

Bridging the Gap: Cross-border Dynamics of Depopulation and Sustainability in Peripheral Areas of Vimmerby and Ydre

Sustainable practices and development for
depopulating and peripheral localities in the
European North

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1. Introduction

1.1. Background of Localities

The study area is located in south-eastern Sweden and focuses on the municipalities of Vimmerby and Ydre, situated within a mostly rural and forested landscape. The region is characterised by low population density, sparse settlements, and a strong presence of the natural environment. This includes green zones such as forests, lakes, protected areas, and a national park. These spatial characteristics contribute to a sense of remoteness and limited accessibility, which contrasts the more urbanised parts of the country.

Both municipalities are relatively small in terms of population and are representative of peripheral localities facing long-term demographic challenges. The settlement structure is composed of small urban centres surrounded by dispersed villages and sparsely inhabited areas. This spatial distribution influences access to services, employment opportunities, and daily mobility patterns.

The area relies economically on a mix of sectors like forestry, small-scale local businesses, and tourism. Both municipalities can profit from forests and unique outdoor spaces since tourism is linked to natural and cultural landscapes. Despite these special characteristics, the region remains dependent on larger urban centres for certain services and employment opportunities.

The combination of demographic decline, peripheral location, and its position within a regional border zone makes this area especially relevant for studying depopulation and exploring the potential of cross-border cooperation and local development strategies.

1.2. Contextualising the Municipalities & Regional Border Zones

Our border area comprises two Swedish counties (län) – Östergötland and Kalmar.

Östergötland county has a population of 472 298 people. It's the 4th most populous county in Sweden. Its capital is Linköping, and it has a population of 166 673 inhabitants. The county is divided into 13 municipalities. Our focus area in Östergötland is Ydre municipality, which is one

of the least populated municipalities in Sweden, and its regional capital, Österbymo, is the least populated municipality centre of all Sweden (Östergötland county, 2026).

Kalmar county has a population of 246 667 people. It's the 16th most populous county in Sweden. Its capital is Kalmar, and it has a population of 41 852 people. The county is divided into 12 municipalities. Our focus area in Kalmar county is Vimmerby municipality. Its regional capital Vimmerby is the 5th most populous settlement in the county (Kalmar county, 2026).

Vimmerby is a municipality in Kalmar county. It has a population of 15 414 people. Its municipal centre is Vimmerby and it has a population of 7827 people (about 50% of the municipality). There are 6 urban localities in the municipality (Vimmerby, Sodra Vi, Storebro, Gullringen, Frodinge and Tuna) (Vimmerby municipality, 2026).

Ydre is a municipality in Östergötland county. It has a population of 3632 people. Its municipal centre is Österbymo and has a population of 873 people (about 24% of the municipality). It is the smallest municipality centre in all of Sweden. Other than Österbymo there are 2 more urban localities in the municipality (Hestra and Rydsnas, Ydre municipality, 2026).

Based on the official Swedish Statistical Bureau information, there is a slow depopulation trend with an aging population (Figure 1) in Ydre (Swedish statistical bureau, 2025) in 2002 to 3627 in 2024. The number of residents in the area has remained stable from the year 2014 to 2024. In 2002 in Ydre there were 22,4 % of residents who were older than 65 years old, in 2024 this number had reached 32,9%. There is a clear ageing trend in the area of Ydre.

Age structure change is one of the social issues for Vimmerby municipality that may result in larger depopulation numbers in the near future. In 2002 there were ~ 19% of people who were older than 65 years old, and by 2024 the amount of elderly population has increased to ~31% (Figure 2). This trend of ageing population might become a concern in the future for the municipality, as this contributes to depopulation.

Comparing Ydre and Vimmerby municipalities, they face depopulation and age structural changes in the different stages. The Vimmerby regional population has been stable in the last 22 years compared to the Ydre region which has declined ~ 9,6%. Even though the population decline in Vimmerby is not as drastic, both municipalities have been experiencing an aging population in the last 22 years.

This project's border area is between three Swedish counties (Östergötland, Kalmar, and Jönköping). It comprises 17 municipalities: Jönköping County (Aneby, Eksjö, Jönköpings, Nässjö, Tranås and Vetlanda municipalities). Kalmar County (Hultsfreds, Högsby, Västerviks and Vimmerby municipalities). Östergötland (Boxholms, Kinda, Ydre, Mjölby, Valdemarsviks, Åtvidabergs and Ödeshögs municipalities) (See fig.1.) (Wirsen, 2026). Our study focuses on the border area of Östergötland and Kalmar, specifically on the municipalities of Ydre and Vimmerby(See fig. 2.).

The border area is largely characterised by low population density and several uninhabited areas, particularly in Kalmar and Östergötland regions.

The average development in the border area is close to zero. There's a tendency toward population decline in parts of the border area. Positive population growth is only found in some places. In-migration and outmigration are roughly equal across the border area as a whole (Wirsen, 2026).

The border area between Ydre and Vimmerby is not very populated. The areas bounded by the 5 and 10 kilometre buffer zones are mainly composed of dense forests. This is likely why there are several protected areas such as Norra Kivills national park, Södra Bråta, Födekulla, and Klevsbergen nature reserves.

There is one settlement located on the border – the village of Ydrefors. It lies on the border between Östergötland and Kalmar counties and is mostly located in the Ydre municipality, but part of the village is in Vimmerby municipality as well. It has a population of about 80 people. The Yoga Monastery can be found in the village. It brings interest and tourism to the area, but is viewed negatively from locals.

1.3. Research Gap

Existing research on depopulation in peripheral rural areas has mainly focused on structural processes such as economic decline, outmigration, and the reduction of local services. In the Swedish context, much of the literature addresses demographic trends and policy responses at regional and national scales. However, less attention has been given to how these processes are experienced and also understood at the local level, especially in peripheral regions such as the border areas of Vimmerby and Ydre.

Moreover, although cross-border cooperation between municipalities is often highlighted as a key strategy for regional development, there is still limited empirical insight into how this cooperation works in practice in peripheral border areas. In this context, the potential role of small border villages as spaces of connection and interaction between municipalities remains largely underexplored.

At the same time, existing studies tend to prioritise institutional and policy perspectives, often overlooking the everyday experiences, perceptions and aspirations of local residents and other stakeholders. This creates a gap in understanding how different actors interpret depopulation, among other related topics, and engage with development strategies on the ground.

This study seeks to address these gaps by exploring how various actors (local residents, municipal stakeholders, and external observers that are not part of the municipality) perceive and respond to depopulation and sustainability in the border region between Vimmerby and Ydre. By doing so, it also examines the potential of cross-border cooperation and the role of border villages in shaping more locally grounded and sustainable development strategies.

1.4. Aim of the Study and Research Questions

Building on the identified research gap, this study aims to explore depopulation in the border region between Vimmerby and Ydre through a multi-actor perspective. We focused on how different groups experience, interpret and respond to ongoing demographic changes, as well as how these perspectives influence local development dynamics.

Even though we started with general questions, some other sub questions were needed in order to place the focus in specific parts of the research and develop a more tight vision of what we wanted to know. These questions are the following:

- *How do different actors (local residents, stakeholders, government institutions and outsiders (us)) perceive and respond to depopulation in the border region of Vimmerby and Ydre?*
- *How do these (different) perspectives influence local identity, governance and development in the area?*
- *Are current cross border cooperation initiatives effectively implemented?*

Together, these questions establish a clear analytical framework for examining depopulation in the study area, connecting local experiences with broader processes of governance, identity, and regional development.

2. Conceptual & Topical Framing

2.1. General Conceptual Overview of Depopulation in Peripheral Localities

Depopulation is a term for the process of dropping population numbers in a specific area either due to natural decrease, negative net migration, or a combination of both. This is a common issue in peripheral localities, which have worse accessibility to services and career opportunities, causing migration towards better connected areas. It is a challenge to municipalities governing peripheral areas to develop strategies to reduce negative impacts to well-being caused by outmigration and to find possibilities of improving economic capabilities of these remote communities, particularly ones further away from regional centres.

The population of depopulating areas is small, meaning that there are often few services and jobs provided to the communities. In case of depopulation, it may occur that it is no longer economically rational to continue providing these services and jobs. This means that in many cases, the remaining population is forced to relocate to larger settlements in order to maintain an acceptable quality of life. The self-reproducing cycle of depopulation and loss of amenities can

eventually lead to a situation, where the remaining few residents are rendered completely unable to access basic services. This can be observed in South Korea, where depopulation is forcing the concentration of medical services in urban centres, causing the closure of hospitals in rural areas, thereby further contributing to depopulation due to the necessity of possibility of access to medical services (Gómez-Valenzuela & Holl, 2024). It is important to focus on reducing depopulation and its negative effects to ensure the well-being of rural community residents, as depopulation may lead to significant disturbances in the residents' way of life.

One effect of depopulation is the closure of essential services. Rural areas are dependent on few basic but important institutions, which provide jobs, but also allow the residents to live their daily lives in comfort. They provide economic opportunities and have a general positive effect on community life. Due to the simplicity of the services provided and the lack of options between them, even the closure of a single institution may have an unfavourable effect on the community. This is well-illustrated with an example from Małopolska Voivodeship, Poland, where it was found that the closure of primary schools in rural areas can have a significant negative economic impact to the community (Semczuk, 2020). This was not limited to just the lost jobs of teachers, but was seen more generally as well. There was a significant decrease in entrepreneurship in areas with disappearing primary schools, which represents the importance of strong institutions (Semczuk, 2020). This means that ensuring access to basic services is vital towards making peripheral communities sustainable.

Another clear negative effect of depopulation is the loss of job opportunities. In many cases the first jobs to disappear are highly specialised and high-paying ones, which require a workforce with very specific skill sets. These jobs are vital in keeping a rural area sustainable, as otherwise may contribute to people moving away from their peripheral home region due to career advancement (Elekes et al., 2023). Likewise, the availability of high-paying jobs increases the chance of workers in low-paying jobs acquiring a high-paying one later on in their career (Elekes et al., 2023). But even the availability of low-paying jobs is not guaranteed, as many such jobs are lost to automation, particularly in rural areas (Capello & Lenzi, 2023). This can significantly upset local labour markets and limit the already few possibilities of employment (Capello & Lenzi, 2023). These advancements can lead to not only lack of high-paying employment, but also general unemployment. This can lead to a community with low socio-economic standards

and lack of skills to improve the situation (Libo-on, 2026). Therefore it is crucial to ensure the availability of valuable job opportunities to support the economic well-being of peripheral communities.

Even though ideally residents of peripheral communities would be able to live without needing to rely on larger localities on a daily basis, it is inevitably the case that not all services will be possible to be provided in the periphery. Likewise for employment, it may not be realistic to provide diverse employment opportunities everywhere, but with strong links between rural and urban communities, it is possible to provide more options. Therefore a strategy to combat the negative effects of depopulation would be to focus on creating stronger links between peripheral communities with lacking services and urban areas, which would be able to provide them. *Comunitat Valenciana* or Valencian Community is a region of Spain, where a study was conducted to research the links between depopulation and interdependence between rural and urban areas (Alamá-Sabater et al., 2021). It emphasises the need for regional cooperation instead of competition, allowing for better connections between regions for service accessibility and to focus on most effective economic opportunities across regions, instead of focusing on attaining positive effects of sectors in areas, where better results would be possible with economic diversification (Alamá-Sabater et al., 2021). Even though regional cooperation may provide more direct economic benefits to areas not experiencing depopulation, the indirect benefits are instead more favourable towards areas experiencing depopulation (Alamá-Sabater et al., 2021). Therefore an approach of including the interests of regions of growth may be the most beneficial for depopulating peripheral areas.

Community building and a sense of local identity are central towards making peripheral areas more attractive to live. This can be particularly effective when conducted by non-governmental actors, which are able to use social capital to create informal initiatives with the aim of creating a sense of community (Meijer & Syssner, 2017). Such planning practices can be conducted through more autonomous organisations such as sports clubs and associations, but also through closer cooperation with the municipalities (Meijer & Syssner, 2017). Community initiatives like these help contribute to local development, yet are dependent on sufficient social capital (Meijer & Syssner, 2017). Communities with low social capital may instead end up with fewer possibilities of development, which may pose a challenge in the process of avoiding

underdevelopment (Meijer & Syssner, 2017). Strong communities are able to bridge this gap and ensure a path towards sustainable community development (Meijer & Syssner, 2017).

Depopulation can happen due to low birth rates or outmigration from rural communities. However, in more severe cases, there is often a combination of the two. This can have major consequences on regions with already small populations and economies, such as with the example of Greece, where rapid natural population decline has led to economic opportunities being concentrated in urban areas, leaving rural communities in decline, further exacerbated by previous socioeconomic trends favouring urban communities (Papadopoulos & Baltas, 2024). Even though the national policy against depopulation has been focused on increasing birth rates, it has not been effective in improving the situation in peripheral areas (Papadopoulos & Baltas, 2024). Their research shows that the most important factors related to depopulation are socio-economic, which emphasises the significance of ensuring that peripheral regions are attractive to live in and that they avoid major outmigration (Papadopoulos & Baltas, 2024). Some rural regions in Greece with declining agricultural activity are focusing on innovative economic sectors, which has given them population growth despite general national trends (Kasimis & Papadopoulos, 2013). This demonstrates the importance of economic attractiveness and positive migration in order to reduce depopulation in rural areas.

As depopulation progresses in a rural region, much of the previous housing will have to be abandoned due to existent housing availability exceeding current demands. This has been studied in the rural province of Teruel in Spain, where rapid depopulation has led to oversupply in the housing market, where the houses' poor conditions discourage further in-migration to combat depopulation (García-Madurga et al., 2024). The construction dates of houses have a significant effect on their quality, with newer houses being better than old ones, and the discouragement of new housing due to oversupply will bring negative consequences to overall quality of housing (García-Madurga et al., 2024). However, other communities are able to maintain good quality of housing despite their rapid depopulation. A village in south-western Spain has shown that it is possible to keep a rural locality in good condition despite many houses remaining unused (Hernández-Ramírez et al., 2022). There is a strong community which values maintenance of unused buildings for the simple goal of keeping the village an enjoyable place to live for the people that remain, and therefore the community has made home ownership a possibility for

almost everyone through family ties, partly with the aim of general maintenance the village (Hernández-Ramírez et al., 2022.). It is shunned upon to leave a house to decay, meaning that even those moving away keep their village home in good condition and make use of it as a holiday home and for renting out to tourists (Hernández-Ramírez et al., 2022.). Even though oversupply of housing can leave a peripheral community to decay, a devoted community can persevere through this challenge.

As there are a myriad of negative effects to peripheral areas associated with depopulation, the psychological well-being of local residents can become an issue. Though this is a subject with little existent research, a study from the United States focusing on cognitive functioning between rural and urban regions found not only that there is a significantly lower level of cognitive function in rural areas, but the same can also be seen when comparing rural areas experiencing depopulation to those who do not (Glauber, 2022). This is so severe that living in rural depopulating areas was found to be even more impactful towards cognitive functioning than limitations based on education or race and was comparable to the effect of divorcing or becoming a widow (Glauber, 2022). Sustainable population levels and the prevention of the destructive impact of depopulation is imperative in ensuring the well-being of the community and avoiding seemingly indirect exacerbation of mental capabilities.

Most socio-economic effects of depopulation are negative, but there are clear positive outcomes when it comes to ecology. As rural populations shrink and demand for agricultural land decreases, possibilities for rewilding arise. Even though agricultural areas are also used by wildlife, rewilded land has significantly higher biodiversity, benefitting a wider selection of species (Navarro & Pereira, 2012). This is particularly beneficial for large mammals, who are not able to live on agricultural land, but also many other species, such as forest birds and invertebrates (Navarro & Pereira, 2012). This contributes to increases in forest area, which have a positive effect on the climate as well through acting as carbon sinks (Nabuurs et al., 2013). However, these effects are limited, as carbon sinks through forests will eventually saturate (Nabuurs et al., 2013). Regardless, depopulation has shown an overall positive effect on the biosphere.

Depopulation is a multifaceted challenge to rural and peripheral communities which despite certain positive aspects can have devastating consequences for local well-being. Though it is a complex issue and there may not always be good solutions to it, there are strategies which are used to reduce the negative effects of depopulation or in some cases, avoid them completely. Innovation is important in finding effective solutions – a study from China has found that rural revitalisation requires policy which also considers possibilities of innovation in rural regions in addition to urban regions and takes their unique circumstances into consideration (Yin et al., 2019). A focus on sectors with high potential of growth like science and technology could be able to provide entrepreneurial solutions which make effective use of economic possibilities of rural regions (Yin et al., 2019). Another perspective focuses on social innovation and prospects of development through uniting the strengths in a dynamic built for growth (O’Shaughnessy et al., 2023). In order to find paths to make peripheral communities sustainable, functional strategies are necessary to be explored and implemented if deemed effective.

2.2. Previous Research in Vimmerby and Ydre

Previous research in both municipalities on the topic of depopulation is limited, but available.

One study focused on Vimmerby as the birthplace of Astrid Lindgren and the concept of literary tourism as a tool to combat population decline (Müller, 2006). Literary tourism is tourism related to the life of an author and the literature they have written (Müller, 2006). As part of the research, various interviews and field observations were performed in the year 2000, and it was found that literary tourism has been welcomed in the community, but its potential for profit was limited (Müller, 2006).

In Ydre, one study focused on the housing situation of older residents with an emphasis on Ydre as a depopulating peripheral region (Abramsson & Hagberg, 2020). It was found that compared to other municipalities, Ydre has a low proportion of elderly living in apartments, but a high proportion living in a rural setting (Abramsson & Hagberg, 2020). The assisted living facility in Ydre was considered to be good and very few older residents had any plans to move away from the municipality (Abramsson & Hagberg, 2020).

Another study in Ydre focused on policy analysis in regards to depopulation and aging (Syssner, 2015). It was shown that the population of Ydre had been decreasing steadily and was expected to decrease further in the future (Syssner, 2015). It is mentioned that the workforce is getting older in Ydre, meaning that there is a need for coherent strategies to deal with depopulation and municipalities like Ydre need to improve their knowledge on the issue (Syssner, 2015).

3. Methods

To understand how depopulation is understood and addressed by different actors in the region, we used a mixed-method and participatory research approach including different stakeholders like residents and government institutions. We combined qualitative and quantitative elements to conduct in-depth insights into local perspectives and broader regional patterns across the study area. The most important element of our research is the participatory element, which enables participants to actively contribute and express their perspective in different ways. We used a combination of semi-structured interviews, a survey, emotion mapping and photovoice as our mixed methods. We believe that these approaches capture multiple perspectives of depopulation.

3.1. Review of Methods

We conducted semi-structured interviews (from now on: SSI) to gain in-depth knowledge of the area and key perspectives of stakeholders, but mainly the local authority. We chose the SSI's because it allows for flexibility in the questions and participants can elaborate on their experiences and thoughts (Newcomer et al., 2015). Interviews generate rich and meaningful interpretations and motivations that might not be accessible through more structured approaches.

We used the qualitative and quantitative data of a survey to capture the insights of a broader group of participants. Surveys provide a general, local overview of attitudes, perceptions and experiences related to our study site and its future (Ballou & Markesich, 2009). We tried to use the surveys to identify patterns and trends and compare the results among different or similar groups.

The third method we used is emotional mapping. It is a tool which explores the spatial dimension and feeling specific areas gave us (Cowen et al., 2024; Davidson & Milligan, 2004). By mapping

our associated emotions with specific locations, this method captures how we perceive, value or non-value places. It produces visual data that highlights the emotional and spatial importance of experienced areas.

For emotional mapping, we used seven different emotions as categories:

Anger – high energy, negative, aggressive emotions

Apathy – very low energy emotions

Despair – low energy, negative emotions

Fear – high energy, negative, defensive emotions

Happiness – high energy, positive emotions

Hope – any positive emotions contrasting the expected

Peace – low energy, positive emotions

The last method, photovoice, focuses mainly on residents' emotions and provides a comprehensive framework of remarkable aspects in the area (Langhout, 2019). Through photographs and possible text messages, participants can communicate their views on local strengths and challenges. Both visual and written data offers insights into how individuals interpret their surroundings and envision the future of the area.

3.2. Data Collection

During our four days stay in rural Sweden (Gullringen), we conducted a total of five SSI's. Two of them were in person and three were over the phone. Before the interview we asked permission to record the interviews and we used these recordings to transcribe all interviews. Anonymized details of the interviews can be found in table 2 in appendix 2. For the first four interviews, we used a pre-set of questions we wanted to ask. These questions can be found in appendix 6 The questions are not in order and the SSI itself determined how and when we asked the questions, it acted only as a guide.

Our Google Forms survey consisted of 16 questions divided into 6 topics: the present, population, cooperation between Ydre and Vimmerby, the future, & pictures. We used three different types of questions, varying from grading (1 to 5), open questions and multiple choice. The survey started with an introduction of us, the task and general questions like age, gender and

locality where they are from. The whole survey can be found in appendix 5. We made the survey in English and Swedish to be able to reach everyone in the neighbourhood. We had a total of 24 respondents from which 10 were in Swedish and 14 were in English. We had two main criteria for the participants which are being older than 18 and being a local. We used several strategies to collect survey data. We created a poster with a QR-code and spread this around in different ways. We hung them on notice boards in the border regions, spread them in Facebook groups (5 in total, 1 declined), and asked locals personally to scan and complete our survey.

Throughout the duration of our stay, we pinpointed locations that evoked distinct emotional responses in us. These responses encompassed a wide range of experiences across different settings. To provide a clearer framework, we categorised our observations into seven emotions: peace, fear, hope, apathy, anger, happiness, and despair. Additionally, we tried to take a picture on every pinpointed location to contextualise the emotion.

We incorporated the last question of our survey and interview for our photovoice methodology. We asked participants of our interview and survey to upload their favourite (“Point of pride”) and least favourite (“Challenging”) picture of their neighborhood.

3.3. Data Analysis

We transcribed the interviews verbatim from audio recordings using Microsoft Word. Then we reviewed the interview and identified relevant themes occurring in all the interviews. These themes are depopulation, collaboration, transportation and tourism.

For analysing the survey data, we are using a mix of Microsoft Excel and RStudio version 4.5.2. Excel was mainly used to observe and state summary statistics and general trends that we can see, while RStudio was primarily used for conducting quantitative statistics. For Excel, we generated bar graphs that give a breakdown of how respondents answered the survey questions based on various demographic information like age group, municipality lived in, and gender. This is to help generate areas of interest for further statistical analysis via exploratory data analysis and data visualization.

Once this is completed, we followed up on leads found in the data via quantitative statistics which included testing measures of reliability in the survey and conducting an exploratory factor analysis. These were chosen to obtain a better understanding of results and to see if these results can be generalised and translated to similarly structured municipalities. To measure the reliability/consistency of the survey, we used Cronbach's alpha which is a measure of how consistently related characteristics are assessed in a survey (Tavakol & Dennick, 2011). To interpret Cronbach's alpha we are looking for values of at least 0.7 for reliability.

To aid with this, we have also implemented exploratory factor analysis to investigate the relationship amongst the variables we have chosen. As for the interpretation of the parameters of this analysis, we were looking at the measures of uniqueness, loadings, proportional variances, and chi square test results. Uniqueness is how well a variable explains variance that is not captured by a factor in the model. Loadings show how each variable contributes to the set of proposed factors in the model. The proportional variance shows how each factor contributes to the variance shown in the model. Finally, the chi squared test is an assessment of how well the factors in the model account for the variance (Yong & Pearce, 2013). The null hypothesis would be: H_0 : 2 factors are sufficient to capture the information in the dataset and the alternative hypothesis would be: H_A : More than 2 factors are needed to capture the information in the dataset. A significance level of 0.05 will be used for this test. Finally, we will rotate the factors that we have determined as significant, which seeks to maximize the relationship between the variables and the latent factor.

We used the digital mapping platform Felt as a tool to spatially map and organise our emotional experiences. We transferred the created data points to QGIS (version 3.44) afterwards and clustered different pinpoints close to each other. We visually analysed the pictures and narratives, with particular attention to how participants represented positive and negative aspects of their neighborhood environments. Together, these methods facilitated a multi-layered analysis that integrates textual, spatial, and visual data.

3.4. Limitation of Methods & Data

A key limitation of this study was the research team's lack of proficiency in the Swedish language. This brought challenges in engaging with some participants, particularly in the

peripheral areas in Sweden, as their limited English proficiency communication between us. It limited our answers especially during the first two days, when the survey was not yet translated into Swedish. The total number of answers on the Swedish survey ended up with an almost equal number of answers to the English version despite it being active for two days less.

We were restricted by our limited time on the field. While we fully transcribed three of the interviews and carefully reviewed and analysed all interviews, the project timeline did not permit a systematic coding process for the SSI's. Therefore, we did not capture the full range of recurring themes and patterns.

The emotional mapping method is based on each group members' subjective perception of the environment under certain variable contextual conditions (specific time of the day, time of the year, general mood of each author, etc.) which may affect the results of this method, we still believe it is possible to see a general picture and patterns by considering all the different emotions.

The photovoice method also presents some limitations. First, there is uncertainty regarding the temporal and spatial accuracy of the images provided, as participants could have uploaded photographs taken at different times, and even not reflecting current conditions of the locations. This limits the ability to interpret the images as representing the present reality of the study area. Second, participation was shaped by accessibility to technology, as some individuals (particularly those we interacted with in person) did not have access to a mobile device at the time and were unable to contribute in the photography part. This may have introduced a bias in the type of participants represented. Moreover, the restriction on the number of images that participants could submit may have limited the depth and diversity of perspectives captured, potentially leading to an incomplete representation of both positive and negative aspects of the area. As a result, some relevant experiences and spatial perceptions may not have been fully documented due to the lack of enough images provided and the selection of the subject captured.

For the analysis of the spatial distribution, it is important to mention that more points are marked in the bigger towns and villages, such as Vimmerby and Österbymo, which are the municipality centres of Vimmerby and Ydre respectively. Rumskulla, in Vimmerby municipality is one of the

biggest and most important villages and a special area of interest. Ydrefors, as a cross-border village split between Ydre municipality (Östergötland County), Kinda municipality (Östergötland County) and Vimmerby municipality (Kalmar County). We have marked relatively more points of emotion in Gullringen, a small locality close to the Kinda-Vimmerby border, where we stayed during our fieldwork and which we felt naturally deserved more of our attention. Other locations consist of sparsely inhabited and uninhabited territories around the Ydre-Vimmerby border area.

We received a total of 24 responses to our survey. This relatively small sample size limits the statistical robustness of the findings and precludes the reliability of the statistical conclusions. A longer fieldwork period would allow for more survey results and would thereby strengthen the reliability and depth of quantitative analysis. Considering the limitations of research, it would be important to point out the general lack of survey results (24 in total, 10 in Swedish and 14 in English) so that they would be considered representative for all the people in the border area. It is important to point out that some of the people that we have talked to have had difficulty answering questions in English so it is considered that surveys in English might have limitations due to language barrier. The Swedish version was uploaded one day later after one of the professors advised us to create a version of the survey that would be more accepted by locals. Therefore, there was even less time for the survey to be distributed in the Swedish language that might have increased the response rate and quality of the responses. There was also no further investigation into the values of Cronbach's alpha due to the time constraints. Otherwise, it would have been beneficial to test other sets of questions and to investigate homogenous measurements on the questions that are measuring a latent variable. Sample size is also a limitation for the exploratory factor analysis. It can be quite challenging to conduct a robust analysis with this method if the sample size is too small. However, this is mainly used to discover relationships in the data and not to come to conclusions about the target population.

4. Results

4.1. Planning Document Analysis for Vimmerby and Ydre Municipalities

The main planning document of the Vimmerby municipality is the Comprehensive plan Vimmerby 2050. This document is available on Vimmerby's ArcGIS Story Maps profile. It consists of 6 parts, which are: Vimmerby 2050, development orientation, land and water use, themes, values and considerations, action plan and sustainability assessment. The plan also includes an audit opinion and interactive map of Vimmerby municipality (Översiktsplan Vimmerby 2050, 2024).

There is almost no mention of depopulation in the document at all. Rural areas are described in the 3rd chapter – Development orientation, in the sub-section 3.1 Settlements and countryside (Vimmerby kommun, 2024).

In the first chapter Vimmerby is described as the central town and core of the municipality. In future plans for the town of Vimmerby, it is stated that the majority of the municipality's future housing stock is planned to be built in Vimmerby's central town. Vimmerby will offer public and commercial services, trade, culture, public transport, jobs, broadband and public administration. Densification and transformation will take into account Vimmerby's historical and small-scale character. With a strong central town, the smaller towns and rural areas are also expected to develop (Vimmerby kommun, 2024).

The next chapter of this subsection focuses on urban areas of the municipality other than Vimmerby. These areas are Tuna, Gullringen, Södra Vi, Frödinge, and Storebro. In the urban areas, the focus is on maintaining and refining existing values and qualities, where the values of the natural and cultural environment are particularly to be protected and used as a resource in development. The urban areas that are close to the municipal border are important for a surrounding area that extends beyond the municipal border (Vimmerby kommun, 2024).

The next chapter of this subsection focuses on small towns of the municipality, which are Rumskulla, Pelarne, Djursdala, and Locknevi. Innovative solutions for sustainable travel,

service, digital services and meeting places are important in the smaller towns. By strengthening the qualities and opportunities for development of the smaller towns, the conditions for viable towns and vibrant rural areas are created (Vimmerby kommun, 2024).

The last area-descriptive chapter of this subsection focuses on the rural areas of the municipality. Rural areas remain important for maintaining a cultivated landscape and an open landscape with both biological and recreational values. The different rural areas should be developed based on their own unique character. New buildings should be adapted to the landscape as well as the cultural and historical values of the surroundings. The opportunity to live and work in rural areas and in the municipality's smaller towns shall be strengthened, and the values of rural areas shall be protected. Rural areas contribute to a thriving municipality and complement the living environments of urban areas (Vimmerby kommun, 2024).

In this subsection tourism industry and its importance for the municipality is also described. The tourism industry in Vimmerby municipality is large in relation to the size of the municipality and of great importance to the surrounding area. The tourism industry is largely associated with Astrid Lindgren and the tourist destinations generate visitors locally, regionally, nationally and even internationally. Astrid Lindgren's Vimmerby is also one of five regionally prioritised tourist destinations. The countryside around Vimmerby plays a major role in the tourism industry and also generates tourism in neighboring municipalities (Vimmerby kommun, 2024).

In the last chapter of this subsection development direction of buildings and housing in the municipality is described. The development of buildings in all localities is primarily inward through densification and transformation. Housing should be located where there are opportunities for sustainable travel. Good accessibility to green areas and recreation should be prioritised in line with the development of new housing. The importance of rural areas for identity and cultural values should be recognised and strengthened (Vimmerby kommun, 2024).

The current main planning document for Ydre municipality is Comprehensive Plan 2013 (YDRE KOMMUN Översiktsplan 2013). The municipality is working on a new digital comprehensive plan with an aim to respond to more current challenges of the municipality (Ydre kommun,

2024). As the implementation process for the new comprehensive plan is not finished yet, we analyzed the currently working document from 2013.

Comprehensive Plan 2013 reflects a traditional growth oriented development approach for the future, in the document societal success is closely tied with population growth. Overall ambition of the plan still remains reversing the population decline trend, rather than using smart shrinking and right sizing policies in the planning process (Ydre kommun, 2013).

The main strategy of the plan is to provide development in rural coastal areas, prioritising housing, tourism development and mandatory free access to water areas in the municipality. It also prioritises green industrial development, especially local food production and eco-tourism which can be analysed as a sustainable vision by the authority (Ydre kommun, 2013). Regarding the infrastructure, the plan acknowledges mobile connection as one of the main challenges in local infrastructure and makes a target to create new fiber optic infrastructure throughout the municipality in order to support remote work and distance learning. It also makes significant recommendations to improve public transport in the area. The built environment plan prioritises preserving local historical appearance for the municipality and promotes adaptation of new construction to local building traditions (Ydre kommun, 2013).

Comprehensive Plan 2013 highlights the significance of inter-municipal cooperation and recommends deepening partnerships especially with the neighboring municipalities through the Itsam federation for IT and broadband maintenance, while sharing upper secondary education and rescue services with neighboring municipalities with the goal of managing a shrinking tax base. In combination, these recommendations aim to provide Ydre's future development as an independent and vibrant municipality (Ydre kommun, 2013).

While the document acknowledges depopulation and decline as a primary challenge and weakness of the municipality, it still promotes growth strategies, especially by triggering active migration processes. With residential and tourism infrastructure development, the municipality aims to create a competitive advantage for housing, highlighting Ydre's natural assets (Ydre kommun, 2013).

While the document acknowledges depopulation and decline as a primary challenge and weakness of the municipality, it still promotes growth strategies, especially by triggering active migration processes. Broader initiative includes preserving natural and cultural environments in the municipality, maintaining the agricultural lands, and pursuing specific ecological goals such as minimum climate impact and the development of wind power (Ydre kommun, 2013).

4.2. Interviews

The interview results present the main findings from the qualitative SSI's. Through the analysis of these data sources, several recurring themes emerged and will be dealt with in this section.

4.2.1. Depopulation

Depopulation is a theme which frequently recurs during all interviews, including the two interviews with the municipalities. However, they have different approaches to this. An interviewee from the municipality of Vimmerby mentioned:

I think that they are a little bit more accepting, we don't really want to accept the fact that we are a small place and that we might be decreasing. And if we don't accept it, we can't work with it, but they have sort of accepted it and they're like, okay, so how do we work with this? (interview 1, personal communication, 16/04/2026).

The next day in Ydre, this got confirmed by the interviewee. She mentioned a population decline of 700 people over the past 50 years and noted that Ydre already shut down most of the primary schools and repurposed them as elderly homes. The rural planners of Vimmerby also noted that depopulation is not widely perceived as a significant issue in the region and is sometimes postponed or not fully acknowledged.

An interviewee mentioned a second consequence while discussing depopulation:

A lot of people have summerhouses here, but they live in other municipalities, so their tax money doesn't go to our municipality. There is the same amount of people here, but less people are paying taxes and but still using the services here (interview 2, personal communication, 17/04/2026).

Which is a crucial aspect regarding the local economy.

4.2.2. Collaboration

While both municipalities face the same problem, they both mentioned how collaboration between them is limited. This is also experienced by local people who live on the border between the counties. One local in Ydrefors told us:

It was interesting when there was snow, the shovelers turned around on this intersection because that is where the county ends, another one had to clean the other side of the intersection because that is another county, the borders are really strict here (local, personal communication, 19/04/2026).

Both municipalities were surprisingly open about the lack of collaboration. During our interview in Vimmerby, an interviewee said: *“The border is quite strong between the counties when it comes to urban planners and they're just so small, we don't really have anything to do there [Ydre], we are not working that much together”* (interview 1, personal communication, 16/04/2026).

4.2.3. Transportation

Transportation was mainly mentioned in our interview with Ydre. While it is a small municipality, its public transportation connection to other counties is seen as a major obstacle. The interviewee said:

It's hard to get our residents to be driven back to Ydre from Eksjö, since it's not the same region, since they don't have the same system for transportation from the hospital. That can be a big issue for our people in Ydre, they have to print out their journaling system and have to bring it on their own and go into the ambulance (interview 2, personal communication, 17/04/2026).

She further emphasized the problem, stating that patients often need to manage documentation themselves and face extended travel times. As the municipality of Ydre does not have its own hospital, challenges arise in terms of transportation to and from the nearest facility: *“if you have*

a doctor's appointment, you have to spend usually 6 hours there” (interview 2, personal communication, 17/04/2026).

4.2.4. Nature Tourism

The interviews communicated the topic of nature-based tourism multiple times, particularly in interviews 3 and 4, where it was a recurring theme. The interviewees described tourism as an opportunity for regional development and as a possible solution for depopulation. All interviewees mentioned that there is more space in the Swedish nature and national parks to start new tourism initiatives. One interviewee stated:

There is depopulation in the area. Of course it's bad, my own kids left the area to study, in Linköping and Jönköping. Many people leave. There are empty windows and houses. It's very important that people do initiatives like us, to keep community. Tourism is the main solution for it. We need more people in the area (interview 4, personal communication, 18/04/2026).

4.3. Survey

4.3.1. Descriptive Statistics – Demographic Questions

We administered both identical surveys until Wednesday 22 April, 2026. This resulted in 24 answers in total where 10 responses were in Swedish and 14 responses were in English. However, 2 responses from the 24 had to be excluded as the respondents indicated that they were under the age of 18, resulting in 22 responses in the final analysis. From these results, 9 respondents indicated they lived in the municipality of Vimmerby, 10 indicated they lived in the municipality of Ydre, and 3 indicated that they did not reside in either municipality. For the age breakdown, most respondents were in the 55 – 74 age category with 9 responses followed by the 18 – 34 age category with 6 responses. The 75 + and 35 – 54 age categories had 4 and 3 responses respectively. For the towns that were represented, Österbymo was the top response with 8 respondents stating they lived there, the rest were a mix of surrounding towns and villages.

4.3.2. Descriptive Statistics – Likert-Scale Questions

For these questions, the lowest number represents being against the statement, no change in the measured quantity, or a decrease in the quantity. For example, if a question asked about perceived population change in the community. These are on different scales where some range from 1-5 and others range from 1-3. The highest number represents the opposite effect occurring. For the questions asking about community size preferences, option 3 was the most popular option for wanting a smaller tight-knit community but with fewer services followed by option 1. The following question asked if people wanted their community to grow at the cost of not being tight-knit. Most people preferred their communities to grow. When asked to assess their municipalities' efforts to improve life for their citizens, 18 respondents recognised that they are at least doing something.

4.3.3. Quantitative Statistics

To obtain a better understanding of the results and to make more generalisable conclusions, we have conducted a deeper analysis in R. Using the tools we explained above, we have generated estimates for Cronbach's alpha where we found questions that measured a common concept. The questions we chose to ask had respondents rate their municipalities efforts on initiatives implemented to help their population, how likely their child will be able to find a career in the area, how they think the population in their region will change, how they prefer their population to change in the future, and how well they think their voice is heard by the municipality. This information is summarised in table 2 in appendix 2.

We also conducted an exploratory factor analysis on the entire dataset minus the columns measuring time, the respondent's town, the connection they have locally, suggestions for improvements in the area, and what services they want in their community. We removed these from the analysis as we considered time to not be a relevant variable in identifying factors for this survey. The respondent's hometown was also removed since most respondents had different answers with very little common groupings. The last three questions were also removed since the responses were open ended and a qualitative analysis is needed for this. The model gave high uniqueness values for the variables measuring gender (Gender), how respondents think the population of their community will change in the near future (Pop.Change.1), how the respondents think the population has been changing in their community (Pop.Change.2), and if

the respondent feels that their concerns are heard by their municipality (Voice.Heard). The rest of the variables were relatively low in comparison. The loadings showed two distinct groupings of variables as seen in appendix 2 figure 5. Additionally, we conducted a chi-squared goodness of fit test to assess the number of factors we need to accurately model the data. We obtained a p-value of 0.438 on H_0 , which was specified in section 3.3.

4.4. Mapping Emotions

Our fieldwork uncovered an emotional landscape in and around urban and rural areas, with 136 points and 161 photos, showing depopulation trends in two municipalities and especially the border areas between them. We have observed the change of physical environment and sense of place from one territory to another, the consequences caused by depopulation, which naturally affect the emotions of an outsider in both populated and unpopulated areas and the lines connecting those territories. The specific thematic maps of each emotion can be seen in appendix 4 figure

4.4.1. Municipal Centres

In the case of Vimmerby, the points marked are mostly positive, signifying happiness, peace and hope, which in some cases express satisfaction with the sports activity held as a gathering place for the local population of Vimmerby and neighboring municipalities and indicate satisfaction with the general appearance of the city as well. Another factor expressive of the city's character is the church in the centre, which the group marked as a pleasant place, signifying peace. Tourist attractions in the city centre are positively evaluated.

In the case of the neighboring municipality centre, Österbymo, we find a more diversified range of emotions. In most cases, negative emotions are caused on the one hand by the poor, unsafe and abandoned infrastructure, as well as general dissatisfaction with the transport infrastructure in the municipal centre, characterised by only a single transit line serving the town with long waiting time intervals. The overall atmosphere of the town centre assessed neutrally or positively.

4.4.2. Border Towns and Localities

In Björkhult, situated in the border area between Vimmerby and Kinda municipality, close to the municipality of Ydre, emotional mapping is defined by the conflicting mix of neglect and natural beauty. Abandoned infrastructure and dwellings near the locality contribute significantly to the negative feelings of depopulation and limited social interactions. The railway line and local station, while considered as central facilities, are perceived as dangerous due to their proximity to residential streets and a barely existing protective barrier. While a significant transport link could be considered as a possible positive contributor for the future development of the area, it could also affect the quiet characteristics of the place and could split the locality physically, creating a sense of fragmentation rather than connection.

However, several strong positive elements balance the flaws. The railway infrastructure for the border village is perceived with hope for the future development of Björkhult and surrounding areas, functioning as a transport link and connecting local functions and development. Besides the abandoned infrastructure and houses certain private properties are lively and well-maintained. The recently renovated bridge in the city centre creates a positive attachment to the place and shows that despite the sparse population, the local government cares about public infrastructure. Despite the few damaged areas around the locality, the untouched nature in Björkhult, the centrally located river of a quiet and small settlement evokes widespread positive emotions, happiness and peace.

Ydrefors, a crossborder locality of three neighboring municipalities and two regions, is characterised by a sense of hope and happiness connected with the untouched nature tied with camping infrastructure near the lake Brösjon. The landscape here, similarly with other cross-border areas, makes a major contribution to the positive perceptions of the area as a potential for recreation and tourism. Local residents' activity can be associated with positive feelings, unlike the nearby mostly secluded towns and localities. Residents and authorities are clearly investing in the area's development and maintenance, as can be seen with tourism activities and existing infrastructure.

However, other negative factors affect the overall positive appearance and image of Ydrefors. Poorly existing public transport in the area evokes negative feelings. Through speaking with locals, it became clear that the distribution of public services in the locality between three municipalities and two regions makes operations confusing, unproductive and difficult. The following comment by the local illustrates this – "...because of this town is in three kommun, snow shovelers drive till the intersection and turn around because that is where there kommun stops, a second and third shoveler have to come to do the other streets in the other parts of the locality as they are part of other kommun." A significant source of social friction is around the Yoga Monastery in the locality, which creates a deep resistance among the local citizens. The presence of security cameras in the streets and suspicious caution signs close to the private properties creates a feeling of unwelcomeness for outsiders and visitors.

Gullringen stands out as a locality with an overall positive atmosphere and development potential. A clear sense of tourism potential can be tied to the beautiful nature in the area, with lakes and a waterfall. Active local business activity and industry facilities create a sense of economic development in the area, unlike other neighboring localities. Gullringen can be characterised as a healthy and functional area for living, recreation, and economic activities. Population age diversification and general heterogeneity is notable for the visitor to the area.

Another locality of Vimmerby, Rumskulla, is characterised by a more lively community and social life with strong basic social infrastructure like schools, an active church, a kindergarten and tourist attractions. As assessed by us, the locality is centered around public space with the local church as a significant gathering place for the residents. Hope and happiness points in Rumskulla also represent agricultural activity as a potential for development. Similar to the other neighboring territories, nature in the area is a significant asset. Slightly uneven terrain creates pleasant views inside the locality. While Rumskulla successfully provides the recreational facilities for visitors, slight contradictions in physical appearance and atmosphere are present. Some recreational infrastructure feels somehow abandoned and lifeless or underused even though they appear to be in good condition.

Svinhult, a bigger village in the Ydre shows more characteristics related to isolation and neglect. The atmosphere is largely lifeless and abandoned, with some closed local business facilities like

a cafe and shops. The sense of decline is perfectly captured with a certain comment made by one of us during the fieldwork: “Where people die, nature lives on”, referencing the tree next to the cemetery in Svinhult’s centre, full of bird nests. With no humans being spotted in the area, Svinhult creates a sense of less potential activity and development for the area and seems to be more likely to depopulate even more in the near future.

4.4.3. Other Inhabited and Uninhabited Territories

Emotional mapping of the cross-border areas highlights contrasts between well-maintained private areas with a feeling of liveliness and care, and abandoned remote places surrounded by nature. Natural landscapes, lakes and forests, evoke positive feelings of happiness and hope, particularly in Norra Kvills Natural park, highlighted as an area with significant potential for future tourism and recreational development of the surrounding areas. In some remote localities we found a sense of human activity and care for their surroundings, including farm houses with solar panels and well-maintained yards. The few locals we encountered were often welcoming and open to talk with us, the outsiders. Agricultural activities (apart from timber production which is the major economic activity in many localities), are not common allowing nature to be a dominant feature for the cross-border area.

Large scale timber production in some remote areas creates a fear of losing the value and natural beauty of local authentic landscapes. Practical challenges are also present in most of the area, such as weak mobile connection and poor condition of road infrastructure, particularly in Ydre. The local remote locations characterise a destroyed and abandoned public and private infrastructure, including buildings, sidewalks and roads, strengthening the feeling of neglect and isolation that has sharp contrasts with the beauty of the natural landscape.

4.5. Photovoice

Photovoice is a method aimed to capture local residents’ perspectives on their daily environment by inviting them to share photographs representing both positive and negative aspects. They could be understood as “points of pride” and/or “challenges” about specific places in their surroundings. Participants could voluntarily contribute to the research by attaching images in our survey. Moreover, we tried to reach out to more people by posting a short text in some

municipalities' Facebook groups, in which people were invited to share their pictures in the comments section accompanied by a short description and its location.

In total, 18 photographs were collected from the participants, as not all of them attached a picture. Even though most of them were sent in the same survey, 2 of the pictures were provided in person. The submissions included both “favourite”, with 12 pictures provided, and “least favourite” places, with 4 images shared, allowing for a comparative understanding of how residents perceive their local environment. All collected photographs are attached in *Appendix 3: Photovoice images*.

In terms of shared patterns among the pictures of the two categories, it revealed clear and recurring visual patterns in how participants perceive the area.

1. Nature as a broad “point of pride”:

All the “favourite” images have a shared point: nature. Landscapes including forests, lakes, rivers and open rural sceneries are perceived as a positive aspect. These spaces are often captured in aesthetically appealing conditions (sunsets, reflections, daily life...), emphasising tranquility and natural beauty. This suggests that the natural environment is the most important asset in the area and has a key role in shaping local identity and feeling of attachment to the place.

2. Water as a recurring feature:

A particular strong pattern among the “favourite” pictures is the presence of water (lakes, rivers, shorelines...). These elements are consistently associated with positive feelings and perceptions, such as calmness, recreation and scenic value. This repetition of water-related imagery highlights its importance as both an environmental and emotional resource in the region.

3. Absence of urban environment as a positive quality:

Urban settings are rarely included in the “favourite” images. Instead, they emphasise open, quiet and depopulated spaces. This suggests that the lack of urbanisation is not seen as a disadvantage, but rather as a defining and valued characteristic of the area.

4. Human intervention and neglect highlighted in the “least favourite” images:

In contrast to what has already been mentioned, the “least favourite” images tend to depict areas shaped by human activity in a negative way. Deforested landscapes, poorly maintained infrastructure or less visually appealing built environments are shown as less positively perceived spaces. These images often reflect disruption of the natural landscape or signs of underuse and decline, which can be linked to broader processes of depopulation.

5. Tension between natural spaces and economic use of land:

Some of the images, particularly those showing logging or altered landscapes, suggest a tension between preserving natural beauty and exploiting natural resources for economic purposes. While forestry is an important activity in the region, its visual impact can be perceived negatively by residents when it contrasts with valued natural environments.

Overall, the contrast between “favourite” and “least favourite” images highlight that while the natural environment is a key source of local pride and identity, the visual presence of underused spaces, environmental change and limited infrastructure reflects how depopulation is experienced in everyday life. This suggests that depopulation in the area is not only a demographic process, but also a lived and spatial reality, shaping how residents perceive, value and relate themselves to their surroundings.

5. Discussion

The results suggest that Vimmerby and Ydre face compounding demographic pressures, where an ageing population intersects with below-average income levels and declining employment – a pattern consistent with rural municipalities across Sweden. Yet, the population is open to sustainable development practices. In our research we used an analogy of bridges that would serve to determine possibilities for Ydre and Vimmerby to cooperate within.

There have been strong attributes among both municipalities that could mean possible cooperation. Having conducted interviews with various groups of interest in the area, the

interviewees told us that they see nature-based tourism as a potential strategy for regional development which was relevant for both Ydre and Vimmerby municipalities. Tourism could be a way to attract more residents to the area. More residents lead to more jobs and more jobs lead to more tax income (Nordin et al., 2025). However, most tourist attractions are seasonal with many people owning a summer house (and not paying housing taxes) rather than residing permanently. This indicates a situation in which the number of people in the area fluctuates over time without demographic challenges being addressed. While tourism contributes to local economic activity, it does not necessarily lead to permanent population growth (Möller & Amcoff, 2016; Kronenberg & Fuchs, 2021). Even though that would not be a guarantee, it would be a common denominator for both of the municipalities.

Among other general ideas preferred by people from both municipalities based on the summary statistics collected from the survey, it is clear that amongst the sample population there is a preference for wanting their communities to grow in population and economy. Even though it might be at the expense of being a tight-knit community. However, there is no magnitude of this growth that is specified, so it is possible that respondents only want sufficient growth to combat the depopulation in the region and to sustain themselves economically. In fact, a common answer to what can be improved in their community included public services like transportation, healthcare, education, and recreational centres. All of these need a sufficient population to sustain them otherwise they become fragmented like in Österbymo. From the survey, we can also see what respondents want in their region and these responses reiterate the importance of basic public services that smaller municipalities lack. Although this is not a complete representation of the target population, there is a common theme of wanting these basic commodities from their municipalities. The question relating to their child's career can also be a proxy measure for these as well, most respondents show some concern with their child being able to find a career in the region. If there is a lack of these services, future generations will certainly have difficulties finding careers for themselves.

The photovoice results reinforce and deepen the findings gained across the research by illustrating how depopulation is experienced in everyday life and it is also relevant by people from both sides of the border between Ydre and Vimmerby. While statistical and policy analyses frame depopulation as a demographic and economic issue, the photographs reveal its spatial and

emotional dimensions. The strong emphasis for Ydre and Vimmerby municipality residents is on natural landscapes as “points of pride” highlights that residents value the rural character of the area, suggesting that the absence of urbanisation is not necessarily perceived as a disadvantage. At the same time, the “least favourite” images expose signs of neglect, underused infrastructure and environmental alteration, which can be directly linked to shrinking populations and limited municipal capacity. This contrast reflects a tension between the preservation of natural identity and the challenges of maintaining services and infrastructure in a depopulating region. Therefore, photovoice not only complements other methods but also demonstrates that depopulation is lived and perceived through everyday environments, shaping how residents relate to place and future development.

Even though we found sectors that both have strong qualities of both municipalities, there are also stark differences in the development of some attributes in the border area of Ydre and Vimmerby. In the municipal centre of Ydre, the observer's negative assessment arises from the general demographic distribution and social background of the town. There is a stark prevalence of the elderly population on the streets of Österbymo, highlighting lack of age diversity. This atmosphere is further compounded by the general social climate, in some cases expressed by the locals' refusal to talk to our group and ignore the minor requests for cooperation. Contradictingly, a few positive points assess the town's quiet, modest, and localised nature, which strengthen the feeling of a secluded and ageing community with the comment: “Österbymo – Peaceful and calm town”.

Ultimately, the emotional mapping of these two municipal centres shows a significant contrast between stagnation and vibrancy. Vimmerby functions as a centre with more vibrant social dynamics, but Österbymo's quiet nature is also a symptom of stagnating social picture and infrastructure quality decline, rather than intentional design.

In places that are difficult to access for both tourists and local residents, transportation plays a key role in regional development. During our interview in Ydre, the topic of transportation and how it negatively influences rural accessibility was mentioned multiple times while Vimmerby municipality stakeholders have not pointed out the importance of improving the existing connections. It does not just influence the mobility in the area, but also healthcare and rural

inequality (Arcury et al., 2005). Because Ydre does not have its own hospital, residents must travel with different transportation systems to different municipalities which brings logistical difficulties and adds extra travel time. Literature suggests that well-developed and coordinated transportation systems are an important factor in supporting regional development and improving accessibility in rural areas (Šťastná & Vaishar, 2017).

Both municipalities and the border region face the difficult challenge of depopulation. Yet today the severity of the situation is viewed differently in Ydre and Vimmerby municipalities. During the interviews, both the municipality representatives defined and perceived their own strategies to battle these challenges. The municipality of Vimmerby tries to battle it and frame depopulation as a less immediate issue. This is a recurring challenge in rural Sweden with several municipalities not willing to accept the shrinkage (Ebner, 2024). Ydre developed a more accepting and adaptive approach and is not fixated on growth. Different approaches suggest that the way depopulation is framed at the municipal level may influence how it is addressed in practice. The responses of the local governments are not only shaped by demographic trends but also attitudes and willingness to engage with these challenges (Sysner, 2025).

The lack of collaboration was mentioned by both municipalities and local residents. The administrative borders of the municipalities play an important role in the arrangement of services (like the snow shovelers), influencing residents' daily life. This suggests that these border boundaries are not just boundaries on the map, but they act as barriers to political cooperation. These findings indicate how borders influence planning processes, even where shared knowledge could be beneficial.

Concluding the emotional mapping results some of the clear patterns reveal describing the sense of place in the Vimmerby-Ydre border area. Assessing the distribution of all eight basic emotions marked during the two days of our field trip, we can clearly trace the fragmentation and contradictions that arose around the different features of the places such as infrastructure, nature, social conditions, general feelings and atmosphere in the border areas etc. Even though the difference between the territories on the neighbouring municipalities are stark in some cases, the border still stays as a seamless feature, an abstract narrative existing mostly for the public authorities and planning departments of the municipalities and regions.

Considering the summary statistics, we can see that both Vimmerby and Ydre are represented proportional to the number of responses in this survey while the responses for age distribution are bimodal and skewed toward younger adults and older adults. Hence the data are more reflective of these age categories and under represent the middle age adult and elderly age categories. Additionally, the responses are more skewed towards female respondents than male with 14 out of 22 analysed responses being female. While the magnitude of this difference is small, this could result in skewed conclusions during the quantitative statistics section.

Glancing at the future possibilities of qualitative data analysis, based on what we researched using Cronbach's alpha, the characteristic that we measured was respondents' perception on how well the municipality is responding to a decreasing population. Note that this is a measure of how consistent a set of related questions can measure one characteristic. This does not assess that the questions in the survey are valid measures of the characteristic. The output can be seen in table 2 including standardised estimates of Cronbach's alpha, so they are comparable, and the standard error associated with the estimate, to quantify the uncertainty in the estimates. Observing the values in table 2, we see that most of these values are around 0.5, which is unfortunately a low measure for Cronbach's alpha. However, Tavakol & Dennick suggest that because Cronbach's alpha assumes that each question measures the same latent variable on the same scale, this is called tau equivalence, it tends to underestimate reliability if this assumption is violated (2011). Therefore, it is good to keep in mind that the estimate we generated is a lower bound for the true value of Cronbach's alpha. Moreover, we see that some of the standardised estimates of alpha are higher than the raw estimates, which further suggests that the tau equivalence assumption needs to be investigated (Cortina, 1993). In other words, further iterations of this survey should aim to measure this concept on a similar scale and should be refined for clarity on the topic. It would also be highly beneficial to restructure the survey for future iterations to ensure that these concepts are being assessed properly. Given that survey designs are a key method of gathering information in the social sciences, it is crucial that the survey questions delineate the proposed research questions and aims (Little, 2013). There is also discourse in the literature about using Cronbach's alpha as a sole measure for reliability and that it should instead be used concurrently with other measures to ensure that one statistic does not try to validate the entire survey (Agbo, 2010). To remedy this issue, different measures of

reliability can be used, or another method of identifying common themes and latent variables could be used.

The exploratory factor analysis was also conducted on the data set. This is to uncover some potentially relevant drivers behind the responses that we have collected. Factor analysis is typically used to measure latent variables or variables that can not be measured from one piece of information, like socioeconomic status, that are otherwise missed in an exploratory analysis (Lawley & Maxwell, 1962). This is to drive further analysis for future research and to follow up with similar questions to a comparable target population. Ideally, we would like to gather some themes or ideas that we can follow up on that are captured by a set of questions. A 2 factor analysis was proposed given the p value stated in section 4.3.3 and based on H_0 specified in section 3.3. That is, there is no evidence against the null hypothesis that more than 2 factors are needed. After conducting the 2 factor analysis, we found that there are two main clusters based on the factors proposed. Additionally, the summary of the loadings provided by each variable is included in appendix 2 in table 3. From figure 5 and table 2, we see that clearly Larger.Population, Municipality, and Pop.Change.2 form one cluster around factor 2 and Gender, Voice.Heard, and Pop.Change.1 form another cluster around factor 2. Fewer Services and Obstacle are also clustered together representing factor 1 while the rest are dispersed and weakly represent both factors. This indicates that these groupings of variables could be measuring latent variables that are worth investigating in further studies.

6. Conclusion & Suggestions

6.1. Local Recommendations

6.1.1. Public Transportation

Vimmerby municipality currently focuses mostly on the municipality centre of Vimmerby, and not so much on other populated areas in the municipality, as it is a tourism and population hub in the area. The same goes for public transportation, as it is mostly focused on Vimmerby and connections to other settlements in the municipality are not well developed.

Therefore it is recommended to develop transportation and mobility services focused not only on the town of Vimmerby but on all of the Vimmerby municipality. Vimmerby should serve as a mobility and transportation hub of the area. Therefore bus and train services and routes should be developed further to other towns and settlements of the area as well. That lessens the extent of marginalisation of other populated areas, as well as keeping and developing Vimmerby's role as a local hub and regional centre. Developed local transportation and mobility services also benefit the areas developed tourism industry as well. More bus routes to more areas means easier access to tourism sites and accommodations for tourists and locals as well.

Ydre has major challenges with public transportation. When spoken to local authorities, it was discovered that there are only 2 bus routes available from the regional centre of Österbymo, to Tranås and Eksjö, which both are in Jönköpings län, a different county. The buses go only every 5 hours, making mobility and access to services difficult, especially for the elderly, as many medical services, for example a hospital, are only available in Tranås and Eksjö. Additionally there are no public transportation routes connecting Österbymo to other settlements in the Östergötland county, as well as there are no cross-border transportation connections between Ydre-Vimmerby municipalities, Östergötland-Kalmar counties respectively.

Therefore it is recommended to focus on developing transportation networks as well as mobility services in the area. Firstly it is advised to improve already existing bus services in the area. Bus routes to Tranås and Eksjö currently are provided too rarely to ensure quality and easy to access mobility services. Therefore it is suggested to schedule more buses on the route, having at least one bus every 2 hours, if not every hour. It is important, because many services, such as hospitals, are available only in Tranås and Eksjö, and are also important for vulnerable groups of the society - elderly, disabled and others. It is recommended to develop public transportation to other settlements in Östergötland county as well. Cooperation between inter-county localities is important, and is quite easy to get funding to, as localities are in the same county. It would also make Ydre municipality public transportation services not too dependent on other counties, as current bus routes only go to settlements in Jönköping county. Lastly, it would also be recommended to consider development of cross-border bus routes between Ydre-Vimmerby municipalities and Östergötland-Kalmar counties. It would open new possibilities, and put less

responsibility on Jönköping county settlements to provide services, as such services are available in Vimmerby as well.

6.1.2. Depopulation and Development

As mentioned previously, Vimmerby municipality largely focuses on its municipal centre of Vimmerby, marginalising and leaving behind other populated areas of the municipality. As mentioned in Vimmerby municipalities comprehensive plan Vimmerby 2050, new housing projects are mostly planned to be developed in the town of Vimmerby. For balanced and all-rounded development of the whole municipality, that should be changed.

While developing the municipality centre of Vimmerby is beneficial to the municipality, as its administrative, population and tourism hub, it is important to develop and focus on the other areas of the municipality as well. The municipality capital of Vimmerby is a significant population centre of the municipality, as about 50% of the county's population live there. However there are also 5 other urban localities (Södra Vi, Storebro, Gullringen, Frödinge and Tuna) as well as rural areas, which contain the other 50% of the population and therefore need to be developed as well. It is recommended to consider building new housing projects not only in Vimmerby, but in other populated areas of the municipality as well. It is also recommended to develop accommodation, tourism attractions and other recreation related services in all of the municipality, as currently tourism in the area mostly benefits the municipality centre of Vimmerby.

Ydre municipality has already been experiencing depopulation for a long time. The municipality is one of the smallest municipalities in Sweden in terms of population and municipality capital of Österbymo is the smallest municipality capital in all of Sweden, with population of 862 people as of 2023 (Österbymo, 2026). The municipality has already accepted depopulation and is instead trying to focus on people already living in the area. It is recommended to continue with this approach.

As well as depopulation, Ydre municipality experiences an ageing population as well. Currently there is only a primary school in the municipal centre of Österbymo, but there is also a large elderly centre. This example highlights ageing demographics and prioritisation of elderly by the

municipality. Considering the aging population and very small likelihood for population structure to change, it is recommended for municipality to continue this approach. Currently the municipality is looking for new opportunities to house the elderly population, for example by developing an old school into an elderly centre. It is recommended to proceed with the project and develop it.

6.1.3. Tourism

The municipality of Vimmerby has already been developed as a national and even regional (Northern and Western Europe) tourism centre. Tourism is currently largely based on historical and cultural ties of the place with Astrid Lindgren. However, tourism in the municipality is mostly developed in the municipal centre of Vimmerby, as Astrid's Lindgrens home and theme-park Astrid Lindgrens World are located there. It is recommended to focus on natural areas of the municipality as well and to develop a well-rounded and municipality wide tourism industry. If the municipality combines the cultural heritage of Astrid Lindgren with its stunning nature, it could even become a global tourism hub.

Apart from cultural heritage and sites associated with Astrid Lindgren, which are important as well, Vimmerby municipality has many stunning natural sites. The Norra Kivill national park is located in the Vimmerby municipality. Nearby the park the Rumsquilla oak is located. It is Europe's largest English oak with a circumference of about 14 m (46 ft). The oak is thought to be about 1,000 years old. It is recommended to develop the recreation services and improve accessibility to these areas, to make them a focus-point of tourism in the area as well. The area already has significant tourism associated with Astrid Lindgren. Developing, marketing, and tying natural-site tourism to existing tourism in the area, creates a potential of it becoming a global tourism hub.

Despite having a high number of natural protected reserves and stunning nature, there seems to be a minimal, practically non-existing tourism to Ydre municipality. Developing tourism industry around these areas could bring real economic gain to the municipality, opposed to already existing summerhouse tourism, as their inhabitants don't live in the municipality and pay taxes elsewhere.

Currently there are 4 natural protected areas in Ydre municipality, all located near the border with Vimmerby municipality and Östergötland county. These natural reserves are: Södra Bråta – meadows and pastures and a forest that is to be developed into a pasture forest, Födekulla – hill pine forest in the north, a mixed forest with old spruce forest with elements of deciduous trees in the south, and a spruce swamp forest in the west of the reserve, Korphålorna – ravine with a stream at the bottom, it consists of spruce forest with pine trees on the heights and Brantefall – large, scenic and wide waterfall. It is recommended to develop and market these areas, as they contain huge natural value and would bring tourism to the municipality. It is also recommended to consider developing a border area natural trail, as all of the mentioned nature reserves are located near the border with Vimmerby municipality and Östergötland county. The trail could bring tourism to the area, while also developing the border area, as it would be located there.

6.1.4. Cross-border Cooperation

As stated in this chapter, currently municipalities of Ydre and Vimmerby don't have any cooperation at all. Combining all of the mentioned elements in this chapter – public transportation, natural areas, tourism – both municipalities have common points for cooperation and would likely benefit from it.

Public transportation is quite a major challenge in Ydre municipality. Cooperating with Vimmerby municipality and Kalmar county, Ydre municipality has a potential to develop a cross-border route to Vimmerby, creating more opportunities for its inhabitants to use different kinds of services, as they are also available in Vimmerby, and vice-versa, Vimmerby municipality could benefit economically from bringing people of Ydre municipality to the town of Vimmerby and to have them using services there. Aside from public transportation, Ydre and Vimmerby municipalities could cooperate in the tourism aspect. Firstly, both of the areas have beautiful nature and protected natural reserves. However cooperating on tourism in this field requires development of services and infrastructure around natural areas, as Vimmerby municipality largely focuses on tourism associated with Astrid Lindgren and Ydre municipality has almost no tourism at all. After developing and marketing these areas, there is a huge potential for cooperation in nature-based tourism between municipalities, as well as making cross-border nature trails and tours. Aside from nature-based tourism, cooperation on tourism associated with Astrid Lindgren is also possible. In Vimmerby municipality it is already developed and there is

huge interest both from tourists and municipality into developing tourism associated with Astrid Lindgren and deepening her cultural heritage and legacy. This is where Vimmerby municipality could cooperate with Ydre municipality as well, as the general vicinity of Vimmerby contains sites associated with Astrid Lindgren and Ydre municipality is also part of the historical region of Småland as well. Cooperation on all of the mentioned aspects could bring economic gain and benefit for both Vimmerby and Ydre municipalities.

6.2. Transferable Methods for Cross-border Cooperation

Based on chapter 6.1. Local Recommendations, there are 3 main cross-border cooperation methods to be potentially transferred from possible development of suggestions and recommendations to Vimmerby and Ydre municipalities. These cooperation methods are: cross-border cooperation on mobility and transportation, cross-border cooperation on tourism and recreation and cross-border cooperation on nature protection.

Ydre and Vimmerby municipality could benefit significantly if they had cross-border cooperation on mobility and transportation by having direct bus-route between Österbymo and Vimmerby, their municipal capitals. This suggested method is already implemented in practice in one of the respective municipalities – Ydre. There are direct cross-border bus routes from Österbymo to Tranås and Eksjö, which are both located in Jönköping county, opposed to Österbymo which is in Östergötland county. These bus routes, although provided quite rarely (every 5 hours), should the number of routes increase, could be used as an example when developing cross-border transportation cooperation and creating bus routes between Österbymo and Vimmerby. If implemented successfully, this kind of cooperation could be used as an example and transferred to other cross-border areas.

As both municipalities have some important nature protection sites that could be used for tourism, both Vimmerby and Ydre municipalities could cooperate on developing and strengthening the tourism industry of the region. This cross-border cooperation would be heavily dependent on developing and marketing tourism in the natural sites, as it isn't yet done in either municipality. Vimmerby municipality has tourism, but it is more focused on Astrid Lindgren and her cultural heritage and legacy, while Ydre municipality has other challenges and focus areas, besides tourism. This cross-border cooperation would require intense work, as it would be

needed for municipalities to convince each other to cooperate in this way, to synthesise different priorities, opinions and approaches. Should this cross-border cooperation between Vimmerby and Ydre municipalities on tourism and recreation be successful, it could be used as a cross-border cooperation example for other municipalities, as a lot of work has to be done to even start and ensure cooperation on tourism between municipalities who have different aims and priorities not only in the tourism sector, but also in general.

As the main focus of proposed cross-border cooperation in tourism and recreation is about nature protection areas, both municipalities could establish a cross-border cooperation on it. Both of the municipalities have natural protected reserves and areas – Norra Kvill national park and Rumskulla oak in Vimmerby municipality, as well as Södra Bråta, Födekulla, Korphålorna nature reserves and Brantefall waterfall in Ydre municipality. Therefore both of the municipalities could focus not only on cross-border cooperation regarding these areas on tourism, but also on nature protection and conservation. These nature protected areas are located mostly on the border of Ydre and Vimmerby, as well as their counties Östergötland and Kalmar, this cooperation could also bring some interest and development of the border area between municipalities. Therefore if successfully implemented, this kind of cross-border cooperation which focuses on elements located directly in the border-area could be used as an example of methodological cross-border cooperation approach for other municipalities as well.

6.3. Conclusion

In the 1.4. Aim of the Study and Research Questions chapter the 3 following research questions were formulated. These questions are:

- How do different actors (local residents, stakeholders, government institutions and outsiders) perceive and respond to depopulation in the border region of Vimmerby and Ydre?
- How do these perspectives influence local identity, governance and development in the area?
- Are current cross border cooperation initiatives effectively implemented?

In the conclusion part these research questions will be answered and conclusions will be made.

The first research question that was posed is how do different actors (local residents, stakeholders, government institutions and outsiders) perceive and respond to depopulation in the border region of Vimmerby and Ydre?

In order to answer that question, it firstly needs to be stated that opinions about the depopulation in the area are quite different for different groups of stakeholders. Local residents in both Vimmerby and Ydre mostly say that depopulation happens, but only by a little. Some of the residents are even saying that it is staying the same. Government institutions have different reactions in each of the municipalities. In Vimmerby municipality they don't want to admit that depopulation is happening in the municipality, even if it's just by a little. The municipality is saying that they are actively working on battling the depopulation. Ydre municipality however states that depopulation exists and has been happening for a long time already. They have accepted the fact that the municipality is depopulating and that the population of the municipality is not going to grow anytime soon. That's why they are focused on developing services and infrastructure to improve living conditions of people who already live there. Outsiders, in this specific study our group, see that depopulation is definitely happening. But at the same time it is not so rapid. While conducting interviews and using our expertise, we observed that depopulation is happening at different scales, speeds and in different frames. In Vimmerby it is happening less, and only areas other than the municipal centre of Vimmerby are experiencing little population growth. It is happening quite slowly, and has started only recently. However in Ydre municipality the depopulation is slow but steady, all of the areas experience depopulation, and it's been happening for decades already.

The second research question is how do these perspectives influence local identity, governance and development in the area?

To answer that question, we have to consider that the municipalities' perspectives are different, so are the ways in which they shape both Vimmerby and Ydre. In Vimmerby these perspectives influence local identity and governance of the area by a lot. As the municipality doesn't acknowledge depopulation much and focuses more on tourism associated with Astrid Lindgren's cultural heritage and its ties to the area, local identity shaped by Astrid Lindgren's legacy

strengthens as well. It also influences the governance and development in the area, as the municipality focuses more on tourism and mostly develops infrastructure in the tourism industry. In Ydre these perspectives influence local identity less. However, they still shape governance and development of the area. As the municipality has already accepted that it is depopulating, development is also focused on not bringing more people to the municipality and ensuring population growth, but rather on keeping and improving the infrastructure and living condition of people already living there.

The third and final research question that was posed was: “Are current cross border cooperation initiatives effectively implemented?”

The answer to that question is that there are some cross-border initiatives between Vimmerby and Ydre, but they are minor and only used in governance of the municipalities, because of the small scale of the cooperation we consider that these initiatives are not effectively implemented. Cooperation on the governance level is only done in the IT sector, done in the spatial planning field. There was some cooperation in the nature protection field. But the cooperation was not done by the municipalities, as it was initiated by LIFE Project Live Restored. There is no cooperation done with the aim of combatting depopulation or developing industries and infrastructure in the areas. That’s why cross-border cooperation is not done to its full potential and therefore is not effectively implemented.

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Appendix 2: Figures & Tables

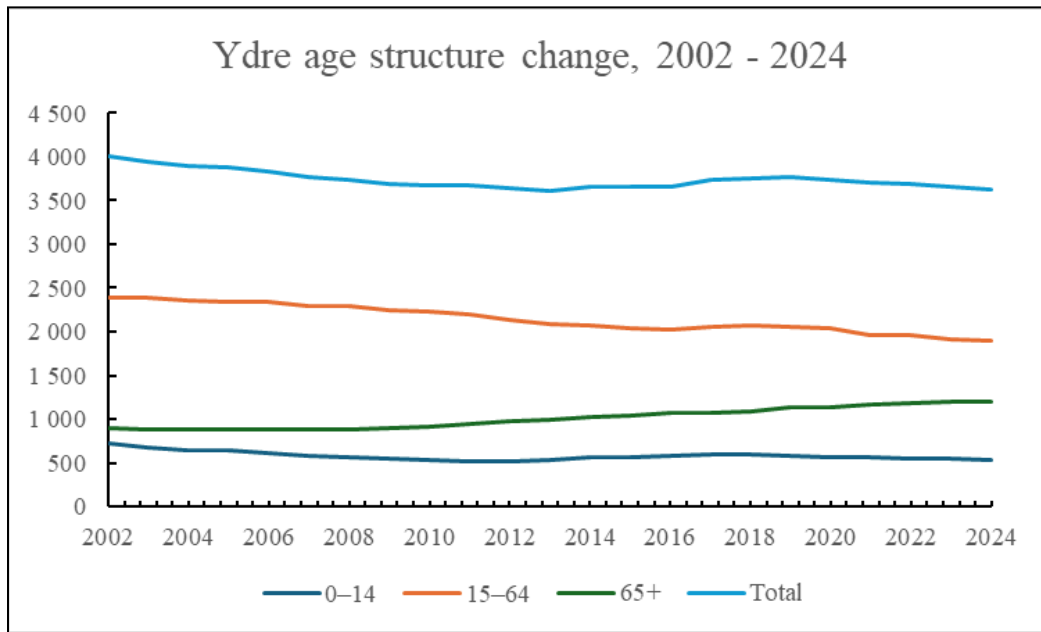


Fig.1. Time series from 2002 to 2024 of population age structure in Ydre (Swedish statistical data, 2002-2024, 2026)

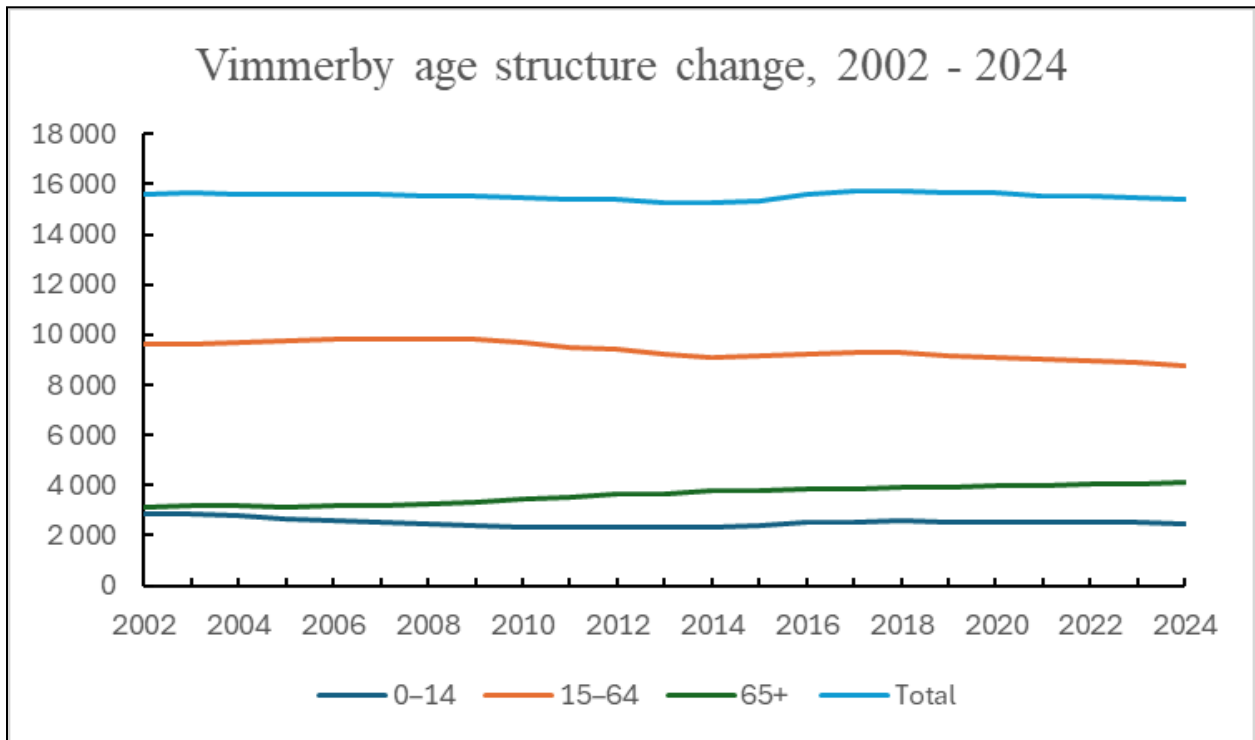


Fig.2. Time series from 2002 to 2024 of population age structure in Vimmerby (Swedish statistical data, 2002-2024, 2026)

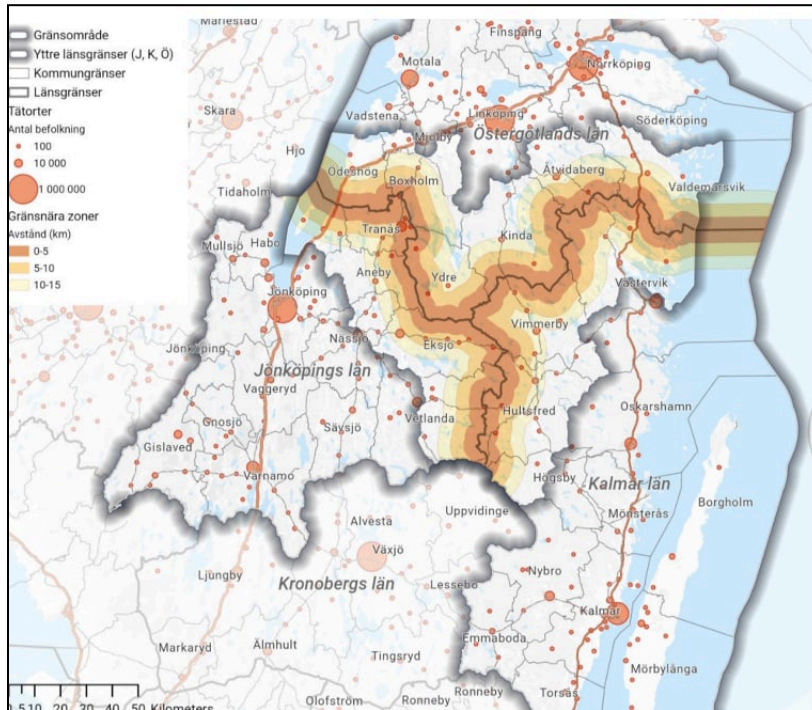


Fig.3. Border area of the project (William Wirsén)

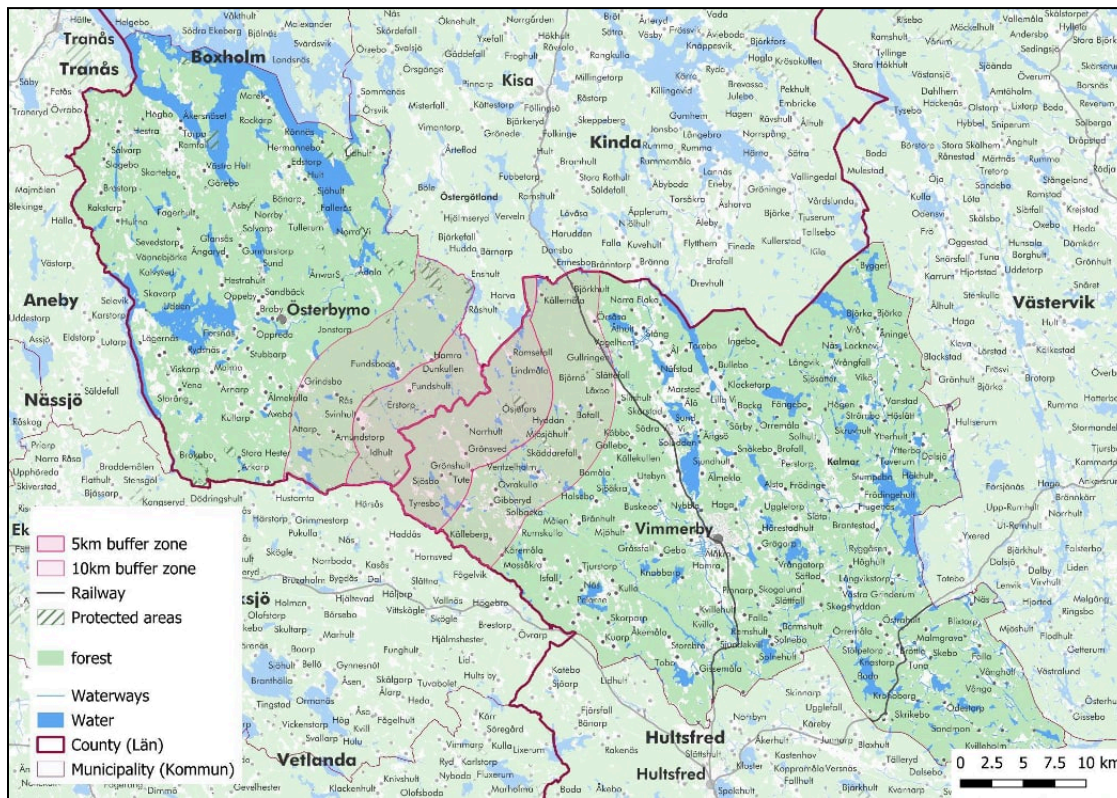


Fig.4. Map of Vimmerby - Ydre border area (Miranda Gulbani). Base map features, administrative borders are sourced from Lantmäteriet, localities, water, forest, protected areas and railway layers are from OpenStreetMap data.

Table 1: Information about interviews

Interview	Where?	When?	Duration	Recorded/Trans-cribed
#1	Vimmerby Municipal building at Stångågatan 28, 598 37 Vimmerby	16/04/2 026; 15:00	1:24:16	Y/Y
#2	Ydre kommunhus at Torget 4, 57374 Ydre	17/04/2 026; 9:00	59:33	Y/Y
#3	Over the phone	17/04/2 026; 11:49	35:00	Y/Y
#4	Centrumhus et Verdandigat an 5 Mariannelun d	18/04/2 026; 13:00	1:24:16	Y/N
#5	Over the phone	20/04/2 026	10:00	N/N

Table 2: Cronbach's Alpha estimates from RStudio analysis assessing consistency on

Quantitative Measure	Variable Name	Initiatives	Child's Career	Forecasted Population Change	Preferred Population Change	Voice Heard by Municipality
Cronbach's Alpha (α)		0.5156	0.4107	0.5566	0.3998	0.5492
Standardized α		0.5461	0.4085	0.5662	0.3844	0.5349
Standard Error of α		0.1604	0.1937	0.1533	0.1898	0.1345



Figure 5: Visualization of exploratory factor analysis of selected variables in the survey

Appendix 3: Photovoice Images

A. Favourite images (“points of pride”)



Figure A1: Forest landscape.



Figure A2: Woman fishing from a boat on a river.



Figure A3: River and a house in a rural setting.



Figure A4: Sunset snowed landscape with 2 animals.



Figure A5: Cultural nature point.



Figure A6: Daily life action in a rural home.



Figure A7: Frozen rural scenery near the village.



Figure A8: Big tree as a point of natural interest.

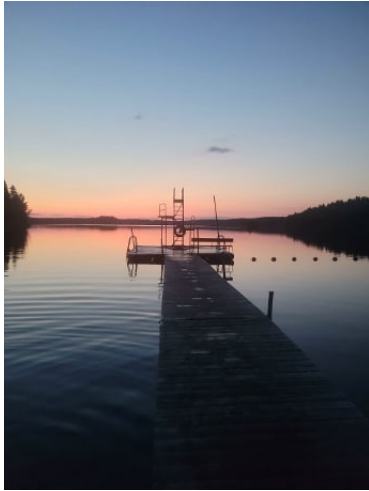


Figure A9: Sunset next to a lake and swimming point.



Figure A10: Two persons at the highest point of a hill with views towards the forest.



Figure A11: Sheeps in a rural outdoor-farm during fall season.



Figure A12: Close picture of a tree in the middle of the forest.

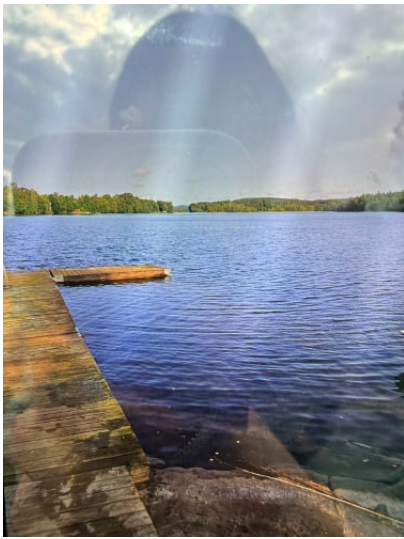


Figure A13: A lake with a forest in the distance.



Figure A14: A stack of wood in a yard.

B. Least favourite images (“challenges”)



Figure B1: Deforested landscape



Figure B2: Poorly maintained infrastructure

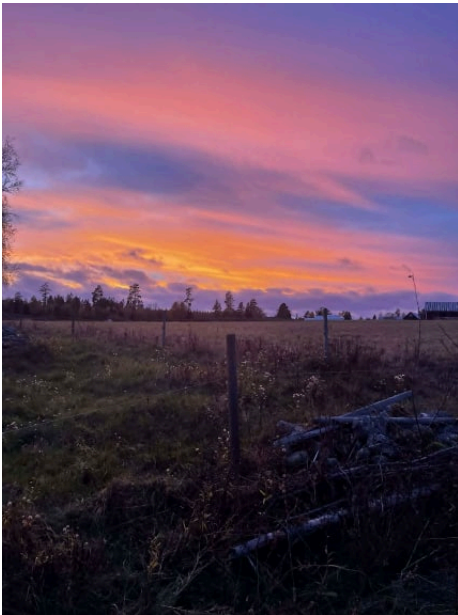


Figure B3: Open rural landscape at sunset



Figure B4: Well-maintained rural house at sunset

Appendix 4: Emotional Mapping Cartography

Table 1. Number of points and pictures created by each emotion category and total number of units.

	Anger	Despair	Fear	Apathy	Hope	Happiness	Peace	
Number of points created	9	29	13	10	33	25	17	Total: 136
Number of pictures taken	6	37	14	10	44	27	23	Total: 161

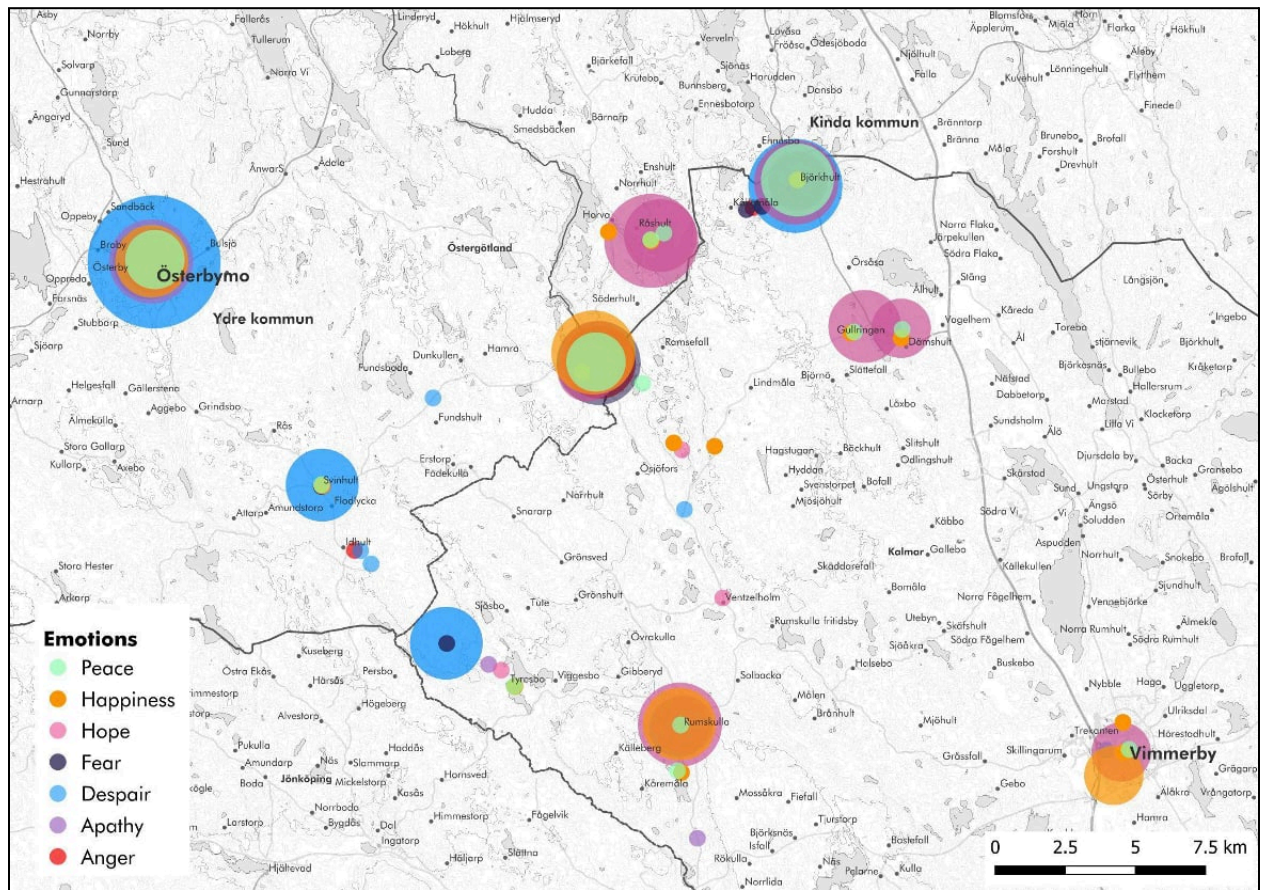


Fig. 4.1: General results - geographic distribution and density of the emotion markers in the area. Points represent qualitative data collected during mapping the basic emotions. Visualization is made with the methodology of point cluster where circle diameter indicates the frequency of the marked points. Base map features, administrative borders are sourced from Lantmäteriet, localities, water and roads are from OpenStreetMap data. Topographic data is sourced from OpenTopography.

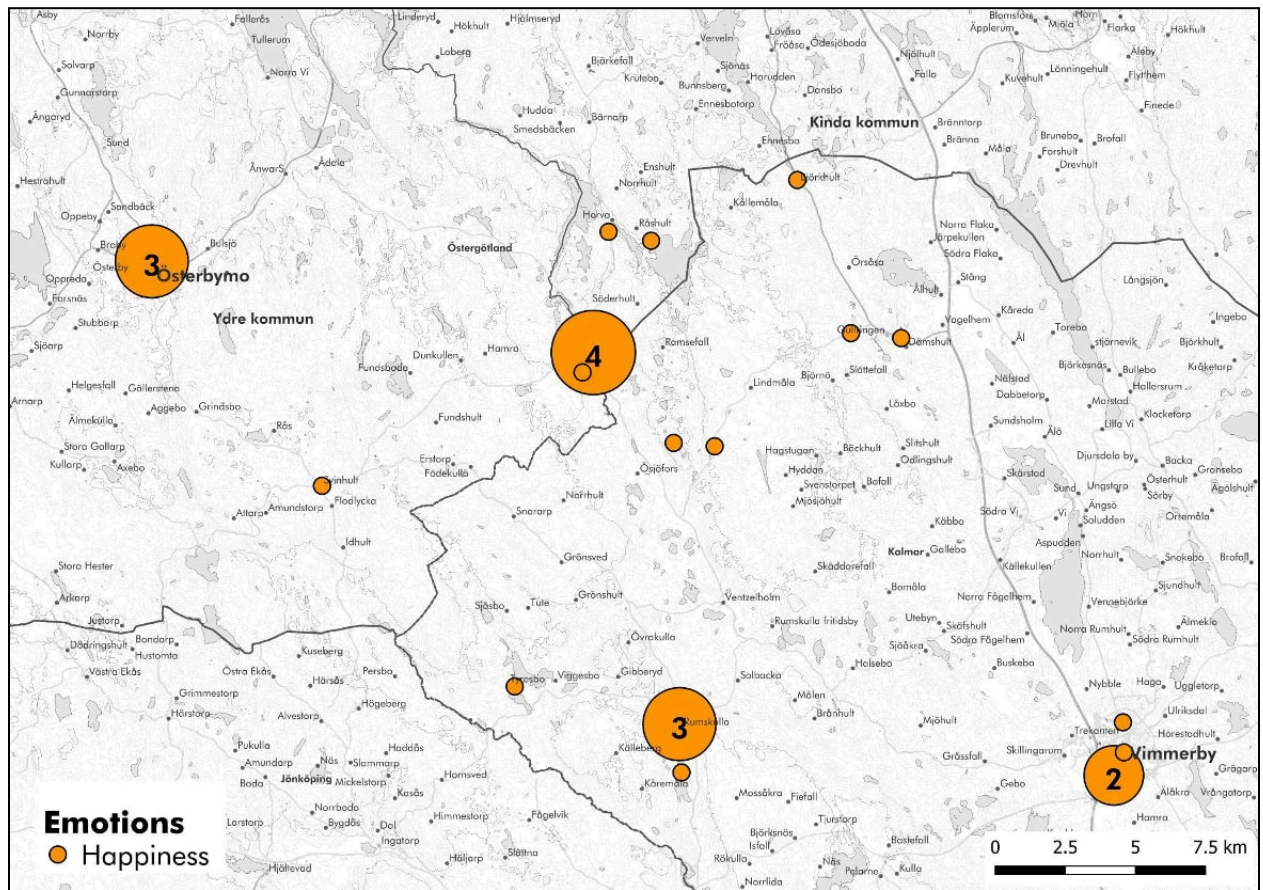


Figure 4.2. Spatial distribution of Happiness points in the Ydre and Vimmerby municipalities

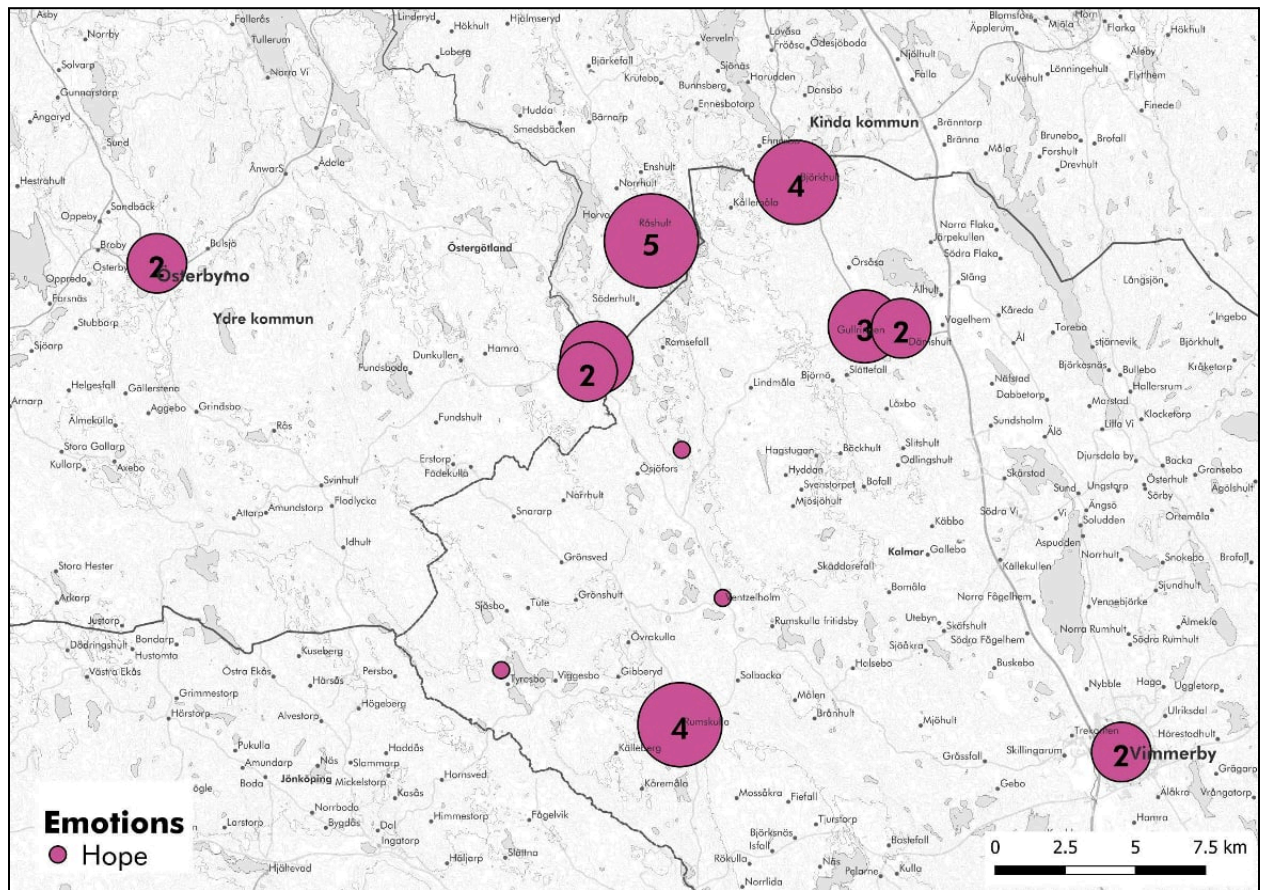


Figure 4.3. Spatial distribution of Hope points in the Ydre and Vimmerby municipalities

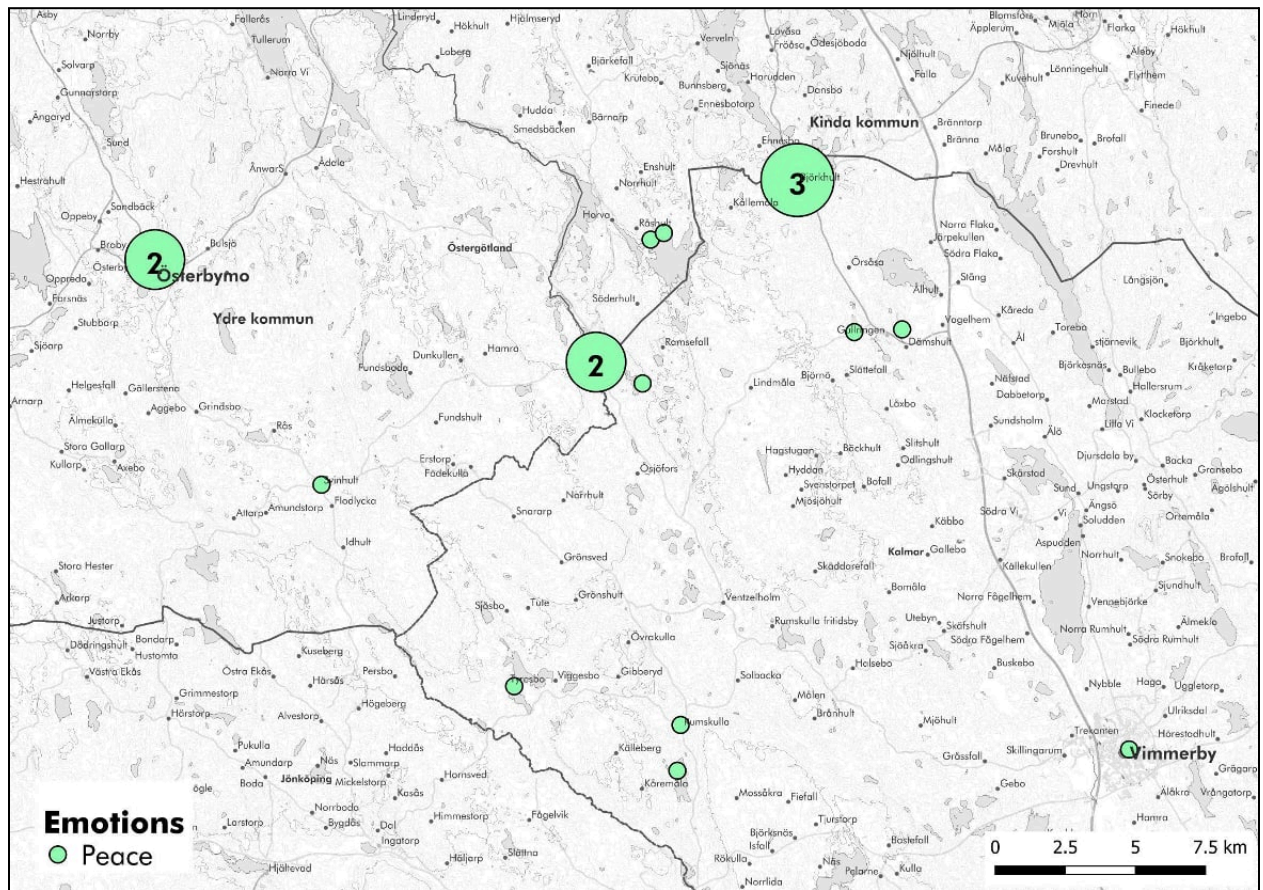


Figure 4.4. Spatial distribution of Peace points in the Ydre and Vimmerby municipalities

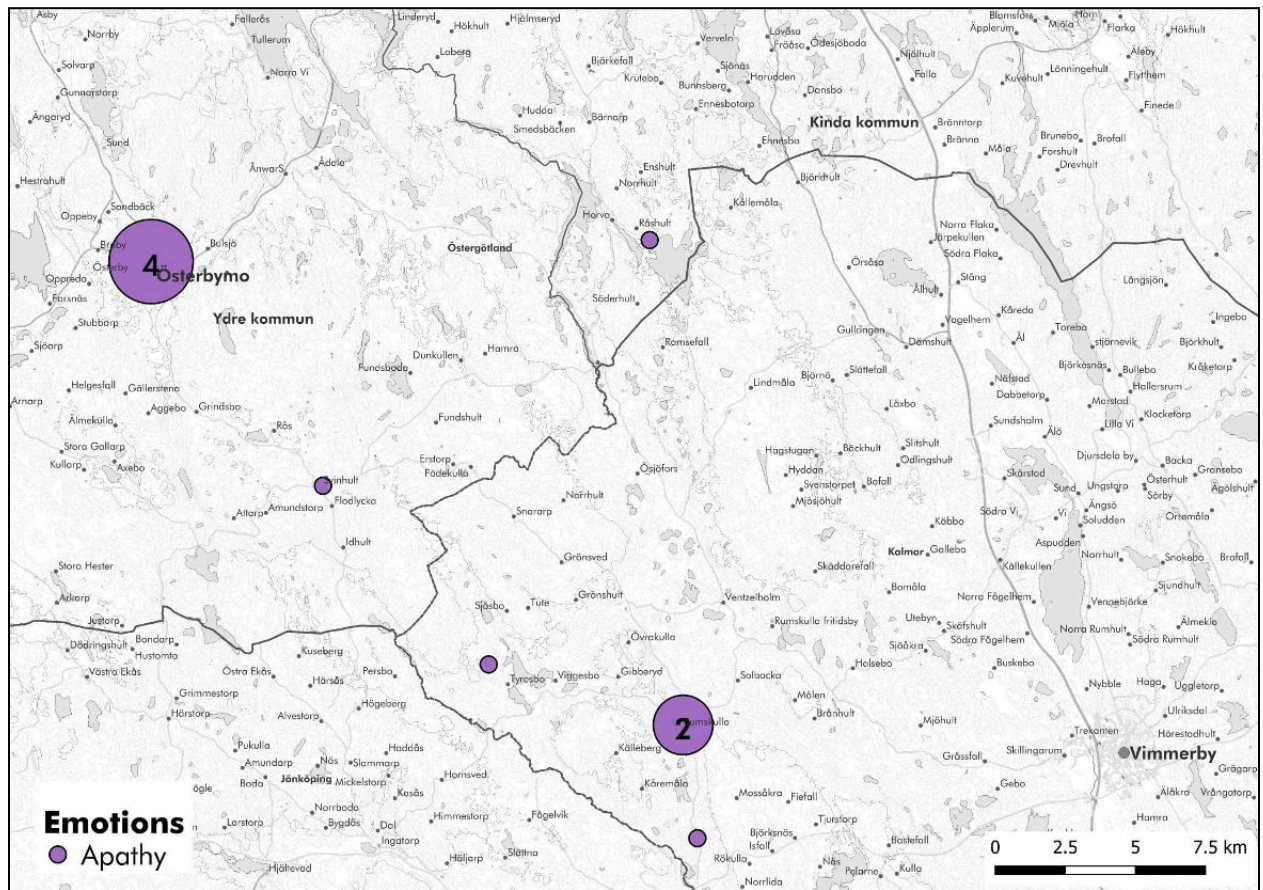


Figure 4.5. Spatial distribution of Apathy points in the Ydre and Vimmerby municipalities

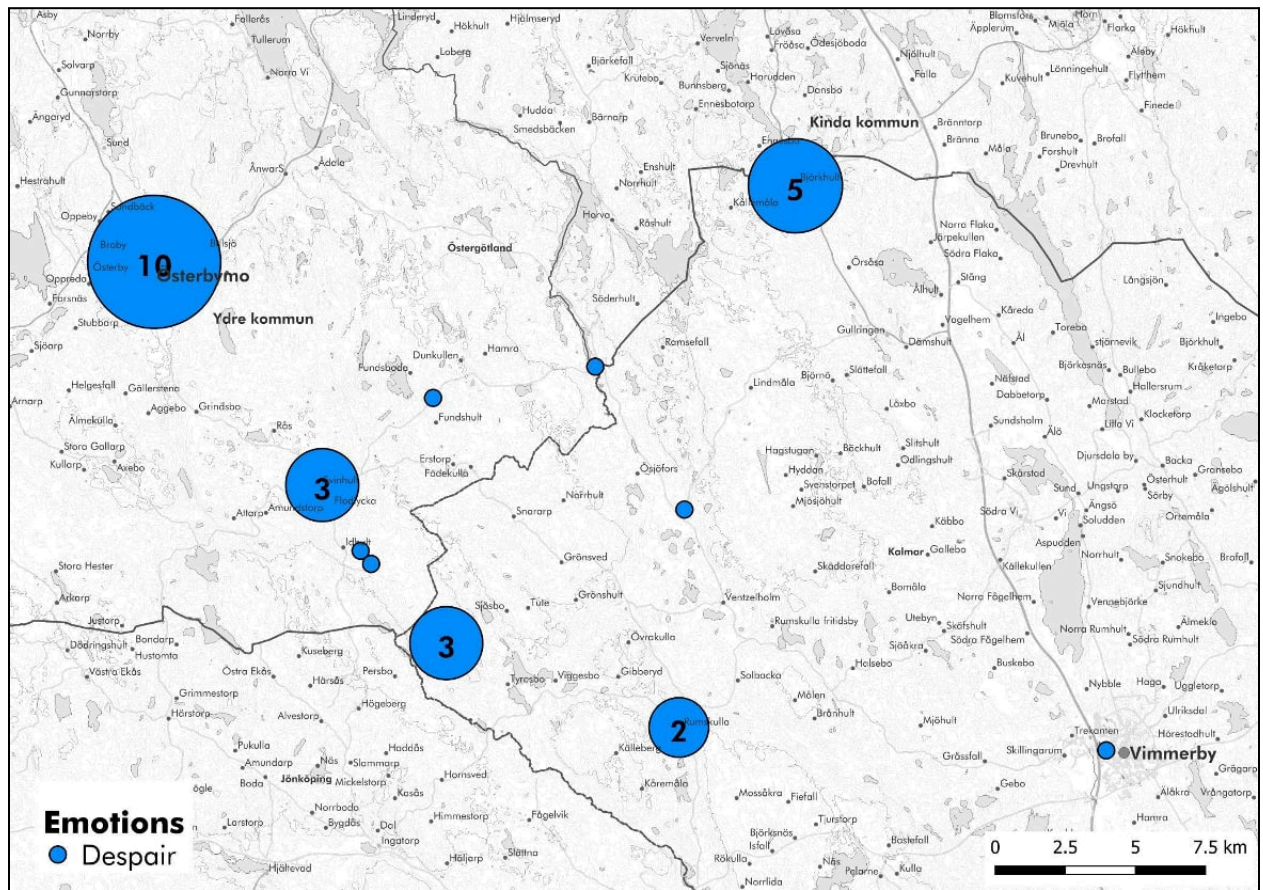


Figure 4.6. Spatial distribution of Despair points in the Ydre and Vimmerby municipalities

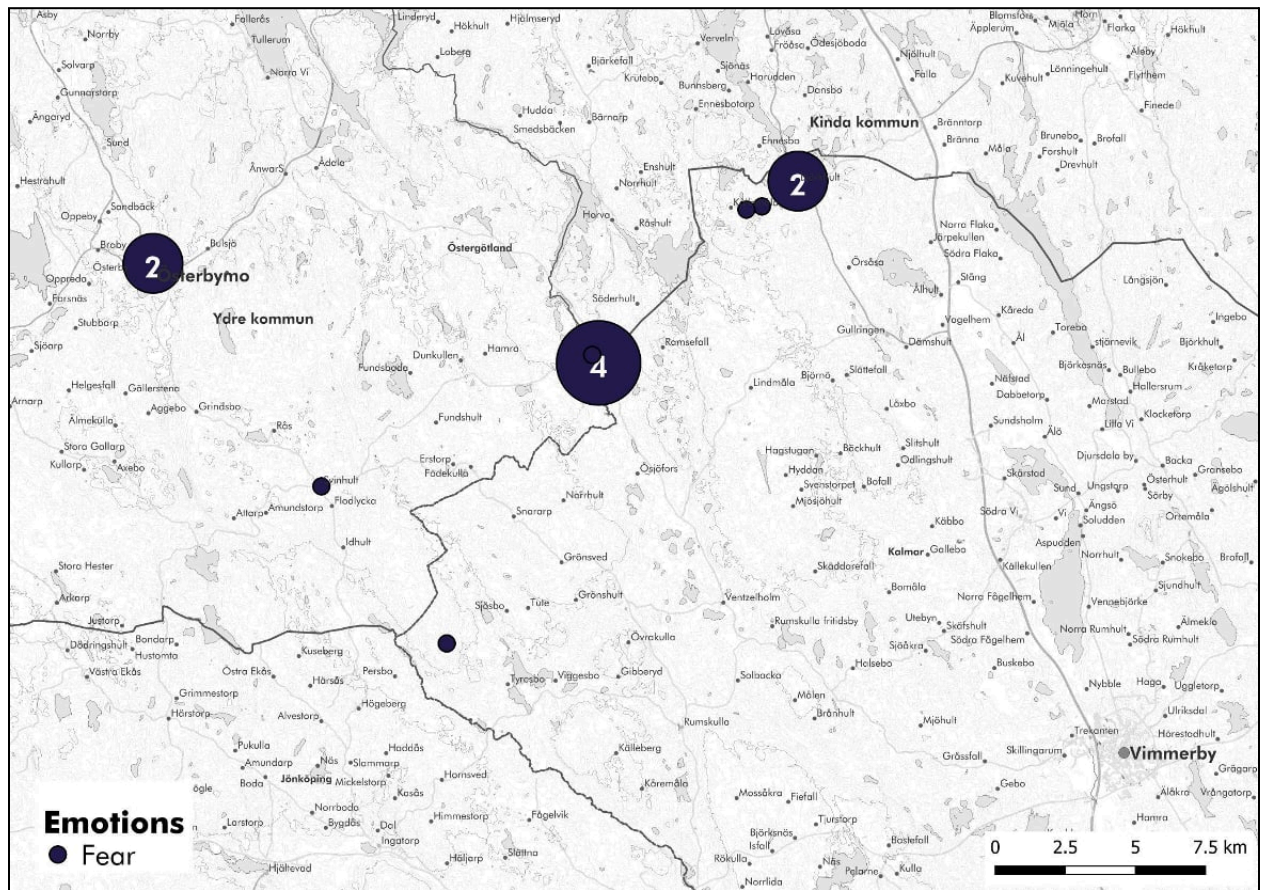


Figure 4.7. Spatial distribution of Fear points in the Ydre and Vimmerby municipalities

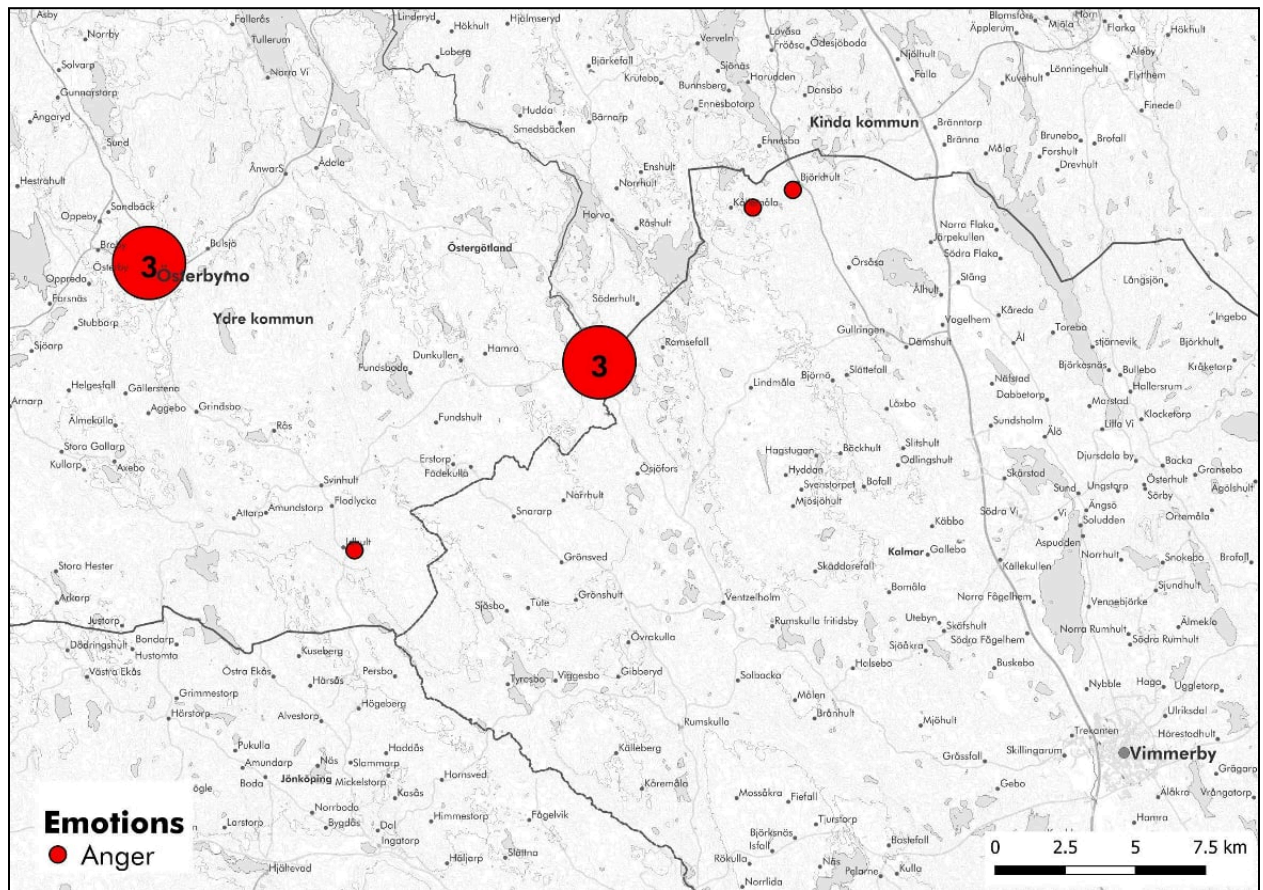
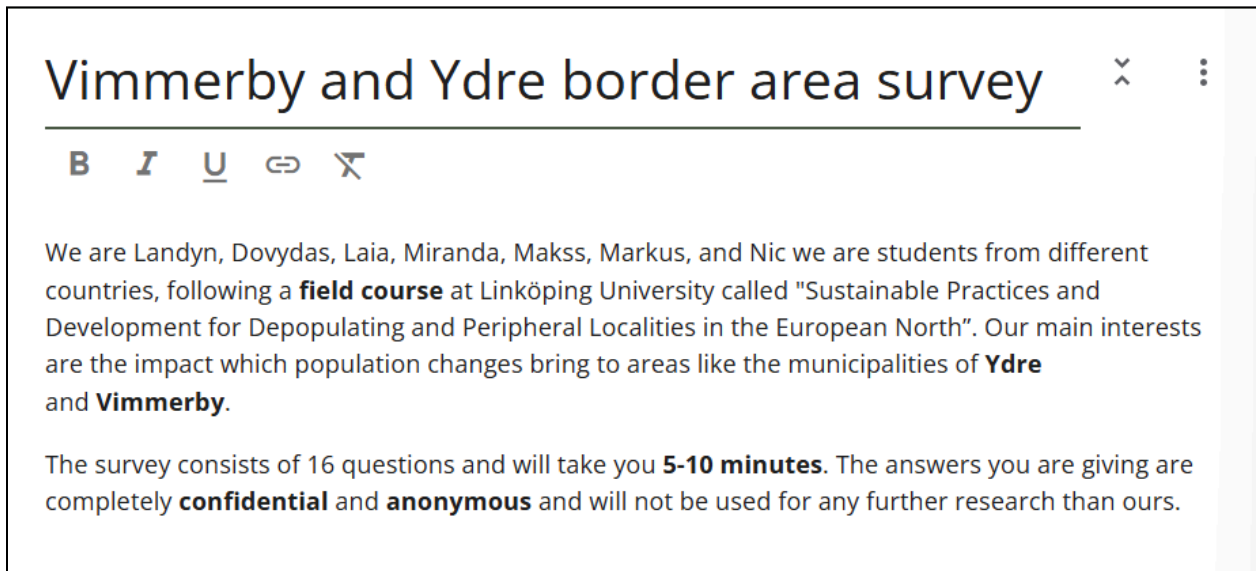


Figure 4.8. Spatial distribution of Anger points in the Ydre and Vimmerby municipalities

Appendix 5: Survey

A. English survey



Vimmerby and Ydre border area survey

B I U ↻ ✕

We are Landyn, Dovydas, Laia, Miranda, Makss, Markus, and Nic we are students from different countries, following a **field course** at Linköping University called "Sustainable Practices and Development for Depopulating and Peripheral Localities in the European North". Our main interests are the impact which population changes bring to areas like the municipalities of **Ydre** and **Vimmerby**.

The survey consists of 16 questions and will take you **5-10 minutes**. The answers you are giving are completely **confidential** and **anonymous** and will not be used for any further research than ours.

Figure A1: Screenshot of the introduction in the English Google Forms survey.

a. Questions and possible answers:

General

- What's your gender?
 - *Male, female, other, prefer not to answer.*
- What is your age?
 - *Under 18, 18 - 34, 35 - 54, 55 - 74, 75 +.*
- Which Swedish municipality do you live in?
 - *Vimmerby, Ydre, I don't live in either municipality.*
- Which village or town do you live in?
 - *Open answer.*

Present

- How much do you wish your neighbourhood to be a **smaller**, more **tight-knit** community, but with **fewer services**?
 - *Scale from 1 to 5. 1 as "not at all" and 5 as "a lot".*

- How much do you wish your neighbourhood to have a **growing population** that brings **more economic opportunities**, but changes the **neighbourhood's character**?
 - *Scale from 1 to 5. Where 1 is “not at all” and 5 is “a lot”.*
- How many **initiatives** do you see which improve the life around the **border area** between Ydre and Vimmerby?
 - *Many initiatives, some initiatives, few initiatives, no initiatives at all.*

Population

- How do you think the population **has been changing** in your neighbourhood?
 - *Grow, shrink, stay the same.*
- How do you think the population **will change** in your neighbourhood in the near future?
 - *Grow, shrink, stay the same.*
- How would you **prefer** the population to change in your neighbourhood?
 - *Grow, shrink, stay the same.*

Cooperation between Ydre and Vimmerby

- What kind of **connection** do you have with Vimmerby **if you live in Ydre** or with Ydre **if you live in Vimmerby**?
 - *Open answer*
- **If** you have a connection with the border, how much do you consider it as an **obstacle**?
 - *Scale from 1 to 5.*

The future

- How likely do you think it is that your children will be able to **find a career** near your neighbourhood without moving away?
 - *Scale from 1 to 5. Where 1 is “impossible” and 5 is “for sure”.*
- What do you think should be **improved** in your neighbourhood?

- *Open answer.*
- What are some services you **wish** you had in your neighbourhood?
 - *Open answer*
- How much do you feel **your voice** is heard by the **municipal leaders** regarding the **future** of your neighbourhood?
 - *Scale from 1 to 5. Where 1 is “not heard” and 5 is “completely heard”.*

Pictures

- To conclude this survey we would like you to attach some pictures of your **favourite** places around your neighbourhood!
 - *Maximum 10 pictures per person with 100MB.*
- To conclude this survey we would like you to attach some pictures of your **least favourite** places around your neighbourhood!
 - *Maximum 10 pictures per person with 100MB.*

B. Swedish survey



Figure B1: Screenshot of the introduction in the Swedish Google Forms survey.

b. Questions and possible answers:

Allmän

- Vilket kön tillhör du?
 - *Man, kvinna, annat, vill inte svara.*
- Hur gammal är du?
 - *Under 18, 18 - 34, 35 - 54, 55 - 74, 75 +.*
- I vilken svensk kommun bor du?
 - *Vimmerby, Ydre, jag bor inte i någon av kommunerna.*
- I vilken by eller ort bor du?
 - *Open answer.*

Nu

- I vilken utsträckning skulle du vilja att ditt bostadsområde var en mindre, mer sammansvetsad gemenskap, men med färre tjänster?
 - *Scale from 1 to 5. 1 as "inte alls" and 5 as "mycket".*
- I vilken utsträckning önskar du att ditt bostadsområde ska få en växande befolkning som medför fler ekonomiska möjligheter, men som samtidigt förändrar områdets karaktär?
 - *Scale from 1 to 5. Where 1 is "inte alls" and 5 is "mycket".*
- Hur många initiativ ser du som förbättrar livet i gränsområdet mellan Ydre och Vimmerby?
 - *Många initiativ, några initiativ, få initiativ, inga initiativ alls.*

Befolkning

- Hur tror du att befolkningssammansättningen har förändrats i ditt område?
 - *Den har växt, den har krympt, den har varit oförändrad.*
- Hur tror du att befolkningssammansättningen i ditt område kommer att förändras inom den närmaste framtiden?
 - *Den har växt, den har krympt, den har varit oförändrad.*
- Hur skulle du helst vilja att befolkningssammansättningen förändrades i ditt bostadsområde?
 - *Den har växt, den har krympt, den har varit oförändrad.*

Samarbetet mellan Ydre och Vimmerby

- Vilken koppling har du till Vimmerby om du bor i Ydre, eller till Ydre om du bor i Vimmerby?
 - *Open answer*
- Om du har en koppling till kommun gränsen, i vilken utsträckning ser du den som ett hinder?
 - *Scale from 1 to 5.*

Framtiden

- Hur stor är chansen att dina barn kommer att kunna hitta ett jobb i närheten av där ni bor utan att behöva flytta?
 - *Scale from 1 to 5. Where 1 is “omöjligt” and 5 is “det är säkert”.*
- Vad tycker du borde förbättras i ditt bostadsområde?
 - *Open answer.*
- Vilka tjänster skulle du vilja ha i ditt närområde?
 - *Open answer*
- I vilken utsträckning upplever du att de kommunala beslutsfattarna lyssnar på vad du har att säga om ditt bostadsområdes framtid?
 - *Scale from 1 to 5. Where 1 is “inte alls” and 5 is “helt och hållet”.*

Bilder

- Som avslutning på denna enkät vill vi gärna att du bifogar några bilder på dina favoritplatser i ditt närområde!
 - *Maximum 10 pictures per person with 100MB.*
- Som avslutning på denna undersökning vill vi att du bifogar några bilder på de platser i ditt närområde som du gillar minst!
 - *Maximum 10 pictures per person with 100MB.*

C. Google Forms (original survey)

The survey was created using Google Forms.

English link: <https://forms.gle/39RUgPAcxuVn51Cn7>

Swedish link: <https://forms.gle/LhJGjfHNtGfo39wQ9>

Appendix 6: Pre-set Interview Draft

Interview XXXX

Name: XXXX

Time: XXXX

Location: XXXX

Introduction of ourselves and the research

Thanks a lot for your time and effort. We are [names] and we are students from different countries, following a field course at Linköpings university named "Sustainable Practices and Development for Depopulating and Peripheral Localities in the European North". Our main interests are the problems/challenges or positive aspects depopulations of the border area between Vimmerby and Ydre bring to the municipality and current/future measurement Vimmerby is taking/considering regarding depopulation.

Formalities:

Can we record/take notes? We have a data protection form if you want to read what we can do with the data, but to be short, this is an anonymous interview and we delete the recording after the task and the data will only be used for our research.

Question to asks:

- Can you tell us something about yourself/the work you are doing? → your role in this Vimmerby community, the tasks you do here, what's the business about, the organisation you have, the places you work on...
- How is **life** in the area?
 - What would you like to see **develop** in the area? Are you working on any of these things or are you working on any other projects right now?
- How do you experience **depopulation** in the Vimmerby municipality? As negative or maybe positive? See
 - Are there certain measures being taken to prevent this emigration? If so, what are they?

- Besides depopulation, are there more challenges or remarkable things happening in the municipality?
- What is the demographic influence of tourism in the municipality?
- What are the most important **local businesses and industries** in the area?
 - Would you say that they are important for regional development?
 - Do they get funding and do you support (*mention LEADER and the presentation we had*) this funding or would you think this funding could be used differently?
 - In terms of funding and the general influence on rural life, how much do you think the LEADER project means for the municipality and the border area. And what is their perspective as a municipality?
 - Can you tell us about the influence **Astrid Lindgren** still has on this municipality?
 - What are some local businesses and industries which were previously relevant but no longer are?
 - Are there any growing local businesses and industries? If so, what are they?
- How important is **nature** in the municipality and is there active **conservation** of the forests?
 - How is nature and tourism currently combined and do you think there is room for more?
 - How important are nature and its conservation for the locals?
- How well is the **cooperation** between two neighbouring municipalities in different regions? We are pointing towards You and Ydre?
 - Does the border between Ydre and Vimmerby really feels as a border?
- Do you know of anyone we can **contact** who might be interested in our research and has some relevant information or thought?
 - Is there a Facebook group you know of, where we can post a potential survey or photowise project?
 - Ask if they want to participate in our photowise project!