

Determining different needs of user groups in the Tannermoor in Upper Austria concerning the matter of nature-based tourism

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Master Thesis



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Determining different needs of user groups in the Tannermoor in upper Austria concerning the matter of nature-based tourism

submitted by

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Additionally, I am happy to write about the topic of Tannermoor in the context of a touristic analyzation. Because of my background, psychology and environmental management & sustainability communication, I really enjoyed researching about this topic. This master thesis is the connection between both scientific fields and creates an environmental-sociology study. Especially, I want to thank Vici for her mental support and helping me with the entry of the data of the questionnaire. Furthermore, I am grateful for my boyfriend giving me input to the infographics and visual elements and of course I want to thank my other friends for their support.

Abstract

Recently the topic of nature-based tourism and the connection to various needs and motivations of the visitors of nature-based sites has become more important. The goal of the thesis is to find out if there are any differences in the behaviour of the users of the Tannermoor, concerning their motives to go there, which aspects they value, which offers they prefer and if they have a different view of bogs. Data was collected by conducting a survey with the visitors of the Tannermoor and the data was analysed by using SPSS and R. Around 363 people participated in the questionnaire, which is representative for the region of Liebenau. Main results reveal that various users had different needs and opinions. Users were grouped in locals, day tourists and tourists. Furthermore, it was essential by whom the person was accompanied to the Tannermoor in order to get to know their desires. For locals the social aspect was an essential motive to go to the Tannermoor, whereas the day tourists preferred motives related to the nature. Undoubtedly, they were concerned by different offers, locals thought that snacks and drinks, sanitary facilities and a playground were important, while day tourists wanted to have a regulated parking lot, additionally tourists were more focused on the educational experiences. Orientation and losing one's way were issues locals were concerned with, protecting the bog played a huge role for both locals and day tourists and tourists as well as day tourists didn't know if the oceans could take up and save more CO₂ than bogs. Visiting the Tannermoor with friends, family relatives and the partner the social aspect was in the foreground, whereby families with kids and friends found the nature motives interesting and peace and quiet were important when going alone. Educational and infrastructural offers were important for visiting with the partner, families with kids wished for a playground and food. Being with friends they viewed the bog as important for climate protection, protection of habitats. Answers differed between people from the countryside and people from the city. Higher educational background led to more interest in educational offers.

Through market segmentation offers can be made specifically for the needs of the different user groups. It is important to consider the inputs of the participants and their wishes. A good cooperation and participation of the locals can lead to a positive view of the bog and the measures undertaken.

Keywords: nature-based tourism, motives, needs, segmentation, peatland, bogs

Kurzfassung

Erst kürzlich ist das Thema des natur-basierten Tourismus im Zusammenhang mit den Wünschen und Bedürfnissen von Nutzern wichtiger geworden. Das Ziel dieser Arbeit war herauszufinden, ob es Unterschiede im Verhalten der Nutzer vom Tannermoor gibt, in Bezug auf ihre Motivation ins Tannermoor zu kommen, Aspekte, die wertgeschätzt werden, welche Angebote sie bevorzugen und ob sie eine unterschiedliche Ansicht des Moores haben. Daten wurden durch eine Umfrage der Besucher des Tannermoores erhoben und wurde statistisch ausgewertet. Ungefähr 363 Leute machten bei der Studie mit, welche repräsentativ für die Region Liebenau ist. Wesentliche Ergebnisse zeigen, dass es einen signifikanten Unterschied zwischen den Nutzgruppen gibt. Die Nutzer wurden in Einheimische, Tagesausflügler und Urlauber eingeteilt. Weiters war wichtig mit wem sie unterwegs waren, um ihre Bedürfnisse zu erkennen. Soziale Interaktion war für die Einheimischen ein wichtiges Motiv, wobei die Tagesausflügler mehr naturverbunden waren. Essen, Toiletten und Spielplätze waren für die Einheimischen von Bedeutung, die Tagestouristen wollten einen regulierten Parkplatz, Urlauber waren mehr auf das Informationsangebot fixiert. Die Orientierung zu verlieren, stand im Vordergrund für die Einheimischen, die Einheimischen und Tagestouristen fanden den Aspekt das Moor zu schützen essenziell und Touristen und Tagestouristen wussten nicht Bescheid, ob das Meer mehr Co2 speichern und aufnehmen kann als das Moor. Wenn das Tannermoor mit Freunden, der Familie, Verwandten und mit dem Partner besucht wurde, war die soziale Interaktion besonders wichtig, wobei Familien mit Kindern und Freunde die Beweggründe, die Natur betreffend interessant fanden, Alleine war die Ruhe und Stille wichtig. Informationsangebote, als auch Infrastrukturelle Angebote waren für Leute mit Partner wichtig, Familien mit Kindern wünschten sich jedoch einen Spielplatz und Essen. Mit Freunden sah man das Moor als schützenswert für das Klima, als auch als Habitat für Tiere und Pflanzen. Es gab unterschiedliche Antworten bezüglich Herkunft der Personen. Höhere Ausbildung führte zu vermehrtem Interesse an Informationsangeboten.

Durch Marktsegmentierung können Angebote spezifisch auf die jeweilige Benutzergruppe zugeschnitten werden. Es ist sehr wichtig die Vorschläge und Wünsche der Partizipierenden zu respektieren. Eine gute Kooperation und Partizipation der Einheimischen können zu einem positiveren Bild des Moores und den dort ausgeführten Maßnahmen führen.

Schlüsselwörter: Natur-basierter Tourismus, Motive, Bedürfnisse, Segmentierung, Moor

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Climate change is a hot topic and global warming has both affected peatlands but also risen their relevance for climate change mitigation (Nathe et al. 2017, Heuchele et al. 2014, Bullock et al. 2012). Peatlands are very fragile ecosystems susceptible to changes in climate and pollution (Alberta Wetland Classification System 2015, Yang et al. 2017). Due to the rising temperatures not only the hydrology of the bogs but also their biodiversity is affected (Heuchele et al. 2014). In terms of deterioration, they even increase the negative impacts on climate change itself. Globally, Peatlands cover 4 million km² of the earth and can store up to 600 Pg, worldwide (Yang et al. 2017), which is around one third of the carbon stocks (Harenda 2018). Consequently, peatlands or bogs, can take up more CO₂ than the ocean or other environmental media (Bundesministerium für Bildung und Forschung 2021, NDR 2020). But the problem is that degenerated peatlands emit huge amounts of CO₂ (Krisai & Schmidt 1983). By restoring their function as CO₂ storage and habitat for endangered and rare species and plants, this problem can be solved (Umweltbundesamt 2022, Kozulin et al. 2018). Around 100.000 ha in Austria are protected (national parks, individual protected parts of the landscape, protected areas including nature parks, natural areas and Natura 2000 or rather European protected areas). All in all, around 8% of the landscape in upper Austria are under protection. there are no more bog areas which are undisturbed in upper Austria (Krisai and Schmidt 1983) and the bogs in Austria are in critical condition, stating that 90% of the bogs are not in their natural state anymore (Holler 2022). One of them is the Tannermoor in Upper Austria, which belongs to the European protected areas which have a special conservation status (Land Oberösterreich 2022). The condition of the Tannermoor is in the core focus of this master thesis. A project supported by Interreg wants to restore the Tannermoor as much as possible to be in the original state again by rewetting the bog.

Tourism and recreation can support the acceptance of nature conservation activities (Lee & Jan 2019, Demir et al. 2016, Korolkova & Mironova 2015). Also, in the case of the Tannermoor, promotion of the area as nature-based jewel, is a goal of the transnational project. To fulfil this aim the regional development organizations want to offer new attractions to the visitors (rmooe 2022, at-cz.eu 2022). In order to explore more details about potential future visitors this master thesis undertook a segmentation analysis. Motivations for visiting the Tannermoor but also perceptions of nature conservation activities and other information were compiled. Market segmentation has been used since a few years already, the topic of nature-based

tourism/ ecotourism and the behaviour or psychographics of the customers are researched increasingly in the last decade (Konu & Kajala 2012, Benabad et al. 2017, Arias-Garcia et al. 2016, Marwijk et al. 2012). Psycho-social segmentation was implemented, activities, motivations, but also aspects and offers and their view of the bog in the Tannermoor in Upper Austria were queried. It is important to study the needs and desires of the customers in order to create an experience which is suitable for tourists, day tourists and locals (Konu & Kajala 2012). Behaviour can be influenced by the motivations and personality traits of the person (Pearce 2005, Van Marwijk et al. 2016, Benabad et al. 2017). Initially, the idea of exploring the attitudes and perceptions of the visitors of Tannermoor popped up in the context of the implementation of a nature-based tourism approach in the region of Liebenau. The main research question concerned the differentiation of various visitors of the Tannermoor in their main motives to visit the Tannermoor and their preferred activities, as well as aspects, offers and their view on the bog. This leads to the research question of this thesis: Do different users of the Tannermoor have different needs and wishes and can certain aspects of the nature-based tourism concept be adjusted to the desires of the users? It is interesting to find out if the view of the various customers would differ in how they saw the bog. Did they pay attention to the same aspects of nature in the context of the bog or were there significant distinctions which could be drawn from the results? These questions will be answered in the consequent sections. In the first part of the master thesis the research problem plus the hypotheses will be discussed, the second part provides an overview of the state of the art and gives explanations about the basics of bogs, ecotourism/ nature-based tourism and the motivations of visitors. Furthermore, the third part will address the methods and explain the study design, the description of the study site and the goals of the interreg project. In the fourth part the results will be displayed, the fifth part discusses the results. Lastly, the sixth and seventh part will conclude the master thesis and propose recommendations how managers of nature-based sites, especially bogs can implement a holistic approach.



Figure 1 Tannermoor, Jacqueline Wilfer

2.1. GENERAL OVERVIEW OF THE PEATLANDS

Over half of the wetlands are bogs and they cover approximately 3% of the earth. According to Harenda (2018) peatland can take up to one third of the carbon stocks of the worldwide emissions. This argument is stated by Steiner (2005) who also adds that around 40 to 70 million tons of carbon can be captured per year. Referring to the Austrian peatlands, that are still intact, around 30 million tonnes of carbon can be stored per year, which overcompensate for the carbon Austria is emitting (Holler 2022). Yang et al. (2017) enounces the usefulness of the peatlands acting as C pools, which stretch over four million km² and can save up to 600 Pg worldwide.

Firstly, when determining the word bog, the more general terminology must be explained. To begin with, peatlands, mires or bogs are not that easy to define. The definition depends on the current events (Pöstinger 2007), scientific discipline, and the country (Steiner 2005). It could also be said that differing interests define the terms (Lindsay et al. 2014). In the UK the German word "Moor" is defined as peatland but without the vegetation, which is typical for a peatland, whereas in England it is called a mire (Steiner 2005). Mires are used as general term of wetlands supporting peat-forming vegetation (Joosten & Clarke 2002) of nature-based and semi-nature-based forms of natural environments. Ombrotrophic mires are also referred to as bogs, whereby ombros is greek and means storm of rain and trophos is the feeder (Lindsay

2016). This means, that the bog is solely depending on atmospheric precipitation (Lindsay 1995). According to the Intergovernmental Panel on Climate Change (2014) a bog is defined as an area which is covered by organic soil no matter how it is used. Surfaces which are used for agriculture or forestry, are still classified as bogs, when the certain organic material is present. In the paper the Wise Use of Mires and Peatlands (2002): *“A peatland is an area with or without vegetation with a naturally accumulated peat layer at the surface.”* *“A mire is a peatland where peat is currently formed.”* Concerning the latter explanation, it is quite difficult to find out if peat is actually forming currently (Lindsay et al. 2014).

Furthermore, there are more requirements defining a bog. Firstly, there must be a minimum height to be referenced to as bog. The minimum depth varies across different nations. In the German scientific literature DIN 4047 stipulates a bog must be at least of 20 cm height, Schreiber (1927) determines it is a bog with the minimal height of 50 cm. In *“Die Moore Oberösterreichs”*, Krisai & Schmidt (1983) also use the minimum height of 0,5 metres. More recently, Lindsay (2014), a researcher from the UK, specifies that ecology experts use a minimum height of peat at around 30 cm although geologists prefer using a depth of one metre.

As a matter of fact, the accumulation of a bog takes a long period of time, and the bog can grow 0.5 to 1 mm per year (Lindsay et al. 2014). When the production of the plant material is higher than the decomposition of plants, peat can be built up. When peat comes in touch with air, it decays faster than it can build up. Therefore, peatlands need to be saturated with water all the time (Couwenberg 2020). The typical depth of peat in a bog can be up to 10 metres, which accumulated over ten-thousands of years (Lindsay et al. 2014). So, the bog acts as an archive where pollen can tell us a story of which plant communities were dominant in different times of history over thousands of years (Pöstinger 2007, Bortenschlager 1961, Krisai & Schmidt 1983, Lindsay et al. 2014, Lindsay 2010).

Secondly, the hydrology is of a high importance concerning a peat bog (Pöstinger 2007, Lindsay 1995). Concerning the different amount of water which is available and the hydrological characteristics of the bog, they can develop differently. Therefore, peatlands are also classified due to their hydrological regime. Generally, depending on the water supply, a specialized flora and nutrient ratio will evolve (Succow 1986). Which implies that the climate and landform have a strong impact on the bogs (Lindsay 2010). Overall, peatlands are waterlogged all year, the water balance almost being constantly the same (IUCN 2021,

Couwenberg 2020). This happens, because of the self-regulating mechanism of the bog, taking up huge amounts of water and retaining water, only slowly letting the water flow back (Lindsay 2016, Couwenberg 2020).

Thirdly, the vegetation typically of a bog mostly consists of seldom and rare plants and species, a lot of them are endangered (Lindsay 2010). There are several forms, as example bogs which are wooded coniferous, shrubby or graminoid (Alberta Environment and Sustainable Resource Development =ESRD 2015). The facts that the bog is almost devoid of any nutrients and hence acidic, makes it hard for various plants to grow there (Lindsay et al. 2014, Schröck 2019). This is a result of the waterlogged conditions in the bog. Furthermore, the plant material only slowly decomposes, because of the lack of oxygen and low temperatures and sparsely any activity of microbes. Therefore, Sphagnum and cotton grasses dominate the wetland ecosystem of a bog (Krisai & Schmidt 1983, Spektrum Lexikon Geographie 2022, Lindsay et al. 2014). Being highly resilient to decay and being sterile are certain qualities of the specialized plant Sphagnum. Additionally, it plays a major role in the hydrological sense (Lindsay et al. 2014, Couwenberg 2020). Indeed, it can take up to 10 to 20 times their volume of water (Sokoloff 2003). The plant is also highly dependent on climatic conditions but is more resistant than most other plant communities (Lindsay 2016). When the climatic conditions shift, Sphagnum can adapt to the change, which makes it a long-lasting and very continuous ecosystem. Dry periods cause different species of peat moss to develop which can survive better under these terms (Couwenberg 2020).

Fourthly and fifthly, chemical gradients as well as soil characteristics help to distinguish between the different forms, classes and types of wetlands (Alberta Wetland Classification System 2015). To sum up the facts, not only vegetation should be considered but additionally soil properties and the hydrological state should be checked (Pöstinger 2007).

As aforementioned, peatlands have an unusual feature to filter water, furthermore bogs are also a very important carbon storage and contribute to the climate protection (Schröck 2019). Generally, Peatland areas are essential when it comes to providing a variety of ecosystem services (Schröck 2019, Lindsay et al. 2014). Carbon storage, as well as water supply, reduction of flooding and sequestration are a few of the benefits for humanity, however this can only happen when bogs are recognized appropriately and handled correctly (Lindsay et al. 2014). Lindsay (1995) describes six functions which influence our society positively as following:

“Biological indicators, peat chemistry, hydrological cycle, local climate, water quality and atmospheric carbon cycle.” On the subject of biological indicators, peat bogs play a huge role by displaying changes due to the climate or pollution. Factors which influence wetland processes are climate, landscape, surface and subsurface hydrogeology (Alberta Wetland Classification System 2015). These aspects affect the hydrological regime, biochemical processes and biotic reaction as example competition and biological production. The peat chemistry is not yet investigated fully, right now it is used for health reasons, but in the future, it could also be used differently. The regional and local hydrological cycle is influenced by the occurrence of the bog, playing an important role in the run-off and supply nearby areas with water (Schröck 2019, Lindsay 1995). Besides, sub-soil scouring, and erosion can be reduced. Another positive impact of the bog is the release of water vapour which cools down the local climate and creates more stable temperatures. Especially now, when the temperature on earth is increasing, the ecosystem of a bog is highly essential. Furthermore, bogs are of huge concern when looking at the diversity of species. The special condition for the flora and fauna makes it possible for approximately 1000 species of fungus to grow there (Holler 2022). On the subject of atmospheric carbon cycle, there are more facts to consider. Through the formation of peat atmospheric carbon is locked up as fossil carbon. Around a third of the worldwide emissions can be stored in peatlands (Harenda 2018). But when the peatlands are not intact, a huge amount of carbon can be released. Several things pose a threat in keeping the complex system of these valuable habitats intact. Looking at specific examples, such as the Tannermoor, we can survey these conditions concretely. Drainage is one of these problems, which affected the Tannermoor strongly, conversion of landscape by cutting mountain pines and the Tannermoor becoming more known, this leading to more tourism are other impacting factors (Krisai & Schmidt 1983).

2.2. ECOTOURISM / NATURE-BASED TOURISM & THE ROLE OF BEHAVIOUR

While tourism is a driver of change and also affecting the natural conditions where it takes place (Heuchele et al. 2014), new forms of tourism have emerged in the last decades as well, as for example ecotourism, nature-based tourism or sustainable tourism (Demir et al.2016). Especially in the context of wetlands & bogs, the development of a sustainable nature-based tourism keeping the nature conservation goals in mind is of high importance to sustain the further longevity of the bog (Demir et al. 2016). Ecotourism as a form of tourism which can

help protect nature and endangered species could be an additional source to enhance conservation goals. Ecotourism consists of a sustainable way of tourism that treats the environment properly and takes action to protect ecosystems and establish an added value for the locals (Lopez-Espinosa 2002). According to the most recent definition of the international ecotourism society, the preservation of nature and social aspects are of high importance. Also stating that the way of getting to the destination is important (Grenier 2022) as well as creating benefits of the learning experience of people (Klitsounova 2019, Heuchele et al. 2014). Espinosa (2002) mentions benefits for the protected areas, by getting money to invest in these threatened areas. When people receive economical gains from nature and endangered habitats, this can alter their perception towards the nature-based area and encourages them to be more aware of environmental topics. Ecotourism can be described as a form of tourism that acts in a safe way, meaning that it tries their best to counteract or reduce negative impacts on the environment and creates benefits for the habitats as well as the local population.

To sum up a modern definition of both ecotourism and nature-based tourism should include sustainable travelling, acting in a mindful, non-destructive way towards the environment, offering the locals benefits and providing opportunities to learn something new (Klitsounova 2019, Lee & Jan 2017). Learning and getting to know about the special conditions and the value of natural habitats increases also the chance of a respectful handling of them. How people perceive protected areas matters, because of the way they will treat them (Jan & Lee 2019, Konu & Kajala 2012). Being more familiar with the surroundings leads to an increased feeling of needing to conserve and protect the nature-based site (Heuchele et al. 2014, Puhakka et al. 2017). Slabbert & Viviers (2014) are of the opinion that locals get accustomed to the beauty of the environment and no longer pay attention to it, making social contact more important for them. Moreover, Flint & Jennings (2022) found that residents have a certain attachment to the place and value the place more, in the context of ecosystem services provided and leisure. Jan & Lee (2019) made a connection between the environmental behavior and attitudes and the visitors of preserved areas. If the people display a pro-environmental attitude this can enhance to pursue the goals of the nature-based site (Jan & Lee 2019, Grenier 2022, Hassan 2017). Moreover, customers can take the initiative and reduce their impact on the environment, on top of increasing the awareness towards the regional

nature-based places and residents (Yasir 2020, Grenier 2022, Hassan 2017). Learning about the bog and getting information helped to increase the understanding how the ecosystems work (Demir et al. 2016, Sugarporn Chai-Arayalert 2020). By receiving an emotional response, deeper connections can be created. Furthermore, integrating stakeholders facilitates an atmosphere where different opinions are valued and are respected (Lupp & Konold 2008, Lintzmeyer & Siegriste 2008, Kurniasari 2019). According to Benabad et al. (2021) different types of travelers have divergent needs. In the study they classified the travellers into three different categories as follows: Nature wonderers, Lindberg (1971) groups the customers into four classes: *“Hardcore nature tourists, dedicated nature tourists, mainstream nature tourists and casual nature tourists.”*

Further studies have also explored the motivations & needs and different activities of users, as well as how they perceive the environment. Generally, the features of nature and the relaxation in nature were primary motives in Heuchele's (2010) research. Maulan's data (2006) finds that activities are the number one motivation, followed by the attractiveness of the landscape, the environment was of less concern to the visitors. Main motives of the research of Kurinasari (2019) revealed that experiencing nature and the view were of major motivators. Further motives were enjoying the peace and quiet. Yasir (2020) claims, that people can feel intrigued by being on their own in nature and appreciating the tranquillity there. Navratil et al. (2011) concedes that a peaceful and calm environment is what people wish for when visiting preserved regions. Additionally, Sowinska et al. (2019) assumes that peace and quiet are important when defining landscape qualities. A limited number of tourists help to keep up the serenity of the place and attracts people to go to these relaxing places (Flint & Jenner 2022). The same opinion is shared by Heuchele et al. (2014) who states that the more people visit the region, the more potential of disturbance. According to Handlechner (2010) locations which are preferred to have less traffic, quiet environment, natural and cultural landscapes and a healthy environment.

Furthermore, Lee & Jan (2019) found that the perception of the residents was relevant when implementing a new approach, in their case it was a community-based tourism concept (CBT), which can be compared to natural-based tourism. Moreover, if residents are involved in co-creating a new design and additionally have a positive attitude towards the plan, this makes it easier to implement a new strategy (Lee & Jan 2019, Abdulkarim et al. 2017). The same goes

for Van Marwijk et al. (2012), they also wanted to test if the perception of hikers would be positive after restoration of the bog & wet forest community.

Also, Genier (2022) underlines the importance of supporting the different demands of the population visiting sustainable sites. Intervention in nature when implementing nature-based tourism. A lot of sites get more attention and more frequent visitors, which damages the vegetation. Ecotourism should enable a kind of equal for both, rewetting and restoring the bog are not always interventions that people favor, because they don't like change. But why does it matter? Education can help to improve the knowledge of people and create a positive attitude. The component of learning plays an essential role and can affect the behavior of the visitors, depending on what they can derive from their experience. Notably, when a positive learning impact is made the environmental attitude can be built up, leading to more awareness which can positively influence the nature-based site (Jan & Lee 2019, Pearce 2005). Also, people with a higher education and income from cities search for a natural experience (Handlechner 2010). Konu & Kajala (2012) are in line with this theory and claim that being eager to learn something and exploring new things spark the motivation in visitors of nature-based tourism sites. Furthermore, educational offers and the learning process can increase a positive attitude towards the nature (Jan & Lee 2019). Gonia & Jezierska-Thöle (2022) also acknowledge the fact that learning and the educational background are important. Moreover, Konu & Kajala (2012) discovered that the higher the educational level, the more people are also interested in going to nature-based places. The educational aspect is underlined by Slabbert & Viviers (2014), which can prognose that people are interested in the environment. As a matter of fact, visiting protected areas not only expands the horizon of people but also brings health aspects and well-being aspects to attention. Making an excursion into a nature-based site has a positive impact on the mental, physical and emotional health. Social interactions are encouraged by contact with nature and can create a feeling of community (Puhakka et al. 2017).

2.3. CONTEXT OF HYPOTHESES

Based on the literature research the impression formed that the individual behaviour of people, especially environmental behaviour could change the perception of individuals as well as their motivations to visit a nature-based location. Furthermore, it also mattered which "type" of customer visited the protected area. In the next step the hypotheses will be derived from the research based on the international literature. Benabad et al. (2016) wished to

understand why the travellers go to specific regions in Finland, they recorded the motives, needs and behaviour by doing online interviews, the procedure is similar to this master thesis. Concerning the first and partly the second hypothesis, Heuchele et al. (2014) think that there are correlations between a valuable nature and the preferred activities in nature & recreational places. According to Maulan (2006) different people like various types of nature based on their background, as example ethnicity, familiarity, and knowledge, as well as age, gender, education, community attachment, tourism planning and environmental sustainability (Jan & Lee 2019). These findings were used to formulate hypothesis one. In contrast, Konu & Kajala (2012) propose to understand the desires of groups and see if the wishes of the groups resemble with each other, rather than examining sex, age or education. Combining the approaches of Jan & Lee (2019) and Konu & Kajala (2012) made up the second hypothesis. Kaplan & Kaplan (1989) researched that people tend to have different opinions of which environment they like depending on how well they know the surroundings. This will also be examined by hypothesis one and two. Maulan (2006) confirms this, by finding out that people have a higher preference for landscapes which are in the proximity of them. Furthermore, the outcome of Lee & Jan (2019) suggests that a pro-environmental behaviour can lead to more sustainable tourism, through different beliefs of the users (Hassan 2017). This part of Lee & Jan's research (2019) can be pinpointed in the second and third hypothesis. The second regarding the educational offers about the bog, as example information about the bog, a guided tour through the bog and educational trail/ theme trail, which can be seen as enthusiasm about the environment. And the third in reference to the educational background and the living environment. Wildlife and the environment in bogs are vital for the improvement of the resident's information about bogs and a place for leisure activities and regaining new energy (Arias-Garcia et. al. 2016). Another important topic which should be addressed is the higher the educational background and the living environment (origin) is, the more the perception of the moor will matter to the people (Lupp & Konold 2008). The peat bog will be higher valued concerning the contribution to limit the climate change and CO2 sequestration (Nath et al. 2017). This led to the formulation of the following hypotheses.

2.4. HYPOTHESES

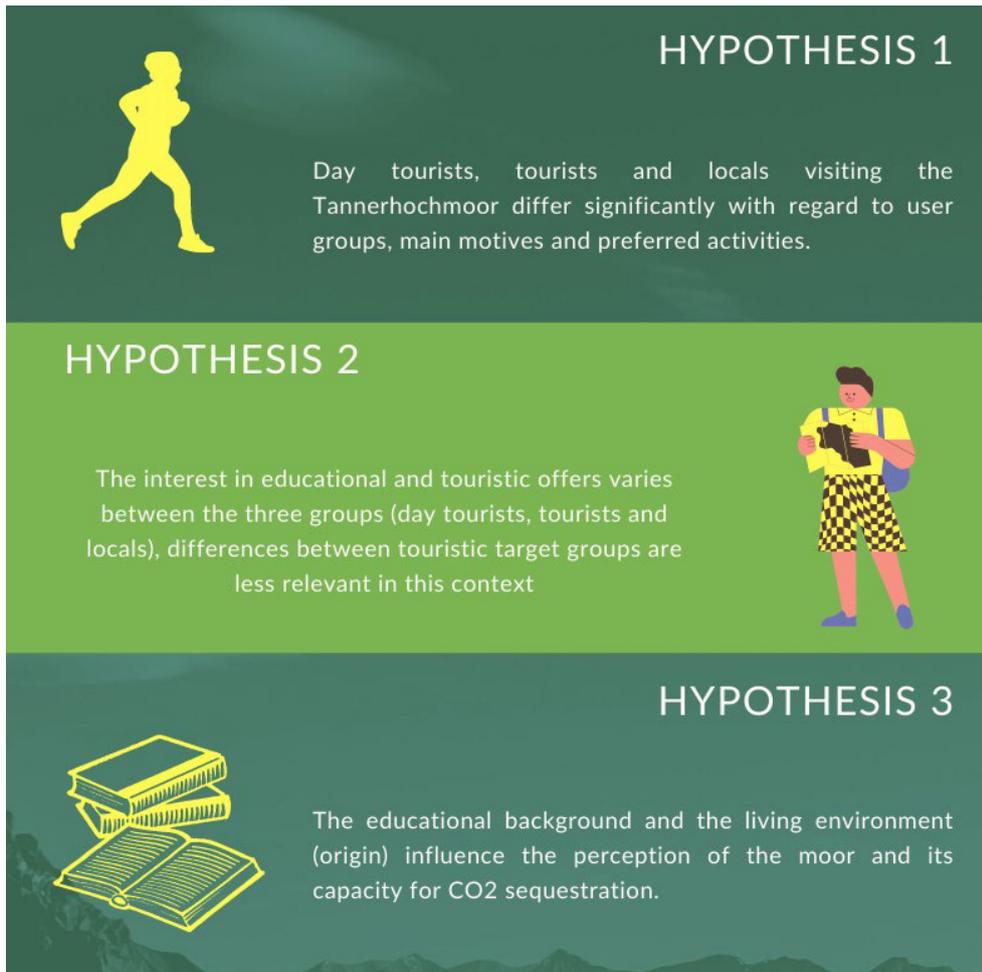


Figure 2 Hypotheses

Several Sub-Hypotheses were assumed. Regarding hypothesis 2, one sub-hypothesis was made.

2a Locals are more prone to need a higher variability in attractions at the Tannerhochmoor in order to visit the moor more often.

Hypothesis three has two sub-hypotheses, as follows.

3a There is a significant difference in the valuation of the peat bog depending on where people come from the countryside or the city.

3b There is a significant difference in the valuation of the peat bog depending on the educational background of people.

3. Methodological approach

3.1. STUDY DESIGN

In order to get good results, a mixed methods approach was used. Firstly, a literature review was conducted. Secondly, based on the literature research, a questionnaire was formulated, and a pre-test was run before the on-site survey was conducted. In the following these methodological approaches are described more in detail.

3.1.1. Literature research:

Literature was searched through the portals of Scopus, Google scholar and the Boku library. The papers were found by using a combination of the key terms: “value of the bog/moor/peatlands/wetlands”, “tourism”, “environmental value”, “educational background”, “behaviour”, “motivations”, “needs”, “activities”, “climate change”, “nature”, “locals & tourists”, “Tannerhochmoor”, “Co2” & similar search phrases.

3.1.2. Questionnaire:

The questionnaire was formulated based on different papers concerning the valuation of a peat bog or different kinds of landscapes from tourists. Various studies were taken as template to design new questions and statements which cover the topics of the general knowledge of a peat bog, needs and desires regarding the Tannermoor specifically, the environmental awareness and the demographics. One of the main papers on which the survey constitutes, is written by Maulan (2006) “A perceptual study of wetlands: Implications for wetland restoration in the urban areas in Malaysia”. The survey was adapted to specific aspects concerning the Tannermoor. Additionally, parts of Gonia & Jezierska-Thöle (2022) were taken out of the questionnaire concerning the perception of the fauna in the context of wetlands, in detail about animals in bogs and about the beauty of the landscape plus the tourism infrastructure & leisure activities (Manfredo & Driver 1996). Enjoying nature to view the scenery, to experience nature, family togetherness – to do something with the family, bring the family together, learning, exploration, sports, peace and quiet. Furthermore, Smardon’s research (1978) deals with the attractiveness of the landscape and he also has similar leisure motives for what reason people go to the wetland. In his case that was contemplating nature, watching wild animals, taking pictures, collecting berries or

mushrooms. More studies relating to the attractiveness of nature were by Sowinska et al (2019), Maulan (2006), Abdulkarim et al. (2017), Navratil et al. (2011), Gonia & Jezierska-Thöle (2022), Heuchele et al. (2014) and Bullock et al. (2012). Whereby, Sowinska et al (2019) added another dimension of peace & quiet, a diversified landscape which can be seen, and having a scenic view, which was also supplemented to the questionnaire in regard of the Tannermoor. Heuchele et al. (2014) indicates that there is a discrepancy in viewing landscapes between the general population and specialists. Variation in the landscape is central, otherwise the biological diversity can't be grasped by non-experts. Jan & Lee (2019) looked at the environmental features concerning the different users in the context of implementing community-based tourism. This facet was also taken up and modified. Besides, Abudulkarim et al. (2017) included environmental behaviour in peat swamp forests, as well as biodiversity, scenic beauty and wildlife. Four categories were used to determine the attitude towards the environment in Navratil's research (2011), as well as landscape aspects, these were taken into consideration and customized. The questionnaire was designed using latent variables, the participants' motives to visit the study site, perception of the Tannermoor and of bogs generally, the aspects of the Tannermoor, different offers of the Tannermoor and the environmental behaviour were included. Furthermore nature-specific questions were derived and adapted from Tansil et al. (2022).

The final questionnaire contained the following 5 sections:

Tannermoor – The section of the Tannermoor consisted of 7 items and was based on the findings of Maulan (2006), Gonia & Jezierska-Thöle (2022) and Manfredro & Driver (1996) Especially the questionnaire constructed by Maulan (2006) was taken as a template and was adapted accordingly to the specifics of the Tannermoor.

Bogs general – This section contained only 1 item which was a modified version of the questionnaire by Maulan (2006).

Nature affinity – The section contained 1 item which consisted of 7 statements and was adapted from the questionnaire from Jiricka-Pürerer et al. (2022). The statements were rephrased to a non-COVID context.

Environmental awareness – The section included 4 items and was based on own ideas as well as the revised New ecological paradigm or short NEP by Dunlap et al. (2000).

Demographics – The last section contained questions about the age, gender, postal code, education, salary, relationship status and current occupation.

Concerning different question formats there were open ended questions, as well as statements which could be rated with the five-point Likert scale ranging from “strongly agree, agree, disagree, strongly disagree and no answer/I don’t know”. The first seven questions are focused on the Tannermoor specifically, the subsequent question looks at the perception of the visitors on moors generally. Question 9 aims at getting to know how people value nature and green areas. The following 4 questions want to look at the environmental behaviour of the visitors of the Tannermoor, in the end the social demographics are queried. The first part covers the explanations of the frequencies of all the questions, after that the results of the further analysis will be undertaken, concerning cross-tables, chi-square and t-tests. Concerning the significance of the correlations the following applies: 0.1 shows a slight/small correlation, 0.3 is a medium/moderate correlation and above 0.6 is a high correlation.

3.2. CONDUCTION OF THE SURVEY

A pre-test was conducted in April and was reviewed by ten people of different backgrounds in order to optimize the understanding of the questions and statements. After the pre-test the questionnaire was redesigned due to the remarks, which were made. Starting date was end of April and the survey was undertaken and was closed end of June. The questionnaire was either filled out on the spot in Tannermoor or could be filled out online to better capture all kinds of different customers. Due to lack of internet access at the study site, none of the respondents filled out the survey via the online questionnaire. The survey proceeded directly at Tannermoor and the questionnaire was scheduled to sunny and dry weather in the area. Different days were selected, weekdays as well as weekends to be able to capture all various crowds of customers. All in all, three trips were made to the study site. In April the first journey was to check out the location and see where the best spots would be to question people. The second and the third trip lasted from Friday morning until Monday afternoon, in order to get the locals as well as the people on vacation or daytrips. The questionnaire took place in front of the snack bar “Moortreff”, which is situated right next to the parking lot and near the starting point of the route. 10 days were spent interviewing and questioning people at the Tannermoor in Liebenau. All in all, 366 completed surveys were obtained, a few questionnaires had to be excluded as they didn’t comply with the standards.

3.3. STUDY SITE

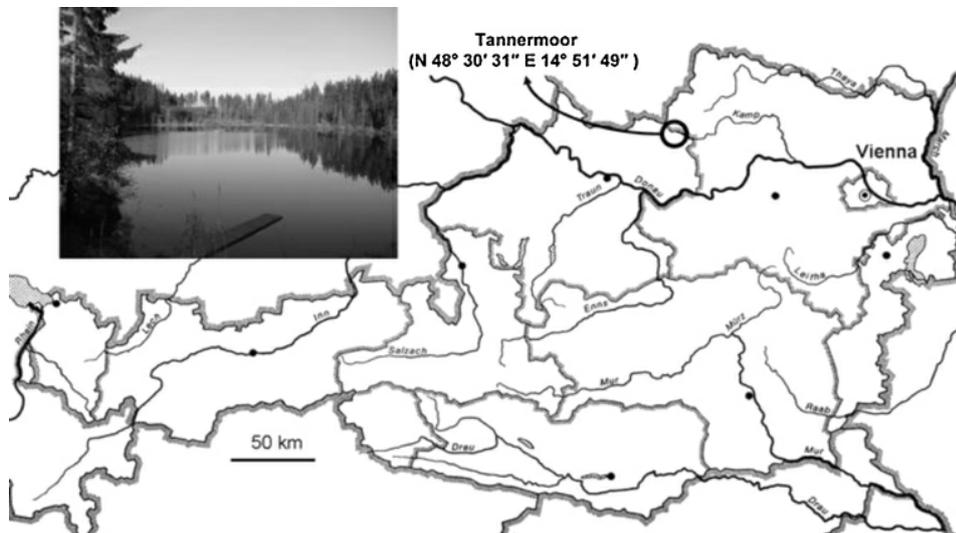


Figure 3 map is taken from: *Natural organic matter and iron export from the Tanner Moor, Austria 2013* Franz Jirsa, the black circle signals the location of the Tannermoor at the upper Austrian, lower Austrian border

3.3.1. Description of the Tannermoor:

The Tannermoor is situated in Liebenau in the county of Neustift in upper Austria near the lower Austrian border and Weinviertel (Fetzmann 1960). It is located at 930 metres above sea level and the climate is continental (Fetzmann 1960, Heiligenbrunner et. al. 2014, Bortenschlager 1969). The peat bog stretches over approximately 119 hectares, whereby 98 ha are covered with forest, more specifically mountain pines (Fetzmann 1960). The depth of the bog is approximately 7 metres (Bortenschlager 1969). The area consists of mostly mountain pines, but the peat bog is divided into 3 main areas: the mountain pines, the birch trees and the Heideboden. Within the area of the peat bog Tannermoor also lies the Rubnerteich, where swimming is allowed. The Tannerbach is a small spring from the high moor which has a darkbrown colour and it is also fed through the rain. The brown colour stems from the huminoacid which can be typically found in a peat bog (Sokolof 2003). You can also see ironbacteria, which glitter like oil. The interaction creates a brown foam, if the water floats over a barrier (Atteneder & Reindl 2016) There are several seldom animal and plant species which live and grow there. Besides the game, dax, foxes, weasel, pine marten, black grouse, wood grouse, moor owl, long-eared owl, wild duck, hawk and sparrow hawk live there (liebenau.at 2022). As well as the hazel grouse, pygmy owl, tengmalm's owl, black grouse and bog ground beetle (Dr. Sokoloff 2003). Generally, the moor is predominated by extreme

conditions, because there are not many minerals in the soil. The soil in the peat bog is quite sour, this only allows certain kinds of specialized plants to live/grow there (Sokoloff 2003). Rare plant species which can be found in the region are cotton grass, common sundew, bog bilberry, pinus mungo, pinus rotundata, cranberries, blueberries and wild rosemary. The latter hasn't been detected in a while and it is not certain if the species still can be found in the Tannermoor (natureschauspiel.at 2022, liebenau.at 2022).



Figure 4 block stone castle Jacqueline Wilfer

Furthermore, the Tannermoor offers several hiking paths, as well as mountain bike trails in the region of Liebenau (liebenau.at 2022). The most popular hiking path is the 6 kilometres long circular trail, which takes about 1 ½ hours and is easily accessible for everyone. The track leads to a wooden observational tower, overlooking the mountain pine forest. A little detour can be made

to visit the massive block stone castle and have another incredible view (Sokoloff 2003). The Rubnerteich is also part of the attractions in the Tannermoor. The Tannermoor is owned by the Herzog von Coburg, who leased out the bog to the Gemeinde Liebenau (Fetzmann 1960).

The Tannermoor accounts to the oligotrophic and ombrotrophic raised bogs. Oligotrophic describes the nutrient poor regime and ombrotrophic stands for being only reliant on precipitation (Lindsay 2016, Atteneder & Reindl 2016). Du Rietz (1954) defines a raised bog as vegetation without mineral soil water indicators, whereby a mineral soil water is a water which has a higher percentage of electrolytes as rainwater. More than 1 mg per litre is specified as mineral soil water. A raised bog contains a humid vegetation and is free of mineral soil water indicators (Krisai & Schmidt 1983). While the lower bog exhibits indicators of high mineral soil water accompanied by the vegetation typical for them (Krisai & Schmidt 1983). Two typical traits which can be derived from the bog are on the one hand, the vegetation lies several metres above the mineral soil and prevents the plants by reaching the groundwater

table and on the other hand a bog slowly builds up peat. Peat can be accumulated by the decay of dead plant material collected in the surface layer which is saturated by water (Lindsay 1995).

3.3.2. History of Tannermoor:

The name Tannermoor originates from the Celts, which could be derived from the word *Dunumdunum*, which means smaller settlements or an individual farmstead, which is surrounded by a trench or some kind of a fence. When looking at the landscape, the bog is surrounded by a mountain pine forest, creating a sort of fence. It was created after the last ice age approximately 15.000 to 12.000 years ago. Since the 1960ies Anton Mittmanngruber had constituted pressure to conserve the unique area of the Tannermoor (Schröck 2019, Atteneder & Raindl 2016). 1975 a new trail was constructed, leading to a higher frequency of visitors, who dug out seldom species thus damaging the precious vegetation. Later on, in the 1980ies it was reported that the owners of the bog wanted to sell the bog to the formerly Chemie-Linz for peat-mining. Which would have been a disaster concerning the preservation of the ecosystem of the bog. Through the untiringly commitment of the author Attender and further groups, a great success could be claimed in 1983 when the Tannermoor was labelled as protected area (Atteneder & Reindl 2016). According to the Coburg-Stiftung (2022) the Tannermoor was claimed as Natura 2000 area in 1998. Since 2017, the Coburg-foundation worked together with different stakeholders, to preserve and restore the former status of the area. In order to fulfil this goal, a lot of drainage ditches were already rebuilt or removed. But still about 59 drainage ditches can still be found in the Tannermoor (Schröck 2019), because in the early 19th century people thought it was more practical to have these drainage ditches in order to cultivate the land better. The drainage ditches should be closed, and wooden sheet pile walls and a prop are be used to close up the drains. As part of the interreg project these drains should also be removed and rebuilt in favour to rewet the peat bog (Sokoloff 2003, Sachsen Co-Burg Stiftung 2022, Schröck 2019).

3.3.3. Interreg project:

The project with the title “Das Naturerbe der Moorlandschaften der Region Mühlviertel und Geopark Vysocina als Naturschutz-, Erlebnis- und Bildungsraum“, was initiated on the first of january 2020 through Interreg. It is a transboundary project between Austria and the Czech

Republic. The main objective is to protect the moor and wetland areas which can be fulfilled through the following goals.

- The first goal is to *ensure a safe basis in order to protect transboundary bog areas*.
- To fulfil the second aim the implementation and development of *sustainable tourism* should be worked out together which includes the minimization of intrusion into the bog and guiding the visitors.
- In both countries *awareness should be created* to emphasize the importance of bogs as natural habitat for plants and animals.
- *Investing in training* for several regional multipliers such as nature guides or imparters of knowledge helps to protect the bogs.
- Another important target can be met by constructing an environment to interact with and learn that bogs are interesting habitats and give opportunities to *learn something new*.
- The influence of tourists should be analysed scientifically, and the process monitored and supported.
- Furthermore, the topic of protecting bogs and wetlands should *use the up-to-date technologies* as example the digitalisation.
- The last aim is to *support a progress towards exhibitions and nature trails for bogs and wetlands*. (rmooe.at 2022)

How can these objectives be met?

Several activities are used to fulfil the objectives. Transboundary public relations work and communication as example create infolders, publish newspaper articles and organize events. To contribute to an increased knowledge and deeper understanding a workshop and the writing up of teaching material for schools. In the scientific sector expert forums should be installed, theses should be written, and transnational symposia arranged. Digitalization can be applied as creating an app for bogs and wetlands and web-connecting. Especially for the matter of the Tannermoor, zones for guidance and orientation should be built, a nature trail with information about the Tannermoor should be created. Restoration of the circular path, a playground with context to the bog, optimization of the parking spaces and sanitary situation and transboundary plans and activities. (at-cz.eu 2022, [liebenau.at](#) 2022, rmooe.at 2022)

The master thesis “Determining different needs of user groups in the Tannermoor in upper Austria concerning the matter of natural-based tourism” was carried out in the context of this Interreg project.

3.3.5. Description of the sample:

Concerning the sample size 362 people participated in the survey. Socio-demographics: The gender is equally distributed, 52% were male and 48% were female.

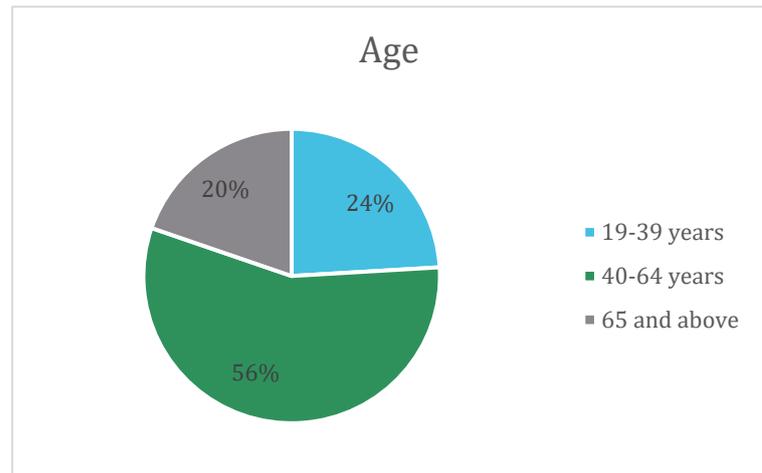
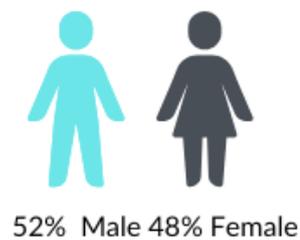


Figure 5 Distribution of Gender & Age

The biggest group were the 40–64-year-olds (56%), the second largest group were the 19- to 39-year-olds with 24%, the people above 65 years made up 20%. The postal codes range from Vienna to upper Austria, to Germany as can be seen in Figure 3. The map of the postal codes (Figure 6) shows that most of the Postal-codes stem from upper Austrians (68%), lower Austria (20%) is on second place and minorities are from Vienna (2%), Styria (1%) and Burgenland (1%).

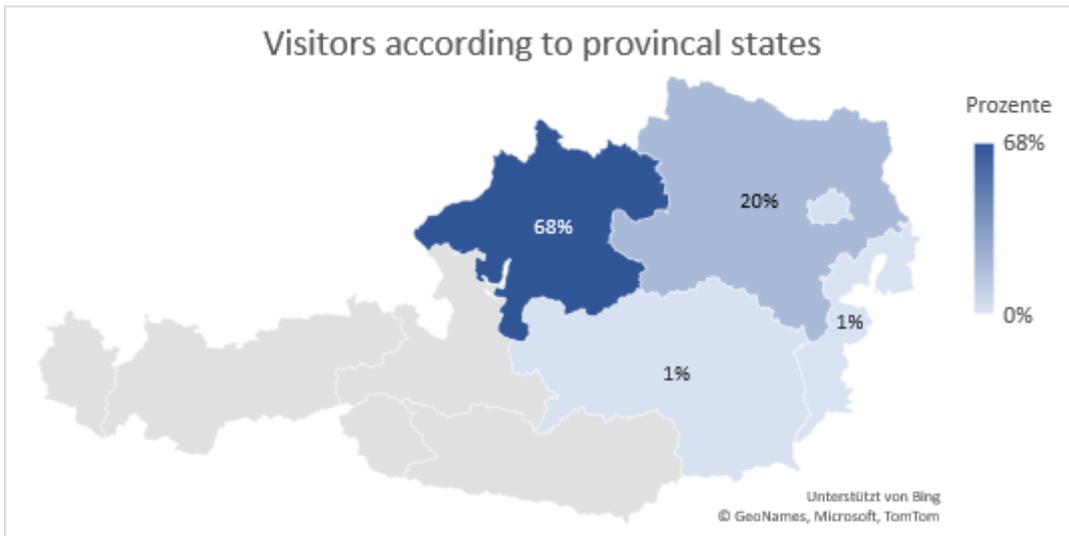


Figure 6 shows the distribution of visitors according to provincial states

People were asked where they currently lived. 70% of the questioned people were living in the countryside, 19% in the city and 11% in the suburban area. After aggregating the city and suburban areas to reach a more equal sub-sample size, 30% lived in the city and 70% in the countryside. Suburban areas are strongly linked and influenced to cities they surround.

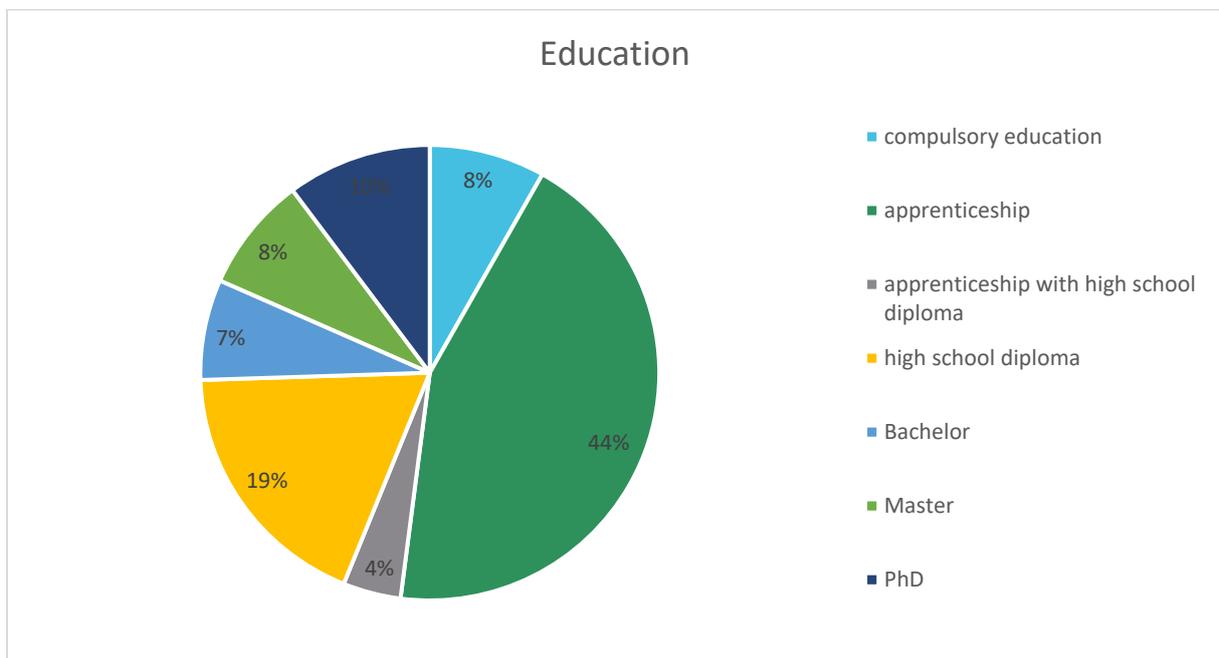


Figure 7 Education

Regarding the education status of the respondents, figure 7 displays that the biggest category comprising 43% of the share of people who finished their **apprenticeship** as highest educational background. These were followed by participants who got their high school diploma (16%), 10 % of the respondents acquired a Phd, 8% finished compulsory school or

their masters, 7% got a bachelor’s degree and 4% did an apprenticeship with a high school diploma.

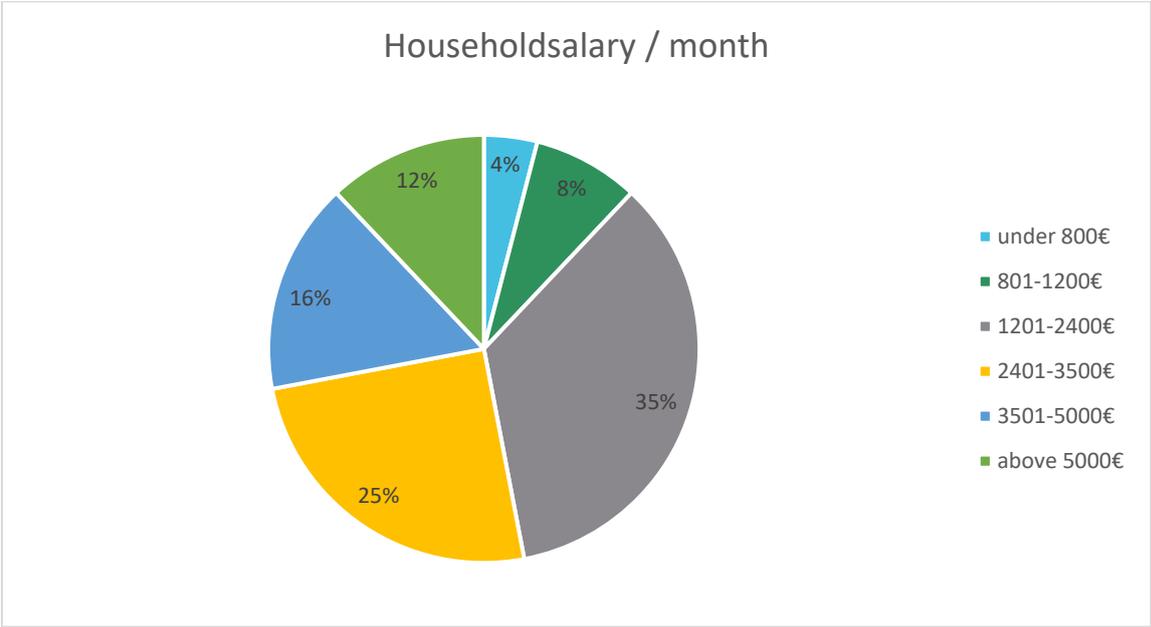


Figure 8 Distribution of Salary

Figure 8 shows the distribution of salary, which is rather unequal. A little bit more than a third (45%) earned 1201-2400, a quarter earned between 2401-3500, 15% earned 3501-5000 Euros, 11% earned more than 5000, 9% earned between 801-1200 and only 4% earned under 800 Euros.

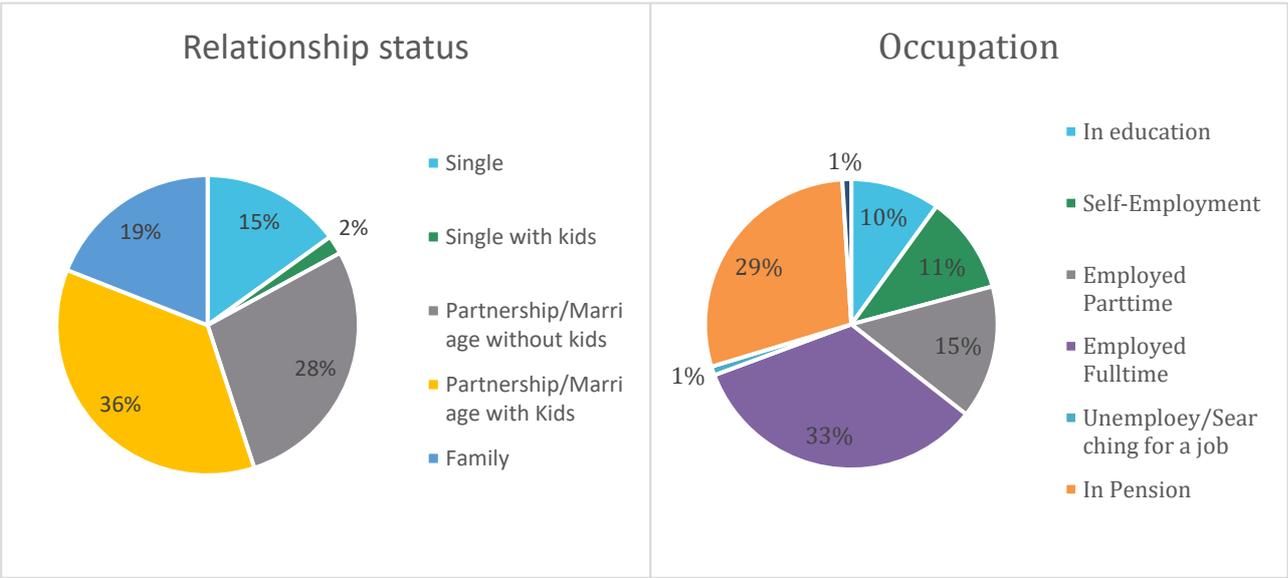


Figure 9 & 10, left: Distribution of Relationship status, right: Occupation

For tourism development the travel company is an important factor to know but also the general relationship status can be interesting to analyse potential target groups. Figure 9

illustrates the relationship status: 36% of the questioned people were in a partnership/marriage with kids, 28% were in a partnership/marriage without kids, 19% considered themselves as a family and 16% were single, 1 % was single with kids. Figure 10 shows the occupational status of the respondents: 36% are working fulltime, 30% are in pension already, 16% work a part-time job, 11% are self-employed, 5 % are still in education, 1% don't work/ are searching for a job or are working at home.

A large part of the respondents visited the Tannermoor with their partner (37%), 21% came with their friends, 20% were there with their families with kids, 12 % went to the Tannermoor with their relatives, 9% were on their own and 1% came around to the moor with a schoolclass or a travelgroup.

Concerning the open-ended question of how often people had visited the Tannermoor in the last 12 months, there were several answers, which had to be categorized to make them more understandable. Some people understood the question like this: They answered they had visited the Tannermoor 0 times, which meant they hadn't visited the Tannermoor before their current visit in the last 12 months. The next category was I visited the Tannermoor several times, which was between once and 19 times. 20 to 30 times was classified as often visited the Tannermoor, and everything above the 30 mark was "I visited the Tannermoor very often". (0=6,6%, 1-19=34,3%, 20-30=52,2% and over 30=6,9%).

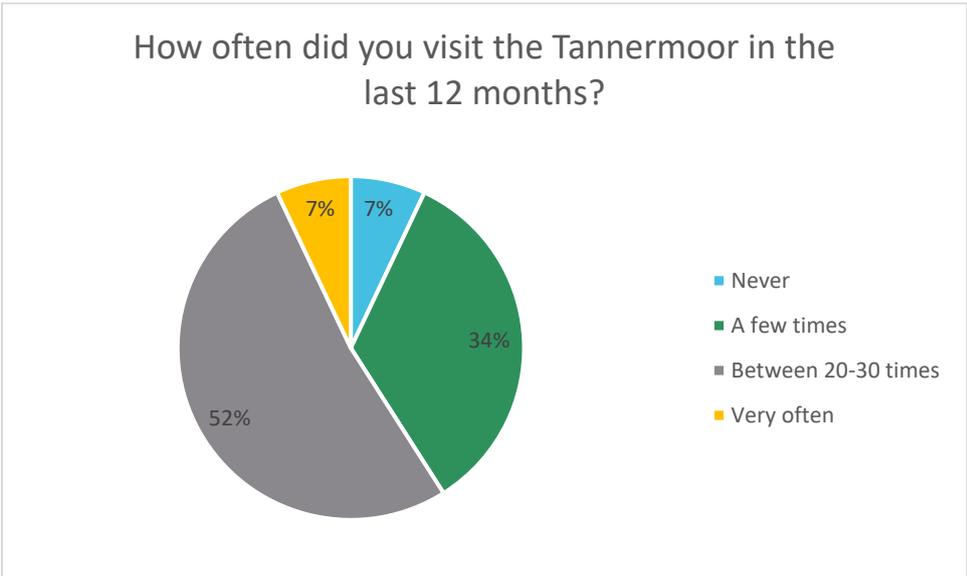
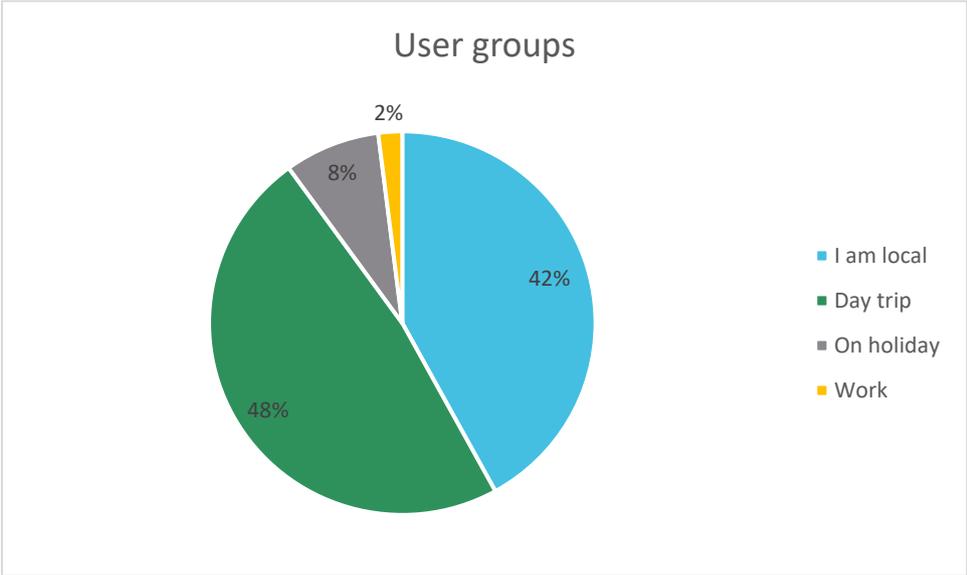


Figure 11 Number of visits

The second question contained the user groups, which were spilt in three groups: day tourists, tourists and locals. Locals are defined by staying in a radius of 16 km around the Tannermoor

in Liebenau. This radius was chosen after looking at the villages in direct proximity surrounding the Tannermoor. Day tourists are people who live further away than 16 km and come here for a short trip. Around 42% of the participants answered that they were living in the region, 47% made a day trip to visit the Tannermoor, 7% spent their holidays visiting the Tannermoor and 2% came to the bog on a professional basis. Approximately 60% of the participants were from abroad, 40% were locals.



60% Not-Local, 40% Local

Figure 12 User groups

4. Results

Further results are going to be presented in this section. At first, the suggestions which people made are analysed followed by the nature statements and the observation of the environmental awareness. To give an overview of the main motives, perception, offers,

current place of residence and educational background, the variables will be examined in a general way, before going into detail and looking at the interactions with other variables.

4.1. GENERAL RESULTS

Question 6 was an open-ended question asking the visitors to speak one’s mind on how to improve the stay at the Tannermoor in order to come around more often. In the graph below the most frequent suggestions were listed. Thirtythree respondents answered that they didn’t want any more tourists, they were strictly against mass tourism and preferred to maintain the peace and quiet and conserve the nature. Second highest category says that everything is okay and fine as it is. The third suggestion was to improve the infrastructure. Different things were mentioned here: to improve and renew the sanitary area, to build a bigger snack bar, more places to rest and benches and a playground. 20 respondents wanted an expansion of the pathways, improving the pathways, making new paths. Around 15 people wanted to get more information about the bog and get to know the bog in a playful way, as example by constructing a barefootpath, putting up signs with special plants and animals which can be found in Tannermoor, making the bog a more interactive place. Some people wished for a better access to the pond and more place around the pond where one could take a bath. And lastly some people suggested improving the signages: putting the duration on the signboard, mark the path in both ways and also to place better signs how to get to the Tannermoor.

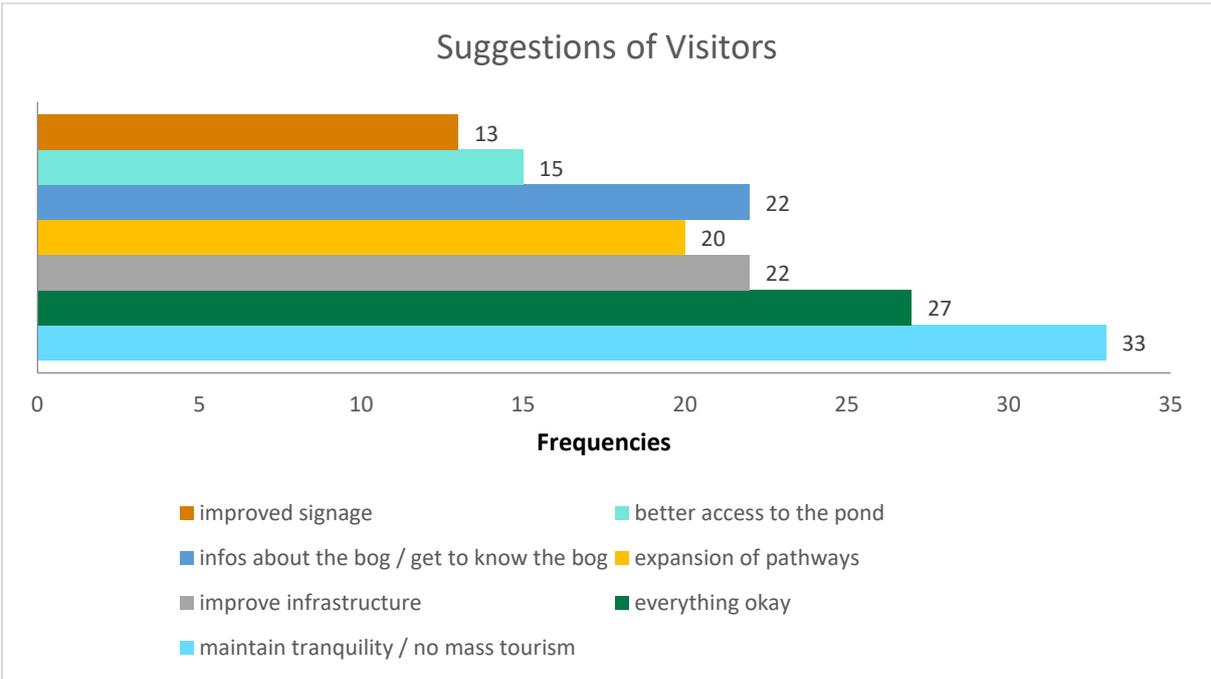


Figure 13 Suggestions of the participants concerning the Tannermoor

To give a rough overview of the nature statements, mostly around 60 to 74% strongly agreed to the statement, with one exception where 44% stated that they found it important to be in nature when wanting to spend time with their friends and family. About half of the questioned people were very interested in the environment, 38% were interested, 13% were not interested and 2% very not interested at all. A quarter informed themselves about environmental topics more than 1-2 times a week, another quarter informed themselves 1-2 times a week, about 19% read/ heard/ watches something about the environment once a month, another quarter only seldomly updated themselves and 4% never read anything about current environmental issues.

There are different media through which people can inform themselves about environmental topics, therefore there were multiple answers allowed in this question. The three most frequently used channels to inform oneself were social media/ Internet, the newspaper, radio, followed by friends and family and print media were used to get new information about environmental topics. Different forms of obtaining information on environmental topics were through watching TV and documentations, reading books or scientific papers and through NGOs.

Overall results of the environmental awareness

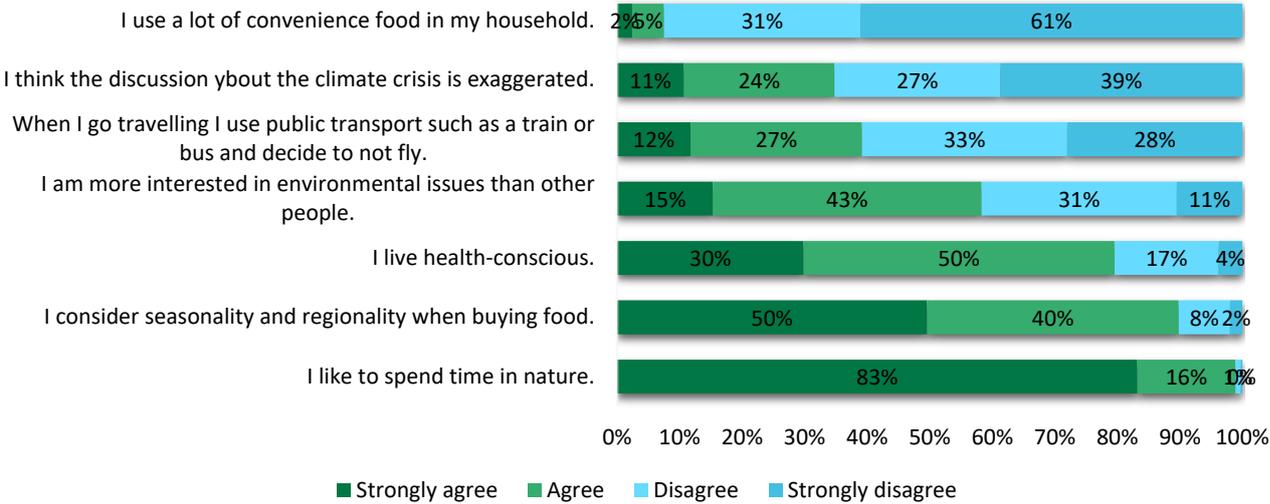


Figure 14 Overall results of the environmental awareness

Almost all the participants indicated that they **liked to spend their time in nature** (83% strongly agree, 16% agree). Concerning the purchase of food, half of the people strongly agreed to **consider seasonality and regionality when buying a product** and 40% agreed. One

third stated that they strongly agreed with **living health-conscious**, 50% agreed with this statement. 15% of the sample strongly agreed that they were **more interested in environmental issues than other people** and 43% agreed. **When going travelling and using public transport such as a train or bus and not flying**, answers were inconsistent, 12% strongly agreed, 27% agreed, 33% disagreed and 28% strongly disagreed. More than half of the sample disagreed to the statement **of thinking that the discussion about the climate crisis was exaggerated** (39% strongly disagree, 27% disagree), and more than one third agreed with this statement. Almost all of the participants disagreed **to use a lot of convenience food** (61% strongly disagree, 31% disagree).

The following sections firstly provide an overview before going into more detail. Crosstabs are used to find correlations between the main variable and the ones most relevant for this research study. Firstly, the type of visitor is examined with the main motives, secondly the company is considered with the main motives, afterward the current place of residence is examined with the main motives and lastly the educational status is intercorrelated with the main motives. This scheme applies to the next few subpoints: Main motives, perception of the Tannermoor, Offers and general bog statements.

4.2. MAIN MOTIVES

Overall results of the main motives

Experiencing nature (77%) was considered as the main motive, but also recreation (53%), experiencing the landscape (50%), finding peace and quiet (45%) and experiencing the bog (42%) were of high importance. The other motives were as follows: Meeting up with friends & doing something with the family (33%), go swimming (22%), to have fun (21%), to enjoy the view (21%) and doing sports was on the last place with 15%. It has to be noted, that it was possible to mark multiple answers.

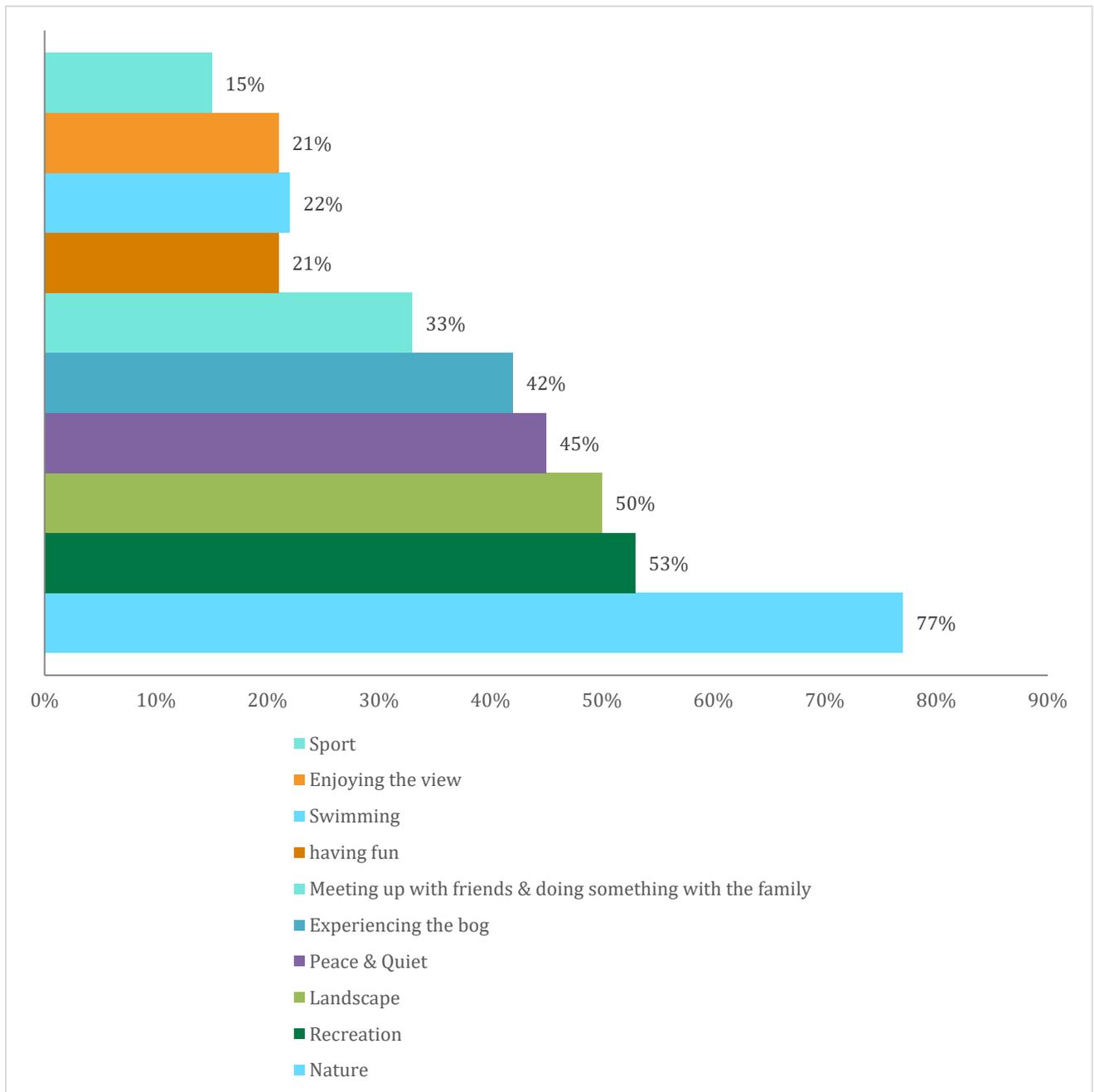


Figure 15 Main motives of the overall results

Main Motives of the Visitors – detailed analysis

Looking at the different groups of visitors, the following differences were observable. Important and significant motives for the locals were: enjoying the nature, experiencing the bog, to meet up with friends and having fun. There is a slight negative significant correlation between being local and the motive of going to the Tannermoor to enjoy the nature (Pearson- χ^2 4.803, df=1, p=.028, Phi -.116). Furthermore, a slight negative correlation is found being a resident of the surrounding villages, and the motive of going to the Tannermoor to look at the

landscape (Pearson- χ^2 4.878, df=1, p=.027, Phi -.116). The Chi-Square Test shows a slight negative correlation with the motive of experiencing the bog and staying nearby the Tannermoor (Pearson- χ^2 5.829, df=1, p=.016, Phi -.127). Important and significant reasons to go to the Tannermoor for people on a day trip were enjoying the nature, the landscape, experiencing the bog, going swimming, to meet up with friends and having fun.

People who make a day trip to visit the Tannermoor display different results than the locals. Slight positive correlations can be found between the motives of going to the Tannermoor to enjoy the view (Pearson- χ^2 8.707, df=1, p=.003, Phi .156), to go and have a look at the landscape (Pearson- χ^2 6.480, df=1, p=.011, Phi .134) and to experience bogs when going for an outing (Pearson- χ^2 8.623, df=1, p=.003, Phi .155). The data shows a slight negative significant correlation between making a day trip and going to the Tannermoor for swimming (Pearson- χ^2 4.702, df=1, p=.030, Phi -.114).

Concerning the social interaction aspects, it occurs that the Chi-Square test displays a medium positive significant correlation between the motive of going to the Tannermoor to meet up with friends (Pearson- χ^2 34.814, df=1, p=.000, Phi .311) and a slight significant correlation between the motive of having fun (Pearson- χ^2 15.663, df=1, p=.000, Phi .209) and being a resident. Whereas the people on a one-day excursion show a slight negative significant correlation between the motives of going to the Tannermoor to meet up with friends (Pearson- χ^2 24.251, df=1, p=.000, Phi -.260) and having fun (Pearson- χ^2 12.909, df=1, p=.000, Phi -.189).

Main Motives of Visitors who were accompanied by different people to the Tannermoor:

When going to the Tannermoor with the partner, it is important to do something with the family and having fun together. There are slight negative significant correlations between visiting the Tannermoor with the partner and the motive of going to the Tannermoor to do something with the family (Pearson- χ^2 6.057, df=1, p=.014, Phi -.130), and the motive of going to the Tannermoor to have fun (Pearson- χ^2 14.968, df=1, p=.000, Phi -.208). When being accompanied by a family with kids, experiencing the bogs was an important incentive to go to the Tannermoor. Other reasons were enjoying the view and doing something with the family. The findings indicate slight positive significant correlations between visiting the Tannermoor

being a family with children and the motive of going to the Tannermoor to experience bogs (Pearson- χ^2 4.541, df=1, p=.033, Phi .112) , the motive of going to the Tannermoor to enjoy the view (Pearson- χ^2 5.760, df=1, p=.016, Phi .126) and the motive of going to the Tannermoor to do something with the family (Pearson- χ^2 81.254, df=1, p=.000, Phi .126). Finding peace and quiet was of high importance when people decided to come alone to the bog, another reason is going swimming and doing something with the family. Two of the motives reveal a slight significant positive correlation, finding peace and quiet in the Tannermoor (Pearson- χ^2 4.499, df=1, p=.034, Phi .112 and going to the Tannermoor to go swimming (Pearson- χ^2 6.960, df=1, p=.008, Phi .139). One outcome, the motive of doing something with the family in the Tannermoor, displays a slight negative significant correlation with being alone (Pearson- χ^2 9.257, df=1, p=.002, Phi -.160). Significant reasons to come to the Tannermoor when being together with friends, was enjoying the nature and meeting up with family and friends and having fun together. The motive of going to the Tannermoor to enjoy the nature correlates negatively with going to the Tannermoor with friends (Pearson- χ^2 4.691, df=1, p=.030, Phi -.114). When meeting up with friends, a main reason to go to the Tannermoor was to get together with friends, Phi shows a medium positive correlation (Pearson- χ^2 33.574, df=1, p=.000, Phi .305), a slight negative correlation can be found when wanting to do something with the family (Pearson- χ^2 4.178, df=1, p=.041, Phi -.108). Having fun correlates positively with going to the Tannermoor together with friends, Phi shows an almost medium positive correlation (Pearson- χ^2 27.842, df=1, p=.000, Phi .278). If relatives are being involved, they find it of major importance to do something together with the family, which correlates positively (Pearson- χ^2 7.013, df=1, p=.008, Phi .140).

Current place of residence x main motives

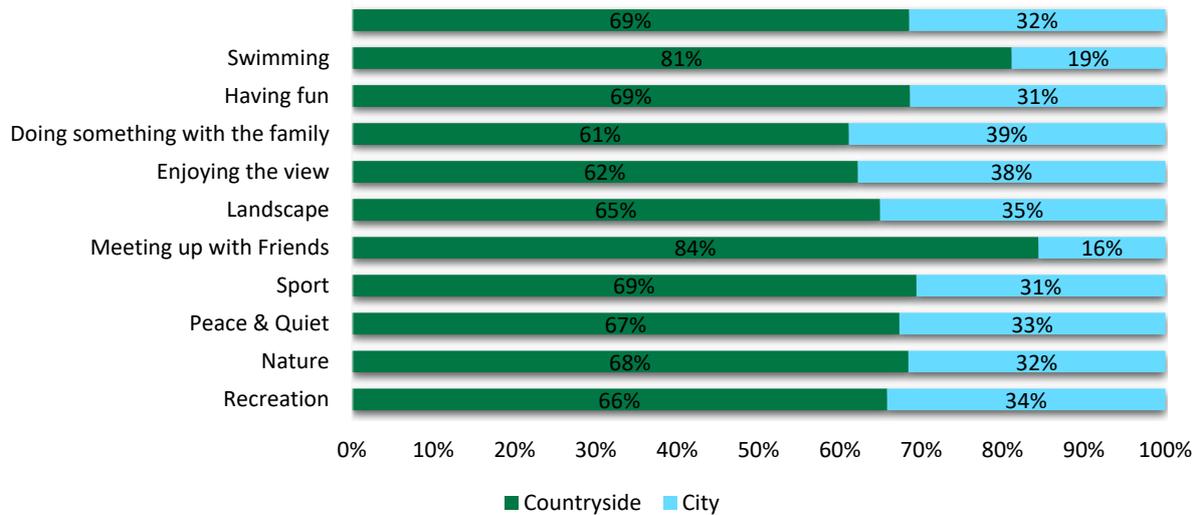


Figure 16 Current place of residence and main motives

Main Motives concerning the current place of residence:

When having a closer look at the current place of residency and the main motives to go to the Tannermoor, especially the motive of nature is emphasized: looking at the landscape, experiencing the bog and enjoying the view. But furthermore, social interactions also played a role: Meeting up with friends and having fun. People from the city go to the Tannermoor more to look at the landscape than people from the countryside (Pearson- χ^2 3.942, $df=1$, $p=.047$, Phi 0.106). The same outcome can be seen, when looking at the motives of experiencing the bog and enjoying the view. People from the city go to the Tannermoor more to experience bogs (Pearson- χ^2 7.182, $df=1$, $p=.007$, Phi 0.144) and to enjoy the view (Pearson- χ^2 4.776, $df=1$, $p=.029$, Phi 0.117), than people from the countryside. The next two motives show a negative correlation: going to the Tannermoor to meet up with friends (Pearson- χ^2 9.987, $df=1$, $p=.002$, Phi -0.169) and going to the Tannermoor to have fun (Pearson- χ^2 5.649, $df=1$, $p=.017$, Phi -0.127). People from the countryside tend to go to the Tannermoor more to meet up with friends, than people from the city. People from the countryside tend to go to the Tannermoor more to have fun, than people from the city.

Main Motives and educational background:

There are no correlations with education and motives.

Overall results of the perception of the Tannermoor

The next question deals with how the aspects are rated regarding the Tannermoor: Almost three quarter of the people strongly agree with the aspect of **the attractiveness of the landscape in the Tannermoor**, further 25% agree. The vast majority of the participants (87%) strongly agree and agree that the Tannermoor offers **a variety of landscapes**. 24% strongly agree and agree to the aspect of **the information of the bog or rather the protection of the bog** and 45% agree. A quarter of the people can't answer the question if there **are seldom species of plants and animals in the Tannermoor**, but 68% strongly agree and agree to this statement. More than two thirds strongly agree (22%) and agree (43%) that **the Tannermoor is a place for adventures and activities**. Half of the people agree strongly that **the Tannermoor is a place to find peace and quiet**, one third also agrees. If the statements are aggregated into different needs. The need of attractiveness of the landscape is the most important aspect, on second place is the wish for knowledge and information about the Tannermoor, thirdly the respondents have the longing for a diversity in activities, lastly the need to calm down is represented by 22%.

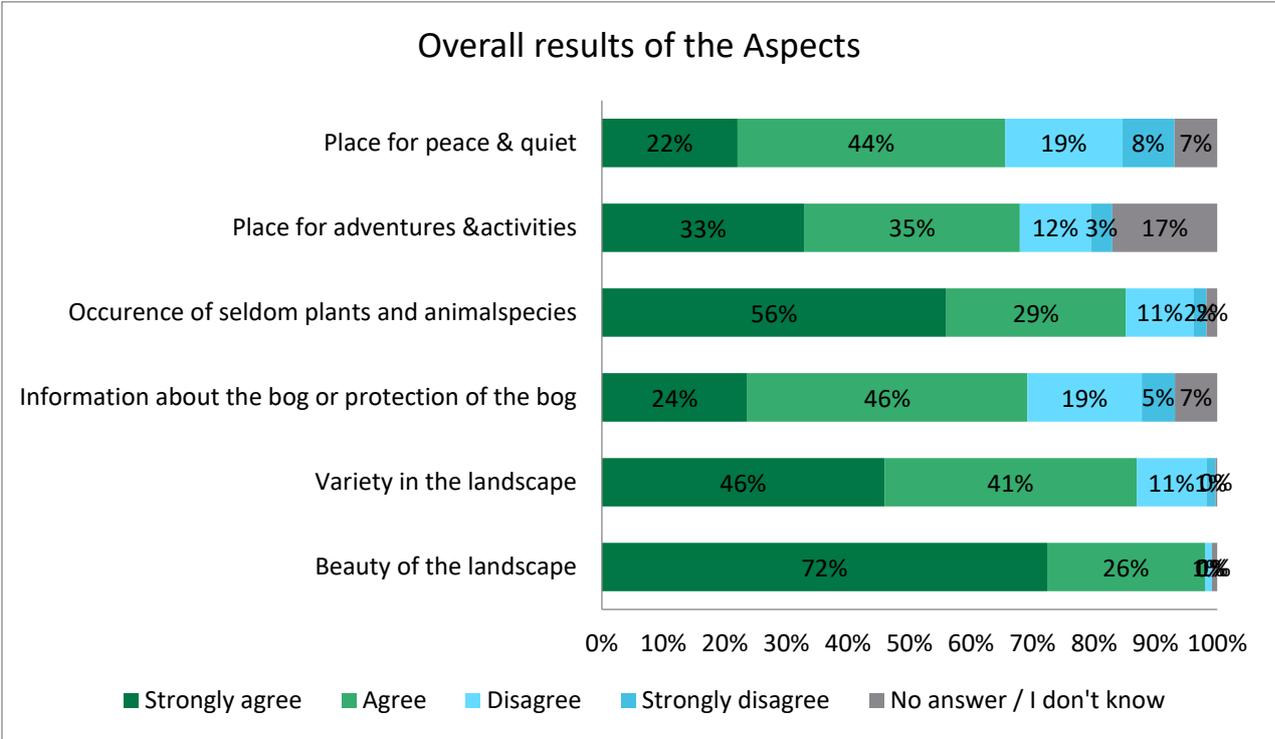


Figure 17 Overall results of the aspects

Main aspects of Visitors:

Locals as well as people who make a day trip to the Tannermoor see the bog as place for adventures and activities. slight positive significant correlations can be found with being a local and the aspect of a space for adventures and activities (Pearson- x^2 21.738, $df=4$, $p=.000$, Phi .256), same goes for making a day trip and the aspect of a space for adventures and activities (Pearson- x^2 15.297, $df=4$, $p=.004$, Phi .215).

Main aspects of Visitors who were accompanied by different people to the Tannermoor:

If being accompanied by friends, the aspect of the landscape is of high importance. When visiting the Tannermoor alone, the aspect of peace and quiet plays a big role. The results show slight significant positive correlations between visiting the Tannermoor with friends and the aspect of the beauty of the landscape (Fishers'z $p= .007$, Phi .180) and between visiting the Tannermoor alone and the aspect of peace and quiet (Fishers'z .044, Phi .175)

Main motives concerning the current place of residence:

There are no correlations the current place of residence and the aspects concerning the Tannermoor.

Main motives and educational background:

There are no correlations the education and the aspects concerning the Tannermoor.

4.4. OFFERS

Overall results of the offers

The offers, which were of high importance of the Tannermoor were **sanitary stations** (77%) and **the snack bar** (70%), this could also be because all the participants were recruited near the snack bar. On third place is the offer of **benches and places for resting** with 60% of the respondents stating this as very important. Also, the **regulated parking spaces** were very important for over half of the people. Less important were **the educational path and theme trail** with 41 % saying that it was very important, over 80% thought that **the information about the bog** was very important and important. **The tour through the moor** was considered as very important and important by over 50% of the participants. **The playground** occupies the last place with also a little less than half of the people stating that they thought it was very important or important.

Overall results of the offers

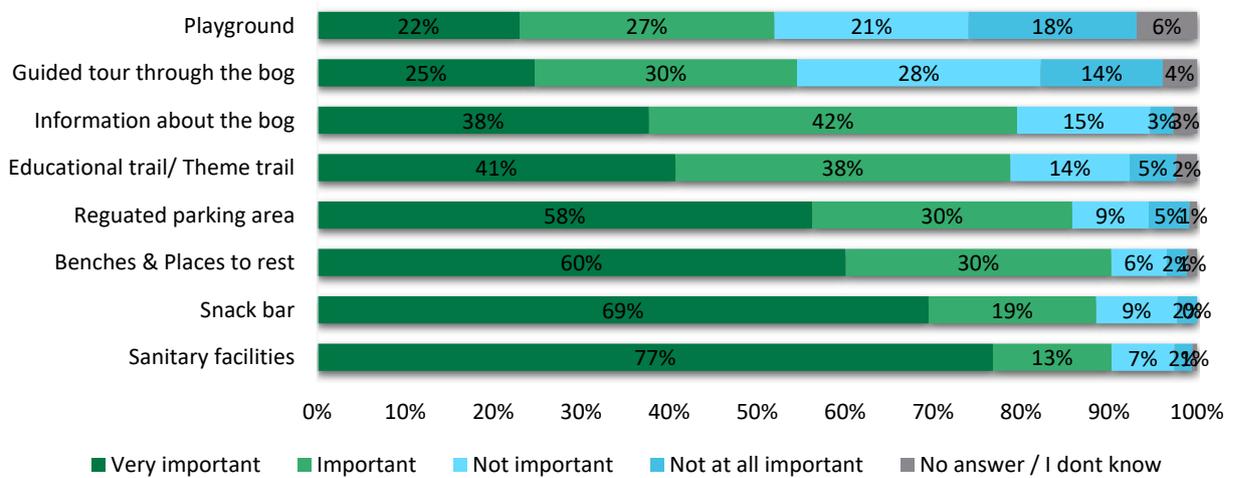


Figure 18 Overall results of the Offers

Main offers of Visitors:

The snack bar, sanitary facilities and a playground were considered important when people live nearby. The results show slight positive correlations between being local and the importance of the snack bar (Fishers-Z $p= 1.03e-05$), sanitary facilities (Fishers'z $p= .027$) and the playground (Pearson- χ^2 21.573, $df=4$, $p=.000$, Phi 0.254). For people who made a day trip to the Tannermoor especially a regulated parking lot was crucial to go to the Tannermoor. So, making a day trip and the importance of regulated parking correlated positively (Fishers'z $p= .008$). Tourists thought of the snack bar as very important, as well as the sanitary facilities. But they also valued the offers of the educational trail/ theme trail and the guided tour through the bog. The Chi-Square Test shows slight positive correlations between being on a holiday and the offers of a snack bar (Fishers'z $p= .009$) sanitary facilities (Fishers'z $p= .038$) educational trails/ theme trail (Fishers'z $p= .000$) and a guided tour through the bog (Fishers'z $p= .004$).

Visitors x offers

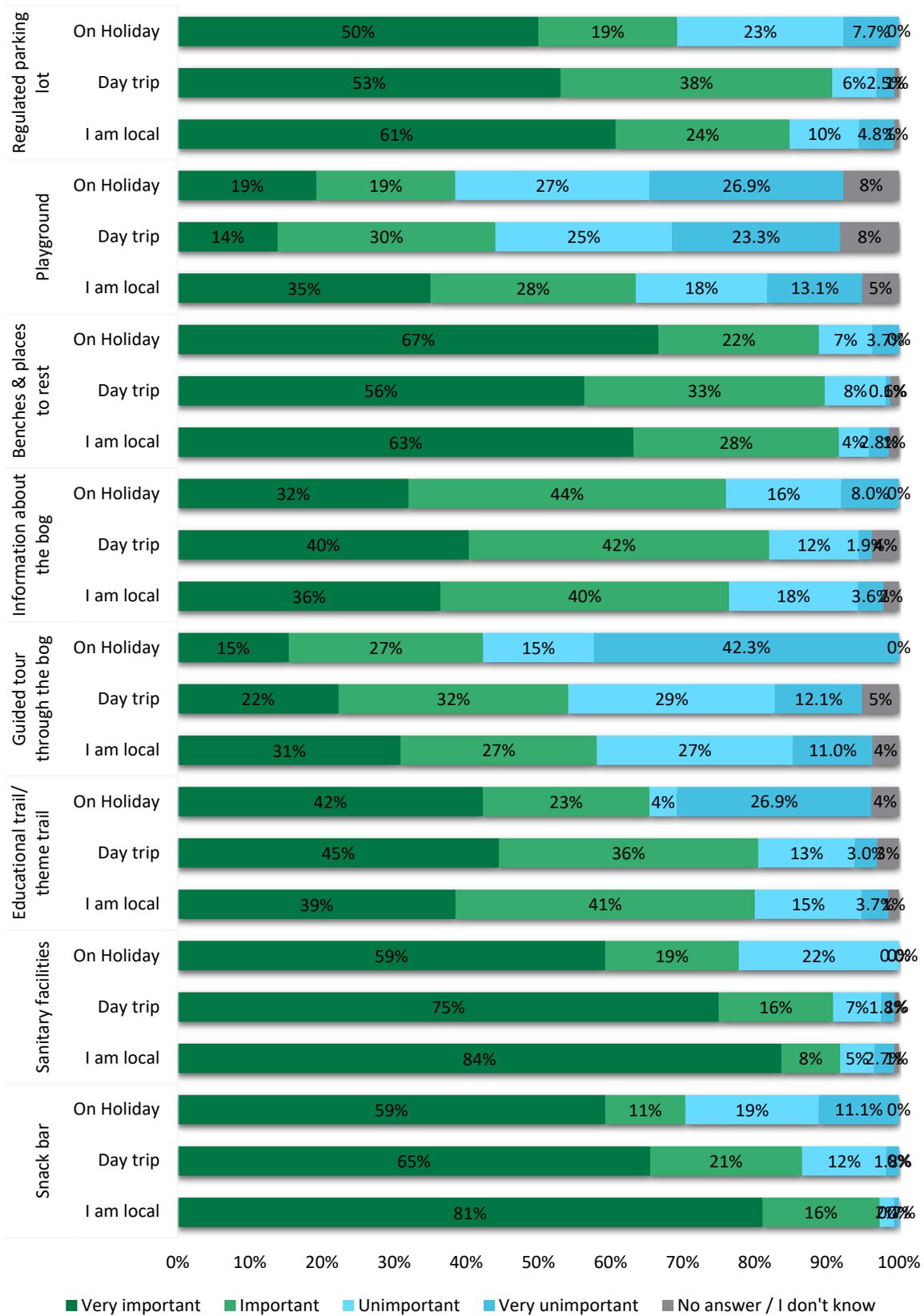


Figure 19 Most important offers of visitors

Visitors accompanied x offers

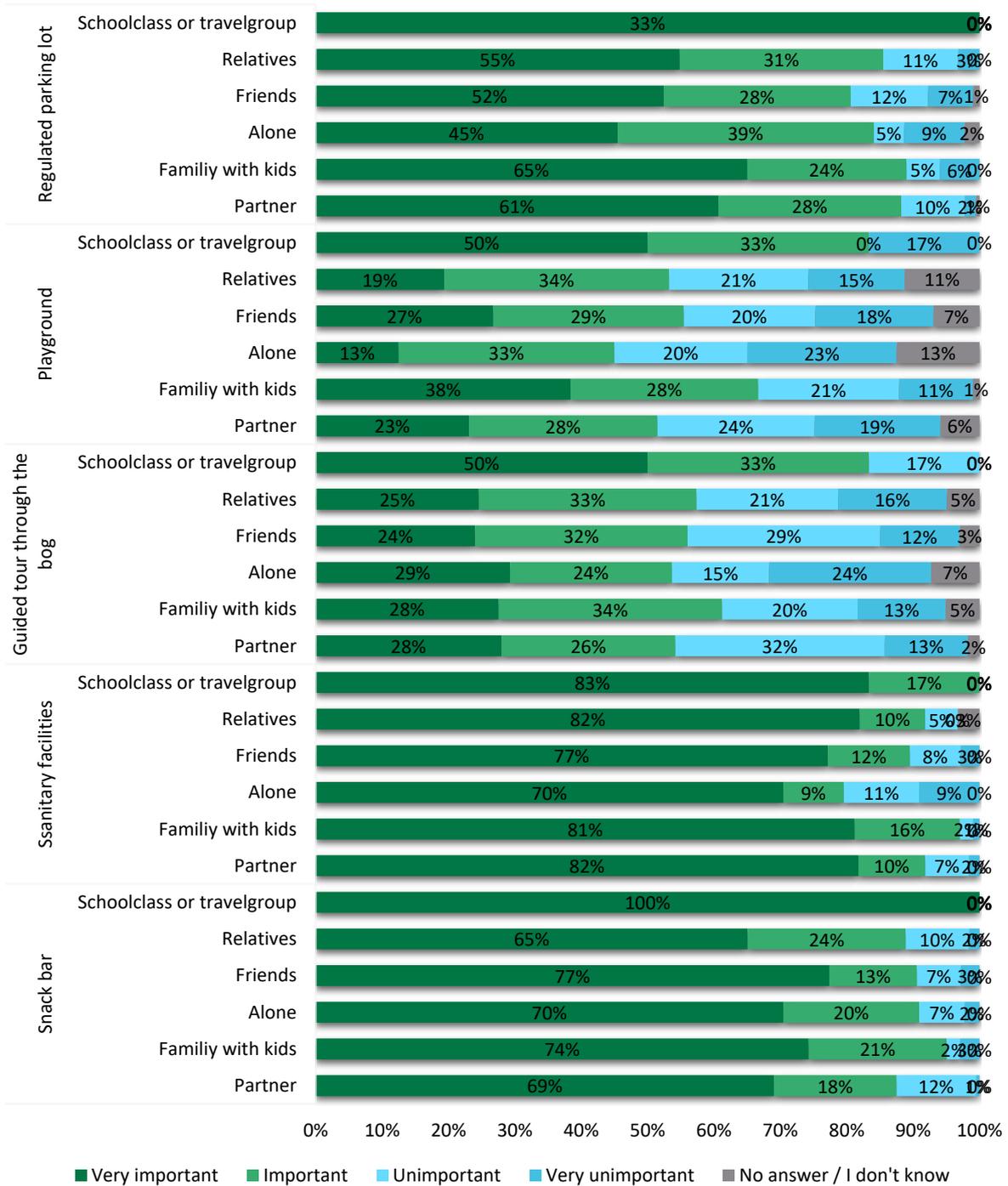


Figure 20 Most important offers of Visitors accompanied by people

Main offers of Visitors who were accompanied by different people to the Tannermoor:

Essential offers when going to the Tannermoor with the partner are the snack bar, the educational trail/ theme trail and a regulated parking lot. By calculating the Chi-Square correlations could be found between going to the Tannermoor with the partner and the

importance of the snack bar (Fishers-Z p= .046), the importance of the educational trail/theme trail (Fishers-Z p= .035) and the importance of a regulated parking lot (Fishers-Z p= .038). Families with kids considered the snack bar and the playground as crucial when visiting the Tannermoor. The variable family with kids correlates with the offer of the snack bar (Fishers'z p= .011) and the playground (Pearson-x² 26.287, df=4, p=.000). Visiting the Tannermoor alone correlates with the importance of sanitary facilities and the guided tour through the bog. Significant correlations were revealed between visiting the Tannermoor alone and the offer of sanitary facilities (Fishers'z p= .018) and the guided tour through the bog (Fishers'z p= .05). No correlations could be found with the offers and visiting the Tannermoor with friends, or with relatives or with a school class/ travel group.

Main offers concerning the current place of residence:

Three positive correlations can be found when looking at the residency and the offers. A significant correlation between the place of residence and the importance of the snack bar (Fishers-Z p= .014), the educational trail/theme trail (Fishers'z p= .039) and the playground can be observed (Pearson-x² 15.998, df=4, p=.003, Phi 0.222). It is more important from people who come from the city to have a snack bar, an educational trail/theme trail and a playground than people who live in the countryside.

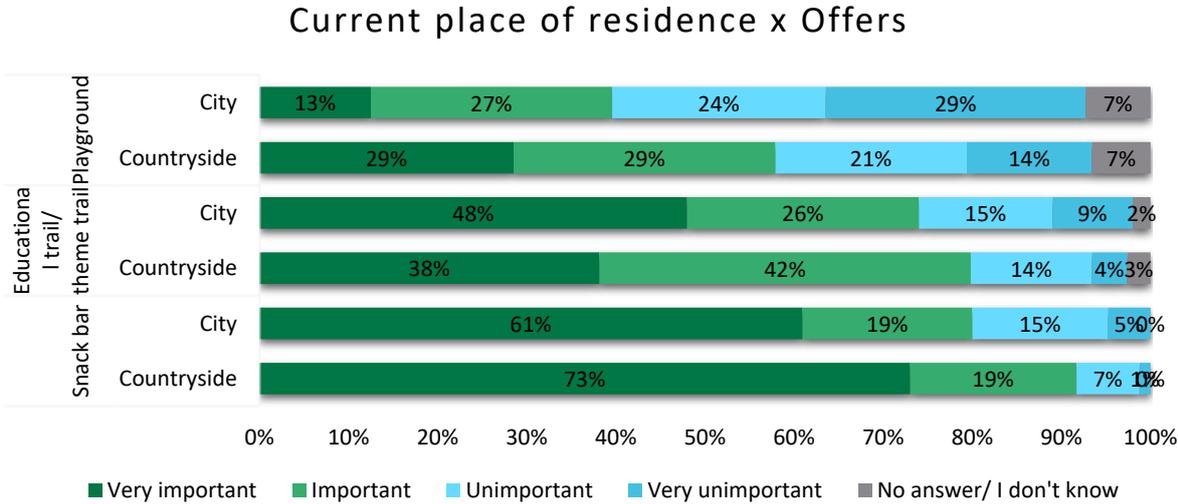


Figure 21 Most important offers of people of the countryside and cityside

Main offers and educational background:

Depending on the education, the higher the educational background the more interest in educational trail/theme trails, a guided tour through the bog and benches and places to rest.

The correlation shows a medium correlation with educational trail/ theme trail (Fishers'z $p= .005$, Phi .307) a guided tour through the bog sign (Fishers'z $p= .002$, Phi .348) and the education and a slight correlation with benches and places to rest sign (Fishers'z $p= .036$, Phi .246) and education.

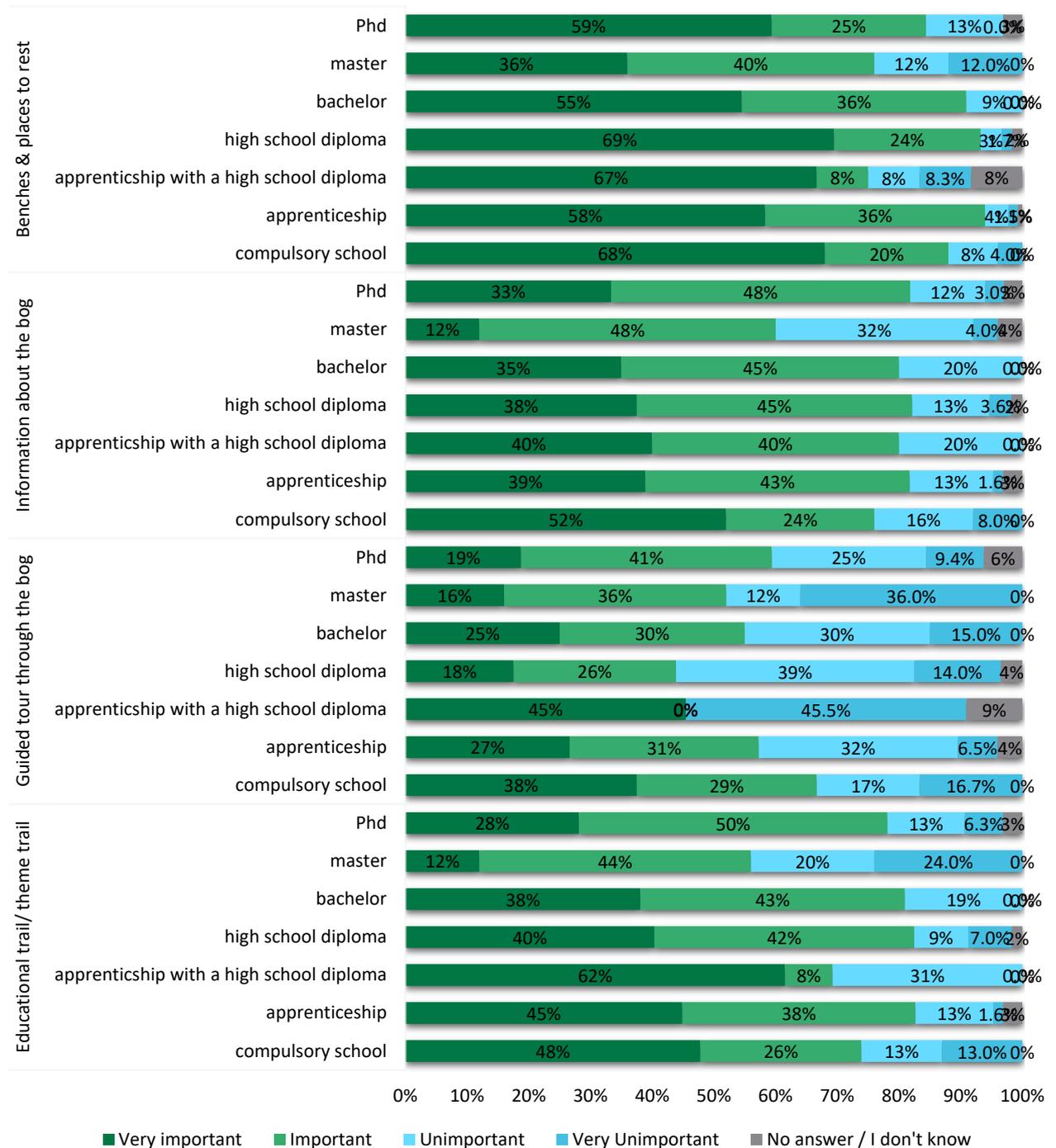


Figure 22 Most important offers and Education

4.5. GENERAL BOG STATEMENTS

Overall results of the general bog statements

Most of the respondents either strongly agree (74%) or agree (20%) to the statement **that bogs should be protected as habitat for seldom and rare species of plants and animals**. Two thirds strongly agree that **the bogs are needed to protect the climate**, further 23% agree. 94% percent of the questioned state **that bogs are a place for peace and quiet** for them (strongly

agree 58%, agree 36%). Three quarters of people think **that bogs are beautiful** (strongly agree 36%, 40% agree). When looking at the statement: **I love to see special wild animals in the bog**, 76% strongly agree and agree to this. Having a closer look at the answers of that statement of **easily losing the way in bogs**, people are undecided, 50% think one can lose their way very fast, the others think that it is easy to orient oneself in the bog. Half of the participants didn't know **if the ocean could take up and save more CO2 than the bog**. More than half of the people were **against using the bog to undertake agriculture and forestry practice**. 60% stated that they didn't **feel unsafe in bogs**.

Again, when aggregating the statements to needs, we can see that most of the people appreciated the peace and quiet in the bog, followed by the beauty of the peatlands and the environmental protection.

Overall results of the general bog statements

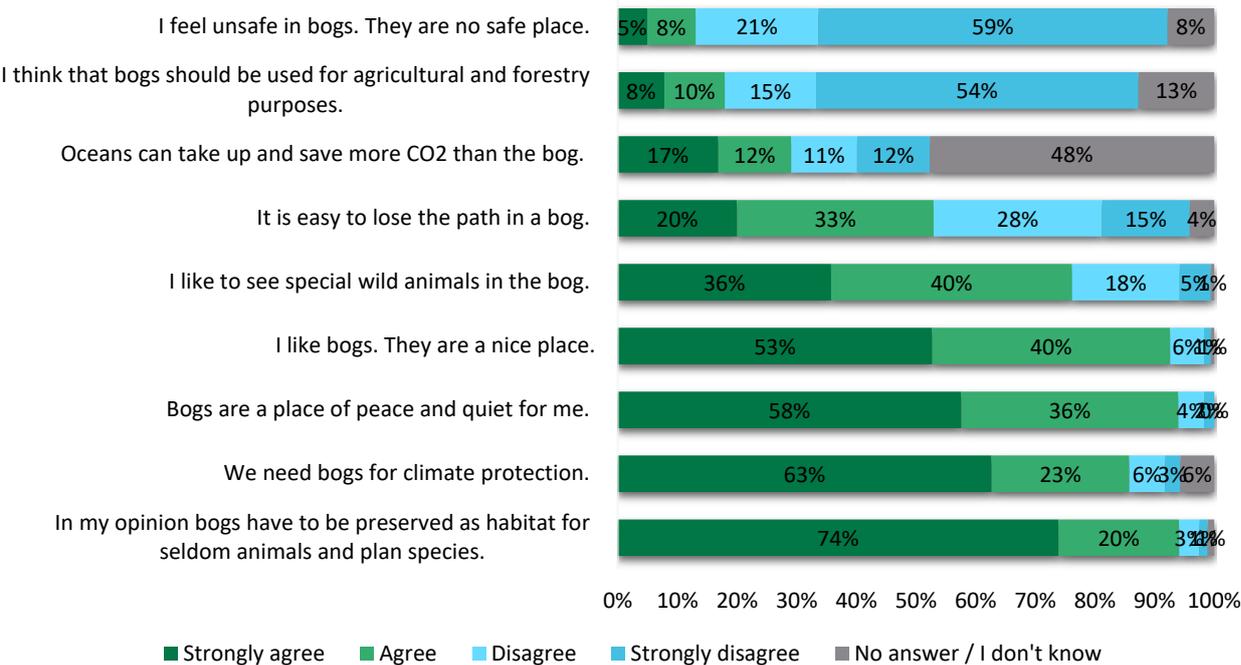


Figure 23 Overall results of the general bog statements

More detailed analysis of the general bog statements

Main findings of Visitors:

Being local and the statements: it is easy to lose the way in bogs (Pearson-x² 10.064, p= .039, Phi .172) and the bog should be protected as habitat for seldom and rare species correlate

positively with each other (Fishers'z, Phi .185). When going for a day trip people think that bogs should be protected as habitat for seldom and rare species of plants and animals (Fishers'z, Phi .174) and think that the ocean could take up and save more CO₂ than the bog (Pearson-x² 11.564, p= .021, Phi .183). Respondents who were on a holiday thought the ocean could take up and save more CO₂ than the bog (Fishers'z, Phi .185).

Main findings of Visitors who were accompanied by different people to the Tannermoor

Going to the Tannermoor with the partner correlates with the impression of easily losing the way in bogs (Pearson-x² 12.625, p= .013, Phi .193). When visitors make an excursion to the Tannermoor with friends they agree with the following statements: we need bogs for climate protection (Fishers'z p= .002, Phi .224), bogs should be protected as habitat for seldom and rare species of plants and animals (Fishers'z p= .001, Phi .217) and the ocean could take up and save more CO₂ than the bog (Pearson-x² 17.532, p= .002, Phi .226).

Main findings concerning the current place of residence:

It matters where people live currently, concerning the feeling of being unsafe in bogs (Pearson-x² 10.461, p= .033, Phi .177), using the bog to undertake agriculture and forestry practice (Pearson-x² 12.339, p= .015, Phi .192) and that bogs should be protected as habitat for seldom and rare species of plants and animals (Fishers'z p= .033, Phi .170).

Main findings and educational background:

There are no correlations with the education and the general bog statements.

4.6. SUMMARY OF DIFFERENT TYPES OF CUSTOMERS

Visitors: Locals

Motives with significant importance



Nature



Experiencing the bog



Meeting up with friends



Having fun

Aspects with significant importance

The Tannermoor is a place for adventures and activities.



There is a small positive correlation with being local.

Offers with significant importance



Snack bar



Sanitary facilities



Playground

General bog statements with significant importance

It is easy to lose the path in a bog.

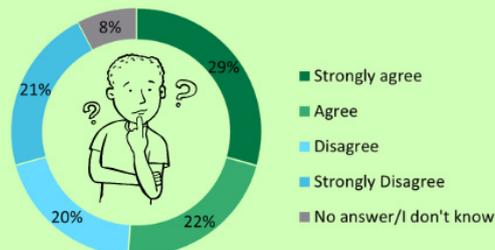
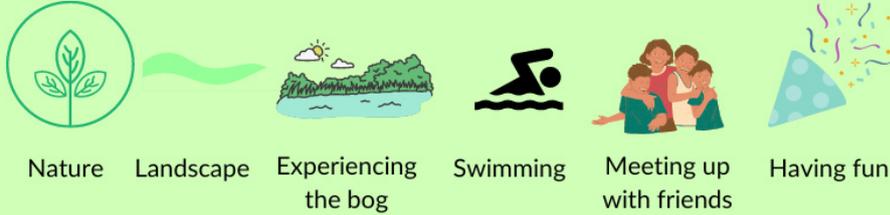


Figure 24 Summary of Locals

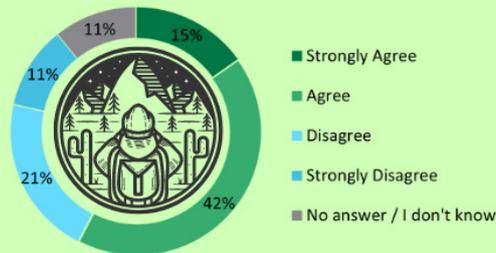
Visitors: Day Trip

Motives with significant importance



Aspects with significant importance

The Tannermoor is a place for adventures and activities.



There is a small positive correlation with making a day trip.

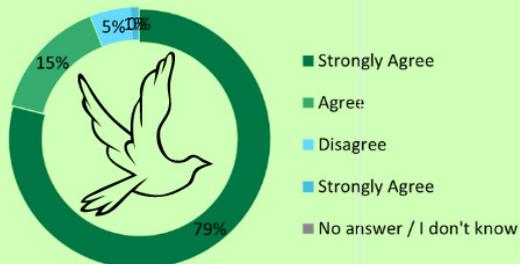
Offers with significant importance



Regulated parking lot

General bog statements with significant importance

Bogs should be protected for seldom species and plants.



Oceans can take up and save more CO₂ than bogs.

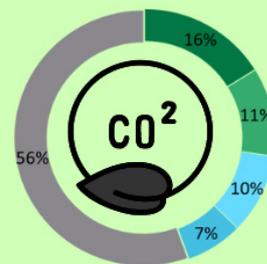


Figure 25 Summary of Day Tourists

Visitors: Tourists

Offers with significant importance



Snack bar



Sanitary facilities



Educational trail /
theme trail



Guided tour through
the bog

General bog statements with significant importance

Oceans can take up and save more CO₂ than the bog.

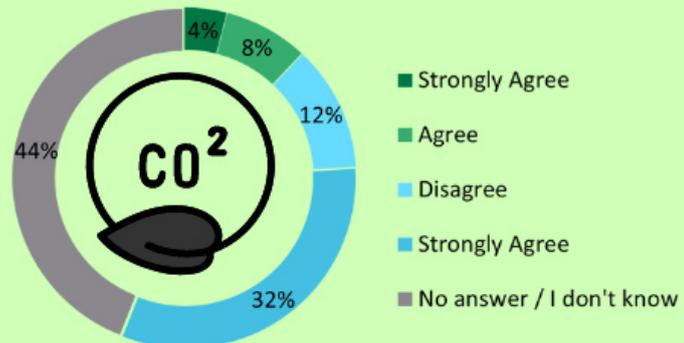


Figure 26 Summary of Tourists

5. Discussion

The analysis of the results of the Tannermoor support the theory that different users need a variety of things to fulfil their needs and that the offers can be adjusted to their wishes (Maulan 2006, Slabbert & Viviers 2014, Konu & Kajala 2012, Benabad et al. 2017, Van Marwijk et al. 2016). Furthermore, the educational background and the place of residence are of great importance, influencing the way people perceive the Tannermoor (Gonia & Jezierska-Thöle 2022, Konu & Kajala 2012, Handlechner 2010).

In the next paragraph I'll be providing an outline if the hypotheses can be confirmed or not, followed by a discussion of the hypotheses in more detail with the international literature.

Hypotheses one, two and three could be confirmed by the outcome of the questionnaire which was filled out by the visitors of the Tannermoor.

In line with **hypothesis one**, *the behaviour of the day tourists, tourists and locals varies between the user groups*. The results confirm the claims of Konu & Kajala (2012), who declare that the context and the attitudes of the travellers are important to how they interact and what they demand plus how they perceive nature. Slabbert & Viviers (2014) can confirm the outcome, their findings are similar stating that the motives are different depending on the kind of visitor. So, Locals and tourists need various "products" concerning their wishes. Additionally, the analysis of Benabad et al. (2017) show similar results, based on the company and type of personality, the travellers differed significantly in their desires.

Hypothesis two can also be verified because the different users have different opinions concerning the educational and tourists offers. The seemingly plausible **sub-hypothesis 2a**, *stating that locals need a higher variability in attractions in order to visit more often* cannot be confirmed by the data of the survey. The data which Kurinasari (2019) collected through interviews and a questionnaire in the K Park, opposes the theses, supposing that tourists as well as locals need a variation in educational offers to visit.

Furthermore, the data suggest that the educational background and the living environment influence the perception of the moor, which affirms **hypothesis three**. Here both **sub-**

hypothesis 3a *“There is a significant difference in the valuation of the peat bog depending on where people come from the countryside or the city”* as well as **sub-hypothesis 3b** *“There is a significant difference in the valuation of the peat bog depending on the educational background of people”* could be confirmed. Concerning the place of residency, Benabad et al. (2017) also sees a difference between urban travellers and people from the countryside. Handlechner (2010), is of the same opinion and says that people from the city are drawn to the countryside and value nature differently than residents. In regard of the sub-hypothesis 3b, Maulan (2006) emphasizes the divergent view depending on the level of education. Jan & Lee (2019) also propose that according to the educational background the nature-based location can be seen differently.

This section will now examine the results of the Tannermoor study with the findings of the international literature research. To begin with, the approach of Benabad et al. (2017) is similar to the study in the Tannermoor, whereas the types of travellers are divergent. Results of the last type of activity enthusiasts searching for adventure are relatable to data found in the Tannermoor. One aspect of the Tannermoor study looked at the main motives to visit the Tannermoor which also included activities. Most valued motives were experiencing nature and relaxing. These observations relate to Heuchele’s (2010) and Kurniasari’s (2019) research. The data of Maulan (2006) agreed that activities as well as landscape were of importance whereas finding opposite outcomes concerning the environmental awareness. In the Tannermoor survey a negative correlation could be found between the nature motives and being local but positive correlations suggest a high interest in social interactions. Indeed, Slabbert & Viviers (2014) share the same opinion, that social contact is very important for locals. As a matter of fact, Flint & Jennings (2022) provide proof that there is close connection of the residents and the protected area nearby. Meaning, that the social aspect can also be seen as an ecosystem service, this also confirms the outcome of the Tannermoor. The results are in line with the findings of Zhang et al. (2021) who propose that there could be different reasons like social reasons to value the place, as well as Konu & Kajala (2012) state the social component is important in being motivated for recreational activities. Generally said, the results build on the existing outcome of Puhakka et al. (2017), who says that people go to bogs to relax, or have fun, which is a part of the social aspect, but no differentiation was made between locals and residents or tourists. In contrary, the results of the Tannermoor do not fit in the theory of Lupp & Konold (2008) that if visitors come regularly, people focus more on

the features of nature, concerning the locals. Dobbie (2013) and Arias-Garcia et al. (2016) are of the opinion that the landscape is viewed differently, when coming more often to the place or being familiar with the area. Furthermore, Arias-Garcia et al. (2016) and Van Marwijk et al. (2012) point out that personality features also play a role when viewing the wetlands. In contrary, people who made a day trip to the Tannermoor positively looked forward to visiting the Tannermoor to enjoy the nature, look at the landscape and experience the bog. They didn't go there to go swimming or for social interactions as meeting up with friends and having fun. The results indicate that most of the day tourists (52%) have been to the Tannermoor a few times already and around 38% visited the Tannermoor 20 to 30 times already in the last twelve months. The data of Puhakka et al. (2017) revealed that regular visitors are especially coming to experience nature. The results should be taken into account when considering that having contact with nature supports interactions between people and create a feeling of belonging. Furthermore, being in nature increases the well-being of people, as well as having a beneficial impact on the mood and the emotions (Puhakka et al. 2017).

The aspect of experiencing something adventurous can be seen throughout the literature (Kurniasari 2019, Payne et al. 2004, Slabbert & Viviers 2014, Park & Yoon 2009) – in the current study these results are the same for both residents and tourists (Slabbert & Viviers 2014). Furthermore, the Tannermoor offers a great variety of activities ranging from biking, hiking, swimming, to experiencing the bog and meeting friends and family. Both Smardon (1978) and Gonia & Jezierska-Thöle (2022) agree that the more activities can be done in one recreational spot, the more the place is appreciated by people. Handlechner (2010) goes further and describes a new movement of tourists wanting to have numerous options on things to do. Activities were found to be the most significant reasons for tourists to come to nature-based areas, while the main reason for residents was the motive of relaxing (Slabbert & Viviers 2014). The findings of Slabbert & Viviers (2014) do not fit with the data which was analysed of the visitors of the Tannermoor.

Tourists, people on a day trip and residents also differed significantly concerning the offers which they liked. The snack bar, sanitary facilities and the playground were important for locals, while visitors making a day trip found a regulated parking lot essential. People on a holiday had a similar answer to the locals, they also thought of the snack bar and the sanitary facilities as crucial, but on the other hand they valued the offers of the educational trail/

theme trail and the guided tour through the bog. Slabbert & Viviers (2014) assume, that facilities are of greater relevance to tourists who only go to seldom the nature-based site than for residents. This discovery is not consistent with the data. Residents as well as Tourists thought the facilities were of importance. Tourists can be associated with the activity centrics by Zanon (2005), he underlines that car parking was essential to these kinds of persons.

In the Tannermoor study the protection of bogs as habitat for seldom and rare species and plants was of significance for the residents as well as for the day tourists. These results fit the theory of Flint & Jennings (2019) theorizing, that people with a higher visit frequency are more connected to the place. Furthermore, Gonia & Jezierska-Thöle (2022), Sardon (1978) and Dobbie & Green (2013) agreed that the general public was very aware of the wildlife in bogs. Besides, watching animals in nature has a positive impact on the psychological well-being of the visitor (Puhakka et al. 2017). The findings of Puhakka et al. (2017) of protecting the bogs are in line with the goals of the Interreg project (rmooe 2022, at-cz.eu 2022). While previous studies focused on the behaviour and attitudes of the visitors, segmenting them into user profiles, no user profiles were created in this study, but indeed all the components were taken into consideration specifically. The Tannermoor study looks at a new more holistic angle also considering the importance of the company of the travellers to the nature-based site.

Benabad et al. (2021) came to the same conclusion that based on who accompanied the person to the recreational site, different demands needed to be met. Spending time in nature and encountering new things, strengthens bonds between families (Puhakka et al. 2017). Furthermore, Urban Socials as defined by Zanon (2005), visit the park for an occasion to gather with friends and relatives, especially when they have children. These results are in line of the extracted data: The social aspect of doing something with the family and having fun played a huge role for visitors being accompanied by family with children, friends and relatives. Park & Yoon (2009) also accentuate the motive of being close with the family, as important factor in rural tourism. Being alone in the Tannermoor also revealed different needs: finding peace and quiet and going swimming. Flint & Jenner (2022), Heuchele et al. (2014) and Handlechner (2010) found the same preference in their studies, that people are attracted to places which are quiet. Lupp & Konold (2008) found a connection between wanting to be alone and tranquillity. The observations of Yasir (2020), Navratil et al. (2011), Sowinska et al. (2019) support this connection. Suggestions proposed by the visitors of the Tannermoor were centred around keeping up the tranquil atmosphere and conserving nature by wishing that

less people would visit the Tannermoor. A new discovery in the Tannermoor study made, was being accompanied by family had an implication on how interested the visitors were in nature. In the company of a family with children experiencing the bog and enjoying the view were viewed essential. Flint & Jennings (2019) accentuate that approving the attractiveness of the landscape when viewing the bog, makes people more attached to nature.

The international literature suggests that people who come by purpose on holiday have the intention to learn something new especially when visiting a nature-based tourism site (Slabbert & Viviers 2014, Payne et al. 2004, Kuriniasari 2019). This data contributes to a clearer understanding, that tourists are more interested in educational offers, as a guided tour through the bog and educational trails / theme trails in the example of the Tannermoor.

Moreover, the living environment and the educational background influence the behaviour and attitudes of the participants. Depending on where the person currently lives, people from the countryside and people from the city have different needs according to the current study. People from the countryside valued the social ecosystem services of the bog, while main motivations for people from the cityside were nature aspects. These findings are conform to Benabad's results (2017) pointing out that people from the city value natural environments more than people from the countryside, and love the tranquillity. Corona could have also enhanced the anti-trend of the globalisation to glocalisation, meaning a conscious appreciation of the local sights (Handlechner 2010).

In the Tannermoor study infrastructure as food and a playground, as well as educational trails /theme trails were more important to people from the city. Opposite of what is found in the data, Zanon (2005) claims that people from the country are more interested in activities and interested in tours.

Furthermore, examining the educational background, the Tannermoor study revealed that the higher the education the more interest the people showed in educational offers. Indeed, Gonia & Jezierska-Thöle (2022) agree that the educational background and the aspect of learning are of huge concern. Konu & Kajala (2012) and Handlechner (2010) state that the higher educational level influences the interest in nature-based sites.

Concerning the living environment and the influence of the perception of the moor, the following results were found. Urban people felt more unsafe in bogs, at the same time they

valued the bog as habitat for seldom species and plants and people from the Countryside agreed with the statement to undertake agriculture and forestry in the bog.

6. Conclusion and recommendation

6.1. CONCLUSION

The main findings indicate that users differ significantly in their motivations to go to the Tannermoor, the aspects which they find important, the offers which they prefer and how they view the bog. Locals, day tourists and tourists have different opinions and wishes, moreover it is essential by who they are accompanied to which aspects they want. The data suggests that the Tannermoor is seen as a place for adventures, to interact with other people by locals, whereas tourists are more interested in the nature and educational offers. All agreed that the bog was a place to be protected for animals and plants.

Being accompanied by the partner, relatives, a family with kids and friends placed the social aspect in the foreground, but families and friends also enjoyed the nature. Experiencing peace and quiet was highly valued by people who visited the Tannermoor on their own. Protecting the bog due to climate change and as habitat was seen as a big concern by people being accompanied by friends.

The survey resulted in different user groups needing different things to fulfil their desires. This is in line with several other international studies. Through addressing different needs of the stakeholders, everyone can get a benefit (Handlechner 2010). Particularly interests of young people and children and their need of experiencing nature should be considered (Spiess et al. 2008, Chai-Arayalert 2020). Besides fulfilling specific desires of the visitors, the regional awareness can be strengthened by engaging with the local users (Handlechner 2010)

In the Tannermoor study different motives of the locals for visiting were visible. Creating more interest in protection goals could be one future ambition. The visitors of the Tannermoor overall perceived the bog as a very attractive place to visit and being able to watch wildlife in the Tannermoor.

Communication helps to understand how the ecosystem works and which functions are important to conserve (Yasir 2020). Visitors proposed to putting up signs with rare and endangered plant and animal species to better understand the importance of this ecosystem. As a fact, they communicated that they wished that the signage would be improved, including more signs, specifying the times for the hiking paths and facts about the history of the Tannermoor.

Among the residents they perceived the Tannermoor as very attractive, as a place for peace & quiet and a very diverse area. In the suggestions they came up with the recommendation to not promote more tourists to come, in order to be able to conserve nature and maintain the peace & quiet. A lot of them were concerned that the Tannermoor will be turned into a spot designed for mass tourism and they strongly disagreed with this idea. Further they were not fond of the intervention with nature as example cutting down trees. Communicating plays a major role in informing the residents about the goals and the future of the Tannermoor. Generally, making processes more transparent helps people to understand what's going on and helps them to see the bigger picture. That's why involving residents of the nature-based attraction helps to support the concept and positively enhances the chance of better conservation and protection of the peatlands also in the future (Klitsounova et al. 2019, Van Marwijk et al. 2012, Hassan 2017). By viewing changes of restoration processes people perceive restored areas, which are more natural as more beautiful as before restoration (Van Marwijk et al. 2012). But not only the visual experience impacts the stakeholders, letting them participate in the process and protecting the nature together, can increase the learning effect and establish a better relationship between the nature and the residents (Lintzmeyer & Siegrist 2008, Van Marwijk et al. 2012). Notably, Handlechner (2010) proposes to develop the infrastructure further sustainably, in order to be successful at promoting the nature-based site.

Finally, visitor management implies the infrastructure including those needed for orientation in the area. Better trails and more trails, as well as more signboards were also a topic in the Tannermoor, similar to international studies such as (Benabad et al. 2017)

6.2. LIMITATIONS AND OUTLOOK INTO THE FUTURE

The sample size was quite small compromising 362 people all in all. Regarding the educational background, the results were not distributed evenly. The majority of the visitors (44%) had

finished their apprenticeship, 18% had completed their high school diploma, followed by 10% who accomplished a PhD, 8% had finished compulsory school or their masters, 7% had gotten a bachelor's degree and 4% had done an apprenticeship with a high school diploma. There are limitations concerning the educational background. The same applies to the current place of residency, 70% lived in the countryside and 30% lived in suburban areas and cities.

A bigger sample size is needed, as well as before and after visits would be helpful to get to know the full experience of the visitors and their expectations. It would be an advantage to see how many people and which kind of visitors come to the Tannermoor in one or two years, to see if the measures taken make a difference. Additionally, visitor monitoring might reveal new insights. Thereby motivation, satisfaction, numbers of arrivals and overnight stays, activities should be monitored (Spiess et al. 2008, Lintzmeyer & Siegrist 2008),.

Further studies should include conducting a questionnaire before and after the visit to the nature-based location. This could help see the expectations of the visitors and if their expectations could be met, as well as getting to know their wishes and listening to their concerns if something was not good. Avenues for future research include monitoring the site and reviewing if the measures undertaken have changed the opinion of the residents as well as tourists in a positive or negative way. In the following recommendations are presented deriving from this study.

6.3. RECOMMENDATION

In conclusion, every protected area is different and individual measures have to be taken to support the sustainability and improve economics, but some things can be said in general.

This leads to recommendations which can be implemented in Tannermoor, as well as nature-based sites generally.

Reaching the destination in a more sustainable way is included in the definition of ecotourism and nature-based tourism (Lopez-Espinosa 2002, Handlechner 2010) and is of high importance in these times. Due to climate change and the amounts of CO₂ which are emitted, a transition from individual transport to using public transport would be favourable.

- Travellers should be supported who want to reach the Tannermoor in a sustainable way, by implementing bike stations or making e-bikes or bikes more available to be rented. Letting residents and other stakeholders participate in the development of

their nearby environment, this can improve the relationship with them and have an impact on a more positive attitude towards management, providing communication opportunities.

This is particularly important in a sensitive environment such as bogs, with very diverse interests of use. Often residents are not included in developing a new concept, which can have an impact on their behaviour towards the bog (Slabbert & Viviers 2014). To conclude, the goal should be to enable the people to have a good time and learn something new and treating the environment in a sustainable way (Konu & Kajala 2012). Furthermore, educational offers and the learning process can increase a positive attitude towards the nature (Jan & Lee 2019). This can be supported by

- Providing diverse educational offers and learning experiences for young and old, as example by giving guided tours, learning about the Tannermoor and more generally a bog in an interesting way like a barefoot trail, putting up educational boards with Information about endangered and rare animal and plant species in the protected area and presenting them through various communication channels. As example providing QR-Codes next to the signs which lead to a website with further information when visitors are interested.

Informing visitors of the benefits which a protected area as a bog can have, is an important target (Lintzmeyer & Siegrist 2008). When they know about the positive effects, their attitude will be more positive, and more awareness can be created (Lintzmeyer & Siegrist 2008). Especially informing them about the scenery and the surrounding environment. (Lintzmeyer et al. 2008, Lupp & Konold 2008). Lintzmeyer & Siegrist (2008) are of the opinion that communication and the participation of local stakeholders is an essential factor for success. Zografos & Allcroft 2007 are of the same opinion.

- Protecting the nature by putting up signboards: “don’t leave the path” in order to not damage the vegetation and habitat of rare and endangered species and creating environmental awareness and keeping up the balance between preventing damage, protecting the environment, keeping up the tranquillity and the number of tourists. By putting up signs which explain the sensitive ecosystem of the Tannermoor.

Monitoring of sensitive ecosystems, which can be found in bogs, is an important issue, thereby motivation, satisfaction, numbers of arrivals and overnight stays and activities should be monitored (Lintzmeyer & Siegrist (2008), Spiess et al. (2008). Furthermore, it helps to understand if restoration of bogs has effects on the visitors or not. It can be compared if there are more visitors, due to the restoration process, because people find healthy and intact environments and landscapes more beautiful (Van Marwijk et al. 2012, Taylor et al. 2019).

- Monitoring if the changes have an impact on the numbers of visitors and controlling if the restoration has an effect and if this can again be communicated to the visitors to help them understand the process and see progress.

Environmental awareness plays a huge role in visiting nature-based areas and protected areas (Yasir 2020, Grenier 2022, Hassan 2017). According to the behaviour of the visitors, especially the attitude towards the environment, more appreciation can be evoked by people visiting the Tannermoor. Giving them the informational material about bogs and getting them interested can change the perception of the visitors in a sustainable way (Jan & Lee 2019, Pearce 2005).

- Creating interesting options as example: Events with informational material about endangered species for kids in a playful way, initiating a more artistic access to the information about bogs, workshops for interested people and making an event to celebrate to protect the bog together by cleaning it and giving critical information about the ecosystem of a bog.

Tourism changed in the last decade, and it gets more and more important for visitors to have a range of offers which they can undertake (Handlechner 2010, Smardon 1978, Maulan 2006). Recreational activities, like doing sports, relaxing and experiencing nature and the bogs should be further promoted (Kurinasari 2019, Puhakka et al. 2017).

- Improving the paths and signposts by indicating the duration, putting up signposts in both ways, providing more paths and upkeep of the trails, providing more bike trails and expanding the swim platform is a form to offer more activities.

In conclusion it is important to have a look at the needs and wishes which visitors have to create a memorable and pleasant experience in a sensitive ecosystem. Positive emotions create the opportunity to implement a transition to a more sustainable life of living. As example by learning something about how the ecosystem of a bog works and doing this in a playful and positive way, our behaviour can be changed sustainably. A positive attitude towards the environment and people who are more environmentally aware help us to take up the challenge of climate change. Moreover, it is important to collectively protect the nature and support the ideas of everyone who wants to participate in the process of designing a new future. Especially protecting bogs is of high importance, as they are a big CO₂ sink and can support the fight against the consequences of the climate change.

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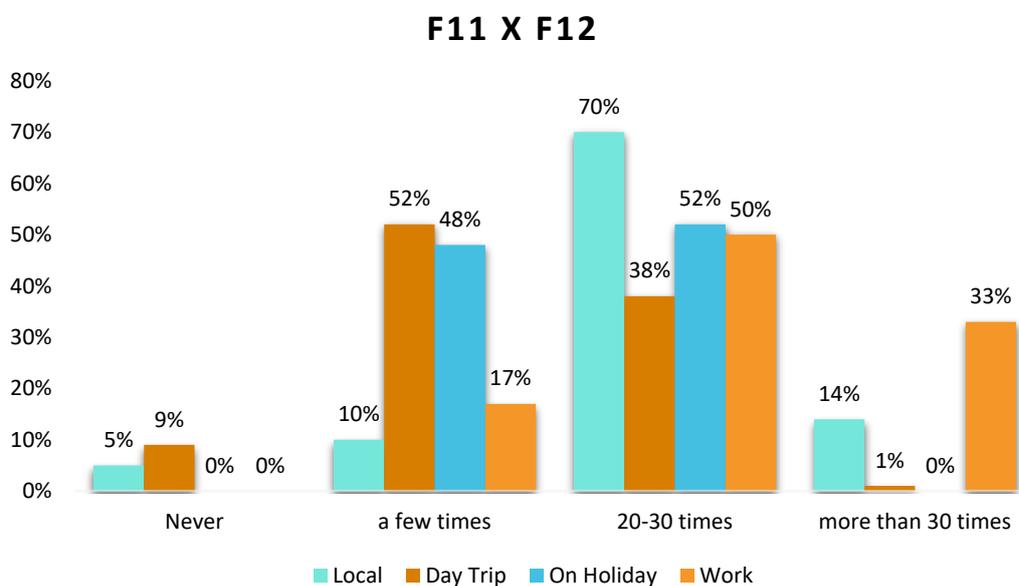
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[Umweltbundesamt \(2022\)](#): <https://www.umweltbundesamt.de/themen/neues-informationsangebot-moorklimaschutz>, last access 1.11.2022

Appendix



Questionnaire



Im Rahmen meiner Masterarbeit auf der Universität für Bodenkultur mache ich eine Umfrage zum Thema Tannermoor am Institut für Landschaftsentwicklung, Erholungs- und Naturschutzplanung (ILEN). Die Umfrage dauert ca. 10 Minuten. Ich würde mich freuen, wenn ihr mitmacht! Die Daten werden vertraulich behandelt und anonymisiert.

* 1. Wie oft haben Sie in den letzten 12 Monaten das Tannermoor besucht?

* 2. Bitte geben Sie Ihren Aufenthaltsgrund in der Region an

- Ich lebe in der Region
 Urlaub
 Tagesausflug
 Beruflich
 Sonstiges (bitte angeben)

* 3. Was sind Ihre Beweggründe hier ins Tannermoor zu kommen? Sie können hier auch mehrere Antworten ankreuzen

- Erholung
 Moor erleben
 Natur
 Die Aussicht genießen
 Ruhe finden / Zu sich kommen
 Mit der Familie etwas unternehmen
 Sport
 Spaß haben
 Freunde treffen
 Baden
 Landschaft
 Sonstiges (bitte angeben)

* 4. Wie bewerten Sie folgende Aspekte zum Tannermoor?

	(1) Trifft sehr zu	(2) Trifft zu	(3) Trifft wenig zu	(4) Trifft nicht zu	(5) keine Antwort / weiß ich nicht
Attraktivität der Landschaft	<input type="radio"/>				
Abwechslung der Landschaft	<input type="radio"/>				
Informationen über das Moor bzw Moorschutz	<input type="radio"/>				
Platz für Abenteuer / Aktivitäten	<input type="radio"/>				
Ort für Einsamkeit / Ruhe	<input type="radio"/>				
Vorkommen von seltenen Tierarten / Pflanzen	<input type="radio"/>				

* 5. Wie wichtig sind Ihnen folgende Angebote für den Aufenthalt im Tannermoor?

	(1) Wichtig	(2) Eher wichtig	(3) Eher unwichtig	(4) Unwichtig	(5) keine Antwort / weiß ich nicht
Jausenstationen	<input type="radio"/>				
Sanitäre Anlagen	<input type="radio"/>				
Lehrpfad / Themenwege	<input type="radio"/>				
Moorführung	<input type="radio"/>				
Informationen über das Moor	<input type="radio"/>				
Bänke und Ruhebereiche	<input type="radio"/>				
Spielplatz	<input type="radio"/>				
Geregelte Parkmöglichkeit	<input type="radio"/>				

6. Was könnte man Ihrer Meinung nach im und rundum das Tannermoor verbessern, um es für Sie attraktiver zu machen, damit sie öfter herkommen würden?

* 7. Mit wem sind Sie ins Tannermoor gekommen?

- | | |
|--|--|
| <input type="checkbox"/> Partner/In | <input type="checkbox"/> alleine |
| <input type="checkbox"/> Familie mit Kindern | <input type="checkbox"/> Freunde |
| <input type="checkbox"/> Verwandte | <input type="checkbox"/> Schulklasse / Reisegruppe |

* 8. Bitte bewerten Sie, inwieweit die folgenden Aussagen auf Sie bzw. Ihre Sichtweise zutreffen?

	(1) Trifft sehr zu	(2) Trifft zu	(3) Trifft wenig zu	(4) Trifft nicht zu	(5) keine Antwort / weiß ich nicht
Ich sehe gerne wilde Tierarten im Moor	<input type="radio"/>				
Mir gefallen Moore – Sie sind ein schöner Ort.	<input type="radio"/>				
In Mooren kann man schnell die Orientierung verlieren.	<input type="radio"/>				
Moore sind für mich ein Ort der Ruhe und Stille.	<input type="radio"/>				
In Mooren fühle ich mich unsicher, sie sind kein sicherer Ort	<input type="radio"/>				
Ich denke, man sollte Moore durch Land- und Forstwirtschaft nutzen	<input type="radio"/>				
Wir brauchen Moore für den Klimaschutz.	<input type="radio"/>				
Moore müssen meiner Meinung nach als Lebensraum für seltene Tier- und Pflanzenarten geschützt werden.	<input type="radio"/>				
Ozeane können im Vergleich zum Moor mehr Co2 aufnehmen und speichern.	<input type="radio"/>				

* 9. Wie stark identifizieren Sie sich mit folgenden Aussagen? Bitte stufen Sie ein, inwieweit folgende Aussagen auf Sie zutreffen.

	(1) Trifft sehr zu	(2) Trifft zu	(3) Trifft wenig zu	(4) Trifft nicht zu	(5) keine Antwort / weiß ich nicht
Um aktiv und fit zu bleiben ist es mir wichtig mich regelmäßig in Naturräumen aufzuhalten und dort Sport zu betreiben (z.B.: Radfahren, Joggen, Wandern, usw.)	<input type="radio"/>				
Ein Spaziergang in der Natur macht mich zufriedener / ausgeglichener.	<input type="radio"/>				
Um meinen stressigen und turbulenten Alltag (Homeoffice, Distance Learning, Zeitmanagement, usw.) für einen Moment auszublenden, bzw. ihm zu entfliehen, ist es mir wichtig, mich in Naturräumen aufzuhalten.	<input type="radio"/>				
Es ist mir wichtig mich in Naturräumen aufzuhalten, um die Stille genießen zu können und zu mir zu finden.	<input type="radio"/>				
Um mit Freunden und Familie in Kontakt zu bleiben, ist es mir wichtig mich in Naturräumen aufzuhalten und dort gemeinsame Unternehmungen zu machen und mich auszutauschen.	<input type="radio"/>				
Im Hinblick auf meine Gesundheit und mein Wohlbefinden, genieße ich die Zeit, die ich in der Natur verbringen kann.	<input type="radio"/>				
Die Natur gibt mir Kraft, die ich benötige für mein Leben / meinen Alltag	<input type="radio"/>				

* 10. Wie stark identifizieren Sie sich mit folgenden Aussagen? Bitte stufen Sie ein, inwieweit folgende Aussagen auf Sie zutreffen.

	(1) Trifft sehr zu	(2) Trifft zu	(3) Trifft wenig zu	(4) Trifft nicht zu	(5) keine Antwort / weiß ich nicht
Ich verbringe gerne Zeit in der Natur.	<input type="radio"/>				
Ich lebe gesundheitsbewusst	<input type="radio"/>				
In meinem Haushalt werden viele Fertigprodukte verwendet.	<input type="radio"/>				
Ich interessiere mich mehr für Umweltthemen, als die meisten Menschen.	<input type="radio"/>				
Die Diskussion zur Klimakrise halte ich für übertrieben	<input type="radio"/>				
Ich achte beim Einkauf von Lebensmitteln auf Saisonalität und Regionalität.	<input type="radio"/>				
Wenn ich auf Reisen gehe, verwende ich öffentliche Verkehrsmittel wie den Zug oder den Bus und verzichte auf das Fliegen.	<input type="radio"/>				

* 11. Wie ausgeprägt ist Ihr Interesse an Umwelt-Themen?

Interessiert

Eher uninteressiert

Eher interessiert

Uninteressiert

12. Informieren Sie sich über Umwelt-Themen? Wo würden Sie sich am ehesten zuordnen?

nie

1-2 in der Woche

selten

öfter

1 x im Monat

* 13. Über welche Medien informieren Sie sich zu Umwelt-Themen?

Zeitung

Radio / Rundfunk

Freunde / Familie

Printmedien

Social Media / Internet

* 14. Bitte geben Sie Ihr Geburtsjahr an

* 15. Welchem Geschlecht fühlen Sie sich zugehörig?

weiblich

männlich

anderes

* 16. Bitte geben Sie Ihre Postleitzahl an

* 17. Wo leben Sie?

Land

Stadt

Stadtumland

* 18. Bitte kreuzen Sie Ihre höchste abgeschlossene Ausbildung an

- | | |
|--|-----------------------------------|
| <input type="checkbox"/> Pflichtschule | <input type="checkbox"/> Bachelor |
| <input type="checkbox"/> Lehrabschluss | <input type="checkbox"/> Master |
| <input type="checkbox"/> Lehrabschluss mit Matura | <input type="checkbox"/> Doktorat |
| <input type="checkbox"/> Matura | |
| <input type="checkbox"/> Sonstiges (bitte angeben) | |

* 19. Bitte kreuzen Sie Ihr derzeitiges Haushaltseinkommen an.

- | | |
|-------------------------------------|---|
| <input type="checkbox"/> unter 800€ | <input type="checkbox"/> 2401-3500€ |
| <input type="checkbox"/> 801-1200€ | <input type="checkbox"/> 3501-5000€ |
| <input type="checkbox"/> 1201-2400€ | <input type="checkbox"/> mehr als 5000€ |

* 20. Bitte kreuzen Sie Ihren derzeitigen Beziehungsstatus an.

- | | |
|---|---|
| <input type="checkbox"/> Single | <input type="checkbox"/> in einer Partnerschaft / Ehe mit Kindern |
| <input type="checkbox"/> Single mit Kind | <input type="checkbox"/> Familie |
| <input type="checkbox"/> in einer Partnerschaft / Ehe ohne Kinder | |

* 21. Derzeitige Beschäftigung

- | | |
|--|--|
| <input type="checkbox"/> in Ausbildung | <input type="checkbox"/> Arbeitslos / -suchend |
| <input type="checkbox"/> selbstständig erwerbstätig | <input type="checkbox"/> in Pension |
| <input type="checkbox"/> Vollzeit unselbstständig erwerbstätig | <input type="checkbox"/> im Haushalt tätig |
| <input type="checkbox"/> Teilzeit unselbstständig erwerbstätig | |
| <input type="checkbox"/> Sonstiges (bitte angeben) | |