was the most reserved about tourism, highlighting two particularly problematic areas and activities: ptarmigan hunting in Marsfjället and mobile outdoor recreation in Stekenjokk. The Wilderness Road over Stekenjokk increases accessibility for skiers and bikers during the reindeer calving period, giving rise to significant nuisance for reindeer husbandry (see also Fig. 2). The other problem area, Marsfjället, is also accessible by road, and disturbances during the ptarmigan hunting season make it difficult for reindeers to find pasturage. Snowmobiling is another contentious tourism issue according to the focus groups. Unlike in other countries (e.g., Norway), public snowmobiling is generally permitted which allows for considerable tourism activity in certain areas (Zachrisson, 2009). The most common problem related to snowmobiling was the perception that current rules are very restrictive due to the requirements of reindeer husbandry and the presence of many protected areas, resulting in excessive pressure when and where it is allowed (Saxnäs).

Another competitive land use discussed in the focus groups was forestry, a key component in land use planning in Vilhelmina (Svensson et al., 2018). Several participants expressed a focus on extraction, such as a participant in the Nästansjö focus group "Forest: need for raw material/land value to increase". The Sami focus group argued against clear felling: "[A] large part of the old forests must remain. (Financial compensation can be paid to the landowner if felling is waived)" and emphasized how the alien tree species Contorta pine (*Pinus contorta*) hampers reindeer grazing.

To conclude, mineral extraction and reindeer husbandry was perceived as being in competition with almost all other land uses, in particular tourism and forestry. Forestry and reindeer husbandry were generally considered more important than tourism and nature conservation, while wind- and hydropower were seen as potentially important land uses if a suitable portion of the revenue was invested at the local level. The workshop with politicians revealed that most land uses were viewed as equally important.

### 5.1.3. Political, administrative and attitudinal constraints

At the time of the project, Vilhelmina was politically governed by a coalition of the Social Democratic and Left parties. The leading Social Democratic Party (and three additional parties) expressed that planning has low priority in their comments on the draft MCP: "The municipal economy and the safeguarding of the core activities of the municipality have higher priority than the objectives and prioritizations in the comprehensive plan.". There was no earmarked financial support for general MCP work, but project funding had been available for specific thematic issues such as the development of wind power (Bjärstig et al., 2018). Due to staff limitations, planning is the responsibility of the municipal

director and the directors of the municipality's Environment and Building Unit and Technical Unit, with the assistance of a GIS/data technician. The extra funding and planning resources provided by this research project were very welcome, not least because the existing MCP had been adopted in 2000 despite legal requirements that it should be revised every four years (Planning and Building Act).

The Västerbotten CAB monitors Vilhelmina municipality through yearly meetings between officers to discuss strategic planning issues, practical problems (e.g. management of protected areas, snowmobiling, and hunting/fishing regulations) and intra-municipal coordination. Vilhelmina is surrounded by five other sparsely populated municipalities that all resemble Vilhelmina in that they have low population densities and are in a state of decline. The CAB also provides some region-level planning materials relevant to some sectors, such as risk and vulnerability analyses, and presents a summary of the NIs every four years.

Four out of five focus groups expressed dissatisfaction with both the municipality and the CAB, suggesting a common perception that necessary trade-offs are not properly addressed by regional and local authorities and that local communities should have much more control over resource management. One example is small-game hunting: one participant from the Dikanäs group demanded "More local hunting management" and one from Saxnäs wanted "Increased local control of hunting, both small-game and large-game". Existing hunting regulations are considered problematic because some local residents lack hunting rights while outsiders have them due to land purchases (Henriksfjäll), and because there is no separation of hunting and recreation areas (Saxnäs). At the same time, small-game hunting under increased local control could extend the tourist season if local guiding services were developed (Henriksfjäll). The Sami group, however, was negative since they prefer that the reindeer herding communities manage hunting: "We should manage small game hunting under our own auspices in the Sami reindeer herding community" (Sami participant). Their problem is that the difficulty of knowing exactly where free-ranging semi-domesticated reindeers will be at a given time makes it challenging for the CAB to prevent the co-occurrence of hunters and reindeer in the same area. Another example of how the focus groups demanded more local control is snowmobiling. Participants wanted different rules for local and outside groups as expressed by a focus group participant in Saxnäs: "Delimit 'pleasure driving' with snowmobiles for tourists and second homeowners". Another proposal was to create more snowmobile tracks, not least through protected areas and other restricted sites (Henriksfjäll). The Sami focus group instead thought that the problem is that the restricted areas are also the most attractive ones rather than a lack of snowmobile areas and trails.

Almost half of all focus group participants (43%) also had a negative general view of planning, as demonstrated by the following quotes drawn from individual survey responses: "Politicians and board members [styrelsefolk] who are not from the area make decisions without actually knowing what they're about" (Participant, Dikanäs); "It [planning] happens without direct influence from the people at the site" (Participant, Saxnäs); and "Little insight. Little impact. Decisions are made above the heads of the population" (Participant, Sami group). These negative answers signaled feelings of marginality and powerlessness, and some suggested a perception that planning processes are about "enabling greater exploitation" (Participant, Nästansjö). However, there was a similar number of positive comments (40%): "you can see the full picture of the municipality" (Participant, Dikanäs); "[planning is] A & O [crucial] for my company to grow" (Participant, Saxnäs); and "collaboration [between] politicians citizens [and] officers – teamwork" (Participant, Nästansjö).

## 5.2. Participants' views of the revised MCP process

The municipal director and the mayor were already committed to and engaged in writing the project proposal. Commitment levels were

even higher among officials directly involved in planning, who desired an MCP with much clearer prioritizations that would support day-to-day decision making. In addition to the mayor and directors, a representative of the opposition parties also sat on the steering group. Very few if any other politicians participated (apart from in the workshops) because most of them showed very little commitment to the process.

The focus groups were greatly appreciated, as confirmed by participants, officials, and politicians. Focus group participants were grateful for the opportunity to learn about the MCP and get involved in the process at an early stage. Many participants had little prior knowledge of what an MCP is; as one participant in Nästansjö put it: *“I can’t say that it interested me before, but the opportunity for individuals to influence the process makes it more accessible and interesting”*. Another participant in Henriksfjäll wrote that: *“It is very important if all comments can be taken into account regardless of who leaves them”*.

In the Sami and Nästansjö focus groups, which met twice, the answers differed significantly between the rounds and no participant expressed exclusively negative views on planning during the second round. For example, during the first meeting, one member of the Sami focus group said that *“We have not been allowed to join before, although we have insisted that we participate”*. In the second round, the same person wrote that *“[Planning] is very important for the survival of the reindeer”*.

### 5.3. Impact of the participatory MCP process – the MCP and its acceptance

In the second focus group round, guidance texts for the MCP based on opinions expressed in the first round were presented to the participants, after which adjustments were made in some cases. For example, one of the initially proposed guidance texts on snowmobiling read *“The municipality shall, in consultation with snowmobile associations, the tourist industry, and reindeer husbandry, work to ensure that trails are located in connection with and through protected areas and current snowmobile prohibited areas”*. The Sami focus group suggested an adjustment to clarify that *“Expansion of trail systems must not adversely affect reindeer husbandry.”* This caveat was therefore added to the paragraph. Since no objections were raised against these formulations during the formal stages of public consultation and exhibition, they were accepted in the final MCP. This guidance text was primarily intended to promote the development of snowmobiling (not least as a tourist activity), whereas other texts provide mechanisms to control and mitigate negative effects and to safeguard the interests of reindeer husbandry (see also Bjärstig et al., 2020). One example is: *“The municipality shall, after consulting the Sami reindeer husbandry communities, other industries, and the County Administrative Board, be able to close snowmobile trails at particularly sensitive times.”* Such guidance texts did not exist in the old MCP from 2000, where snowmobiling was only mentioned in relation to trails in general terms (*“Snowmobiling is generally allowed on winter trails.”*, section 3.2). The aim expressed in the old plan was thus simply to develop and expand the trail system, without critical notes or guiding principles.

Objections concerning forestry and contorta pine were also raised in the second focus group round. Based on suggestions from the Sami focus group, the research team proposed the following guidance text: *“In light of the needs of the reindeer husbandry, Vilhelmina municipality believes that not native tree species such as Lodgepole pine (Pinus contorta) should not be present and that methods other than clear felling should be selected where possible.”* The Nästansjö focus group demanded that if such a formulation was included in the MCP, it should be balanced with formulations promoting forestry. This claim was supported by the leading Social Democratic party. Therefore, the following revised text was used in the final Vilhelmina MCP (2018) to avoid the contorta controversy: *“The forest landscape on municipally owned land should be characterized by multiple usages, i.e. different forest lands should be used for different purposes. Timber production should be performed with great regard to reindeer husbandry as well as biological and cultural values, including outdoor life and recreation.”* (p. 52). The old MCP (from 2000, section 3.1.2.)

expressed a much more exploitative forestry policy: *“Vilhelmina municipality believes that the view on forests close to the mountains must be balanced. Where it can be shown from experience and from a scientific point of view that reforestation is possible, clear felling should be allowed.”* This particular text was the most detailed regarding forestry in the old MCP; the example above from the new MCP illustrates how the new formulations provide more clarity on municipal forest management.

The general demand (made in three of four focus groups) for greater local control was addressed through guidance texts in the draft MCP, and also in more general terms in chapter 2, which presents a vision of the municipality. No objections were made to the formulation: *“In Vilhelmina, there is a pronounced desire among the citizens that natural resources should to a much greater extent be managed locally. Both reindeer husbandry and the hospitality industry believe that processes relating to cancellations and regulations in the mountain world do not work optimally from any actor’s perspective. Reindeer husbandry wants much greater influence over land and water, including hunting, fishing, predators, and (snowmobile) trails.”* (Vilhelmina MCP, 2018, p. 18).

Following revisions after the second focus-group round, the MCP draft was sent to all political parties for referral and some of the proposed prioritizations of different land-use interests were changed slightly. For example, many statements that prioritized reindeer herding over other land uses were softened (e.g. Bjärstig et al., 2020). During the statutorily required consultation regarding the MCP draft, the municipality received dissatisfied comments and requests for justification of these changes from focus group participants. The CAB also criticized many of the changes imposed by the political parties, which were partly reversed or altered again to address these concerns in the draft that was finally adopted. Despite this critical input, the municipal officers stated that the proportion of adverse comments during the exhibition phase was lower than would be expected in a more traditional MCP process. Most of the guidance texts concerning land use issues remained more or less unchanged, resulting in a new MCP that provided clearer and more specific guidance in relation to land use and sustainability goals.

## 6. Discussion

This study finds that a first important constraint to "rural planning" in sparsely populated areas is the strong presence of conflicting land uses, in contradiction to the generally positive expectations regarding multifunctionality in "rural" areas (see section 2.2; Scott, 2019). The example of Vilhelmina shows that some land uses were perceived as so conflicting that they cannot co-exist without adversely affecting one another, which follows Le Tourneau’s argument regarding sparsely populated areas. However, our findings suggest that the extent of overlap between different land uses may not be the most important issue. For example, in Vilhelmina, Reindeer Husbandry overlaps less with Forestry and Material and Minerals than with Recreation, but the former uses cause (Forestry) and would cause (Material and Minerals) significant damage to reindeer husbandry according to the Sami focus group (as well as Skarin and Åhman, 2014). If forestry were conducted differently, without clear felling, it would cause less damage, but non-Sami focus group participants argue that alternative continuous cover forestry practices would not be economically viable. Our results therefore suggest that the magnitude and severity of the trade-offs that must be made between different land uses cannot be estimated simply by considering the extent of overlap between them; instead, it is necessary to examine the characteristics and governance features of each land use. Accordingly, we found that qualitative data from focus groups was more useful than quantitative analysis of spatial data when determining how land uses affect each other and deciding on prioritizations. Similar observations concerning the importance of face-to-face engagement in focus groups were made in the Canadian study of cultural heritage sites referenced in section 2.3. Fenton et al. (2016) also showed that when stakeholders are involved early in planning processes, they offer "situated knowledge" previously not known to municipal officials.

Most of the administrative and attitudinal constraints for "rural" planning presented in section 2.2 were also confirmed in this study. Planning was previously not prioritized in the municipality; as clearly demonstrated by few resources allocated to planning (in terms of staff, money, and documentation/technology) and the political parties' comments on the MCP draft expressed views that planning is focused on preservation and environmental concerns at the expense of economic development. Many focus group participants also had negative perceptions of planning, seeing it as a process steered from above with little opportunity for local people to exert influence. Most of the focus groups regarded land uses that require "undisturbed" nature (such as reindeer husbandry and nature conservation) as problematic because they imply extensive regulation, which hinders the development of tourism and recreational use. This confirms that overly rigid land use planning systems and development control contribute to negative views of planning (cf. Woods, 2019).

In addition, this study confirms the expectation that feelings of place ownership and defiance towards centralized government are common in sparsely populated regions (Le Tourneau, 2020; but see also Meijer, 2019). This is expressed for instance by the discontent about residents being subject to the same restrictions as tourists/second-home owners and that these restrictions were managed at the regional rather than the local level. This discontent clearly illustrates the importance of governance in the eventual reconciliation of different land uses; how rules and restrictions are formulated and by whom influences the acceptance of various land uses by certain people. The MCP process takes place at the local level and thus cannot change the overall governance system. Consequently, these results could not be translated directly into regulations during the project. Instead, they were included in the more general section of the MCP to at least raise awareness of these issues at higher administrative levels. National authorities designate the NIs that formed the backbone of the analysis of land use overlap. However, national legislation does not provide prioritizations or guidelines on choosing prioritizations. This makes it difficult for local actors to play the central role foreseen by Scott (2019), especially because the planning capacity in remote rural communities is limited.

Despite these limitations, the MCP aims at steering municipal action and day-to-day prioritization is facilitated by clear negotiated guidelines, as demonstrated by the examples relating to snowmobiling and contorta pine presented above. The snowmobiling example shows how trade-offs between reindeer husbandry and recreation/tourism are handled flexibly under the new MCP: by always including reindeer herder representatives in discussions while simultaneously offering opportunities to establish additional trails and impose temporary local restrictions. This strengthens the argument by Fenton et al. (2016) that early participation reduces complexity because challenges are discussed before implementation. The guidelines were adopted through a multi-step process beginning with a round of focus group discussions based on illustrative land use maps. The content of these discussions was summarized to propose guidelines that were then validated and refined during a second round of focus groups before review by political parties, the CAB, and the general public. The aim was ultimately to build local governance capacity and merge physical planning with sustainable development issues to avoid creating "planning silos", as suggested by Frank and Hibbard (2019).

Almost 40% of focus group participants perceived participatory planning as a possibility to work holistically and create collaboration, and a way to plan sustainably for the future – especially if it gave them a voice. This indicates a willingness on the part of citizens to actively contribute to local development processes on the condition that they have real influence. The research team formulated most of the focus group suggestions for inclusion in the MCP, and most of these suggestions survived the process of political review and final adoption. As a result of the participatory process and its reliance on focus groups organized in the remote districts of the municipality, many more suggestions from ordinary citizens were included and many more people

were involved than in a traditional MCP process. As a result, only a few minor comments were received during the mandatory consultation and public exhibition of the draft MCP, and the municipal council was able to adopt the MCP rather easily. This approach thus added both richness and nuance and also passed the test of community acceptance, as anticipated by Drescher et al. (2019).

The study thus also illustrates how the European Landscape Convention could be made an operational part of the MCP process. In Sweden, as in many other countries, little policy attention has so far been devoted to whether and how the holistic landscape approach promoted by the Convention can be achieved in planning practice (Wu et al., 2017). Upon implementation, the Swedish Government considered that no changes to existing legislation were needed (Sandström and Hedfors, 2018) while this study shows that it is not true. Landscape approaches are increasingly promoted as innovative solutions to handle trade-offs between conservation and development (Arts et al., 2017; Sayer et al., 2013; Sayer, 2009; Svensson et al., 2018). Originating from conservation theory, landscape approaches are, however, often severely hampered by institutional hindrances and power disparities (Sayer, 2013; 2014) and a lack of engagement with other disciplines (e.g. political science, geography and spatial planning) (Arts et al., 2017). The transdisciplinary approach suggested by this study tackles institutional hindrances and power disparities through a conscious co-design of participatory planning in practice.

## 7. Conclusions

We have explored the potential to address urgent land-use and sustainable development issues in a sparsely populated region through reforming and developing the MCP process with a focus on local participation and land-use priorities. As expected from earlier studies pointing to the strong urban bias in planning and the lack of differentiation between different kinds of rural areas, we found that in this type of context the traditional planning process is perceived as a constraint. Planning is thus not functional; it is considered as being based on a not applicable urban norm by outsiders without sufficient local knowledge on actual circumstances. As a result, local land use trade-offs are not adequately addressed, despite that participants considered them as central planning issues. That land use is decided elsewhere is a characteristic trait of sparsely populated regions and an issue of growing concern, particularly in regions that also include indigenous territories such as the Arctic, but also in North America, Australia, and Africa (cf. Le Tourneau, 2020). This study suggests that traditional planning is not enough adapted to the conditions in those sparsely populated regions and therefore strengthens the calls for more attention being devoted to the theory and practice of "rural planning", but that it also needs to be tailored to *different types of rural areas*. In sparsely populated regions, our findings support the idea that integrating physical planning and development through participatory land-use planning offers a way to increase the multi-functionality and sustainability of the landscape. Planning in these areas must acknowledge that land-use conflicts exist and encourage local participation to clarify current conditions and mitigate them when necessary. This could both imply that municipal mandates over natural resource issues need to be strengthened and that national prioritizations need to be clarified.

Our transdisciplinary approach where researchers and municipal officers co-developed a more participatory MCP process worked well. Together we catered for power issues through both conducting qualitative, resource-demanding focus groups where usually under-represented groups (such as indigenous peoples and women) participated and where younger people's views were included through surveys to schools. Different methods therefore complemented each other. Citizen input was through the two rounds of focus groups transparently included in the resulting plan document, leading to the adoption of nuanced and detailed guidelines. The researchers contributed with expert knowledge on participation and relevant land use issues, a role as

neutral mediators, additional funding, and through that funding also a connection to one of the responsible national authorities – SEPA – that could both popularize guidelines and insights as well as employ them in policy development. The project thus established guidelines serving as points of departure for other municipalities in sparsely populated regions. This is crucial, as researchers cannot drive all the needed participatory planning processes in those municipalities. Mediators in the form of consultants (Bunnell and Jepson Jr, 2011) or planners better equipped with mediating skills could be alternatives. The advantage of a coordinator with somewhat dual roles (as being employed both by the municipality and a university simultaneously) was the profound understanding of how both municipal officers and politicians and researchers think and act. However, such an arrangement, as well as longer engagement of researchers, can potentially blur the lines between the involved actors in terms of responsibility and power relations. We still recommend that more future research on participatory planning in "rural" (and sparsely populated) areas should be conducted jointly with municipal officials and local politicians, to empower the local level and increase the acknowledgment of power aspects as well as to refine what is important in different contexts.

#### Author contributions

Zachrisson, Anna: Conceptualization; Data curation; Formal

analysis; Funding acquisition; Investigation; Methodology; Validation; Writing – original draft. Bjärstig, Therese: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Supervision; Validation; Writing – review & editing. Thellbro, Camilla: Data curation; Investigation; Methodology; Project administration; Validation; Writing – review & editing. Neumann, Wiebke: Data curation; Formal analysis, Visualization; Writing – review & editing. Svensson, Johan: Data curation; Funding acquisition; Investigation; Methodology; Validation; Visualization; Writing – review & editing

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#### Declaration of competing interest

None.

#### Appendix

**Table 1**

Swedish national interests (NIs) and other land-use interests that we considered in this study, as defined in chapters 3 and 4 of the Environmental Act.

National interest	Chapter
<i>Conservation of natural values</i>	
Nature Conservation	3
Natura 2000, Species and Habitat Directive	4
Natura 2000, Bird Directive	4
Contiguous Mountains	4
<i>Conservation of cultural values</i>	
Culture Environment	3
Recreation	3
Itinerant Recreation and Tourism	4
<i>Land use</i>	
Reindeer Husbandry	3
Material and Minerals	3
Wind Power Energy Production	3
Forestry <sup>a</sup>	

<sup>a</sup> Forestry is not a formal NI, but it is recognized as a nationally important land-use form in Chapter 3.

#### Tables 2

Tables 2A and 2B Area of and overlap between 11 NIs in Vilhelmina municipality. A: total area (TA, in 1000 ha) of each NI, cumulative overlap area (COA, in 1000 ha) of other NIs, cumulative overlap area expressed as a percentage (COA, %), weighted average overlap expressed as a percentage (WAO %; COA divided by FO), and frequency (FO, no.) of other overlapping NIs. B: area overlaps of each NI with other NIs, expressed as percentages. Overlap values in different quartiles are indicated in shades of grey: white, 0–24%; light grey, 25–49%; intermediate grey, 50–74%; and dark grey, 75–100% (dark grey). 0 represents an overlap percentage of <0.5% and no numerical value indicates no overlap. Data from [www.lansstyrelsen.se](http://www.lansstyrelsen.se), [www.sgu.se](http://www.sgu.se)

A	National interests	TA (kha)	COA (kha)	COA (%)	WAO (%)	FO (no)
1	Nature conservation	274	1,138	415	41	10
2	Natura 2000 SCI	307	1,254	408	45	9
3	Natura 2000 SPA	224	1,052	469	52	9
4	Contiguous mountains	178	798	449	56	8
5	Cultural environment	25	136	541	60	9
6	Recreation	407	1428	351	39	9
7	Itinerant recreation, tourism	183	554	302	34	9
8	Forestry land*	387	326	84	8	10
9	Reindeer husbandry	355	1,303	368	41	9
10	Material and minerals	2	11	435	62	7
11	Wind power energy production	11	10	90	30	3

B	National interests	1	2	3	4	5	6	7	8	9	10	11
1	Nature conservation		84	81	51	7	79	25	13	73	0	2
2	Natura 2000 SCI	75		73	46	7	87	34	8	78	0	
3	Natura 2000 SPA	99	100		59	9	88	23	7	83	1	
4	Contiguous mountains	78	80	74		13	100	0	11	93		
5	Cultural environment	79	86	79	89		99	1	17	91		0
6	Recreation	53	66	49	44	6		38	23	72	1	
7	Itinerant recreation, tourism	37	57	28	0	0	85		29	64	1	
8	Forestry land*	9	6	4	5	1	24	14		20	0	1
9	Reindeer husbandry	57	68	53	47	6	83	33	21		1	
10	Material and minerals	45	45	45			100	100	0	100		
11	Wind power energy production	44				0			45			

\*Forestry is not a formal NI but is recognized as a nationally important land-use form in the Environmental Code, Chapter 3.

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