How do tourists perceive and accept changes in landscape characteristics on the Eiderstedt peninsula?

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Abstract

Tourism plays a vital role in the economy of the Eiderstedt peninsula at the west coast of Schleswig-Holstein, Germany. One important reason for visitors to travel to Eiderstedt from all German states is the special landscape characteristics consisting of extensive areas of pasture that in conjunction with the flatness of the entire peninsula give visitors the impression of natural surroundings with lots of scenic views. Changes in agricultural production may cause considerable shares of grassland to be converted to arable farm land to grow corn, which generally reaches heights capable of obstructing the views of visitors of the countryside. We use a standardized questionnaire to assess whether tourists traveling to the Eiderstedt peninsula already observe such changes in land use and if such alterations are likely to influence their choice of Eiderstedt as destination. The questions were answered in summer and fall of 2009 by visitors of key tourist attractions on Eiderstedt during their stay. Results indicate that tourists visiting the Eiderstedt peninsula are aware of the land use changes that are occurring. On the other hand, this currently does not negatively affect their choice of Eiderstedt as a holiday destination as the aesthetic appearance of the landscape is only one factor among many influencing the tourists’ decisions to visit the peninsula. However, further sampling in upcoming holiday seasons will be necessary to ensure the results are representative and to allow interannual comparisons in order to detect possible trends in tourist behavior.

1 Location and background

The Eiderstedt peninsula is located at the west coast of Schleswig-Holstein that extends westward from the city of Husum to the Northeast of Eiderstedt and the Eider River (figure 1). Its special setting that Eiderstedt is being surrounded on three sites by the National Park of the Wadden Sea makes it an important tourist destination. St. Peter-Ording is the town receiving the largest share of tourist activities mainly, because of its extending sandy beach, as well as its cure and wellness infrastructure. However, a considerable number of tourists also stay in the other towns of Eiderstedt, Tönning and Garding, as well. Furthermore, visitors like to explore the hinterland of Eiderstedt, and often these areas are visited on extensive bike tours.

But the destination Eiderstedt not only has a special landscape to offer to tourists. There are several leisure time facilities that are unique in Schleswig-Holstein, which also contribute to Eiderstedt’s special position on the northern German tourism market: the lighthouse in Westerhever, the Westküstenpark in Bad St. Peter-Ording and the Multimar Wattforum in Tönning are some of the most frequented sites on the peninsula, each year attracting tens of thousands of visitors.

Besides tourism, economic activities on the Eiderstedt peninsula are concentrated on only few other sectors. The region is dominated by agriculture, with the majority of the land being extensively used grassland. The vast green meadows with a dense network of drainage trenches, the so-called “Grüppen”, in combination with the flatness of the region provide an unobstructed view of the landscape and give an observer the impression of an unlimited rural environment.
Among others, the special characteristics of the landscape of the peninsula are one reason for many tourists to visit Eiderstedt each year.

However, in the recent past, a slow but steady shift in agricultural land use on the peninsula could be observed. Arable farm land has expanded at the expense of grassland from about 24% of the entire agriculturally used land on the peninsula in 1991 to approximately 60% in 2008 (Schleupner & Link 2009). The arable farm land is increasingly used to grow vast amounts of corn. The main reasons for the increase in area used for the production of corn are not only the growing demand for silage maize used for fed cattle that is held in barns. Also, there is a rising demand for corn for the continuously expanding bioenergy production. In 2007, there were already four biogas fermentation plants on the peninsula with additional plants being planned (Nehls 2007). All these need large amounts of biomass as input, which generally is produced in the vicinity of the plants in order to reduce transportation costs.

The substantial conversion of grassland in recent years is mainly a consequence of the European policy to promote the production of bioenergy. Farmers received financial assistance for investments into infrastructure to produce electricity from biomass. It will have to be seen whether the seemingly large economic potential of bioenergy production in this region of Schleswig-Holstein can be realized in the long run. Nonetheless, a continued trend towards an unregulated expansion of this economic activity may have negative impacts on key ecological functions and the characteristics of the landscape (Ott et al. 2008). Figure 2 illustrates how the landscape appearance on Eiderstedt changes if areas that used to be grassland are subsequently used for corn production. The production of bioenergy is only sustainable as long as there is no negative influence on the appearance and functionality of the landscape itself that leads to concurrent negative impacts on other uses of the land.
A sole focus on bioenergy production in land use decisions is likely to have adverse effects that offset the positive traits of generating energy from renewable sources. E.g., the conversion of vast areas of grassland to arable farm land for corn production has distinct impacts on the appearance of the landscape of Eiderstedt (figure 2). This has not only aesthetic implications but also ecological consequences. These can be either direct such as habitat loss or indirect like changes in habitat suitability. Past studies have addressed the impacts of such conversions of agricultural land on key breeding bird species on Eiderstedt (Link & Schleupner 2007, Schleupner & Link 2008). Results indicate that the deterioration of habitat quality in addition to the obvious reduction in habitat area leads to a disproportionately large reduction in the populations of the species considered in the assessment.

2 Motivation and objective

It is a considerable challenge on Eiderstedt to practice agricultural land use in such a way that it remains in accordance with the different principles of spatial planning in this region (figure 3). Agricultural land on Eiderstedt not only serves as the economic basis for the farmers but its ecological functionality is also mandatory for the existence of many bird populations. In the past, there have been considerable conflicts of interest on the peninsula between farmers and bird conservationists. The
problem is that there are only very few alternatives for local farmers to generate income (von Hugo et al. 2006). Besides traditional agricultural activities, farmers can only turn to tourism or bioenergy production as other promising ways to earn a living on the peninsula. However, these two alternatives can also conflict with each other. Tourists would like to experience an intact landscape that corresponds to their aesthetic expectations. Only then are they willing to visit the peninsula (repeatedly) and to spend their money on Eiderstedt, thus also contributing to economic success in this coastal region.

When deciding on the extent of possible future changes in agricultural land use on Eiderstedt, it is important to be aware of the consequences that such changes would have on each of the principal functions of the landscape. The economic profitability of the land is fairly easy to determine as it is possible to deduce from the acreage used for a specific purpose, the yields of the products grown and the market prices what the income generated per unit area would be. In comparison, it is more difficult to quantify the extent of the impact on the ecological functionality of the landscape as bird habitat. The assessment by Schleupner & Link (2008) is a first modeling exercise to obtain insights on which land conversion strategies are potentially harmful to the local fauna. While it is not possible to exactly pinpoint an optimal strategy, this setup can highlight overall trends and provide estimates of the general magnitude of ecological impacts of land use changes on the peninsula.

The by far most challenging aspect is to quantify possible effects of changes in agricultural land use on Eiderstedt on tourism. This has to do with the fact that changes in landscape appearance (possibly) have a psychological effect on the tourists, which then in turn lead to decisions that can affect their travel behavior (Günther & Zahl 2004, NIT 2000). Only then the consequences can be quantified, e.g. by monetizing the growth in revenues from increased visits to Eiderstedt or the losses incurred from tourists preferring other destinations instead because of the altered landscape appearance.

The impacts of changes in environmental characteristics on the tourism industry on Eiderstedt are of particular importance, as this economic sector is of utmost significance for the entire region. In 2009, almost half of the economic revenue generated at the west coast of Schleswig-Holstein was based on activities directly related to tourism (NTS 2010). Each year, more than 2.1 billion Euros are spent for tourism along the west coast of Schleswig-Holstein. A considerable share of these revenues is generated on the Eiderstedt peninsula.

More than 20.1 million overnight stays were recorded at the west coast of Schleswig-Holstein in 2009 (NTS 2010). Unfortunately, it is not possible to directly infer the number of overnight stays on Eiderstedt from this figure, as statistics for small venues with 9 or fewer beds are exempt from publishing their statistics. However, in 2009 there were 2.331.476 overnight stays in Bad St. Peter-Ording alone, which itself already accounts for more than 10 % of the entire tourist volume of the west coast. 260.624 guests visited this main tourist destination on Eiderstedt. People visiting Bad St. Peter-Ording on average spent 9 days on the peninsula. In addition, there are many visitors who travel to the Eiderstedt peninsula for only one day. Their spending amounts to more than one quarter of the financial volume of transactions connected to tourism in this region.

The importance of tourism for Eiderstedt is emphasized by the fact that along the west coast of Schleswig-Holstein there is a share of 74 overnight stays of tourists per local inhabitant (NTS 2010). In comparison, the average for Schleswig-Holstein as a whole is only 8 overnight stays per inhabitant. Consequently, many jobs in Eiderstedt are directly or indirectly linked to tourism. Any considerable adverse trends in tourist preferences could therefore have quite detrimental effects on the entire economy of this region.

A quantitative assessment of the effects of agricultural land use changes on Eiderstedt on tourism can only be performed in two subsequent steps. In a first step, the psychological effect of an altered aesthetic appearance of the landscape needs to be deduced. Only then can the monetized impact be estimated based on the travel behavior of the tourists. This paper focuses on the first step of this approach.
How do tourists perceive and accept changes in landscape characteristics

The tourism concept of Eiderstedt is based on the focus on the particular characteristics that set aside the peninsula from other destinations along the west coast and the rest of Schleswig-Holstein. In this context, one key issue is nature tourism. The Wadden Sea has been declared World Natural Heritage in 2009, which greatly increased the natural value of the environment around the peninsula (NTS 2010). The vast number of birds breeding on or migrating through the peninsula is also an attraction that causes many tourists to visit the peninsula each year. The extensive grassland areas and the unobstructed view are main assets of Eiderstedt in the competition with other similar coastal regions.

Any changes to the landscape that compromise these assets can be considered potentially harmful to the future development of tourism in this region. In order to be able to determine what influence the currently ongoing changes in agricultural land use on the Eiderstedt peninsula actually have on the tourists and their travel behavior, it is necessary to determine whether tourists observe these alterations at all and whether they perceive them as something negative that causes them to abandon Eiderstedt as their travel destination in the future in favor of a different region. This information needs to be obtained directly from the visitors to Eiderstedt by means of interviews or questionnaires. Using this empirical data, initial trends can be identified that may point to possible economic implications of any aesthetic changes in the environmental setting of Eiderstedt.

3 Methods

The tourists’ perception of changes in landscape aesthetics was elicited using written questionnaires. These questionnaires were distributed at the following key tourist locations throughout the Eiderstedt peninsula:

- Multimar Wattforum, Tönning
- Tourism Service Center Tönning
- Tourism Service Center Garding
- Tourism Service Center Bad St. Peter-Ording
- NABU Station Katinger Watt
- Schutzstation Wattenmeer at the Westerhever lighthouse
- Westküstenpark, Bad St. Peter-Ording
- Information Center Spökenkieker, Kating

Visitors were asked about their perception of the currently ongoing changes in agricultural land use and the coinciding alterations in the aesthetic appearance of the scenery. Additionally, information on the tourists’ travel behavior, their motivations for visiting Eiderstedt and their opinion on environmental issues of the region were sought in order to be able to relate the tourists’ travel choices to their purchasing power during their stay on Eiderstedt. The setup of the questionnaire (outlined in the Appendix) is based on the general principles of a previous unpublished study by the NIT (2000), which was adapted in order to fit the underlying research question of this study.

The questionnaires were placed in the tourist hot spots during the summer and fall of 2009, thus allowing tourists that visit the peninsula during different seasons to state their perception. The two seasons covered include periods with a mostly unobstructed view (from previous harvest until June) and a period when the extensive areas with corn already have reached heights that would not even allow people to look beyond (from June until harvest in fall) (figure 4).
Furthermore, it has to be noted that after harvest the remains on the arable farm land do not look particularly aesthetic either (figure 4a). This temporal distinction allows the detection of possible seasonal variability in the tourists’ perception of the landscape of Eiderstedt.

4 Results

The continuous survey, which was conducted from early June 2009 until the end of October 2009, yielded a total of \( n = 146 \) returned questionnaires by the tourists. This return rate was much lower than initially anticipated. While this number is by no means representative for the entirety of tourists visiting the peninsula, it is already a useful preliminary indicator about the severity of the ongoing expansion of corn production on Eiderstedt in the eyes of the visitors. Furthermore, it has to be noted that the number of returned questionnaires was very unevenly distributed among the different locations at which they were placed. This introduces a certain bias and indicates that people who visit certain locations, e.g. the NABU Station Katinger Watt and the Schutzstation Wattenmeer at the lighthouse in Westerhever, where the number of returned questionnaires was particularly high, may have been more aware of the issues they were asked about and were thus more willing to respond by completing the questionnaire.

Table 1: Dominant characteristics of tourists visiting the Eiderstedt peninsula.

<table>
<thead>
<tr>
<th>Key traits of visitors to Eiderstedt</th>
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<tbody>
<tr>
<td>couples aged 30-49 and families with children aged 6-12</td>
</tr>
<tr>
<td>return visitors: many tourists travel to Eiderstedt for many years in a row</td>
</tr>
<tr>
<td>tourists that are financially well off: the average amount of money spent is considerably higher than in Schleswig-Holstein in general</td>
</tr>
<tr>
<td>dominant destination: Bad St. Peter-Ording</td>
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<tr>
<td>dominant kind of accommodation: vacation homes</td>
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<tr>
<td>length of stay: at least one week, often even two weeks</td>
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<tr>
<td>origin: mainly other western federal states of Germany, only very few visitors from the eastern part of Germany, hardly any tourist from abroad</td>
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The initial section of the questionnaire deals with the technical aspects of the tourists’ visit to Eiderstedt. This allows inferences about the most important characteristics of the people visiting the peninsula (Tab. 1). While tourists of all age groups travel to Eiderstedt, there is a slight majority of couples between 30 and 50 years of age among the visitors of Eiderstedt who usually take their young children along. What is really striking is that tourists who spend their vacation on Eiderstedt usually return consistently. A significant number of people who answered the questionnaire stated that they already visited the peninsula for more than 20 times. Obviously, these visitors not only have a clear
preference profile but also the possibility to make long-term comparisons with regard to changes occurring at their holiday destination.

A promising indicator in economic terms is that tourists visiting Eiderstedt usually spend considerably more money while staying on the peninsula than the average visitor to Schleswig-Holstein in general (Tab. 1). Because of the large base of regularly returning visitors this gives local actors in the tourist industry a fairly stable basis for planning their operations, particularly since tourists usually spend much more than a week on Eiderstedt, enough time to combine an extensive experience of nature with activities at the beach.

Figure 5: Reasons for spending a holiday on the Eiderstedt peninsula.

Nature itself and the experience of it are extremely important for tourists traveling to Eiderstedt (figure 5). Of course, when tourists want to visit a coastal region, beaches play the prime role in their considerations. And, as expected, this is also the case in Eiderstedt. The extensive beaches near Bad St. Peter-Ording attract vast numbers of tourists and are the main asset of this region in the competition of the tourist industry of the west coast of Schleswig-Holstein. But the natural experience is not limited to the direct coastal zone, as the attractiveness of the landscape, which generally refers to the hinterland, is also among the most important reasons for holiday guests when deciding to travel to Eiderstedt. In conjunction with good climatic conditions this highlights the clear preference of visitors for a profound experience of nature. It is remarkable that it appears less important in this context that the environment is intact. Other reasons besides those connected to the environment, which usually often play an important role in holiday decisions, such as opportunities for leisure and cheap and particularly child-friendly offers are of secondary importance in connection with Eiderstedt.
The outdoor experience of Eiderstedt that guests seek during their stay on the peninsula is reflected in their activities. Most visitors go to the beach and spend considerable time of their vacation on Eiderstedt there (figure 6). This is particularly true for those guests who visit Eiderstedt in summer, when beach activities are the by far dominant kind of activity. Short excursions and hiking are activities that are more evenly distributed over the seasons and overall turn out to be of similar importance as the activities at the beach. Biking appears to be somewhat less popular than hiking, which is an interesting side note since there are quite substantial distances to cover when trying to get around the Eiderstedt peninsula and the infrastructure is well developed to deal with large numbers of bike riders each season. Nonetheless, this still makes up half of the people who completed the questionnaire.

![Figure 6: Activities of tourists during their stay on Eiderstedt.](image)

In contrast, the cultural experience of Eiderstedt is of lesser importance than nature. Unlike shopping and dining, which are important activities in all holiday trips to destinations in Schleswig-Holstein and are a main source of revenue generated from tourism on Eiderstedt as well, indoor activities and those related directly to cultural events are sought by only a minority of the visitors to the peninsula (figure 6). However, the economic importance of such activities should not be neglected.

As nature and its experience are central aspects of vacation on Eiderstedt, the perception of the appearance of the landscape of the peninsula are of central importance. If the image of nature on Eiderstedt is negatively affected by large scale changes in land use, this in turn is likely to influence the decision of the majority of potential visitors to the peninsula to at least some degree.
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The most important characteristic of the appearance of the landscape of Eiderstedt is that it is spacious (figure 7). Tourists cherish the unobstructed view in conjunction with the flatness of the entire region, which they consider to be very attractive. Many visitors also regard the natural appearance of the landscape to be in an intact state. This is quite important, as only very few guests find that the landscape is negatively affected by human cultivation.

In this context, it is remarkable that the majority of the visitors to Eiderstedt think of the landscape on the peninsula as a natural environment. When asked how they would rate the appearance of the landscape on a scale from 1 (very artificially altered) to 10 (very natural), the average ranking was 6.53. The median (8) was even higher. This shows that tourists consider Eiderstedt to be a very natural environment, a perception that is fueled by the extensive grasslands and the enormous number of birds that can be readily observed on the peninsula. However, in reality the entire landscape is substantially affected by human activities as coastal protection and traditional agricultural activities over the past centuries have formed the landscape to make it what it is today. Nonetheless, the anthropogenically formed landscape of Eiderstedt is found to be aesthetically pleasing enough for many tourists to visit this region when seeking an extensive experience of nature.

But not all human activities on the Eiderstedt peninsula are in sync with the image of a natural environment. There are numerous ways anthropogenic land use interferes with the environment in such a way that it negatively affects the tourists’ perception of their destination. Visitors of Eiderstedt have noted quite a number of such distractions in landscape integrity. Single wind energy converters and wind parks are the most widely observed obstructions (figure 8). Another commonly noted nuisance is the large number of parked cars. It is very likely that this is directly related to the fact that it is allowed to access parts of the beaches of Bad St. Peter-Ording by car. Among the effects on the environment that are more related to ecology, many tourists have noted that nature reserves allow only limited human access and that the peninsula is heavily used by agriculture. In this context it is important to consider that noticing these facts does not automatically mean they are found to be negative per se.
Consequently, while the latter two effects may have been widely noticed, they hardly have an implication on the tourists’ choice of Eiderstedt as destination. Only a small number of guests think of intensive agriculture as a critical negative impact on the landscape and even fewer would prefer not to travel to Eiderstedt again for this reason (figure 8). The construction of fermentation plants used for bioenergy production that is the reason for the recent conversion of grassland to arable farm land is actually considered to be the least important distraction in the landscape of Eiderstedt among the ones listed in the questionnaire. But this connection seems to be little-known to the visitors and the fermentation plants themselves are not very noticeable and obstructive in the landscape anyway.

Instead, massive power plants and inappropriate architecture are of much greater concern to the tourists (figure 8). While landfills and large industrial buildings would be a strong reason for visitors to turn away from this destination, these hardly occur on Eiderstedt. Skyscrapers and perceived architectural sins are of much greater importance in this region but they are also limited to the more urban areas of Eiderstedt, which is mainly Bad St. Peter-Ording, and thus cannot be considered a general threat to the viability of tourism on the peninsula.

Eiderstedt is generally considered by tourists to be a fairly natural environment that is well suited as holiday destination. However, touristic infrastructure needs to be maintained and continuously developed further in the constant competition with other destinations of similar characteristics. If tourists had to contribute financially to such measures, they would be most willing to support
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ecological projects such as bird conservation and the UNESCO world natural heritage (figure 9). Other also fairly popular measures are related to the cultivation and the preservation of the appearance of the landscape.

In contrast, tourists are hardly willing to contribute to further development of infrastructure. Not only is the number of people resisting such a payment greatest for this kind of project but also the average amount that visitors are willing to spend is by far lowest. This supports the notion of a particular affinity to nature of tourists that spend their vacation on the Eiderstedt peninsula.

Figure 9: Willingness of tourists to pay for particular development projects on the peninsula.

5 Discussion and conclusion

Agricultural land use changes on the Eiderstedt peninsula have prompted a large scale conversion of grassland to arable farm land for corn production in recent years. This change has a profound impact on the appearance of the landscape as the growing of corn leads to seasonal obstructions of the view across the spacious environment.

Tourists visiting the peninsula do so because of the extensive experience of nature they can find here. An intact environment is very important for the majority of them. In order to determine whether the occurring changes in agricultural land use have a possible influence on the travel behavior of the guests of Eiderstedt, visitors were able to state their perceptions about the aesthetic appearance of the landscape of the peninsula in a survey conducted in summer and fall of 2009.

The results of the survey indicate that while tourists are generally aware of the ongoing changes in land use, they do not consider this to be a problem that affects their choice whether to return to Eiderstedt again in the future. Critical distractions that are more likely to cause tourists to visit a different destination instead during a future vacation rather include industrial buildings and
inappropriate architecture. These are, however, confined to only very few locations throughout the Eiderstedt peninsula, which makes it much easier to address these issues and to prevent them from becoming a real problem for tourism on Eiderstedt.

While these results point to increasing corn production as not being an issue that negatively affects the number of tourists who visit the Eiderstedt peninsula, they can only be considered an initial trend. In order to be more robust, a further survey with a much larger number of returned questionnaires needs to be conducted. Such a follow up is scheduled for the 2011 holiday seasons. It will be interesting to see, whether a more thorough elicitation of the tourists’ perception confirms the initial trends of this assessment.

6 Appendix: Questions of the German questionnaire used in the assessment

1. Bitte tragen Sie zunächst das heutige Datum ein:
2. Wo haben Sie diesen Fragebogen erhalten?
3. In welchem Ort verbringen Sie ihren Aufenthalt auf Eiderstedt?
4. Wie lange dauert der Aufenthalt hier auf Eiderstedt insgesamt?
5. In welcher Art von Unterkunft verbringen Sie derzeit Ihren Aufenthalt?
6. Zum wievielten Mal sind Sie hier auf Eiderstedt zu Gast?
7. Reisen Sie allein oder in Begleitung?
8. Wie hoch werden Ihre Ausgaben für Sie und Ihre Mitreisenden während Ihres Aufenthaltes ungefähr insgesamt sein?
9. Welches sind die fünf wichtigsten Gründe für Ihren Aufenthalt auf Eiderstedt?
10. Welche der folgenden Aktivitätsmöglichkeiten nutzen Sie während Ihres Aufenthaltes?
11. Würden Sie sich für einen Besuch von Informationszentren zu folgenden Themen interessieren?
12. Wie finden Sie das generelle Landschaftsbild auf Eiderstedt?
13. Was halten Sie für typisch im Eiderstedter Landschaftsbild?
14. Gibt es etwas, das Eiderstedt in Ihren Augen einzigartig macht?
15. Welche Landnutzung dominiert Ihrer Meinung nach im Landschaftsbild von Eiderstedt?
16. Welche Landnutzung dominiert in Ihrer Heimatregion?
17. Es scheint nicht einfach zu sein, eine „unberührte“ Urlaubslandschaft zu finden. Vielerorts gibt es mögliche Beeinträchtigungen des Landschaftsbildes. Bitte kreuzen Sie in jeder Zeile jeweils in allen drei Spalten an:
   Welche der nachfolgend genannten Dinge sind Ihnen auf Eiderstedt bereits aufgefallen?
   Welche dieser Dinge würden für Sie das Landschaftsbild im Urlaub empfindlich stören?
   Welche dieser Landschaftsmerkmale auf Eiderstedt würden dazu führen, dass Sie dort nicht mehr für einen Urlaubsaufenthalt hinfahren mögen?
18. Für wie natürlich halten Sie das Eiderstedter Landschaftsbild auf einer Skala von 1 (sehr stark vom Menschen verändert) bis 10 (sehr natürlich)?
19. Für welche der folgenden regionalpolitischen Entwicklungsmaßnahmen auf Eiderstedt wären Sie bereit, einen finanziellen Beitrag in Form von z.B. Gebühren oder Abgaben zu leisten? Wie viel würden Sie gegebenenfalls bereit sein, pro Urlaubstag dafür auszuzahlen?
20. Wenn Sie bereits mehrfach Eiderstedt besucht haben: Konnten Sie Veränderungen im Landschaftsbild beobachten? Wenn ja, welche?

Abschließend möchten wir Sie bitten, noch einige Angaben zu Ihrer Person zu machen.

Alter:
Geschlecht:
In welchem Land / deutschen Bundesland haben Sie Ihren Wohnsitz?
References


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