

Visitor Monitoring Guidelines in Protected Nature Areas

Example: Slītere National Park, Latvia



Latvian Country Tourism Association / 2012



POLPROP-NATURA
Nr. LIFE07ENV/LV/000681

TABLE OF CONTENTS

INTRODUCTION	3
I. MONITORING. BASIC ISSUES	4
1. What is monitoring	4
2. Monitoring in protected nature areas	4
3. Who can do monitoring	5
4. Preconditions for monitoring	5
II. MONITORING METHODS AND THEIR APPLICATION IN SLĪTERE NATIONAL PARK	6
1. Visual monitoring of objects	6
2. Photo and video monitoring of nature objects	10
3. Sample plots	13
4. Manual visitor counting	15
5. Automatic (electronic) visitor counting	20
6. Surveys	29
7. Interviews	32
8. Other methods	34
III. INTERPRETATION EXAMPLE OF MONITORING RESULTS: TOURISM ECONOMIC IMPACT IN SLĪTERE NATIONAL PARK	35
1. Estimation of total number of visitors	35
2. Calculation of tourism impact on local economy	37
IV BENEFITS	40
V. REFERENCES	42

INTRODUCTION

In 2009-2011, the Latvian Country Tourism Association “Lauku ceļotājs” implemented the project ***“Proposals for environmental policy and governance based on demonstration of environmental, social and economic benefits from tourism in the Slītere national park - a NATURA 2000 territory”***, LIFE07 ENV/LV/000981 (POLPROP – NATURA).

One of the project activities was environmental, economic and social impact monitoring in the park. The present guidelines are part of the monitoring activity. The main goal of monitoring was to demonstrate that well-planned and organised tourism development in protected nature areas, namely, in a national park and Natura2000 site, does not contradict to conservation of natural, cultural and historical values, and increased numbers of visitors do not represent a threat to protected species and biotopes.

Project demonstration site – ***the Slītere national park (SNP)*** – became open to visitors in the 1990-ies, after the Soviet military left the Baltic sea coast. In 2000 the area’s protection status was changed from nature reserve (closed to visitors) to a national park. So the area has a short history as a tourist destination. The national park is rich in natural values and biotopes as well as cultural heritage, it is a home to one of the seven Finno-Ugric nations of the world – Livs. For this reason, as well as due to sudden opening of the area for general public which was followed by intense flow of tourists and summer residents (coastal building), monitoring is important not only as a project activity, but also in the future. Monitoring should contribute to conservation of the SNP values. It is important not only for nature conservation but also from the socio economic development aspect of the territory. The present guidelines describe a number of monitoring methods applied in practice, summarise the project experience and draw conclusions.

The guidelines will serve as methodological recommendations to state and self-government institutions, tourism NGOs and other tourism stakeholders. The guidelines describe how to assess visitor numbers and estimate tourism impact on the destination’s socio economic environment.

*Text and photos: Juris Smaļinskis and Aiva Jakovela. Photos: Vilnis Skuja.
LCTA „Lauku ceļotājs”, 2012.*

I. MONITORING. BASIC ISSUES

1. What Is Monitoring?

In understanding of these guidelines, **tourism monitoring** in its environmental and nature conservation aspect, is systematic and regular, qualitative and quantitative observation of the condition of resources used in tourism (natural, cultural, historical and other resources). Monitoring is necessary for efficient planning and long-term running of **tourism development, conservation of natural and cultural resources and territorial management**.

Economic and social aspect of tourism monitoring is understood in these guidelines as systematic and regular, qualitative and quantitative observation of tourist numbers (visitors in the area), dynamics of visitor flow and other observations that are necessary to assess **socio-economic impact of tourism** on the territory as a whole and on individual service providers. The main goal of such monitoring is justified and efficient planning and forecasting for small and medium business operations in a particular territory and in the region.

Tourism monitoring methods should be:

- ❖ Representative and allowing to achieve the set goal – to assess the impact of tourism, changes in objects and species, numbers of visitors, etc.;
- ❖ Simple in use;
- ❖ Possible to use repeatedly by any of the previous users;
- ❖ Possibly low cost, time and labour efficient.

2. Monitoring In Protected Nature Areas

Protected nature areas (PNA) are geographical areas under national protection and are designated, protected and managed in order to conserve and maintain biological diversity, provide for scientific research and environmental supervision, as well as preserve areas that are important for public recreation and education. Examples are national parks, nature parks, restricted nature areas, protected landscape areas, etc.

Today **nature conservation plans** of many PNAs mention tourism as economic activity of local or regional importance or as one of the few alternative economic activities. At the same time, none of the state institutions in Latvia collects and interprets general visitor statistics in PNAs (data are available from individual objects selling entrance tickets or from tourist accommodation). The available data are very fragmented and far from being complete, they are sourced from individual, most popular tourism objects in particular administrative territories. There are very few cases providing sequential data in longer period of time (continuous data lines) that would enable conclusions regarding trends and impact of internal/external factors on visitor flow. Interpretation and analysis of the available data is not sufficient either. Without knowing at least approximate visitor numbers and main directions

of visitor flow, it is very difficult to assess the impact of tourism on nature values and on economic development of a territory. Reliable tourism statistics in PNAs and regions contribute to better planning of measures required in managing of particular protected sites (including well-considered infrastructure) and help to take decisions at self-government level regarding tourism development.

3. Who Can Do Monitoring?

There are many players involved with tourism in Latvia who can do monitoring:

- ❖ Nature Conservation Agency;
- ❖ Regional environmental administrations;
- ❖ Municipalities and tourism information centres;
- ❖ NGOs, tourism associations;
- ❖ State Stock Company “Latvia’s State Forests”;
- ❖ Tourism providers;
- ❖ Specialists and experts in nature and tourism;
- ❖ Training and education establishments, students;
- ❖ Local communities (public monitoring);
- ❖ Owners/managers of particular objects, who might, at the same time, belong also to one of the above groups.

Depending of the monitoring goals, each of the above groups can use methods they find most appropriate. Monitoring is not limited only to finding out the dynamics of visitor numbers.

4. Preconditions For Monitoring

The most important preconditions for monitoring are:

- ❖ All tourism, nature conservation and long-term development stakeholders in the given territory are **interested and aware of the necessity of monitoring** and benefits;
- ❖ At least minimum **financing** available for priority methods of monitoring;
- ❖ Financing for purchase and installation of visitor **electronic counting system** if required and justified;
- ❖ **Cooperation** of all stakeholders;
- ❖ **Systematic storage** of the monitoring data and long-term easy **public access**;
- ❖ Monitoring results followed by **actions** aimed at reasonable and logical **solutions** of the **tourism, natural and cultural resource conservation** and **socio-economic problems** found.

II. MONITORING METHODS AND THEIR APPLICATION IN THE SLĪTERE NATIONAL PARK

1. Visual Monitoring Of Objects

BRIEF DESCRIPTION OF THE METHOD

Visual monitoring implies visual assessment of the condition and changes of a particular object and its nearest surroundings (in our case – a tourism object or a frequently visited destination). Visual monitoring is based on **regular inspections**. With this method, it is important to register the baseline condition of the object and follow changes that can be human born or results of natural processes. The method is applicable in monitoring of nature objects as well as heritage and infrastructure objects.

Advantage. Comparatively low cost (time, fuel) method. Can be implemented by non-specialists and does not require any specific equipment.

Drawback. Subjective interpretation risk. The results of the method depend on the perception and experience of the monitoring person.

Frequency. Depends on the type of an object. Sensitive nature objects can be monitored 1-2 times in a tourist season.

Result. Well managed (also from the nature conservation aspect) and visually attractive tourism objects retaining their original value.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

Several tourism objects were inspected and their condition registered in the initial, mid-term and completion phases of the project. The main aim of inspections was to find out if the visitor flow does not override environmental capacity of the objects manifesting as clearly visible changes in the surrounding environment.

Objects' selection criteria:

- ❖ A variety of objects – natural, cultural and historical heritage and infrastructure objects/elements representing main tourist attractions in the area;
- ❖ Objects where increasing numbers of visitors are likely to exceed their natural or infrastructure capacity (e.g., 6., 12);
- ❖ Sensitive objects and coastal biotopes which are not promoted as tourism objects but are frequently visited by tourists whose inconsiderate activities can significantly impact the original value of the objects (e.g., No 3 and No 4).

Objects selected for monitoring:

1. A wooden viewing tower by the Dundaga – Mazirbe road;
2. The Pēterezera nature trail;
3. The „Dāvida pils” (David's Castle);
4. The Zārtapu valley;
5. The Black Plague rocks at Mazirbe;

6. The „Vilkači” pine (Werewolf’s Pine);
7. The dunes at Saunags (damaged by mechanical vehicles);
8. The Cape Kolka;
9. The ruins of the old lighthouse;
10. The Cape Kolka Pine Trail;
11. The Ēvaži shoreline cliff trail;
12. The „Zviedru grāvja” (Swedish Ditch) waterfalls.



Fig. 1. *The Cape Kolka Pine trail in 2009.*



Fig. 2. *There is a geocache hidden in the ruins of the old lighthouse. Impact of geocaching is far stronger than that of sea waves or springtime ice. As a result, this monument of history will be fully destroyed within 10-20 years.*

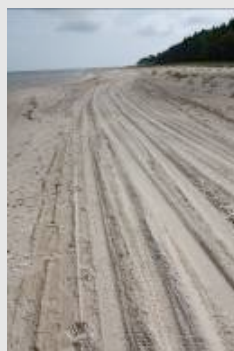


Fig. 3. *Traces of vehicles involved with sea fishing.*

During the project, no significant environmental impact was found that could be connected with the project activities and implementation of its results.

PROJECT IMPACT ON PROTECTED SPECIES AND BIOTOPES

To make sure about safety of nature objects, **a number of protected plant and bird species and related biotopes were visually monitored**. The following objects were selected for monitoring:

1. **Dune biotopes** (embryonic dunes, white dunes, gray dunes) – protected plant species found along the coastline throughout the NP territory, in the Cape Kolka and in dunes: *Linaria loeselii*, *Dianthus arenarius*, *Eringium maritimum*, *Pulsatilla pratensis*;
2. **Wet depressions between dunes** – the *kangari* (hills) and *vigas* (dales) are unique biotopes within Europe, **dystrophic lakes** (the Pēterezers), **untouched high swamps** (the Bažu swamp, the Pēterezera swamp) and **transition swamps** (within the Pēterezers swamp) and the plants found there: a number of wild orchid species *Orchidaceae*, white water lily *Nymphaea alba* and small water lily *Nymphaea candida*;
3. Various **meadow biotopes** and protected plants there: species of orchids *Orchidaceae*, and others: *Pulsatilla pratensis*, *Dianthus arenarius*;
4. **Sandstone outcrops** (on the slopes of the Baltic Ice Lake shore and ravines), **slope and ravine forests** (on the slope of the Baltic Ice Lake shore), **the ancient shore of the Baltic Ice Lake, the Šlītere nature reserve zone** and protected species found there - Yew *Taxus baccata*, Baltic Ivy *Hedera helix*, lichen *Chystocoleus ebeneus*;
5. Protected bird species: Western Capercaillie *Tetrao urogallus*, Black Grouse *Tetrao tetrix* (rutting), birds of prey (mainly their nesting sites), Piciformes, rest and feeding sites of migrating birds.



Fig. 4. Embryonic and white dunes



Fig. 5. Wet depressions between dunes



Fig. 6. Meadow biotopes

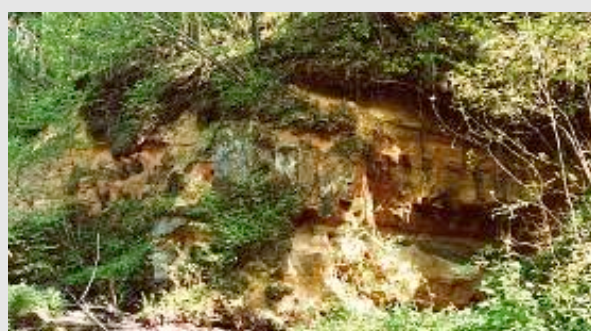


Fig.7. Sandstone outcrops in the Blue Hills of Šlītere



Fig. 8. Migrating geese feed in meadows

According to the Slītere national park experts, the monitoring results do not indicate negative impact of project activities and initiatives on the above species and biotopes.

CONCLUSIONS

- ❖ During the project, the above 12 objects did not show significant impacts or consequences that could be related to tourism activities or inconsiderate and irresponsible acts of visitors;
- ❖ Some of the mentioned infrastructure objects – wooden trails (No. 2, No 10) have been installed several years ago, and in some parts their wooden elements had decayed as a result of **natural processes**. Their renovation has been started in 2011 – 2012, and the trails will be open to public for the tourism season of 2012;
- ❖ Some of the above objects have been and still are subject to natural processes and impacts (No. 5.,6.,9.,11.) – **erosion, abrasion, etc.**, therefore their existence is likely to be limited in time. The identified visitor impact is not significant;
- ❖ **Traces of vehicles in dunes** that were noticed on the shoreline at Saunags village were left by the local **fishermen** (legal fishing) and cannot be linked with visitor behaviour;
- ❖ During the project **specific sites of protected plant species and micro restricted areas for protection of nesting birds of prey** were inspected repeatedly. As the new tourism products developed under the project (touring routes) and events were on purpose directed away from the sites of the above species, their original value (the number of sites, the number of individuals, other indications) **has not been reduced in the context of tourism impact**.

2. Photo And Video Monitoring Of Nature Objects

BRIEF DESCRIPTION OF THE METHOD

The method is suitable to monitor detailed as well as large-scale changes in an object in long term. It can be used in monitoring of sandstone outcrops, findings of rare species and biotopes, tourist camps and visitor infrastructure. Ideally, if earlier photos, taken 5, 10, 20 or more years back, are available. The situation can be also registered in video. Very valuable and interesting are photos taken in the beginning or in the middle of the previous century and depicting the earlier forms of economic activities and their interaction with the nature, cultural environment and landscape. If you compare them with today's photos of the same site or territory you can get very useful information for monitoring. The method can be combined with the previously described visual monitoring method.

Advantages. Comparatively low-cost method that can be used by non-specialists, as it does not require specific equipment. Pictures are easy and convenient to store in digital format for use in future.

Drawback. Digital photo monitoring does not provide a complete picture of the situation. A written description is also necessary.

Frequency. In popular tourist destinations photo and/or video monitoring can be done more frequently (once a year), in less popular destinations – once in, for example, ten years.

Result. Results of the video/photo monitoring are registered changes in the objects and following actions for conservation and further protection. The data are useful for further studies of the dynamics of nature and human born processes.

Figures 9 and 10 provide a clear example showing what has happened during 10 years to the given nature object – a fragment of the Bezdelīgu rock in the Salaca valley nature park.



Fig. 9. The photo taken in 1997.



Fig. 10. The photo taken in 2006.

APPLICATION OF THE METHOD IN THE ŠLĪTERE NATIONAL PARK

Three below objects were regularly inspected and photo-monitored in the initial, mid-term and end phases of the project.

Selection criteria:

- ❖ Objects where it is easy and convenient to detect visitor impacts;
- ❖ Sensitive objects where a range of visitor impacts can seriously damage their initial value (geological, biological, cultural and historical, etc.).

Selected objects:

1. *Outcrop in the Zārtapu valley* – a sandstone outcrop (protected biotope and a geological monument). On this soft sandstone rock, ancient signs are found. They have not been decoded and their age has not been detected. Irresponsible visitors can significantly damage this object from the aspect of nature as well as culture and history;
2. *The „Dāvida pils” (David’s Castle)* – erosion carved ravine with sandstone outcrops in one of the slopes of the Šlītere Blue Hills. The largest of the outcrops is called „David’s Castle”. While the objects are located in the nature reserve zone (no visitor access), people find them. As one can understand from the many inscriptions on the sandstone which are dated from the beginning and the middle of the previous century, the object has been a very popular tourist destination;
3. *The Pēterezera nature trail* – one of the most interesting nature trails in the North Kurzeme region, and an important object of educational tourism in the national park.



Fig. 11. Sandstone outcrop in the Zārtapu valley, 2009



Fig. 12. Sandstone outcrop in the Zārtapu valley, 2011



Fig. 13. The „David's Castle”, 2009



Fig. 14. The „David's Castle”, 2011

Note: to assess the object, a more detailed picture with higher resolution is required. The photos are included in this guideline to illustrate the concept of photo monitoring.

CONCLUSIONS

- ❖ During the project, no significant impacts or consequences that could be related to tourism activities or inconsiderate and irresponsible acts of visitors were observed in the Zārtapu valley and in the „David's Castle”;
- ❖ The photos taken will be useful for further studies and comparison of the objects.

3. Sample Plots

BRIEF DESCRIPTION OF THE METHOD

The method is based on observation of sample plots (quadrants) which are marked on sites that researchers can easily access and recognise. In such sample plots changes in particular elements (species and their communities, biotopes, etc.) are being observed in a longer period of time. Changes can be caused by human activities, natural processes or interaction of both. The method is suitable for botanical monitoring, to assess the level of trampling on vegetation, changes in the plants, to control findings of rare species, etc.

Advantages. If at least approximate visitor numbers are known, the results obtained in sample plots enable assessment of the environmental capacity of a particular site/object. Sample plots also demonstrate different impacts (anthropogenic, natural) and their long term consequences.

Drawback. The method cannot be widely used. It is mainly applicable by specialists in biology, geography, etc.

Recommendable frequency. The method can be applied in particular, especially important tourism objects that are related to rare and protected species or biotopes. Ideally, sample plot monitoring should be done before and after tourist season.

Result. The monitoring data help to efficiently plan the management and conservation of the object.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

For the sake of the variety of monitoring methods, we used sample plot monitoring in Slītere in two sample plots.

The first sample plot is located near the Kolkasraga Pine Trail where Dark Red Helleborine (*Epipactis atrorubens*) is found. While this plant of family Orchidaceae is relatively frequently observed on the seacoast, it is in the register of protected species in Latvia. The aim of the sample plot was to observe if increasing visitor numbers during the project do not cause significant reduction of this plant. The **sample plot** was arranged on 07.08.2009 in the size of 3 x 7 m = 21 m².



Fig. 15. Fragment of the sample plot. The white circles are the Dark Red Helleborine growing spots (shoots after the plant has shed its blossoms)



Fig. 16. The Dark Red Helleborine in blossoms.

Regular inspection of the sample plot at the end of the tourism season gave the following results – counted shoots of the plant:

02.09.2009. = 52 shoots;

02.09.2010. = 50 shoots;

02.09.2011. = 53 shoots.



Fig. 17. Sample plot by the Pēterezera nature trail, 2009

The second sample plot was set on the Pēterezera nature trail where visitors have cut it short and treaded a new trail. The trail crosses a steep slope of a dune hill, which is subject not only to **erosion** but also to the risk of its surface being **trampled down**. The sample plot was set on 07.08.2009 in the size of 2 x 10 m = 20 m².

CONCLUSIONS

- ❖ A minor fluctuation in the numbers of the Dark Red Helleborine was found in the sample plot by the Kolkasraga Pine Trail. Most probably, it is caused by natural processes. Plants can be affected by natural conditions like succession, movement of sand in white dunes, as well as global conditions (climate, meteorological conditions, etc.). A longer time period is necessary to detect the underlying reason of changes;
- ❖ Observations in the first sample plot do not prove any negative impact of the tourist flow on the protected species;
- ❖ In the second sample plot, by the Pēterezera nature trail, increased trampling down was not observed. It means that the present visitor flow (~1400 visitors a year, see further on) does not exceed environmental capacity of the object. The situation observed suggests moving of the trail during its repairs as planned in 2012.

4. Manual Visitor Counting

BRIEF DESCRIPTION OF THE METHOD

The method is based on **systematic collection, summary and analysis** (data are analysed depending on the aim and need) **of the visitor numbers** (statistics) in a particular territory (administrative, protected, geophysical, etc). The method is easy to use in the objects selling entrance tickets or where visitors are counted for the sake of the owner's interests and bookkeeping: accommodations, catering places, museums, cultural heritage sites, organised events, etc. The more objects of such kind are there in the territory, the easier it is to estimate the total visitor numbers and their flow in the area.

Advantages. Very precise data are acquired on the object that are useful for long term studies and conclusions.

Drawback. Not always such data are available from all the objects in a territory. The published data may not be precise and reliable.

Frequency. It is most convenient to summarise the data at the end of a year.

Result. Precise total visitor numbers and dynamics in different aspects (per year, per month, per week, per day, etc.). The data are very useful in further planning of tourist flow, tourism products and infrastructure.

Through visitor counting we can:

- ❖ find out the **number of persons having visited the object** of our interest during a year/month/days of a week;
- ❖ observe the visitor dynamics in a longer period of time and factors of **influence** (internal, external, local, global);
- ❖ **plan our business** as well as **conservation and management of the objects** better and with good reasoning;
- ❖ **draw project proposals or request financing for building new or improving the existing tourism infrastructure** based on the monitoring data;
- ❖ in combination with other methods, to calculate **tourism input into local economy**;
- ❖ estimate **environmental capacity** of objects and the allowable **anthropogenic load**. However, in case of Latvia the only site to consider mass tourism is, in fact, Old Riga and may be some other destinations.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

Visitor counting and data summarising continued throughout the three project years. Before analysis, it is important to mention the economic conditions (see fig. 18) in Latvia and Europe during the phases of project proposal conceiving, writing, application and implementation. The below scheme shows the phases of economic development that had and still have significant influence on project activities and final results.

Project concept			Project proposal writing		Project implementation			
2004.	2005.	2006.	2007.	2008.	2009.	2010.	2011.	2012.
Rapid growth of economy in Latvia, overheating and the „bubble” ↑↑↑					Economic recession, global economy crisis ↓↓↓			Slow increase of economy in Latvia ↑

Fig. 18. Macroeconomic tendencies in Latvia in 2004 – 2012. Generalised view.

During the project, visitor data were collected from all tourism related businesses and objects in the territory. However, there are comparatively few cases where continuous data are available in longer period of time. **The next step in this method is data analysis.** This chapter shows a brief example of data analysis in four objects.

Selection criteria for the analysed objects:

- ❖ Diverse objects – nature and culture, museums, a visitor centre, guest houses;
- ❖ Objects where visitor data is available for at least 5 last continuous years.

Objects selected¹:

1. The Kolkastrags visitor centre (parking tickets, statistics for 12 years);
2. The Vaide Antler museum (entrance tickets, statistics for 12 years);
3. Guest house Ūši (regular visitor register);
4. Guest house Pītagi (regular visitor register).



Fig. 19. The Kolkastrags visitor centre



Fig. 20. Demonstration of making the traditional carrot buns „sklandraušis” at Ūši guest house

The Kolkastrags visitor centre

Figure 21 shows general correlation (see also fig. 18) between macroeconomic processes in Latvia and dynamics in visitor numbers in a regional tourism object. In 2004 – 2008 (Latvia experiences **economic growth**), rapid increase in visitor numbers was observed reaching the maximum of visitors ever register per year (~ 50 000). The increase is also due to marketing activities by „Kolkastrags”, Ltd. and due to opening of the visitor centre in 2004. The period from the end of 2008 – middle of 2011 is **economic recession**. 2009 marks the deepest decline in all sectors of economy in Latvia. It coincides with the lowest point in the below chart. During the project implementation (February 1, 2009 – January 31, 2012.), which coincides with the economic recession period, still rapid increase in visitor numbers is observed correlating with project marketing activities. To name some of them: media trips (during the three project years - ca 250 coverages in Latvian and foreign printed media, TV and radio programs), new tourism products launched in the park, the Travel Day to Slītere and other activities. This way, in a comparatively short period of time the numbers of visitors in the Kolkastrags visitor centre have approached the maximum peak registered during the

¹ The Slītere lighthouse, though a popular tourism object, was not included in the list of objects analysed as it had been closed for visitors for a long time due to problems of ownership rights.

period of economic growth in Latvia. In 2011, the visitor numbers have increased by ~21% against 2009.

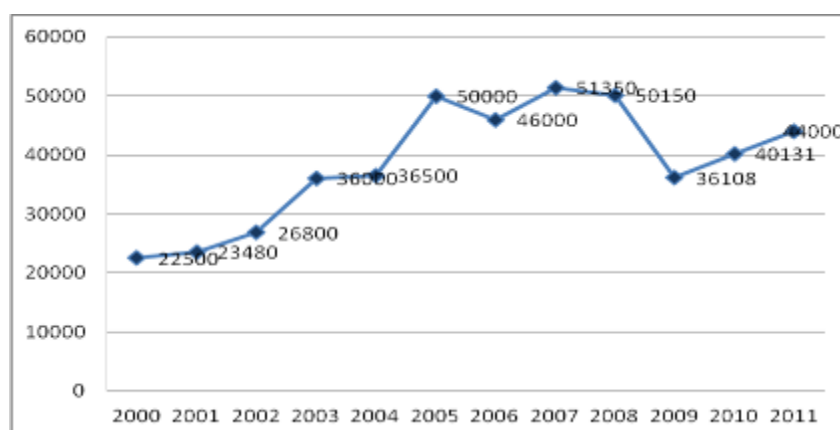


Fig. 21.

The Vaide Antler museum

A different situation is observed in the Vaide antler museum. As shown in fig. 22, the object experienced maximum numbers of visitors two years after its opening (2002). In spite of the period of economic growth, the visitor numbers went down and continued to decrease during economic recession (the lowest in 2009). One of the possible reasons is insufficient marketing. During the project implementation, the visitor numbers slowly stabilised and started to increase. The increase is 5% against 2009.

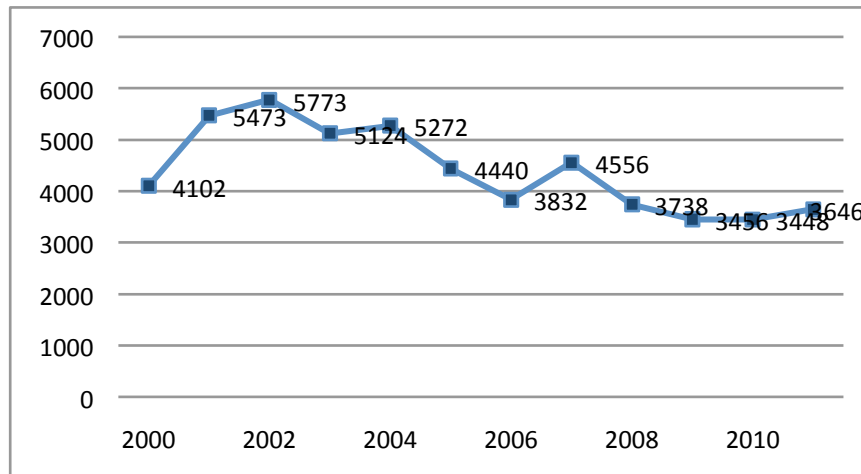


Fig. 22.

Guest house and camping „Ūši”

According to information provided by Dženeta Marinska, the owner of the guest house “Ūši”, the numbers of overnighting visitors and bednights have remained in the same level since 2009 (see fig. 23). Demand has increased for extra services, e.g., bicycle rent. It can be explained by the fact that cycling routes were created during the project enabling visitors to tour the NP territory in environment friendly way. This increased the number of bednights in 2011 against 2009.

Guest house Pītagi

According to information provided by Signe Dišlere, the owner of the guest house “Pītagi” (see fig. 24), the numbers of overnighting guests have slightly decreased against 2009. Still, there is a considerable increase in number of bednights (**81% against 2008, and 20% against 2009**). This is a good indicator showing that length of visitor stay is significantly growing. Such tendencies are observed also in other tourist accommodations. The trend suggests a conclusion that the visitor behaviour has changed. Instead of „running through” the park, they choose to stay longer and experience what the national park has to offer. Visitors staying more than one day spend money on site and improve the local economy.

One of the reasons for this increase is the fact that the guest house owners were actively involved in development of the new tourism products (walking, cycling, skiing routes, bird and animal watching, etc.) and offered this product to their guests. The route descriptions created during the project are available to visitors free of charge, and the visitors willingly use them.

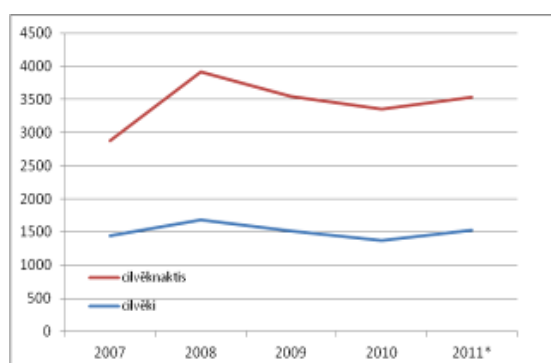


Fig. 23. Dynamics of the overnighting guest numbers at “Ūši” guest house (red line: bednights, blue line: guests)

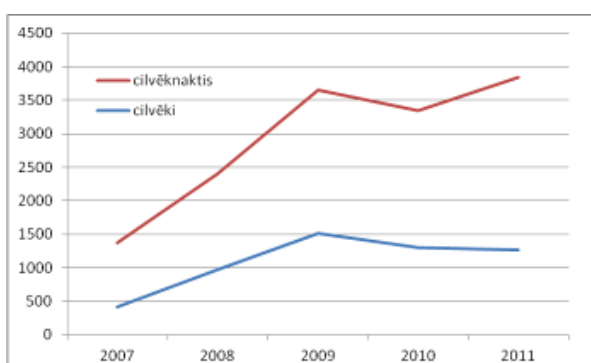


Fig. 24. Dynamics of the overnighting guest numbers at “Pītagi” guest house (red line: bednights, blue line: guests)

The tendencies in the accommodation sector can also be assessed using the data on overnighting visitors and bednights in the whole territory of the national park. The data were collected during the project, however, they are rather fragmented. Positively, there is an average 5% increase in bednights against 2009. The trend still has to be viewed in the context of the global economic crisis of 2009-2011 which considerably reduced the numbers of domestic visitors and the level of spending.

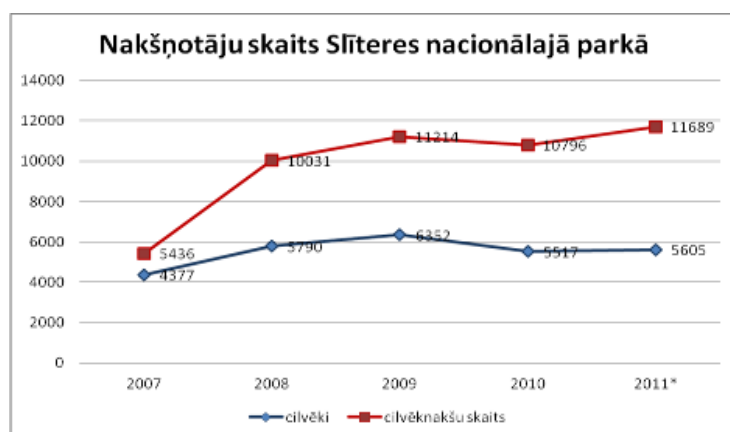


Fig. 25. Overnighting visitors in the SNP on 01.10.2011. Source: data collected during the project (red line: bednights, blue line: guests)

CONCLUSIONS

- ❖ Analysis of the data collected during the project shows direct correlation between macroeconomic trends (global economic crisis), project activities and the subsequent changes in visitor numbers (increase);
- ❖ The data show that visitor numbers in the most popular tourist destinations in the SNP have increased in 2009-2011 by 5-21%. Number of bednights in tourist accommodations (where yearly data are available) increased by 5 – 18 %;
- ❖ In the context of the global economic crisis which was followed in Latvia by slow economic improvement only in the second half of 2011, the results of increase in tourism in SNP during the project can be considered as highly satisfactory.

5. Automatic (Electronic) Visitor Counting

BRIEF DESCRIPTION OF THE METHOD

Electronic visitor counting is an up-to-date method. Visitors are counted using modern technologies – **electronic or mechanical counters** which are installed in sites that are freely accessible without charges in any time of a day. Usually visitor counters are installed on tourist trails, in touring routes and near popular tourism objects. Alternative methods exist as well, e.g., filming of an object or a territory with **web or video camera and screening the material in accelerated mode**.

Advantage. Counting takes place automatically, it is not time consuming. The data are precise and reliable enough.

Drawback. The method is expensive, especially, if a counter or related infrastructure is damaged or destroyed (vandalism, weather conditions). The method requires understanding of technologies, IT skills, and capabilities of comprehensive and in-depth data analysis. To analyse the data, a number of methods, e.g., extrapolation, have to be applied.

Frequency. A counter installed in an object registers visitors throughout a year. To find out the trends, it is recommended to count visitors in the run of several years which is not possible within one, comparatively short project.

Result. The total numbers of visitors in the object and the dynamics by months/days/time of a day are acquired. The data help in planning the tourist flow and infrastructure, the management measures. Precise information on visitor numbers can be obtained in such sites where previously no data have been available.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

Choosing the counter

Different technical solutions of visitor counting exist, including **electronic** and **mechanical**. In case of Slītere, we had to select the equipment that was most relevant for the local conditions.

Main selection criteria:

- ❖ **Small dimensions, easy to hide** in a natural or anthropogenic environment;
- ❖ **Autonomous power** supply by small size battery;
- ❖ Long lasting **batteries**;
- ❖ Suitable to **weather conditions in Latvia** (from – 30 ° C to + 30 ° C) in different seasons and under various climatic conditions (rain, snow, sun, wind, etc.);
- ❖ **Experienced manufacturer.** The product must have been **tested under climatic conditions** similar to Latvia;
- ❖ **Easy data reading** and the data convenient for analysis and further interpretation.

Counter **RBX5 L** meets the above criteria. The manufacturer (a UK based company) offers a convenient mechanism to register data and the software for data reading. The problem was that before 2009 nobody in Latvia had any experience with electronic visitor counters. The project experience is continuously transferred to specialists of the Nature Conservation

Agency, municipalities, tourist information centres interested to apply similar methods in their territories.



Fig. 26. Counter **RBX5 L** open. Transmitter, receiver and data storage device (yellow)

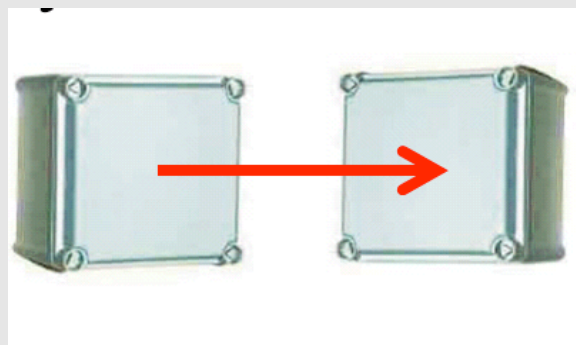


Fig. 27. Basic operation principle of the **RBX5 L** counter. The transmitter and the receiver are inserted in plastic boxes.

Some technical parameters of RBX5 L:

- ❖ The counter consists of three main parts: transmitter (80 mm x 80 mm x 55 mm), receiver (120 mm x 122 mm x 55 mm) and data storage device;
- ❖ Operation principle: the transmitter emits a radio wave perceived by the receiver. Upon interruption (somebody crossing the wave), one person is counted;
- ❖ Interruptions of the radio wave are counted at by intervals that can be adjusted from 1 minute to 24 hours;
- ❖ If the data are registered once in an hour, it is possible to store the records for 670 days. During one interval, maximum 255 visitors can be counted;
- ❖ Power is supplied by 4 lithium batteries lasting for ~ 1 year. The counter has light indicators for the power level;
- ❖ The radio wave works in 20m distance (the maximum distance between the transmitter and the receiver). Infrared transmitters have less capacity;
- ❖ Data can be read connecting the counter to a computer with a USB cable;
- ❖ Data can be conveniently processed using *Microsoft Excel*.

Disguising containers

The counters had to be carefully disguised as in Latvia there is a comparatively high risk to lose them because of vandalism. After discussing several methods, two were selected as the most appropriate: using mock bird cages which are not suitable for nesting birds (fig. 28), and using imitated barrier posts (Fig. 29).

To ensure penetration of the radio wave through the container, a **polycarbonate plate** was fastened on the front side. The container and the plate were painted in **brown and green shades** to merge with the surrounding environment.

The bird cages were placed in natural environment (forest) by the Pēterezera nature trail and near the so called Apakšceļš road. The barrier posts were put in anthropogenic environment

near two walking trails to the Cape Kolka and to the beach at Mazirbe. These trails are the main walking and cycling corridors in the respective sites.

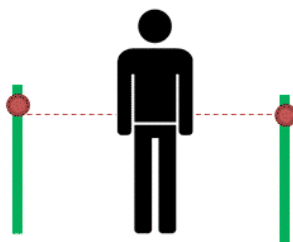
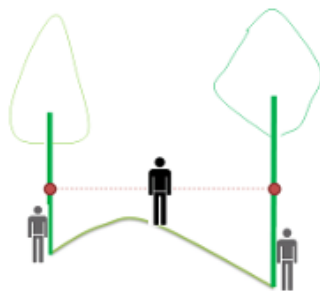
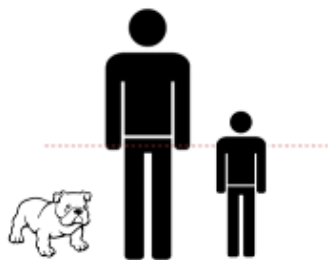


Fig. 28. *Electronic counters in mock bird cages*



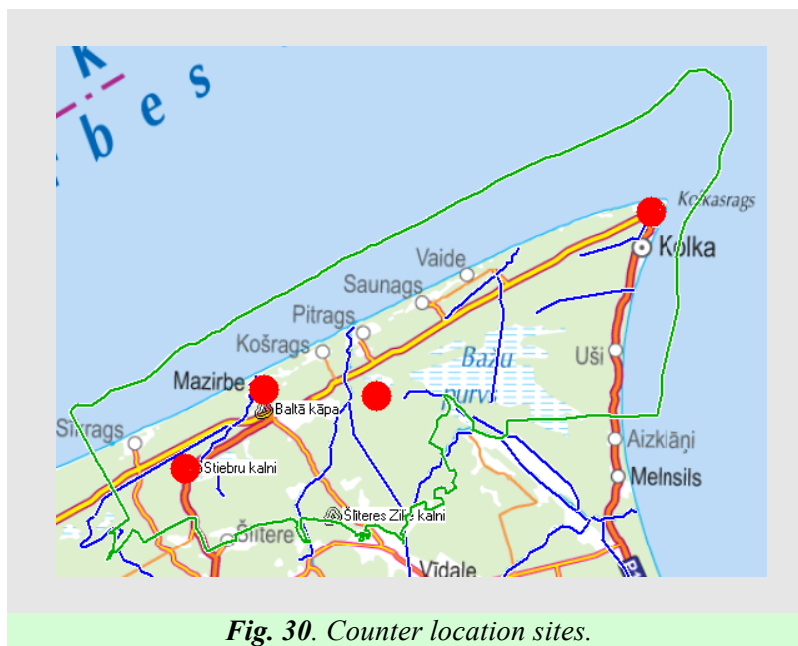
Fig. 29. *Electronic counter is hidden in the imitation of barrier post*

Principles of counter location



- ❖ A counter is installed in such height that it registers adults as well as children. At the same time, small animals crossing the zone of its activity are not counted;
- ❖ The location has to be chosen very carefully. After that, you have to plan how to install and disguise it.
- ❖ Counters are attached to two trees growing opposite each other. There is an elevation between the trees;
- ❖ The counters are contained in mock bird cages and installed >2m above the ground. They cannot be reached without equipment, which is good from the security point of view.
- ❖ Counters are hidden in barrier post imitations. The distance between them is >20m;
- ❖ The main visitor flow moves to the sea, between the two barrier post imitations;
- ❖ The counters are easily accessible, still their position is secure as there are other similar barriers preventing vehicles from driving in dunes.

Counter location sites selected



To get an idea about visitor flows and numbers in the whole territory of the national park, four very different sites were selected (Fig. 30). Each site attracts a different target audience with different aims and motivation:

- 1. The Pēterezera nature trail** – one of the most attractive educational nature trails in the North Kurzeme. Individual visitors and tourist groups (including school groups) arrive here. Visitor profile: mainly nature and educational tourists, active tourists. Counters were installed in 2009-2010;
- 2. The „Apakšceļš”** – a forest road used by hunters, mushroom and berry pickers, walking and cycling tourists. Statistics showed to what extent the forest is used as a recreation resource. Counters were installed in 2009-2010;
- 3. The „Kolkasrags” (Cape Kolka)** – one of the most popular tourist destinations in the historical region of Kurzeme (a mass tourism destination in terms of visitor numbers). There is a parking lot, a visitor centre and a cafe open in tourist season. The Cape Kolka is a popular bird watching site and is visited by ca 88% of the park’s visitors. Counters were installed in 2010 – 2011;
- 4. Mazirbe.** The largest of the coastal villages, the venue of the traditional Liv festival. The beach at Mazirbe is a popular summer holiday spot therefore counters were installed by the road to the seaside. Counters were installed in 2010 – 2011.



***Fig. 31.** Counters are installed by the Pēterezera nature trail in 2009*



***Fig. 32.** Counters are installed by the Apakšceļš, 2009*



***Fig. 33.** Counters are installed at Cape Kolka, 2011*



***Fig. 34.** Counters are installed at Mazirbe, 2010*

The data were analysed by the following intervals:

- ❖ a year, showing the seasonality (summer, weekends, events, fig. 35);
- ❖ a week (Fig. 36);
- ❖ 24 hours (Fig. 37);
- ❖ Other, depending on the aim (weather conditions, events, etc.).

At first, the data were **read** once in a month (especially during the tourist season). Since autumn of 2010 the data were read once in 2-3 months.

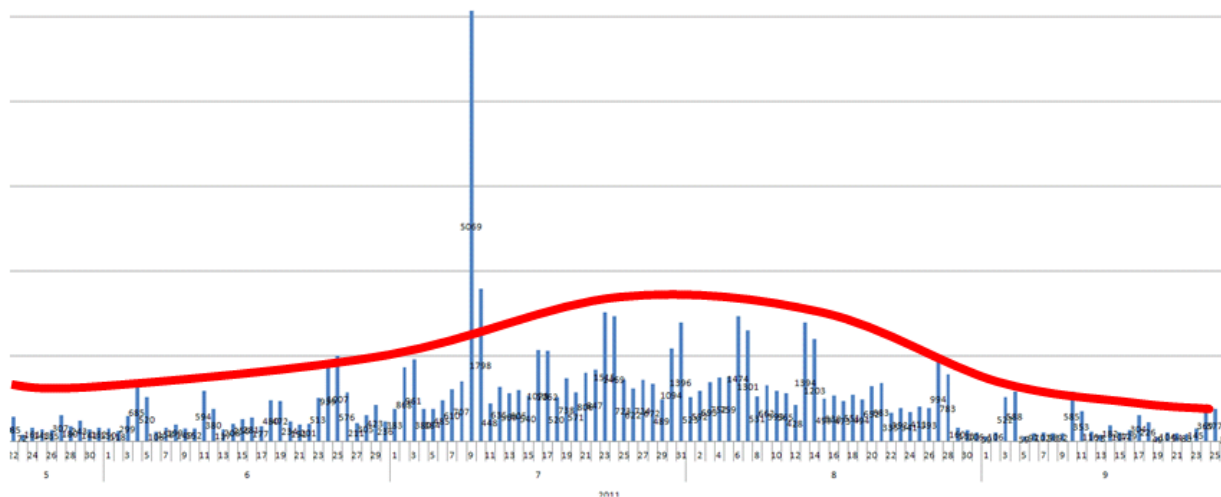


Fig. 35.

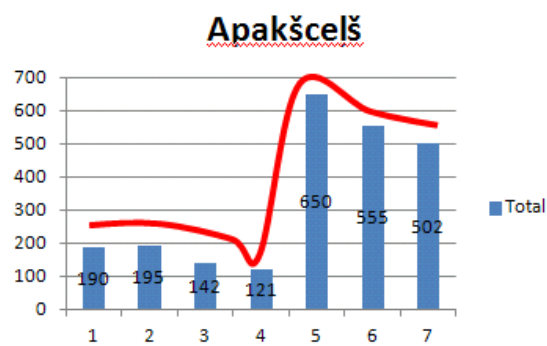
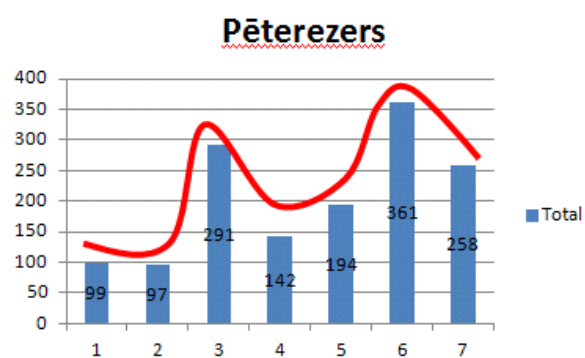


Fig. 36

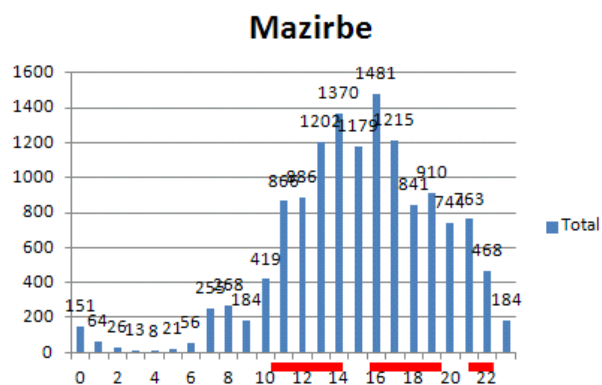
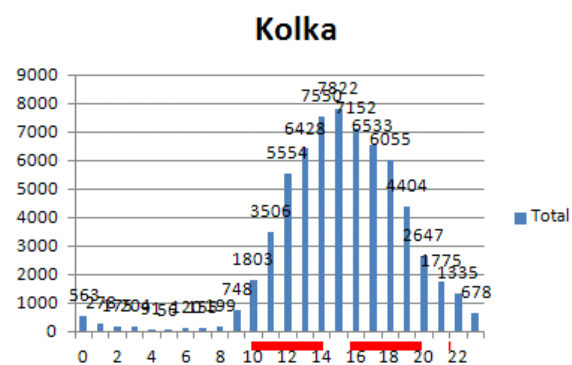


Fig. 37

Data results and analysis

As said before, this is the first experience in Latvia in electronic visitor counting. For this reason particular situations occurred due to which the continuous data lines were sometimes interrupted:

- ❖ Technical failure of one of the counters that was not caused by misuse. The counter was sent to the manufacturer, repaired and returned for further use;
- ❖ Low battery due to the unexpected cold in the winter of 2010 - 2011;
- ❖ One of the counters was accidentally removed by a person outside the project. The counter was returned according to the project contact information put in the counter's hiding container;
- ❖ Because of the above reasons the data lines have shorter or longer interruptions;
- ❖ Change of counter locations to receive a variety of data from sites of different character.

Nevertheless, the data are representative enough to assess the situation and the experience is transferable to future users of this method.

The Pēterezera nature trail (2009 – 2010)

- ❖ From September 2009 to September 2010 the total number of the trail visitors was ~ **1 400**;
- ❖ The peak in visitor numbers was observed between the end of May and the end of August;
- ❖ The lowest visitor numbers were registered in the snowy winter months in 2009 – 2010 (November – March);
- ❖ The maximum visitor number (111 visitors) is observed on July 21, 2010.
- ❖ 32 visitors have been counted on the Travel Day to Slītere (June 12, 2010), and 50 visitors during the Liv festival, which is the 2nd higher number of visitors registered per day;
- ❖ Unlike in Cape Kolka and Mazirbe, there were many visitors on Wednesdays. It can be explained by school excursions being organised mostly on week days;
- ❖ Taking daytime, the highest visitor concentration was observed between 11:00 a.m. and 05:00 p.m., reaching the maximum between 02:00 p.m. and 03:00 p.m.

The „Apakšceļš” road (2009 – 2010)

- ❖ From September 2009 to September 2010 the total number of the trail visitors was ~ **1 000**;
- ❖ The peak in visitor numbers was observed between July and September showing that holiday makers here have different recreation aims than those coming for the beach.
- ❖ The lowest visitor numbers were registered in the snowy winter months in 2009 – 2010 (November – March);
- ❖ Unlike in Cape Kolka and Mazirbe, the highest visitor numbers were observed on Fridays.

The „Kolkasrags” (Cape Kolka, 2011)

- ❖ The total numbers of visitors in 2011 reached ~ **44 000**, which coincides with the Kolkasrags visitor centre data provided by Jānis Dambītis²;
- ❖ The peak in visitor numbers was observed between June 23 – August 28;
- ❖ The lowest visitor numbers were registered in December;
- ❖ The maximum number per day, > 2500 visitors, was registered during the Fishermen festival (July 9);
- ❖ ~600 visitors have been counted on the Travel Day to Slītere (June 4-5), and ~ 730 visitors during the Liv festival;
- ❖ The Cape Kolka is definitely a weekend destination. ~50% of the total visitor numbers counted per week arrived here on Saturdays and Sundays;
- ❖ Taking daytime, the highest visitor concentration was observed between 11:00 a.m. and 07:00 p.m., reaching the maximum between 01:00 p.m. and 04:00 p.m. (45% of the total visitor numbers per day).

Mazirbe (2011)

- ❖ The total numbers of visitors in 2011 reached ~ **15 000**;
- ❖ The peak in visitor numbers was observed between June 23 – August 27;
- ❖ The lowest visitor numbers were registered in December;
- ❖ The maximum visitor number per day, > 760 visitors, was observed on August 6, the Liv festival;
- ❖ Mazirbe is a weekend destination. ~47% of the total visitor numbers counted per week arrived here on Saturdays and Sundays;
- ❖ Taking daytime, the highest visitor concentration was observed between 11:00 a.m. and 09:00 p.m., reaching the maximum between 01:00 p.m. and 05:00 p.m.

The data can be used:

- ❖ In further planning and management of visitor flow;
- ❖ To estimate environmental capacity of objects;
- ❖ To justify the required financing for infrastructure improvements with a view to increase its capacity. An example is the poor quality of the road from Mazirbe to the beach. The quite impressive visitor numbers can be presented to the relevant institutions (municipality) asking to repair or improve the road as its capacity is below what is relevant for the present visitor flow;
- ❖ In studies and research of visitor flows and impacts on the natural and socio-economic environment.

Who will use the data? At the end of the project, the data analysis was sent to the following stakeholders:

- ❖ The Nature Conservation Agency;
- ❖ The Dundaga Regional Council;
- ❖ Local businesses.

² Jānis Dambītis – director of "Kolkasrags" Ltd., head of the Kolka village council

CONCLUSIONS

- ❖ **Electronic visitor counting** is a highly efficient method, but it requires certain experience that was not present in Latvia before this project;
- ❖ **Disguising the counters** is very important, therefore first the location has to be chosen and after that, a relevant „project” has to be carried out to install and disguise them;
- ❖ The four visitor counting spots show approximate proportions of visitors attracted to the SNP by the Cape Kolka as a tourist destination of national importance (**44 000 visitors**), Mazirbe as a popular beach (**15 000 visitors**), the Pēterezera nature trail (**1400 visitors**) and the forest as a recreational area (**1000 visitors**). The proportion in visitor numbers between the objects is: **44:15:1,4:1**.
- ❖ Electronic counting data show connection between conditions – events, the weather, time (a month, days of a week, time of a day), as well as project activities for general public - and visitor numbers;
- ❖ Different facts occurred during the process of electronic visitor counting, but on the whole, activities in longer period of time show the general trends and serve well to estimate the visitor numbers in several visitor profiles. The data can be further interpreted and used in planning of tourism development.

6. Surveys

BRIEF DESCRIPTION OF THE METHOD

A **survey** is a set of written short, precise and clear questions aimed at finding out answers to current questions or problems. Depending on the goal and necessity, surveys can be done among **residents, businesses or visitors (customers)**. Visitor surveys can provide information on visitor levels of satisfaction, their origin, occupation, interests. This information helps to develop competitive products and improve the existing tourism offer in a territory. Surveys of residents, businesses, municipalities, NGOs and officials of governmental institutions provide opinions on important issues.

Advantage. The method involves lower costs than interviews. Surveys help to detect the most painful socio-economic and nature conservation problems of the tourism destination and look for solutions;

Drawbacks. Survey forms should avoid complicated questions, therefore the answers will be general, without explanations or deeper understanding. Summarising the data is a time consuming process;

Frequency. Protected nature area visitor survey can be done once in 5 years. At least once in 2-3 years it is necessary to survey local businesses, municipalities, NGOs and officials of governmental bodies regarding problematic issues related to planning and implementation of tourism development activities.

Result. Reliable and precise data can be obtained if the survey is carried out professionally, with clear goal, correct questions and complete analysis.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

To get a comprehensive range of views and find out opinions of different existing and potential target audiences on tourism in protected nature areas, including SNP, several surveys were done as part of the monitoring framework during the three project years:

- ❖ The SNP visitor survey (01.07.2009. - 20.06.2011) – **1493 respondents**;
- ❖ Survey on nature travelling (06.2009 – 07.2011) – **1241 respondents**;
- ❖ Travel Day to Slītere visitor survey (12.06.2010.) – **180 respondents**;
- ❖ Survey of tourism businesses „Tourism in *Natura 2000* sites” (during events organised by the Latvian Country Tourism Association in 2007, 2009 and 2010) – **446 respondents**.

The aim of the **SNP visitor survey** was to find out visitor opinions on the SNP before and after their visit. The questions concerned the most important park's values, the most popular tourist attractions, visitor information availability, price to value relation of the tourism products and services. The survey form contained 21 closed questions with answer options. This structure facilitated data processing. Visitors filled in the survey forms in tourism objects in SNP, in the web site of the Latvian Country Tourism Association www.celotajs.lv, and during the „Balttour 2011” travel fair in Riga.



Fig. 38. Survey box of LCTA „Lauku ceļotājs” accessible to general public in the Dundaga tourist information centre



Fig. 39. Survey box at the „Balttour 2011” travel fair in Riga

METHODOLOGICAL ASPECTS

- ❖ Survey questions must be very clear and easy to answer;
- ❖ The most efficient survey is where respondents are addressed personally;
- ❖ Foreign people are reluctant to fill in survey forms. Mostly it is due to language barrier. Persons working on processing the filled in forms should have language skills;
- ❖ A well-programmed online survey form helps in data processing and analysis;
- ❖ A good idea is involving the local tourist accommodations and tourist information centres in distribution of survey forms. It has to be considered that this requires extra work and energy. Nevertheless, this approach helps to reach large direct target audience;
- ❖ If data will be compared by several years, the survey forms should strictly retain the same questions and answer options;
- ❖ Survey forms serve as information carriers, e.g., for some respondents they are the first source of information about Natura2000 network, its meaning and goals.

CONCLUSIONS

- ❖ SNP visitor surveys showed that more than half (**60%**) of visitors arrive **first time**. **40%** of all are **repeated** visits. The longer distance was travelled, the more frequently the park was not the final destination, but one of several destinations on a trip;
- ❖ Almost all respondents admitted that a national park's status gives extra value and interest to visit. Most visitors associate a national park with untouched and beautiful nature. ½ of the respondents associate SNP with the Cape Kolka;
- ❖ Large part of the respondents had heard about SNP during their school or university time, associating it with nature reserve;
- ❖ **88% of the respondents were satisfied** with their visit to SNP;
- ❖ 41% of visitors spent 1 day in the park, 37% of visitors made a 2-day trip;

- ❖ 2/3 of the respondents planned **spending** on food and entrances. About one half – on parking, nearly one half – on overnight accommodation, and ~1/3 – on souvenirs. Amount of planned spending mostly depended on the length of stay;
- ❖ Most of visitors agree that **services** in SNP are good **value for money**. The least satisfied with prices were those visitors who spent almost nothing;
- ❖ Survey on nature travelling proved that most **visitors have positive attitude against nature protection**. Minor part of respondents (2%) believe that nature protection status is a reason to avoid visiting a territory. At the same time, 1/5 of the respondents do not pay attention to nature protection status when choosing a holiday destination;
- ❖ Survey of tourism businesses proved that Natura2000 sites are increasingly used for tourism purposes;
- ❖ The survey results mark a growing trend in positive Natura2000 awareness. Growing numbers of businesses regard this status as an advantage rather than a drawback. The respondents mention the following advantages (ranged according to importance in descending order):
 1. Nature as added value and a resource for tourism;
 2. Natura2000 status is a sign of value and as such is useful in marketing;
 3. Nature diversity, uniqueness that is protected under Natura2000 status;
 4. The special status of the territory as a possibility to source extra funding;
 5. Tourist infrastructure.

7. Interviews

BRIEF DESCRIPTION OF THE METHOD

Interviewing means close contact between the person interviewed and the interviewer with the aim to obtain concrete and focussed information.

Advantages. The method is useful to obtain specific information which is more representative than written responses. The quality of the response contents is higher. Interviewing one person selected according to specific criteria may bring the same results as surveying large numbers of respondents.

Drawbacks. Interview data summary is complicated and time consuming. The information may depend on interaction and relations between the interviewed person and the interviewer.

Frequency. It is recommendable to interview the local businesses, municipality, NGOs, officials of governmental institutions once in two-three years regarding topical problem issues related to planning and implementation of tourism activities in the particular territory. Best, if it is done by a neutral „third party” from outside the territory.

Result. Interviews provide qualitative information and allow to sense the “atmosphere”.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

16 tourism business operators (including 8 accommodation providers) and tourism specialists in SNP were interviewed between July 1, 2009 and October 1, 2011. The structured interviews consisted of 29 questions. The aim was to find out the opinions about SNP, awareness and attitudes against the nature values, advantages and drawbacks tourism businesses experience in protected nature area.



Fig. 40. Visitor interviewing on July 10, 2009. Between 10:00 a.m. and 06:00 p.m. 41 respondents were interviewed obtaining good quality information. More than 90% of the addressed visitors agreed to give an interview.



Fig. 41. Interview with Jānis Dambītis, director of the „Kolkasrags”, Ltd.

CONCLUSIONS

- ❖ Most of the businesses interviewed assessed their location in the **Slītere national park** as a **marketing advantage**. They associate national park with nature values attracting specific, knowledgeable customers. Business operators regard the untouched nature and the beach as high value and an important resource to be conserved;
- ❖ Significant part of business operators regard the **national park status** as an advantage and a drawback at the same time. As a drawback it is perceived because of restrictions to economic activities. Part of respondents see these restrictions as an advantage because forests are not cut down and irrelevant building construction is not allowed;
- ❖ The sea and the beach is recognised as the most important **resource** of the current tourism products. About ½ of the interviewed businesses include in their tourism product also the nature trails, the Cape Kolka, the Šlītere lighthouse, the viewing tower, and nature's wealth like fish, berries, mushrooms, etc.;
- ❖ Most businesses believe that **visitor flow should be increased** through building better quality tourism products and infrastructure for higher visitor numbers. There is a minority opinion that the number of tourists in tourism season is sufficient and the privacy of the territory should be maintained;
- ❖ Opinions of businesses differ on the condition of **environment and infrastructure in the national park** (maintenance levels, cleanliness, facilities) meeting visitor needs and demands. The respondents point at the poor road condition (the situation has changed since paving the Ventspils – Kolka road in 2011), lack of signposts, waste management problems, restrictions to remove fallen trees in villages, damages to minor roads in the dunes caused by fishermen vehicles, garbage on the beach, toilets. Garbage from the public beach is often removed by private businesses for comfort of their customers.

8. Other Methods

This chapter briefly describes other monitoring methods, which were not used in the SNP for particular reasons.

VISITOR SELF-REGISTRATION

The method is based on the practice that every visitor of an object (tourism business, open air object) or a territory leaves an entry in a visitor register book (date, country, number of persons, other data). Visitors may also leave comments. **Guest books or special boxes containing a visitor register book** placed on tourist routes are used for self-registration. This practice is widespread in trekking routes a number of European countries, in Scandinavia and Central Europe.

Advantages. Low cost and simple monitoring method.

Drawbacks. The data are not representative as not all visitors sign in the register. If the register book is lost, all the data are gone as well. This system is used in some particular objects and it does not provide a view on the territory as a whole. In Latvia such a method can be introduced only in tourist accommodation or food service facilities. It would not work in open air objects.

Result. At least approximate data on visitor flows and numbers, including by months and weeks.

AERIAL PHOTOGRAPHY

The method means taking photos or videos from a piloted or pilotless aircraft. The pictures show the numbers of persons in the territory, visitor concentration spots, etc. The method is useful to monitor open spaces with high concentration of visitors, like, the beach in the hot season. Also qualitative data can be obtained by this method, e.g., the directions of visitor flows, the types of visitors, etc.

Advantages. A photo or a video taken from not a high elevation provides detailed information about visitors and their types: walking or cycling tourists, males, females, adults, children, group size and direction of movement.

Drawbacks. Can be used only in open spaces, e.g., beaches, town squares, etc. Aerial photography and analysis of the photos is a very expensive and time consuming process, therefore its necessity has to be well justified.

Result. Rather precise data on visitor numbers at particular moments, e.g., during an event or during peak hours.

PUBLIC MONITORING

Voluntary participation in monitoring of the residents in some territory with the aim to follow environment related processes. A successful example is the public monitoring activity started in 2006 in the North Vidzeme Biosphere reserve. In each parish, there are persons responsible for data collection under the Public Monitoring Programme, organise informative events, etc. This method stimulates the local sense of ownership and protection of the territory, and facilitates socialisation of people representing different sectors and interests.

III. INTERPRETATION EXAMPLE OF MONITORING RESULTS

ECONOMIC BENEFITS FROM TOURISM IN THE SLĪTERE NATIONAL PARK

1. Estimation Of The Total Visitor Numbers

There are a number of methods to calculate **tourism impact on national/regional/local economy**. However, most of them are complicated, require large resources and knowledge. At the same time, the data are very essential to prove the importance of tourism sector, self-government support and to develop tourism projects in the territory.

Below is a simple method for estimation of **approximate economic input of tourism in the local economy**. The method provides general idea and allows to compare the tourism contribution with that of other sectors (agriculture, farming, fishery). For assessment of economic benefits, it is necessary to know approximate visitor numbers in the territory.

APPLICATION OF THE METHOD IN THE SLĪTERE NATIONAL PARK

During the project it was necessary to estimate provisional visitor numbers. The following sources were used:

- ❖ Statistics provided by local businesses;
- ❖ Electronic counting data;
- ❖ Data collected during events;
- ❖ Data from surveys and interviews;
- ❖ Observations of the SNP rangers;
- ❖ Other data.

Example of calculation

1. The calculation is based on the visitor numbers in the Cape Kolka, the most popular tourist destination (mass destination) in the SNP. Ca **44 000** visitors have been counted by means of electronic counting;
2. According to project surveys, 88% of the SNP visitors have been in Cape Kolka. Hereby, $44\,000 + 5\,280$ (12% of all – those who did not visit Cape Kolka) = ~ **49 280**;
3. It has to be mentioned that mainly conventional tourists were interviewed while there are also specific, „niche” visitors like bird watchers, hunters, fishermen, berry and mushroom pickers (including local residents) who stick to particular areas and do not arrive at the traditional tourist destinations in the park, including Cape Kolka. There are **at least several thousands** of such visitors (see further);
4. According to observations and estimation of Vilnis Skuja, a SNP ranger, there were the following numbers of niche visitors in 2011:
 - a. Hunters - 25 (hunting takes place more than once in a year);
 - b. Fishermen (incl., plaice fishing) ~ 1000;

- c. Mushroom and berry pickers > 1000;
- d. Bird watchers ~ 100;
- e. Water sports enthusiasts (kite surfing, windsurfing, etc.) ~ 500;
- f. Holiday makers staying with friends, relatives, in own summer cottages > 1000;
- g. Other, non-identified visitors, incl., those in transit (numbers not known);

It must be noted that many individuals representing some of the above groups visit the territory repeatedly during a season (fishermen, kite surfers, bird watchers, hunters). Others stay there for the whole of the holiday season. It is very difficult to calculate their input into local economy as each of these groups has own models and „traditions” of behaviour.

CONCLUSIONS

- ❖ According to the above estimation method, it is assumed that in 2011 there were **60 000** visitors in SNP;
- ❖ In case of SNP as a Natura2000 site, it is important to know not only the numbers and dynamics of visitors, but also their aims, length of stay, activities, socio-economic and environmental impact.

2. Calculation Of Tourism Input Into Local Economy

If the monitoring data have provided:

- ❖ At least approximate numbers of visitors (electronic counting, registering in tourism objects and accommodations, etc.);
- ❖ Visitor profile, behaviour models (found out in surveys);
- ❖ Length of stay (found out in surveys);
- ❖ Spending levels (found out in surveys and interviews);
- ❖ Other data.

The below comparatively simple model allows for provisional calculation of direct visitor input into local economy.

Example of calculation

Step 1. Find out the length of stay of visitors. It can be done by means of visitor surveys. Table 1 shows the SNP visitor survey results.

<i>Visitor length of stay</i>	<i>% of the total visitor numbers</i>
Less than one day	15.73%
1 day	38.01%
2 days	31.67%
between 2 days and a week	10.33%
A week	2.36%
More than one week	1.89%
Total	100.00%

Table 1.

Step 2. Finding out visitor spending levels.

Table 2 shows coherence between the **national park's visitor length of stay** and the **levels of spending**.

<i>Length of stay/spending</i>	<i>< 5 LVL</i>	<i>6-20 LVL</i>	<i>21-40 LVL</i>	<i>> 41 LVL</i>	<i>Total</i>
Less than one day	10.03%	5.25%	0.46%	0.00%	15.74%
1 day	14.81%	18.83%	2.31%	0.15%	36.11%
2 days	5.09%	18.98%	5.71%	1.70%	31.48%
between 2 days and a week	1.39%	4.32%	3.55%	1.70%	10.96%
A week	0.15%	0.46%	0.46%	1.08%	2.16%
More than one week	0.62%	0.77%	0.93%	1.23%	3.55%
Total	32.10%	48.61%	13.43%	5.86%	100.00%

Table 2

Step 3. Knowing the length of stay of visitors (and percentages by groups), the spending levels and the total visitor numbers (see previous chapter), we can use an Excel table to calculate the money spent, modelling different scenarios, depending on visitor numbers (Table 3-4).

<i>Length of stay/spending</i>	<i>< 5 LVL</i>	<i>6-20 LVL</i>	<i>21-40 LVL</i>	<i>> 41 LVL</i>	<i>TOTAL</i>
Less than one day	14829.63	33613.83	6958.519	0	55401.98
1 day	21902.22	120614.3	34792.59	3802.469	181111.6
2 days	7528.889	121603	85821.73	41827.16	256780.7
between 2 days and a week	2053.333	27681.98	53348.64	41827.16	124911.1
A week	228.1481	2965.926	6958.519	26617.28	36769.88
More than one week	912.5926	4943.21	13917.04	30419.75	50192.59
	47454.81	311422.2	201797	144493.8	705167.9

Table 3. Visitor spending. Scenario at 49 280 visitors

<i>Length of stay/spending</i>	<i>< 5 LVL</i>	<i>6-20 LVL</i>	<i>21-40 LVL</i>	<i>> 41 LVL</i>	<i>TOTAL</i>
Less than one day	18055.56	40925.93	8472.222	0	67453.7
1 day	26666.67	146851.9	42361.11	4629.63	220509.3
2 days	9166.667	148055.6	104490.7	50925.93	312638.9
between 2 days and a week	2500	33703.7	64953.7	50925.93	152083.3
A week	277.7778	3611.111	8472.222	32407.41	44768.52
More than one week	1111.111	6018.519	16944.44	37037.04	61111.11
	57777.78	379166.7	245694.4	175925.9	858564.8

Table 4. Visitor spending. Scenario at 60 000 visitors

Creation of new businesses or new jobs is an important indicator, therefore, at the starting phase of monitoring, a baseline should be established. The number of tourism businesses and tourism related services was established in the beginning and at the end of the project (Table 5). According to Ālanda Pūliņa, the head of the Dundaga TIC, not only the number of businesses has grown, but also the products and services have improved in quality, stabilised and become more dynamic.

	<i>Before project (2009)</i>	<i>Project conclusion phase (2012)</i>	
1. Number of tourism service businesses			
a. accommodations	11	14	
b. tourist guides (incl. nature guides)	5	14	
c. food service			
i. cafes, produce tasting and catering facilities	3	6	
ii. fish smokers (smoked plaice and other fish)	0	6	
d. tourism gear rentals	4	7	
e. artisans	0	1	
TOTAL	23	48	208 %

Table 5.

CONCLUSIONS

- ❖ The monitoring data lead to conclusion that in 2011, tourists and other visitors **have brought 700 000 – 800 000 LVL** to the SNP. Taking into account the present numbers of permanent residents (1091 residents living in the largest villages and other residential areas in 2010), low numbers of businesses and the geographical location of SNP, it is a very significant financial input. It has to be noted that there is only one agricultural farm in the SNP. Logging is restricted by the status of the national park. The largest industry is fish processing in Kolka. Such economical background even more strengthens the importance of tourism in the territory;
- ❖ As seen in the table 3 and 4, the highest financial contribution comes from visitors staying one or two days, **spending in average 5-20 LVL per person. Two-day travellers generate the highest input of money.** Local businesses should therefore focus on products to prolong visitor stay, which was already noticeable during the project implementation.

IV. BENEFITS

To do monitoring, there should be **motivation and justification**. Here below **the benefits** are stressed and the information obtained during the project is characterised.

The project benefits are grouped in three areas: nature conservation, economic and social, which are essential elements of balanced and sustainable development of any sector.

Nature conservation

- ❖ **Conservation of nature values.** The project monitoring allows to conclude that maintenance Conservation of nature values. The project monitoring leads to the conclusion that maintenance of biological diversity and development of tourism in SNP are not in conflict. Tourism development has not caused degradation of the quality of nature values like species, biotopes and landscape;
- ❖ Through developing and facilitating well-considered tourism products, higher awareness levels are achieved among tourists and business operators. Visitors use environment friendly tourism products and services of local guides – rangers. These trends contribute to the purposes of protected nature areas (nature conservation, education of public at large, recreation, etc.);
- ❖ **Change of attitudes in local community.** Through coordinating tourism related activities and involving all parties and all players, a positive change of attitudes was achieved and relations improved between businesses, local residents and their NGOs formerly campaigning against nature conservation system and its representing body in SNP;
- ❖ **Visitor counting.** The data about dynamics of visitor numbers in the territory and individual objects are useful in planning improvements of the existing infrastructure building new facilities. Infrastructure is an important tool to direct visitor flows with conservation of nature values in mind;
- ❖ **New tourism products.** The project created new active and nature touring routes. The monitoring results show that project activities have not caused negative impact on important nature values in the national park. The touring routes are a tool to direct visitor flow to where tourism activities do not contradict with the nature conservation interests. Animal, insect and plant watching tours are provided by the local nature guides that is a guarantee of sustainable use of the resources;
- ❖ **Monitoring.** In the process of application of a number of monitoring methods, they are improved and adapted for a particular territory and conditions, this way improving the monitoring methodology as a whole.

Economics

- ❖ **Increase in visitor numbers and length of stay.** Analysis of the monitoring data show that, disregarding the global economic crisis (which coincided with the project implementation), not only the visitor numbers but also their length of stay increased in tourist accommodation facilities which is a very important factor for improvement of the local economy;

- ❖ **Tourism economic impact.** The monitoring data interpretation leads to the conclusion that visitors brought ~ 700 000 – 800 000 LVL to the local economy in 2011. It is a very significant amount, taken the specific features of the territory (the density of residents and businesses, the former status of a nature reserve and restricted military area, etc.). So far, there have been no other initiatives to calculate tourism economic impact in the area, therefore the data cannot be compared with the situation in other years;
- ❖ **Visitor counting.** Direct and indirect (electronic) counting methods and the visitor dynamic's data serve as a basis for further assessment of tourism impact on local economy. Data interpretation can serve as a catalyst for new initiatives, projects and support mechanisms for tourism. Local business operators can use the visitor counting data in planning their business and developing further operation models;
- ❖ **New tourism products and their economic impact.** According to local business surveys, the touring routes developed under the project are well-demanded. Their availability is one of the reasons for increased length of visitor stay;
- ❖ **Formation of new businesses and extension of the existing ones.** Three new accommodation facilities are opened in SNP (two self-catering cottages and one tourist facility on a farmstead) and two properties (a guest house and a camping site) have extended their guest room capacity. There are plans to open a new hostel and tenting sites on a farmstead in 2012. At the end of the project, there are 48 tourism related businesses in the SNP: accommodation, guides, cafes, food tasting and catering, traditional fish smoking, tourism gear rentals, artisans. At the start of the project, there were 23 tourism related businesses in the park.

Social aspect

- ❖ **New jobs.** The project has improved the local rates of employment along with opening of new tourism facilities and extension of the existing ones;
- ❖ **Cooperation.** Interviews, surveys, regular on-site visits and participation in local initiative groups demonstrate that cooperation between the local players has improved in all levels, namely, the vertical level: businesses ↔ municipality ↔ SNP administration, and the horizontal level, e.g., business to business;
- ❖ **Public involvement.** The project also monitored the local community opinions and change of attitudes against a number of internal and external factors. A positive change is proved by **reducing of local tourism stakeholder conflicts** and by the fact that all stakeholders were capable of **constructive cooperation** to organise the Travel Day to Slitere (**the initiative came from the local businesses**). Constructive approach was also found to other local problems;
- ❖ **Education.** The stakeholder cooperation during the project has established good communication practices. Business operators have gained new experience, knowledge and motivation for further business development in the protected nature area.

V. REFERENCES

1. <http://biodiv.lvgma.gov.lv/fol302307>;
2. <http://biodiv.lvgma.gov.lv/fol302307/fol818778>;
3. <http://www.biosfera.lv/lv/node/293> (closed);
4. http://www.ldf.lv/pub/?doc_id=28334;
5. <http://www.liis.lv/gpt/monitor.htm>;
6. <http://www.lva.gov.lv/monitor/monitorings.htm> (closed);
7. „*Visitor monitoring in nature areas*”, *Swedish Environmental Protection Agency*, 2007.;
8. The Database of Academic Terms AkadTerm: <http://termini.lza.lv/akadterm/>.