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**CONCEPT OF THE PUBLIC  
BEACHES FOR ISLAND AEGNA**

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**ENVIRONMENTAL REPORT**



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ENVIRONMENTAL EXPERT:

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## INTRODUCTION

This project was initiated by the Tallinna Kommunaalamet and was carried by Project O2, together with specialists from Environmental Agency Viridis and Institute of Ecology at Tallinn University. The overall goal of the project was to assess the impacts which might occur if there will be the growth of visitors in the protected landscape and public beaches of island of Aegna.

The aim was:

1. Mapping the existing public beaches of island of Aegna;
2. To assess the possible tolerance of visitors of beaches of Aegna;
3. What are the necessary actions before the beaches are taken into public use?
4. To specify the exact road network of Aegna;
5. The conception of waste and waste water management on beaches of Aegna?
6. To specify the necessary equipment on the beaches?
7. To provide the preliminary solutions for the beach equipment;
8. To provide the possible location for the public party area;
9. To provide preliminary solutions for the heritage protected former military objects of Aegna island.

To achieve the goals, listed above, the field studies were carried on in the autumn of the year 2009 and in the spring 2010. According to the results of the field studies, the possible impacts were analysed, and the preliminary solutions for the beaches of Aegna were provided.

## **1. GENERAL PRESUMPTIONS TO BECOME A POPULAR PUBLIC BEACH**

The island of Aegna did rise from the sea about 3000 years ago. The former landscape and the nature of the island are very much influenced by the activity of the sea.

The military history – former Soviet Army bases and fortresses, together with diverse and scenic landscape covered by the old forests or nice wetlands, and the sandy beaches are the main attractions of the island of Aegna. All these attractions together with the military history have made the island as a popular resort area among the beach vacationers as well as among the ramblers in the nature.

There are three main presumptions to become a popular public holiday area:

### **1. The location.**

The island of Aegna is about 13 km away from the Tallinn city centre. The island is only 1 hour ferry trip away from Tallinn central harbor. In former times the island was mostly known as a closed military and forbidden for public area up to the beginning of 1990's. After the Soviet Army has left the island it did become a popular outing area among the Tallinn people.

### **2. Attractivity**

The island provides a wide variety of different actions on the island. It provides the actions for the beach vacationers as well as among the ramblers in the nature. The variety of actions is a key to become a popular public holiday area.

### **3. The quality of services**

The third key word in the holiday areas is the quality of services. All services on the island must be provided on the top quality. The all types of visitors of the island must have the feeling from the very beginning that he or she is most welcome to the island.

## 2. THE NATURE CONDITIONS OF THE AEGNA ISLAND

The area of the island of Aegna is about 2,9 km<sup>2</sup>. The botanical diversity of the island is very high. There are approx. 350 species of vascular plants and more than 230 species of mosses and lichens. The most important key habitats are presented on the Figure 1. The Aegna landscape protection area was established in the year 1991. According to the protection regulations of the Aegna landscape protection area the protected areas are divided into two conservation areas – Kurikneeme and Aegna conservation areas, and into three restriction areas – Eerikneeme, Lemmikneeme and Kalavälja restriction areas (see Figure 2). The conservation areas are established with purpose to protect the key habitats and to assure that the development processes are following the way of natural processes.

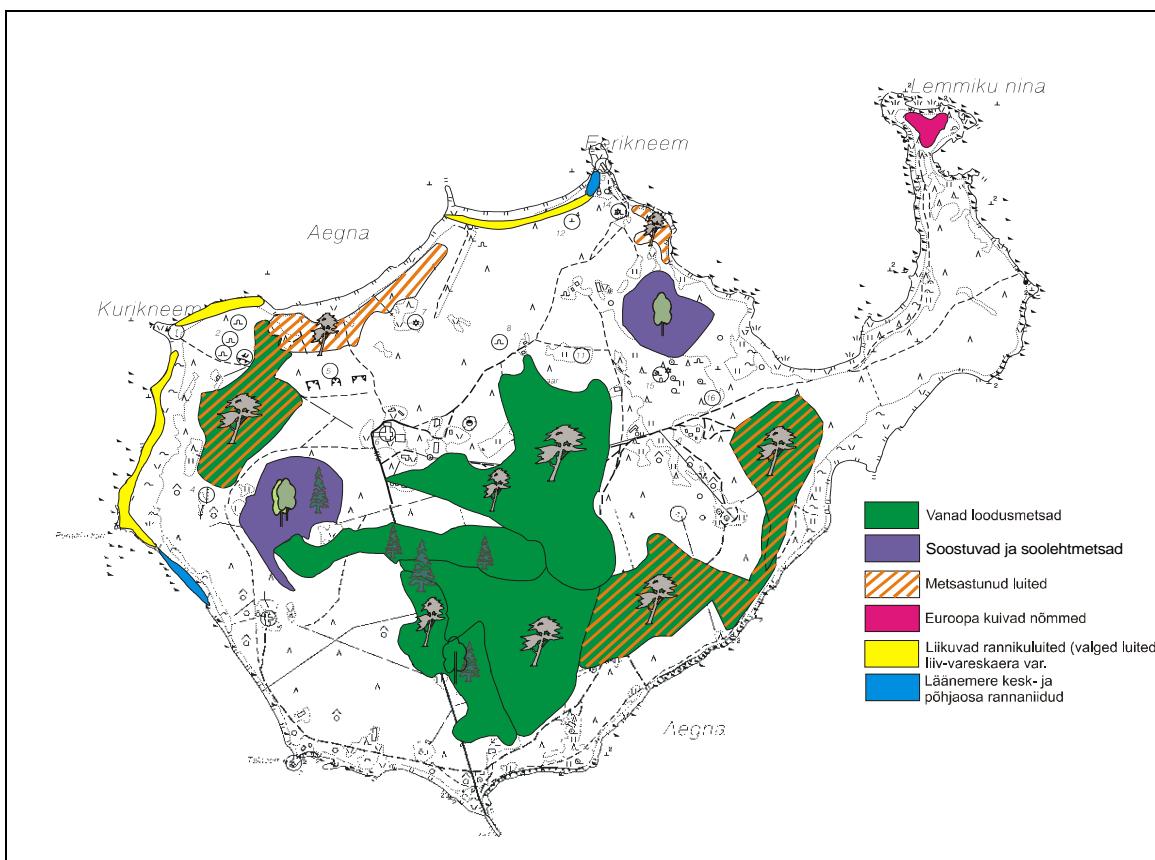


Figure 1 The important key habitats of Aegna

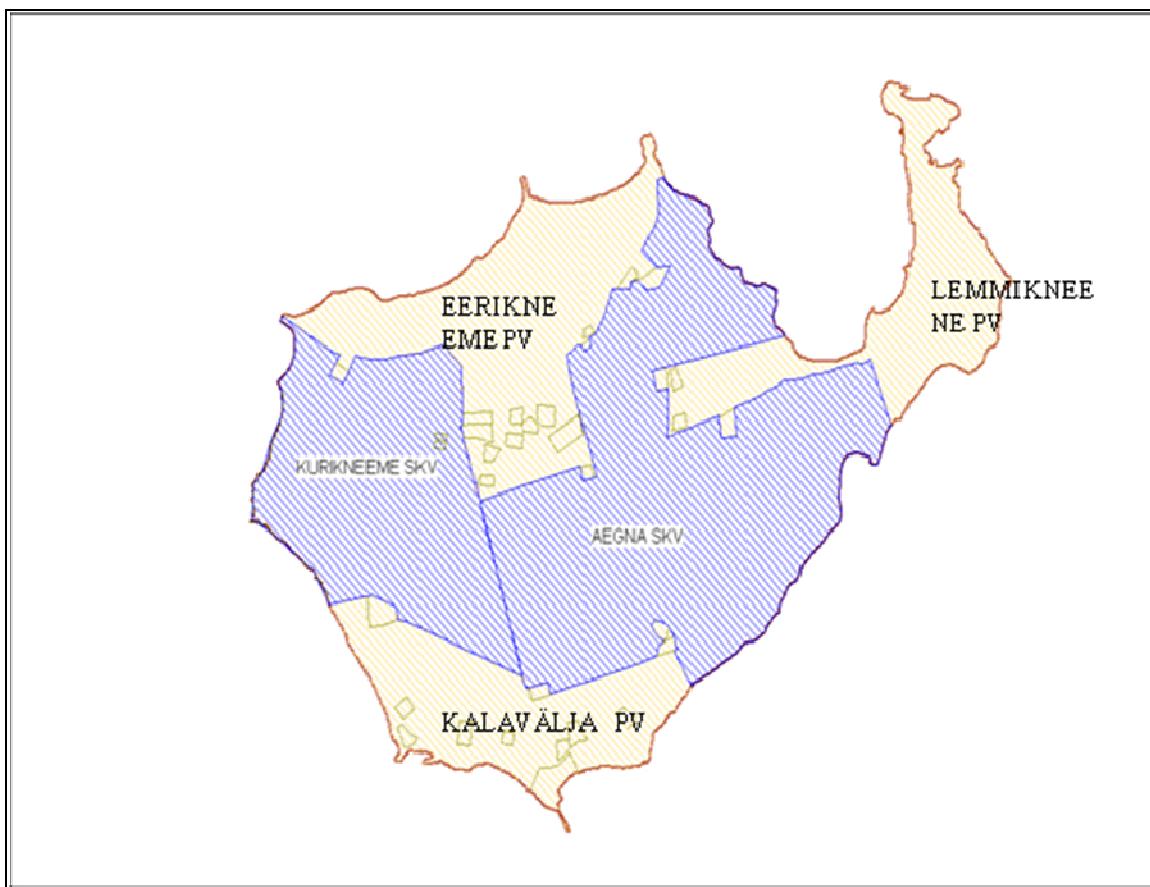


Figure 2 Kurikneeme and Aegna conservation areas, according to the protection regulations of the Aegna landscape protection area

Also, the island is well known as an important bird area. The most protected bird on the island is a white-tailed eagle that is nesting on the island for many years.

### 3. PUBLIC BEACHES OF THE ISLAND AEGNA

The distance of the coastline of the Aegna island is about 10,1 km (Loopmann, 1996). The most typical types of coastlines in the Aegna (Figure 3) are:

- Sandy beaches – yellow line
- Gravel and stony beaches – blue line
- Glacial till and silt beaches – brown line

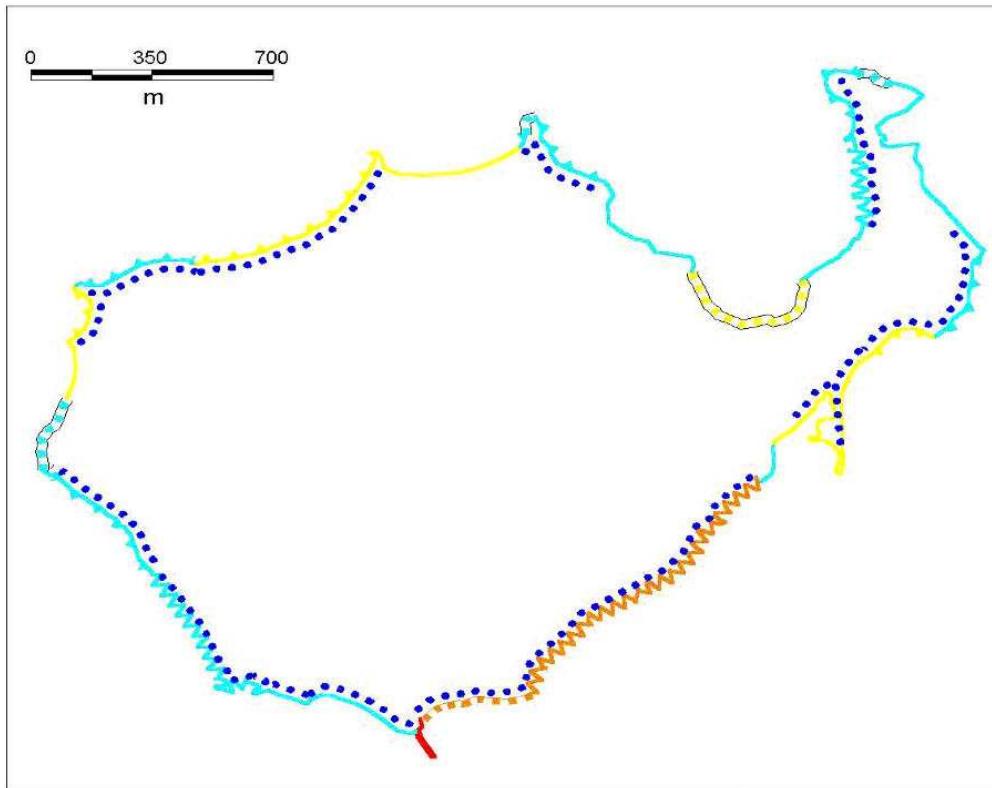


Figure 3 The most typical types of coastlines in the Aegna

The coasts of Aegna are very much influenced by the sea – the wind erosion and waves destructions caused by passing ferry transport or weather conditions, therefore there is a very little of constant coast situation in Aegna beaches. The most influenced and most fragile habitats against human capacity growth on Aegna's beaches are pre-dunes with fragile plants and coastal pine forest which both are extremely sensitive for human impact growth.

In this project the emphasis was made into three main beaches in Aegna:

### 3.1 NORTHERN BEACH

The distance of the Northern beach is about 1,2 km (Figure 4).

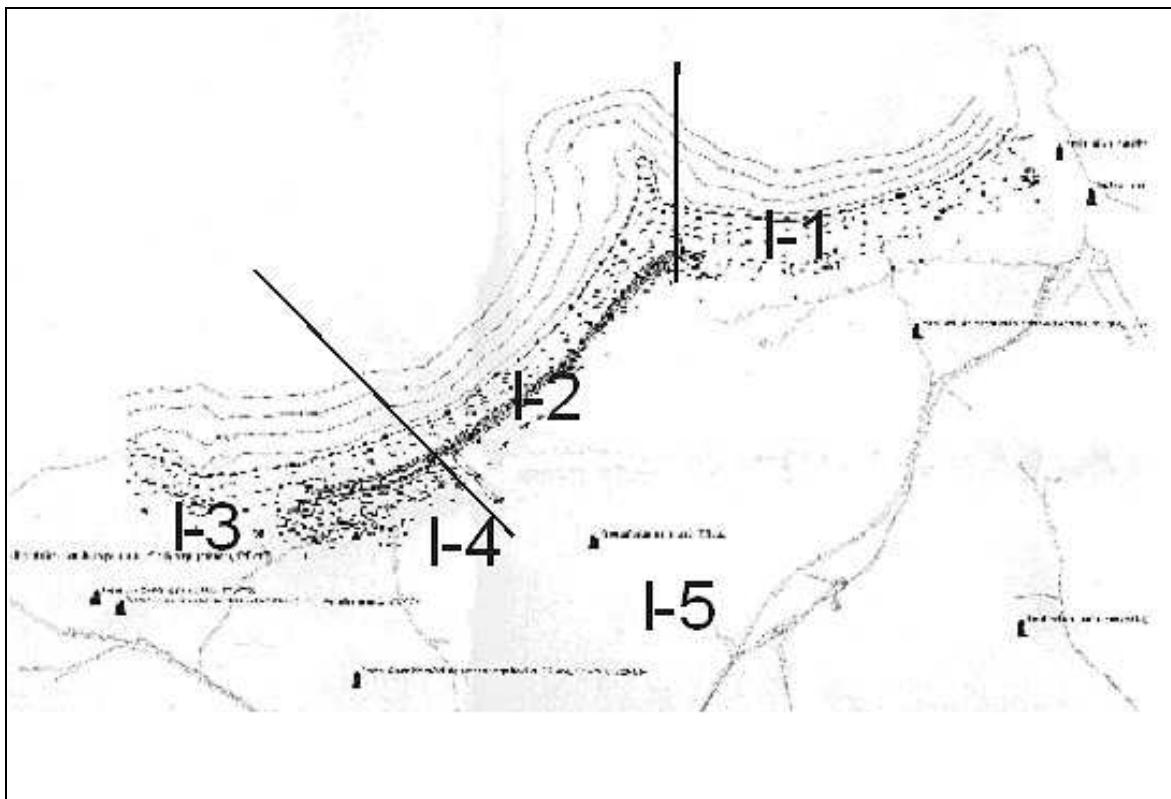


Figure 4 Northern beach



Photo 1 Northern beach

The beach I-1, from Eerikneem to Löhkari (Figure 4), is very narrow sandy beach where the sand is very much mixed with sea grass. Immediately after the narrow sandy coastline the vulnerable pre-dunes area begins and after that it goes over into the sensitive coastal pine forest where the ground is covered by the vulnerable mosses and lichens species (Photo 2). Current situation of both areas is relatively good. Both areas do belong into habitats (2120) of Natura2000 areas. These areas are **not appropriate** for the intensive recreational activities. Today, these areas are used mainly by hikers who are visiting erratic boulder Maiekivi and military objects in Eerikneeme. It is important to keep most of the hikers on the existing paths. If the human impact will grow, the propitious situation of these two areas might easily turn over into the unpropitious conditions.



Photo 2 Sensitive coastal pine forest where the ground is covered by the vulnerable mosses and lichens species

The beach I-2, west from Löhkari – the biggest sandy beach in Aegna. Sandy beach range up to 50 m from coastline. The beach ends with sandy cliff with height up to 2 m (Photo 3). The only disadvantage of the coast is the openness to the open sea and for the chilly northern winds. The area is not detected as a Natura2000 area. The beach I-2 is very **appropriate** for the intensive recreational activities.



Photo 3      Up to 2 m high sandy cliff in the Northern beach

The beach I-3 is very similar into the beach I-2 and it is **appropriate** for the intensive recreational activities. However, if there is appears to be a chilly northern wind, then the beach is open from the sea side and therefore there is no much shelter for the vacationers.

The beach I-4 is just in the behind of the beach I-2 and I-3, and mostly used as an equipped camping area, with couple of open fire places, toilets and volleyball court. In fact the area is very vulnerable for human impact and the ground open for eolian destruction (photos 4 and 5).



Photo 4      Camping area on the Northern beach



Photo 5      The volleyball court in the Northern beach where the sand is blown away by the wind

The beach I-5 – sandy dunes with height almost up to the 12 m over the sea level. These dunes with pine forest are protected as Natura 2000 habitats (2180) (Photo 6), and very vulnerable for human trampling. There is a serious threat that the activities on the beach I-4 will expand into the beach I-5, and the negative impact of human activities will grow further into the inland of island Aegna.



Photo 6      Vulnerable sandy dunes with pine forest - the beach I-5

**Steps against the negative impacts:**

1. To avoid the negative impacts of visitors trampling in the beach I-5 area, by marking clearly the main access roads into the Northern beach;
2. To plan the network on paths and roads. In the areas with vulnerable ground or plants, the paths covered with wooden or granulated wooden chips or sawdust must be built;
3. To built the steps in the areas with deeper slopes;

### 3.2 EASTERN BEACH

Eastern beach has been as a public beach only few years, it was started to use after the Aegna Loodusmaja was opened in year 2007.

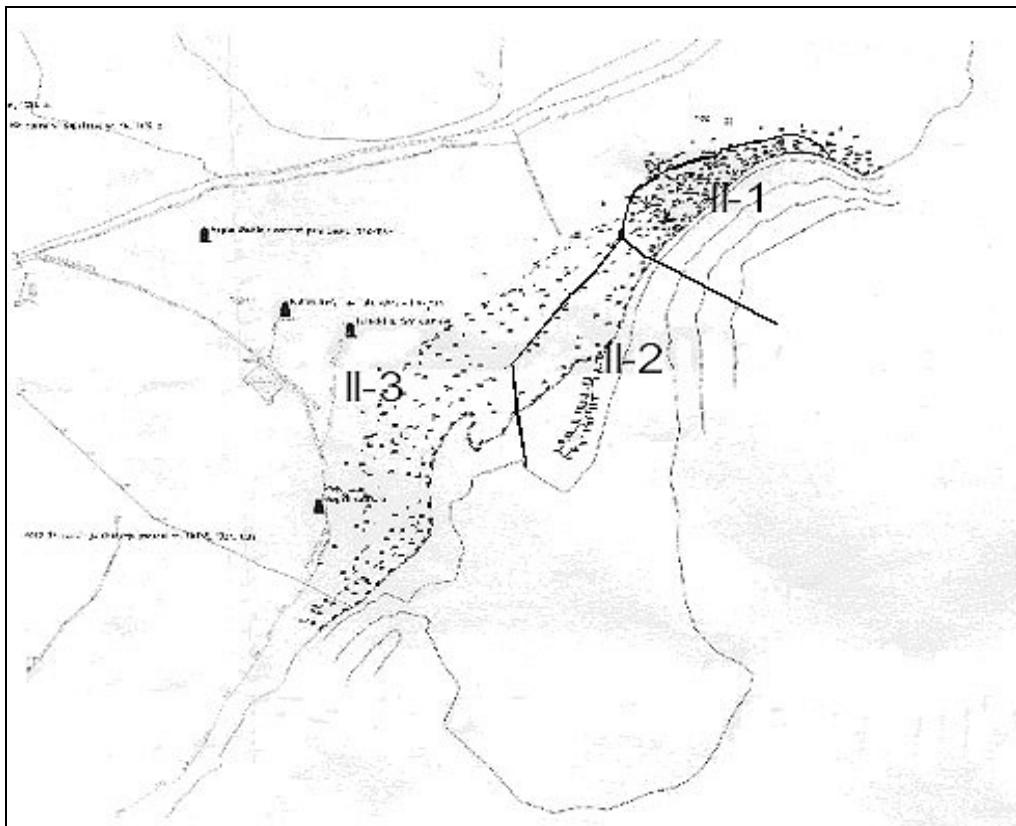


Figure 5 Eastern beach

The northern part of the Eastern beach II-1 is mostly sandy beach and **appropriate** for the intensive recreational activities. These sandy dunes are surrounded by the newly planted pine forests which are relatively vulnerable and with ground open for eolian destruction. The pine forests are full of paths and non-official roads (Photo 7).



Photo 7 Paths and non-official roads in the pine forest next to the Eastern beach

The southern part of the Eastern beach II-2 (Figure 5), is very **appropriate** for the intensive recreational activities. If there is necessity to expand the Eastern beach, then the beach II-2 (Photo 8) is the best solution to bring some activities from the beach II-1, and this way to reduce or distribute the human impact of this area.



Photo 8 Southern part (II-2) of the Eastern beach

The area II-3 - sandy dunes with pine forest (2180) and old wooded mires (9010) are protected as Natura 2000 habitats (Photo 9), and very vulnerable for human trampling. There is a serious threat that the activities on the Eastern beach will expand into the area II-3, and the negative impact of human activities will grow further into the inland of island Aegna.



Photo 9      Vulnerable and trampled sandy dunes with pine forest next to the Eastern beach

**Steps against the negative impacts:**

1. To avoid the negative impacts of visitors trampling in the II-3 area, by marking clearly the main access roads into the Eastern beach;
2. To avoid the new establishments in the northern area of the Eastern beach - II-1.

### 3.3 SOUTHERN BEACH

The southern beach is mostly the beach with gravel and with narrow sandy stripes (Figure 6) (Photos 10 and 11). The southern beach is **not appropriate** for the intensive recreational activities. The main reason is the strong coastal erosion in this area. Perhaps it is more appropriate to use the area as camping area, with some resting places (open fire places, toilets, some benches, etc.) before the leaving the island with ferry.

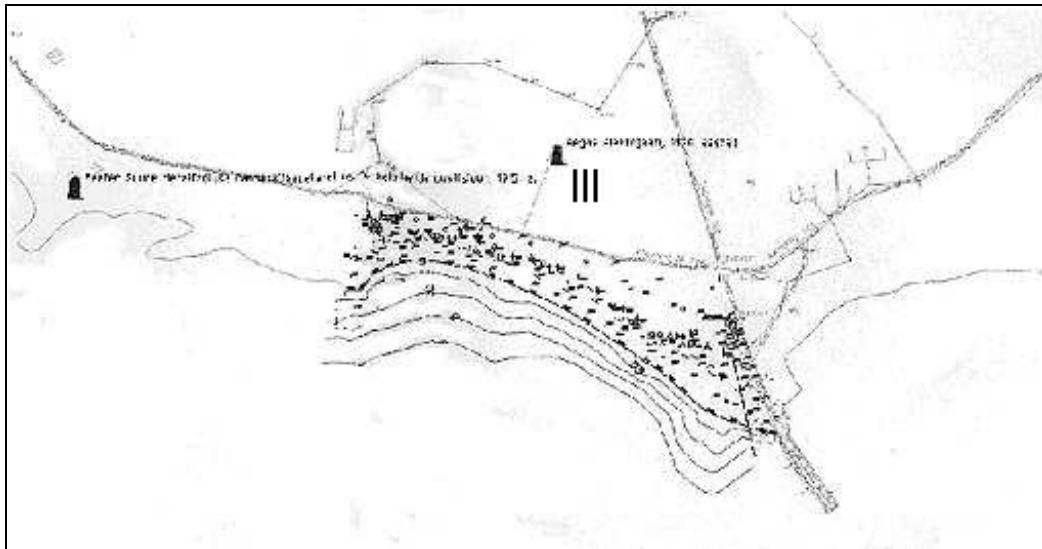


Figure 6 Southern beach



Photos 10 Southern beach



Photos 11      Coastal erosion in the Southern beach

### **3.4 PROBLEMS THAT CAN OCCUR WHILE TAKING THE BEACHES INTO ACTIVE USE**

#### Main problems

##### 1. Trampling

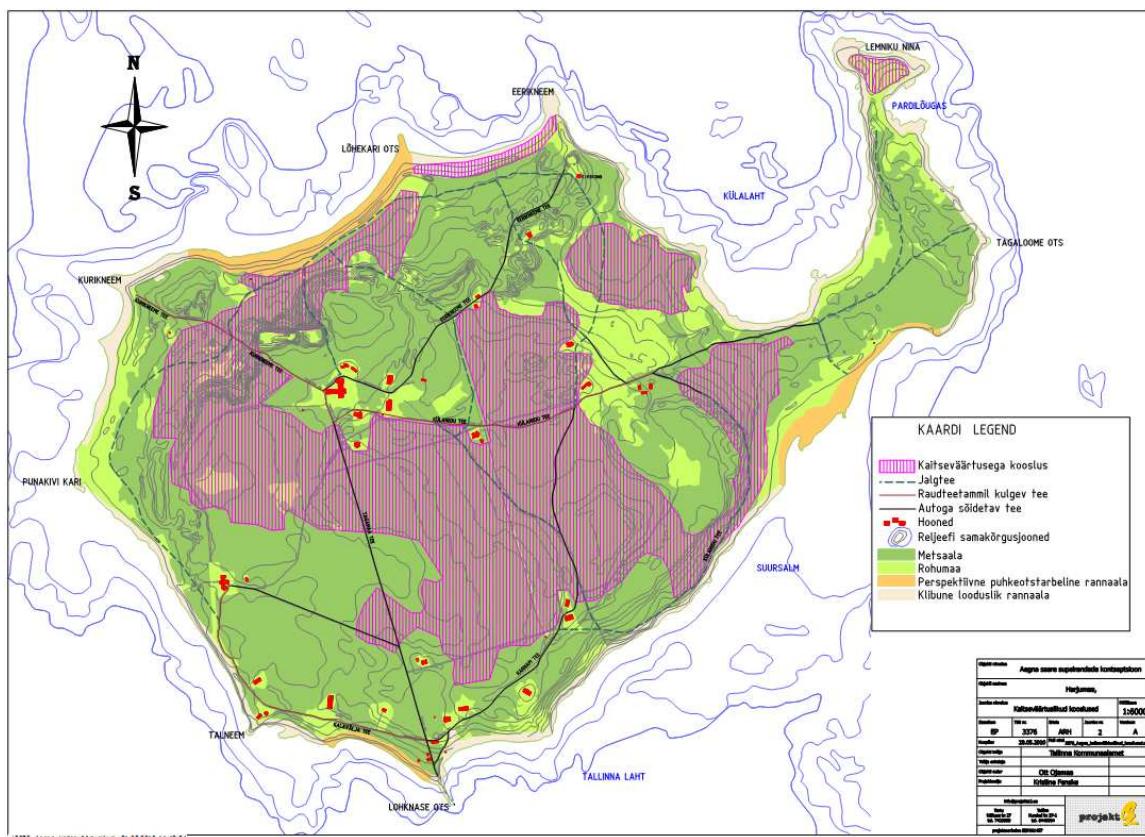
The trend of visitors of Aegna Island is growing fast. The growth ineluctably does cause the problem of trampling. The consequences are:

- Physically damaged trees and bushes;
- Trampling and damaging the sapling stands, ground vegetation, mosses and lichens. This may rise the risk of ground erosion;
- The risk of landscape fires;
- The risk of waste disposal in the forest;
- Exceed the possible tolerance of visitors. According to the previous studies, the possible tolerance of visitors of coastal pine forest, which is a most vulnerable habitat in Aegna, is calculated as 1 person per hectare (Margus, 1978). The tolerance of Aegna forests is exceeded when the number of visitors is more than 3 persons per hectare.

##### 2. Hiking in the restricted area

The most protected bird on the island is a white-tailed eagle that is nesting on the island for many years. As a first category protected bird species, it is forbidden to visit the nesting area from 1 of April to the 1 of July. Today, the hiking path passes the nesting area from distance approx. 250 m. Therefore, the new path must be planned. The new path can be built about 100 m further from the nesting place, and must be clearly marked with wooden or granulated wooden chips or sawdust. The old path must be closed by planting trees on it.

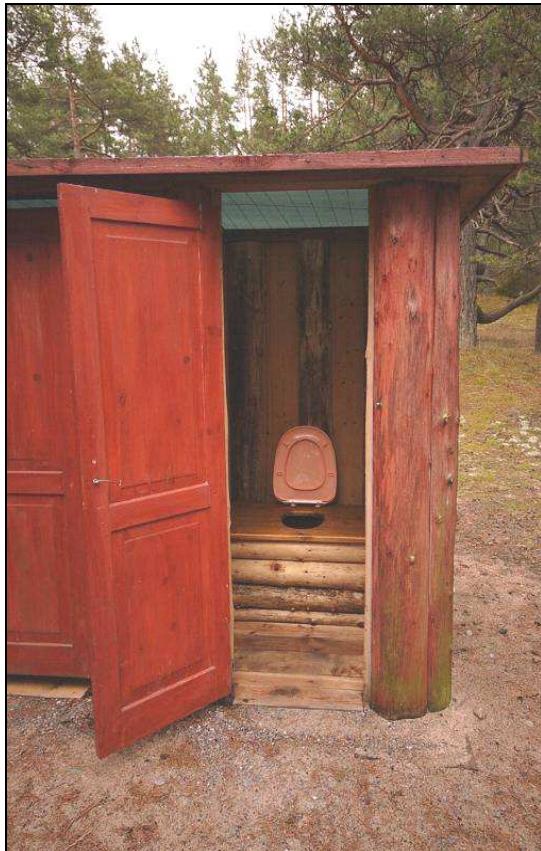
Addition to the already officially protected and restricted areas presented on Figure 6, the experts of this study do recommend to implement the protective measures on following areas (Figure 7):



## 4. ATTRACTI0NS ON THE BEACH

Last two years the beaches of Aegna Island has been developed. Within these years some public attractions has been developed on the public beaches of the island. The existing attractions on the beaches are (see Figures 1-3 as appendixes):

- Open fire places
- Fire wood storages
- Benches
- Garbage cans
- Toilets
- Volleyball court
- Info tables



Photos 12...14

Existing attractions on the beach

### Problems

- Cabanas are missing in both beaches;
- Volleyball court on the Northern beach is open for the chilly northern wind, and the ground is open for eolian destruction. The sand is taken away from the court – there is a high risk of serious injuries while playing volleyball.

### Solutions

- To provide the beaches with cabanas. The cabanas could be made from wood (see Figures 1-3 as appendixes).
- To remove the volleyball court.

### **Objects of historical heritage**

Most of objects of historical heritage are former military facilities, built by Soviet army in the beginning of last century.



Photo 15      Warm welcome to all visitors

### Problems

- Many objects are brushy. Therefore some clear cut to open the views must be done;
- Sometimes the visits of these objects are not safe – metal sticks that are poked out from concrete, steep walls, etc. might harm the visitors;
- Visitors can derogate and affright the objects (Photos 16 to 17).



Photos 16 and 17      Ruins

### Solutions

- Some clear cut to open the views to the objects must be done;
- To clean up the military object nr 15 and open it to the visitors. The object is in relatively good condition and therefore it is possible to open the 100 m long corridor for some kind of exhibitions.
- Many objects were derogated and affrighted by the former visitors. If there is a desire to open the objects for visitors, then the objects must be leaned up first.
- Objects with steep walls – to provide with safety equipment (see Figure 5 as appendixes).

### **Infrastructure**

There are two public water wells and renovated water pumping station on Aegna, since year 2007. At same time the establishment of central water system did began. Today the work is in process. Also, the systematic trash collection was initiated. About 100 000 litres of garbage was collected on the year 2008.

### Problems

- There are two official companies are responsible for the garbage collection on the island. Despite that, experts did found a place in the forest where the garbage (at least two containers) was disposed under the forest in the Kurikneeme restricted area (Photo 18);



Photo 18      Waste disposed under the forest

#### **Roads network**

The net of roads is rather well established and well functioning on the Island.

#### Problems

- Sometimes there are unofficial parallel roads are designed by the visitors, e.g. Külaniidu tee (Photo 19);



Photo 19      Two parallel Külaniidu tee roads, where the biggest distance between these two roads is about 15-20 m

- Too many paths are going to the beach, through the areas with vulnerable ground and important habitats (Photos 20 and 21);



Photos 20 and 21 Paths through the pine forest with vulnerable ground

#### Solutions

- There are two drilled wells on the island. In perspective there is necessary to build the local sewage water treatment plants;
- At least two toilet aggregates must be built, next to the public party area near the Loodusmaja and next to the public pub that is going to be opened soon;
- The new toilets built on the beaches could be "eco-toilets", e.g. with peat fillings;
- It is necessary to place some garbage bins on hiking paths;
- The existing garbage bins are made from plastic. It would be fit better into the nature if the bins were made from wood;
- Parallel roads must be closed. The old path or roads can be closed by planting trees on it.
- the hiking path next to the Flora house that passes the nesting area from distance approx. 250 m must be closed. Instead, the new path must be planned. The new path can be built about 100 m further from the nesting place, and must be clearly marked with wooden or granulated wooden chips or sawdust. The old path must be closed by planting trees on it.

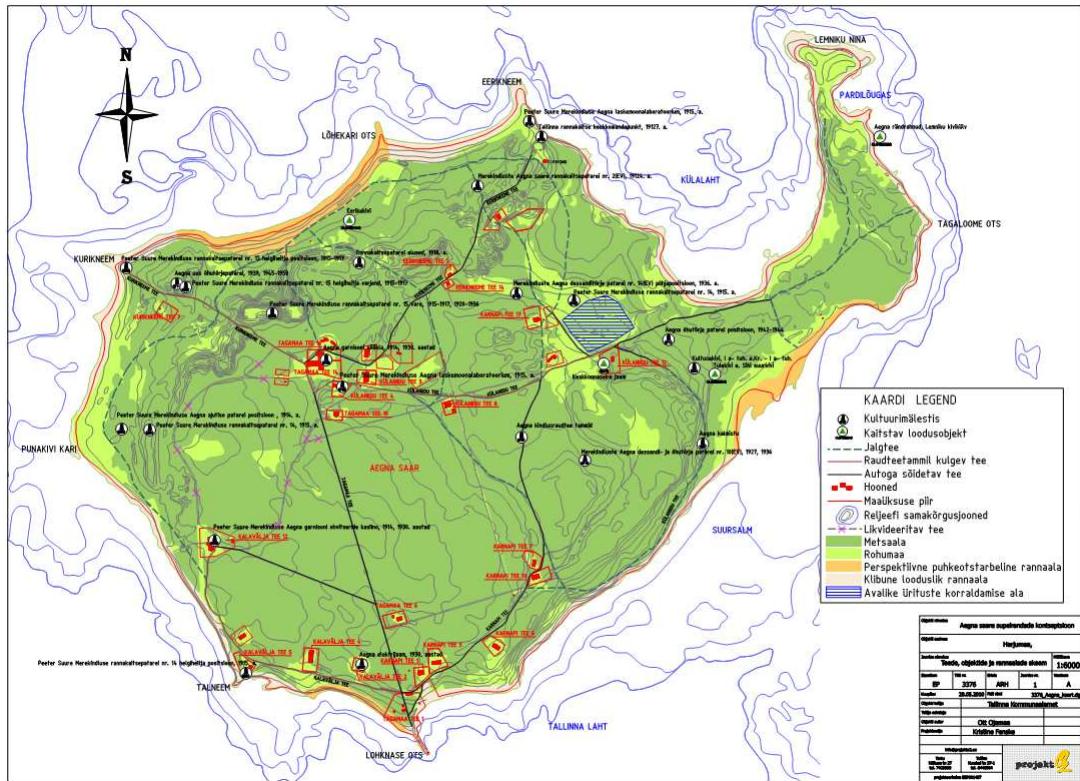


Figure 8 Road network on Aegna Island

**SUMMARY**

**Northern beach** – is a very appropriate beach to all types of visitors – suits for vacationers as well as suits for hikers. However, the period of active use of the beach is limited, because of the openness to the open sea and to chilly northern wind. This makes the useful period of the beach much shorter than in the other beaches. Another problem of the beach is the eolic erosion. The beach is open for destructive action of waves and wind. Together with growth of visitors, all these factors make the beach and the surrounding of the beach relatively vulnerable for bigger action on the beach.

**Eastern beach** – is rather intimate beach with many privacy providing sandy corners in the forest. Eastern beach is rather young beach, was taken into use after the Loodusmaja was opened, and therefore it is lack of beach facilities on the beach. If the decision to expand the Eastern beach will be done, then the beach II-2 (Figure 5) is the best solution to bring some activities from the beach II-1.

The area II-3 - sandy dunes with pine forest (2180) and old wooded mires (9010) are protected as Natura 2000 habitats, and very vulnerable for human trampling. There is a serious threat that the activities on the Eastern beach will expand into the area II-3, and the negative impact of human activities will grow further into the inland of island Aegna. Therefore the connection, one main path from Loodusmaja to the beach must be developed.

**Southern beach** – The southern beach is mostly the beach with gravel and with narrow sandy stripes. The beach is very much influenced by the wave erosion and therefore the beach is not appropriate for the recreational activities. Perhaps it is more appropriate to use the area as camping area, with some resting places (open fire places, toilets, some benches, etc.) before the leaving the island with ferry.

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