

# Education about nature in Finland

At an editorial meeting at Fiskebæk Naturskole, we discussed the Eagle countries around the Baltic Sea. It wasn't easy, but after a long and tough debate, the choice landed on Finland.

## **What were the Finns capable of?**

Judge for yourself by reading the articles in the magazine! We certainly don't have any doubts. Once again, we are supported in that it is worth a lot to look past your own little world, and not least, discuss education with colleagues who have a different approach to their job of communicating nature, science, environment and cultural history.

We have written about all sorts of things, because the interesting things were everywhere – and in Finland it was often served with a twinkle and a feeling for the details.

Finally, we would like to take this opportunity to thank all the kind, helpful and capable Finnish educators we met on our trip.

Kiitos!

The editorial team wishes you all a good summer  
and happy reading!

Allan Gudio Nielsen

The engine of the big Volvo V70 is humming sweetly, it has a full tank, and the course for Helsinki is plotted with the cruise control. While we leave millions of Finnish birch trees behind us, the sky is coloured pink by the setting sun.

Anne and Kari are giggling in the back seat. They are reading the funny nature book, *Life in the wild*, that we bought in the fantastic visitors centre in the Seitsemien National park we have just visited. My faithful co-pilot little Allan, is quiet – is actually half asleep. It has been a long and educational day with lots of exciting impressions. It ends tomorrow and we go back to Denmark.

Great trip. It won't be difficult to write articles for the next issue of *Nature Guide*.

## **And why a theme issue about Finnish nature-education?**

When the editors visited London for three days 2 years ago, we were filled to the brim with great ideas for education. In fact, there was material enough for two issues of *Nature Guide*.

The editors have therefore wanted to go on a similar trip for a long while, and when an opportunity suddenly presented itself to make a theme issue about natural education in Finland through Project Eagle, no-one hesitated

- we were leaving again!

*The editors in Finland .....and their 2 drivers*

## **Monday:**

### **The Nature School Villa Elfvik**

The trip's first stop was The Nature School in Villa Elfvik which is in Espoo just outside Helsinki. We were greeted by Ritta Pulkkinen who introduced us to the nature school, the exhibition and the area around Villa Elfvik.

[www.espoo.fi/villaelfvik](http://www.espoo.fi/villaelfvik)

## **Heureka**

Before we left, we found time for a visit to Heureka - a science centre just outside Helsinki.

[www.heureka.fi/portal/ruotsi/](http://www.heureka.fi/portal/ruotsi/)

## **Friday:**

### **Nuuksio National park**

Nuuksio National park is about 25 km northwest of Helsinki. In spite of its closeness to Helsinki, Nuuksio had exciting natural features. Among other things we found remains of the flying squirrel. Elina Pike showed us around and told us about the Finnish national parks.

[www.luontoon.fi/page.asp?Section=5131](http://www.luontoon.fi/page.asp?Section=5131)

## **Thursday:**

### **Seitsemäinen national park**

This interesting national park is situated about 230 km north of Helsinki with a nature centre adjacent.

After a brief walk in the area near the nature centre and a look at the exhibition, we had an interesting talk with Tuulikki and Leena Hiltunen.

[www.luontoon.fi/page.](http://www.luontoon.fi/page.asp?Section=5327)

[asp?Section=5327](http://www.luontoon.fi/page.asp?Section=5327)

## **Wednesday:**

### **The Harakka Nature Centre**

Harakka Nature Centre is on a small island outside Helsinki. We spent a fantastic morning with Kaisa Pajanen, Veera Rönkkö, Jarkko Nikkilä and a school class from Helsinki. The trip was concluded with an evolutionary trip accompanied by Pia Bäckman and Janica Vilen who teach Harakkas youngest visitors.

[www.hel2.fi/ymp/eng/organisation/Harakka\\_eng.html](http://www.hel2.fi/ymp/eng/organisation/Harakka_eng.html)

### **Repovesi National park**

Leaving Kotka we drove about 80 km north to Repovesi National park where we went for a short walk on our own in the area.

Apart from some beautiful scenery, we saw a Three-toed Woodpecker and a Black-throated Diver.

[www.luontoon.fi/repovesi](http://www.luontoon.fi/repovesi)

**Tuesday:**

### **Kotka Maretarium**

We spent Tuesday so far east that the road signs were also in Russian! The first stop was Kotka, about 120 km east of Helsinki. We visited Kotka Maretarium – a new fresh and brackish water aquarium by the town harbor. We had a long and interesting talk with Sally Londesborough who is employed by the municipality as a nature guide at the Kotka Maretarium.

[www.maretarium.fi/mare/index\\_uk.php](http://www.maretarium.fi/mare/index_uk.php)

Environmental supporters

- An exiting innovation in Helsinki

They are their own assignment – to go back to the workplace, the office, the park, kindergarten etc. And find changes that can be made there and how it can be implemented and not least inspire their colleagues to join and support, have ideas and see the initiatives through in day-to-day life. Everyone has his own green guide.

The closest we come to this at home is the work the green guides do, but unfortunately there aren't as many of them any more. Imagine that all the counties in Denmark decided to put so many resources into this, that every municipal workplace, from nursing homes, park management to the social security office has their own green guide.

*By Anne Johannisson*

*National Forest and Nature Agency*

*Frederiksborg Skovdistrikt*

The municipality of Helsinki's environmental department has decided to educate 1000 employees who specialize in environment/sustainability at their municipal place of work. The around 1000 public workplaces in the municipality have about 40,000 employees. The manager of the Harakka Nature school, Kaisa Pajanen, employed by the municipality herself and trained in environmental protection, is a part of the group that has developed the concept, and teaches those employees that are enlisted.

At school

So far, 120 people have been trained for 2 days of 4 hours. The courses are constantly being adjusted and the goal is to have them last 3 days and introduce more group work, so the employees are more involved in the training than they are now. In the 8 hours the courses have lasted until now, it has only been possible to give the participants the basic foundation and ideas for subjects to work with.

*The editorial staff visiting the manager of  
of the Harakka Nature school, Kaisa Pajanen*

Photo: Allan Gudio Nielsen  
The foundation for bird protection

We saw several examples in the park of Seppos work, and in the small staffed information building by the entrance to the national park we found the book "Life in the wild" which Seppo has illustrated.

Read a review of the book on the next page or go onto Seppos homepage: [www.seppo.net](http://www.seppo.net) for more cartoons and good laughs. There are more cartoons in the Finnish version.

"Dog on a leash"! Or: "Your dog is welcome, but remember to keep it on a leash". Two similar statements from the Danish forest of signs- the latter a little more inventive and welcoming than the former. It is definitely not easy to serve relevant rules for visitors and for some guests they can actually be provocative (in my office is what is left of a reservation sign from the wild western Jutland -riddled with bullet-holes...)

### **Seppo has the recipe**

In Nuuksio National park, which is about 25 km from Helsinki, they have chosen to use humorous approach when the public is informed about the area rules - or as the poster says- the rules of the game. You would have to be rather gloomy not to smile when reading them. A case in point is the presentation of "Dog on a leash"!

The artist behind the funny and beautiful posters and brochures in Nuuksio National park is the Finnish caricature and nature artist Seppo Leinonen.

*By Allan Gudio Nielsen  
The foundation for bird protection*

Game rules for visitors to Nuuksio National park  
*Dogs and other pets must be kept on a leash on the grounds of the national park!*

By Keijo Taskinen and Seppo Leinonen.  
Published by Jägernas Centralorganisation.  
(Contact Allan Gudio Nielsen to buy the book).

In Denmark, we have no claim to wilderness world-class natural photographers or caricaturists. The Finns have! They have Seppo Leinonen. He can combine humour with natural drawings, so they both look nice and make people laugh. Just look at some of Seppos drawings on these pages. They are all from the book - or more correctly cartoon - "Life in the wild".

## **Book review**

*By Allan Gudío Nielsen*

*Nature guide in the foundation for bird protection.*

Life in the wild is published by what corresponds to the Danish hunter's association. Although some of the book is obviously about hunting and fishing, fortunately Seppo and Keijo also look at lots of other things. There are some good tips about map reading, equipment, safety, primitive overnighing, green cooking, bird watching and tracking. All of it spiced up with good laughs and Seppos beautiful drawings. Although the book primarily is aimed at visitors to the wilderness, there are lots of good tips for nature guides who can spice up a trip in the Danish "wilderness". For instance, I have to try this idea. According to the book you can attract bats by using a sheet and a flashlight. If you shine the light through the sheet the insects will be attracted – and maybe also some hungry bats. You might be lucky enough for a confused bat to come so close, that it lands on the sheet for a moment! For both hunting, fishing and the open-air part there are some tips that don't really translate to Danish circumstances, e.g. using snowshoes, canoeing on the rivers, or mountain climbing.

But if your next holiday is up north, that would be another good reason to take Life in the wild off the book shelf.

Tavataan erällä! (See you in the wilderness!)

*The robin uses the earth's magnetic files to navigate...*

*By Allan Gudío Nielsen*

*Nature guide in the foundation for bird protection.*

## **Small works of art behind the doors and beautiful mobiles**

Along the path in the old nature forest in Seitsiminen National park there are signs with small doors for every couple of hundred meters. Many of the doors had small works of art behind them. They all have one thing in common, that they all tell a winter and a summer story about all the animals living in the forest. We saw several big and beautiful bird mobiles. Just look at Kari and the whooper swan from Villa Elfvik (fig 3). They are impossible to pass without making them move.

## **All sorts of birds - everywhere**

We all know the classic "bird-recognition poster", that you see everywhere in bird-towers and hides. Typically, it is a beautiful drawing of the local birds accompanied by a small note. They get a little boring in the long run and how many people actually read the text? These bird-posters must exist in Finland, but we didn't see many on our trip. We did see, however, lots of examples of how the Finns

show birds in beautiful and often funny ways. Have a look at the beautiful poster of the northern harrier from the old boathouse at Villa Elfvik (fig. 1). It is safe to say that the artistic rendition is more important than text and facts.

### **Harakka – birds inside and out**

At Harakka there are lots of birds both inside and out.

You literally wade through common gulls and barnacle geese. Inside beautiful birds decorate the ceiling of the nature school, where they hover freely in space, painted on glass plates (fig. 2). On the path, bird migration is explained in an amusing way with a post card from France, which is sent from the oystercatcher to his good friend, the magpie. It says on the postcard: "Bonjour! Je suis en France maintenant" – and the oystercatcher goes on to tell him how good and plenty food is down south!

*By Allan Gudio Nielsen*

*Nature guide in the foundation for bird protection.*

Photo: Allan Gudio Nielsen

### **Woodpeckers everywhere**

Woodpeckers are marvelous birds, and the Finns love them! They turn up everywhere in Finnish education. At the nature centre in Seitsemien you can crawl into the hollow tree where the black woodpecker has made his nest and play with hand puppets (fig. 4). There are beetle grubs and other delicious things in the woodpeckers nest.

### **We saw it ourselves**

We attend the exemplary teaching of a 5<sup>th</sup> grade at the Harakka nature school. The children stand quietly in a circle listening, while the staff at the nature school instructs them and tells them about the island of Harakka, and the children politely put up their hands before speaking. The teacher is very active and independent around a small group on the bird-expedition that follows, that I also join, and all the children are well-dressed with hats and gloves.

I am the only one who is cold to the bone, caught unawares by the Finnish change in weather that seems to be normal here.

I don't know how much wiser we have become from our little round of questions. The funny thing is, that when it comes to education the context of nature schools, the Finns consider both Denmark and Sweden to be far ahead of them, and willingly come to Denmark to learn from us.

### **Endless tests**

Natural sciences are the focus area of the PISA-study 2006. We don't know the results yet. Denmark has scored significantly lower results in the natural sciences in 2000 and 2003 as compared to the OECD-average and significantly lower than the average in the other Nordic countries with the exception of Norway.

*By nature guide Stella Blichfeldt*

*National Forest and Nature Agency*

*Jægersborg Skovdistrikt*

Finland has high scores in the international PISA-studies of the 15-16 year-olds ability to participate in the information society. This applies to the Finns ability to read, solve algebra problems and problem solving. Added to that, the percentage of young people who think that what they learn in school is relevant is higher in Finland compared to the other Nordic countries.

*Students from a local school are introduced to Harakka  
- everyone is warmly dressed  
and there are no talking children  
while the adults instruct*

So when you go to Finland to have a look at their education within the natural sciences it is pertinent to prepare questions about it. We have planned to ask our hosts, why it is like this. Funnily enough, it comes as a big surprise that we feel the need to ask and the first answer is: "We have no idea" followed by a laugh. On reflection it is a very difficult question. The Finns know their own educational system, but perhaps know very little of other countries ways of educating, so we try with a more general question: What could be the explanation to why Finland has such good results in testing the education of young people of 15-16 years?

We receive many different answers: Here are some of them:

Finnish children don't talk very much, so not a lot of time is wasted on bringing the class to order

Finnish teachers are educated at University when it comes to teaching older grades

Finnish children are used to being tested

There are many good Finnish teaching books and a lot of teaching is based on these books

The results of these tests should be looked at very critically. E.g., Finnish children have very little experience with the experimental way of teaching that is used at the nature schools

The political reaction to Denmark's "disappointing" ranking in the PISA-studies has been to introduce mandatory tests for internal use throughout school life.

Using the individual results focus can be placed on areas where learning is "weakest".

That can be a logical basis, but the good question is, which basic values and goals are the foundation of these tests. Innovation doesn't necessarily come from ready knowledge.

"The Danish youngsters are extremely well equipped to give us good ideas about how to do things, because we have been trained for independent thinking and to act in social networks" says innovation guru Preben Mejer, development director with TDC and co-founder of Innovation Lab in an article in the Sunday paper on May 6th 2007. Using his great insight from the global world, he continues: "We are informal and have a healthy lack of respect for authority. We do, however, respect our fellow human beings highly. All qualities that count in modern innovation setting."

### **What can education at the nature school do?**

The next question is whether we, with our education at nature schools in Denmark are qualifying the young people, who are caught by a test in connection with future PISA-studies. Natural science competencies are understood in PISA

as:

The capacity to use scientific knowledge, *to identify questions and to draw evidence-based conclusions in order to understand and help make decisions about the natural world it through human activity*

(are you still there?). That in itself has to cause distrust in the method of testing, that people who express themselves so badly, are responsible for testing the knowledge of our children.

Are we in the curriculum?

Any nature guide knows that nature guiding has a wide scope in the personal, practical and knowledgeable levels, but there could be some fear that the many tests in school could cause some teachers to opt out of visiting the nature school if we can't guarantee a some form of curriculum teaching.

It is an argument much used today when teachers at the upper secondary school have to decide whether to spend time in nature. One of the focus areas for nature guiding in the 21st century is to secure a certain evaluation of the work done by nature guides. It is positive and strategically correct, but which basic values do we measure from?

*Even if you are in small work group, the hand still comes up*

*The observations of the day are carefully noted*

*Finnish children are mainly taught through books*

*Read more about the PISA-study  
on [www.uvm.dk/nyheder/pisa2003](http://www.uvm.dk/nyheder/pisa2003)*

### **Keep it simple**

- an exhibition exemplary in its simplicity.

In Seitsiminen National Park north of Helsinki we find the second eldest national park-visitors centre in Finland (1989).

They will give you advice and guidance on the trips; you can take yourself, borrow a field handbook at the library, have something to eat, be taught or look at the exhibition.

The exhibition is about the old trees and the old forest. Finland has lots of forest, km after km, but not much old forest and not many trees have been left in the remaining forest. There is old forest in Seitsemien and the national park would like to put across how important it is for diversity that we look after it. This they do in the exhibition. I don't think I have ever seen a natural science-exhibition with so few letters as the one in Seitsiminen. And the text was even both in Finnish, Swedish and English. I have created a fair amount of exhibitions for children and families, but I don't I have ever managed to cut the text back as much as here. And whatever text there was, was combined with drawings several places, so it looked like a picture puzzle or small cartoons.

A fun way to tell a small story.

E.g. here, where a swift takes care of her babies.

Or here, where the connection between animal, prey and habitat is shown. A little too brave, perhaps, as Tulikki Halla said, they are considering putting in a few explanatory notes here.

Several places there is no text at all, like here, where the summer and winter forest changes...

*By Anne Johannisson  
National Forest and Nature Agency  
Frederiksborg Skovdistrikt*

This box is also without a text. It doesn't have much of a story but it is beautifully done and has some activity. The Finns are very good at allying themselves with good artists, photographers or seamstresses. We say many examples of this.

The old dead tree trunks importance to the insect life is also described in a beautiful and simple way.

The most exciting for the children is probably the hollow tree, with a room behind it. The children can climb in and use the woodpecker puppet and the insect puppets to act for the others. An activity our own woodpecker man couldn't resist.

Otherwise the exhibition is dominated by big posters and a wood tableau which creates the ambience of the forest, which the visitor can enjoy and search for detail.

### **With the crested tit in the forest**

On the first floor is a smaller exhibit on being in nature/the forest. You are guided by a questionnaire which makes sure that you see the most important things. Each place you can press your answer with an orienteering-peg. And that way, you can check your own answers at the end. The environmental aspect has existed most places, we have visited. Here it is dealt with so you have a good time, considering the forest at the same time.

### **New teaching concept in the national parks**

The education of children isn't extended yet, but it is work in progress. Eleonora, whom we met later in Nuukio, where she spends most of her time now, has developed a concept for teaching which is based on making a program for each age level with what that age level has to learn in school. The little ones will primarily experience things, later they will learn more about where animals and plants live and finally the ecological and environmental aspect will be added. It is unique to national parks in Finland to think this way, and they haven't finished making the programs for all age levels yet. In the classroom, which is adjacent to the forest exhibit, the children can sit on leaf-cushions when being told what is going to happen when they go out or play the game on the wall.

### *The tapestry game*

*The children are split into 4 groups, a blue, yellow, green and brown one. They start at the white spot at the edge of the park and have to answer questions to move forward. When they hit a red spot, they get an extra question.*

The question could be about how to light a fire. Now it is useful to have seen the exhibit upstairs! They are given some pictures of types of fires and have to place them on the yes or no sign. They might also get pictures of an animal and have

to show how the animal moves or finds food. It is obviously about which group reaches the white spot in the tree with owl. Dress-up is also used in the forest. The guide, on of the centers two employees, Leena or Tulikki might dress up as a rabbit and the children are given ears or a beak from a specific animal which they have to be, while they are in the forest and listen to the story from the rabbits point of view.

It seems that animal costumes are a fixed part of any natural school and are obviously very popular. Here it is a flying squirrel.

In Finland, 59 areas have been designated for varied protection and recreation. Of these, 34 are national parks. Finland's "National Forest and Nature Agency" is called Metsähallitus.

Metsähallitus administers all the state-owned forests and natural areas in Finland, amongst these large bodies of surface water. This corresponds to 1/3 of Finland's area or over 12 million hectares.

Metsähallitus reports to the department of the environment which is responsible for protecting nature, and to the department of agriculture and forestry, which among other things, is responsible for forestry management. The forests in the national parks are like untouched forests in Denmark.

The national parks in Finland Metsähallitus was founded 145 years ago to run the state-owned forests, but today it works with protection of nature, biodiversity and not least with people's opportunity to use nature in the form of hiking trails, ski-slopes fishing possibilities and overnight stays.

The majority of parks are in the eastern and northern Finland, where there are also large areas designated as wilderness reservations, primarily to protect the aesthetics of the landscape and the Lapps ability to live life in the traditional way with their reindeer.

Not all national parks have a visitors centre, many make do with a lean-to with informational posters about the areas sights and plant and animal life.

In 2005 about 1, 4 million people visited the 34 national parks, of these it is calculated that about 800,000 went to the visitor's centers or information points.

### **Joint profiling**

All of the national parks are marketed through brochures in the same design, in several languages. The signs in the national parks are also of the same design. All visitors' centers have all the materials for the whole country, so you can pick them up wherever you are.

There are many possibilities if you like hiking, skiing, fishing, spending the night outdoors, climbing or studying birds.

There are more than 3000 km of hiking trails and they are used extensively, but you have to like to holiday the primitive way. There are some places where Metsähallitus has put up bridges and stairs on trails which make it easier to walk them.

*By Anne Johannisson*

*Frederiksborg Statsskovdistrikt*

### **Into nature**

A lot is certainly done for the hiker in the forest. There are lots of shelters, many hiking trails and places to stay overnight. But the Finnish population is used to being outdoors. It is estimated that each Finn picks 7-10 kilos of berries and a couple of kilos of mushrooms in nature every year. Also, they are taught from childhood

how to light a fire, so everyone knows, which type of fire is best for where and which weather! The right of public access to nature means that you can go almost anywhere, with a few limitations around houses and of course, in the reservations where special protection is necessary. And everything is free, so just get going.

### **Changing the way we look at nature?**

When we ask the Finns whether having national parks has changed the way they see nature, the answer is hesitant. It can be difficult to determine what moves the general attitude of the population.

The first national parks were designated in 1937 and there was an extra jump in 1982 when the committee for national parks was founded and created 10 new parks, especially in southern Finland. It is estimated that it has taken 20-30 years to increase understanding for the protection of nature, and that the national parks have contributed to this change. But at the same time, the desire for new national parks increasingly stems from the desire to earn more money and to shape the municipality than for increased protection of nature, is the assessment.

And the danger of an A and B nature, which has been discussed in Denmark is also present in Finland, even if money is set aside for areas outside of the 59 designated; interest will often be concentrated on the designated ones. Denmark has just passed a law that will create the framework for the first national parks in Denmark. There is something to look up to in Finland, where 1/3 of the country is designated for protection and outdoor activity of some kind.

[www.metsa.fi](http://www.metsa.fi)

### **Vila Elfvik**

Villa Elfvik emerges out of the rain and forest. A 100-year old house with two floors which the environmental department in Espoo municipality safeguarded against demolition in 1985 and has since refurbished and fitted out as a nature centre.

About 30,000 visit either the nature school, the exhibition, the coffee shop or join the guided Sunday trips locally every year.

Villa Elfvik is by a 200 hectare natural resort with forests, grazed meadows, reed marshes, a bay and Helsinki's skyline in the background. An area for birds close to the capital city, just like Wetland in London and Vestmager in Denmark.

Easy access and with lots of possibilities in one. School children from Espoo can come here all year. Free – the council pays. It also pays Ritta Pulkinen who is trained in environmental protection and manages the place, and her 4 employees who keep the house running.

We have taken some details of Villa Elfvik's works both inside and out. The house has a permanent exhibition about the local ecology and animal life. There are also small, changing exhibitions, often about an environmental subject. The environmental aspect is important here and they also have educational programs for school classes about the subject.

When we were there, the temporary exhibition was a show of photographs. The permanent exhibition describes, among other things, the sea/The Baltic sea, which is just outside.

*The nature school and the room that kindergartens visit, have different kinds of animals that can inspire them to act for each other or play.*

*By Anne Johannisson*

## *Frederiksborg Statsskovdistrikt*

*The salinity in the seas around Finland is very important to animal life. The effect is easily shown by comparing the size of mussels from the local coast with similar species in the North Sea.*

*The difference in salt content between the Baltic and North Sea is shown with the aid of salt in two identical containers.*

*The boardwalk is on pontoons, which follow the tidal waters up and down, so you don't suddenly have boots filled with water.*

*In the easily accessible bird watching tower on the route, there are small peepholes for children. They are well protected against the harsh wind we have experienced here. As it is an important area for birds, the tower is used a great deal in teaching.*

## **Science centre Heureka**

*By Allan Winther  
Fjord og Bælt*

We left our beloved Volvo V70 in a parking lot that was more or less deserted. A large mastodon made of glass appeared behind a big mound of earth. Probably not quite what Archimedes was thinking of, when he cried "Heureka" ("I have found it").

Science centre Heureka, situated in the outskirts of Helsinki near the airport, is a huge architectonic gem made in glass.

Heureka looks like most of the science centers I have been to, large and grandiose. They claim to communicate research and natural sciences in a popular and credible way. This was now to be put to the test by a hand picked and very critical panel of Danish natural guides, who don't take just anything.

The price of admission with two of their films was € 23 (only € 14.50 without the film), not a bad price.

### **Volcanic eruptions in 3D.**

Verne Theatre is a huge dome with room for about a hundred people. You almost lie down in the chair and look up into the dome's ceiling, where the film is shown. You can have a little radio with headphones and have the speak in English or Swedish... I chose the English one as opposed to the original Finnish.

The films "Volcanoes on the bottom of the ocean" and "Bugs" last about 45 min. The films were impressive and must have been extremely expensive to produce. You often see these films in 3D, but in this case the effect of showing the film over a big arch has been used and the screen was much bigger than an ordinary cinema. That gives the feeling of 3D. The films weren't only impressive, but also very educational. There is no doubt that, together with the beautiful pictures, some knowledge also slides behind the retina.

Particularly the volcano film taught me new things. If I had to criticize something, it would be the length of the films, as 45 min is a lot out of a visit of 2-3 hours.

### **Play your way to knowledge**

Back out in the exhibition it was teeming with children. The exhibits themselves were

split into sections. One part was about copying nature. We see how man has copied nature through e.g. birds and flying or UV-sight in bees, and at the same time you can test some of the theories and practices that are behind them. Many of the subjects were supported with computer games that the visitor could try, e.g. steering a bee through a track where the bee had to gather pollen enough and take it back to the hive. Somewhere else you could play against an adversary, where you were both spiders in a web and had to catch insects, that paid different points.

I am sure there is a lot of learning in these games, but the question might be whether the participant notices this? I tried to ask a couple of boys who were playing the spider game, but unfortunately my Finnish and their English weren't compatible!

The idea of combining natural science, physics and nature I personally find very good. You are given an impression of how nature just follows the laws of physics and we often learn from nature and then explain it with the laws of physics! I particularly like the fact that both children and adults are allowed to play with physics, science and nature. The place I have seen this implemented best, is at Cosmos Caix in Barcelona.

### **Everyday physics**

Another part of the centre was dedicated to things from everyday life. A car – how long is the braking distance at 50 km/h when it is dry and when it is wet? I have to add that I didn't succeed in avoiding the pedestrians in any of the four tries I had! Try making current with a little wheel and see a bulb light up, use gravity to cycle over a wire tightened across the ceiling, send a hot-air balloon up etc.

There was a little glass laboratory in the same room, where school classes experimented. (see the picture on the next page) We talked to a school teacher, who told us that the students love coming to Heureka and experimenting, as they never did anything like that in schools. Apparently there aren't chemistry and physics labs as in Danish schools.

### **Basketball Rats**

A third room was dedicated to bigger experiments, e.g. a giant computer game. In this you had to use your body to play a game that took place on a large screen. You could play 1, 2 or 3 together or against each other. It reminded me of the Eye-Toy for the PlayStation®. The game was very popular, and if nothing else, you got a lot of exercise.

Another form of entertainment was called: Basket Ball Rats! Two rats were trained to play basket ball against each other, so the two sweet creatures ran around the court to put the ball through a small ring and get a tit-bit.

They also had a chemistry-show, mainly based on gas. The visitor was entertained by various gas-physics-chemistry gags. Another part of the centre was dedicated to a special exhibition about the Incas culture and why they disappeared. You could pick up a lot of knowledge on the many touch screens that were set up everywhere.

### **Worth a visit**

Heureka shows that they want to interest the visitors in what goes on at the various arrangements. They work hard to make visitors wonder and think about what is going on. We were there on a day when it wasn't crowded, but I could see it being tight on a day with 3-40 times as many visitors. Heureka isn't as big as e.g. Eksperimentarium in Copenhagen.

Heureka is definitely worth a visit, and you can easily spend 2 or 3 hours here – and perhaps even more. Compared to the price of €23 you get value for money and more importantly, along with all these educational arrangements, there is room for quality time with the family, and lots of laughs when you

try the more body-oriented experiments.

*...there was a little glass laboratory in the same room, where school classes experimented. We talked to a school teacher who told us that the students loved coming to Heureka and experimenting, as they never did anything like that in school. Apparently they don't have chemistry and physics laboratories as in Danish schools. Grand Theft Auto in Helsinki.....*

### **Facts about Heureka**

*Idea: 1981*

*Built and opened in 1989*

*Price: 80 mill FIM (€ 13, 5 mill)*

*Average number of visitors: 285.000*

*..most in 1989: 421.000*

*..least in 2006: 206.000*

*Price of admission: 14, 50 – 23 €*

*School children from € 6*

*Open throughout the year*

*Guided tours can be booked*

*Schools can receive education in the laboratory or the adjacent Planetarium (not open to the general public)*

*Duration of visit according to their own homepage: 2-3 hours.*

*Expanding by 64,000 m<sup>2</sup> for a 3D cinema and laboratories*

*Owner: Finnish Science Centre Foundation*

### **Room for the arts**

*Almost all of the places, we visited in Finland had an art exhibition about nature or used art in their indirect education about nature. Why is it so common in Finland and how can art help educate about nature?*

Next to the exhibitions about nature special to where we were, room was often reserved for running exhibits of artists' interpretation of nature.

We saw beautiful photographs of lovely landscapes and collages over the same subject with poems about experiences in nature. Somewhere else we saw razor-sharp pictures of animals and plants - particularly birds. And on the stairs to the next floor we stopped at some very nice water colours of the animals in shallow waters.

### **There has to be a target**

Traditional nature guiding has a goal. We have a message we want sent to our target group. And when the target has been defined, we try to set the framework so the participants go where we want to lead them.

But what about art? The artist also wants to take the viewer somewhere – but the target has not been defined. The artist cannot control how we perceive the works of art, and certainly not what we get out of it.

### **Frames, rooms and peace**

Art gives you freedom – freedom to wonder – access to mirror soul and mind in the art.

Even though art has its point of origin in nature, whatever happens in the viewer is not necessarily about nature. It might as well be thoughts and feelings about loneliness, peace, beauty, happiness and sorrow.

Nature does the same thing. Even if you are not focusing on species, environment and conflicts of interest in nature – a walk is still an experience. Both nature and art creates room for inward mirroring – they provide an opportunity to look inwards at what is there.

*By Kari Hald*

*Avnø Naturcenter*

### **Maretarium in Kotka**

*By Allan Winther*

*Fjord og Bælt*

Expectations were high when I stood in the parking lot in front of what was supposedly "Finland's first aquarium that meets international standards".

The building is on the waterfront in Kotka. Inside we found a small shop, a reception and a small coffee shop. There was an impressive diorama just behind the receptionist of a waterfall over rocks, where the water splashed down into a pool that had big and colourful trout swimming in it. It was also possible to take a look into their big tank with ½ million liters of water, and here was the first warning that perhaps there might be something lacking in "*international standards*". The water was green and full of thread algae; the fish looked a little dull, some with fungus and fin rot - see fig. 1. Well, as an experienced aquarium keeper, I know that accidents can happen with the quality of the water, so there could easily be more exciting experiences in the back.

The aquarium is built in two floors, where a small part of the first floor is dedicated to school services; see the article elsewhere in the magazine.

The aquarium is the result of collaboration between the city of Kotka, University of Helsinki and the Finnish Game and Fisheries Research Institute, helped by a number of sponsors.

We started at a large pool of sturgeon and you could look at the sturgeon through windows at the side of the pool or from above through the surface of the water. There was information in Finnish, Swedish and a little in English. We had, however, been given a brochure so we could see what the fish are called in Danish – a good point, as we are quite a bit outside Helsinki.

A fun and excellent detail was some collages on the wall – see fig. 2

You could see the different fish and their life-cycles, e.g. the three-spined stickleback was shown with pictures from eggs to adults, which was very illustrative and educational.

Around the walls there were small aquariums with the smaller fish and crustaceans to be found in the Baltic and rivers and streams in Finland. We continued through halls and corridors with smaller and larger aquariums that either just showed fish or were set up as dioramas which illustrated where the fish lived. One place it actually became interactive: *with a small handle, you could make waves and copy the way waves sweep across the rocky coast.*

In quite a lot of the aquariums they had the gimmick of having the glass curve in or out, in others there was a bubble you could look through or when it was turned around, stick your head in and see the fish swimming around your head. The curved glass made the fish look bigger than they really were. There can be several reasons for using this effect.

The most obvious is to make the fish more spectacular, as they become much bigger, the water already enlarging by 25 %. Another reason is that the viewer can see details better, especially when the bubble is turned into the aquarium you get to see it the way a fish

would.

Unfortunately it can also have the effect of making life in the water more dramatic and scary than it really is, e.g. at one point you see huge pikes and burbot of 2 meters in length swimming around, but when you see them through normal glass, they are actually all under 40 cm long!

### **Feeding time**

We saw lots of beautiful and fascinating fish and crustaceans in the 22 aquariums. The aquariums have themes like lakes, rivers, the wetlands of Lapland or the Gulf of Finland. Unfortunately there wasn't much room between the aquariums, which made it difficult to see the whole aquarium at once. One place we were very impressed, 3 Kamchatka crabs. The highlight of the day is feeding time in the big tank at 1 pm. A diver jumped in the water and very shortly all the thread algae and everything else was swirling around and you could hardly see which fish came to eat. Unfortunately there was no-one to talk about the feeding.

### *Grubs up!*

In general the aquarium is worth a visit, if you are in the area. It quite nicely shows which animals you find in this part of the Baltic. We wanted to be able to touch more, needed more room to look at the aquariums, which in themselves were fine, but needed a common thread. During the feeding itself, it would be nice with someone to talk about the fish and communicate with the divers. The Maretarium could learn a lot from both Kattegatcenteret and Nordsømuseumet. The interaction between the audience and the divers in both these places is very conducive to learning about the fish and their behavior. On a scale from 1–10 I would give it a 6. The fact that they had chosen to use artists and let illustrators and photographers exhibit beautiful pictures was a plus, as was the extra information in quite a lot of different languages.

### **Maretarium**

136 km NE of Helsinki

Opened May 2002

22 themed aquariums with fish from Finnish waters

Salt content 0,2 %

Cost € 4.2 million to build

It is possible to book guided tours on:

[www.maretarium.fi](http://www.maretarium.fi)

*The curved glass made the fish look much bigger than they were*

*Fig. 2*

### **Evolution for the youngest**

Time has flown by this morning. We have seen a nature school which is organized with lots of personality. We have followed a Finnish 5th grade being taught here, and we have asked Kejsa, the manager of the nature school at Harakka, lots of questions. Kejsa insists on our also seeing what Harakka can offer preschoolers in the coming season, and in the background are two very smiley Finnish biology students, Pia Bäckman and Janica Vilen who are responsible for this part of the shop. They have 60 events in the summer half of the year - 2 a day.

The theme this season is evolution and we were invited on a journey from the time of the primeval sea to the present day. The story about evolution is told like a fairy tale - one written by a Finnish writer and set down in a beautifully illustrated book that only exists in one copy at Harakka – there has been no time or resources to have it printed. Without being able to remember the story in detail (it went quite fast), I noted the overall thoughts in the way it was told. Two girls on separate sides of the Baltic have lost contact, and the children have to collect various things in time-travel, that will join the two girls again. I can easily imagine how motivating it is for the children – yes, we are going find magical things. To help the children can keep better track of evolution, they use a string with pictures from the various ages. A peg is moved every time we move forward in time. The trip usually starts in present time where the children are in the small laboratory, and life from the Baltic swims around in big aquariums.

We will skip that, as the aquariums aren't quite full yet. We are told about the valuable and diverse life in the Baltic, which is the result of many years of evolution. Everyone has to help take care of this life for the future.

We go over to one of the earlier military buildings. In the first room we find the finest tableaus from various periods in time to start off the theme. There would probably normally be a long story to tell the children that they will experience the life shown in the tableaus. As a sort of time machine we have to use a small slide to get back to the primeval sea. Relax-music adds mystery to the experience. Here we find soft mattresses and silky thin materials hang from the ceiling. The lighting is low, and we can dimly see primitive animals "swimming" around. We have to find a "meteor" and take it with us. We continue on through a narrow corridor where life evolves under the waters surface to something more advanced.

Outside again, we move to the time were some animals are now living above the surface of the water. It is illustrated very well with an analogy to tadpoles that change into frogs – something all children know about. We start by being grouped together like a lump of frogs' eggs and quietly evolve into tadpoles who develop arms and legs and at some point, we "crawl onto dry land".

Time passes and we move on to some big, flat rocks – we have arrived at the ice age. On the ice-scrubbed rocks we have to imagine that there are several kilometers of ice over our heads. The ice is so heavy on our shoulders that it presses the underground down. After a long long time, the climate gets warmer, the ice melts, and the rocks move upwards again. We talk about where the patterns in the rocks come from and the children are asked to examine the life that lives between the rocks. Other finds are made: what belongs in nature, and what has man left behind. (Naughty)

In a small marshland we have to find the giant insects that fly around. The assignment is to find missing objects that will help unite the two girls on opposite sides of the Baltic, and to that aim, we all have a mirror hung around our necks. We have to use the mirrors to make the sun reflect on the big dragon-fly and hey presto! a nice little object appears like magic in the hands of one of our guides. It has real "brilliants" Wow, it's fantastic - and we did it ourselves with our mirrors!

Everyone is given paintbrushes to write messages on the stones with water. When the water has dried the message has been sent. It is quite magical and almost like the Internet.

We find a very special object that is added to the collection that will join the two girls. It is put in the shopping basket from the supermarket, which annoyingly enough also has found its way to Harakka. The trip finishes after 3 hours (we did it in 1 hour) in an exciting room where the children can play and dress up as different animals of the sea. The story about evolution ends here. All the things we gathered are collected on a special board and the girls contact each other with the help of the children and magic. Very professional nature guidance!

This story style first and foremost requires a good story and ideas to utilize the elements that are in the landscape wherever you are. On top of this, you have to invent activities that motivate the children to go exploring and become the participants in a mixture of an imaginary journey and time-travel. I could see time travel like that work for shorter periods also. E.g. from the Middle Stone Age to the New Stone Age, where the landscape is quite different, of course, with a different set of activities, controlled by a different good story. The idea is hereby passed on.

Very professional nature guidance!

Glad we saw it.

*By Kari Hald  
Avnø Naturcenter*

### **Small is good – or what?**

*What is best? The small mobile unit with a single employee who doesn't spend much time on administration, development and meetings with co-workers, but has lots of events. Or a bigger permanent unit that has several employees and time for developing new events, courses and collaboration is a priority with the schools of the municipality. Sally's work fits the first model best - but she has dreams of more....*

### **The nature guide travels**

We visited Sally Londesborough at Luontokoulu Haili or in English, Heili Nature School. Sally is busy, and happy in her job. The nature school is in a small room at Kotka Maretarium, but is quite independent of the aquarium. Sally is a temp and has been at Haili since July 2006. Before that she was at Sea life, which is a large aquarium in Helsinki.

Sally is alone at the nature school, which ranges under the local municipality. Education about nature is free for the municipality's schools and institutions. Most of the teaching sees Sally going to the schools, as they can't often afford the bus. But that's fine- says Sally – as there is lots of good nature features close to the schools. The nature school has a number of themes, such as birds, insects, and animal tracks in winter.

One example of a small activity she has in winter is to let the children guess where it is coldest? In the snow or on the snow. Of course the children guess in the snow – because snow is cold! And then they measure the temperature and discover that it is "warmest" in the snow. She doesn't do trips or the bigger children in winter – she simply can't be sure that they are dressed properly. Perhaps we can let it be the responsibility of the students, teachers and parents (that'll teach them), but when it is minus 10, it's no good. We asked Sally if she had any feelings about the support for the project in the municipality. She thought there was - but wasn't quite sure. Many of the advocates for the project have changed jobs or are no longer on the city council.

### **Independent – with dreams**

In the past year Sally has gained some experience and is beginning to develop her own ideas about how the nature school should be. As it is now, some schools use her a lot, and some she never sees. Sally would like to be in touch with all the schools in the municipality and a visit to the nature school would be a fixed part of the education plan. E.g. by all the third-graders coming to the nature school, as a fixed part for the education for this class.

She would also like the teacher to be more self-reliant - so they could carry out teaching in nature by themselves.

For now, she spends a lot of her time on kindergartens. But she sets high priority on the early school years and sets aside special time for them in her calendar. As it now, she spends a lot of time traveling and this means using more time on research when teaching is at the school - around nature she doesn't know beforehand. She has a dream of a nature school actually in nature. That would make it possible for her to know her area, and she would not have to spend as much time researching.

The schools in Finland provide free lunch – so all events must be held before lunch. Events therefore seldom last more than 1 ½ - 2 hours- from 9 – 11. Sally would like the opportunity to longer events with the children. The municipality expects her to carry out 120 events a year, but the first year it has been 150. So for all dreams to come true, there would have to be at least two people employed at the nature school.

### **If you were Sally**

If all Sally's dreams came true, she would have a completely different work place. More time would have to be spent in meetings, development and implementation of new kinds of collaboration. This would mean less time for direct education in nature and more time on meetings, administration and development. She would be moving towards model two described at the beginning.

Which of the two models described in the article you prefer is a personal choice.



### **Finnish tips and tricks**

## **Tips and tricks from Finland**

**Text Allan Gudio Nielsen**

### **Beautiful pictures in seaweed**

*As an angler, you can get really irritated at the seaweed which has to be removed from the spinner or shaken out of the flounder net. But that seaweed can be breathtakingly beautiful, is seen at Harakka. Just look at this cosy little nook where the windows were decorated with these beautiful laminated pictures made from seaweed.*

*They have a way with details and imagination in Finland. Just look at this selection of things that inspired us during our Finnish visit.*



## **Tricks**

### **Wear a rabbit**

Danish nature guides are a little on the shy side. Leaving aside historical dressing up at Medieval centres and things like that (and the annual meeting, of course), you don't often see a Danish nature guide in much else than Fjällräven and a dagger. In Finland, however, they are not afraid to drop the uniform and jump into something more comfortable. Just look at this!



## **Tricks**

### **Guess excrement or a flat mouse**

I think we call them event-classes back home. Boxes, chests or suitcases with things from nature that you can wonder at, or use in class. In Nuksio National park we saw one shaped like a suitcase ready to go on a trip. You can't do that with the classes we saw in Seitsemien National park.

One exciting drawer after the other was pulled out – some had excrement and mouse skin.

### **Quacks in the loo**

In Harakka birds are used in many ways -including the nature schools outside loo!  
Guess whether the drake is - on the girl's or the boy's loo?

### **Brush strokes on the beach**

Remember to bring a paintbrush the next time you have a trip to the beach. It looks nice when you dip you brush in the water and write or draw on the stones.



### **Tricks Fun animals of foam and felt and a rack that isn't quite straight**

Why does a rack have to be boringly straight? Why not shape it like a jellyfish, a crustacean or a clamworm as in Harakka? Or what about these carpets shaped like a huge crustacean and a big flounder? And this classic from the Danish nature schools- the stuffed bat-here in real leather (Läderlappen as they call Batman in Sweden...)