



PILOT ACTIONS FINAL REPORT

D.T2.5.1 - Biosphere Reserve Southeast-
Rügen (PP06)

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Introduction

Rügen is one of the top holiday destinations in Germany. This brings about a high volume of German but also increasing numbers of international tourists. To mitigate the effects of these tourism volumes the authority of the Biosphere Reserve Southeast-Rügen started working on sustainable tourism development and qualified for the first time in 2011 for the title as European Charter Park for Sustainable Tourism in Protected Areas. To continue the efforts of sustainable tourism development in the Biosphere Reserve the authority planned to get re-certified as Charter Park in the framework of the Interreg CEETO Project. Thus, in 2018 together with the forum and an existing network of stakeholders a new action plan was set up and the Biosphere Reserve Southeast-Rügen successfully got re-certified by EUROPARC Federation.

The Interreg CEETO Project and in particular the pilot action became an important component of the new sustainable development action plan. Overall there was a “feeling” that especially during the summer season the high tourism volumes cause pressure to the protected areas within the Biosphere Reserve but the authority and stakeholders lacked sufficient data upon which to develop a strategy. Thus, for the CEETO pilot action the Zicker Berge - a very valuable and species rich grassy landscape - were chosen. In this area an in-depth evaluation of tourism flows and related nature pressures is to be conducted. Based on the outcome of this evaluation necessary management activities will be developed and implemented. The pilot action is an indication for the authority and the stakeholder, as it will show the necessary resources needed - time, finances, people - to conduct a monitoring and management implementation project. Based on this practical experience it will be much easier to plan and implement future monitoring and management activities in other areas in the Biosphere Reserve Southeast-Rügen.

1.1. Participatory processes

During the CEETO Project multiple stakeholder meetings and workshops took place in the Biosphere Reserve Southeast-Rügen to enable all relevant interest groups to voice their opinions and get involved in the sustainable tourism actions taking place. The meetings and workshops included:

- Two meetings with the steering committee (a “kick-off” and a “how to start with the Action Plan” meeting) in 2018
- Four participatory workshops to set up the action plan in 2018:
 - o Evaluation workshop (13 participants: 9 public sector, 2 private sector, 2 associations)
 - o SWOT- and strategy workshop (14 participants: 11 public sector, 1 private sector, 2 associations)
 - o Action Plan workshop (30 participants: 13 public sector, 13 private sector, 4 associations)
 - o Implementation workshop (27 participants: 9 public sector, 15 private sector, 3 associations)
- One “On the spot workshop” regarding the Zicker Berge Pilot Action activities (18 participants: 10 private sector, 6 public sector, 2 associations)

Next to these meetings individual short meetings with different stakeholders and regular phone and email contact took place. During 2019, the Project Manager did a quarterly email inquiry regarding the action plan implementation progress and another evaluation meeting with the steering committee is planned in the beginning of 2020. Furthermore, members of the Administration of the Biosphere Reserve Southeast-

Rügen are involved in different tourism-sector led working groups and thus further regular contact and cooperation with a wide variety of stakeholders is fostered.



Picuter 1: Impressions of Workshops

1.2. Developed Strategy

During the participatory workshops for the action plan development a joint strategy for sustainable tourism was set up. The strategy was influenced by:

- The results of the analysis of the European Charter Period 2011-2016
- The vision for sustainable tourism in the Biosphere Reserve Southeast-Rügen based on a self-image and the strategy goals
- The principles of the European Charter for Sustainable Tourism in Protected Areas
- The Mission Statement of the Biosphere Reserve Southeast-Rügen
- The results of the strategy workshop

The steering committee together with the administration of the Biosphere Reserve Southeast-Rügen was mainly involved in the strategy development. Thus six goals and overall 15 strategies resolved out of these documents and meetings. These are as follows in figure 1.

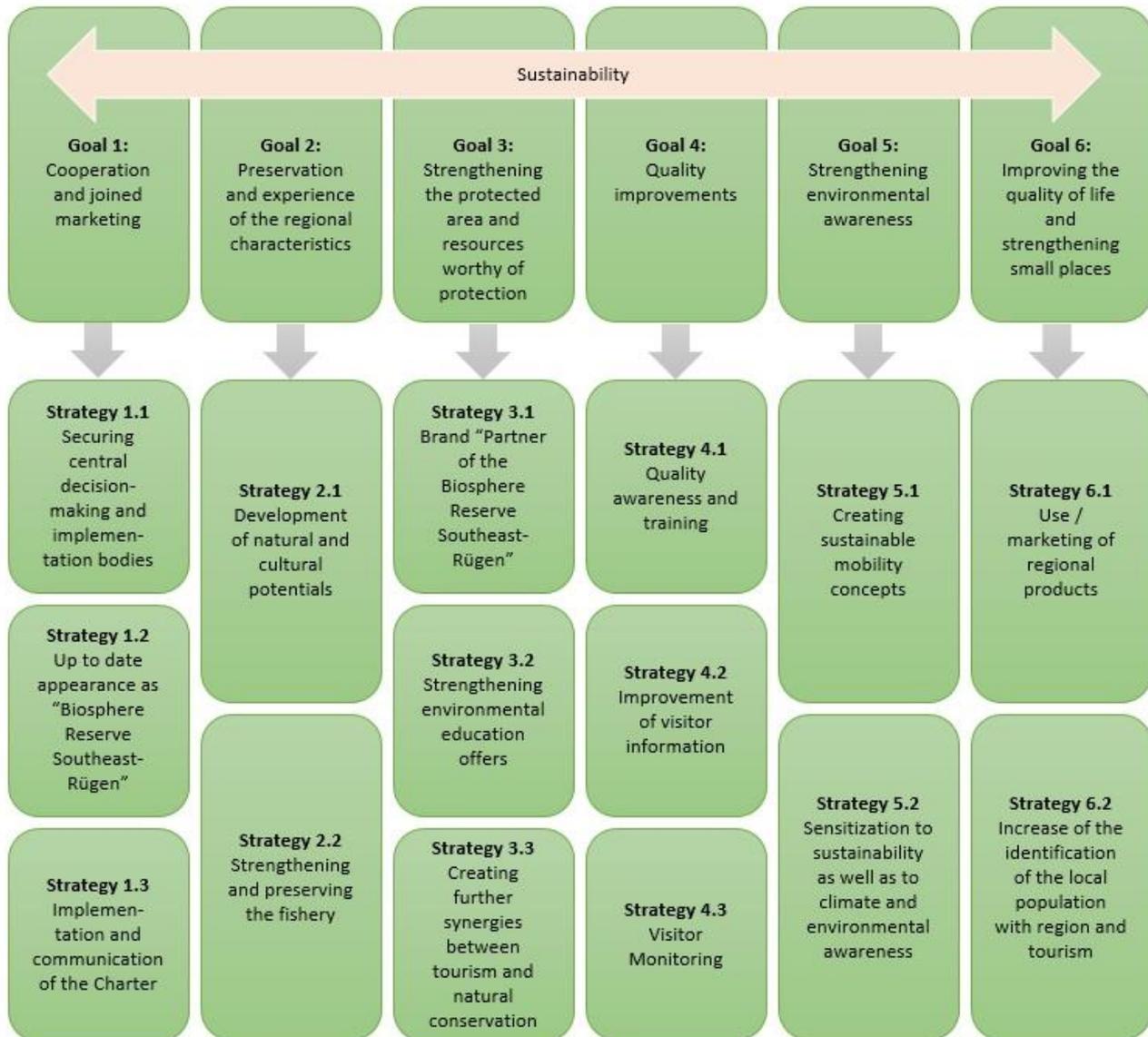


Figure 1: Goals and strategies

Pilot Action Design Phase

2.1. Monitoring Activities

The following monitoring activities were implemented in the summer of 2018 to be continued until the end of the pilot action period (October 2019).

- a) Installation of electronic people counters at the two main entrances of the Zicker Berge, to be able to monitor the visitor flows into and out off the area
- b) Manual visitor counting and flash interviews

- i. Different types of visitors are counted (hikers, excursionist with a dog on a leash, hiker with a dog not on a leash, mountain biker / cyclist riding their bikes, mountain bikers / cyclists who push their bike, joggers), to monitor the behaviour that violates the proper code of conduct (for example, the cycling activity and dogs without a leash);
- c) Manual in-depth visitor interview
 - i. The following information is recorded: the general visitor profiles, tourist behaviour, the reasons for the visit, awareness of the naturalistic specificity of the Biosphere Reserve Southeast Rügen and, in particular, of the Zicker Berge; the current protection regime and the existence of a code of conduct for its protection; the frequency of visits and the particular interest for the Biosphere Reserve; knowledge of the reference terminology for the definition of Protected Areas; the degree of satisfaction, with particular attention to tourist pressure

During the winter - the off tourism season - only the electronic monitoring system counted visitors. The manual counting and interviews only took place from July to October 2018 and from April until October 2019. Originally three manual monitoring points were chosen (see picture 2, marked I, II, III). However after a testing phase it became clear that the manual monitoring point II was redundant as tourist, that passed this point had already been recorded either at point I or point III.



Picture 2: Location of Monitoring Locations & Sensors

The questionnaire used for the in-depth interviews was revised for the second monitoring period to include questions in relation to the implemented pilot action activities.



2.2. Forecasted Managing Activities

To ensure that the goals of the CEETO Project, the Action Plan and the Pilot Action are being met it was planned to hold quarterly meetings with the forum members starting in January 2019 to continuously evaluate the progress. Furthermore, additional meetings with the stakeholders of the “on the spot” workshop were planned to further develop the managing activities planned for the Zicker Berge.

Based on the “on the spot workshop” the following managing activities were developed to be implemented until April/May 2019:

- i. Joint Biosphere Reserve Ranger and Police patrols in the Zicker Berge to inform tourists/visitors about the code of conduct but also to deter people from wrong behaviour
- ii. Development of a map with possible rescue routes for the pilot area and putting up signs
- iii. Putting up trash cans at main entrances and informing tourists about the location and correct behaviour
- iv. Improving the signposts of the hiking trail systems to ensure visitors stay on the correct trails
- v. Develop an informative guide for the visitor/hikers (information was given about an online open source audio guide)

2.3. Expected results

With the pilot action and in particular through the monitoring activities we expect to gain a fuller picture regarding tourism flows, pressures and (correct/incorrect) behaviour as well as the type of tourist visiting the pilot area. Some information regarding the tourists and the behaviour exists by reports of rangers and locals however, further investigation is necessary.

Based on the initial information from locals and rangers we know that some issues existed with e.g. free running dogs, littering and destroyed sheep fences in the past years. Thus we expect that we can influence the tourists’ behaviour and improve the code of conduct in the area. By giving tourists more information e.g. via an audio guide or supplying trash cans we expect to raise visitor satisfaction in terms of understanding the peculiarities of the area but also finding a cleaner environment. Through the rescue route development we expect to decrease the time needed for paramedics and helpers to reach possible injured visitors (some problems had existed in the past).



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Table 1b: planned pilot action workplan

Pilot Action Implementation Phase

3.1. Monitoring activities and achieved results

All monitoring activities were carried out as planned only the time frame of the manual monitoring changed a bit. The manual monitoring and interviews were started in April instead of March 2019 and ended in the second week of October 2019 instead of in the last week.

With the monitoring the administration of the Biosphere Reserve Southeast-Rügen wanted to find out how many and which type of tourist visit the area as well as how they behave. Thus, indicators included:

- Overall tourism numbers, e.g. per season
- Number of tourist types e.g. hikers, dog owners, cyclists, joggers
- trails are most used
- visitor numbers in relation to specific tourism activities (to prolong tourism season)

The data collected showed the yearly progression of visitor frequency by month which gives a good indication, that the tourism season in the Zicker Berge is fairly long (going from March/April until October/November).

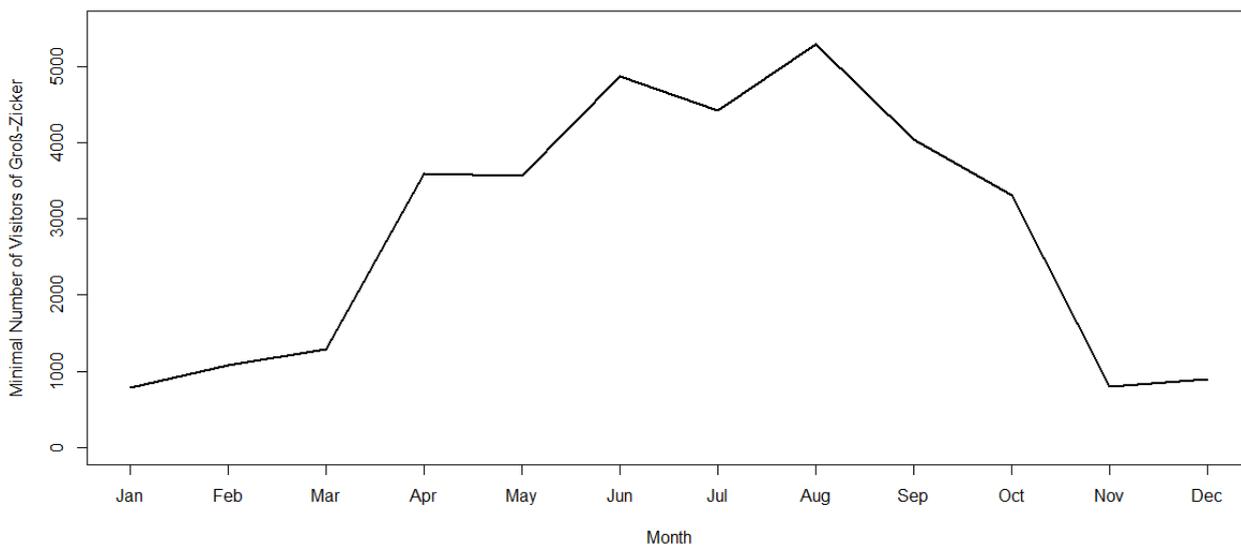


Figure 2: yearly progression of visitor frequency

This is a very positive image. However the following graphs show that the two season-extending measures called “Hiking Spring” and “Active Autumn” which include a number of free guided hikes leading to special natural and cultural highlights do not particularly influence the number of visitors in the Zicker Berge (see figure 3 and 4). The visitor numbers are rather influenced by the weather conditions (see figure 5).

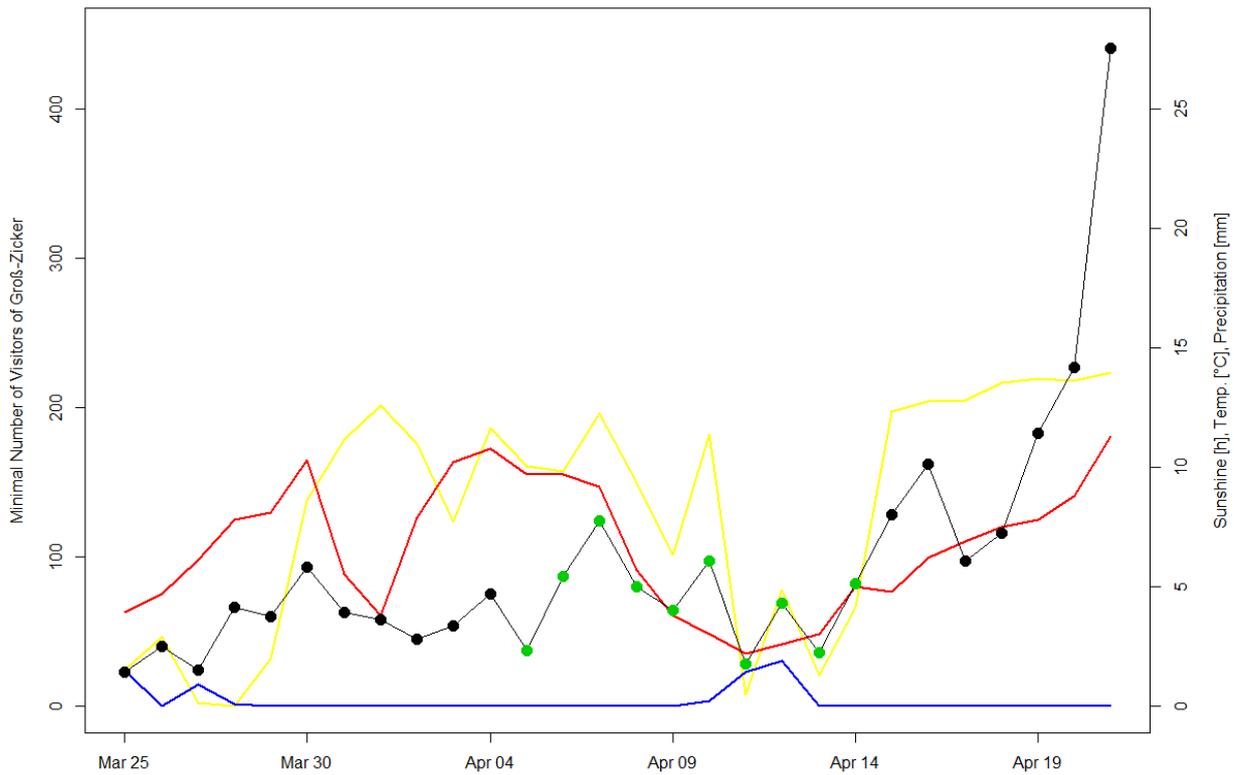


Figure 3: Daily number of visitors during the Hiking Spring (green dots) and before and after (black dots); Comparison with influencing factors for the visit decision: Sunshine duration (yellow), temperature (red), and precipitation (blue)

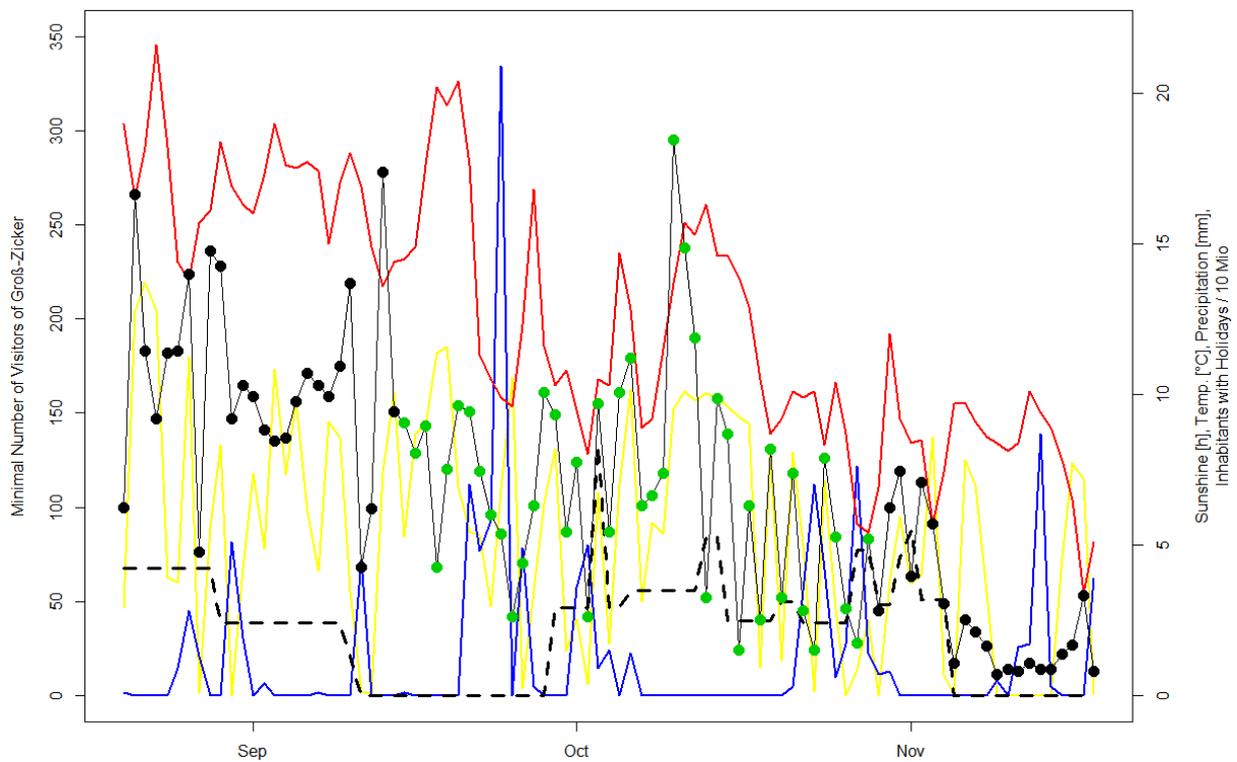


Figure 4: Daily number of visitors during the Active Autumn (green points) and before and after (black points); Comparison with influencing factors for the visit decision: Sunshine duration (yellow), temperature (red), and precipitation (blue)

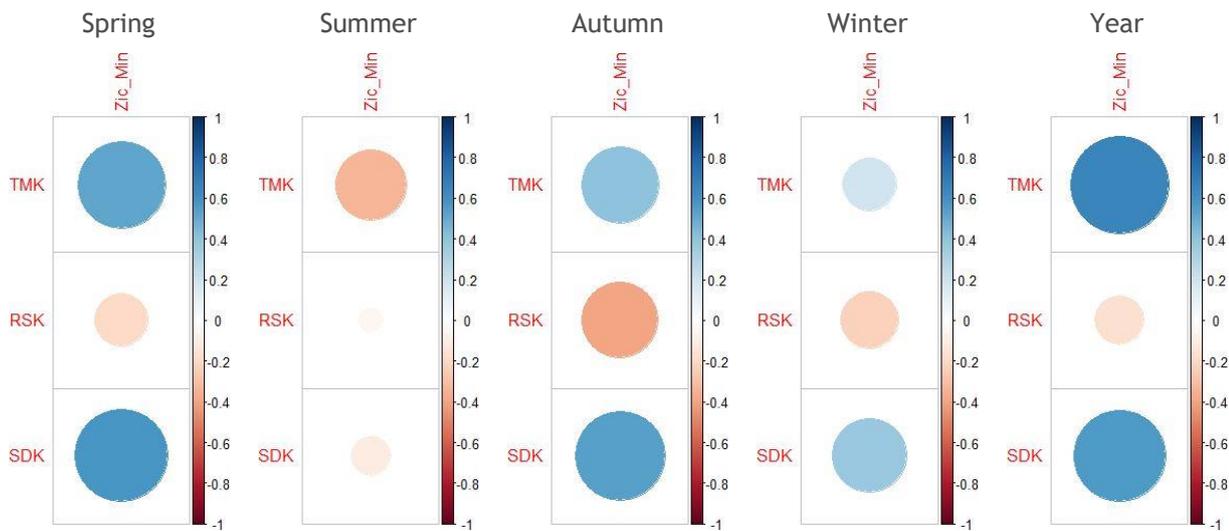


Figure 5: Strength of correlation (Pearson) of weather factors (TMK = temperature, RSK = precipitation, SDK = hours of sunshine) and number of visitors (Zic_Min) for each season and year.

Especially the information about visitors in the prolonged tourism season visiting the Zicker Berge is helpful as it shows that existing measures need to be further promoted. Having more visitors in the prolonged season can improve the socio-economic benefits related to tourism. Currently the main tourism season, leading mainly to socio-economic benefits is located in the summer month of June, July and August.

Looking at the qualitative data of the questionnaires it is possible to evaluate the behaviour of tourist. For one, it is possible to distinguish incorrect behaviour. Based on the manual counting the number of unleashed dogs as well as cyclists was collected. These behaviours are considered as offences. Figure 6 and 7 show the comparison of collected data in 2018 and 2019.

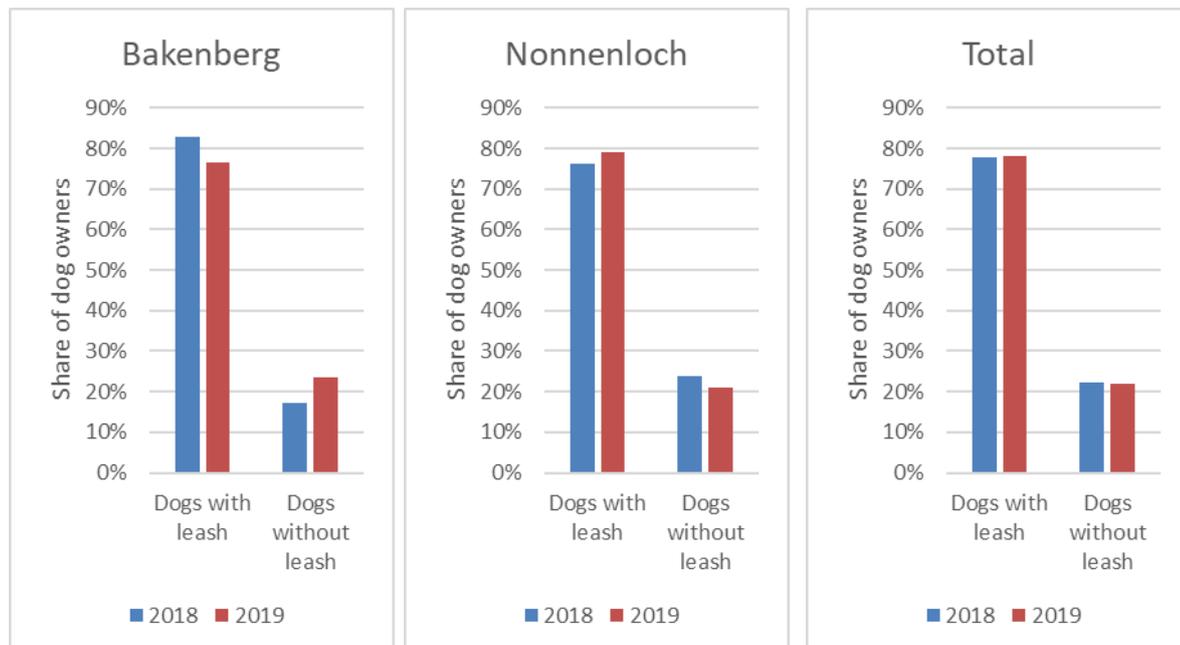


Figure 6: distribution of leashed and free-running dogs in 2018 and 2019

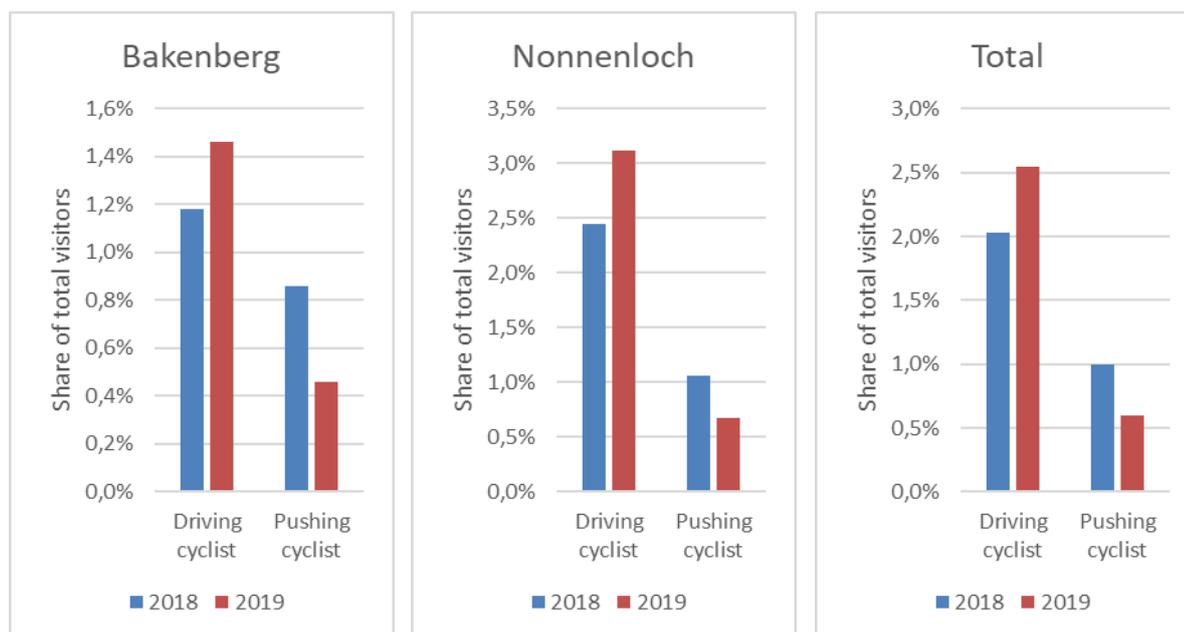


Figure 7: distribution of cyclists pushing and driving their bikes in 2018 and 2019

To determine whether the observed changes between 2018 and 2019 are actual changes in behavior rather than random observations, a binomial test was performed. This makes possible to check the probability with which the respective distributions of the observed values from the years 2018 and 2019 differ from each other. The resulting p-value is shown in **Errore. L'origine riferimento non è stata trovata.** Values below 0.05 represent a significant change.

Looking at the p-value for the observation of the bicycle traffic it can be said with more than 95% probability, that an actual, albeit small increase of the driving bicycle traffic has taken place. A change in the frequency of unleashed dogs, however, is not significantly detectable.

	Dogs without leash	Driving cyclists
Bakenberg	0,060	0,397
Nonnenloch	0,286	0,055
Total area	0,904	0,044

Table 2: p-value of observed events at the site Bakenberg, Nonnenloch and total

One can say that the period of observation is too short to make a conclusion about possible trends. It is important to evaluate these two offences again in a time period of 3 to 5 years to be able to say more. During this period though, efforts to deter people from a wrong code of conduct should be continued.

One valuable monitoring outcome is the following map which shows the use of hiking routes. This map will help as a planning tool in improving the hiking trails as well as in ensuring protection of the natural environment (see image 3).

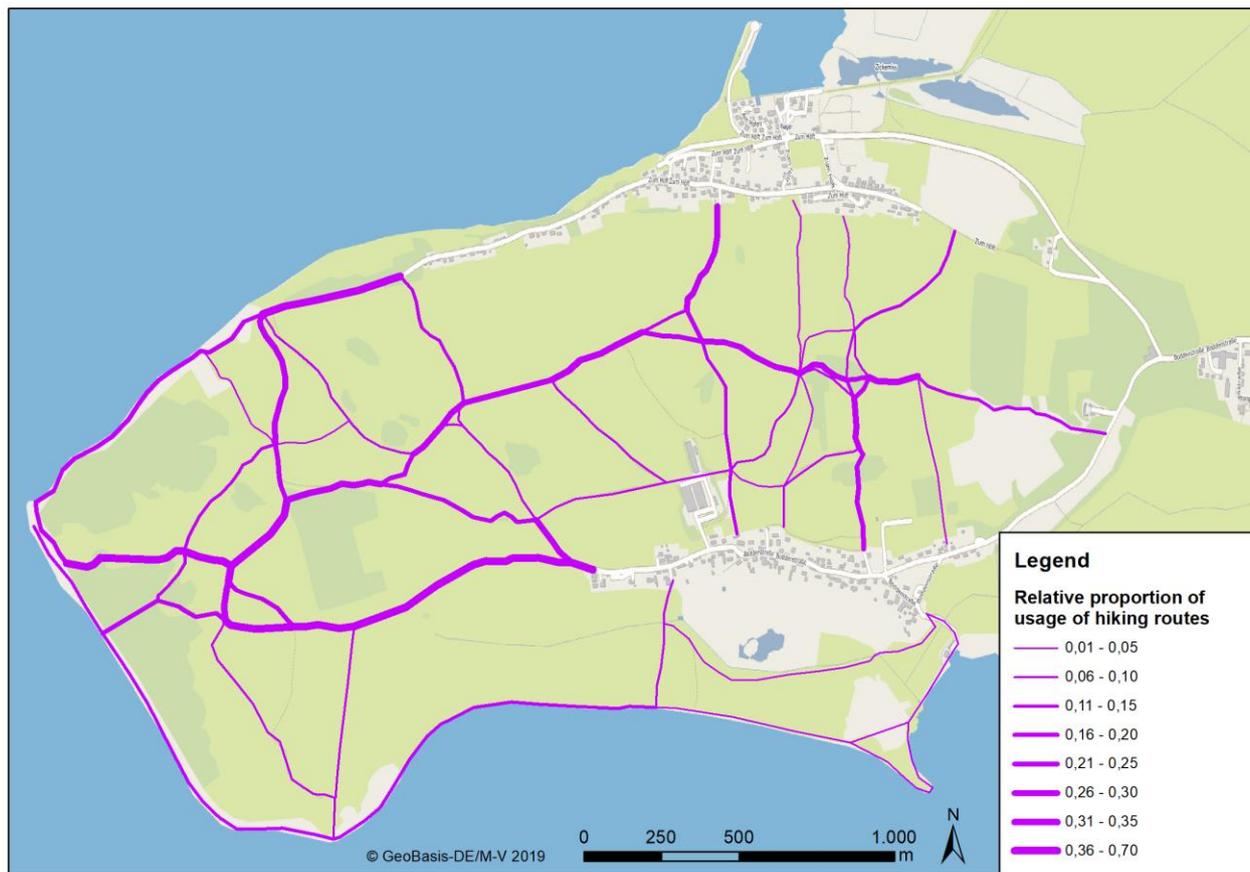


Image 3: relative proportion of the hiking routes used in the study area

The monitoring activities have met their expectation as the administration of the Biosphere Reserve Southeast-Rügen now has a baseline against which future monitoring activities can be compared. The monitoring activity is part of the action plan for sustainable tourism and even though this particular action is fulfilled, the action plan shall be revised to ensure that within a time period of three to five year the monitoring shall be performed again. This monitoring activity can be an example for possible further monitoring activities in other areas of the Biosphere Reserve and maybe can even be done by other stakeholders.

3.2. Implemented Managerial Activities

In relation to the forum meetings it was decided, together with the stakeholders of the steering committee, that due to many contact points between the administration of the Biosphere Reserve Southeast-Rügen and the different stakeholders in other projects a quarterly email inquiry would be sufficient to monitor the action plan implementation progress. In case of difficulties or the need for discussion a meeting would be organised. Thus no further face to face meetings took place in 2018. However, the forum members decided that a meeting should be held at the beginning of 2020 to evaluate the action plan progress and decide on the next steps and see if the format of working together is efficient and effective.

During the on the spot workshop (October 2018) it was suggested that additional meetings could take place at the beginning of 2019 to further develop the pilot actions. These additional meetings did not take

place, rather individual contact with stakeholders was held to implement the pilot action activities. This seemed sufficient and more time effective for all people involved.

Thus from the planned managing activities (see point 2.2. Forecasted Managing Activities), only the first action, the joint ranger and police patrols did not take place due to a shortage of resources on the side of the police force and health issues. It was decided to re-evaluate the implementation of this measure in the coming one or two years.

All other managing activities were implemented. There were some time delays and the measure were thus ready for the main summer season of July and August rather than at the beginning of May as originally planned.

Management Action 2: rescue routes

Together with the rescue services three routes were established. Thus the target was reached. The reflective sign to be attached to the hiking trail signposts are going to be put up as soon as they are supplied by the rescue services (target not yet reached).

Management Action 3: trash cans

Trashcans were designed by local school children. It was planned to set up two cans, in the end three new trashcans were set up in cooperation with the tourism association Mönchgut thus reaching the target.



Picture 3: Trashcans

Management Action 4: signposts

All new signposts were set up in July. The target was reached with a delay of approximately two month.



Picture 4: New sign

Management Action 5: audio guide

The audio guide for the Zicker Berge went online with a delay of approximately two month. The target of 5 stories was easily reached - 11 stories are online. It was planned to upload the guide in German and English by Mai 2019. However two stories had to be revised after already being online and some technical issues existed with cell phone operational systems thus only the German guide went online in July 2019. The target thus is not yet reached. Depending on existing budget the guide shall be implemented in English until the beginning of the tourism season 2020. A promotional target of 1000 audio guide postcards was set and reached, as 2000 postcards were printed. The target for the audio guide QR code in the field was 11 stations. Overall the QR code can be found at 16 stations and thus the target was reached.



Picture 5: promotional audio-guide postcard



In relation of the use of the audio guide, we set a target that at least 5 to 10 percent of visitors in the area would listen to the audio guide. Based on the statistics from the izi.travel website and the electronic counters this target was not reached. Approximately 12,5 percent of visitors accessed the app but only 2,4 percent listened to the entire content. It is believed that due to the technical difficulties many visitors had problems hearing and accessing all the content. Furthermore, the delay in publishing the app also limits the number of visitors.

3.3. Relationship with Action Plan activities

The Zicker Berge Pilot Action is one specific action (no. 4.3a) of the Biosphere Reserves Action Plan which was developed during the course of four workshops in 2018. It is part of the “Goal 4: Quality Improvements” (see figure 1) and “Strategy 4.2: Improvement of visitor information”. The pilot action is one step in gaining information about the Biospheres visitors and can be connected to action 4.3b which in general works together with Universities and students in conducting surveys as part of e.g. a master thesis.

Knowledge gained based on this strategy can be transferred to “Strategy 4.2: improvement of visitor information” as well as in a wider sense to strategy “4.1: Quality awareness and training”. Tourists can express their needs and expectations in the surveys. Thus this information can be used on one hand to improve the actual information for tourists and on the other hand to develop training materials for staff members in tourism businesses.

The Pilot Action however also ties into “Goal 3: Strengthening the protected area and resources worthy of protection” and in particular into “Strategy 3.3: creating further synergies between tourism and natural conservation” as well as “Goal 6: improving the quality of life and strengthening small communities” with “strategy 6.2c: identification of the concerns and wishes of the population with regards to tourism development”.

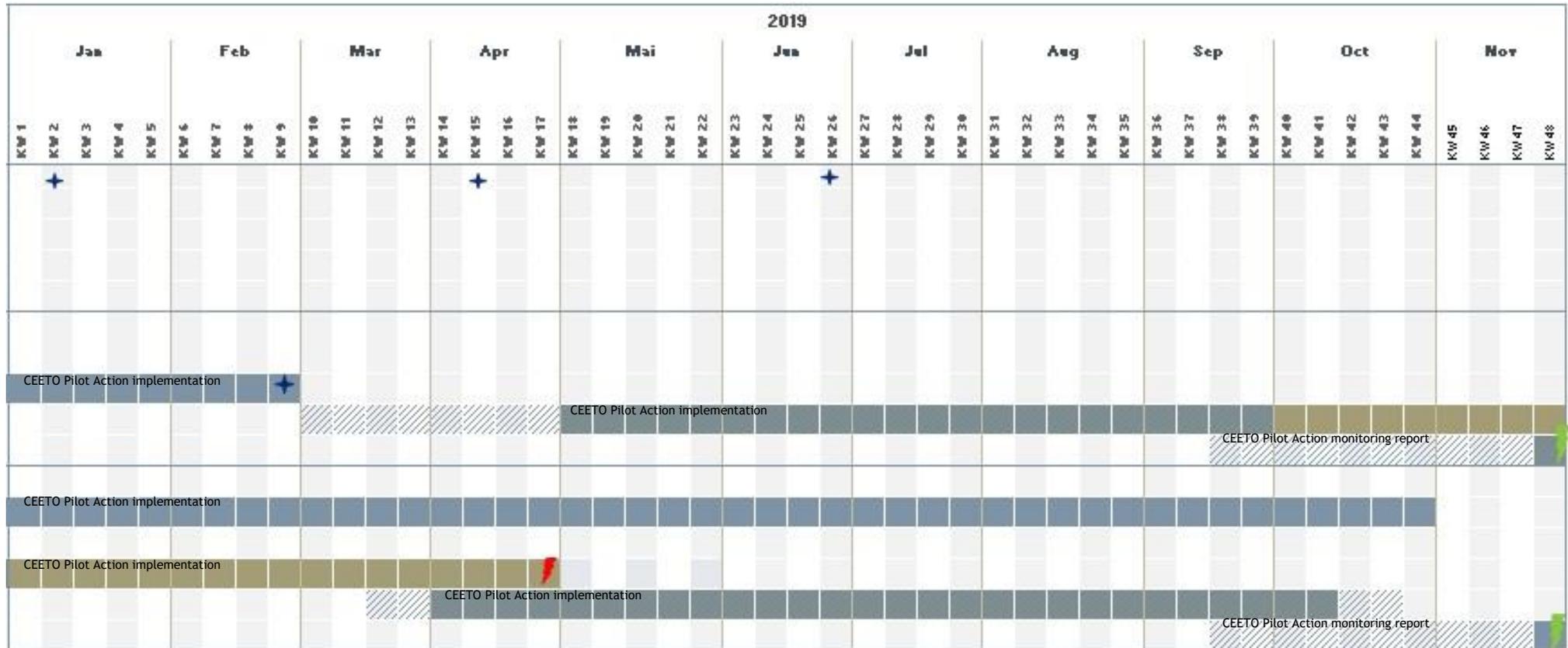


Table 3b: actual pilot action workplan



Achieved Results

Analyse the obtained results of Pilot Action Implementation, divided in the following components...

4.1. Touristic pressure reduction

Based on the first evaluation in 2018 as well as on the continuous data from the electronic counters in 2019 it is possible to say that a critical point of visitor numbers has not been reached yet in the Zicker Berge. Based on the questionnaires, many visitors do not feel that the area is too or overcrowded. Thus, currently no measures need to be taken to reduce tourism flows. However, the flows should be evaluated again in three to five years to see if anything changed and to be able to react to possible negative impacts or pressures in a timely manner.

4.2. Tourist experience improvement

Based on the questionnaires conducted in the Zicker Berge 97 percent of the visitors in 2018 were very or fully satisfied with their stay in the area. In 2019, 98 percent of visitors were very or fully satisfied with their stay in the Zicker Berge. Whether this is an improvement based on the implemented pilot actions is hard to say. The questionnaires should be conducted in three to five years time to see if anything changes in terms of visitor satisfaction.

Whether the audio guide can improve the tourist experience is hard to say, based on the questionnaires conducted approximately 21 percent of the interviewees said that they were generally not interested in the audio guided tour. So far only two evaluations of the audio guided tour took place in the easy travel app; the people are very satisfied with the content. It will be interesting to see how this will look like in the coming season.

4.3. Socio-Economic Benefits

No indicators for socio-economic benefits were set as it is very difficult to measure. Based on the data however (as discussed in 3.1 monitoring activities and achieved results) it seems possible that socio-economic benefits could be generated by further promoting the season-prolonging measures. This could possibly attract additional tourists.

Conclusion

Overall the stakeholders and the administration of the Biosphere Reserve Southeast-Rügen are very satisfied with the results and implemented measures. The audio guide as a pilot action was an innovative project. This could be a measure to be transferred to other areas in the Biosphere Reserve Southeast-Rügen as there are numerous application possibilities. This is also a measure which could be transferred to other protected areas as the izi.travel application is a free open source app/website.

Regarding the actual results, it is believed that the time period of the pilot action is too short to be able to draw valid conclusions. An evaluation should be done in three to five years to show if the behaviour of tourists was influenced or not and whether actual changes in tourist flows occur. The pilot action is part of the newly developed ECTS Action Plan (Strategy 4.3a). The developed materials e.g. questionnaires can



easily be re-used in three to five years to re-evaluate the pilot action and thus give a more thorough conclusion on actual changes. The monitoring in the Zicker Berge Pilot area is seen as a model project which could be transferred to other areas in the Biosphere Reserve and the experience gained could help in relation to e.g. strategy 4.3b to develop an action plan for a continuous visitor survey and evaluation.