Development in Coastal Areas in Ronneby Kommun from 1960 to 2018

GIS-Based Analysis of LIS Areas in Ronneby Kommun (Blekinge, Sweden) Using Orthophotos

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This thesis is submitted to the Faculty of Engineering at Blekinge Institute of Technology in partial fulfilment of the requirements for the degree of Master of Science in Spatial Planning. The thesis is equivalent to 10 weeks of full-time studies.

The author declares that he is the sole author of this thesis and that he has not used any sources other than those listed in the bibliography and identified as references. He further declares that he has not submitted this thesis to any other institution to obtain a degree.

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Since 2009, Swedish municipalities have the possibility of limiting the coastal protection in rural areas with the LIS-tool in order to promote countryside development there. In 2013, Ronneby Kommun pointed out 28 such areas. The goal of this thesis is to describe the development in the coastal areas in Ronneby Kommun between 1960 and 2018, with a special focus on the recent development in the designated LIS areas since 2013. A proposal for the future application of the LIS-tool in the municipality is an additional goal. For the analysis of the LIS-tool as such, the author conducted two expert interviews and compared the results with the quantitative GIS-based analysis, using orthophotos, of the building activity along the shores in Ronneby Kommun. The data shows very low building activity within the LIS areas and a generally low building activity in the municipality recently. For the further application of the LIS-tool in its present form in Ronneby Kommun, the author proposes to either combine it with other measures to increase the attractiveness of the existing LIS areas such as infrastructure improvements, or to wait some more time until the pressure on the housing market increases and thereby the general building activity. The municipality can then evaluate the individual areas independently of each other and adjust them to meet the demand on the housing market. In addition, the author and the experts suggest changing the LIS-tool in order to make it more forceful, independent and regional specific. In general, the results of this thesis are regional specific on Ronneby Kommun and, therefore, this thesis can be a comparison base for other research but does not generalize.

Keywords: Rural Development; Coastal Protection; Orthophotos; Expert Interview; Spatial Planning
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1 INTRODUCTION

1.1 Rural development and Coastal Protection

Coastal protection and rural development are both very important subjects in the field of spatial planning, not only in Sweden but globally. Therefore, these two issues are represented in the Sustainable Development Goals set by the United Nations (UN) in 2016. The coastal protection is part of goal 14. The goal points out that the coast lines are extremely affected by human actions and the climate change, which means that they require specific protection. On the other hand, urban and rural development are pointed out as important in goal 11. The UN describes the importance of the dualism of both parts for controlling the rapid urbanization and to stop the rural exodus. Therefore, links between the urban and the rural parts shall be created, to provide an equality of opportunities for inhabitants of both areas (United Nations n. d.).

In Sweden the coastal protection of river, lake and sea shore lines is regulated since 1950. In that year, the first coastal protection law was issued, and since 1975 the coast is protected by the law in the whole country. Since 1994 the law is expended by the purpose of protecting the biodiversity of the areas and today the coastal protection is a chapter in the environmental code (Miljöbalken) (Strandskyddsdelegationen 2014). The rural development in these protected coastal areas is a more recent part of the law and is designed to make the country side more attractive. Since 2009, municipalities can point out such Landsbyggsutveckling i Strandnära Lägen (Country side development in coastal areas; short LIS) areas to make it easier to build houses and businesses next to the water, and simultaneously maintain coastal protection to a certain extent (Boverket 2018). The Municipality of Ronneby applied the LIS-tool in 2013 and decided to point out 28 areas in a rural context in order to facilitate their development (Ronneby Kommun 2013a). This thesis focusses on the development in these designated LIS areas and, in general, in the coastal areas in Ronneby Kommun.

1.2 Goal of the Thesis

The main goals of the thesis are to describe the development in the coastal areas in the municipality of Ronneby, analyse the development areas designated in 2013 and to make a proposal for further use of the LIS-tool. Therefore, the building activity along the shorelines of Ronneby and its change will be described and analysed, using GIS and existing statistics, with a special focus on the existing LIS areas. The results will be contextualized with population and housing trends in the municipality. Further, for visualization purposes also supportive maps shall be created. The bigger aim of the thesis is to examine the effectivity of the LIS-tool in steering rural development along shorelines. The results of this thesis have a regional context and shall create a comparison base for future research in the field.


2 INTRODUCTION TO THE EMPIRICAL CASE

2.1 Push and Pull Factors in Rural Development

The International Organization for Migration defined in 2011 the rural-urban migration as follows: “Internal migrants who move from rural to urban areas, often in response to poverty, low agricultural incomes, low productivity, population growth, shortages, fragmentation and inequitable distribution of land, environmental degradation, and the relative lack of economic opportunities in rural areas” (International Organization for Migration 2011, p. 87). In this definition the push factors of the rural areas are focused on. For migration from the urban to the rural areas the glossary sees two main reasons, either for new settlements, mostly in the suburban areas or “return migration for those who have been rural-urban migrants” (International Organization for Migration 2011, p. 103). As the main factors for the movement to the rural areas the German Bundesstiftung Baukultur describes in their report for 2016/17 the wish of people, especially families, to live in a green and attractive environment, the lower prices, and the lower pollution. As the push and pull factors show, the rural-urban migration is not a single directed system but a complex one. Mabogunje said this already 1970 and said that the system of migration is not dependent on one factor but on a variety of factors and trends. All the push and pull factors are, therefore, important for the development of the rural areas. To achieve a long-term migration to the countryside either the pull factors there must outnumber the push factors or vice versa the push factors of the urban area must outnumber the pull factors there. The final reason for migration in the end is very dependent on personal importance of the different factors, which could be partly be summed up in the general housing trends but are always complex (Mabogunje 1970). Even if an area reduces the push factors and invests in the pull factors it is not a guarantor for success in long-term development in the area.

If focused on the push and pull factors in the rural areas, for different population groups other factors are important. Generally, it could be said that the pull factor of lower pollution is more important for chronical sick and health-conscious persons, whilst a green and attractive environment and the lower prices apply for all age groups but especially for families and people with lower income. (Bundesstiftung Baukultur 2017). To provide attractive locations for housing, a place where it is green is often not enough but proximity to water to increase the properties attractivity is also needed. Therefore, it is important to make development near water possible (Lindgren 2011). In Sweden the areas directly next to the water are protected and the according regulations will be further investigated later this chapter but first an overview over the study area will be given.
2.2 Ronneby Kommun

The municipality of Ronneby, hereafter referred to as Ronneby Kommun, is an interesting case for rural development. 35% of the inhabitants are living in the rural areas of the municipality (Ronneby Kommun 2013a, p. 7). Further, the municipality has various landscapes, with numerous lakes and a big share on the Baltic coast. The question of rural development, therefore, cannot be answered without having a look on the coastal areas.

In the following the geography of the municipality will be shortly described, followed by the description of the pressure on the housing market in the county Blekinge and in Ronneby Kommun.

2.2.1 Description of the Geography

Ronneby Kommun is part of the county Blekinge and is located in the South-East of Sweden (cf. Figure 1). The municipality has 29,695 inhabitants and a size of 861.8 km². (Ronneby Kommun n. d.; Statistics Sweden 2019)

It was founded in the 12th century by the Danish and is Swedish since the mid-16th century (Ronneby Kommun n. d.).

Ronneby’s geography is divided in three parts. The archipelago in the South, the rather flat midland with some exposure of the bedrock, and the hilly North. The midland and the North are characterized by a huge number of small lakes. Two rivers are flowing through the municipality from North to South into the Baltic sea, the Bräkneån in the West and the Ronnebyån in the middle of the municipality. The latter is flowing through the two main settlements in Ronneby Kommun – Ronneby and Kallinge (Open Street Map 2019; Ronneby Kommun 2013a, p. 11). From East to West the highway E22 is cutting through the municipality, forms an anthropogenic border and divides Kallinge and Ronneby. The country road 27 leads from the E22 interchange Ronneby Väst to Tingsryd in the North-North-West and continues to Växjö (Open Street Map 2019).
2.2.2 Pressure on the Housing market

The development of inhabitants in a certain area influences the pressure on the housing market. From the population statistics 2008 to 2018 of Statistics Sweden (SCB) it is evident that the population in Ronneby Kommun is growing (cf. Figure 2). The graph shows that the population slightly decreased from 2008 to 2012 by 2.5% but grew again from 2012 to 2018 by nearly 7%. This growth of the population seems to continue but it slowed down to 0.5% from 2017 to 2018. The main reason for the population growth in Blekinge, and therefore also in Ronneby Kommun, is the same as for whole Sweden, namely immigration. In Sweden, the total fertility rate per woman is at 1.85 children, which means that the natural population growth is negative, but due to immigration the population is growing (Statistics Sweden 2019). Observation of a longer time period of population development in Ronneby shows that the highest number of inhabitants had been reached in 1975 and since then the population decreased till it reached the lowest point in 2012 (cf. Figure 3). Since 2012, the graph shows a steep increase of inhabitants (Statistics Sweden 2019).

Table 1 shows the inhabitants distribution within the municipality on December 31st, 2010. The data shows that most people (~65%) live in the three towns Ronneby, Kallinge and Bräkne-Hoby. The total inhabitants are 28,254 (Ronneby Kommun 2013a, p. 7). Accordingly, 7,191 persons do not live in the settlements mentioned in the table, but in remote areas. This corresponds to 25% of the population of Ronneby Kommun and highlights the importance of the countryside in the municipality.

Table 1: Distribution of inhabitants for Ronneby Kommun (Ronneby Kommun 2013a, p. 7)

<table>
<thead>
<tr>
<th>Settlement</th>
<th>Ronneby</th>
<th>Kallinge</th>
<th>Bräkne-Hoby</th>
<th>Listerby</th>
<th>Johannishus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inhabitants</td>
<td>12,029</td>
<td>4,561</td>
<td>1,689</td>
<td>883</td>
<td>748</td>
</tr>
<tr>
<td>Settlement</td>
<td>Backaryd</td>
<td>Eringsboda</td>
<td>Hallabro</td>
<td>Saxemara</td>
<td>Belganet</td>
</tr>
<tr>
<td>Inhabitants</td>
<td>365</td>
<td>299</td>
<td>254</td>
<td>157</td>
<td>78</td>
</tr>
</tbody>
</table>

Figure 2: Population in Ronneby, years 2008 – 2018 (Statistics Sweden 2019)
Figure 4 shows the number of accepted building permits in Blekinge, expressed in dwellings per year. A comparison of the change in population with the number of building permits in Blekinge shows that the number of permitted dwellings more or less follows the population trend (cf. Figure 4).

The only exception is the rising number of permitted dwellings in 2010, whilst the population in Ronneby Kommun was stagnant. At the same time, the number of completed dwellings in the municipality is rather low, compared to the number of permitted dwellings in Blekinge (cf. Figure 4 and Figure 5).
The main share of the buildings in Blekinge is built in Karlskrona followed by Karlshamn and Sölvesborg (Statistics Sweden 2019). Most of the buildings finished in Ronneby Kommun are one- or two-dwelling buildings, whilst multi-dwelling buildings were only completed in 2008 and 2012. Figure 5 does not include special housing, for example student- or elderly-housing, and seasonal and secondary housing. The latter makes-up only 9 % of the total number of building permits, whilst special housing has a share of 14 % in total (Statistics Sweden 2019). This shows that either the building activity for housing in Ronneby Kommun is rather low, or that quite a big number of the permitted buildings is just not finished yet.

The prices for one- and two-dwelling buildings in Blekinge have risen depending on the municipality between 26 % and 66 % from 2008 to 2017. With 38 percent, the prices in Ronneby Kommun rose less than in the neighbour municipalities Karlskrona (66 percent) and Karlshamn (41 percent) (Statistics Sweden 2019). By considering the given data, the pressure on the housing market in Ronneby Kommun presently seems under average in Blekinge. This may be the result of the population development of the last 10 years, which reflects in the low building activity, but the population is growing again since 2012. Due to the lower prices for living whilst having a good connection to the work and study opportunities in Karlskrona and Karlshamn with the Øresundståg 90 and the Kustbus 600, Ronneby will become more attractive in the next few years (Blekinge Trafiken 2019). This will lead to a steadily increasing pressure on the housing market in the municipality, if the population growth and the price development will follow the current trend. Then the building activity will increase again and followed by that the demand for undeveloped land in attractive locations will increase. Therefore, it is important to control the expansion in locations, such as coastal areas.
2.3 Coastal protection and the LIS-tool

LIS is an abbreviation for Landsbyggsutveckling i Strandnära Lägen – in English: Country side development in coastal areas. The tool was introduced in 2009 in the Miljöbalken – the Environmental Code – under Chapter 7 §§13 to 18h, which also regulates the coastal protection (Miljöbalken 01/01/19). Main purpose of the tool is to make country side development in coastal areas possible, by keeping the shore line at the same time protected (Boverket 2018).

2.3.1 Coastal protection

In general, coastal protection, or shore line protection is understood, to take “measures aiming at protecting, preserving or restoring the shore and the dynamic coastal landscape as well as protecting against coastline retreat to the extent possible” (Mangor et al. 2017, p. 18). The Miljöbalken defines the coastal area under Chapter 7 § 14 as follows:

The coastal protection covers the land and water area up to 100 meters from the shoreline at normal mean water level (coastal protection area).

In individual cases, the County Administrative Board may decide to extend the coastal protection area to a maximum of 300 meters from the shoreline, if necessary, to ensure some of the coastal protection's purposes (Miljöbalken 01/01/19, ch. 7 § 14).

In view of the rather vague formulation of the law the “Swedish Environmental Protection Agency” (Naturvårdsverket) and the “National Board of Housing, Building and Planning” (Boverket) published a handbook to clarify the process and the regulations regarding the coastal protection. According to the handbook, the protection applies to all shorelines of seas, lakes and rivers regardless of their size, including underwater areas and shore lines of islands. Further, the coastal protection applies irrespective of whether the area is densely or sparsely built-up, whether there are many lakes and watercourses or not, and irrespective of the habitats or species present in the area (Naturvårdsverket and Boverket 2012, 8). The coastal protection in Sweden is very strict and can be seen as too strict sometimes. Lindgren states the costal protection in Sweden for sparsely populated areas even as waste of space. She points out that the law is sometimes overprotecting where little is worth protecting (Lindgren 2011). An evaluation of this statement is not part of this thesis but in the following a closer look will be made what the regulation prohibits.

§ 15 of the Miljöbalken regulates what is prohibited in these areas. The law prohibits; 1) to erect a new building; 2) to use buildings, to alter buildings, to use other facilities or devices, if same prevents or discourages the public from entering an area where it would otherwise have been allowed to travel freely; 3) to trench or to carry out other preparation work for buildings, facilities or devices referred to in subsections 1 and 2; and 4) to take any action which significantly alters the living conditions of animal or plant species (Miljöbalken 01/01/19, ch. 7, § 15). Shortly, any
permanent altering of the area, anything that interferers with the free access to nature, and anything changing the living conditions of flora and fauna or harming them is prohibited in these areas (Miljöbalken 01/01/19, ch. 7, § 15).

There are several exceptions from the coastal protection in the Miljöbalken, which have different purposes. These exceptions are regulated in §§ 16 to 18h.

First, buildings, facilities, devices or actions in the coastal protection areas are allowed, if they are needed for agriculture, fishing, forestry or reindeer husbandry, and they must be located or must be carried out in these areas for their function (Miljöbalken 01/01/19, ch. 7, §16, subsec. 1).

Second, the county administrative board may decide to abolish the coastal protection in an area, if the area according to the Planning and Building Act (2010: 900) is intended to be covered by a detailed plan and is needed for the construction of a defence facility, public road or railways (Miljöbalken 01/01/19, ch. 7, § 16, subsec. 3; ch. 7, § 18. subsec. 3a). This also applies, if the area is protected in this Chapter according to other provisions than the provisions on environmental protection area or water protection area and the protection has been decided by a different institution than a municipality (Miljöbalken 01/01/19, ch. 7, § 18, subsec. 3b) However, a respective cancellation may only be made if there are special reasons and the interests in taking the area into use in the manner referred to by the plan weighs heavier than the coastal protection interests(Miljöbalken 01/01/19,ch. 7, § 18).

Third, the government or an authority delegated by the government can issue regulations that the protection does not apply for extensions of an existing house. However, it is not allowed to build an extension more than 15 meters removed from the main building and it is not allowed to build closer than 25 meters to the shore. Further, the area has to be specified in a decision on exemption (Miljöbalken 01/01/19, ch. 7, § 17).

Forth, the county administration can decide to repeal the coastal protection, if the area has minor importance for the goals of the coastal protection. This decision can only be applied, if the shore line belongs to a lake having a surface area of about 1 hectare or smaller or to a river having a width of about 2 meters or narrower (Miljöbalken 01/01/19, ch. 7, § 18).

Fifth, the municipality can repeal the coastal protection, if an urgent public interest or another very important interest can only be fulfilled in the protected area (Miljöbalken 01/01/19, ch. 7, § 18b; ch. 7, §18c, subsec. 5, 6) or the area is, anyhow, already used in a way rendering it unimportant for the coastal protection (Miljöbalken 01/01/19, ch. 7, § 18c, subsec. 1). This also applies, if the area within the buffer zone is cut from the shore by a road, railway, settlement, or the like (Miljöbalken 01/01/19, ch. 7, § 18c, subsec. 2). Further, the municipality can withdraw the protection if a running business needs the space to grow and the demand of land cannot be fulfilled elsewhere (Miljöbalken 01/01/19, ch. 7, § 18c, subsec. 4).

The last possibility is the LIS-tool according to Chapter 7 §§ 18d to 18h Miljöbalken, which will be closer analysed in the following.
2.3.2 The LIS-tool

As mentioned before, the LIS-tool was introduced in 2009 to make country side development in coastal protection areas easier in order to provide attractive building sites. The tool can be used for different purposes, not only for residential housing, but also for the development of local businesses, local recreation, or holiday housing. The government provided rather vague laws in this regard, in order to give the municipalities, which are holding the planning monopoly in Sweden (Boverket 2013), a wide margin of discretion for the rural development. However, at the same time the LIS-tool is not an alone standing tool, but an add-on to the coastal protection law, which limits the possibilities of the tool. Further, there are several regulations within the law, which have to be met before a LIS area can be designated.

First, the region where a LIS area shall be designated is relevant according to Miljöbalken § 18e subsections 3 and 4 (Miljöbalken 01/01/19). Figure 6 visualizes the three different areas described in the paragraph.

Figure 6: Map of where the rules for LIS apply (Boverket 2018)
Category 1 indicates that, in general, LIS areas can be designated throughout Sweden, unless the area falls under Category 2 and 3 or is in or near an urban area (Boverket 2018). This category is coloured in light green in Figure 6.

Category 2 contains all areas that are, either 1) in or near an urban area, or 2) in a coastal or coastal archipelago area from Forsmark to Klockestrand near Ångermanälven or from Skataudden near Näskefjärden to the border with Finland, or 3) on Gotland, or 4) near Vänern, Vättern, Mälaren, Siljan, Orsasjön, Skattungen, Oresjön or Oreälven between Orsasjön and Skattungen (Miljöbalken 01/01/19, ch. 7, §18e, subsec. 3). Within Category 2, rural development is possible with some limitations. For the areas under 4) it is possible to designate a LIS area if there is a large demand for settlement in the region (Boverket 2018). These areas, except those under 1), are marked with red dots in Figure 6.

Category 3 contains areas in which LIS areas cannot be designated. This regulation contains 1) the coastal or coastal archipelago areas from the border with Norway to Forsmark, 2) the coast of Öland and 3) the areas in Ångermanland from Klockestrand at Ångermanälven to Skataudden near Näskefjärden (Boverket 2018; Miljöbalken 01/01/19, ch. 7, § 18e, subsec. 4). These areas are marked with a continuous red line in Figure 6.

Second, there are some general rules applying for the areas. The LIS area has to be reasonable. Therefore, the area must be usable for rural development and must contribute in the long term to positive employment effects or a better service base in rural areas, while maintaining public access to coastal areas. Furthermore, long-term consideration must be given for the preservation of good living conditions of animals and plants in these areas (Naturvårdsverket and Boverket 2012, p. 15) and, in the long run, the goals of the coastal protection must be kept achievable (Miljöbalken 01/01/19, ch. 7, § 18e, subsec. 2). For areas in Category 2, it must also be proven that the area is of minor importance in order to achieve the objectives of beach protection (Naturvårdsverket and Boverket 2012, p. 15).

The LIS-tool is a part of the spatial planning of every municipality in Sweden. Especially, if the landscape is dominated by numerous lakes and a big share of the area is rural. An example for such a municipality is Ronneby Kommun. The LIS approach of the municipality will be looked at more closely in the following part.

2.4 LIS in Ronneby Kommun

In 2013, Ronneby Kommun pointed out 28 smaller LIS areas. The document is a supplement to the comprehensive plan “Ronneby 2035” (Ronneby Kommun 2013a). These areas are mostly in proximity to existing settlements and are meant to support the development thereof. Examples of bigger settlements that shall be supported by LIS are Bakaryd, Belganet, Eringsboda and Hallabro, which are all in the North of the municipality. These LIS areas are either along the two
big rivers flowing through the municipality, Bräkneån and Ronnebyån, or on the coast of small or medium sized lakes (Ronneby Kommun 2013a, 24 et seqq.).

Further, there are also some LIS areas in more remote areas. These LIS areas have different purposes. They are either meant to be for holiday houses, or for (local) recreation, or for the development of businesses, or in some cases for residential housing. Respective reasons may also apply to the other areas in proximity to existing settlements, but the focus thereof is mostly the residential housing, whilst in the remote areas the focus varies strongly from area to area (Ronneby Kommun 2013a, 24 et seqq.).

For each LIS area a short description was made. Besides the location, the surroundings and the basic conditions, the intercommunal interest, the special value and the impact were also analysed in this description. Further, a supportive map showing the LIS area and its surroundings was made. The map also includes natural and cultural protection areas, risk zones and existing infrastructure. (cf. Ronneby Kommun 2013a, pp. 27–28).

Figure 7 shows the supportive map of the document including the LIS areas in Ronneby Kommun, the blue areas are the lakes with a LIS area and the red areas show the actual LIS area. All areas, except one, are north of the highway E22. This has several reasons. First, pointing out a LIS area requires a lake or river and there are quite few south of E22. Second, the area must be rural, which is not given in direct proximity to Ronneby, Kallinge or Bräkne-Hoby (Miljöbalken 01/01/19, ch. 7, § 18e). Third, the coastline of the Baltic Sea in the municipality is not allowed to be pointed out as LIS area according to Miljöbalken Chapter 7 § 18e subsection 4 (Miljöbalken 01/01/19). Forth, the area is not allowed to be protected through other natural or cultural protection regulations. Protection of such kind can be found for many areas along the Bräkneån (Ronneby Kommun 2013a, p. 24). The goal of this thesis is to determine, if rural development took place in these LIS areas and to which extent.
Figure 7: Supportive map showing the LIS areas in Ronneby Kommun (Ronneby Kommun 2013b).
3 MATERIAL AND METHODS

3.1 Interview Methods

For the two interviews, an official in charge with nature conservation (Naturvårdshandläggare) from the county administration (Länsstyrelsen) Blekinge and a planning architect (Planarkitekt) from the Ronneby Kommun were asked the same seven questions regarding the LIS-tool and its application in Ronneby Kommun. The author interviewed Hanna Lind from the county administration and Peter Robertsson from Ronneby Kommun. Both interviewees obtained the questions two days before the interview via email to prepare. This approach was chosen in order to obtain a higher quality of the answers. The author of the thesis conducted the interviews on different dates. During the interview, the same main questions were asked, but the follow-up questions were spontaneous depending on the situation. The transcribed interviews are attached as Appendix 1 and 2.

3.1.1 Creation of the Questions

The asked questions can be divided in four categories. The first three questions are general questions to the LIS-tool, its intension and its effects. Question 4 is about the authorities’ approach to rural development near the shore, followed by a question on the case Ronneby. The last two questions are again general about the tool, this time addressing its weak points and wished changes. The build-up of questions follows the curse of an expert interview described by Mey and Mruck 2010. They point out that an expert interview focusses less on the interviewed person but rather on the topic. The questions should then be structured, to start with the general approach on the topic and getting more specific during the interview. A question to future prospects can be added, which has been done by the author (Mey and Mruck 2010). The author added a regional specific question to obtain an estimation of the development situation in Ronneby Kommun along the shorelines.

The interview questions are:

1) What do you think is the main goal of LIS?
2) Has this goal been achieved with LIS or do you see it as achievable?
3) How has construction behaviour changed since the introduction of the planning tool in 2009?
4) Which course do you, as a municipality or agency, follow for rural development near the shore?
5) In the country side of Ronneby are ~ 2000 buildings within 100 meters to the shoreline. Would the built-up areas have been created elsewhere in the municipality if no shoreline locations could have been used?
6) Describe the weak points of the tool.
7) What supplement or changes to LIS would you like to see in order to further improve conditions for rural development, respectively the shore protection?

3.1.2 Transcription Methods

For the transcription of the two interviews the simple transcription method by Dresing and Pehl 2013 was used. The method applies the 10 transcription rules from Kuckartz et al. 2008, which they edited and extended to 12 rules (Dresing and Pehl 2013, pp. 20–23). The author chose this transcription method, since neither the author and interviewer nor the respondents are native English speakers. In the following, these 12 rules will be translated and summed up:

Rule 1: The interview is transcribed word by word, not summarizing. Accents and dialects will be translated into the standard language, except there is no proper translation.

Rule 2: Abbreviations will be written out, but syntactical errors are maintained.

Rule 3: Incomplete sentences and words will not be transferred, except in the case of a completed subordinate clause.

Rule 4: Interpunction should be made best for reading. In doubt a full stop is made, not a comma.

Rule 5: Breaks must be marked with three dots in brackets (…).

Rule 6: Signals of understanding like “mhm” or “aha” from the not speaking person are not transcribed, unless an answer consists of one such word only. Then the connotation must be added in brackets.

Rule 7: Stressed words must be written in capitals.

Rule 8: Each speaker has an own paragraph, even for short interjections. After each paragraph a time marker must be set.

Rule 9: Emotional nonverbal expressions, which stress the statement must be added in brackets.

Rule 10: Unintelligible words must be marked. Longer unintelligible phrases must be marked and if possible, a reasoning has to be added. If the transcriber is not sure about a word, the word must be written in brackets and marked with a question mark. Further, all unintelligible parts must have a time marker.

Rule 11: The interviewer must be marked as “I:” and the respondent as “B:”.

Rule 12: The transcript must be saved as Rich Text Format (.rtf) and named analogously to the audio file, without the file extension (.mp3/.wav).
3.2 GIS Methods

For the GIS-analysis different methods and data were used. In the following, these methods will be described, and the used data will be listed.

3.2.1 Used Data

For the GIS calculations data from different sources were used. Table 2 lists the kind of data, its usage and the source. The layers showing population density and median income for the municipality were only used for overview and comparison purposes and were therefore not further processed.

Table 2: Used Geo Data

<table>
<thead>
<tr>
<th>Data</th>
<th>Used for</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orthophoto 2018</td>
<td>Background, Listing and dating of Buildings</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td>0.25 m, 3 channels RGB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthophoto 1960</td>
<td>Dating of Buildings</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td>0.5 m, panchromatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthophoto 1975</td>
<td>Dating of Buildings</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td>0.5 m, panchromatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthophoto 1993</td>
<td>Dating of Buildings</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td>1 m, panchromatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthophoto 2009</td>
<td>Dating of Buildings</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td>0.5 m, 3 channels RGB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Orthophoto 2014</td>
<td>Dating of Buildings</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td>0.25 m, 3 channels RGB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terrain map 2018</td>
<td>Calculation base for the Buffer around the Lakes</td>
<td>Lantmäteriet</td>
</tr>
<tr>
<td></td>
<td>and Categorization of Buildings</td>
<td></td>
</tr>
<tr>
<td>Administration Boarders</td>
<td>General localization</td>
<td>GADM Database</td>
</tr>
<tr>
<td>Population density</td>
<td>Comparison and Overview</td>
<td>Statistics Sweden</td>
</tr>
<tr>
<td>Median income</td>
<td>Comparison and Overview</td>
<td>Statistics Sweden</td>
</tr>
</tbody>
</table>

3.2.2 Calculation Buffer

To be able to calculate the buffer, the size of the lakes in hectare had to be calculated first, because water spaces under 1 ha and rivers under 2 meters width are considered in the Miljöbalken as optional areas of minor interest and the coastal protection can be removed from such areas more easily. Information from the terrain map from Lantmäteriet was used in this regard.

From the layer package the attribute table of the layer showing the water areas – the layer “Vatten” – was extended by one column for the calculation. Afterwards the tool “calculate Geometry” was used to get the size of the lakes in hectares in the newly created column. Finally, a 100-meter buffer was created around the water areas by using the “Buffer” tool. Since the two rivers Bräkneån and Ronnebyån where already buffered by this calculation method, no further
calculation has been done for these. Also included in this step are the existing LIS areas from Ronneby Kommun 2013a. A further column in the attribute table of the buffer layer was added, therefore, and the mentioned areas where coloured differently. This was made to better visualize the effects of the LIS-Tool, to be able to see how many new buildings were built in the existing LIS areas. Then the layer was duplicated, and all non-LIS areas were deleted in the new layer, to make it easier to select all point features within the LIS areas in the next step.

3.2.3 Listing and Dating of Houses within the Buffer

For the listing, the newly created buffer layer and the orthophotos were used. Further, a layer with the administrative boarders from the GADM Database was used to show the boarders of Ronneby Kommun. Then, a new feature layer was created in the database for the buildings within the 100-meter zone.

The editor in ArcMap was used to create the new point features for the building layer. For every building visible within the buffer zone in the recent orthophoto of 2018 a point was created. After that, the points were categorized by the surroundings if they are in the country side or in a continuous settlement. The points lying within an area categorized as a settlement by Lantmäteriet or within a radius of 200 meters of these areas were selected and marked as non-rural in a new column in the attribute table. Then the non-selected houses were set as rural and were symbolized differently. Some points were categorized by hand since they did not fall in the zone but were in a continuous setting. This categorization was made to obtain an overview but was discarded later in the course of further calculations, as it turned out as being insufficient.

For dating the houses, a control with the six older orthophotos was made to see if a building already existed at the given spots. Based on this information, the buildings were categorized in 7 groups: built a) before 1960, b) between 1960 and 1975, c) between 1975 and 1993, d) between 1993 and 2009, e) between 1975 and 2009 for the area missing in the 1993 orthophoto, f) between 2009 and 2014 and g) between 2014 and 2018. Table 3 shows the used symbology and labels.

Table 3: Symbology for the dated buildings

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Label</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Before 1960</td>
<td>a</td>
</tr>
<tr>
<td></td>
<td>1960 - 1975</td>
<td>b</td>
</tr>
<tr>
<td></td>
<td>1975 - 1993</td>
<td>c</td>
</tr>
<tr>
<td></td>
<td>1975 - 2009</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td>1993 - 2009</td>
<td>e</td>
</tr>
<tr>
<td></td>
<td>2009 - 2014</td>
<td>f</td>
</tr>
<tr>
<td></td>
<td>2014 - 2018</td>
<td>g</td>
</tr>
</tbody>
</table>

In a next step, all features within the LIS areas were selected and the attribute table was sorted descending regarding the building period in order to determine how many buildings were built since the designation of the LIS areas. For those LIS areas, where development was detected via the dating, the specific map from the supplement of the comprehensive plan was added to the GIS file. The map was then georeferenced by hand and the layer showing the dated buildings was laid over it, to show where the development took place within the LIS area.
4 RESULTS

4.1 Expert Interviews

To present the results of the interview, each interview will be summarized in the following and later in the next chapter, they will be compared with each other. First, the interview with Hanna Lind from the county administration will be summed up. The full interview can be found under Appendix 1. Then, the second interview with Peter Robertsson from Ronneby Kommun follows. The full second interview can be found under Appendix 2.

4.1.1 Interview County Administration

Hanna Lind, the interviewee, is working at the county administration as official in charge with nature conservation (Naturvårdshandläggare) in the environmental protection unit. The full interview can be found in the Appendix 1.

The interviewee described the LIS-tool as a way to make more areas available for development of both kinds, housing and infrastructure. She said, the main goal is to make people move to the country side, since most people in Sweden nowadays live in the cities. The tool makes it easier to get a house at an attractive location. In her opinion, the goal of LIS is not achieved yet, and she argued that in order to achieve the movement of people to the country side, infrastructure, such as schools, stores, hospitals, public transport and jobs need to be nearby first. Further she brought up that, presently, there is a trend in Sweden to move to the country side, but she does not know if this has something to do with LIS or if it is just a trend. This trend leads to an increase of the number of buildings in the country side. According to her opinion, in particular families with children are moving to rural areas. However, people moving to the country side in Blekinge not only move there when houses next to the shoreline are available. She also does not see big pressure on the housing market in Ronneby Kommun.

According to Hanna Lind, the LIS-tool in itself has some major weak points. The biggest weakness is that the tool is the same for whole Sweden, which, in her opinion, does not match the diverse geographic setting, regarding population density and landscapes. A more regional approach for the regulations would help making the tool better to use. Further, the tool needs to be easier to practice in order to show the desired effect, and the corresponding law should be clearer. She described the existing regulations as being vague.

4.1.2 Interview Ronneby Kommun

Peter Robertsson, the interviewee, is working at Ronneby Kommun as a Planner (Planarkitekt). The full interview can be found in the Appendix 2.
In the interview, Peter Robertsson described the LIS-tool as a complementary tool for strategic planning, “to add build-up areas to existing build-up areas” (Appendix 2 lines 2 – 3). In his opinion, the main goal is to promote build-up areas in a rural context and to make these expansions in a controlled manner. Nevertheless, he sees the goal of the LIS-tool neither achieved nor achievable with the tool in its current form. The tool is only an add-on to the coastal protection regulation and therefore not strong and forceful enough from his point of view. Further, he criticised that the tool is stiff and that the required flexibility is missing. He gave as an example that the municipality wants more LIS areas, because it is difficult to predict where people want to live and, at the same time, that the areas they pointed out were not the places people wanted to move to.

For the improvement of the tool he suggested making it an independent tool. With its own regulations and questions, in his opinion, the tool would lead to a deeper understanding of the landscape and the pre-requisites, required to make the LIS-tool easier to use and more powerful. Further, he mentioned that the tool should be differentiated regionally, and it should be more flexible. He also criticised that it is only a tool for rural development and not for development in general, which leaves the areas divided into small sections instead of providing bigger coherent areas.

The interviewee also mentioned that there is a connection between the availability of shore property and the migration of people to the countryside. In his opinion, the shore areas were attracting people to move there, regardless of different reasons, not only in the traditional view, but also from the 1950s on in a modern view. The economic value of these shore properties changed and nowadays the shore is not inhabited by the poor anymore, but by the upper middle-class and above. He stressed out, that there are two types of new settlers along the shore: one type wants to be as close to the water as possible, and the other develops the shore with a more respectful distance.

4.1.3 Comparison of the Interviews

When comparing the interviews, it is noticeable that the two respondents have different views on the LIS-tool and its effects but draw some similar conclusions and provide similar suggestions for modification.

Both respondents have more or less the same opinion on what the main goal of the LIS-tool is, namely the development of build-up areas in a rural context. However, their opinions differ on the effects of the tool. Both agree that, presently, the LIS-tool has rather low effects, but they differ in the reasoning why. Hanna Lind of the county administration, for example, thinks that the effects of the planning tool are minor due to the prerequisite of infrastructure. In her opinion, people only move to the countryside if infrastructure is available. This opinion supports her
statement that there is only a minor pressure on the housing market in Blekinge, even if the current
trend in Sweden is to move to the countryside, especially for families with children. Peter
Robertsson contradicts her and states that people are moving to the countryside anyway because
the shore properties are attractive. In his view, the planning tool has only small effects because of
the weakness, the missing flexibility and the low forceful character of the tool. In his opinion there
are too few LIS areas and the existing ones are too small to fit the wishes of people who want to
move to the country side. Further, he observes the rising value of the shore properties since the
1950s and connects this with a change in lifestyle. In view of this new lifestyle people move to
the country side because housing on the coast is available.

As mentioned before, in both interviews the LIS-tool has been seen as not sufficient to fulfil
its purpose, i.e. to give the municipalities a functioning tool for rural development along the shore
line. The arguments why it is not working differ, whilst the desired changes on the tool are going
in the same direction. Both interviewees suggest changing the legal setting and make the
underlying law clearer and more precise. Further, both criticised that the law does not differentiate
between the different regions in Sweden, so both want more regional and less general regulations.
Peter Robertsson additionally would like to see a change from an add-on to the coastal protection
regulations to an independent tool in order, to make it easier to use and to be more forceful.
Further, more flexibility would help to fit the demand on shore properties better, because it is
difficult to predict where people want to move. In general, a development tool not only for rural
areas but also for more urban contexts would make the LIS-tool even more feasible.

In summary, the purpose of the LIS-tool seems clear and it is also clear that the tool does not
achieve the set goal. In order to explain why people do not move into the LIS areas, the two
respondents provided different arguments. Regardless of the different approaches, in the end both
proposed similar solutions and changes to facilitate rural development in coastal areas.

4.2 Development in the Coastal Areas

The results of the GIS calculations are split in two sections. First, the buffer zones around the
lakes were calculated and in this buffer the LIS areas were inscribed. Second, the calculated buffer
zones were used to list all buildings in proximity to the water. Then the respective buildings were
dated by using orthophotos from different years.

4.2.1 Buffer zones and LIS areas

As a result of the creation of a buffer zone around all lakes, rivers and the sea in Ronneby
Kommun, a new layer was created indicating the coastal protection zones within 100 meters to
each shoreline. Then the buffer zones including designated LIS area were added and coloured
differently. Figure 8 and Figure show the water surfaces, the buffer zones and the buffer zones including LIS areas in Ronneby Kommun.

Figure 8: Ronneby North, Buffer zones and LIS areas

Figure 9: Ronneby South, Buffer zones and LIS areas
4.2.2 Listing of Buildings

After creating a point feature for every building within the 100-meter buffer zones around the lakes, the sea and the two rivers, a total number of 3,309 buildings was listed. The list contains every existing building visible in the 2018 orthophoto with a resolution of 25 centimetres, regardless whether it is located in a rural or an urban context. These buildings were then dated based on the information obtainable from older orthophotos and resulted in the distribution shown in Table 4. The table shows that the majority of the buildings was erected before 1960. In the subsequent 15 years 513 buildings were built, an average of 34.2 buildings per year. The average number of buildings per year then decreased to 27.4 buildings between 1975 and 1993, to 26.5 buildings between 1993 and 2009, to 19.4 buildings between 2009 and 2014 and finally between to 8.3 buildings per year 2014 and 2018. The 27 buildings, which cannot be dated for 1993 are not included in the average buildings per year, since the number is rather small, and the time gap is quite big. In the end, it would change the average number by less than 1 building per year. The numbers shown in Table 4 include all buildings, whether they are rural or not.

Table 4: Number and building period of the listed buildings.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Number</th>
<th>Label</th>
<th>Attribute Table</th>
<th>Buildings per year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1721</td>
<td>Before 1960</td>
<td>1960</td>
<td>34.2</td>
</tr>
<tr>
<td></td>
<td>513</td>
<td>1960 - 1975</td>
<td>1975</td>
<td>27.4</td>
</tr>
<tr>
<td></td>
<td>493</td>
<td>1975 - 1993</td>
<td>1993</td>
<td>-----------------</td>
</tr>
<tr>
<td></td>
<td>425</td>
<td>1993 - 2009</td>
<td>2009</td>
<td>19.4</td>
</tr>
<tr>
<td></td>
<td>97</td>
<td>2009 - 2014</td>
<td>2014</td>
<td>8.3</td>
</tr>
<tr>
<td></td>
<td>33</td>
<td>2014 - 2018</td>
<td>2018</td>
<td></td>
</tr>
</tbody>
</table>

Figure 8 and Figure 9 show the distribution of buildings along shorelines within Ronneby Kommun. The Figures show, the high building activity at the coast of the Baltic sea. Within the three biggest settlements Ronneby, Kallinge and Bräkne-Hoby a normal degree of development can be spotted. The high building activity in the South contrasts with the rural North of the municipality. Here, some settlements can be spotted, but they are quite distant from each other and in between only a small degree of development took place between 1960 and 2018.
Figure 8: Dated buildings in the North of Ronneby Kommun

Figure 9: Dated buildings in the South of Ronneby Kommun
In the LIS areas only two buildings were built since 2014. The two buildings are at the south end of lake Långasjön, North-East of Bakaryd. Figure 10 shows the LIS area and the placing of the buildings. For the five buildings built in the LIS areas between 2009 and 2014 it is not possible to tell, if they were built there as an effect of the LIS-tool or not, since a more accurate dating is not possible within the scope of this thesis. The five buildings are all build in a context to existing groups of buildings and it is more likely that the buildings were erected according to Chapter 7 § 17 Miljöbalken. Outside the LIS areas between 2009 and 2018 123 buildings were erected. 99 of these were constructed within the three main settlements or next to the Baltic Sea and only 24 in other areas in the municipality.

Figure 10: LIS area Långasjön with the two recent buildings after 2014 in light green
4.2.3 Analysis GIS

The listing of the buildings counted 3310 buildings in coastal areas. The distribution of the buildings shows that 2000 of the buildings are located at the shore of the Baltic Sea. A further 670 buildings are in the three towns Ronneby, Kallinge and Bräkne-Hoby. From the remaining 640 buildings, 290 are located along the two rivers Bräkneån and Ronnebyån. The other 350 buildings are in coastal areas of lakes distributed all over the municipality. Within the LIS areas, only two buildings have been erected since the designation thereof in the end 2013 and five more buildings in the time before, from 2009 to 2014. This shows that the designated areas are either not well-known or are not sufficient to fulfil the people’s demand. The distribution pattern of the buildings shows a wide disparity between the North and the South of the municipality. In the South the population density is way higher than in the North, but at the same time, there is no recognisable regional pattern in the distribution of median income. The median income has some spots where it is higher or lower than the average, but those spots are not concentrated on certain settlements or regions within the municipality.

The dating of the buildings shows that half of the buildings were built before 1960 and the other half in the six decades until 2018. The modern building activity specifically focusses on the Baltic shore, where about 60% of the buildings were built after 1960. In the three towns, the majority of 500 buildings in coastal areas were built before 1960. This development correlates with the trend described by Peter Robertsson that people want to live along the Baltic shore. The building activity was high in this area, even if the number of inhabitants decreased between 1975 and 2012. This can have different reasons. First, it could be connected to the trend to live next to the water. A second reason could be that the area is very suitable for holiday housing due to the proximity to the sea. This assumption is supported by the terrain map from Lantmäteriet showing several areas with a high density of holiday houses along the sea shore in a continuous context.

The data calculated from the counted houses shows that the average number of erected buildings per year in Ronneby is decreasing since 1975. This trend correlates with the population development, even if the number of inhabitants is growing since 2012 again. The number of flats may be sufficient presently and a new increase in building activity will only start again, if there will be a scarcity of dwellings. Further, the analysis does not only count residential housing, but also holiday homes, industry buildings and special buildings. The number of dwellings can therefore not be calculated out of the number of buildings, as this would require a usage analysis, which is not within the scope of this thesis.

Further, the author tried to categorize the buildings regarding the geographical context but discarded this attempt as the used method turned out insufficient. This contextualization may help further to understand if and why people are moving to the country side. The main problem in this regard is that the term “country side” or “rural area” differs strongly depending on the country and the region. To make a working differentiation between urban and rural areas in the municipality of Ronneby, a regional definition for Blekinge would be needed.
5 LIMITATION

The methods used in this study have various limitations and, therefore, the results also do. The limitations can have different kinds and degrees of effect on the study and its results. The methodical limitations will be spectated first, followed by general limitations.

A methodical limitation of the qualitative methods of interviews is that an expert interview is always subjective, has a political desirability and that any follow-up questions are dependent on the course of a conversation. The answers are given in best knowledge of the interviewee but need to be seen as subjective. Further, it must be considered where, when and who gives the interview. The result is dependent on the respondent’s personal mental and physical fitness on the specific day the interview is made. This can have effects on the quality of the answers and on the language proficiency, in particular if the interview is not held in the native language. The latter specifically affects this thesis because neither the interviewer, nor the respondents have English as their first language. Therefore, misunderstandings and incorrect syntax can lead to misinterpretations during the interview and during the transcription of the interview. Same can even be intensified by background noise during the interview or bad recording quality. The mistakes appearing by this source of error can than lead to incorrect interpretations by the author and, therefore, to incorrect assumptions.

The limitations of the applied statistics vary on the statistic used. The population data, for example, always has the same reference day every year, namely the 31st of December, on which the inhabitants are counted. In the period between two reference dates movements can happen, which are not recorded. The number of inhabitants could vary seasonally without being noticed by the data. Further, the data for Sweden can also have a too low inhabitant count, due to the fact that European Citizens are not required to register in Sweden, if they are staying in the country for less than 1 year. This means that one-year program students like the author are not recorded in the statistics. For the building statistics data, a source of error may be that some erected buildings are not of legal status and, therefore, do not appear not in the statistics.

The limitations of the quantitative methods have to be looked at regarding each step made in the calculations because errors can appear in different stages within the calculations. The most likely source of error is the generalization in the administration border map and in the terrain map, which could lead to incorrect sizes of the lakes and rivers or to uncertainties to which municipality an area belongs. Further, some settlements may not be marked continuously, even if they are or – less likely – vice versa. When calculating the lake sizes, a further error may occur due to the rounding of the size with an accuracy of 0.05 hectares. These errors have impact on the subsequent calculations, such as counting in lakes where the protection is harder to lift due to the size or vice versa, a wrongly categorization of houses, or wrongly sort the buildings to the
municipalities in boarder areas. It is rather unlikely that an error occurs when creating the buffer since the calculation is simple. Such an error would be systematic to the program ArcMap by Esri.

A further source of error could be that some buildings were forgotten, overlooked or erroneously listed as such, during the process. The author tried to minimise this error by checking the area several times. A similar error can appear when dating the buildings, but it is here more likely due to parts of the data is only available panchromatic and, thus, monochrome. Further, the resolution of the older orthophotos of 0.5 meters or 1 meter for the one from 1993, respectively, is lower than from the two recent orthophotos dated 2014 and 2018 due to technical reasons and data size.

The dating method is further limited in that, for the year 1993, only a part of the municipality is covered by the orthophoto. Due to the conversion of the orthophoto from the old coordinate system RT90 2,5 Gon W (epsg:3021) to the new one SWEREF99 TM (epsg:3006), a part of the area is covered under a black strip (Mats Högström 22/05/19). The buildings in the area between N 6247663 E 496681 and N 6258025 E 527846 (SWEREF99 TM (epsg:3006)) could not be dated for this year and, therefore, the 33 buildings are untested for 1993. However, this is only a minor error since the main focus of the analysis lies on the effects of the LIS-tool, which was introduced in 2009 and realized in Ronneby Kommun in 2013.

Minor errors can occur in the process of georeferencing the LIS map. In this case, the error consists of minor deviations to the actual position, mostly based on the inaccuracies of generalization and the human factor in the process.

A general limitation is that the author is neither speaking Swedish nor English as first language and, therefore, translation and understanding mistakes can appear. This mostly applies for Swedish due to the author’s lower proficiency and the number of Swedish sources. Another limitation may be that the results are regionally specific and only one area has been analysed due to the short time period of 8 weeks available for the thesis. The results of this thesis can therefore not be generalized but may be a suitable comparison base for future research in this field.
The analysis of the municipality area shows that only in one of the 28 municipal LIS areas two buildings have been constructed since the areas were designated end 2013. Besides the two buildings in this area, in this and in three other LIS areas in total five buildings have been constructed between 2009 and 2014. This lack of development can have various reasons. Peter Robertsson pointed out that the LIS areas are not the areas where people want to settle. Furthermore, only very few buildings were built in Ronneby Kommun between 2014 and 2018. In the whole area of the municipality only 75 dwellings were completed and 33 buildings in shore areas were erected in this period. This shows that the present demand for new built houses is low, whilst at the same time the number of inhabitants is growing. This means that the number of available dwellings is fulfilling the demand for people moving here. When the population growth continues with the rate of 0.5% to 2% per year like between 2012 and 2018 (Statistics Sweden 2019), the number of new built houses will also increase as soon as the demand for dwellings cannot be met anymore and the prices for housing increase.

The fact that only in one LIS area buildings have been built also shows that the proximity to water is not strong enough as a pull factor to make people move there as the system of rural-urban migration is complex. As Hanna Lind mentioned, people do not move to the country side, if the required infrastructure, such as schools, shops, hospitals, public transport and jobs is not nearby. However, respective infrastructure will not be built before a significant number of people lives close by. This means that, if a promotion of a rural area shall take place, the municipality has to invest in infrastructure first, or it has to wait until the price development within the bigger towns makes people move to the country side. For both approaches the outcome is hard to predict. If the municipality invests in a certain area, people are either going to move there, or people will still not move there, due to reasons that cannot be controlled. If the municipality does not invest, it does not lose money, if the area is not the one people want to move to. However, if people want to move to an undeveloped area, the municipality is not on the acting but on the reacting side and, thus, may not be able to develop the area in the intended manner. In any case, the municipality has to evaluate the push and pull factors for the area it wants to develop, however, without being able to precisely predict trends and the motivation of people to move to a certain place. The proactive move to point out LIS areas in 2013 can be seen as a preparation for the scenario, where the municipality did not invest in a certain area but prepares for the case that people want to move to a place not focussed on. In this case, the LIS-tool is a good option for a cost-saving preparation, but as shown, the tool alone is not strong enough to make people move to the country side.

The coastal areas along the Baltic sea on the other hand, seem to be less dependent on the development of the population. In this area the building activity between 1975 and 2009 stayed high, even as the population in Ronneby Kommun was decreasing. This could be explained by
the high share of holiday housing along the Baltic shore. Holiday housing is strongly dependent on the attractiveness of the destination and only to a minor extent on the destination’s population development. As Peter Robertsson explained in his interview, people want to be close to the water. Further, for holiday housing the type of required infrastructure differs from that of residential housing and a less developed infrastructure is far more tolerated for holidays. This may be a reason why the development in the areas along the sea seem more resilient and more development took place. To fully understand the development in this area, an analysis regarding the usage of the buildings along the Baltic sea would be required, which is not within the scope of this thesis.

The author suggested different aspects to render the LIS-tool more use- and forceful. In particular, the tool should be adapted to the regional requirements, i.e. the physical and anthropogenic geography, since both interviewees proposed this change of the tool independently of each other. Of course, it is meaningful that the current tool contains general rules for whole of Sweden, as it is an addition to a list of options for reducing coastal protection. The law would be even more complicated to read if further regulations were dealt with in the same law as coastal protection. In order to be able to better handle regional differences and circumstances within the tool, an independent regional planning tool with region-specific regulations and more power would be required. A respective tool could then consider regional differences and could be applied meaningfully. In the end, to make more concrete suggestions for changing the tool more regional studies must be carried out and these then must be compared. This is required to highlight regional similarities and differences according to which a final evaluation of the tool can be carried out.

With the tool as it stands today, it is not meaningful to designate even more LIS areas without taking other actions of promoting the rural areas. New LIS areas can be considered, once the old ones are either accepted, some development took place and new areas for development are required, or if there is no doubt that the existing LIS areas are not fitting people’s demand. The latter case cannot be evaluated yet, due to the lack of pressure on the housing market in Ronneby, and due to the short period of time since the designation of LIS areas. A good point in time for an evaluation would be some months up to one year after the request on building permits is raising strongly. The evaluation should then question why the areas are or are not attractive and which areas have potential for future development, even though development has not yet taken place. As mentioned by Peter Robertsson, to better use the LIS-tool, a deeper “understanding, knowledge and tools to analyse the landscape (Appendix 2 line 40 et seq.)” are required.

The distribution of the inhabitants in Ronneby Kommun shows that in 2010 the majority of 65% lived in the three towns Ronneby, Källinge and Bräkne-Hoby. The remaining 35% lived in smaller settlements (10%) or in remote areas (25%) (Ronneby Kommun 2013a, p. 7). This reflects the importance of the rural areas in the municipality. In addition, the municipal area of Ronneby Kommun is quite big with 861.8 km². This makes it even more important to plan the countryside, guarantee a supply with goods of the daily need and connect it to the main settlements. Hereby a
functioning public transport is important in order to reduce the dependency on the car and to make a self-determined life possible, in particular for elderly people, children and young adults. The LIS-tool can be seen as tool to strengthen the rural areas by reducing the restrictions on coastal development in these areas and making attractive shore properties available, as the value for such properties is on the rise and there is a trend in Sweden to move to the country side, in particular for families with children. With more people moving to rural areas, this important supply with goods of the daily need and the public transport will be economical and will therefore stay upright.
7 CONCLUSION

The development in the 28 designated LIS areas of Ronneby Kommun since 2013 is of minor character, which may have various reasons. The development in the coastal areas in general shows that the construction behaviour in the municipality seems to depend on the number of inhabitants. This applies little to the Baltic coast, but much to the rest of the municipality area. Since the number of inhabitants and the construction activity at the designation date of the LIS areas in 2013 were at a low level, a further evaluative study on the LIS areas needs to be done by the time the pressure on the housing market and thereby the building activity is increasing again. An evaluation of the push and pull factors of the rural areas in Ronneby Kommun and an analysis on the Swedish housing trends can then be useful, therefore. This is necessary due to the complexity of the rural-urban migration system. In conclusion, the thesis achieved the goal to describe and analyze the building activity along the shorelines and in the LIS areas.

For the further application of the LIS-tool in its present form in Ronneby Kommun, the author proposes to either combine it with other measures to increase the attractiveness of the existing LIS areas such as infrastructure improvements, or to wait some more time until the pressure on the housing market increases and thereby also the building activity. The municipality can then evaluate the individual areas independently of each other and adjust them to meet the demand on the housing market. In the proposed changes to the LIS tool, the author, with his regional view on the tool, agrees with the interviewed experts that the tool must be changed in order to become more forceful, independent and regional specific. The tool could then be used more effectively and could achieve its goal more efficiently, i.e. to facilitate rural development in coastal areas without compromising protection.

Conclusively, the LIS areas in Ronneby Kommun and the planning tool itself need to be objectives for future studies. A comprehensive evaluation can only be carried out after a certain period of time, or when the demand for housing is high. As aimed at, the results of this thesis form a comparison base for further research in this area.
REFERENCES


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APPENDIX

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Appendix 1: Interview County administration Hanna Lind, official in charge with nature conservation (Naturvårdshandläggare)

I: What do you think is the main goal of the LIS-tool? [0’16”]
B: Hm, I think Sweden is just so very wide country and most people live in the cities, so I guess it is to have some more people live on the country side. And to get person to live there – they want to have attractive locations for the houses or more space to build infrastructure and stuff like that – so schools and maybe a school by the lake is more attractive. I don’t know. But houses by lakes are more attractive that one I know. So that is the main, I think. [1’16”]
I: Do you think the goal has been achieved with LIS or do you see it as achievable to get more houses? [1’19”]
B: I think it’s a bit tricky. No, it is not achieved but (…) because or I think because is the infrastructure and the public transport and people do not move out to the country side before it is schools nearby or public transportations and so it is not just the location and that it will be attractive you have to have the schools and hospitals and everything else nearby too and jobs to get people to move out to the country side. You need more pieces to stick together to get the people out. But I think it is a trend now in Sweden to move out to the country side, but it is just a trend. So, I do not know if it will stay so. [2’25”]
I: So, you think first infrastructure then the people? [2’28]
B: Yes, I think so. Absolutely schools and stuff like that. And some stores so you can go and get some milk and you do not have to take the car in one hour to get some milk if you forget in the store. [2’29”]
I: How do you think has construction behaviour changed since the introduction of the tool? [2’58”]
B: Yeah, that is a really tricky, tricky question. I do not really know. I do not know if LIS has something to do with the behaviour change, is it 2009 or if it is just some trend people moves out. But I can see that more people build new houses in the country side, but there are also more people living in the cities, so but I think is trend. It is a trend with family – childrens and families to live outside the cities. I do not think it has anything to LIS. But it is more – it is easier to get a house with an attractive location with LIS. It is hard but yeah. It is hard to see why: If it is LIS or just a trend. [4’11”]
I: So, we will see this in a few years? [4’13”]
B: Yeah. [4’14”]
I: Which course do you, as agency in this case, follow for rural development near the shore? [4’25”]
B: I don’t know. [4’29”]

Searching for notes [6’21”]
I think this question is tricky to answer because most of jobs with… the country side… I guess, I will get at my job I get… [6’45”]
I get errands from areas everywhere – in the cities, in the country side – so I have hard to tell if we are doing something special for just the country side, but I think the ones who work with planning downstairs, they work more… if you work more against… I have to try to explain for you. If you work
more with just one… just the country side its more directed. To just that tender. And I think they are
doing this downstairs in the planning section, but I just work with everything in nature so and the
question is about the environment and stuff like that and I have hard to see that I am just… of curse I
am… I am in the – oh what is the question again? [10’23”]
I: How the agency handles the country side development. [10’30”]
B: We work with it, but I am not work so directed. [10’40”]
I: So, you work more with the untouched nature? [10’45”]
B: No, not just the untouched nature but with every – the nature everywhere. But the country side is
there too, but not the planning and the housebuilding and stuff like that. I am more like the one who
protect the areas and say no. [11’11”]
I: But it is also good to see this point. It is always two way of handling a problem. [11’22”]
B: But LIS they have you… If you use it is ea
sier to build a house by the lake, but I am more the one
who says no. Especially if I think some problem is just with infrastructure and public transport. It is just
not to build a house by the lake if there is nothing else there. I do not really know how to answer this
question. It is a trick one. But we work with the whole Blekinge – is it country side or cities or yeah.
[12’27”]
I: So you have more of a wholistic view? [12’30”]
B: Yes, I have. [12’31”]
I: Ok, shall we move on to the next question? [12’35”]
B: Yeah, we do. [12’37”]
I: There are apparently 2000 buildings within these 100 meters to the shore in Ronneby kommun. Do
you think these areas would be built-up elsewhere if no shoreline property would be available? [12’54”]
B: Probably. Or maybe. Is it new houses or is it all houses? [13’03”]
I: That is all houses in the country side. So, I took like the “tätort” these areas out of it, where the
Lantmäteriet sees as build structure as itself. So, it is more like buildings in the middle of nowhere. That
is what I counted as rural area in this case. [13’30”]
B: Yes. The trick in this question is, is it old houses maybe they were built before we have our shore
line protection rule. And then the LIS have nothing to do with it and not the shoreline protection rule
either. Maybe there are some village that are build up before the shore line protection and it is hard to
answer. But I think if it is new houses and we did not have this LIS maybe these houses have been built
in a “tätort”, in Ronneby instead. Because I do not think the people. They really need attractive locations
to move out to the country. Often, not all the people of course. Many of them. [14’50”]
I: I can also little bit redirect the question. How big is the pressure, you think, on the rural area in
Blekinge or in Ronneby for people to move out? Is there pressure? [15’08”]
B: No, I do not think so big. It is not a problem. (…) No, I do not think so. LIS is not by the coast, you
know it is not by the sea //it is also by lakes [15’53”] // yeah. And people more want to move out to the
islands and there I do not think we have any LIS areas by the islands, I do not think it is ok to do so. [16’13”]
I: I do not think so either [16’15”]
B: It is more in the country or inlands. The coast is, there are high structures // a lot of natural protection // [16’25”] No. [16’33”]
I: How would you describe the weak points of the tool? [16’37”]
B: I do not know, if you know that we have in October or something the Swedish environmental protection agency “Naturvårdsverket”. They sent, I think the name is committee report. They want to change some directions in the LIS and we here answered. I have this committee report to answer if I think it is a good direction to go, the changes. And in this report the new directions in this was quite vague just to, I think, be easier to apply in all of Sweden. On the country side, it was very distinct in the question that LIS is not going to apply in the “tätort”. By the big cities or quite big cities, it is not so big cities in Sweden, but the bigger cities in Sweden. The weak points in this report was just because the sentences they were so vague, so it is hard to say no when it is [19’31”]
I: very dodgy? [19’34”]
B: Yeah it is very dodgy, and I know that this LIS. I think it is hard LIS that is why they send this or wish to have changes in the directions because it have not have this effect that hoped for in the beginning. In Blekinge I do not think it has so. I do not really know why it does not the effect that they hope for, but maybe it is hard. Maybe it is words in the describes how to use it, it is hard or maybe it is hard because Sweden is a wide country and we have different… In some places there are no houses at all it is just wood, or almost, or we have here by the coast it is really many people and it is hard to have the same directions over the whole country. [21’07”]
I: Yeah it is to diverse the country. [21’13”]
B: Yeah. You have these areas with mountains and you have these areas here the country side, there are people living. So, some of the lakes maybe there are quite a lot of house, within the shoreline. But in Värmland, I do not know your Geographic’s, but in the middle of Sweden, quite no houses at all. Maybe you do not have to be strict there but maybe here, where are people you can be more strict where people can build their houses. So, I think that is a trickiest with the weak points it is just so different down here, Skåne, Blekinge, if you understand what I mean. [22’23”]
I: Yeah, I see your point. [22’25”]
B: The same directions all over the country that is more important. The easy answer. [22’33”]
I: So that brings us to the next question. What supplement or change to LIS would you like to see, in order to improve it? [22’44”]
B: Yeah, maybe I stick with the last question. Maybe you can split Sweden into different zones that are more like each other. [23’06”]
I: So that there are more consistent zones, of the same type of landscape. [23’13”]
B: Maybe with the same background or preconditions. So, it would be good to have zones with the same preconditions. Then you can have all different directions in these different zones. And maybe it is more easy to have some result on that LIS gives more result, when it is easier to practice. [24’02’’]
I: So, you say it is too complicated the whole law? [24’07’’]
B: Yeah maybe. It is hard and just complicated because the country Sweden is so difficult. (…) I thought of that when I answered the committee report, how hard it is to have the same for all of Sweden. [25’04’’]
I: Ok. Do you have any further supplements to the interview you want to bring in? [25’19’’]
B: No. I do not think so. [25’22’’]
I: What do you think is the main goal of LIS? [0’17”]
B: From a municipal point of view it is a complementary tool to add build up areas to existing build up areas. That is the basis of the tool. It is an extra argument to more or less promote build up areas. With a curtain focus on more rural areas and since we have quite lot rural areas it has to be planned. So, from our point of view, it has a secondary more strategic value, or point, if you want to say that. And that is to do this in a controlled manner. So, therefore the LIS-tool and the municipality can therefore itself point out areas that they find to be suitable for a controlled expansion. The core of it is very much the controlled expansion. In the opposite direction, when you plan an area with a detail plan, or so you have this type of argumentation, too. And that is really a controlled expansion, but in many cases in Sweden, and I believe in general, and certain in our municipality we have small build up areas, with small add-ons that are not really emphasises a detail plan to be done. And there the LIS-tool becomes more strong to govern this type of expansion and making it in a more controlled way. [2’30”]
I: Ok. So, do you see the goal achieved from LIS? [2’37”]
B: No. [2’38”]
I: No, ok. But do you see it achievable as it is at the moment? [2’45”]
B: No, not really, because we do not have that much of… We need to work with this a lot more. And get more knowledge about expansions on different levels, before that could be really done, because the law regulations is still very square. If I can explain it like that. And the LIS-tool is just an add-on to that and it is not a totally new tool. And to make it really efficient and forceful it has to be an own tool with its own regulations and what questions are to be arised within that type of regulation. Just a small add-on does not really make that happen, so to speak. But of course, it has had a small impact. It has. So, in proportion to the add-on tool, as an add-on tool, possibly a small impact. What has been quite tough to do, is to predict where those areas are supposed to be. And in the argumentation and discussion with the regional administration… The regional administrations point of view is to not have that many LIS areas, and the municipality wants to have more areas, since we do not can predict where it supposed to be. So, the has to be a kind of flexibility in that sense. That has not been easy and what we have learned so far, is that people tend to want to build outside the LIS areas that has been pointed out. And then the tool becomes more or less meaningless. In that sense, the municipality had right. There should have been more plentiful of LIS areas. In contrary to what the county administrations point of view was, from the beginning. And this states from the fact that we have the LIS-tool exact as it is today. [5’26”]
I: So, you already answered little bit the next question, how the construction behaviour changed since the introduction of the tool. Because, if I got this right, you said that you pointed out this LIS areas but not all where excepted and the people wanted to build elsewhere. So, you need more of these to change or to fit the need of buildings. If I got this right. [5’59”]
B: Indeed. And we need in that sense is a more deep understanding, knowledge and tools to analyse the landscape that is actually more important to evaluate the coastal protection from the beginning. That is the most important thing to make the LIS-tool efficient. Because, the LIS-tool is never as sufficient as the coastal protection in that area. Is it 100 meters as the standard is it 300 meters or is it actively regulated by the regional administration and has therefore hopefully natural boarders pointed out by the administration. Those are the most efficient coastal protection areas really, because they have natural boarders from the beginning. But that is very work intensive, from their point of view. [7’05”]

I: Ok. So, this brings us to the next question, which course do you as municipality follow for rural development at the shore? [7’17”]

B: We have a main focus pointed out in our “Översiktsplan Ronneby 2035” where we focus on cores in different parts of the municipality and from these we add new build-up areas. And quite a few of these connect to the coastal protection areas. Not only along the Baltic coast but also the larger rivers mainly, but there is a point that, because in those areas we have the existing build up area to really hook the new buildings too. Since this is an older argument in the coastal protection regulation. The LIS-tool in that case has not really been efficient. It has been an add-on possibility in those cases. And that is really lucky for us, because … We were lucky since those build up areas were built in medieval ages and there on and we are in the hands of that. So, in that sense perhaps Ronneby has been not really representative since … as a whole, if we start in that direction. But in the other hand, we have certain projects or so that could have been suitable for certain areas that are not possible since there are no… They are not suitable for LIS, since LIS is a tool for rural development and it is not really suitable to use in those more expensive areas along the Baltic coast since they are not rural. So, there is a difference to that. [9’56”]

I: In the country side of Ronneby are around 2000 buildings, I counted, within 100 meters from the shore. Do you think they have been built elsewhere in Ronneby if nor shore property would be able to use for those houses? [10’18”]

B: One of the main goals and focuses of many new buildings, mainly for residential use for one or two families or so, they are very prone to build close to the shoreline. And that is out of two main states really, the one most obvious is out of economic and aesthetic character, since you want to live close to the water and it is beautiful, and the value of your house rises. And you can also get a loan more easily. The other one that is perhaps interesting in our region is more of a traditional character and that is that for generations in certain areas you have always been able to build certain things along the coast, because the coast was not interesting historically. Historically it was poor people who lived along the coast, they were fisherman and small farmers and they could always build something for that they could choose. But since the 1950s and onwards there has been a change. And with that change of a few decades, those areas that were used in that manner has drastically reused for other purposes. More in over economic interest or so and that collides with that traditional view of being able to use this part of the land in different ways or in certain ways. That is in many cases in strong conflict with the coastal
protection. That is a pedagogic not to get around, if you say so. So, there is somewhere where the LIS-tool could have been used useful, if more efficiently regulated or regulated from certain prerequisites, if I say so. That bases on that type of character where to use land in a traditional manner. Then it would have been efficient. [13’00”]

I: So, you think the main houses where build here, because the shoreline was available? [13’09”]

B: Yes. The majority of them were out of different reasons. Many of those houses, I believe, older houses from the beginning and they were built there because of the water, because it was a resource. A resource for transportation and a resource for food and income. And newer housing, on the other hand, because this question is best suitable to divide in two, this was the first part and the second part is new housing. And the new housing then we talk about economic value and aesthetics. Those are not always needed to be built in direct proximity to the water, because it is the view that you are after, so there are, I believe, two groups of builders of this kind of house. Those that see the economic potential of the water and want to build a lifestyle with the feet in the water and having the boat very close by and the other one that sees the natural value. They tend to build more or less the same house, but on a more respectful distance to the shoreline and using the vista. [14’50”]

I: So, I think we can move on to the next one. A tough question. Describe the weak points of the tool. [15’01”]

B: We have touched the weak points of the LIS-tool. One thing that we have encountered is that the LIS-tool bases on the general regulations in the coastal protection. And since the coastal protection is a very square regulation so will be the LIS-tool. That is the first one. The second one is how the LIS-tool has been implemented from a state point of view, since the regional administration is the long arm of the state. So, be it. And to be really useful there has been a more or less prohibited way of using it. In a far to small extend. To be really useful it has to be larger areas to be pointed out, to be efficient. Because you have to have both, a coastal protection discussion around a building project and another more discussion around the suitability of the land to build on, more from a technical point of view. And that could be tough to really see from the beginning. And since the LIS-tool is used so early in a process, on a very strategic level. It is many times impossible to predict those areas. So, therefore, you have to have those larger LIS areas and have a reasonable margin in that area, to actually build it. I hope that is an answer to that question [17’32”]

I: Yeah, it did. And brings up to what supplements or changes to LIS would you like to see in order to be better able to do coastal protection, or rural development. [17’48”]

B: There is two large things. One is a more national approach to the LIS-tool and have a look at the regulation as itself. Both, the use of LIS and the coastal protection in general, because we have seen those cases where the regional administration has made those geographically specific regulations have been more efficient, but that costs resources and money and therefore it has to be stayed back up. And that also a question of equality over the nation as a total. And since there are differences between the southern part of Sweden and the northern part. And there has been different approaches to the LIS-tool
depending where you are, you have to have that total view of what is needed in other parts of the country. It is no small things around the LIS-tool. So, it is long processes and large processes, but I believe in the long run very useful. [19’25”]

I: It is quite interesting, because Hanna Lind from the county administration also pointed out that it need to be more regional specific, the LIS-tool to be useful. For both, for coastal protection and rural development. Quite interesting to see the parallels from a different approach and different point of view [19’51”]

B: Yeah. [19’52”]

I: I think that is it from my side. Do you have any additions you want to add to the interview? [19’59”]

B: No. Just a general comment that the coastal protection still is just one tool that regulates this type of geography. There is still many different regulations around certain species and those kind of things that also regulates what is to be used, so there is a puzzle to be laid there and even though you revise the LIS-tool there is still protection to certain values. It is not all or nothing, it is a process. [20’55”]
Appendix 3: E-Mail correspondence with Mats Högström

Max Weckenhöfer    <max_weckenhoefer@user>

Hi Mats,

I opened the 1993 Orthothon and in the north the data ends in a black strip. How is the boundary in 2013? R42791 E49911 and R42692 E42704. Is there any data available or was this a malfunction?

If there is data available, can you please send me a downloadable file? I can complete the data set.

The 2013 data is complete. And for the 2014 data I am waiting for the USB drive.

Thank you again.

Mats

Data Provider

Hi Max,

The reason for the black strip is that the images were originally processed into the old Swedish coordinate system RT90. To convert them into the current coordinate system SRSE57/91 (EPSG 3035), you will get that effect.

Best regards,
Mats