Skrifter från Forum för utomhuspedagogik No. 4

Friluftsliv explored

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An environmental and outdoor teaching approach for knowledge, emotions and quality of life

LINKÖPING UNIVERSITY

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First Edition

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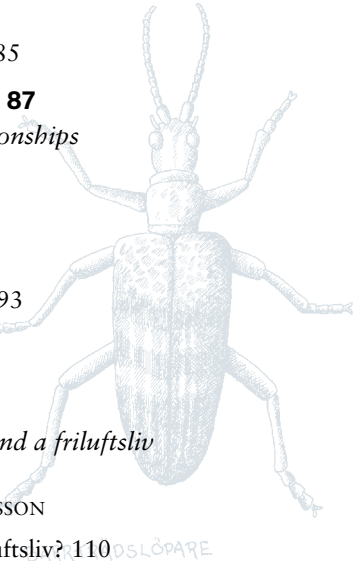
It’s a challenge to translate a book that embraces so many fields, from poetry and history to ecology and pedagogics. Additionally, since it covers practices with deeply rooted cultural connections, such as friluftsliv, it is sometimes difficult to decide what is the most suitable expression to use. If you have an opinion or suggestion regarding the translation of this book , please let us know via Therese Lundqvist-Jones <therese.lundqvist.jones@liu.se>.

Content



Preface for the Swedish edition

This book is about using the outdoor environment, the natural and the cultural landscape and tangible outdoor experiences as a teaching method. It was published for the first time in 1999 and was so positively received that we have had the chance to make a fifth revised edition.

The environmental and natural resource problems of today are obviously important reasons for an increased interest in making a book about the teaching of friluftsliv. Equally important motivations are the life enhancing qualities and teaching opportunities across many subjects that friluftsliv offers. In the end, a conscious friluftliv, close to nature becomes a way of life. It becomes a profound approach to yourself, your body and the weave of nature and culture that can be found in our surroundings. In this manner, a conscious friluftsliv ties together many of the knowledge and attitude goals that should permeate child care, school, after school activities, clubs and sustainable tourism.

Just like a good outdoor experience, the book starts with the need for a basic practical outdoor knowledge that makes it possible to reflect on why you are out in nature and what educational values can be found there. The book then covers different landscapes, as well as specific aims of friluftsliv, such as health and environment. It's important for all who work professionally within this field to relate their activities to the current policy documents and national curriculum. A recurring theme throughout the different chapters of the book is the need for both knowledge and emotion in friluftsliv as a teaching method. The knowledge is about our most common types of landscape, ecological context and typical species. But just as important is a feeling for the historic, social and educational context that friluftsliv is a part of.

Not least, we hope that Friluftsliv explored will work as the book which you in your work or in your leadership, grab when you need to say something about "trees" or "nutrient poor lakes", need a final poem or a game, some activity tip on the theme of "the fire" or "rubbish" or some discussion points ahead of a programme on "our responsibility for the environment".

-Good luck, we'll see you
by the camp fires!

Bänorp, Umeå and Äskholm February 2018

BRITTA, MATZ AND KLAS

Education is not so much a question about gathering as much as possible into a basket for your own use, but rather to become broadened so as to more and more live in the world.

ROGER ISBERG

Translator's note

This book was translated from Swedish into English with the help of funding from the organization Friluftsfrämjandet, as part of the initiative "The year of Friluftsliv" in 2021, and in agreement with the editors and publisher of the Swedish version. Publication has been made possible with the help of Linköping university. With each chapter the translator has tried to remain faithful to the meaning and intent of the original author's text, whilst attempting to make it as clear and easy to read as possible. There has been no attempt to modernise the book itself or to introduce new material. The many poems and quotations have been loosely translated and some poems have been left in their original language as it was felt a translation would not do them justice.

As this is a translation of the 2018 edition (i.e. 5th Swedish ed.), the authors presentations are true to the positions and work titles at the time the Swedish book was published. The references used in the book are those of the 2018 edition and have not been updated, except that a few references have been added by the authors to the relevant chapters in "more inspiration" on page 258 (and consistently added in the list of references).

The motivation behind this translation came from a belief that exchange students, students with a foreign background as well as visitors to Sweden and newly arrived Swedes with an interest in the outdoors, would find an English version of the book useful. This book may also be of interest to anyone worldwide interested in the friluftsliv approach to the outdoors as a teaching environment. With this in mind, long or complicated words and phrases have been avoided, recognizing that English may not be the reader's mother tongue. The Swedish title of the book "Friluftslivets pedagogik" provided the first challenge. The literal translation of Friluftsliv to "Open air living" does not come close to reflecting the scope or emotive power of the word in Swedish. The translator, with the editors' agreement, has therefore kept the word Friluftsliv throughout the book. The word "pedagogik" in Swedish is widely understood by most of the population, whereas to an English speaker the word "pedagogic" is mostly meaningful to those who work in education. Since the book covers the subject of friluftsliv in depth and from many different perspectives it was felt that "Friluftsliv explored, an environmental and outdoor teaching approach for knowledge, emotions and quality of life" reflects the content of the book.

Where animal or plant species have been described in the book the translator decided to add their scientific names (usually given at genus and species level) as well as the English common name. At the end of the book (on page 279) all the species referred to are listed, with their English as well as their scientific name (e.g. Great tit, *Parus major*). This should enable the reader to verify which organism is being considered and to find them in their own language if they wish.

With a passion for the outdoors and an interest in all things natural, the translator likes to think of herself as living a Friluftsliv lifestyle. Working on this book has shown how much more can be done, and I have learnt many new and useful things. The book seems as relevant today as when it was first written and serves as a poignant reminder of the beauty and frailty of the natural world and our roles and responsibilities as a species within it.

Söderköping, August 2021

THERESE LUNDQVIST-JONES

Suggestions for activities

Throughout this book there are a number of suggested activities listed on Page 280 together with appropriate key words. These activities can be used to teach various topics in schools and pre-schools as well as in voluntary organisations. They can be adapted to suit groups of different ages and situations. After doing the exercises with a group, it is worthwhile reflecting and discussing the activity and it´s content. Didactics (the theory and practical application of teaching and learning) should always be present in everything you do.

In chapter 3, (pedagogics, didactics and leadership) and chapter 13 (planning for friluftsliv) you will find more information about how to plan longer programmes. Here there are activities suited to different seasons and themes as well as craftwork. The book is loosely based on the Swedish School National Curriculum.

Sustainable development is a key concept for today's society. Through our children we shape the future. It is therefore essential that they have knowledge and understanding of both nature and culture.

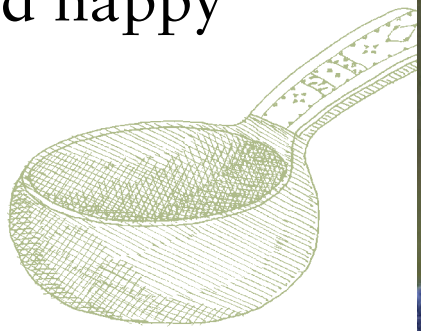
The suggested activities are meant to inspire and to educate. They encourage curiosity, knowledge, environmental awareness, quality of life and not least the happiness of "just being".

Enjoy!

Warm, dry, well fed and happy

– Basic friluftslife techniques

BY BRITTA BRÜGGE



Warm and dry

The benefits of friluftsliv skills

In this chapter we introduce some basic friluftslife techniques. Although friluftsliv is not only about skills, it is useful to have some knowledge to enhance your enjoyment of being out in the outdoors. A wet, cold and hungry person doesn't care at all about beautiful flowers, exciting ruins or interesting ants. Furthermore, if one is lost or injured, friluftsliv can quickly become something negative.

This chapter presents basic knowledge mainly applicable to friluftsliv in forest areas during spring, summer and autumn. Key subjects include clothing, food and cooking, personal hygiene, use of an axe, knife and saw, making fires, navigation, sleeping out overnight, safety issues and equipment.

Further knowledge is required in water environments, on the coast and in mountains as well as during winter and will be described in later chapters. Bear in mind that you learn friluftsliv techniques by living an outdoor life.

The principle of layering your clothes

Staying warm and dry is a key to enjoying the outdoors. The secret of keeping warm is to regulate clothing so that you neither sweat nor freeze. This is most easily done by dressing according to the "multiple layering (or onion) principle" with many thin layers instead of one thick one. Clothes should be easy to put on and take off. When walking or doing other exercises it's important to keep warm without sweating. Always bring extra clothes to retain body heat when you stop for a break.

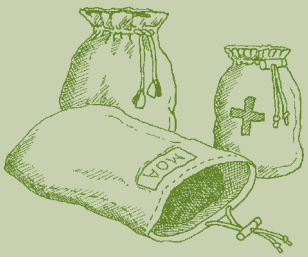
The clothes should not be too precious and they should be comfortable and practical. To protect against the wind one should have a windproof jacket, anorak or other shell top. Today there are many good materials made from artificial fibres. Often, wool or cotton is considered to be the best choice. Wool retains heat even when it's wet and it is a natural material that doesn't deplete the planet's resources. You can find underwear (that doesn't itch!) socks and jumpers made of wool. Cotton is good when it is dry. The drawback with cotton is that it attracts moisture which then cools you. By having breathable ther-

Pack bags

(about sewing pack bags)
It can be a good idea to pack your belongings in different coloured material bags. Using different coloured string or macramé one can easily add a personal touch. Sometimes, when you need something from your luggage and it's dark it can be useful to have bags made of different materials so you can easily feel which one you need.

Reflection: Sewing bags for your food, toiletries, socks etc. is a craft that you can do once you've learnt to use a sewing machine. The bags help you organise your equipment and can be useful, both for the beginner and the more experienced.

A material bag outside a plastic bag can be useful for loose goods such as dried fruit, flour, coffee and other cooking ingredients. The material bag protects the plastic bag from breaking. Even sweets for encouragement have their place in a specially designed material bag.



mal underwear closest to the body it is easier to keep warm and dry.

Important small items

Hats, gloves and scarves are important items to keep you warm and regulate your temperature. A woollen hat reinforced with a windproof hat keeps the cold away for a long time. A great deal of the heat from the body is lost through the head where the blood vessels are very superficial. The saying "put a hat on when your feet are cold" actually works in practice. The hat can also be used as a nightcap.

Gloves need to have long cuffs to keep your wrists warm. Mittens are warmer than gloves with fingers. When you're making a fire or doing other manual work you might also choose to use working gloves. The scarf can be used to make small adjustments to ventilation and warmth. By opening the neck when you are too warm you let out heat, and by wrapping up tight when you are cold you can reduce heat loss.

To keep your feet warm and dry you need strong boots or wellies. It's important that your feet are comfortable but the choice is down to personal preference. A pair of light shoes (for example sandals, plimsolls or moccasins) can be nice to wear in camp and give your feet a rest.

Rain clothes

To keep dry when it rains, good rain clothes are a must. There are many different qualities and types and the type of use and your budget affect the choice. Whichever rain clothes one chooses, it is most important that it "breathes" and can ventilate properly. If it doesn't you will get wet from the inside by condensation created from the heat of your body. Remember to put on rain clothes before the rain arrives! It is by being dry, underneath the rain cover, that keeps you warm. A pair of rain trousers can also be good to pull on when you go out in the evening or in the early morning dew.

When dressing for rain it's good to apply the principle of roof tiles and put your overtrousers outside your wellies, the jacket outside the trousers and the sou'wester's brim outside the neckline. The rain jacket hood often limits freedom of movement so a sou'wester may be preferred.

To sit on and under

The insulation of a sitmat is important so as not to get cold when sitting on the ground. Apart from bought ones there are many other variants you can make yourself: one made out of carded wool, newspapers in a plastic bag or a cut up bit of sleep mat with elastic added (to hang around your waist and therefore always have handy).

A wind shelter or a tarp in reserve, even on day trips, can be worth its weight in gold.

The most important outdoor clothing

- A thin undershirt
- Shirt
- A lighter jacket (anorak)
- Underwear
- Long trousers (preferably not jeans since they are hard to dry if they become wet)
- Thin socks
- Warm socks
- Boots (or wellies)
- Hat
- Extra clothing: a jumper (to put on when you stop), scarf, gloves, long johns (can be useful even in summer), rain clothes and lighter shoes.

Well Fed

Food at the right time

After keeping warm and dry, water and food are the next most important things to consider in the outdoors. Hunger reduces energy and morale. Decisions taken can often be hasty. Many accidents in friluftsliv have been due to lack of food and water. Children tend to prefer regular meal times and are often dependent on them. It is therefore recommended to keep to expected meal times even when you're out in nature. Always have some fruit handy as a snack or a reserve. As a leader, it is also important to eat and drink enough yourself. You never know when something might happen and you will have to make important decisions. At those times your judgement must not be compromised due to hunger or lack of fluid!

It is important to stop in time and not only when you are hungry - then it is too late! As a rule, to break and make food takes at least 30 to 45 minutes. Therefore, make it a habit to include that margin when you are planning an activity or a hike. It is easy to say: "there are only 3 km left, we will manage that before we take a break!" For many people, those last kilometres are the hardest of the day! Also, bear in mind that it is often the strong ones who want to go the whole way. Those who don't have the same energy, haven't got the courage to protest.

Water – a fundamental for life

The most important thing for feeling good is water. We need to drink at least 2 ½ L of fluid a day, in the form of clean water, juice, soup or similar. Spread out the intake of fluids over the day - drink often! It is better to drink warm fluids rather than cold, even in summer. The ice cold water of the mountain stream, whilst uplifting to drink, takes lots of energy to heat up in the stomach. Drink a little at a time and warm it in your mouth. Those who drink too little generally feel everything is hard work, are uninterested and often complain of a headache. Symptoms can appear after only half a day with too little fluid. Therefore, it is important to drink, even if you don't feel thirsty, especially during warm summer days!

What to eat?

What and how much to eat depends entirely on the group (teenagers eat much more than 10-year-olds). It is important to have food that everyone eats and that is easily cooked. Children are often suspicious of unusual me-

The multifunctional board

(making your own hike board)
The hike board is an invaluable piece of equipment. You can easily make one yourself. Take a plywood board (about 35 x 25 cm and 3 to 5 mm thick as it has to be able to fit in your luggage) and round the corners and edges with sandpaper. It can be oiled (half linseed oil and half turpentine) or it can be varnished. The hike board can be used for nearly everything. On the board you can mark out a game, measurements or write your name. The board can also be made round so that it fits inside your stove. If you make holes in one edge you could also make you use it to sieve pasta or drain water from a pan.

Reflection: As the hike board is so useful (everything from a cutting board to digging in the snow) it gives happiness and pride if you've made it yourself. It's easy to make. You don't need to have special woodworking knowledge and you can see the results straight away.

Forest Stew

(about healthy food that is easy to carry)

By using home dried ingredients in your outdoor cooking, you can combine healthy food with a lightweight pack. Prepare for the trip by drying vegetables for your forest stew. Weigh the ingredients before and after drying, then you will be aware how much water one carries unnecessarily. When you are cooking dried vegetables be sure to place them in boiling water!

Boil a litre of water (for extra taste add some stock) add two tomatoes. Peel and cut four potatoes and four carrots and par boil them. Add chopped leeks and a cup of nettles (the tastiest are the young shoots, but the top leaves on big nettles can also be used). The soup should be boiled until everything is soft. Add salt and pepper to flavour. If you have used dried ingredients let the soup stand for a while before you eat it.

Reflection: Cooking the forest stew includes many different tasks, meaning that more people can help. It gives training in co-operation, where you also do things for others. By taking part in the preparation (such as drying or peeling) everyone knows what is in the food. This means it will be more readily accepted when it is served.

als, let them take part in the preparation. For those more accustomed to the outdoors, it is exciting to be creative and to try new dishes. But even for such a group it is important to have easily cooked and quick food in reserve. After a paddling trip in pouring rain, it is nice to get something warm in your stomach quickly. Furthermore, it's essential to know the correct food (and food times) for diabetics or those with a special diet in the group.

Cooking – a part of the programme

Being able to cook food is important for everyone who enjoys friluftsliv. Therefore start training as early as possible. Even eight-year-olds can manage their own cooking under safe leadership and with plenty of time. To make food takes time and it is important that it is allowed to take the time that it requires!

Our outdoor activities often have such a busy program that meals are served ready-made to save time. What is more important: practising making a fire and cooking food or going for a walk in nature with general knowledge questions at a series of checkpoints (called a Tips Promenade in Swedish).

Meals and cooking are an important part of friluftsliv. One does something together and for each other, learning at the same time consideration for others, responsibility and a feeling of community spirit. It is also good training to set the table nicely (even if it's on the grass), make sure that everyone eats at the same time, and shares the food so there is enough for all. It encourages a community feeling that is often missing in the microwave kitchen. The communal meal also gives a chance for the leader to see that everybody is eating. If someone doesn't like the food, then make sure he or she still gets to eat something! (A sandwich is better than an empty stomach).

Through food one has the chance to include a little cultural history. What did people eat in the old days? How did they preserve food without a freezer? What traditions are associated with different food dishes? Every landscape has its own dish. What's yours?

Nearly all food can be made outdoors. Use local produce as much as possible! Homemade potato mash is often a positive surprise. Does it really take time to peel potatoes? What is the best use of "our time"?

Dried Food

To dry ones own food is exciting! Everything can be dried. Summer strawberries can be enjoyed during the winter hike just as dried potatoes and leek makes a warming soup. Make sure to dry fruit and vegetables when they are cheap, then you save money. Why not try to grow them yourself?

Some advice with drying food: always use prime first class ingredients. Cut the fruit and vegetables into small pieces. The smaller the pieces the faster the drying. Root vegetables should be parboiled (cooked until they are half soft) before being dried. Drying can be done indoors or outdoors, but the things that are being dried should be hung up or

spread out so that the air gets to them. The place should be warm, dark, dry and airy. Fruit and leafy greens can be dried in the sun when it is nice weather. One can also use different sources of heat, for example close to a boiler, by a radiator, on top of the fridge or in a normal oven. Caution! When drying in the oven the oven door must be ajar, so that the moisture can escape. If possible dry food on the grate. The oven temperature should not exceed 50°C. For some vegetables, for example tomatoes, the result is best if you start by drying them in the oven so that most of the water disappears.

When do you know if it's dry enough? Root vegetables should feel really hard. Leaves should be easy to crumble. Stalks should feel like fresh wood. Berries should be hard. Fruit should often be stretchy and leathery.

When preparing it is important that one shocks the dried things. That means to pour the vegetables a little at a time into boiling water. The alternative is to stand them in water for many hours before using. To dry your own food is an exciting exercise and it becomes more fun with experience.

Variation and reserve

When living in camp or on longer journeys the food menu should be as varied as possible. Think about having reserve food to add variety. Many people experience problems with their stomachs with a change of environment and then prunes may have a loosening effect and blueberry soup can make stools firmer.

Bringing out the sweet bag when it's starting to feel heavy is a sure way to make yourself popular. A goody bag ought to be included in your packing. It can contain raisins, chocolate or other sweets that give an extra energy kick when blood sugar levels are starting to fall. In your pack there should also be emergency rations, for example a bar of chocolate that should never be eaten during the trip! You won't know until you get home if it was needed! When the stove

Easy cooking

Frying pan bread

(about baking bread in a frying pan)

1 teaspoon of salt
3 teaspoons of baking powder
3 dl rye flour
8 dl wheat flour
5 dl Filmjölk (soured milk/yoghurt) 75 g margarine
(1 dl = one decilitre = 100 mL.)

Mix the salt, baking powder, rice flour and five decilitres of wheat flour. Add the filmjölk and mix. Add melted margarine and enough of the flour so you can work the dough. Split the dough into small pieces and flatten them into cakes (the thinner the better).
Cook them in a hot frying pan. Avoid spilling flour in the frying pan as burnt flour has a nasty taste.

Reflection: Frying pan bread can be an alternative to the stick bread. It's quicker to bake, it's easier to get baked through and is a good bread to eat with food. The dough can also be baked on a warm stick as a stick bread or on a hot stone.

Fruit kebab

(about grilling fruit)

Alternate pieces of banana, apple and pineapple on a thin stick. The stick is then grilled over the embers. It's extra nice if you add chocolate or toffee sauce. This kebab can be a useful alternative to sweets.

▶

Paper Fish

(about making fish in newspaper)

De-bone the fish (pike, perch, mackerel, salmon, or cod). Add salt and fill the fish with tomatoes and dill (juniper twigs also work well). Wrap the fish in many layers of wet newspaper. The bigger the fish, the more layers you need. For a single portion of fish you need six pieces of newspaper. Place the package of fish in the embers. When the newspaper is burned the fish is done.

Reflection: Fish cooked this way is extra nice to eat for those who have not tried it before. The filling can be varied with whatever you have brought. So here there is a space for your own combinations.

Cheese on a stick

(about making cheese and bacon over the embers)

Cube the cheese. Make packages of one cube of cheese with a piece of bacon wrapped around it. Thread the packages on a thin stick and grill until the cheese starts to melt.

Potato omlette

(about mushroom omlette in potato)

Serves four; one large potato per person. Two slices of ham, one egg, salt, pepper. Half the potato so it has a "lid". Dig out the potato contents and cut what you have taken out into small pieces together with the ham. Whisk the egg lightly and add the ham and potato. Season with salt and

has been cleaned after the trip then you can enjoy the chocolate knowing that everything went well!

Food and the environment

Through our food we can come closer to other important areas of concern to us. It's not difficult to get a global perspective of ourselves and those of other countries. Today other customs and ways of living are not far away. The TV projects its pictures directly into the kitchen and there are many opportunities to take up and discuss what we have seen.

Thoughts to action doesn't have to be a big step! The food can also prompt us to think about environmental questions. What do we do for the environment? Are we shopping for locally produced vegetables? Are we reducing the transport need by baking our own bread? Are we cooking food instead of buying it ready made?

Cooking

The cooking of food in friluftsliv normally happens over an open fire or on a camp stove. These can have different fuels, for example gas, petrol, paraffin or alcohol. Camp stoves are the most common cooker where the fuel is methylated spirit (T-sprit in Swedish). This is also the stove that creates most accidents. Some advice when one is using a cooker:

- Place the stove on something stable.
- Never play or run where are you are making food.
- Always be sure that the burner is empty and has cooled before you refuel it.
- Take out the burner using your hand without a glove when refuelling. Then you don't risk that the burner is too warm and neither that the methylated spirit is spilt and ends up underneath the stove where it can start a fire.
- An extra burner can help with safety. Then there is always one that is cold!
- Only use the normal methylated spirit (T-sprit or Tenol).
- Always store the methylated spirit in a so called "safety bottle"!
- If an accident happens: extinguish the flames by suffocating them!
- Let the burner keep burning when the stove is not supposed to be used any more. Any remaining alcohol left in the burner often spills into the pot and then ruins the next meal. The burner should always be kept in a bag to stop it corroding the aluminium pot.

To preserve the cooking experiences it is worthwhile to have a group cookbook with your own tested recipes. By placing the responsibility of cooking with the group you achieve training in planning, shopping and looking after others. In the whole process of planning, preparing and cooking food everyone can have a chance to take part.

Hygiene

Best practice

Toilet practice and personal hygeine… something natural that we all do every day at home. But in the forest?

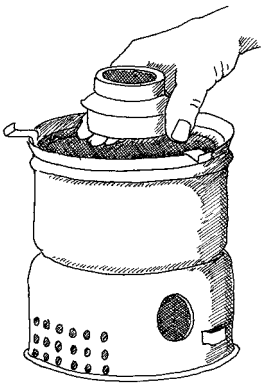
These are things that the experienced outdoors person doesn't find difficult, but for the novice can be a hindrance or a reason

not to come on a trip. It is therefore important to teach how to go to the toilet and at the same time talk about the importance of hygiene, not least whilst cooking.

In former times one dug a big hole that you sat over, on a log. These collective latrines are no longer allowed in Sweden. If you decide you need a collective toilet then you need to get portable toilets (or other alternatives) and make arrangements to have them delivered and picked up.

It is important to explain, both to children and adults, how one goes to the toilet in the outdoors. Place the poo spade (the one for digging the hole) in a place where everyone knows where it is. As a leader show that you use that spade too!

Many people get headaches when in the outdoors. The reasons can be many but the most common are too little water, irregular food times, not enough sleep or that they haven't been to the toilet.



Personal washing

Upon arrival at the base camp or the overnight place it is important to decide which areas will used for the girls and boys toilets respectively. Decide also on suitable places for washing up, swimming and personal washing. It's important to have designated washing places for both boys and girls. Having your period whilst out in the forest can be rather demanding. Then it is reassuring to be able to wash oneself in peace and quiet. It is also important to remind the boys to wash their bottoms. After a long day's walk it is necessary to wash away all sweat, dry oneself fully and put on clean, dry sleeping clothes before crawling into the sleeping bag. Water isn't always available and then wet wipes are a good solution. Mosquito wipes have also their advantages.

Good advice to both women and men leaders is to have some sanitary towels in their pack. Today it is not uncommon for menstruation to start when girls are in their early teens. Naturally, this will happen during the hike or at camp! It is then important to be prepared that it doesn't become a bigger issue. To have a male leader in this situation isn't always easy for the girl. It is more common that a friend becomes a go between. But

pepper. Pour the mixture into the potatoes, add the "lid" and "lock" it with some sticks. Place the potatoes in the embers. When the egg is hard the food is ready.

Guided poo trip.

(about showing good places to dig and poo)

How do you find a toilet in the forest? Split the group into a boys and a girls' group. Decide which direction each group should walk. Bring the spade. (Use a garden spade for lighter packing). Discuss what could be seen as a "good toilet place" with a pleasant view, no ability to be seen, and good ground for digging. De-dramatise the whole experience. Show where you can dig, how deep it should be and then how you fill up the hole afterwards. Sometimes you could instead turn up a big stone to make a trench. The stone is then replaced, effectively hiding all traces, and stopping curious animals from digging there. Consider marking the place with a stick to show where you been. Let the participants try to dig for themselves. Keep the spade in an accessible place and be open when you are going to use the toilet yourself. All this is done to show that going to the toilet is natural and something that one should do every day (some try and avoid it and then have problems with their stomach, a headache and can become irritated).

through understanding and being natural it normally sorts itself out.
On an extended camp at one location you need to have a special tent for intimate washing. Both male and female leaders should use it to set an example. Washing possibilities can be crucial for those who come from different cultures. This also applies if we are living in a wind shelter or a tent. For many people a mixed way of living is totally unthinkable.

Axe, Knife and Saw

Good Friends

Axe, knife and saw are good friends in the forest. They should be treated with care and respect. Through looking after them well, one can use them for many years. It is important that they are sharp - blunt tools are harder to work with and increase the risk of injury. All tools should always have their blade covered when they are not being used. They should also be hung up to avoid becoming damp, which causes them to rust. Left lying on the ground they could also cause injury if somebody runs into them.

There are many different knives and axes. It is the activity that decides which tool one chooses. In daily friluftsliv it's enough to use a sheath knife and an axe. The knife should sit well in your hand. To protect the hand from gliding down over the blade it could have a guard bar.

To whittle is something that nearly every child finds exciting. To allow even the younger children to practise a special childs knife can be a good tool. By cutting off the tip of a normal knife blade and filing it so that it has a blunt tip and is about 6 cm long, you can make a child-friendly knife.

To create a special place where there is peace and quiet makes it easier both for the leader and for the child. When one whittles it is important not to sit too close to each other. Sitting on your knees whilst you whittle reduces the risk of cutting yourself in the leg, if you happen to slip. See tips about the best techniques in chapter 13, "planning for friluftsliv".

The knife should always be in its sheath when it is not being used. If you lend somebody your knife it is important to know how you hand it over. Turn the handle towards the receiver and hold the blade between your fingers with its back towards your hand, or hand it over in an open hand. The safest way is to hand over the knife whilst it's still in the sheath. It is forbidden to carry a knife in public places! Leave it in your luggage until you get to the forest and need it!

Axe in its place

The axe is carried by holding the axe head. The blade should be facing backwards so that no-one could walk into it and the shaft upwards to avoid it getting "tangled" in nature. When one hands it over you hold the axe head and hand over the shaft.

To create a special place for chopping wood in your friluftsliv place or hike should come as naturally as making a fireplace. Clear the place and take away any branches that are in the way. There should also be a wooden block and/or a tree stump that you can use whilst chopping, as well as, if you're

Money in your pocket

(about creating or improving your outdoor equipment)

When you are talking about equipment discuss various materials, ecological functions and how you can save money by having the right equipment. An extra pocket in your trousers is easily made by cutting off the legs from an old pair of trousers and sewing on the cut-off bits to your outdoor trousers. Worn finger gloves become particularly good working gloves by cutting off all the fingers and securing the ends. You then end up with a warm hand at the same time as your fingers are free. Sew or card wool to make your own sit mat. Look after your hiking boots, take care of your rucksack, sharpen your knives, and sew bags for the stove.

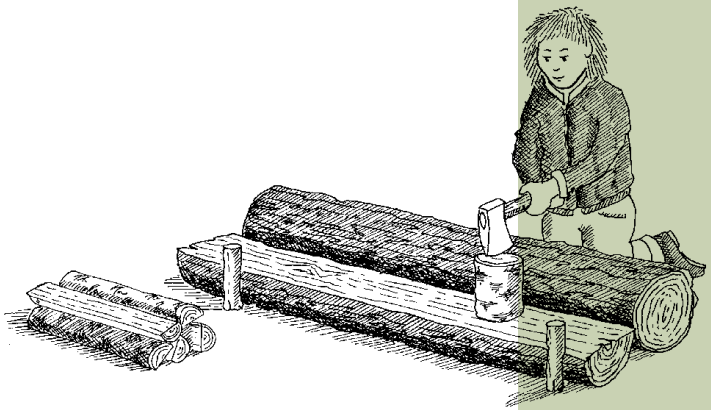
Reflection: by looking after your own outdoor equipment, you have the chance to consider your place in the world. What can I do for myself? What do I have to buy? Are there alternatives? How can I improve my existing equipment? It is hard to throw away things that you have cared for or made yourself. You get a personal relationship with your equipment so you will take good care of it whilst also considering the environment.

staying for a long time, a saw horse. For safety there should be no running or playing in the area designated for tools and wood chopping.

The chopping bench is safer than a block of wood when one is not so used to using an axe. To make one you need two logs about a metre long. One of the logs can possibly be split into two halves and planed on the rounded side so it sits well. The logs are placed next to each other with the whole one (or the bigger log) closest to the chopper and are anchored to the ground with some pegs to hold them still. When chopping wood, place the wood on top of the flat bench and the person chopping stands behind the rounded log. It's safest to kneel whilst chopping. If you miss the wood the axe blade will end up in the halved or rounded log. The most important thing is to learn correct and safe technique.

So as not to forget to bring the chopping block or the bench when going on the camp (it is not always easy to find one at the camp place) it is a good idea to have the group's own chopping block that may be ceremoniously decorated with some symbol. Eventually it will surely bring to mind many fine camp memories.

By the chopping place or nearby (preferably sheltered from the rain) there should also be a place where the axe and the saw are kept when they're not being used, as well as a file and a sharpening stone to keep the tools sharp. So they don't rust, every now and then they need to be smeared with grease. Bringing some extra sawblades is something that can make sawing a pure joy. Well kept tools are important for a good friluftsliv! Therefore, make sure that the group feel ownership of their tools! It is then with pride that one shows the newly sharpened axe and the homemade sheath. To take care of your own things and improve the equipment can give you a feeling of responsibility and satisfaction. It also creates moments when one plans and "dreams" about the next journey or hike.

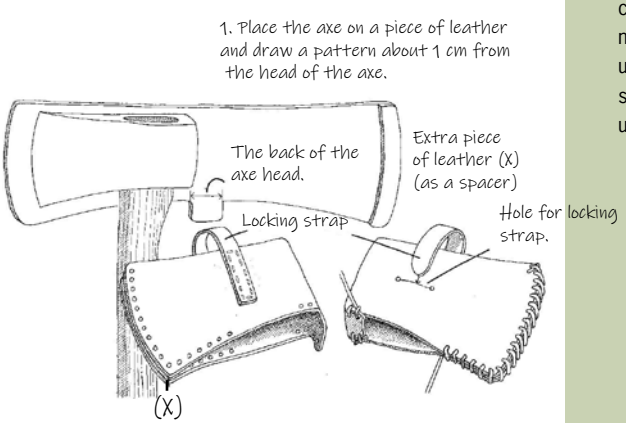


Protection for the axe

(about how to make a cover from leather)

All axes should have a cover that protects the blade. These can easily be made yourself using strong leather. Look at the pictures below and add your own distinctive touch to the cover, for example with a symbol or some other decoration.

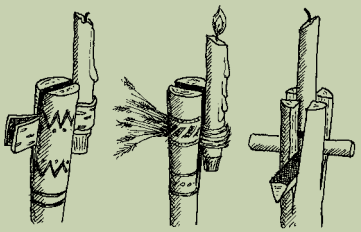
Reflection: the personal blade cover is something that you have made yourself, therefore you will use it and take care of where you store the axe when you are not using it.



2. Make holes for the leather twine along the sides as shown in the figure.

3. Sew a locking strap onto the back.

4. Tied together with the leather twine. The axe head can also be sewn with linen thread.



Light in the darkness

(about making a candle stick)
A candlestick is nice to have when you want it extra cosy. But ensure that the candlestick does not start burning if the candle is short or slips from its fastening and ends up in the grass. No lit candles are of course allowed to be left un-watched. Take a stick (the length depends on how high you want your candlestick). Crack the stick at the thicker end and carve a point at the thin end so you can press it down into the ground. Wrap a piece of leather (or alternatively birch bark or a long piece of grass) around the candle so that there is leather left over to press into the crack of the stick. Tighten it so that the candle sits securely. Another alternative is to cut the stick with a cross and hold the cross open with two sticks so that the opening is just the right size for the candle. Decorate your candle stick with your knife!

Reflection: Carving to create something nearly always brings happiness. If you can also make something that is useful it is even better. A candlestick can be used to spread light and create a cozy atmosphere in the darkness as well as giving children an opportunity for whittling.

Light and Fire

Best friend and worst enemy

For at least 500,000 years people have sat around the fire and learnt successively to manage it. The fire gave warmth security and with its help food was made. It gave light in the darkness and kept the predators away.

Fire is still the natural gathering point. Round it we can dream back in time or discuss the future. It's magical force captures both big and small. To keep the fire going is an art that requires precision, preparation and determination. Just as the fire can be friendly and safe when we manage it, similarly it can be wild and dangerous when it is let free. Therefore, it is necessary to know how to extinguish fire and important to teach children fire skills as early as possible. Handling fire can never be trained too much.

It's one thing to make a fire when it's nice weather with dry wood but something different when it's raining and everything is wet. Then you really need those warming flames! To know which wood burns best, where to find good kindling and which type of fire is most effective, is knowledge that only comes with experience.

Fire or no fire?

According to "The right of public access" (allemansrätten) it is permitted to make a fire if there is no risk of forest fires in the area. During dry periods a fire ban can apply and then as a rule it is forbidden to make a fire, even in prepared fireplaces. To be on the safe side it is best to contact the local fire authority.

During the summer months fire risk warnings are given on the radio or on SMHI's homepage (the Swedish Meteorological Office). On a mobile you can also find fire risk maps. Fire risk is split into a five graded scale.

1 = Very low fire risk

2 = Low fire risk

3 = Medium fire risk

4 = Big fire risk

5 = Extreme fire risk

Contact the fire authority and find out what the fire risk is for the area you plan to visit.

Cosy Light

There are occasions when you want to make it cosy without lighting a fire. Then the paraffin lantern or some candlesticks are a good alternative (see page 16).

The paraffin lamp is the most secure alternative as regards fire risk but must be looked after to work well. Make sure that there is a wick in the lamp, always bring spare wicks! Turn the lamp off by lifting up the glass and blowing out the flame. Then you don't have to fish up the wick from the paraffin the next time it's used. Take care that the flame is not too high and makes soot.

Stone Bed

Before making a fire you have to have a good fireplace. The most common is to take away the grass and make a stone ring.

Instead make it a habit to make a fire on a stone bed, built by putting stones close together. It is both safer and more effective! The addition of oxygen from underneath makes it burn better. The radiated heat provides

greater warmth for those sitting around. The risk of burning the roots diminishes. The ground area is not damaged. After making the fire, the stones are returned to the place they were taken from. The well extinguished ash is dug down, for example in some wet hole or under a stone. After that, one would have to have a very experienced eye to be able to see traces of the fire. When you build a fireplace, think about making it slightly bowl shaped, like a spoon, so that there is less risk that embers fall to the ground.

One-two-three-four

This is how are you light a fire.

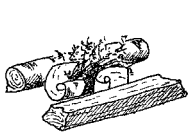
One - place a couple of short wood sticks in the fireplace with the wind passing through them and let them support the lighting material (e.g. "tinder" = thin dry pine twigs, birch bark, juniper bark, resin rich splinters).

Two - make fine splinters of dry wood.

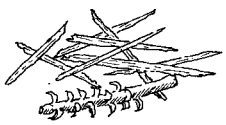
Three - chop a pile of slightly larger sticks.

Four (Fyr = both 4 and to ignite in Swedish) – placed the matchstick under the kindling material so that the flame licks the fine twigs and burns upwards. Feed with the splintered dry wood and the bigger sticks and then you have a good fire.

Don't light up until you have enough wood remembering that a split branch of wood burns better than a round one! If you do not have an axe you can bash the fibres with a stone so that the fire will get a better grip.

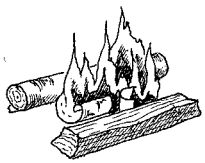


One



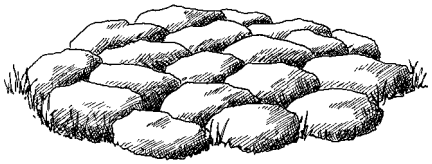
Two

Three



Four

("fyr" in Swedish also means to "ignite")



(Read more about different types of fires in chapter 6, "Deep forests").

No unguarded fires

Important rules regarding all fires are that they must never be left unguarded and that one should always have a bucket of water (preferably together with a fir branch) ready. That also applies when you're making your fire close to a lake - even if there is water nearby as you must have something to pour it with!

Often the evening draws to a close by sitting around the fire. Place the fire a little bit away from the sleeping place. Those who want to sit for a while longer can then do so without disturbing those who wish to sleep.

Find your way

The most important thing is the map!

To leave the safe path or the forest track and go off trail is always exciting! Then you have to trust your navigation skills. In the first instance it's the art of reading the

Blow torch

(about making a quick fire)

A quick fire is made by taking a short length of a log and splitting it in half. Place the two halves facing each other. Light dry pine twigs and tinder between the two halves. Placed them so close together that the draft flowing between them causes them to ignite. When they burn you can just place the pots directly over the fire. The fire is regulated by pulling the two halves apart or pushing them together.

Reflection: the advantage of this fire is that it's quick and you don't need to have anything to hang your pot on. It has often been used by lumberjacks.

Left or right veering hiker?

(about walking in circles)

Hikers who get lost often describe how they returned back to the same place. Most people deviate either to the left or right when trying to walk in a straight line and would then end up walking in a circle.

On an open playing field you can find out whether you veer to the right or the left. Place a marker 50 to 100 m away. Sight in the direction that you are going and then blindfold yourself. Walk towards the marker, stop when you think you are there. It is important that you have a friend to look after you so you don't walk into something. So as not to disturb your concentration it's important that the friend walks behind you and neither talks or touches you unless there is something in the way. At a given signal remove the blindfold. Together with your friend you can see how you have walked and to which side you have veered.

Reflection: after having tried in an open playing field you can also check if it's the same if you are walking in terrain. Consider that those who deviate the most return to the starting point sooner than those who have walked in a straighter line. It is also important that the exercise is done in silence.

map that is important. There are different types of maps.

The orienteering map is the most detailed but is not available for all areas. The "Yellow map" or the "economic map" has a scale of 1:20,000 and shows among other things the plot boundaries (something that might be good when you need to know who the landowner is). The most common map in friluftsliv is the "Green map" or the "topographical" with a scale of 1:50,000. If you're a beginner it is important to get used to what the scale represents.

Maps are perishable. New roads are quickly made and there may be other changes in the landscape that can cause confusion. Therefore, check when your map was printed and buy new maps as you go along. Bearing in mind that the maps age quickly, a map case is preferable to laminating them in plastic. A water-tight map case is good, not only when you're on the lake but also when you are walking in the forest. In the shops there are good plastic map cases with rolled over openings that can also be used when paddling. As an extra insurance against water damage you can spray the maps with a waterproofing agent - as well as keeping them in a map case (good when you want to fold or change the viewable portion in rainy weather). The map should always be handy so you can follow the route as you are moving forwards. Therefore, it's important to have it available even in the rain. It shouldn't be in the rucksack or in a pocket.

Orientate the map with North - South

The most important tool apart from the map is the compass. The first thing you learn is to align ("orientate") the map with north and south. When the map's north (which is always up on the map) lies in the direction that the compass needle shows (the red part of the movable compass needle always points to north), then the map also fits with the surrounding environment. If there is a house to the left of the road then it will also be to the left (west) of the road on the map.

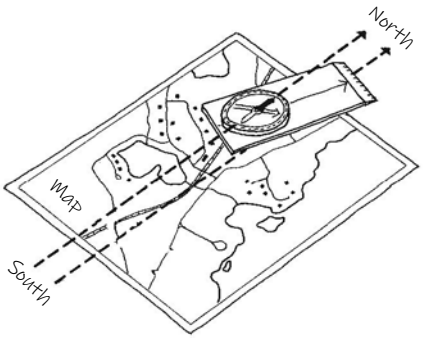
Taking a bearing

To find your way is always about following on the map and choosing a line of travel. It's generally easiest to navigate using paths, roads or the edges of lakes so as to avoid crossing large featureless areas. However, sometimes you will need to walk on a compass bearing to avoid unnecessary detours and reach the final destination or just for the thrill!

To take a compass bearing, place the compass on the map with its longest side joining together the place where you are now and where you want to go to. Note, the compass should be turned with the directional arrow (the permanent arrow on the orienteering compass) in the direction that you are going to walk. (**1**) Turn the compass dial so it's north arrow lies towards the north of the map. The lines in the compass dial should lie parallel with the map's meridians (the thin lines that go north-south over the map). (**2**) Then lift the compass from the map and turn yourself so that the red part of the movable needle in the compass aligns with the dial's north arrow. Look in the direction of the compass base arrow and it will point in the direction you should walk. (**3**) To avoid continuously having to stare at the compass, you sight with the compass and then choose a feature in the landscape

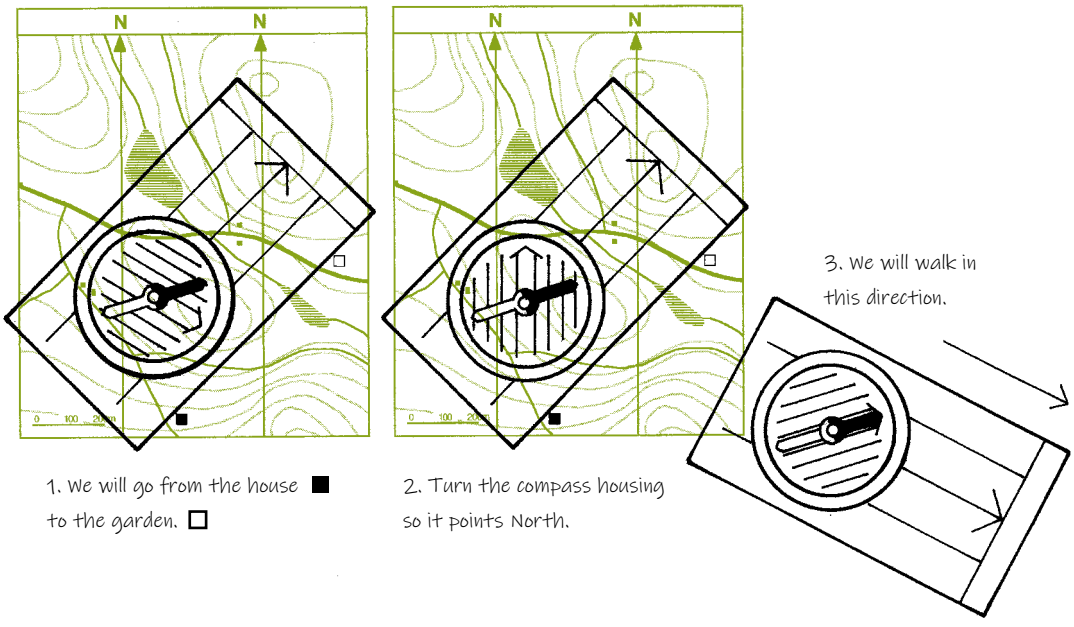
to aim for. It could be a big tree, a stone or similar. When you have made your sighting you then walk to it. On arrival you take a new bearing and continue until you reach your goal.

Checkpoints and catching features



Before you set off, decide on the number of "checkpoints" and possible "catching features". "Checkpoints" are things that according to the map you should find during the walk, for example roads, houses, mountains and streams. Take care to check early on to see if your direction is wrong (if you don't find what you expect). These checkpoints show how far you've got.

"Catching features" are things that you would encounter if you deviate from your planned route. For example, a big road, a fire break for a power line or a big river. Should you get lost and encounter these then at least you will know where you are. Another way of using catching features is to always walk towards a catching feature in the direction you're heading. It could be one end of a lake or a crossroads. Head a little way in from the end of the lake (this is called aiming off) or slightly to one side of the crossroads. When you get to the feature it is then easy to decide in which direction you must turn to reach your destination.



1. We will go from the house ■ to the garden. □

2. Turn the compass housing so it points North.

The robbers are coming

(about hide and seek games)

Tell the story of Astrid Lindgren's "Ronja the Robbers Daughter" and that the robbers are in the forest. You are now going to go out without being found. Everyone walks behind each other in a line. The person at the front decides the route. After a while the one in the front stops and counts loudly to 10 (decide how fast to count before the game starts).

The one who counts is not allowed to turn around and they have to keep their eyes closed. On the count of 10 the person counting turns round and everyone else will have hidden. The counter is not allowed to move from that place and must keep one foot on the ground at all times. When the counter sees someone, they have to be named, or if the group doesn't know each other, then it's enough to say what colour clothing they're wearing. Everyone who's found must come out from their hiding place. When the counter can't see any more people, the remainder come out anyway. The person who was closest to the counter has succeeded best with finding a hiding place and becomes the counter next time round.

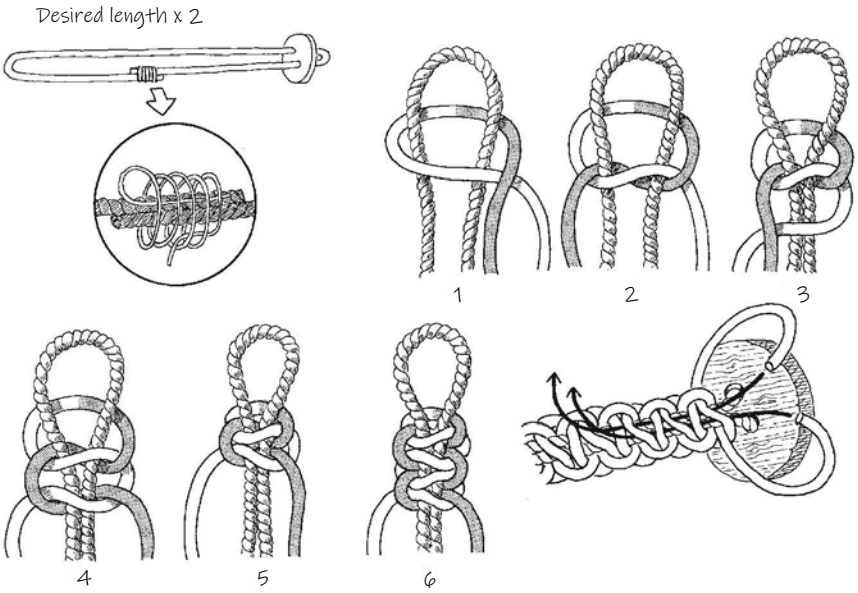
Reflection: in the old days children learnt to hide and move silently to be able to hunt with the old weapons like bow and arrow. To be able to move silently is still useful today when you want to get close to animals in the forest. In hide and seek games you train your motor skills and your awareness. Here you will also find out how your clothing will impact on your ability to hide.

A removable belt

(about how to make a knife belt of macrame)

You can create a useful belt to hold your knife using macramé technique. Then you will always know where your knife is. It's easy to take off the belt when the knife is to be used or when you are in a public place. If someone wants to borrow the knife you can lend the whole belt!

You will need a length of rope, eight times as long as your waist measurement. Start by knotting from the middle of the long rope as shown in the diagram.



When you as a leader are letting your group navigate make sure both you and they are in agreement as what the boundaries of the area are (roads, lakes, train tracks etc). It is also important that everyone understands the importance of not crossing these boundaries. Should anyone get lost then you can concentrate the search in the catchment area.

It is also good to know how fast a group normally travels (3 - 4 km/h with a pack). Therefore, make it a habit to note how far you've walked and for how long. When you are planning the next trip it will then be easier to calculate how long it should take to reach the destination. Practising pacing is also a good way to decide how far you have walked. Practise counting how many double steps (for example every time you put down the right foot) you use on the road and then on different terrain. Pacing is a good method to prevent you from going too far. Most people's double paces per hundred metres range from 60- 80 paces. How many do you take?

Practising being able to read the landscape and to find your way in your local area is described by Roger Isberg in his book "Journeying".

> "A native Australian describes the system: I don't walk too far at the beginning. I walk a little bit and then I go back again, then I go in a different direction and I return and then in another different direction at the end and so on. Eventually, I know what it looks like around my camp and I can go further without getting lost."
>
> ROGER ISBERG (1991)

Sleep

Choosing where to sleep

Regardless of whether you sleep in a tipi (Indian tent), wind shelter, tarp, tent, mountain tent, or under a fir tree or under the bare sky, it is important to choose your campsite so that you can keep warm and dry throughout the night.

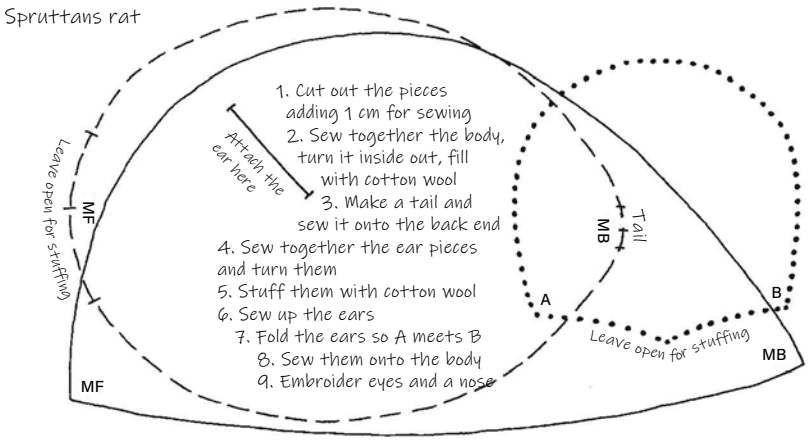
Often you look for a lake to camp by. Then it's important to think about placing yourself a little bit away from the beach and a little bit higher than the shore. Otherwise, you could feel damp and cold. It is also good to orientate the camp according to the wind direction. Where should the wind blow from in the morning? By having the back of the wind shelter slanting towards the wind you stop the smoke from the campfire getting into the wind shelter.

If there is a risk of rain you ought to think about how the water can run away. If you place your shelter in a hollow you might wake up in a puddle.

Sleep well

Many people find it hard to sleep in new places. It's therefore a good idea to make it as comfortable as possible. Everyone needs a good night's sleep. It is only the inexperienced who lie and talk for half the night without thinking about their friends needing their sleep. There are some tricks to get a good night's sleep. Your sleeping bag should be spacious so that it doesn't feel tight and compress its insulation. Before you crawl down into the sleeping bag, air it by the fire to let in warm air. Put on a hat to retain your body heat!

If you do wake up in the night feeling cold you won't want to get up. Therefore, keep an extra layer close at hand. It could be a thin woollen shawl, a sweater or a hat. It's often better to have that item loose in the sleeping bag instead of putting it on. If you are wearing too much or clothing becomes too tight this can reduce the amount of insulation. Freezing can be due to the cold coming up from the ground. It's a good idea to



Spruttans Rat

(about sewing a cuddly toy to bring to camp)

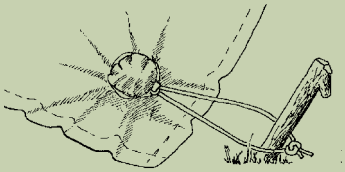
Children may want to bring a cuddly toy to help them feel of safe when sleeping away from home. One way to make it less dramatic is to before the hike or camp have everyone show their own soft toy or mascot. Then give them each the chance to make their own good night rat. It can also be placed between the body and the sleeping bag if you are cold, which is often a sign of too little insulating air, or between the face and the shirt/scarf that you have as protection over the sleeping bag opening when you going to sleep and you forgotten your mosquito net.

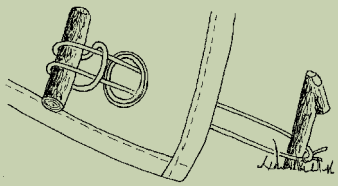
Reflection: many children have difficulty sleeping away from home. They also often have little soft toys at home that give comfort. It's helpful to accept this and understand the importance of routine. As an adult it's good to show that it's OK to have something to sleep with. Through the leader showing their own animal even the toughest kid can admit to having a cuddly toy.

Cone in the wind shelter

(about knotting around a fir-cone instead of using the eyelet of a tarp).

When putting up the wind shelter or tarp you often find that the eyelets are missing or broken. Then, you can use a pine cone (not too hard and knotty) or crumple up a little bit of material or use a small ball. Put the object in the tarp material and tie the string around it, as in a little knot. Maybe it's not so beautiful to look at but it doesn't damage the material and it spreads the force in the material when you need to tighten the string. To prevent damage to a tarp with eyelets take a small stick and tie the line to the stick inside the eyelet.





have more underneath yourself then on top.

In the evening it is important to change, especially the clothes that are closest to your body. Check that everyone gets into dry sleeping clothes before they go to bed. The day's work will have made underclothes damp and these can quickly make you feel cold.

So that the feet will also have a good start the next day – bring in the boots/wellies under cover or put them in the sleeping bag. In that case, put them in the inside-out sleeping bag cover so that your sleeping bag doesn't get dirty.

"The Night Lamp"

It is important that the group members always know where the leader, the torch and extra equipment (for example some sleep mats and sleeping bags or extra blankets) are if they wake up in the night. This applies to both children and adults. But foremost it's important for the older ones to think about this (as they have learnt this). So in effect this means that there is a routine in the evening - just before the end of the day - decide where the extra equipment is going to be put, where the leader is and that someone makes sure that there are one or two lamps with a low light throughout the night. It is good to have the toilet spade near the lamp or the torch in case it's needed.

Journey according to ability

How far did you go?

The most frequently asked question after a hike is "how far did we go?". As if that was the most important thing. "What have you experienced?" or "what did you find?" should be questions posed instead. The hike's length depends first and foremost on the participants' abilities and stamina as well as the leader's competence. Maybe the purpose of the hike wasn't to go far, but instead to discover and improve your knowledge of nature and the outdoors.

The leader always carries responsibility for the group and it's essential to choose a route that everyone can manage. It is important to know the participants, for example if someone has a handicap that needs to be taken into consideration or to make sure that nobody is hiking with a raised temperature, as it could be dangerous under exertion. The landscape, weather and seasons are other determinants as to how far one can walk.

Tiredness can depend on different things for example cold, strong head-wind, too little sleep, too little food or lack of fluid. Seek shelter from the wind, check clothing, eat something and make sure the participants are drinking even if they are not thirsty.

Journey Description

Before leaving for a long hike you should always write a journey description and write down the intended camping sites. Journey descriptions (route cards) should be left with a leader or a parent that will be available and on call. Both the people out in the forest and the parents should be able to turn to this person should anything unforseen happen.

If an accident occurs you need to be able to get in touch quickly with someone who knows the participant's family. Perhaps a child has forgotten important medication on

the kitchen table. In this case, it would be a relief for the parents if they knew who to turn to and could give them the location of the child for the coming evening.

Apart from the route choice and the camp site, the route card should also contain the name of everyone in the party to avoid any misunderstanding. There should be a deadline specified as the latest time that group members should be expected home. If somebody has not returned by this given time than the family should start making enquiries. This means that you need to be very careful to differentiate between when you estimate to be at home and the absolute deadline after which further action is needed.

Before setting off you should have considered "retreat" and "alternative routes". In difficult weather, or if a crisis occurs, it is often hard to make a decision on which route to take. If you are undecided whether to continue the walk? Always remember that it's much more courageous to turn back rather than continue and put others at risk! A useful safety item is the mobile telephone - but don't trust it fully! The batteries can run out and the reception can be unworkable.

Parental Contact

With new groups of children in the outdoors one should always make contact with the parents before leaving. It is necessary they are aware of the rules, who is responsible and that it can never be totally free of risk. Maybe there is a parent wishing to do friluftsliv together with their children! Invite them to join you and to experience what friluftsliv is!

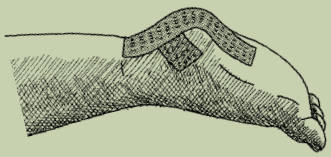
First-Aid

When it is time for a hike, everyone should have in their own equipment: plasters, bandages, blister treatment and their own medicines, including painkillers. This is a minimum. Over time one realises that it is also good to have additional personal "emergency things" in different situations (whistle, lighter/matches, compass, some sweet things, knife). Keep it all in a special container that only is brought out when it's really needed.

Apart from the personal first-aid kit there should also be a larger common one. It can among other things include sterile compresses, bandages, pincers, tick removers, blister plasters, elastic bandages etc. Bearing in mind the risk of disease transmission (even if it's small) for example when helping a casualty at a traffic accident or similar, it is good to have plastic gloves and a resuscitation mask (which can be found in the pharmacy) in the larger first-aid kit. Adrenaline and cortisone tablets can also be good to have in the communal first-aid kit if somebody should get an allergic reaction against for example snake-bite or a bee sting.

To ensure that everyone knows where the common first-aid kit is, make a special mark to hang on the rucksack or the wind shelter. It could for example be a flag, a piece of wool or a special toy animal. The main thing is that everyone knows where to find the first-aid kit when it's needed!

Cleaning and bandaging minor cuts and grazes are among the most common things that the leader has to deal with. Soap and water is as a rule the best thing to wash with. Some wet wipes and plasters in your pocket



Shoe rub exercise

(first aid exercises without being scary)

To look after your feet is something that you have to learn before going out on a hike or a long journey. Try different sorts of boots or wellies (borrow from friends) before you buy new. Wax or waterproof your boots and leather shoes. Cut your toenails. If you end up having a problem with your nails you can make a small cut in the middle. With a sharp knife you scrape on the top of the nail so it's thinned out. It will then contract. Blisters can be treated with special plasters (found in the chemist) or can be prevented by applying a plaster tape (5 cm wide) over the heel and part of the foot.

Banana Sweets

(about drying bananas)

Sometimes you may need some extra sweets. Dry ripe (brown speckled) bananas. Cut them into thin slices. Place them in an oven (at 50° C) with the oven door ajar. They are ready when they are hard.

Mosquito fortress

(about a sleeping bag cover and mosquito net)

To protect the sleeping bag and make it warmer a cover can be recommended. Sew it yourself from finely woven cotton that can be treated to waterproof it.
A mosquito net that covers the opening keeps mosquitoes away. You can either fasten it to the cover of the sleeping bag or let it be a loose mosquito net, with an elastic at the edge that you carefully tuck in around the opening. If you want to avoid the mosquito touching your face you can fasten one end of a length of elastic to the middle of the mosquito net and the other end to the roof of the wind shelter so the net is held up. With a couple of earplugs you will finally be able to beat the mosquitos and still see the stars before you fall asleep.

Playground words

(about finding words starting with certain letters)

Put pieces of papers with letters written on them in a container. Somebody picks one and says which letter they have. Now everyone has to think of as many words as possible starting with that letter associated with the place (e.g. the school playground or another predetermined area). The words can be things (nouns), actions (verbs) or descriptions (adjectives). Decide on a time limit before you start. At the end of the exercise you tally up the points.

Reflection: it's a good way to practise language at the same time as being active.

could be useful for small or minor injuries. Take care with cuts near joints and tendons and be especially careful about deeper puncture wounds. If you are in doubt the wound needs to be stitched then remember that in that case it needs to be done within approximately six hours. It's a good idea to have an ABCD brochure and a brochure about wound care in the first-aid kit as a reminder.

Feet

In order to enjoy friluftsliv it helps if your feet are comfortable. It's important to keep them dry and clean. Wash them in the evening when you arrive after the days walk (but don't soak them, as they would become soft). Change socks so that they are always dry and clean. You actually start your foot care some days before you depart. Make sure the toenails are cut and that you don't have any hard skin. Rub cream into your feet so the skin becomes soft. If there are problems with your feet on the trip then you should sort it out straight away. By putting on plasters early you can prevent blisters. Air the feet and socks when you take a break!

In Emergency

It is important to remember that friluftsliv can involve similar risks to those of, for example, a traffic accident. If something serious happens then, in the first case, it is normal first-aid (A, B, C) treatment that applies (airway, bleeding, circulation). If you feel unsure about this then contact the Red Cross or a recognised provider for a First-Aid course.

Some reminders about accidents in the outdoors

- Don't move the casualty unnecessarily. Consider whether it's easier for an ambulance crew to come to your location with their stretcher.
- Keep the rest of the group occupied. There should always be two leaders. One to look after the casualty and ask for additional help. The other looks after the group and together you are all ready to help when needed.
- If you are a single leader then ask members of your group to help with the casualty and give the others things to do: organise shelter, drink, possible food and fire, decide where you are on the map (even if you know it yourself), write a note about what has happened and record your actions and the timings etc. Being occupied helps to keep possible panic at bay.
- When it's clear if and how an ambulance or other help should be called then write a note with the most important information (where you are, what has happened, which help you need and why you suggest where you suggest to meet). Possibly include a map and markings. Choose two people to together raise the alarm by telephone. If you don't have a mobile telephone or it doesn't have any coverage, and are unsure where you will be able to make a call, then send participants in pairs to different places with the note to say what has happened, what you have done and what help you need. When they make telephone contact they repeat what is written on the note.

How to have the safest possible friluftsliv experience

As the leader you are responsible for the activities being planned and run in accordance with every participant's stamina and ability.

Sleeping indoors

When sleeping in buildings (scout huts or similar) the following applies:

- Ensure that fire extinguishers are available.
- Instruct and train leaders and group members to know what they should do if there is a fire and how to call for help.

Trip preparations

Before the trip, the leaders should ensure that:

- The participants are qualified,
- The trip is planned according to ability and stamina of the group,
- All equipment is suitable and in good working order (personal and group equipment),
- The parents have had good information (for example time for returning),
- There is a contact person who can be reached by parents and the leader (if something unforeseen should happen),
- Land owner/hunting rights owners have been contacted,
- The area for the activity has been recce'd,
- The likely weather conditions have been considered,
- An "emergency letter" exists with information about regrouping location or directions (if the exercise has to be cut short).

During the trip

During the trip, if unforeseen circumstances occur, the leader should modify the program as required.

Large Base Camp

When a large base camp is established then, in order to minimise the danger from fire, the tents should be spaced so that their guy ropes don't cross each other and you can easily walk between them. The distances between the tents must take into account the size of each tent, the bigger the tent, the bigger the spacing. Always place the tent so that you are sure that a strong wind is not going to overturn one on top of another in case of fire.

Tents should be pitched at least 8 m from a fireplace.

No tent should be more than 25 m from a driveable track.

To meet these distancing requirements the area of the camp can be split into quarters and each quarter into plots for each tent. (According to the Swedish Environment Agency a tent pitch shouldn't be less than 50 m^2).

The driveable route should be at least 3 m wide to enable the fire brigade to get access. The route should be formed so that there either is a possibility to pass or that you can enter from either direction.

INSIDE THE TENT

Open flames or lanterns are not to be used inside tents.

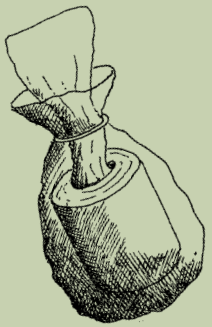
Have a knife hanging inside the tent opening so that an emergency exit can be made through the tent fabric (especially important

Dry toilet

(about keeping the loo roll dry)

In order to keep the loo roll dry you can place it in a plastic bag, take out the hard cardboard centre piece and unroll the paper from the inside. Place an elastic band around the opening of the plastic bag where the paper is being pulled through and then you won't have to take out the roll each time you use it.

If you do this as part of an equipment session, you can also organise a competition for the most cool looking toilet bag with soap, toothbrush etc. Creativity when it comes to small bags and covers is almost endless. Additionally, you reduce drama about visiting the toilet and intimate hygiene in the outdoors.



More simple cooking tips

Plugged falukorv

(Swedish sausage)

(about cheese and sausage)
Cut the falukorv into 4 to 5 cm long bits. Cut out a rectangle from the falukorv: (not quite all the way through) and replace this with cheese. Close the hole with part of the cut out section of sausage ("lock" it with a stick). Thread the sausage onto a stick and grill it over the embers.

Avacado in embers

(about warm filled avocado)
Split an avocado and remove the stone. Remove the avocado body and mix it with blue cheese and crème fraiche. Fill the avocado peel with this mixture. Place the avocado in the embers until everything is warm.

Warm grapefruit

(about grapefruit in embers)
A different dessert is warm grapefruit with sugar and cinnamon. Cut the top off a grapefruit. Spread 1 to 2 tablespoons of sugar onto the cut surface of the bigger part and add some ground cinnamon to taste. Make some stabs with a sharp knife into the grapefruit so that's the sugar spreads throughout the fruit. Replace the lid and fasten it with some small sticks. Place the fruit in the embers. The dessert is ready when the sugar has melted and the grapefruit is warmed right through.

▶

for tents with a built in groundsheet and for military tents with a stove).

Flammable liquids should only be stored in clearly marked containers and must not be stored in tents.

THE FIREPLACE

By each fireplace, there should be a bucket full of water. Never leave a fire without someone in charge. Make contact with the local fire authority to find out if there is a fire ban and to get information about regulations in the area.

CAMPING STOVES USING METHYLATED SPIRIT

Only the proper fuel may be used in the stoves as the burner is only constructed for this fuel. Using other fuels may incur a risk of explosion. Keep the fuel in a purpose made safety bottle. Fill the burner and add the fuel to the burner only after you have you used your hand to ensure it's not hot. Beware! Accidents often happen whilst refueling stoves and can be avoided by following these instructions.

SAW AND AXE

The saw and the axe need to have a protective sheath covering their blades when they are not being used. They should also have a designated place of storage in the camp. A chopping block and a saw horse should be available and used. These should be placed at a suitable distance from all other activities.

Swimming

A responsible leader should ensure group safety and that the following rules are adhered to:

BE CAREFUL

- Never swim alone! Keep together in pairs.
- Don't overestimate your ability to swim, if you want to take a longer swim do so along the shore.
- Ensure that it's deep, determine the strength of the current and the temperature before you enter unknown waters.

DANGER!

Never jump or dive in shallow or unknown waters.

SILLY JOKES

- Never dip friends underwater.
- Never push someone into the water.
- Never cry for help as a joke.

BE ALERT

- Being alert when swimming can save people's lives.
- Keep an eye on other swimmers and raise the alarm if you see someone in trouble.
- In camp there should be a person responsible for swimming.

Hygiene

In connection with making food: wash your hands before all work with food begins. A bowl, water and soap should be available by every toilet.

PERSONAL HYGIENE

Screens should be available around the wash places for boys and girls to allow them to wash fully without embarrassment.

RUBBISH AND TOILETS

Make contact with the commune's cleaning company. It is forbidden to bury rubbish.

WATER

Ensure that the water is suitable for drinking (ask the commune). Store drinking water in closed containers. You can find out more about safety in: "Fire Protection in Camp" published by the Swedish Fire Union in Stockholm.

What to bring

Basic equipment list

Your personal equipment list will obviously vary depending on what you're going to do. Over time it will become more and more personal as you gain experience. Basic knowledge about begins with the clothes list that you will find earlier in this chapter and add the following items.

Thermal Underwear (Apart from underpants/knickers), preferably in wool or a material that wicks moisture and won't make you feel cold when it's damp. It is important to be able to put on dry things closest to the body. Undershirts and long-johns can be good to use for night time and as a spare under the rain trousers, even during summer.

Shirt Flannel, cotton it should be breathable when it is dry. Take care to ensure that it's long enough so that there is not going to be a gap in the waist line.

Trousers That can manage wear and tear and don't attract water. Make sure they are big enough! (To stop chafing).

Thin and thick socks, Wool or cotton. It is important that they are clean so that they can keep the heat well. If there's a problem you can always use the socks as gloves.

Jumper without a roll collar so that you can regulate your temperature.

Anorak, or other windproof jacket.

Rainclothes preferably with a sou'wester.

Hat, important even in summer time. Good both against cold and mosquitoes.

Gloves, even the summer evenings can be cold.

Boots or wellies Treat your boots often to stop the wet getting through. Let the boots air properly when you are not using them.

Sleep mat. Reindeer skin is warm and good but should be protected against the wet and can be heavy to carry. An inflatable mattress with closed cells is a lighter alternative. They can self-inflate and are warm and soft but quite expensive. A normal folded blanket can also work.

Sleeping bag, should be roomy and suitable for the conditions you expect to be in. During summer time a simpler version works. If you're in doubt, make it thicker by using a liner and over cover. A thin blanket can also provide extra heat.

Food items, cutlery, a plate (deep) and a strong mug (that you're not afraid to use).

"The hike board", A small chopping board of 3 mm plywood can be useful.

Toilet paper in a plastic bag.

Matches, in water tight packaging.

Rucksack, well used and adjusted for your back. If you're only going to a hut then a sports bag could be a suitable. One way to "grow" with a rucksack can be when you are young to buy a good frameless sack. When you then need to (and can) carry more

Oat sweets

(about fried oats)

Mix a large dollop of butter, about 1 dL of sugar and 2 dL of oats in the frying pan. Fry until the oats are golden. To be eaten as a dessert possibly with jam or freshly picked berries.

Yummy Dips

(about fruit dipped in chocolate)

Fruit dipped in chocolate sauce can be an alternative to eating sweets. Heat 2 dL of cream in the pan. Add 100 g of grated milk chocolate and 100 g of grated dark chocolate. The chocolate should melt, not boil! When the chocolate has melted add half a tablespoon of vanilla sugar and a teaspoon of grated lemon peel. Banana and other fruits are cut into small pieces, spiked onto a fork and dipped into the sauce. Yummy!

"Our speciality"

(about cooking regional specialities)

Find out which type of food is typical for your region or landscape. Prepare so that at the next outdoor day/camp you can cook this food on the stove. Members in the group who come from other regions or countries, then arrange a buffet and taste each other's delicious food!

Reflection: cooking is an important social activity in the microwave society of today. By letting the participants cook their meals you get knowledge and a feeling for new dishes.

Camp chair

(about sitting comfortably)
Sit with slightly bent legs. Make a loop in one end of a rope that fits your foot. Let the rope go from the foot, behind your back and down to the other foot. Make a loop at that end too. Place your hike board (see page 9) between the rope and your back. Lean gently back and you have a comfortable camp chair.

Reflection: this is a way to avoid back pain when sitting on the ground.

you can hang it on a wooden frame and add pack bags. (Read about pack bag building in chapter 6, Deep forests).

Whistle, to be used in emergencies to call for help. The whistle can be heard further than the human voice and doesn't become hoarse.

Knife, if you can handle it newly sharpened.

First-aid kit, and plasters, medicine, spare glasses.

Mosquito repellent, the season decides.

Toilet things, towel, soap, toothbrush

Paper and pen.

You will realise that as soon as you have a goal to look forward to, something to dream about, at that moment the outdoor things (for example; packaging dried food, socks, methylated spirit bottles and safety equipment) almost become alive, they get a worthiness of similar status to helpers and friends. And that is exactly what they are.

TORWALD WERMELIN (1982)

To spare the back

To walk with a rucksack is something you need to train for. The straps and the waist belt have to be adjusted to work properly. Admittedly, it can be heavy and hard to carry, but the hardest part is most often that the rucksack has to be lifted on and off. If you help each other you realise that there are many advantages:

- You can avoid back pain that easily comes when you've sat still, got a bit stiff and are doing an unusual twist to get your pack onto your back.
- All common luggage should be divided equally amongst the group. The last person doesn't necessarily have to take it all.
- Nobody should wait for the others with a rucksack on their backs.
- Everybody departs at the same time.
- The rucksack feels good by being handled with care.
- Last but not least: You learn thoughtfulness and helpfulness by helping each other. It becomes a habit!

There is no guideline to specify a suitable weight of a rucksack for each person. It depends entirely on each person's muscle strength. It is however important to take regular stops when you remove the rucksack. The muscles that carry the rucksack need good circulation and you should therefore make ensure that the blood flow gets going by stretching and simple warm up movements. It is also important to make sure that the muscles don't get cold - put on your sweater!

From a natural life to friluftsliv

– about the long history of mankind in nature

BY KLAS SANDELL

The northern tip of Lundö

The kayak is resting

The tea water is boiling as I straighten the pan over the fire. The sun's warm evening light lies, as if painted with a thick paintbrush, over the skerries of the archipelago, the junipers and myself. The kayak that carried me here is resting close by. The day has been warm with a clear sun, it burns a little under the eyelids when I close my eyes. The ledge I'm sitting on has also absorbed the sun's heat and gives it back now when the cool of the evening arrives.

My little wind shelter is well tied down, it's a little vulnerable if the wind changes. The fireplace is built of loose stones and old seaweed so as not to damage the rock. I add a bit of driftwood to the embers and the flames spark up again. In my wooden cup the black tea surface reflects the evening sky. I linger by the fire. How many thoughts have not been thought in the light of the fire's glow! Maybe it is the ancestral connection between humanity and fire that make us today, through friluftsliv in our free time, in education and youth work, want to sit by camp fires.

Homo sapiens

The connection between mankind and fire is relatively recent compared with the history of the earth (about 4,600 million years). The oldest organisms appeared about 4000 million years ago but for example the dinosaurs had their peak only about 100 million years ago.

The human race that we belong to (*Homo sapiens sapiens*) is considered to have replaced the Neanderthal humans here in Europe about 40,000 years ago – 40,000 years! But a long, long time before that, the ancestors of humans used simple hand tools and for at least 500,000 years fire has been used (even if you weren't able to make it yourself).

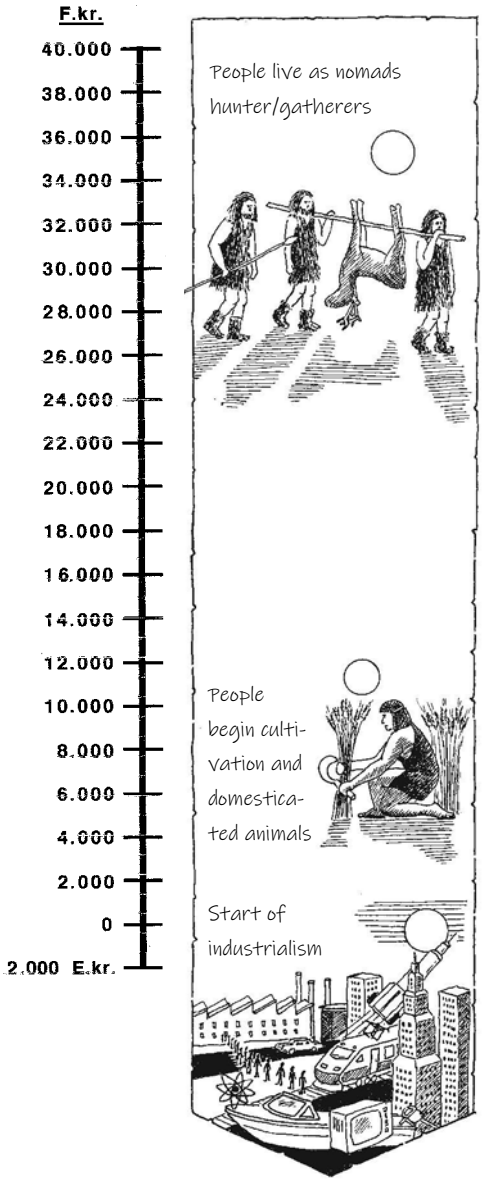
We can, to make this 40,000 years more easily understood, imagine our history as a measuring tape 4 m long. Take a stick from the forest 4 m long. Let each centimetre represent 100 years and every metre 10,000 years. The birth of Jesus is 20 cm from "today" and the turn of the century, 1900, is 1 cm from "today". Now imagine 10 to 15

Time walk

(to walk in the past through to the future)

You can experience the perspective of time and mankind in the Swedish landscape in the following way: split a larger group into smaller groups (4 to 8 participants). The walk starts 10,000 years ago. Move along stealthily like a hunter/gatherer and try to imagine how it would have looked here at that time. After a long walk gather the group and ask each person explain what they have seen. Celebrate coming together again with song and music. Everybody makes/finds a musical instrument. Together you play "stone age music". The walk continues forward in time, in an agricultural landscape. Search for a tool that could have been used during this time and demonstrate its use. Next stop industrialisation, it's just a few steps away. Which is the greatest invention? The groups show, together with their members (without words), the most important invention. Continue walking into the future (100 or 500 years). Discuss what you think it would look like then. The results are formulated as a headline, for example "tourist trip every day to the moon", "the holiday village on the bottom of the ocean - a success". Conclude by discussing humans in the landscape.

Reflection: The time perspective in the walk demonstrates that our own time is very short. Discuss the change of the landscape, how humans affect the environment, both in the past and in the future.



such sticks one after the other (40 to 60 m) then we get an idea of how long fire has been used. With this relationship between time and distance, if one imagines the beginning of the earth being in Gothenburg, with "today" in Stockholm and the dinosaurs existed 10 km before Stockholm.

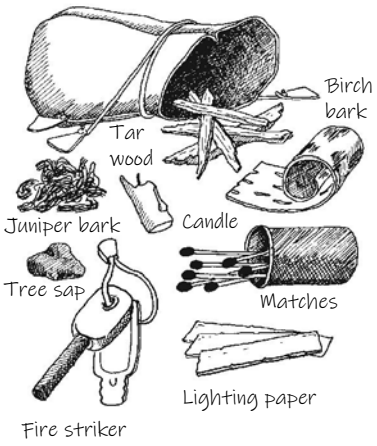
Sweden

If we limit the perspective to Sweden then the last inland ice didn't disappear until about 10,000 years ago. Hunters and gatherers followed the quickly receding ice. Some farming is thought to have come to Sweden between 4000 and 6000 years ago (about half a metre before "today" on our stick). In the northern part of the country farming started much later. In the long stick's last centimetre (100 years) we have moved from a society where 8 out of 10 Swedes lived in the countryside to a situation with 8 out of 10 Swedes living in urban areas. Even if the urban areas are small it is still the case that more than half of the population live in three cities and 15 towns. As late as the start of 1900 half of the workforce were engaged in forestry or farming, hunting and fishing. Today it's only a few percent. At about the same time as the number of city dwellers became more than those living in the countryside (about 1930) immigration to Sweden became greater than the emigration. From the middle of 1800 up until 1930 1.5 million Swedes left Sweden due to poverty and an overcrowded countryside.

Just a few generations ago it was normal to live in the countryside and work directly with what nature could provide through farming, forestry, hunting and fishing. Today the norm is that one lives in the city and hasn't got contact with nature other than through food in the grocery store and programs on TV. The exception is when you, like I have just done here on Lundö's nort-

hern tip, come out for a short visit to live the friluftsliv.

It is no wonder that we sometimes feel rootless and have a difficulty harmonising the effects of what we do with the rest of nature. Seen over a long time perspective it is no wonder that we are drawn to the campfire. For centuries that's how people have lived their lives.



To master nature?

The idea of progress.

Mankind's relationship with nature has always been problematic. This was also the case for the hunter gatherer people who followed the animals and the seasons and certainly considered themselves as a part of nature. With the help of myths one tried to make the relationship with nature understandable. When humans became farmers and lived permanently in one place, then people began to separate more clearly the wild from the tame (natural or cultivated). But respect for mother earth and dependency on the fruits of the earth were still very clear.

During the 1500 and 1600's modern natural science was created in Europe, leading to a belief in progress and a more mechanical view of nature (nature as a machine). It's therefore only in the recent centuries that the humans seriously believed that it is possible to dominate nature on a large scale. By understanding the laws of nature people were able to make them work to their advantage. Natural science made it possible for many inventions (the steam engine, the spinning machine etc.) and society changed quickly. More and more people left farming, became workers in industry and moved into the growing cities. Improved hygiene, increased food production and medical progress meant that the death rate (at least amongst children) decreased. The population increased. Europe's over population resulted in emigration to North and South America.

Industrialisation (as this process is often called) spread from the colonial powers of Europe mainly to America, South Africa, Australia and the rest of the world. Europe needed many raw materials for factories (like cotton and rubber), for consumption (for example coffee and tea) and also new markets for its products.

This development still continues across the whole planet. You can for example wonder which routes the black tea in my wooden cup has travelled before I drink it. Of course, it feels good that it is environmentally and fairtrade labelled. Thanks to industrialisation many people have a higher standard of living than was possible previously. In the modern welfare state, such as Sweden,

Man and fire in the past and now

(about tinder and firebags)
Making a fire when the weather is not the best requires training and dry material. By having a "fire bag" in your luggage you have the possibility to make a fire even when the weather is unfavourable. It can contain for example juniper bark, birch bark, small twigs of resinous wood (see resinous twigs and stumps in the chapter "Deep forests", page 120) a candlestick and dry matches. To sew your own "fire bag" (out of leather or material) and find new tinder material are suitable activities for lazy summer days.

Reflection: Here you also encounter scent (from juniper and resinous twigs) and manual dexterity by chopping or slicing small sticks and by sewing.

Bed warmer

(about placing warm stones in the sleeping bag)

Sometimes your sleeping bag isn't warm enough. By bringing some warm stones into the sleeping bag the temperature can be raised. Place the stones in your inside-out socks so that the sleeping bag doesn't get dirty. The stones cannot be too warm, then they could cause burns. You should be able to touch them with your bare hands. You can also use warm stones to dry your shoes. The leather in your boots can be brittle. A rule to remember this can be "if the stones are too hot for your hands then they are also too hot for your boots". You may need to change the stones after a while as they cool.

nearly all children survive and there are no economic advantages to having a large family. At the start of 2000, there was all reason to wonder if we are on our way into a "late industrial" or "post-industrial" society where globalisation, mobility, multi-culturalism, service industries and information are important characteristics. We are as dependent on our relationship with nature as earlier but our resources, risks and uncertainties look very different from before, when we were hunter gathers.

Friluftsliv – a child of industrialisation

At the start of the 20th century rapid industrialisation and movement of people to the cities and urban areas resulted in an increasing interest in free time and physical activities. In the beginning it was the wealthy who showed interest in the field of friluftsliv and nature tourism. After a while, as the standard of living increased, the decrease in working hours and the legal right for employees to take holiday (from 1938) it was also possible for the wider population to be able to use free time.

Friluftsliv was both a product of and a reaction to growing industrialisation. The groups that in their free time sought to be in nature were strangers to the country dwellers view of nature. The farmers landscape was a working landscape (the "birch bark forest", the "timber forest", the "bird forest", the "berry forest") to live and work with.

BJÖRN TORDSSON

Tourism, recreation and friluftsliv slowly established themselves as important economical and regional sources of interest and employment.

The tourist organisation, Swedish Outdoor Association, the scout movement etc. are all children of this wave of interest in nature among city people. Friluftsliv was seen as part of a good upbringing for children and youth. It both strengthened the nation as a whole and improved health, stamina and well-being of the individual.

Friluftsliv was seen as a healthy counterbalance to the unhealthy city life and its risks to both body and soul. Today, most of us live in an "out of the wall society". All our important connections to nature's cycle come "through the wall" with the help of water pipes, electrical cables, sewage pipes and ventilation ducts etc. At the same time we are more than ever dependent on our relationship to nature being sustainable. In order to change the direction of our lifestyle to a more sustainable one, we need to have our own relationship with a living natural and cultural landscape. One of body and mind, borne out of genuine experience in the natural world. Otherwise, it risks being a short-term trend, with empty words or a naïve nature romanticism.

Where is nature to be found?

In environmental discussions and in friluftsliv circles we often talk about "nature". But what is "nature", where is it to be found and how do we get in contact with it? When people were hunter gatherers they followed the rhythms of nature, its seasons and the migrations of animals. To fit in with this was a survival strategy. We can say that

all of this was nature. The human beings were a part of the whole and there was no sharp distinction between nature and culture (man-made). In connection with the start of farming and becoming sedentary, the division between nature and culture became clearer.

We ended up with "wilderness", "wild animals", "savages", "weeds", etc. that can be contrasted with "cultivated land", "domesticated animals", "civilised people" and "agricultural crops".

> We didn't see the great prairies, the wonderful undulating hills and the winding streams with their dense undergrowth as wild. Only for the white man was nature wild and only for him was it filled with wild animals and wild people. For us all that was close and well-known. The Earth was mild in giving of the Holy Mystery's blessings.
>
> LUTHER STANDING BEAR,
> LAKOTA INDIAN

In the modern industrial and urban society, it is questionable if any area can be called "natural". All places, animals and growing things are in a noticeable way affected by what we humans do and what we have done. Is there any nature at all left? Yes, but it is hard to see on the map or to point it out in the landscape. If by "nature" we mean things that humans are not consciously driving and controlling, then nature is present in different ways in most things we do and in most places we are. For example, a rumbling stomach, a heartbeat, the photosynthesis of a house plant, the rabbit skipping in the forest edge, the magpies building a nest, the wind and sound and the light from the stars.

But at the same time it's obvious that the "natural" is more common in certain places and the "cultural" is more common in other places. Seen as a scale it can range from most natural in Sarek's mountains and our virgin forests to the less natural that we find in parks and classrooms.

Similarly, from the closeness to nature felt on a kayak trip in the outer archipelago in the autumn to the difficulties finding "nature" in a commercial camp site. But even at the busy camp site nature is close by if we can hear the noise of the trees, see the grass striving for the light and really experience for example our own muscles cooperation and the drop of dew glitter in the morning light. To meet nature is just as much about being able to be perceptive as to seek "wilderness".

> Nature is in the balance. But still there is some nature left. We have for example dust mites in our flat.
>
> TÄPPAS FOGELBERG

When we do friluftsliv we try, as a rule, to find areas where nature is as "free" as possible. Places where the ground, the water, the animals and the plants look, as much as possible, as they would without human intervention. We humans are a part of nature, whether we like it or not. But we have to be reminded! It is therefore important that we guard the areas of relatively free nature and at the same time are in tune with the closeness of nature elsewhere.

Black polish

(about using the fire as an artist)

Making an amulet or a walking stick is a joyful occupation when you're sitting by the fire. For the amulet you need a fresh piece of wood from a deciduous tree with the bark removed. Hold the wooden piece over the fire until the outer layer has become burnt (not just sooty). Scrape away the burnt layer and hold the piece over the fire again. Repeat this until the wooden piece has become totally blackened. When you scrape for the last time polish your piece of wood with wire wool. Finally, you grease the wood (using for example a little food grease) then you can polish it with a material cloth. With a knife you make beautiful patterns in the black wooden piece. The white wood will appear and make nice contrasts. The addition of a leather string to the amulet makes it into a necklace. If you want to create larger things, a walking stick is an alternative.

Reflection: Sitting round the fire many thoughts welcome and it's important to sit there in peace and quiet. By using the fire as a helper to make something useful you also learn respect for it, at the same time you get some outlet for your creativity.

Keeping warm

(about protecting yourself from the cold)

While sitting around the campfire you sometimes feel cold on your back. Place a newspaper under your jumper and you will have good insulation. The newspaper can also be good in the sleeping bag if you are cold or in a plastic bag as a sit mat. Remember that a big fire drives the heat upwards. Because of this cold air streams in and it becomes cold around your back. A smaller fire makes the air exchange less severe and therefore the temperature more pleasant, even for those parts of your body that aren't facing the fire.

Take care not to have shoes or boots too close to the fire and not to use wood that spreads sparks. The sparks can burn holes in the clothes

Reflection: Having the fire at the centre you can link knowledge with reality, for example chemistry, physics and the environment.

As teachers, day care leaders, nature guides, child-care workers or youth leaders we often have an "egoistic" interest in having sufficient access to nature to be able to provide a good programme and reach our pedagogic aims. We need good access to at least semi-natural areas even in the cities (parks, edges of rivers etc.), as well as nature rich landscapes a short distance from town and untouched landscapes further afield.

When this is threatened, for example due to "filling in" of green spaces in cities, building houses where it was once grass or trees, or when building new roads makes it harder to reach open spaces, then there is a reason for us to protest loudly. Traditional protests are often more effective when carried out by those responsible for children and young people. As a final resort one has to consider the use of non-violent civil disobedience.

The wind increases – a breaking point

Our senses

It has become darker and a little colder where I'm sitting by my campfire by the shore of Östersjön. I carefully put another piece of wood on the fire and stretch - one gets a bit stiff from sitting still. The only sounds that can be heard are grasshoppers strumming, the fire sparkling, the lapping of the waves and every now and then birds calling. These are sounds that our fore-fathers would also have listened to during the long development of the history of mankind. Among other things, it is so I can listen to the birds and the waves that my ears have been shaped by thousands of years of continuous selection. "Natural selection" gives individuals that are most suited for a particular environment a better chance of survival.

I re-heat the tea again. My hands are lit by the light of the fire. It is for these things that my hands were created.

It is for work and keeping fires, picking herbs, handling the stone axe in the hunt and looking after children that my hands have developed.

We use our hands to do lots of different things today but they are still the same hands. My eyes, that are looking into the fire, my nose that can smell the smoke and my mouth that is tasting the tea, have developed to work in the best way for a hunter, fisherman and a gatherer.

The foot's ability to react to the ground has developed to allow us to traverse the terrain, maybe in darkness, maybe whilst stalking an alert animal.

We do not have much use for our "foot sense" today. But, of course, it was a special feeling, and a reconnection with my origins, when I walked barefoot on the cliffs. Other senses such as smell and hearing, once essential for survival, how do we use them today? They seemed to have become numbed by the modern way of living. Maybe background noise and emissions will make them unnecessary and a luxury item that only results in allergies and trouble.

Are we becoming beings that never see the beautiful patterns of lichen on the cliffs or the shape of the landscape that help us choose the best route? Are we being developed into beings that cannot see how the skerries'

formation points out when one should be careful to not to run aground? Are we becoming beings that only hear the many watts shouted in our ears, tired of background music? Beings that only see the cool enough flicker on our screens?

Beings that neither hear when the spring leaves are unfurling or when the autumn leaves are falling to the ground? Beings who don't see when the raindrops run down the grass stems or when the roe deer stands and looks at us from the edge of the forest? It's not by accident that there is a big pedagogic interest, both in Sweden and internationally, in "experience based knowledge", "knowledge of the landscape", "outdoor pedagogics" etc.

Indian leader

There is an old tale about an Indian leader. He felt sorry for his people who had to walk barefoot on the hard stony ground. Therefore, he decided to lay mats and skins over the ground in his kingdom. But before doing so he sought advice from a wise man. After reflecting the wise man advised the leader that, instead of covering the ground he should create covers for the feet – and that is how shoes came into being! The wise man said it was better to modify the human to suit the nature than the other way around.

Is the urban culture today, with ever increasing noise and commercialism, about to put 'carpets" over all the ground - so that we cannot see, hear or feel what's underneath? Noise mats, emission blankets, carpets of rubbish and asphalt mats are spreading out with a terrible speed. Are we trying to modify nature for the human being's short-sighted needs? What sort of human is it about and what are the needs?

Mankind at breaking point

The flames in my fire are starting to die down. The wind has increased and has turned. I go and check the lines of my wind shelter, tighten them a little and add a heavier stone to one line. It's going to be a windy night.

Even though the summer evening is light I can see the starry skies above me as I step away from the fire. How can one expect people to have perspective and understand their place in the web of life or to plan for a future, if they can't regularly see the starry skies?

We humans are at the breaking point. We need to look to the future and make the right choices. Mankind has always affected his environment - yes of course, she is part of it. The natural resource problem is nothing new in the history of humanity. But, we have never been so many people as today. We have never had a fraction of such strong equipment to change our surroundings as today: new chemical substances, nuclear power, gene technology, ever faster communications, data techniques and mass production.

That together with a new, feelingless and harsh view of nature threatens the very existence of mankind on earth. Mankind is, after all, a part of the circle of life on earth and dependent on it.

You and I

Those of us who are not so poor that we only have to think about making ends meet should consider our part of the responsibility for everyone's future. The greatest excesses against an ecological, social and economic sustainability have their roots in our decisions. Most of the technical knowledge,

Painting like the Vikings

(about using nature's colours)

Natural pigment can be created by crushing coal and chalk (black and white) or by crushing yellow and red mud into a very fine powder in a mortar. Pulverised bark can also be used. Alternatively, you can buy ready-made pigments in different colours of the Earth. As a binding agent used cold-pressed linseed oil.

Let all the participants find a stone that feels personal and that they like. On the stone there should be an area to paint. Then demonstrate which runes were used in different time periods and talk about rune scripts. Let each person paint their initials on the stone with rune script. You can make the painting tools yourself with a little bit of fantasy from sticks, moss, leaves etc. The fingers are also good, but be careful that the colour ends up where it supposed to.

When everyone has finished their stones place them in a circle in a beautiful place. The participants stand in a circle around the ring in the same order as the stones and the different, personally chosen, stones reflect the group. Contemplate and discuss the different stone friends. If possible the circle can be left as a sign that the group has been there. They can also stay for a number of days and be removed later.

Reflection: This provides an opportunity to talk about or read about the Vikings and their journeys.

The ground rules for an environmentally sustainable world economy are quite simple; the climate has to be stabilised, the ozone layer in the stratosphere must be protected, the earths forests must be replaced, the Earth must be protected against erosion, the biological quantity that remains must be kept and the traditional balance between births and deaths must be restored. As this gives continued security, this new society will become much more attractive and it's needs met then the short-sighted "use and throw away"-society that we are living in today.

LESTER R. BROWN

political power and industrial methods are also things we can affect.

Part of industrialism gives us a higher quality of life, whilst other parts risk our extinction or give generations to come problems for thousands of years. The hunter gatherer is suddenly standing with nuclear weapons and penicillin in their hands. What is she going to do now?

It is becoming more and more evident that there are two main directions for us humans to choose between. Sometimes it can be difficult to see the difference between them, sometimes the road signs are misplaced. But the two routes are clearly so different. The pivotal decision is what relationship we have to nature, to the Earth. It's not about choosing between a high standard of living with poisoned lakes on the one hand and shacks with birdsong and high infant mortality on the other.

It's about choosing what we really believe we need, in terms of both technology and resources. It's about developing a lifestyle that we can defend to future generations and to people who are poor, both at home and in less developed countries. It's also about choosing what we must stop using and align ourselves with the overarching goal; life's continued existence and its diversity, in the long term.

The earth as our bubble, full of life
To responsibly live in the world as a participant – a co-actor

The earth as a clump of resources.
To view the earth and life as a spectator - a consumer

Different Frilufts styles and Friluftsmotives

The swoosh of the wind and the roar of engines

But why sit and think about the world's troubles and problems on a skerry in Östersjön? I am out living friluftsliv and surely should be relaxing instead? The soft contours of the cliffs are shown as a silhouette at dusk. Soft, flat contours that have been created by the sliding of kilometres thick ice sheets with frozen stones.

Fewer birds are singing now. The sound of the waves has increased. When the strong wind puffs come it is like a big bird flying through trees and bushes. All sounds seem so close at dusk. Suddenly the sounds are ripped apart. An angry buzzing is heard. It's approaches quickly. A racing boat is jumping in the waves. Those sitting in it see my fire, raise their beer cans and wave.

Lucrative business

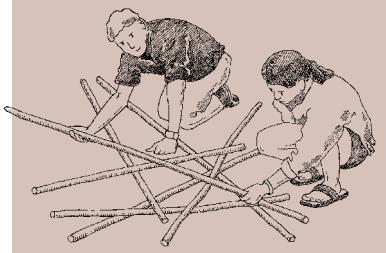
Contact with nature is becoming in short supply, just like silence and the smell of autumn leaves. As soon as there is a shortage of something it becomes possible to earn money from it. Leisure time, nature tourism and friluftsliv are also big, important and expanding business areas. Employment opportunities are important for the travel agents and equipment shops, just as for the communes in the countryside as is the balance of payments in poorer countries.

But friluftsliv can be so many different things. You don't get any feeling for the "Earth as a bubble shimmering with life" if you race forward in a speed boat. At the same time there are strong forces that want us to do just that sort of friluftsliv, with motors and lots of expensive and synthetic equipment. Apart from equipment, friluftsliv is more and more about also selling the experience; canoe safaris, snow scooter raids, heli-skiing etc.

An important question concerns phenomena such as climbing walls, roto-moulded kayaks and adventure programs on TV that can beckon children and youth (and adults too) into nature. Nowadays there is increasing interest in adventure tourism and outdoor sports. To a large extent this could be seen as something positive from a friluftsliv and outdoor pedagogic perspective for nature contact, meaningful leisure activities and regional development. In Sweden we still have rather a lot of space for all types of friluftsliv in nature, compared to the situation further South in Europe.

The proximity to nature and awarenes

In today's friluftsliv there seems to be a fixation about equipment. Our focus on being close to nature and ecologically aware mustn't stop us from accepting that it's difficult to make, for example, rain clothes out of natural materials. However, how many rain clothes haven't been discarded too soon and replaced by the "latest" version? And how many people have not replaced the meths stove with a gas powered stove even though they didn't need to? Adventure and gear fixation demands more awareness amongst teachers, leaders and organisers so that the core values of friluftsliv and outdoor pedagogics are adequately represented.



Pick up sticks

(about co-operation and maths)

Gather a pile of longer sticks (younger trees with no branches) or borrow some sticks that have been placed for making timber (don't forget to put them back after use). The participants are split into smaller groups (4 to 8 in each). Two people from each team work together to take away a stick without any of the others moving. If any other sticks are moved then it's the next pair's turn. Keep going as long as there are sticks left or until a certain time is up, after which you count which team has the most sticks.

The sticks can also be used to practice maths. Each group places its sticks in a line one after the other. Measure how long the total distance is. Which sticks are the longest? How long is the longest/shortest? Place them in order according to their length. Choose a stick to show to the other group. Then see if they can find a stick exactly the same length from their pile. When they have agreed the sticks are measured. It is exciting to see which group is closest.

Reflection: Here your train motor skills, cooperation, tactical thinking and mathematical terms.

What lies where?

(about a game practising knowledge of species and memory)

The squirrel is a quick climber that doesn't always remember where he's put things.

The participants are squirrels and are split into similar sized groups (4 to 6 in each group). Each group stands in a line next to each other. About 5 to 8 m in front and behind each row of participants a paper bag is placed. In the bags in front of the line you placed different leaves (for example birch, maple, oak, rowan, elm, willow). Everybody should see what is placed inside the bag. The participants in each group get a number (1-2-3-4-5-6). The leader calls the name of a leaf (for example the maple) and a number, for example 3. All the number three's run forwards and fetch the maple leaf from their paper bag, run and place it in the paper bag behind the line. After that the aim is to return to your place as quickly as possible. The leader then calls a new leaf and a new number. Next time the leader calls maple the aim is to remember where that leaf is lying.

It should then be moved from the paper bag behind the line

▶

But unfortunately, commercialism, motorisation and the use of environmentally damaging and un-natural materials don't only risk preventing the possibility of friluftsliv that's close to nature. Friluftsliv and leisure time are in themselves significant sources of environmental damage today. For example the exhaust from speedboats and snow mobiles, widespread use of non-recyclable resources in clothing and in different types of equipment and not least the environmental problems associated with all the car and plane journeys associated with nature tourism and friluftsliv. Friluftsliv today is most certainly part of our "high mobility" society.

But how should one live? Should we become goat farmers far out in the forest and try to be self-reliant, so as not to become an environmental thief, or have a bad conscience for the future and developing countries? No, for most of us that's probably not a good route to choose. But if we are worried about natural resources and the environmental problems of our time, it means that our lifestyle has to be a compromise! My kayak is home made and mostly of natural materials but there are probably many synthetic materials in my luggage. But, conscious compromises are at the same time an important starting point for societal change. My kayaking trip in the archipelago is an important source of inspiration for this.

If we "burn up aeroplane fuel" as a nature tourist it should be done knowingly!

It is a responsibility that we, who can travel for pleasure, have to bear. Sure, leave the tourist areas but make sure you are well prepared and have humility and awareness. It's better to take fewer longer trips with good preparation. When travelling in other cultures try to travel as simply as possible and use the many local contacts that exist there.

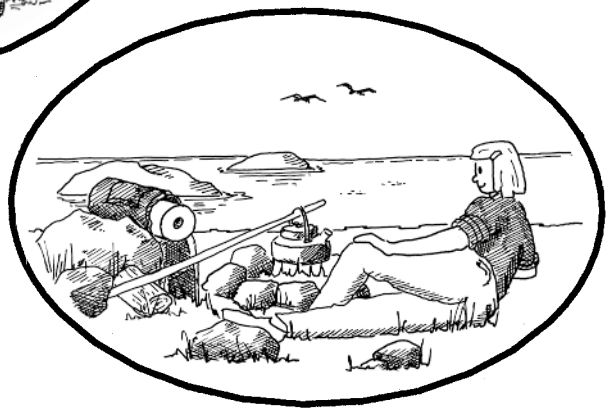
> Man is not the Lord of the universe, she is just a centre-point, a friend, a receiver, a user. For that reason she has to live in harmony with the universe and adhere to the laws of nature, of morals and mystery.
>
> If these laws aren't followed then it's the people that suffer the most. Africans have reached this conclusions through long experience, observation and reflection.
>
> JOHN M'BITI

The motives for friluftsliv

If we look back at the history of friluftsliv then we reach two main motives as to why we should pursue simple living in forests and the countryside. One perspective is that friluftsliv is seen as a means for different purposes (a method), on the other hand it can be seen as an aim in itself. To see friluftsliv as a method has been the principal for different groups of teachers and leaders in schools, childcare and various organisations. It has been used to improve health, personal and social development, teambuilding, knowledge of nature and the environment, as well as a backdrop for other subjects. Most of the recommended activities in this book take this perspective.

But it is also important to remind ourselves of the perspective that friluftsliv (and especially being at one with nature) can be a goal in itself - a quality of life that the modern industrialised and urbanised society

Friluftsliv as a method



Friluftsliv as an aim in itself

cannot offer. It is this perspective that has sometimes been linked with those who are critical of society, a desire to see friluft related qualities in everyday life.

This is about material simplicity in combination with emotional experiences of beauty and the wish to be part of a greater whole. This often touches on existential questions about who we are, why we are here and why life is worth living.

Different friluft styles

When thinking about different ways of enjoying friluftsliv it is helpful to consider what is "typical" in different styles. In reality we mostly combine styles according to our personal preferences and each situation. But the balance between the styles is still of crucial importance when it comes to encouraging participants as well as considering the environmental and pedagogical consequences. As with all teaching, a conscious decision is particularly important.

Three friluft styles are presented below building on different views on the landscape, nature and the development of society. It is important to note that no one style is "better" or "worse" than another. However, the different styles each have advantages and disadvantages, which the outdoor teacher must be able to use to reach her goals. For the goals that this book wants to present the

back to the bag in front of the line. Points are given to the people who come first, or to all on a falling scale. If you have four groups then the first team gets four points, the second three points, the third two points and the fourth team one point. The game continues for a while so you really have to think (or take a chance) where the mentioned leaf lies.

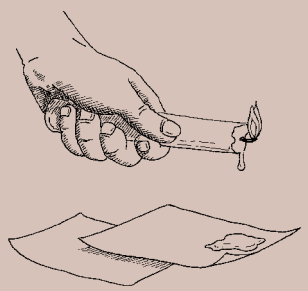
Reflection: The game can be varied in many ways. You can take different plants or other natural objects and also different colours, shapes or "rubbish" (the name of the game is then changed to be the "rubbish picking game"). The participants have to concentrate to remember what each plant or object looks like, where it's lying and react when they hear their number. This exercise can also be used for example in learning a language. If you want to make it more difficult place the bags further apart. If there are many in the group you can do it in pairs. They then have to hold each other's hands or link elbows. Then it's also about cooperating and running in the same direction. Not always easy!

Reused candle

(about wax paper tinder)

When making fires in damp weather waxed paper can be of great help. Take a kitchen towel or a newspaper, fold the paper so it becomes 4 to 8 layers thick. Tear or cut it into smaller bits 4 x 5 cm and drip wax from a candle onto the paper. Alternatively, make small paper rolls and tie them with a string, dip them in melted wax (candle stumps are melted in a jar that is standing in hot water in a pan). Work over a protective cover or newspaper so as not to get wax everywhere. Candle paper doesn't get ruined if it gets wet and it's good to light when it's difficult to find dry tinder for the campfire. Tear a piece of the paper then the flame will catch more easily.

Reflection : Here you get a chance to talk about the art of making fires and how important it is not to use lighter fuel (risk of accidents). It is also exciting to work with lighting candles and it's important to be careful.



"active dominanation" style is seldom seen as a good one.

The "Active domination" style

In the active domination style it is the activity that is in focus and there is a more or less conscious ambition to try to dominate and conquer nature. Here the natural landscape

is seen as a "factory" for production of different beneficial goods, for example as an arena for different outdoor activities. Friluftsliv in this style leans towards the experience industry and more or less a specially designed adventure land. If the place in question (topography, climate etc.) doesn't fit the activity then the countryside is often changed or built indoors. We can see the latter in for example adventure swimming pools, climbing walls, indoor skiing etc. Trends often change quickly and the nature tourist and the outdoor adventurer choose new travel destinations and activities as one might "change a shirt". Taken to the extreme in this style we have simulated "frilufts" activities; virtual or enhanced realities and computer games with for example skiing, surfing and fishing. At this point, you have definitely disconnected the frilufts activity from the local landscape and the unpredictable aspect of nature. The connection with nature - "the uncontrolled" which is greater than humans or what humans have created- is virtually eliminated. We have slowly gained control of most of the forces of nature: the weather, the seasons, the topography, the water level, the fauna etc. At this stage we have long ago left what for most of us is called "friluftsliv".

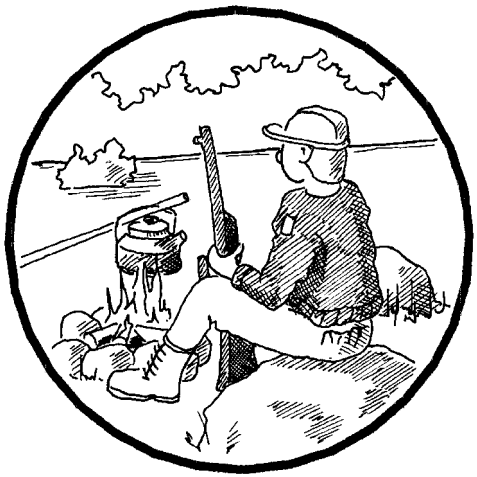
An important aspect of this strategy is the self enhancement process that results in the grouping of activities and practitioners quickly leads to a problem, for example littering and conflicts of interest as at a ski venue that often needs even stronger control and organising. An image of this frilufts style could be that of a person in between hang gliding and snowboarding, putting on their Gore-tex jacket and using a plastic sit mat, cooking a freeze-dried meal on the gas stove. In the most extreme form of this frilufts style the meal is not included at all but is eaten in a hotel or provided by the travel company's staff.

A strength of this style from a pedagogic perspective is that it is often considered to be easy to do, attractive and exciting. It is also easy to show in media like newspapers, films, the internet, advertising or on TV. Through competitions and extreme situations this style often becomes exciting, even for those that are not participants but just hear it second hand.

A disadvantage – apart from the resource and environmental aspects - is of course that as a leader you are constantly having to provide new and exciting activities to keep the interest up. It can also be difficult to get close to nature if you don't have very small groups. Safety and technical instruction are obviously important and can be time consuming for the leader.

The "active adaption" style

In the "active adaption" style it is the nearby landscape ("local" or "regional") that forms the basis for being in nature, including "friluftsliv". The starting point is that you fit into the local character of the landscape,



the seasons etc. But, you adapt yourself in an "active" way which may means that you change and use nature. The landscape is seen in principle as your "home area" where you work and have your identity, and friluftsliv becomes one of many aspects of the multi-purpose-use of the land. On the one hand this means that it's a broad, so called multi-use of the landscape, where different types of usage, such as forestry and agriculture, but also, nature experiences and leisure, co-exist in the same landscape. But on the other hand it can reduce the chances of those coming from outside using the landscape – unless you are part of a local established group.

There is a lot of focus and interest under the headings of "eco-tourism", "sustainable nature tourism" etc. and it often involves an active use of nature: handicraft, hunting, fishing, charcoal burning etc. At the same time it's important to note the risk of conflict between traditional "right of public access" (allemansrätten) based and therefore cheap friluftsliv (private or in an organisation) and the need of a growing number of "nature guides" and "nature leaders" to make a profit for their business. An extreme illustration of this frilufts style could be of a person sitting on the home-made woollen sit mat, made using wool from the neighbours sheep, by the campfire, enjoying their juniper berry tea, whilst waiting for the freshly caught fish to grill and the homegrown potatoes to cook.

This frilufts style has clearly many pedagogic advantages. Not least for the obvious connection to nature that can be demonstrated by the fact that food, water, heat, protection etc. come directly from the landscape. At the same time this frilufts style relies on good relations with the land owners and you typically need a lot of time to make best use of this learning opportunity. That a simple, close to nature and tangible friluftsliv often involves some hardship in the form of exertion, cold and patience, is also a challenge.

What's in the ring?

(about training knowledge of species)

The participants stand in a circle. Each participant gets a number 1-2-3-4-5-6 (make a team with a maximum of six participants). When each have been given a number there will be three of each number (if you are 18). Inside the ring place e.g. different tree leaves. The leader shouts "maple" number three! All the number three's then run around the ring and return through the gap they left to fetch the maple leaf (the leaf is then replaced). Next time it could be birch number five etc. The same leaf can be repeated many times.

Reflection: Here you teach and improve knowledge of the species, the ability to react and not least getting warm by running. To make it extra exciting you can get points if you come first or in the order you get there on a falling scale (if you have four groups then first team gets four points, the second three points, the third two points and the fourth team one point). To ensure that everyone can get a leaf (it's important to fetch them correctly) you have three leaves for each species.

Three dimensional map

(about practising geography knowledge)

Split the participants into groups with a maximum of 10 in each. The task is to, from a map, build a country or a landscape in nature using natural material. Mark the border for example with a rope on the ground (a flag string). The sand pit of a school is also a good place to do this. Each group explains their country and describes different things to see. Alternatively, the groups can be split into smaller groups and each groups gets its own subject area.

The explanations can also be seen from a bird's perspective or from that of a tourist on the bus. Other variants are to describe places with music and song or through pantomime, asking the audience to guess where you are in the country.

Reflection: By working three-dimensionally you get through your hands a clearer feeling of the landscape's forms and theoretical knowledge. Cooperation, creativity, storytelling and presentation are some things that are also practised here. The exercise can be made more advanced by choosing not to have a map to look at, instead you use the knowledge of your group and discuss what the map should look like. When the presentation is over you can check it against a real map.

The "Passive adaption" style

Even in the passive adaption to the used landscape style the connection with the local landscape is the starting point. However here it is important only to adapt and not to affect nature at all. We get to kind of a museum perspective, where different local natural and cultural related objects are protected, visited and looked at (National Parks etc.). The interest can be a certain place (for example a viewpoint, a local plant, or a ruin) or greater areas like the mountain above the tree line, beaches, archipelagos etc. But at the same time it is mainly a question of watching and enjoying, whilst having the least possible impact on the wildlife of the area. Often you are only on the short stop visit. An extreme example of this friluftsstyle is of course the idea of the nature reserve, which has in different ways been important since the national parks were established at the start of the 20th century. But it is not a simple matter, since plans for national parks often lead to local antagonism. Local people can see the coming interest in the outdoor environment as a threat to their use of and access to the landscape. A friluftsrelated picture illustrating this style could be the local nature protection organisation on their Sunday excursion enjoying packed lunch sandwiches and coffee from the thermos by the car on their way from a bird hide to a protected wild flower meadow.

An important teaching advantage of this friluftsstyle is of course that it always fits in with "right of public access" (allemansrätten) and as a rule it doesn't need any special arrangement with the landowner. It is also easy to adjust the level of difficulty and exertion to match the group, the weather and your own knowledge. At the same time bad weather can make this style boring for participants if the leader isn't able to change the plan and see alternative activities in the landscape.

There is also a risk that the friluftsexperience can feel passive and shallow if you don't have enough time and if, as a teacher you can't pick up on the tiniest of things and engage the participants in them. The alternative is being very knowledgeable in a certain field (birds, flowers, geology, history) and then you can really convey that to the participants.

Pedagogic direction

Outdoor learning is about conscious choices of leadership style and motives as to why we are doing friluftsliv. Against the current backdrop of environmental and natural resource issues it is important to note

that using "close to nature" materials and methods in teaching can have a strong impact. My "fair trade" bought tea is even ideal for friluftsliv. It sinks quickly and doesn't use a tea bag or a sieve but gets just right strength of tea in the wooden cup, so quickly enough that it doesn't even have time to cool, even in the winter. The kayak that's resting over there on the cliff I built myself out of wood and canvas over 10 years ago. It was only half as expensive as a ready-made one and most importantly, it was fun to build. I hope many others will have the same

At least an hour in the forest

(about getting close to nature on your own)

Nature is often softly spoken and needs attention to be found. Through shorter or longer periods of being alone in the forest (depending on age) you practise your ability to see, discover and experience.

The participants each get a task to find a place where they cannot see each other. There they should sit and watch, it's suggested for an hour. Afterwards gather the group to describe what they've seen. Alternatively, they can do this through drawing, colours or writing to evaluate their experience.

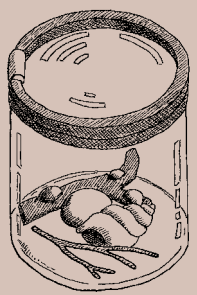
Reflection: Many people do not have the ability to be alone doing nothing. There always has to be something happening, not least there needs to be sound. In this exercise you practise seeing and hearing things that otherwise would have gone un-noticed. By re-telling what you have experienced you then practise expressing your feelings. Young children (5 to 6 years old) also need occasions to find peace and "just be", but for a shorter time.

The little becomes large

(about using a magnifying jar)

Let the participants work with a magnifying jar in pairs. It's an advantage if they have a jar where they can place the items that they want to enlarge. In the magnifying jar the participants make an installation of, for example, objects and animals by the beach. Using this they build the landscape in the large-scale with the help of natural material. Every pair shows the results for the others.

Reflection : By working with small objects that then are enlarged, you get an understanding of different dimensions, shapes and colours. You also see different things that you can share with your friend. By re-telling what you've to others done communication is also practiced.



enjoyment. The woollen underwear that I am wearing is among the most comfortable I have found for use outdoors. I can't normally manage a woollen hat without it itching on my forehead.

Of course, it was good to have a "far from natural" waterproof earlier today. Furthermore, the pot that my tea is warming up in is made of aluminium. In short, friluftsliv is a good illustration of our complex connection with nature. Friluftsliv presents a pedagogic possibility for greater awareness of being in the outdoors and therefore a greater awareness of life. It is a way of increasing knowledge and engagement of how we humans use the Earth and a method of raising deeper dimensions of life. A positive side effect of being closer to nature in Friluftsliv means using fewer natural resources and spreading less poison; being able to play on the whole register of the different outdoor styles (active domnation, active adaption or passive adaption) without viewing the world only as a "supplier of resources".

Maybe the greatest pedagogic strength of friluftsliv lies in the deeper questions of life, experiencing alternative values and in a tangible way of giving us proportions - on time and space in a society that otherwise is dominated by "speed-blindness". It's not least through friluftsliv that we get a feeling for the greatness of the sky, the smallness of the ant, the rhythms of the day, the year and our own body together with it's strengths and weaknesses. On the political plane it's largely about striving for "also change", as shown in the figure to the right on the following page.

> The old Lakotas were wise. They knew that peoples' hearts harden when they are separated from nature; they knew that a lack of respect for what is growing, for living things, soon leads to a lack of respect also for people. So, they always kept their young people close to nature's good influence.
>
> LUTHER STANDING BEAR,
> LAKOTA INDIAN

Friluftsliv for what purpose?

FRILUFTSLIV to get away from every-day life. Get away from a boring living area, a boring school or a meaningless job. The nature is seen as a cheap recreational environment. To make us feel at home because we think that we “have to” we take with us so much of the urban society that we just keep going in the same lifestyle and use the nature resources as before. A friluftsliv that is only an “escape from” (everyday life) but never becomes an “escape to” (nature) or “a striving towards” (a more sustainable development).

FRILUFTSLIV to get away from every-day life but also to gain perspective and get inspiration for societal change. Friluftsliv to get in contact with nature -not only contact with the things we have brought with us. To get in contact with nature as a spirit and a force that we can get to know a little bit better. Friluftsliv that gives perspective and insight about ourselves and our relationship with nature. Experiences in nature that lead to changes in consumer habits and lifestyle. Friluftsliv as an inspiration to change the living area, school and work place.

Maths in movement

(about counting, memorising, running and cooperating)

Place notes with the numbers 1 to 20 on the ground so that the numbers don't show. The participants are split into groups of 5 to 10 in each. Each group has their own set of numbers to work with. The participants place themselves 10 to 15 m from their number area. The aim of the game is that the notes should be placed in order in front of respective group. The first person in every team runs and picks up a note. It is then about seeing if it's a number one. If it's wrong, the note is replaced ensuring that the number doesn't show. When the first person has returned to their place then the next in line tries to find number one. It is important to replace the notes with the wrong numbers in the same place. When the correct number has been found it is placed in front of the group. When all the numbers have been found the participants in the group take it in turns to count to 20.

Reflection: In this exercise the participants practice both movement, numbers and not least cooperation, to remember where the notes lie. A variant of this exercise is to work with length measurements up to 10 m (for example 12 cm, 857 mm, 4 m 93 dm etc) or weight units if you want to for example practice measuring units ahead of a baking lesson (gram, hectogram, kilogram…) in the exercise the theoretical knowledge is transferred to practical application.

Meeting with the Swedish nature- different people's background knowledge and outdoor habits.

What we in Sweden often traditionally define as "friluftsliv" as discussed in this book, is quite an exotic nature relationship seen from a global perspective. The background is the so-called "Linnean inheritance", that for decades was prominent in the Swedish school system. Knowledge of bird-and flower species, as well as insects, fishes and animals was considered to be part of general knowledge.

Outdoor activities that are common in Sweden, for example to hike, paddle and climb in nature for leisure, or seek unusual species, are otherwise mostly common in Western European countries.

In a research project about immigrant outdoor habits as presented in the book "The green sitting room- ethnicity, friluftsliv and the urbanisation of the natural experience" it became obvious that people from different countries have different relationships with nature. For example, fishing was at a common outdoor activity amongst men from Eastern Europe, whilst women from Southeast Asia said they enjoyed picking mushrooms.

An obvious difference in the relationship with nature was determined by whether the respondents came from the city or the countryside. Those who had lived in the countryside often had a very detailed knowledge about nature - but their knowledge was focused on its use. They had not learnt names of plants in general, except the plants used for example in agriculture. It could be about fodder species, fibre species for rope, trees that give craft materials, medicinal herbs etc.

They also had a knowledge about nature and an ecological literacy that was place specific, which meant that when they moved to a different country or landscape, it seemed as if they didn't know anything, although in reality they had been experts of the nature in their former home country.

The more general, scientific knowledge was however more common amongst highly educated people with a background in the city. These town people on the other hand more often had friluftsliv experiences that were similar to Swedes, for example to hike or to go skiing. This is because modern friluftsliv is largely an urban habit. The nature is then seen as a place for exercise, experience and recreation. Urban people have had the time and resources to go out and enjoy nature, instead of working in it daily.

Another obvious division was in the opinions of how one should be in nature and what one should do there. If Scandinavians preferred to hike or to experience more or less extreme activities, then the more common aim of a nature visit for people with a background in the Middle East was to socialise. Their being in nature was described as a party, a break from the every-day life, that was celebrated with good food, good company and games, preferably in nice clothes. Time spent in nature was primarily for a social purpose. You wanted to have a comfortable and beautiful spot and then stay there, eat and socialise. To be out in bad weather and walk far was seen by these respondents as a strange and unnecessary behaviour.

There is always a risk in assuming the Swedish frilufts habits as the norm, presenting the landscape and the biology as the main focus, for example a knowledgeable leader pointing out and naming of species. Maybe the participants don't have the same aim, not the same relationship with nature and are also sceptical or uninterested.

In this project communication became better when the leaders connected with the participants and put aside time for cooking and socialising, as well as focusing on what the participants themselves knew of the nature around and what they describe about the nature in their home countries. All the participants saw nature as a kind of "parlour", a beautiful arena for experiences outside everyday life, but they had different pictures of what you should do in this room. With better communication the sharing of experiences in nature was improved.

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Quick lunch soup

(about making potato and leek soup)

For four people: 4 to 6 potatoes (depending on size), half a leek, one stock cube and 1 ½ L of water. Cut the potato and leek into thin slices, place in a pot and add water so it covers the vegetables. Let them boil till the potatoes are soft. Whip the potato into bits and add the rest of the water. Bring to the boil again, adding salt and pepper. Cover with finely chopped parsley.

Reflection: This soup is easy to make and is enjoyed by most. With freshly baked bread the meal is an experience that you have made yourself.

Weather signs

(about predicting weather)

When you are aware of happenings in nature, then you can predict the coming weather. Here are some tips.

1. Red sky as the sun sets in winter tell you of continued cold. In the summer it predicts dry and warm weather but somewhat more wind.
2. If the sun goes down in a sack it comes up in the black. In other words, if it goes down in cloud then the following morning will be overcast.
3. Sharp and large rings round the sun and moon predict worse weather within a few days.
4. Are the stars small and sharp in summer then the weather will be warm and stable, in the winter it will be cold and clear.
5. If the swallows are flying high up in the sky it will be good weather. If they fly low then they predict rain.
6. If the loon (Great Northern Diver) is calling in the daytime then the weather is worsening.
7. If the ants are lively despite rain the weather is clearing.
8. Lots of evening dew often indicates a sunny day tomorrow.

Reflection: Old sayings often give us information and knowledge that we no longer notice today. They are often about happenings in nature. By learning to see the changes you can also get a deeper interest in nature as well as cultural history.

The value and use of nature

In summary, friluftsliv has (in a wider sense) become an important part of industrial society's relationship to nature. We have also seen that friluftsliv can be very different things at the same time as it connects many of the important questions of our time, such as environmental problems, resource use and global allocation. We have also established that friluftsliv is often presented as a good method for different purposes, but an important undercurrent in history has been its own value – contact with nature as a goal in itself.

But why do we believe in these values (method and aim)? There are in principle two answers to that question. Partly the interest for friluftsliv is "culturally constructed", i.e. something that's created by upbringing, media, pictures etc.; everything from the school national curriculum from 100 years ago with songs about high mountains and walking over dew covered hills, to today's beer adverts with pictures from the archipelago and all the teachers and parents saying that it's so beautiful out in nature. The other main explanation is that our interest in friluftsliv is evolutionary, i.e. we enjoy being in natural landscapes because we were made for them during our long developmental history, according to Darwin's principles.

It is clear that there are cultural elements to our interest in the outdoors when you study history and see how different groups view how and why we should be out in "nature". At a more basic level (for example our need to move our bodies), then of course our evolutionary history is relevant as our bodies and senses were developed in conjunction with the natural environment.

Apart from the growth of friluftsliv and it's motives, this chapter has discussed some different frilufts styles and there is every reason to think about where the boundaries lie for what can be called friluftsliv. A reasonable strategy, for example for a teacher, is to partly try to define it as "core values", but also to take an interest in the bigger picture. As a core value for the work of this book the official Swedish definition of friluftsliv as "being outdoors in nature or a cultural landscape for well-being and natural experiences without demands of competition" was used. And in the bigger picture around this definition we mainly see friluftsliv's connections towards outdoor pedagogics in the widest sense and more specifically towards quality of life, health and sustainable development.

Pedagogics, didactics and leadership

– about didactics and being a teacher or a leader in nature

BY BRITTA BRÜGGE AND ANDERS SZCZEPANSKI

Let nature become a possibility

Knowledge through sensory experiences

In nature we gather knowledge and inspiration. Contact with nature can provide an opportunity for personal development. By reflecting on our experiences of life in the landscape we can consider our fundamental values. Friluftsliv creates sensory experiences that are much more than just techniques. They are all about life!

Friluftsliv creates challenges and creativity, the possibility to solve problems and manage common difficulties. Through attentive and not particularly technical friluftsliv we get can close to nature, forming a basis for environmental engagement. Moving through natural unbroken terrain you get physical exercise that develops both coordination and balance. Friluftsliv also gives a chance for stillness and reflection, a chance to get closer to the fundamental questions. Proximity to nature may help us to appreciate aesthetic forms such as lyrics, arts and music. By walking through the forest, finding a good place to camp and cooking food you may also gain an understanding how previously people used to live without today's creature comforts. We learn to appreciate the simple, but also to enjoy the warm shower when we get home. Friluftsliv can link to other subjects and can support learning of these in preschool and compulsory school, preschool class and school-age educare as well as in leisure organisations. In education pupils are supposed to be offered a variety of teaching environments, methods and forms of expression.

> The goals of the school are that each pupil shows respect and care for both the immediate environment, as well as the environment from a broader perspective.
>
> CURRICULUM FOR THE COMPULSORY SCHOOL, PRESCHOOL CLASS AND SCHOOL-AGE EDUCARE, REVISED 2018

Outdoor pedagogics as a compliment to teaching in the classroom

By widening the learning environment outdoor teaching can complement classroom

A research expedition off course

(about discovering an area)

Find an area with varied terrain. Gather participants and tell them a story that they are participants in the world's most well-known science expedition, on a trip in uncharted waters. You have had problems with the navigational instruments. The result is that you ended up on this beach! Now, it's all about finding out about the area. The expedition members are split into different groups (2 to 3 in each group) all "experts" in their own area:

- The geographer wonders about how the land was created and has ideas about why it looks like it does.
- The archaeologist looks for traces/remains from human activity.
- The botanist can be expert in winter green plants, mosses, lichens and everything taller than a metre.
- The zoologist searches for animals and what tracks they have left.
- The artist describes what they see either with words, shapes or colour.
- The cooks, that know about the expedition members dietary needs, go to see if they can find something edible.

The different research groups now get 30 minutes to search the area. When they re-group they show the other groups what they have found and show them the places where they found something interesting. You can do this exercise in two different ways:

▶

education based on the national curriculum. Teachers and students get immersed in both nature and culture. Holistic understanding and knowledge of how things are linked to each other are furthermore enhanced when all the senses are involved in the learning process. Experiences from childhood (from forests, villages, cities, mountains, beaches or the sea) remain in our imagination - where memories live their own life. We become part of that landscape here and now- the landscape that carries evidence of forces of nature and traces of people.

Nature provides a learning environment whith great variety. For many it is an uncomfortable environment. Here it's important to work from different perspectives, to create both a positive and respectful approach. In schools it's central that the indoor and outdoor learning environments are interchangeable. Outdoor teaching gives you a greater chance to combine bodily movement with conventional thinking.

The term "outdoor pedagogic" is defined in the National Encyclopaedia and coined by the National Centre for outdoor pedagogics at Linköping University (2004):

> Outdoor pedagogics are an approach aimed at learning through interchange between experience and reflection based on tangible authentic experiences. Outdoor pedagogics are also inter-disciplinary research and education fields that amongst others involves:
> - that the learning space is moved out into the society, natural and cultivated landscapes.
> - that the interchange between sensory and academic experiences are enhanced.
> - that the importance of the place for learning is recognised.

The spread of outdoor pedagogics

Outdoor pedagogics today is an acknowledged term both within and outside the school sphere. More and more teachers in pre-schools and schools are understanding the importance of a varied education and of learning in different ways. Research also confirms that an increasingly active intensive teaching environment is positive for health, stress, motor skills and learning. This could be achieved by teachers expanding their didactic tools (what, where, how, when and why) in using different scenarios readily available in the outdoor environment. There is a growing interest in courses covering outdoor pedagogics, both nationally and internationally, and the teaching institutions are recognising the importance of encouraging their staff about learning outside the classroom. There is a drive to find activities that are possible both in the playground and it's local environment. Teachers in the field already have many different ways of teaching and attack angles that are just waiting to be shared. It's all about daring to try new ways of teaching!

Nature experiences

In the natural and cultivated landscape you experience learning with all your senses. The nature arouses your curiosity in different ways, for example the first time you bend down to pick up a beautiful stone or to discover that different types of wood burn

at different speeds. The curiosity can also be stimulating by smelling a butter knife made of juniper wood or by standing on seashore looking towards the horizon. Nature is full of experiences such as sounds, shapes, colours and smells that evoke different emotions. It can offer both dramatic experiences and comfort as well as creating chances for new opinions, friendships and values. The relationship between teaching and learning in the outdoor environment will be developed in the following chapter.

The didactics of outdoor education

A bridge between theory and practice

It is important that schools and other teaching organisations connect theory with practice. In today's schools most of the teaching takes place indoors, often in front of computer screens or through theoretical description. Hence, outdoor pedagogics are important compliments to the traditional classroom teaching - a platform for both the body's need for movement and the brain's need for sensory impression and stimulation. Outdoor pedagogics are important tool to bring the curriculum to life. To do this you ought to reflect on:

- working holistically, capturing the personal well-being and letting the outdoor space become a classroom and a teaching resource that compliments the traditional education,
- to work in teams from a problem based learning,
- to work with all the school subjects,
- to work thematically and across subjects,
- to form a base for friluftsliv in preschool and school.

The Where Question

Pedagogic knowledge isn't just a phrase that can be written in a text or formula. The silent as yet unformulated knowledge i.e. the nursery for knowledge that is carried in our culture, is the knowledge that sits in: the tensing of the muscle, the smell of the apple, the rhythm of the body, the senses of proportions and the richness of language beyond grammar and the dictionary. In this perspective education focuses on the place of learning, the "where" question. It is the physical nature and cultural environment that becomes the inspiration for the knowledge experience. Through the "widened classroom" the outdoor room, you have the possibility to increase motivation and thereby stimulate curiosity and creativity.

> Children should be given the opportunity to develop comprehensive mobility by being able to participate in physical activities and spend time in different natural environments. Children should be able to switch between different activities during the course of the day, both outdoors and indoors and in varying environments (p.10,11).
>
> THE NATIONAL CURRICULUM FOR THE PRESCHOOL Lpfö 18

1. Using a lot of fantasy and feeling the scientists explain what "actually happened" or what they found. The idea is to find your own explanations or names for animals, for example a stone has a certain shape due to a giant bird sitting down every day and sharpening it's claws. The green moss can get the name "soft against the cheek moss" and the artist finds the stump of a tree sculpture.

2. Using as much information as possible and digital techniques and handbooks to work through your area of expertise area.

Reflection: this can be a way of getting closer to nature in a specific area for those who don't have the knowledge this exercise can provide a first insight into natural occurrences. In the first exercise the fantasy and the feelings are let loose, then everyone should have their own explanation and their own names for their species. Everybody then has same amount of knowledge and there is no pressure to be a scientist. Through detail studies you discover similarities and differences. The next step could be that the curiosity has been awakened and one wants to know how things really are related. To make the fantasy variety variant can be a real experience, even for the knowledgeable. It's about experiencing nature from an imaginary perspective, which can make it easier when you want to share your real knowledge. The second exercise means that you have to be familiar with how to use reference books. It may also be necessary to allocate a longer time for the activity.

Nouns, adjectives and verbs

(About practicing language skills)

Split the participants into smaller groups, 4 to 5 in each group. During a one minute period gather different natural objects. When the group is re-united you show what you have found.

After a few minutes thinking time each group chooses suitable adjectives, verbs and nouns for each object that describe it's characteristics and what one might do with it. This is then presented to the others.

Let each person write a poem about the object. Alternatively, write a poem or a story together about each person's object.

Reflection: In this exercise you are practising cooperation, choosing a thing together and looking at it, expressing yourself, finding the right words for colours and shapes, fantasy and creativity, standing in front of others, presenting something you've done together and enforcing what you know about nouns, adjectives and verbs.

Because of this the outdoor room becomes as obvious a learning environment as the rooms in the schools and preschools, the lecture halls, libraries, workshops or physical education halls. Just by "opening the front door" you have the chance to create new perspectives and start a changing process.

Spending time in nature can also be the basis for changing the "indoor room" that mirrors the outdoor room's biological, cultural and aesthetic diversity. It is also important to to make use of the local environments "green refugia" in conjunction with the school grounds. Once you've moved the learning to the school grounds it is easier to take the next step and go to different places in society for education and learning. Examples include the city landscape, parks, farms, water in the local environment as well as outdoor museums, school forests, nature schools and school camps (see the chapter "urban friluftsliv" Page 175).

The What Question

Another didactic question concerns the content of the learning. Interesting didactic questions of importance for learning are: which educational sector can take place outdoors to enhance the first-hand experience? What affects does this have for understanding the concept?

Outdoor teaching encompasses practical environmental knowledge (growing, composting and recycling), ecology, thinking about the cycles of life and sustainable development, education about body and health, aesthetic experiences, a place for reflection and a "text book" in all subjects. The following examples are themes that can be made to come alive through integrating natural science, culture, environmental/sustainable learning, technique and friluftsliv:

- from earth to table – school gardens and farms,
- from pine needles to paper – forestry before and now,
- from bud to compost,
- Water wheels and energy – life in water, lakes, rivers and the sea,
- life in leaves and Earth – small creatures in compost and in cycles,
- new and old techniques in everyday life –food and health, living, fire (use of energy) and psychology,
- friluftsliv and handicraft – outdoor crafts,
- connections to subjects and themes (language, maths, natural science/biology and engineering), culture integration and language development,
- environmental changes, sustainable development and everyman's right.

The How question

The next question is about how teachers educate so that pupils learn and gain knowledge, i.e. the "how" question: how does knowledge in the world reach into the classroom? They believed that learning only takes place at a special time or in a special place is as wrong as to state that learning in the outdoor environment is the only way to knowledge. In all the school and preschool subjects such as natural and cultural science there are many connections to the landscape, literature, art and music. If you move the aesthetic experience to the outdoor rooms a unity is created that brings together different

parts of the world for each person. A didactic connection between aesthetic forms of expression such as art, music, drama, dance and crafts and learning in the natural and cultivated landscapes could result in a more "living" knowledge. By combining aesthetic forms of expression and natural science new concepts are created as well as a new overall picture.

As a teacher it then becomes important to join together different content and subject areas as well as reflecting on how to use them in outdoor environment. From the theme of "our forest" for example, you can tie together the meaning of the forest in the development of society, nature and the environment, forest and ecology, history and religion, maths and technology, craft and handcraft, forest and music, language and fiction as well as health and well-being.

The When question

As a teacher or leader you need to be in tune with time and space and reflect on which learning environments exist and how the content can suit the landscape and the season. This requires knowledge of the place both on the human and the natural science side. It's a good idea to visit the place of learning before you take the group there in order to make best use of it's possibilities and diversity. The changing seasons can place special demands on the leadership.

To know when it's suitable to do different season-related activities and make use of moments of tranquility. The "when" question is also about perspective of experience, such as listening to frogs croaking, picking ripe wild strawberries, bringing the mushroom basket into the forest or seeing the starling balancing by the edge of the ice. The when question is also about handling the group to meet each participants needs. Is the group freezing, then you bring out a warming game. Sitting around the fire then open conversation may be enough. The when question has as much to do with the gut feeling of the leader. Often, it's the when question that determines what's possible.

The Why Question

Another didactic question is the "why" question, for example why is teaching outdoors beneficial?

One answer to this question is that learning in the outdoors mobilises all the senses. People learn in many different ways when the different senses are stimulated. Further reasons for outdoor teaching are that the different demands in the outdoors mean people work together and therefore develop emotional and social competence. Here the outdoor environment is more suitable than the indoor environment. In the school context access to a larger area (space) also has a bearing on learning. Many city dwellers have forgotten to wonder over the richness of nature, or with a modern expression, the biological diversity.

We risk losing our very contact with nature – the ability of wonder – and subsequently we place ourselves to one side of natural cycles and processes.

One part of this development is also about language and the traditions of story telling. When the culture of language evolved to a formalised written language people lost much of their sensual experience, gathered

Geometrical shapes in the snow

(about working in snow)

Split the participants into groups (as many as the geometrical shapes you are working with). Each group gets a geometrical shape, for example a circle, square, triangle or rectangle. Arrange the participants in a line. Each group trample their shape in the snow large enough so the whole group can stand inside it. The distance between the shapes should be 8 to 10 m. All group members stand inside their shape. The leader shouts "square – rectangle". The groups standing within these shapes have to change places. When everybody has changed places the leader may shout "shape chaos"! Then all groups change places at the same time. When the different terminology has been practiced you then build them in snow and they can become three dimensional. Here you can continue with mathematical questions, how much does the snowball weigh? How much snow is contained within the pyramid?

Reflection: Working with maths outdoors is a fun way of learning. The participants learn with their whole body and many questions are often raised that you can answer later indoors.

To mirror yourself in nature

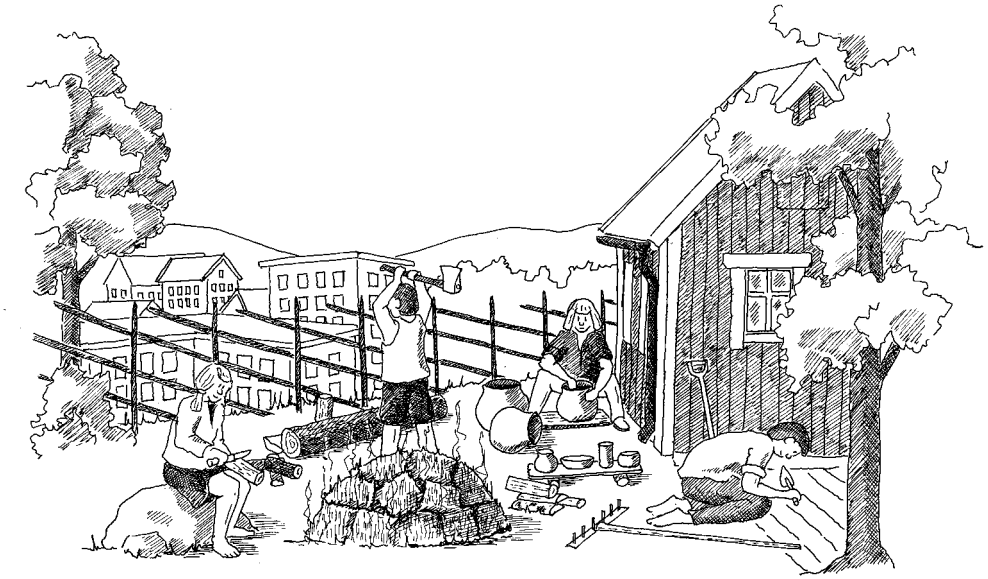
(about choosing a nature object)

During five minutes of free moving about the task is to "find yourself" in a natural object. When you re-group each person explains why they chose that particular stick, stone or flower. Which similarities exist between me and the natural object? This is a way to say things that maybe otherwise you wouldn't have dared to say at the same time as looking at nature with different eyes, with no demand for species knowledge.
The focus is on the object and not the person, which can be a relief for the unsure.

"This stick is crooked and crazy just like me". (Anna, 10 years old).

"Many people probably see me like this lichen, dry and grey. But once you get to know me, I think you can discover that there is more to me and I'm very stubborn".
(Eva, 17 years old)

"My stick is long just like me and has many branches. It shows that I think lots of things are fun, ice hockey, music, indoor bandy, photos, scouts and friends". (Uffe, 16 years old)



through oral traditions with many associations to the natural and cultivated landscape. The folk stories in the form of sagas and sayings are still relevant in our education today and are an important communication form well worth preserving, learning in situ rather than using only texts and pictures. The characters of the sagas have always also mirrored the human's need to explain the unnatural. In the meeting between people and nature there was a relation to the landscape that could include the natural and the super-natural. These traditions could be used more in education to increase the understanding of nature and culture in a historical perspective.

The outdoor environment creates potential for a meeting with the unforeseen and the unstructured, thereby creating possibilities for a more flexible learning. Via our senses we learn to feel the world both from small parts and the whole. There is however a big difference between to "know about" and to "understand". To recognise only, gives superficial knowledge, as learning is disconnected from the sensory and action-related feelings. An increased contact with natural and cultural phenomena in the outdoors and their changing processes can be seen as a resource in education and learning.

Outdoor pedagogics creates in all these manners the possibility for contact with nature, friluftsliv, environmental engagement and sustainable development and learning.

To be a teacher or a leader in the outdoor environment

From a teaching perspective experiential learning in the outdoors requires us to be open to new ideas. In this book we draw attention to the friluftsliv possibilities to be found in the Swedish landscape in the form of group dynamics, outdoor education and contact with nature and the environment.

As nature does not have any limiting walls new possibilities are constantly emerging. The school and the preschool could to a large extent use the outdoor room/close environment as a pedagogic resource to fulfil the national curriculum goals.

The aims of outdoor education

The aims of outdoor education are to bring the otherwise abstract curriculum to life through study and activities in the outdoors. A local historical, ecological and social foundation can be created in children and young people through outdoor education. Experience in nature gives the opportunity for a more active knowledge, where feeling, action and thoughts are unified.

Experiential learning use the senses such as colour, form, sound, smell and feelings create a powerful learning process. Children and young people then engage in environmental questions since their knowledge has been derived from practical experience. Through experiential education the doors are open

Creatures that are afraid of the light

(about looking for small creatures under stones and mosses)

Nature is full of life that we can discover when the sun is shining, but there is also life that doesn't show itself in the light, but is found where the sun doesn't reach? Turn over stones, lift bits of wood, look under the moss. Who can find most animals that move? How do you catch them? Who finds the scariest animal when you look at them through a magnifying glass? Which animal has the longest legs? Finally, try to identify them by looking in different reference books.

Reflection: it is not difficult to get the participants engaged in this activity. It's not necessary to know what sort of a creepy crawly you've found but to discover them and see similarities and differences. With a magnifying glass you can study the details of the animals, for example hairy legs, sharp jaws or interesting patterns. The exercise gives examples of diversity that you otherwise might not discover. To emphasise the details of the animals let the participants in smaller groups choose one animal and, using natural objects, build this animal at least 2 m long. At the presentations you train oral skills as well as each animal's characteristics.

Fingerprints of nature

(about plaster cast prints)

One way of getting to know the trees in your area is to gather plaster cast prints. For this you need: clay and plaster of Paris (that can be bought in artist's material shops), water, a jar to mix the plaster in, strips of paper about 2 cm wide, a paperclip. Roll out the clay to 1 cm thick band. (The thickness is dependent on what you are going to press down.) Press the tip of a branch of course. When the stick branch is removed there will be in a clear cast. You have now got a shape that can be filled with plaster. Place a circular paper strip around the cast to stop the plaster flowing away. Mix the water and plaster to thickish consistency (if you wanted to harden quickly, mix about a teaspoon of salt per decilitre water). Poured into the cast. When the plaster has hardened carefully remove the clay. The result is a nice print which can be brown or grey from the clay. To get the print white the clay can be brushed away or quickly rinsed under running water. Should the prints be hung on the wall then add a paperclip before the plaster has dried. The print can be painted with watercolour. It is not only the buds of the trees in spring that are good for this. Leaves, grass, acorns, cones and shells also make beautiful works of art.

Reflection: the result often gives new experiences as the prints show details that you otherwise don't notice when you first looked at it.

▶

to many subject areas. This can result in a school for outdoors education, where the motivation, the will to learn is in focus. With its 45 million hectares our Swedish outdoor classroom is a vast area that is just waiting to be put to use by all generations (Faskunger, J., Szczepanski, A. 2018).

To be a friluftslivs leader - learning outdoors

Flexibility

To be a leader in doors with limiting walls is one thing – to be outdoors, where anything can happen is totally different. To be an outdoor leader implies that you have constantly got to be flexible and that it might not always be possible to follow the planned program. But it is often the unforeseen that makes the whole thing more exciting.

Friluftstechnique, the basis for a good friluftsliv

In order to gain as much as of what nature has to offer in friluftsliv the art of keeping dry, warm and fed is essential. Good outdoor clothes (multilayer model) and skills (fire, cooking and navigation) form the basis of your own well-being and experience.

To develop in your area

You as a leader have the opportunity to find different characteristics among every member of your group. Who is it that with life and energy chops most of the wood and watches the fire burning? Yes, the otherwise so hard-working Albert. The mysteries of the cooking, the reading the recipes, stirring the pot to get the food to taste good – here maybe it's Anna and Samir who come with suggestions, but they are never seen nor heard in the classroom. To translate the map to reality demands a lot of training for many people, but Lucas finds it easy and feels pride when he can come with a decisive solution to the problem. The gathering enthusiasm in Elin makes sure that she forgets time and space for all the beautiful stones at the edge of the beach. Feel how soft the shapes are! Around the campfire Niklas tells stories and riddles that others try to solve. The sound of laughter gives way to seriousness when the fire slowly dies down and the group starts to wonder about stars and the universe. It is never as dark in the city as it is here in the countryside, but you can feel afraid there too. The thoughts wander on and on.

All this and a lot more you can discover if you stop and give the participants time and space to be themselves. To calmly wait for the group's work allowing each to place their piece of the puzzle is something that many leaders are strangers to. It is through the joy of doing things together that both children and young people physically and mentally learn.

Being a leader is about being with the group but not telling them everything in advance or doing everything yourself. The main thing is to capture the competence of the group to solve common problems. To help with the heavier burdens (carry stone, fetch wood) can be a way to pull your weight. It is through doing things and reflec-

ting together that the two sided understanding is grounded where the want and the will to learn increases.

Approach

Leadership in friluftsliv, like all other leadership, is about which core values you build your activity on – your values towards other people and your way of being. It's also about the atmosphere in the group. If the atmosphere is supportive then you're not afraid of making a mistake. You respect and learn from each other and ask for help when you cannot do something. In the classroom or community room it is often an adult that plans and leads the work, the same goes for planning the organisation of the outdoor activities. The difference can be that outdoors the learning situation is more forgiving which can generate more open questions and chances for all participants to be active in the planning. It is down to the leadership, that everyone in the group is happy together. If possibilities arise, it is a great advantage to split the larger group into smaller groups where everyone has a chance to thrive.

> The living, small, close-knit group of friends is the strongest instrument for development and change that exists at all. That we should cherish.
>
> STIG HELMERS

Choosing your leadership model

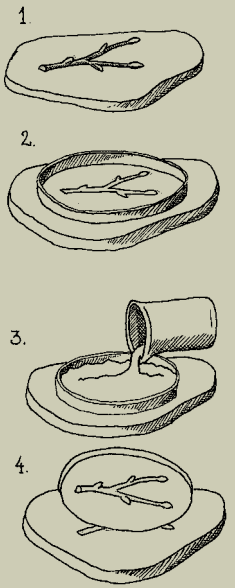
It is not always easy to choose which pedagogical model and leadership model you should use in friluftsliv. Examples of different leadership styles are the command style, dialogue style, the small group, the patrol system, the self-steering group and the guidance style in frilufstliv. Which leadership model you choose depends on the aim of the frilufts activity, the participants age, their development and experiences and not least the situation. Mostly it's best to use a combination of more than one model. By being aware and having the knowledge of different leadership models you have a chance to change and develop your own leadership. It is also relevant to talk with the group and discuss how you've led and the outcome: has everyone had a chance to reflect over the leaders approach and how it went?

The command style

In the command style the leader acts as an expert which means that they stand in front of the group and expresses their knowledge about, for example, the birch tree and the role of the participants is to listen. This is is the opposite to the dialogue situation where the group's common knowledge about the birch is used. (See the activity tip "circular reasoning"). The command style can for example work in situations where the weather changes quickly and the group has to make a camp rapidly. Then it is the knowledgeable leader who decides where the wind shelters and the fireplace should be positioned, before the darkness descends. But in this model the participants have great difficulties in affecting the content. The model suits well if

Shapes and other characteristic details that makes it easier to learn what certain plants looks like are also shown. Even the person who is not so good at creating shapes, drawing or painting can feel that they succeed in this project.

The casts can also be made from animal tracks for example Elk, Roe deer, Dog. Find a track, clean it of rubbish, powder it with potato flour (to stop gravel and sand catching). Pour the cast, let it harden. Lift it up and brush or wash it clean. This is a way to create curiosity about what you see in nature.



Something that looks like a Fly

(about poems on nature)

Split the participants into groups (4–7 people). Give each group a poem (that you might have written yourself so it suits the nature, season and the participants). For each poem the participants need to find a natural object that agrees with the words. After an agreed time (10–15 minutes) the groups reunite and read the poems with feeling and empathy, at the same time they show what they have found. Example of my nature poems:

Pick something
that grows up high
something small,
that looks like a fly

Find a leaf the size of your hand
and a stone looking like a tooth,
lying on the land
Light as a feather
looking like leather
something that's liked by the bear
somehing to decorate your hair.

Find a stone, round as a ball
To decorate the Trolls great hall
Five leaves that are green
that could fix a broken spleen
the most beautiful thing af all
To give to the larvae, because it
is small

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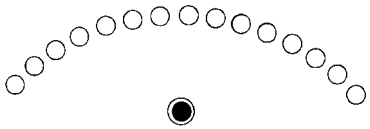
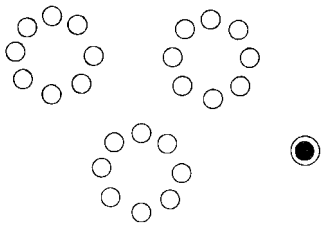


you quickly want to get a message out to the whole group. But it's important that the message is clear and not too long. The command style model works in certain occasions but requires that you as a leader are in the centre and give clear instructions. It's worth considering how you might get all the participants in the group to feel involved and achieve a common goal when they have different levels of competence.

The small group

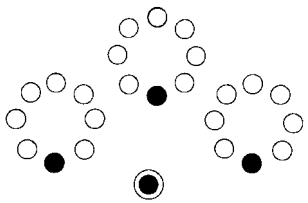
Working in small groups is something we all do, in school and at work and in different organisation. The small group is often short-lived and doesn't have a leader. The group will normally have been given all the information about what needs to be done, how long they have to do it as well as the aim and goal of the exercise. Small groups may often be an organisational solution for all participants to become more active.



> Only when a group takes hold of an exercise, that everyone feels is important and stands together, the group becomes alive. To communally overcome difficulties, have achievements and even (small) failures, frees forces and open routes to growth and development.
>
> STIG HELMERS

The patrol system

The small group can be seen as a pre-stage to the so-called patrol system which is often used for example within the scouts. The patrol is a small group that holds together, and where you step-by-step work on a "patrol feeling". Symbols can be used to create this common feeling. It can for example be the name of the group, a logbook, patrol flag and your own place to be. Within the patrol it's members have different roles and everyone is of equal importance. That can

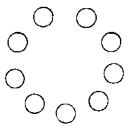


mean for example to be responsible for the first-aid, the food planning, in charge of the web or other activity that covers the need of the patrol. The patrol is a unit and decides for itself how long you should work at your allocated task. The rules can be rotated within the group so that everyone can try all of them. The patrol leader is the chosen

for a short or long time. In this system the overall leader for the unit gathers its patrol leaders to discuss the program content and how one leads a patrol so that they all develop. After this the main responsibility for doing that accomplishing the task is left to the patrol leader.

The self-steering group

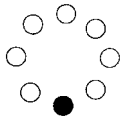
The self-steering group is a group of participants that live their own life and don't have any formal leader. Here the food is cooked when you "feel like" it without any leader directing the activity. The model can be found in the well-established group where everybody knows each other well and they are used to working together. Your role as a leader is signified by the fact that you mostly let things happen without intervention.



However, when there are potential safety issues then you have to intervene. This leadership style needs a relaxed approach without self-importance or an obsession with timeliness. For many leaders it needs quite a lot of "ice-cool behaviour" to let the group take responsibility for their own development.

Guiding in natural friluftsliv

Natural friluftsliv means living in nature without changing it and understanding why you seek to go to nature. The aim can be solely to feel that you are part of nature – but it can also be a method for greater understanding of nature or a means to affect the development of society. In order to guide in natural friluftsliv you need access to areas that are as un-affected by humans as possible. As a leader it is important to have good knowledge about the participants different abilities, their knowledge and stamina. The size of the group is chosen to fit the season, the way of travel and what nature looks like. It's important that the group participates in planning, doing and evaluating. If the participants bring different knowledge to the group then they can work together and complement each other. It's important to allow enough time, so as to get to know each other and to experience variations in nature. Equipment and clothes ought to be environmentally friendly and functional. It can be good to strive to use locally produced food. Roger Isberg describes in his book "Journey, meeting-human-nature" (1991) demands that a qualified leader in friluftsliv should meet and where the term "know how" including both knowledge and feeling are central:



Pick something small and red
and something
to decorate your head
six animals that are pretty
and something from a city
a twig like a leek
and a moss, soft on your cheek

Reflection: here fantasy and feeling to explore nature is needed. There is no need to have knowledge of the species to join in. You can train to act in front of others by reading a poem and also showing an object. A help for those who are shy.

To let the participants write themselves poems and exchange with each other teaches them the art of expressing what they feel in writing.

To make it all the more exciting write the poems on the paper with "burnt edges". Roll it up and tie ribbon around it. Hand out the ribbons with "feeling" and the excitement will rise within the group.

Circle of touch

(to see all the participants)

The participants stand close together in a circle without touching each other. This is a way to get close contact with everybody. You have the possibility to look each other in the eyes, vary your voice and feel friendship. Nobody has to be outside.

Reflection: in the circle of touch you have the chance to have close contact with all participants. Feeling, fantasy and alertness can be created in an atmosphere that you couldn't achieve if they were spread out. It is easier to have a conversation in the "closed" circle where everybody can hear what you say. Due to its shape the circle is also a "classroom" where you can start and end the day's activities. At the end of the day it can become a habit for everyone to say what they have learnt. A chance to show that everybody has learnt something which creates pride, a sense of belonging and comfort. The participants also get an understanding of nature as a classroom.

Circle reasoning

(learning together about the tree)

Choose a tree, for example a birch, and make a circle around it. Everybody takes it in turn to

I. Good knowledge of the nature world; a will and an ability to facilitate forms of friluftsliv that don't damage nature.
II. Good knowledge of the guiding process, the will and the ability to facilitate guiding in the outdoors that doesn't injure the participants or harm the nature.
III. Participation in society with an interest to work for a better harmony between nature and humans, as well as between people with different views.

ROGER ISBERG (1991)

To be a leader

Together with a group of aspiring leaders with experience of canoeing and friluftsliv I set off on the fjord. We steered straight into heavy rain. The rain hammered against the canoes. From all directions we were closed in by water but still felt warm and dry. When the canoes came around the point we were met by white waves and the wind diagonally against us - we had been in the lee!

Just by looking at each other we agreed to head for the beach and set up our camp behind a clump of fir trees.

The job of the leader is to ensure everyone has an enjoyable natural experience. Had it been an inexperienced group I wouldn't have chosen to end up in this situation. If, however, I encountered that much wind I would have got the group safely ashore and helped them to set up camp out of the wind.

As a leader in natural friluftsliv with a small group we seek genuine situations in life that we can learn from. We cook because we start becoming hungry. We navigate to get over the mountain or the water. We live a full life. We are out to experience a rich life in a simple way. We express our inner ambitions in our actions.

The most important feature of the leader is that they like people and nature. Sometimes it is sunny and sometimes it rains. It's when there's a hard wind and difficult conditions that a good leader really is needed.

Sometimes guiding is presented as a leadership model! But it is about having a human and natural perspective and that in itself means that you act spontaneously in different situations where each require different types of leadership!

ROGER ISBERG. *A guide in friluftsliv, formerly a teacher at Sjöviks folk highschool and now living in North America. In the books "Färd" and "Enkelt Friluftsliv" you can read more about guiding and natural friluftsliv. Both books can be ordered from Sjöviks folk high school, 77500 Krylbo.*

The leaders obligations

As a leader, you have obligations both to the participants and their families. You must have knowledge about how to act and what needs to be done if something unforeseen happens.

It is the leader, through experience and judgement, that decides when a critical situation is about to happen, as the leader has knowledge about the participants abilities and physical condition. It's sometimes good to let friluftsliv be exciting - afterwards the participants feel the satisfaction of having overcome a common difficulty. But it can't be too hard and must reflect the ability of the group and not what you think is cool. As a responsible leader you always have to be able to stop early. A journey doesn't depend on how far you travel, it could be enough to stay close to where you started.

Advice to you as a friluft leader

- Show that you enjoy being outdoors - be enthusiastic.
- Be interested and inquisitive - explore together with the participants.
- Use your fantasy and participate actively.
- Seize every situation and if possible build on it.
- If there are many participants, split into smaller groups.
- Stop and gather the group as close to you as possible when you or somebody else wants to show something.
- If you're outdoors with younger children, then sit down on your knees so that everyone can see and hear you. Do you not speak into the wind.
- Place yourself with the sun in your eyes so that the participants aren't blinded. It's better that the sun comes in from the side and everybody sees each other. Find a rest or stopping place that is out of the wind.
- Work to a fixed timetable and keep to it -then you won't get the irritation of unnecessary waiting. It is also important to have set food times.
- Ensure everyone is suitably dressed according to the layering principle. Bring a spare hat, scarf and gloves so you can lend them.
- Always have some warm-up activities (reserve games) in your back pocket, it can be good when you are waiting or if someone is cold.
- Surprise the group with a bag of energy (raisins or fruit).
- Pace the journey according to the participants fitness (physical capacity) and ability.
- Turn around in time!
- Always remember that people do as you do and not as you say.

say something about the birch. It can be anything from it's latin name to the ice hockey team Björklöven (the birch leaves). When everybody has said one thing you can continue with another round, and another until all the group's knowledge and imagination has been expressed. If some of the participants cannot think of anything to say the others can help by giving clues.

Reflection: as a leader you often have a tendency to come out with all the answers. But in this way everyone can help with something. The participants practice their powers of association and speaking in front of others. They also discover that together there's a surprising amount of common knowledge. In the classroom you can continue working with the birch theme and have your own "birch corner" where you gather all the facts.

A little "birch list": white trunk, silver birch (*Betula pendula*), downy birch (*Betula pubescens*) crooked birch (*Betula pubescens var. tortuosa)* in the mountains, drinks a lot of water, not liked by those with pollen allergy, good for bird houses, likes light, birchbark as tinder, furniture, whisks, plaited bark baskets, shoes made of bark, tingles as a roofing material, cutting roses when the birch leaves are like mouse ears, colouring yarn, small leaves on bread, birch leaf tea, mats made of twigs, the fieldfare (*Turdus pilaris*), in Swedish named the birch thrush (björktrast), birch bracket fungus (*Fomitopsis betulina*) called björkticka in Swedish, a common Swedish surname "Björk" , songs, drops it's leaves in the autumn…

Forest restaurant

(about searching for animal tracks)

The forest has many food guests. Split the participants into groups. Every group gets their nature area. Try to find as many traces of food places as possible. It could be cones, nuts, bitten off twigs, gnawed bark, insect attacks etc. Try to identify who the food guest was. Reference books may be useful. Invite parents or another group/class to the forest restaurant. Mark the different places, for example with plates, knives and forks. The visitors have to work out who the food guests were. Finish around the campfire or a stove and offer some freshly baked bread with pine needle tea (crush pine needles with a stone or a spoon and then boil them for a while in water. Discuss the different animals and their food habits.

Reflection: when you concentrate on a subject you realise how much more there is to know. It's also stimulating to show what you discover to others and it can serve as an alternative program for a parents evening.

If you walk fast fast
and look straight ahead
then you get quickly forwards.
If you walk slowly
and look at everything by the wayside,
if you pick up a stone
and smell a flower
-then it doesn't go very fast.
But the stone
and the flower
have become your friends

KAJ BECKMAN

Friluftsliv in groups

Adapting for age

To experience nature and everything that happens has nothing to do with age. Old as well as young can have happiness from the same experience.

In this book there are examples of many activities and it's up to you which ones you choose to use. The activities can be used in different ways. An activity might only be used as a prompt, resulting in something completely different from that described in the example. You may use another activity exactly as described, a third might have to be adapted according to the participants abilities. With imagination and feeling the simplest activity can become an exciting experience. Other activities in the book can be used for individual learning or to bring a group together. Activities can be developed and transformed in different ways, and made to suit all ages all levels of education.

Experiencing nature together

The advantages of discovering nature in a smaller group is that you can move silently through forest and terrain more easily. In the smaller group you learn both helpfulness and understanding. The group focuses on the same thing at the same time and communicates with soft, whispering voices and gestures. Everybody can fit out of the wind behind the big stone or under the fir tree. Each person has the chance to try for themselves and learn, with the help of a friend. In the group you get close to each other -everyone feels the heat from the same fire. Whilst the fire fades you talk about the experiences of the day, from your own thoughts as a person, nature and life.

It is not always possible to work with small groups in a school environment. If you are out with larger groups then you need at least two leaders. From a safety perspective one leader for every ten participants could be a general rule. If something unexpected happens there is always a leader that can look after the injured whilst the other leader can take care of the rest of the group.

When it comes to "close up" experiences you should divide the group into one smaller and one larger group. Whilst the smaller group and one of the leaders may, for example, study or observe the ants in the anthill the larger group spends time on a game or other activities.

To awaken interest

Children and young people growing up in today's society do not have the same daily contact with nature as before. To get into nature requires that you get yourself there,

it's different from when you lived close to the forest or had your relatives in the countryside. This also means that many children and adults feel that the forest is unsafe and sometimes frightening. It is therefore a good idea to spend some time in green areas nearby, where you can discover nature. Whilst experiencing the support of a group you can also feel the excitement of the unknown.

In "flow learning", that is used in different ecological games (see the activity tip "Oh deer), you begin by awakening enthusiasm. The focus is then drawn to something that should be experienced through close contact with, for example, objects and forms. Finally, you share the inspiration in a common activity, ending with a reflection. There are many different ways to wake interest and enthusiasm for nature. The main thing is that you don't try and force someone to enjoy being outdoors. Through games you can create confidence and show that it's fun to be outdoors. Today these things are also acknowledged in the pre-school curriculum goals.

> The preschool should provide each child with the conditions to develop an understanding of relationships in nature and different cycles in nature, and how people, nature and society affect each other
>
> THE NATIONAL CURRICULUM FOR THE PRESCHOOL Lpfö 18

A rolling nature trail

(about trails where the participants pose their own questions)

Split the participants into three small groups. Decide on a distance to move (for example 25 long steps). The first group walks 25 steps and stops. They think of a question about something they find in that place. Next, the second group arrives and answers that question. Then, group two moves 25 steps, stops and thinks of a question. During that time, group three have walked to group one to answer their question, continued to group two, answered their question and now walk a further 25 steps. This pattern continues with the back group moving to the front by answering questions and thinking of new ones in a rolling nature trail. To find the route, and sometimes to help with questions, a leader may follow the group. As variations you can take running steps, ant steps, giant leaps or walk backwards.

Reflection: the participants have a chance to choose their own route and find the content relating to the nature. When the participants do this they develop their powers of observation and ingenuity. It may also be exciting to see if you can think of something that the others can't answer. In this exercise the group chooses for themselves the level at which the questions should be pitched. It could be anything from finding a round stone to the knowing the latin names for a species.

Helicopter perspective

(about observing yourself and your leadership from above)

You and your colleagues go through the latest excursion and look at what you did and how you did it. What happened when you were going to cook? Who took the initiative? Was everybody so tired that they were just waiting for someone else to fix the food? Did everyone help or was this someone who always had "something else to do"? Was it you that gave the order about what should be done or did it come from the participants own initiative? How did the sundial arrive? Had you decided to make one or was it because Pelle asked what time it was?

Reflection: by reflecting on the different situations and thinking why things happened you have the chance to be more aware next time of your own leadership and also consider the competencies of the participants. It is not only when something has gone well that you should reflect on leadership. What was it that made it successful? A question that's not so easy to answer if you haven't made an analysis. It's not enough to say "today the participants were good". You need to understand the reason. It may have been your leadership.

Some advice on play

- Play often and focus on creativity and fantasy by placing the game in an exciting context.
- Join in the game yourself.
- Think about the terrain and adapt the activity if necessary.
- Vary the games, there are lots to choose from: hide and seek games, wild games, group games and games in pairs. There are games that emphasise different aspects; creativity, the senses, co-ordination, movements, co-operation and lots more.
- Using fantasy doesn't only apply to younger children. Adults also think it's more exciting if they are detectives looking for traces and signs with magnifying glasses then just to look for traces in general.

The road to knowledge

There isn't only one way to gain knowledge and a feeling for nature in the landscape, there are many. As a leader the task is to, with different didactic tools, awaken the enthusiasm and inquisitive nature of the participants. Here knowledge is mixed with fantasy and creativity and then you work with these experiences when you get back to the campsite, the pre-school or the school. Here are some examples:

The common dandelion (*Taraxacum officinale*) can become exciting if you start to explore it together. Take out the magnifying glass and find out how many little animals are hiding in the flower. If in confidence you tell someone that they become irresistible if they have a dandelion in a band around their neck then everybody will have to try - a useful method to get the dandelions taken out of the school grounds? The roots can also be boiled, change the water a few times then the bitter taste disappears, use the roots for a dandelion gratin or a soup. The first tender leaves can be used in a salad. When the dandelion has flowered and it's standing there with a ball of fuzz you can't resist the temptations to pick it and blow. Who hasn't followed the beautiful plumes as they are carried away by the wind? And the most exciting is to see if there are any seeds left. If you manage to blow away all the seeds in one go then according to folklore you can have a wish.

> Sfären av fjun
> Maskrosens lyskraft brann ut.
> Nu väntar dess fjunklot i vindstillan att den
> lätta kupan av vindull
> skall lyftas av från den släckta lampan.
>
> HARRY MARTINSON

Recognise that the great spotted woodpecker has its feeding place in an oak tree or a telegraph pole as you can see from the pile of cones that are there- a woodpecker feast! Investigate the cones in the pile to see if the woodpecker has managed to get to the seeds. It takes about four minutes for a woodpecker to take all the seeds from a pine cone and then the woodpecker will have hacked about 800 times. Why not follow the woodpeckers feeding habits by counting the number of cones. Compare this with other animal foraged cones.

A precious child has many different names

Everybody who has read Emil in Lönneberga knows that "krösa "is the local dialect name for lingon berries in Småland. Many of our plants have dialect names. Often they refer to what they were used for or what they looked like. St Peter's keys, the keys to heaven, may keys, yellow hood, cuckoo spit, cuckoo flower, cuckoo trousers or cat's wellies are all dialect name for the cowslip (*Primula veris*). The name Saint Peter's keys can be related to the legend when Saint Peter happened to lose his keys of the purest gold. Where the keys fell to earth the flowers grew. The name cuckoo trousers came from the fact that the Cuckoo sings in May and hides its long "tail" in its green "trousers".

There are many examples you can use to start an interest in what occurs in nature amongst others through folklore and tales. It can be little things that open up a whole new world. When you begin to realise that every part has its function and meaning then respect and wonder is built for the nature around us. You can discover the cycles. If you meet the snail living in a mushroom then it is allowed to stay- you don't kick it to bits.

The adder is allowed to be left in peace and you don't gather all the bluebells and take them home. The responsibility for life in nature has hopefully been awakened.

Discover the winter

Regardless of the season you can make exciting finds in the landscape. It's only about having suitable clothes and equipment. Most commonly you are outdoors in the spring, summer and autumn. Remember that winter too can offer experiences outdoors. What can be more wonderful than to walk in the deep snow or to throw yourself backwards, wave your arms and legs legs and create "snow angels"?

Apart from doing all the sports of winter there are good possibilities to study the forest and the local environment during the so called cold season. The tracks in the snow show signs of more life in nature than you thought. In the winter you can establish that both the hare and the fox dare to come quite close to the urban environment. Following the tracks of the hare gives room for many different theories and thereby gaining of knowledge. You can observe that the hare has found last year's grass and eaten on some aspens. During the winter you also often find droppings (round, small and flat dry balls) and other traces. Bring a measuring tape - the hare can take giant leaps! How long a jump can the participants make themselves?

Under the big fir there are lots of small shoots. It is the squirrel that has cut them from the outer shoots to get to the male flower buds that are right at the tip of the branches of the fir tree. When the squirrel has eaten the buds it lets the fir shoots fall to the ground. If you are lucky maybe the squirrel turns up in its grey winter coat.

The white snow isn't always as clean as it looks. You can melt snow from different places and filter the water through a coffee filter. The results can lead to questions and discussions about pollution that can be in the air, where it comes from and how it can affect our common environment.

Hunting wolf

(about the game "the wolf and the sheep")

"In this forest the shepherd could always let the sheep loose, even though there were wolves hunting there. The secret was that the place was enchanted and the sheep knew how to protect themselves. When the wolf came the sheep stood close together, close enough so that the wolf could not reach their stomachs. If however, he managed to scratch a sheep the sheep immediately transformed to become a wolf and the wolf to a sheep".

The participants can move within a limited area. One is a wolf and has a hat or something in their hand. By chasing the others and placing the hat against the stomach of somebody else, this person transforms to become the wolf. The wolf becomes a sheep as soon as he/she has tagged somebody. By standing in pairs stomach against stomach the participants can avoid an attack. The wolf can linger for as long as it takes to count to 5. Then the pair must split, so the wolf has to be able react quickly. The sheep cannot seek protection with the same friend each time. After a while there may be two or more wolves hunting.

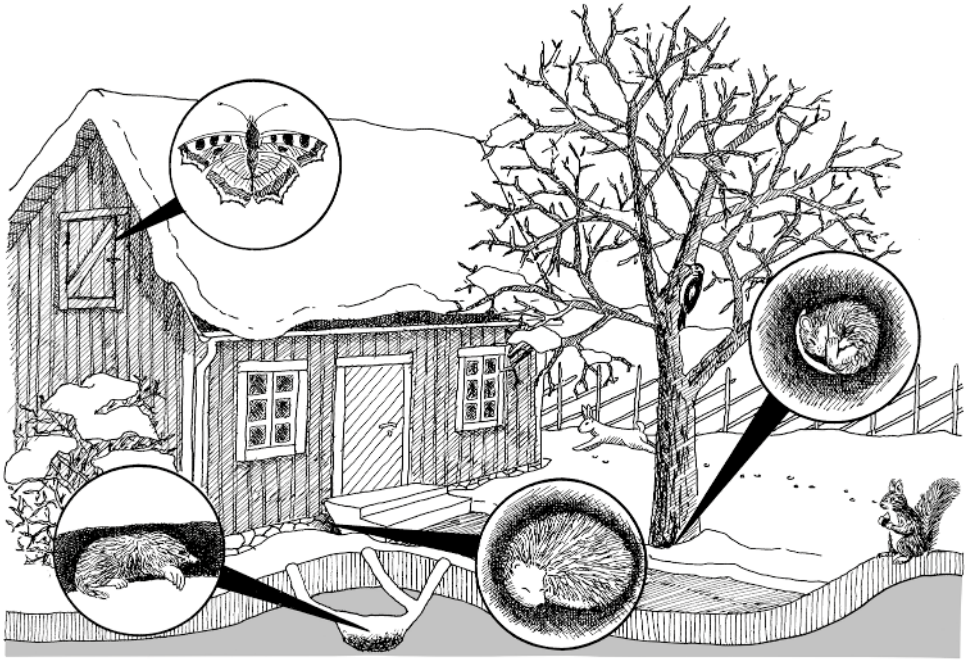
Reflection: in this game you get warm, practice your proprioception and help each other. By placing the game in the context where the wolf is at the centre, it provides an opportunity to consider facts about wolves and how historically sheep were guarded to protect them from predation, making the game more exciting.

Home sweet home

(about the art of feeling at home in the forest)

Find a place in the greenery or in the forest that can be a den for the participants. Give the place a name. It is much more exciting to go to "Beaver Valley" then "just" to go out into the forest. To return to the same place gives security and the feeling of home. You can also see the changes of the season. A nature diary may be a way to remember when things have happened. It could be the weather, what the leaves and birds look like, which birds you see and hear, the flowers you see etc. The recording can be either in writing, drawing or photographs. Make sure all children are in the pictures, as they also change and develop!

Reflection: many children are "lost" today. A basic feeling of safety is missing, often resulting in "extra lively" and "worried" children. Children develop at their own pace and need to explore and become safe in their world. By feeling at home this basic sense of security grows, the child is then open to discover other values.



Darkness – our friend

Who dares to go into the forest when it is dark? To wander alone in the forest is for many people totally unthinkable. The forest is something unknown, and what you don't know you are often suspicious about. The feeling that every bush hides something dangerous can be frightening. To get to know the surroundings in daylight is one way to eliminate possible fear of the dark. Another way is to make an errand outside in the darkness to fetch some sit mats that were left by the campfire or to check that the camp lantern is safe for the night. Try to bring some of the participants with you! Sieze the occasion and sit down to listen to what the darkness has to offer, experiences that you don't notice during the day. Listen, feel and experience the smells of the night! Wonder about the stars and the skies. Talk about the feeling of comfort and the nice experience and the smallness of our existence in the enormous mystery. Such a moment can become an uplifting occasion!

To put people through a night walk with scary elements doesn't help to make anyone feel safe. Instead, increase your knowledge and discover the exciting things in nature. Creep with a group in the dusk, it's then when the animals are active. The roe deer at the edge of the field requires care otherwise it will be frightened and run away. Use the imagination of the participants in games and stories to make the whole experience exciting in a positive way.

To silently sit by the campfire and listen can result in many sounds being heard that require an explanation. What is the squea-

king now and then, maybe two trees rubbing against each other in the wind? The thud on the ground can be a falling cone. When you feel comfortable in the landscape then the feeling of safety is enhanced. It is that safety that is needed if an accident should happen. Then the risk of panic in the group doesn't worry you.

> Ljuslågan sitter som en liten kolibri inne i lyktan, en vanlig människa ställer sig framför den, och genast har vi jätten där på bergväggen. Precis när man vill kan man få den att försvinna.
>
> HARRY MARTINSON

The nature indoors

For many people it is unthinkable to bring nature into the classroom. For others it is a way to make new discoveries by getting closer to the natural material, which can act as a complement to the written text or a picture in the textbook. The natural material can furthermore remind us of common experiences and adventures. It is also important to return living things that we have brought in. "Reverance for the living" also applies to spiders and other creepy crawlies.

Many people collect the things you find in nature. It can be droppings, cones, different kinds of fruits and seeds, bracket fungi, twisted branches etc. You can for example make a montage of crooked tree branches in the different shapes. Bracket fungi can be fastened to a board with a label saying where they grew and their name. Droppings stored in jars can be used for learning and education. Make an exciting exhibition under the theme, what happened during the autumn excursion?

In the 1800s people shot wild rare animals that were stuffed so they could be studied. Today we use digital pictures. The newer technique is of great help when you want to show detail. A digital picture shows what you otherwise wouldn't be able to see with your eyes. How many people have for example seen the diversity of living things on the coltsfoot flower (*Tussilago farfara*) or the pattern on the wings of the peacock butterfly (*Inachis io*)? With a digital technique you get the result quickly and can explore the smaller details in the bigger picture.

With digital images you can also project pictures onto the walls, the ceiling and floor for example the seed brushes from the coltsfoot, the dandelion or the thistle. These seed brushes look like each other, but enlarged you straight away notice differences. In the same manner you can easily see the differences between the fir and the pine seeds. If you want to keep the "artwork" then you project the picture onto paper and fill in the contours with a pencil. The picture can then be coloured in.

Younger children have as a rule a greater ability than adults to find things in nature. Everything is of importance to them: cones, stones, sticks, a big leaf, an earthworm or a lizard.

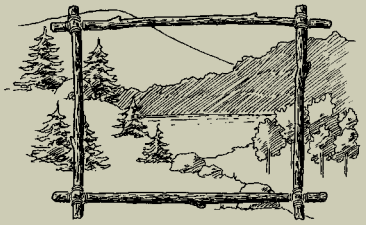
It is important not to destroy the joy of finding things so you must carefully explain that you cannot take home everything you find. But of course, it's not always easy to leave the lizard or the frog when you are so small!

Framed nature

(about a way to find a natural motif)

To find motifs when you are making pictures of something in nature (it's not always easy to decide because there's so much to choose from) a nature frame could be useful. Bind together sticks or bend a soft branch then search for the motif by looking through the frame. Make the picture using a range of different techniques: watercolour, different plants, charcoal (see the tip "mini-kiln" about making charcoal in the chapter "Deep forests, Page 118") or whatever you find in nature.

Reflection: to create something in nature can, apart from using your own creativity, also give a feeling for shapes, colours and other details that you might otherwise miss. The frame can be placed directly on the ground where you find a piece of "artwork". Discuss what you see. What happens if you put a foot in the artwork? Draw parallels to the world we live in. How is the rest of the world affected by our "footprint"?



Paint tastes

(about painting a postcard inspired by tastes in nature)

One way to picture nature is through the colours of different tastes. The participants fetch 3 to 5 different sorts of leaves. On cardboard the size of a postcard you create your piece of art by tasting the leaf and with the help of colours "paint" the tastes. One leaf can remind you of the summer, which could be expressed through light green twirls. The bitter tasting leaf maybe gets violet spots and the one that doesn't taste much maybe becomes just a little grey line in the corner. The postcard can then be sent as a greeting from the forest.

Reflection: nature experiences also include two different taste experiences. You may have tasted wild strawberries, raspberries and blueberries, but fir needles and the wood sorrel (*Oxalis acetosella)* have their own taste. To avoid poisonous plants you should ask the participants show you their leaves before they taste them.

To grip – in order to grasp

Do you remember...?

Taking pictures is not always the best way to preseerve what you experience. There are moments when the mobile telephone or the camera should be packed away in the bottom of the rucksack. These are the special moments – when the very best memories are brought out. These moments grow stronger even though the picture inside is fading. Memory pictures that are pulled out with the words "do you remember…"

To be a co-discoverer

To be a frilufts leader means that you don't always know everything yourself, but you can use the knowledge of the participants to awaken curiosity, create enthusiasm and be a co-explorer. This can be done by sharing your knowledge and experiences, but also by informing about where you can gather facts and skills. Make it a habit to, for example, have a bird book, an insect book or a flora tucked away in your luggage, together with digital techniques, that with a simple press of a button can give you the information and knowledge you seek. But it's not always simple to find answers to questions. Be sure to take each question seriously, explain that people don't know everything and instead show how you might find the answer.

One method to support your memory is to write down in a book when and where you discovered the flower or the insect for the first time. Then you will more easily remember where you found it and how the place looked. Next time you look through the book it's not only the name you remember, but also other happenings at the same time. To know the names of everything isn't the most important thing when you try and get close to nature. In order to discover what there is in our world we need to train the senses, so that we can perceive forms, colours, smells, similarities and differences. With the senses we experience nature without having first-hand knowledge of each species. But soon the curiosity is awakened and we want to know more about the animals, plants and their names. With the help of imagination, becoming nature experts can be a way to awaken the curiosity for further studies.

To give knowledge without giving all the answers

A leader who knows little about natural science, or lacks the ambition to learn, cannot demand that others should develop an interest in nature and friluftsliv. The participants soon tire if they always get the answers "I do not know" - "find out for yourself!" But it is not only lack of knowledge in a leader that may kill the interest in nature. A leader can also be a "walking book" that lectures about everything in nature. This can often be a hindrance for the participants who then don't get the chance to find out for themselves. The knack is therefore to find answers by starting with their own questions:

– What do you think has happened. Why are there a lots of feathers on the ground?
– Look at these wing feathers! What do they look like?
– They seem to be bitten off.
– Yes that's right, I wonder if a fox has been here? If it had been a bird of prey then the

wing feathers would have been whole as the bird of prey plucks them with their beak.
– Then it's probably the fox.

A nature walk without a specific purpose can give many experiences, just by exploring what you find. That time we seldom give ourselves unfortunately. Our ambition is often that the program should be full: a ball game, nature trail, organised games, cooking, competitions… where is the time for your own discovery? One way of discovering an area can be to decide to only focus on certain phenomena and happenings instead of exploring everything. It can for example be winter green plants, tracks of animals, mosses or birds of a certain region.

A feeling for nature through artistic expressions

It is not only knowledge about what is around us that can awaken an interest. The route to becoming interested in nature also goes through feeling and artistic creativity. Many musicians, poets and artists have gained their inspiration through natural experiences. But it is not only the committed artist who expresses what they have felt. Take watercolours and a paintbrush on your next trip to describe and remember through creating.

You can also use the plants own sap to "paint" using a crushed leaf, flower petals or other parts of the plant. The colours that you create can often be surprising, for example the yellow petals of St John's wort (*Hypericum perforatum*) give a beautiful violet colour.

Singing and playing musical instruments by the campfire often creates a nice atmosphere. Try and describe today's challenge through songs and tones. Simple instruments can be made from the materials of nature. Even the literary texts can lift the feeling when you reach the summit of a mountain. It might be timely to take out a book and read, for Swedish speakers maybe what Harry Martinson wrote about the mountain.

> Över dem [lavarna på skogsberget] kröker sig martallen som en tyngdlyftare och gra-nen som når upp med toppgrenarna fingrar därnerifrån med barrvassa vantfingrar på bergets hylla, liksom ett slags barn av det vilda själv, som stående på tå betraktar den ständiga tystnaden här uppe, och detta för mänskor och djur så ofruktbara liv, gråber-gets liv av lavdynor, mjölonris och sten.
>
> HARRY MARTINSON

Friluftsliv is to seek answers on the questions of life

Nature offers us a special way to get closer to the big questions of life. Through managing the exertions of the day or experiencing together the wonders of the night sky. The feeling of security from a bonded group. It is then that the life questions have the chance to emerge. Where am I in the universe? Who needs me? Why am I alive? Why isn't there peace on Earth? How can we together save our planet?

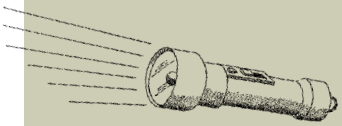
The questions are often big and the answers far away, but it is important to put words to them. The best place could be around the campfire, when the last glow makes a fantasy landscape, or in the confidence

Tracking in the dark

(about looking for animal tracks with a torch)

In the dark winter evening, when the snow has arrived, it is time to find the torches (or lantern) and go out on a track hunt. With the lights help you will look for animal tracks. Follow a certain track and discuss what do you think the animal has been doing. You can also see how many different animal tracks you find in a given area.

Reflection: here you have the chance to discover that many animals move in nature when you can't see them. Many "frightening" sounds can also be explained. This activity also gives training in "being out in the dark", something both children and adults needs to practice.



Darkness map

(about getting over a fear of the dark with the help of a map)

Let the participants make a map or a model of the local area, where bushes, trees and stones are marked. When it's dark you then make a tour together to discover that it's only the juniper bush or the stones that look different in the dark.

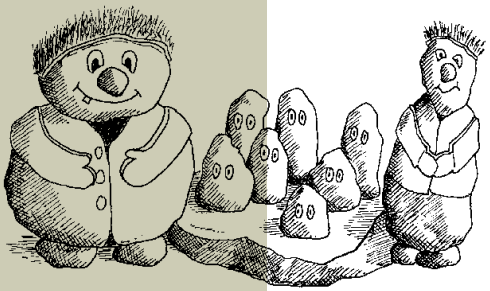
Reflection: Feeling comfortable in the dark doesn't come by saying "it's not dangerous". You have to experience it for yourself and get used to it so you can become a friend with darkness. This applies equally to both children and adults.

Trolls in the forest

(about making trolls from stone)

There are many sayings about the lady of the forest, trolls, elves, little people and other creatures that have lived in forests and houses over the whole of Sweden (see the book Älvor, vättar, och andra väsen by Ebbe Schön, (1996)). The stories are exciting and suitable to be told around the campfire in the evenings. In most places there are also older people that can come for a visit to the campsite to tell their experiences. In keeping with the theme about saying is you could use the time to make stone trolls. It is a pleasure for all ages. Start by gathering suitable stones. Try to see that they fit together. Join the stones with glue, for example Casco fix-it, that you can buy in most hardware shops. The hair can be made with a piece of animal hide or moss. The arms can be cut out of skin or painted directly on the body. Paint the trolls with acrylic colour or similar.

Reflection: story telling provides an opportunity to consider how people lived in the past when they may have been isolated and didn't have electricity or telephones.



of a friend when you're watching over the fire. Just by sitting on a stone when the sun is setting can let your thoughts wander freely. Friluftsliv gives many opportunities for contemplation. It is maybe to find oneself that many today seek to go out in nature.

"To pause and wait for your soul" is the focus of a story about a stressed American who goes on a demanding expedition in Africa. On the fifth day the porters refuse to continue. When they finally talk about why they're ending up sitting the answer is that they're waiting for their souls. Is this what we use friluftsliv for, to wait for our souls?

But it's also about daring to wait. Friluftsliv provides many opportunities – not everyone dares to take them. Why do interesting funny stories emerge when the atmosphere feels good. Don't we have the courage to listen to the silence and feel that we are not alone? That the greatness around us exists because of someone or something?

Is it that comfort only exists within the family or a group of friends? Feeling grounded can be found in the moment, in the middle of a flower pasture when you are lying watching the summer clouds, waiting for the coffee to boil or when the wind grabs the sails and you feel the boats movement as it strives to split the waves.

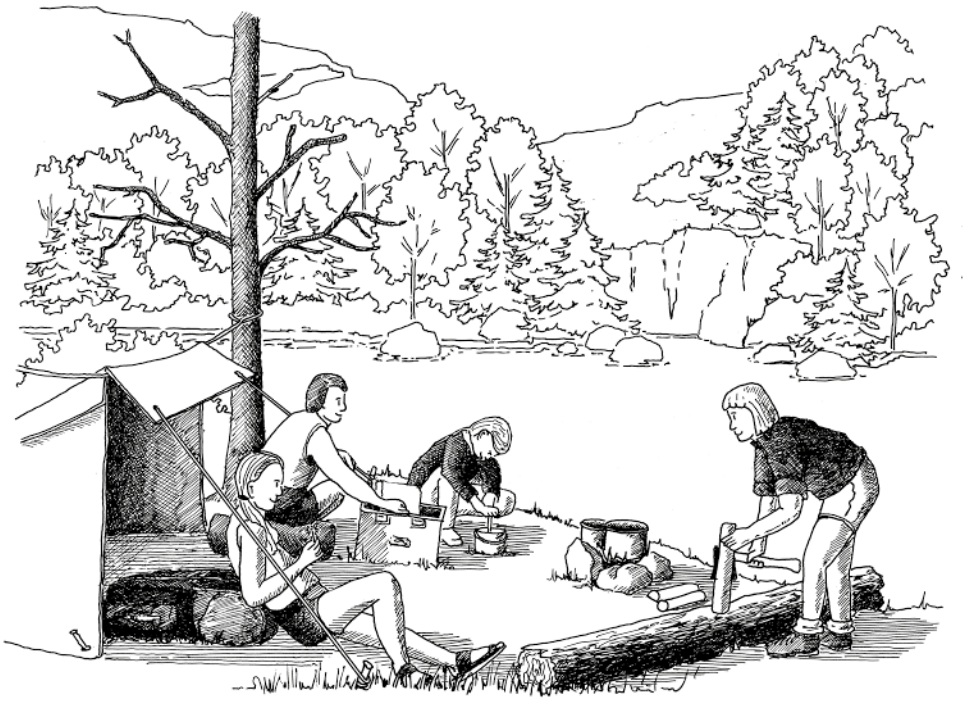
It is maybe here that you discover that friluftsliv for you also has a spiritual dimension. Here you are allowed to seek the answers to all the questions of life. The answer that you seek may come today whereas others may have to seek for a long time – maybe a lifetime! But it is not when and where you find the answers that's the most important, the main thing is that you dare to seek.

Ljuset sover
Det är skönt med mörkret
Förut var jag rädd
men nu vet jag säkert att
mörkret är en bädd,

en säng för ljuset
att få sova i
när da´n är slut
och allt blir tyst
och man får drömma.

Det är skönt med mörkret.
Himlen ger oss natt,
stjärnorna tänds och gnistrar
som sagans silverskatt.

FRANCES NILE



Hike

Are you coming on the hike?

Friluftsliv is often associated with the scout term HIKE. It comes from the English word "hike" and means a walk on foot. Our understanding of the word is a trip with and overnight stay in a wind shelter, tent or under the bare sky. It's not actually necessary to walk by foot. Canoe hike, bike hike, ski hike and skating hike can be other variants on the theme.

Hike preparations

Planning and preparing can be almost as much fun as the hike itself. It provides a chance to study maps, work with your equipment and read books. Conversations with people stir your fantasy and plans take shape. Each hike is unique if you take advantage of all the possibilities. Through having a formulated purpose the hike can be more than just a walk. The aim can be to try equipment, explore a water way, try eating plants or getting to know new members in the group. The hike can also be about history or our future as well as using a popular book or story to give context and increase creativity in planning and doing the activity itself. Reflecting after the hike it is then easy to use words to describe your experience.

Eating dandelions!

(about making Dandelion gratin)

Dig up dandelion roots and scrape them with a knife. Boil them for about 15 minutes and change the water a couple of times to get rid of the bitterness. Pour away the water. Cut a leek into small slices and fry them and the dandelion roots together with some butter in a pan (under a lid) until the leek is soft. Cover with cheese slices. Put on the lid. Ready to serve when the cheese is melted.

Reflection: showing that weeds can be eaten might result in some values changing. You can also discuss where food comes from. Why would you rather eat potatoes than dandelions?

Different nature glasses

(about discovering different things one at a time)

Observing nature can be easier if you concentrate on one thing at a time. Therefore, it's a good idea to put on "pretend glasses" through which you can only see certain things. When the participants have wondered around you re-group and tell and show each other what you've seen. What you see through the glasses could be:

- Trees in a certain area.
- Things lower down than your knees.
- Tracks and droppings from animals.
- Edible plants.
- Natural works of art.
- Things that could be used by man (juniper – butter knife, birch – broom, oak – boat).
- Evidence of people.

Reflection: by studying one area at the time the subject becomes clearer. You avoid distraction. The exercise can be repeated at different times and only cover one or a couple of subjects. Through reflection you may be surprised at what you see through the "glasses", you see many things that may otherwise be overlooked. Apart from natural science, other subject areas that connect humans to nature and the environment can also be considered.

Before going on a hike you should pose a number of questions:

– Why should we go on a hike?

– Which are the aims of the hike?

– Where and when should the hike happen?

– Who should come?

– What should the hike contain?

– How should it be organised?

– What equipment should be used?

It is the participants who decide the length of the hike, the distance and the content. Many use the hike as a method to bring a group together and experiencing something together. At the same time you can practice navigation, cooking, fire management and bivouacing. The aim can also be to make nature, culture and environmental studies or maybe just have a change of scene and do something different.

During the planning it is important that the group takes responsibility for most of the work. Naturally, the leader needs to be there during this phase too. One should have recce'd the area and therefore be sure that there is enough water and wood in the proposed camp location and consider the new group member's needs. To walk with a pack, cook in the open and not least sleep in a wind shelter makes the first hike extra exciting. It is not the distance you walk that determines the experience but the main thing is that you feel good and you feel safe.

When you and a friend are able to plan and run a hike on your own it's even more exciting. Then, the use of frilufts techniques really come into focus. To sit together by the beach and watch the sun set or to lie and chat in your sleeping bags creates memories for life!

From day excursion to expedition

Day trips, overnight trips, camps and expeditions are different forms of friluftsliv. What you do depends on your own knowledge, experience, time and budget.

The *excursion* is mostly done during one day, and you reach the destination by walking, with a bike or public transport. Even though you're not going to be out for more than a day you should have considered all safety precautions: what does the allemansrätten say? You might need to make contact with the landowner or the fire service if you plan to make a fire or fish.

The *overnight trip* is an excursion where you might sleep indoors, most often in a hut. Then, there are also many things to bear in mind: where do we pick up the key? Are we allowed to use the chopped wood? Who do we contact if there is an accident? Where is the fire extinguisher kept? And where is the first-aid kit? Although you may be staying in a hut you can carry out your activities and practice your nature and frilufts skills outdoors.

The *camping* excursion is sometimes the pinnacle. Often the camp is for a week or longer, depending on the group and the leaders previous experience. On camp it's usual to live in a tent (although some prefer a shelter), possibly close to some kind of a school or similar facility. It is through managing the art of keeping dry, warm and well fed for a whole week that you can prove, both to yourself and others, that you're competent in the outdoor skills that you've practised throughout the year.

The *expedition* means taking a longer trip into new areas and requires more knowledge. Before departure you have studied, planned and trained during one or a couple of years. The destination can be a mountain range, the coast, Kebnekajse or the Himalayas.

The roots and the branches of outdoor pedagogy, teaching and learning

Experience based knowledge

Teacher and philosopher John Dewey (1859 – 1952) was one of many proclaimers of first-hand experience and experience based knowledge. Through his progressive, pragmatic pedagogy he said that people, by nature, are active, seeking beings – that reflect on what they have done and why in an experience based context. This pedagogy base builds on experience based knowledge and of being in the landscape in other words learning by doing. The sentence "learning by doing", has often been misinterpreted as only the doing part. In an interpretation of the original text, "Learn to do by knowing and to know by doing" (McLellan & Dewey, 1889), learning is achieved through joining reflection on the action with text based practice. Insights about knowledge and

Jump 24

(about practicing counting)

Draw up a "figure ladder" from 1 to 24. The distance between the numbers should be so big that you can stand between them, but no further than you can jump over them. In pairs participants jump a maximum of three numbers at a time, count aloud. For example person one counts "1,2" - person two counts "3, 4, 5" – personal one: "6" – person number two: "7, 8, 9" etc. The one who reaches 24 has won.

Reflection: this trains both knowledge and bodily movement. The movement whilst jumping ensures that the whole body is included in the counting. Naturally, you could also count backwards and maybe the aim should be not to say "1". This exercise could also be used in learning a different language. Draw the ladder in the school playground. The game invites spontaneous play. Use colours that disappear with time. The next time you re-paint you will experience the excitement of the new or the enjoyment of something familiar.

Magpies build nests

(about saying, mathematics and movement)

Describe the life style of the magpie (see its characteristics in chapter 10, "suburban friluftsliv"). Split the group into pairs. Each pair are magpies, building nests. The pairs gather five sticks (40 - 50 cm long) and make a nest in a geometric shape of about 1 m diameter, using ropes, sticks or drawing in the sand. They ought to be 5 m apart. The sticks get placed into each "nest". The two "magpies" stand outside the nest. Their aim is to gather sticks from other magpie's nests. They may only take one stick at a time and place it in their own nest and cannot stand or sit on the sticks. When the leader decides the game is finished the sticks are counted and the pair with the most have won.

Reflection: the aim in the game is to co-operate and think of strategies to gather as many sticks as possible without losing your own. You practice being quick and nimble. By starting the game with a discussion about the life of a magpie, its characteristics and myths, you put the game into context. To avoid the pair with the fewest sticks feeling like losers you can recognise them as being the most honest, a pair to trust. If you do not want the participants to run with sticks then pine cones, that then transform into eggs, are a good alternative. By having a specific length for the sticks and by using geometric shaped nests you bring in elements of mathematics.

activity as well as outdoor environments and the meaning of friluftsliv can set the scene for the individual to have a holistic view and a create an understanding of their place in the world. Dewey wasn't the first to have ideas and reflections about activity based knowledge. It's roots can be found both with western philosophers (Aristotle's phronesis – practical wisdom) and with eastern thinkers (Confucius and Laotse) in China. Here is a brief overview of the emergence and development of outdoor pedagogics.

Evolution and communication

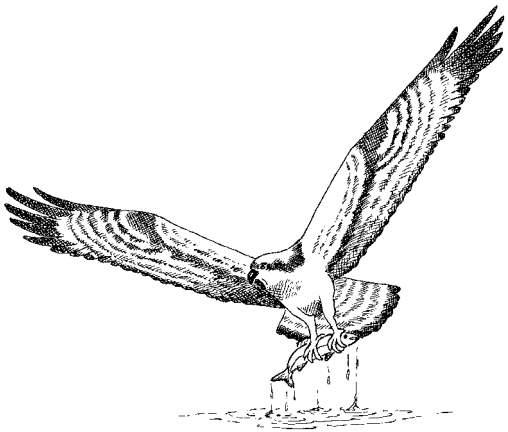
Throughout the greater part of his evolution and development mankind has learnt through experience and oral traditions in the landscape. Peoples impressions have left their imprint in the form of traces and remains from amongst other things: gatherer-, hunter-, farmer- and industrial cultures. Urbanisation and technological development has, through time, reduced the contact and the direct feeling of the green physical environment. As about 85% of our communication is non-verbal, people need to re-connect with other communicative environments and other ways to learn – where the landscape, the nature and the culture becomes a widened classroom and a source of learning, an arena and platform for knowledge building.

In our educational culture most learning occurs within the four walls of the classroom – quite a recent occurrence in the developmental history of mankind. Outdoor pedagogic roots and traditions therefore seek to recreate and bring to life direct contact i.e. a confrontation of meaningful authentic situations and context.

A historical crossroads is found in the writings of Aristotle (384–322 B.C.) where knowledge transfer starts with the experiences of the senses. Aristotle meant that the consequences of reflecting on things in nature are to be found in the soul.

Authentic and sensual learning

Authentic learning ideas and traditions were continued by the Czech pedagogue Johan Amos Comenius (1592 to 1670) who advocated an authentic learning environment together with educational content. The garden for him became a metaphor for tangible learning. Comenius based his learning didactics on the where?, what?, how? and why? questions. In other words, to bring the educational process to life through increased involvement of the senses. In this perspective the landscape becomes a classroom, a "school", that enhances the empathy in encounters with cultural pheno-



mena in the form of buildings, streets, nature- and cultural remains.

Another influential person in the development of outdoor pedagogic thinking was Jean-Jacques Rousseau (1712 to 1784) who strongly emphasised the importance of the interaction between a child and reality during childhood. In his book *Emile* or *On education* you can read the following:

> Since everything that comes into the human mind enters through the gates of sense, man's first reason is a reason of sense-experience. It is this that serves as a foundation for the reason of the intelligence; our first teachers in natural philosophy are our feet, hands, and eyes. To substitute books for them does not teach us to reason, it teaches us to use the reason of others rather than our own; it teaches us to believe much and know little.
>
> JEAN-JACQUES ROUSSEAU
> EMILE, (1762)

The Swiss philosopher Johann Heinrich Pestalozzi (1746 – 1827) describes, in his theory about learning, that our senses are the most important route for all knowledge acquisition. Pestalozzi's theory formed the roots for reform in the pedagogic movement – that the view of reality is elevated to be "the fundamental cornerstone of education". This "viewing" principle was a counter to the earlier approach of education through lecturing and spoken delivery.

An increase in digital material and technical input in education as a replacement for reality, develops an artificial culture with fewer first-hand experiences and less doing things.

Friedrich Fröbel (1782 – 1852) continued developing Pestalozzi's methods where the garden became the core in kindergarten. Fröbel's thoughts on nature in the book "The education of man" has influenced the methodology of outdoor learning.

With Selma Lagerlöf and her book "The Wonderful Adventures of Nils" as educational material (1907), understanding of the landscape increased in both children and youngsters. The Swedish Touring Association (STF) gave scholarships for school trips under the motto "know yourself, know your country, know your landscape" until the beginning of the 21st century. The emergence of folk schools, with their practical educational mission, made outdoor pedagogics with viewing of natural phenomena and culture possible. Knowledge of your local environment became a school subject in 1919, and outdoor teaching continued through some of the teachers working in the folk schools. In Sweden's general folk-school regulations from 1915 - 1917 the development of the educational garden was described in terms of it's knowledge value, beauty value and work value: "One was better educated by the spade and the rake then by the desk".

Key, Montessori and Freire

The dominant lecturing method was also questioned by the Swedish pedagogue and educator Ellen Key (1849 - 1926) who in her book "The century of the child" writes about "soul murder" in the schools":

Summer rain

(about hearing the rain come and go)

Gather all the participants in a small circle. Through different actions the participants have to recreate a rain storm. The actions are: rub the hands together against each other (rain is far away), tap with the fingers against the cheeks (the rain is coming closer), click with the fingers (you hear the rain drops), slap with your hands against your thighs (the rain is pouring down).

Everybody closes their eyes. The leader starts rubbing their hands together. When the person to the left hears that sound they also start rubbing their hands. When the person after hears the neighbour then he or she also starts until the whole ring is rubbing their hands. The leader then starts to tap with the fingers against the cheek. When a new sound is heard you finish the action you are doing and start the new action. After the movements "clicking with the fingers" and "slapping with the hands against your thighs" it's time for the rain to ease. The actions are done in reverse order finishing with just rubbing their hands together. The leader finishes with the last action until one by one the rain stops and everybody is silent.

Reflection: here you train listening at the same time as getting a sound experience. It's important to do this exercise in a place where everybody can concentrate.

A living obstacle course

(about moving a group)

Split the group into pairs. The first pair walk 15 steps and then create an obstacle with their bodies that the next pair have to get through. When pair two have negotiated the first obstacle they then take another 15 steps and make the next obstacle. Pair three negotiate the first two obstacles before taking 15 steps and making their own. When all the pairs have built an obstacle then pair one starts again and so on.

Reflection: to move a group from one place to another is not always an easy task. In this way the movement can become more fun. You practice working together, making it up, to touch each other and to be creative. As the participants decide what each obstacle should be, they pitch the level of difficulty themselves. Most often it's more demanding for the pair making the obstacle than for the other participants. It is not easy to stand on one leg or to sit with legs against each other high in the air for all to pass. A longer hike can be made more interesting using variants of this exercise. As a leader you can also be sure that everyone reaches the final destination.

> And so the pupil continues to be sacrificed to educational ideals, pedagogical systems,
> and examination requirements, that they refuse to abandon...
> What are the results of the present-day school? Exhausted brain power, weak nerves, limited originality, paralysed initiative, dulled power of observing surrounding facts, idealism blunted under the feverish zeal of getting a position in the class...
> The incapacity to observe for one's self, to get at the bottom of what is observed and reflect upon it…
>
> ELLEN KEY
> 3 SEPARATE QUOTATIONS TAKEN FROM KEY, E. (1909) "THE CENTURY OF THE CHILD"

Ellen Key was a strong advocate for the use of physical places rather than classrooms in the learning process and believed that "knowledge is what is left when we have forgotten everything that we have learnt". She was a fighter for alternative pedagogics, the field studies in real life were the starting point for learning and knowledge formation. The children shouldn't only seek knowledge in libraries but in reality for example practising maths by handicraft and gardening.

The pedagogue and doctor Maria Montessori (1870 – 1952) was also an advocate for the whole surrounding being seen as a learning tool where the school environment invited "doing and thinking".

In her pedagogik work "Erdkinder" (children of the earth) she wanted to develop a holistic learning where the whole body was part of the learning process.

The Brazilian educational philosopher Paolo Friere (1921–1997) shows the importance of active learning outside the classroom instead of a passive learning process when only the teacher delivers knowledge and decides what should be learnt. Freire saw the importance of work in the learning environment, but at the same time, like Dewey, raised a warning finger to only learning by doing. In another words the outdoor activity shouldn't happen without reflection about the learning and education.

The pragmatic pedagogic school

Other theoreticians whose work has influenced outdoor pedagogic philosophy and didactic foundation are the Americans Charles Sanders Pierce (1839–19 14) and William James (1842 – 1910) who both pre-date John Dewey. They were important in founding the pragmatic pedagogy school that outdoor learning has derived inspiration from. In their "pragmatic maxim" it is established that experience comes from impressions that dynamically interact with the physical environment and the whole array of senses. Reflection in conjunction with outdoor learning will therefore be both a language dialogue and an action dialogue, where the learning environment inside and outside the classroom interact and alternate with each other. It was in this context as important to read books as to be outdoors and study reality in situ. In today's society and it's "sedentary screen culture" there is a point of outdoor-based education that develops a more mobile learning environment thereby supporting learning through physi-

cal activity -where the body puts thoughts into movement.

This non-cognitive experience as described above runs as a thread in Dewey's view on education. His view coincides to a great extent with one of the outdoor pedagogues main aims – education being both "hands-on" and "minds on" to create lasting memories. The doing creates something lasting which the abstract statement based pedagogics cannot achieve.

"Flow" in outdoor learning

In studies by the American psychologist Mihaly Csikszentmihalyi (1934 –) the immediate experience has been shown to improve learning. It's about the situation where body movement leads to a feeling of tension, when time stands still (which is called flow). Doing friluftsliv and outdoor based pedagogics are examples of learning situations that all have the flow learning characteristics, i.e. a pragmatic, consequence directed pedagogic where the action and the concept are linked together with varying challenges and immediate feedback. In this context you could ask the question if today's school is a "risk factor" or a "health benefit" – considering the level of activity of stone age people compared with our sedentary future.

The developmental psychologist Jean Piaget (1896 –1980) thought that knowledge increased in an action related manner, in other words to have knowledge about an object means that you have acted in relation to the object. Piaget stressed the active nature of knowledge, which means that knowledge as a reflected experience is inseparable from learning as an activity, where each new experience consists of a reconstruction or rediscovery. The outdoor education can with this perspective offer an unforeseen meeting with the "unstructured" and thereby create just enough excitement in the outdoor learning environment. In this context it's impossible to talk about outdoor learning and friluftsliv without mentioning the German pedagogue Kurt Hahn (1886 –1974), the founder of the Outward Bound movement. For Hahn a morally responsible human was the ideal using pedagogics in attractive outdoor environments.

Finally, the psychologist and pedagogue Lev Semjonovitj Vygotskij (1896–19 34) ought to be mentioned. Vygotskij's theory on learning emphasised both socio-cultural factors and the importance of engagement with the group – working together with others and with the environment plays a large role in the development and learning of children and young people.

According to Vygotskij learning is more than a cognitive process. Fantasy also plays a central role and starts with creative actions of memorised environments.

In conclusion the following can be said about outdoor pedagogics: increasing the connection to reality and a students personal experience of different learning environments increases the potential for enjoyment of life-long learning. The educational process is therefore a journey towards better knowing, with a physical place, for example the school yard, the pre-school garden and the surrounding environment (landscape) providing a tangible natural motivation - and a stimulating arena for a pedagogic use of space.

Maths with nature

(about practicing maths with the help of nature)

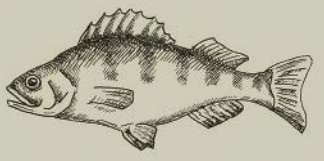
The participants walk in a line towards the leader who gives each of them a number from (1 - 5, depending on how many people you want in each group). The number is given by holding fingers in the air. When everyone has a number they show it with the fingers of their raised hands. This creates the groups
Every group should make a number ladder (1–10) with the help of things they find in nature, For example a straw of grass, a stalk with two flowers, a leaf with three lobes, a four leaved clover, a flower with five petals… The result is then presented to the other groups.

Reflection: through splitting the group in this way you become curious who is going to be in your group. When making the number ladder you have to look at details that you might not otherwise observe. There is also a place for fantasy and creativity. By presenting your items to the other groups you practice use of language and talking in front of others. At the same time you have a chance to improve your knowledge of different species.

The “class-bait” – fishing and frilufliv during school time

(about trying fishing in summer or winter)

”The class-bait ” (”Klassdraget”) is an offer from the “Sport Fisherman” organisation whereby a local fishing club helps to arrange a sports day (winter or summer) with fishing as a central part. The leaders from the club run the activities. The class get given fishing rods, – short winter rods, that they can keep, and some literature. Apart from fishing, knowledge about allemansrätten is also included as well as activity suggestions suitable for the location. The project started in 2007 and more than 90,000 students have taken part so far. A unique offer to get to know the aquatic environment.
The class need to make the application to the “Sport Fisherman” organisation together with their local club. You can read more about this project and it’s requirements at www.sportfiskarna.se/KlassDraget



The whole body is needed to learn

Eyes see lots and ears hear much
But hands know best how it feels to touch
Skin can sense if someone is near
That the whole body is needed to learn – is clear.

The brain can think and structure out talk
But legs know best how it is to walk
The back knows best how much weight it can bear
That the whole body is needed to learn – is clear.

If we wish to learn all about our earth
Words can be useful, for what they are worth
But we must be able to get very near
That the whole body is needed to learn – is clear.

LEIF KRISTIANSSON

Ecology, human ecology and sustainable development

– About basic knowledge of nature

BY KLAS SANDELL

Eco…

The ecology of the camp fire

By a campfire many thoughts come to mind. Nowadays it is not unusual for these thoughts to be about ecology and the environment. The wood of the campfire becomes carbon dioxide and water at the same time as it heats me and my tea water. Carbon dioxide is the most important so-called greenhouse gas and the greenhouse effect is one of today's most serious environmental problems. Still, I'm sitting here by my campfire with a good environmental conscience. When I look up to the evening sky I see pine (*Pinus spp.*) and alder (*Alnus spp.*) crowns that, through photosynthesis in their needles and leaves can capture carbon dioxide. With the help of water and nutrients (for example from my ash) new wood for fires is made with the help of the sun's energy. At the same time oxygen is produced – which we and other animals need to breathe. I wouldn't feel this way if I had heated myself and my tea with a non-renewable (fossil) energy source, for example with a gas or paraffin stove. Fossil energy has been created over a very long period of time. To offset today's carbon dioxide production then the forest would need to cover an ever increasing proportion of the Earth's surface.

The fireplace is made of loose stones and old seaweed so as not to damage the rock. Tomorrow morning there will only be a little bit of ash left that I will hide under some stones before I paddle on.

The science of ecology

It is clear in my thoughts that for a long time we have had an honorary word – "eco"- (eco-logy, eco-philosophy, eco-politics etc.). I wonder, for example, how many people know that in social planning in Sweden in the 1970s it was decided to adopt an "ecological viewpoint"? Ecology is basically a biological science with the main emphasis being that everything is "connected". We cannot see a plant or an animal (for example a human) as something isolated, it has to be seen as part of an inter-connected system. Even if chance seems to be the most important driver in the system different parts co-exist and interact in different ways.

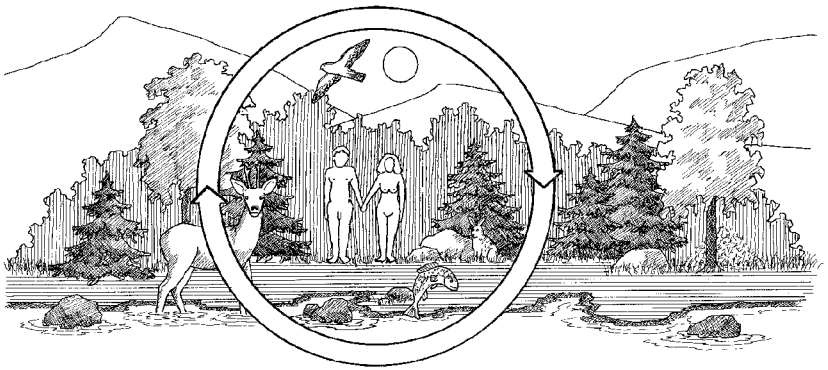
Multiuse of leaves

(about discovering the differences and similarities of leaves)

This section is about how, using leaves, we can discover the changes in nature, bring our fantasies to life, practice working with others in a group and discuss and argue a case. Split the participants into groups (4-6 in each group). During a period of five minutes the groups gather as many green leaves as they can (in autumn they may naturally be yellow or red). When the groups re-gather they place their leaves in a row, from the lightest to the darkest. Compare with the other groups which is the darkest leaf.

In the next part of the exercise you place similar looking leaves in "family" piles that are given fantasy names such as the family "round stomachs", the family "arrowheads", the family "love hearts". When presenting the "families" to the other participants you split the leaves into new groups for example the ones with rounded edges, serrated edges…

In the next exercise the sense of touch is included. Leaves that are soft are placed in one pile, coarse in another and the hard in a third. Finally, using a magnifying glass, look at the leaves and order them from the most to the least hairy. Using a magnifying glass you will also see things that the naked eye can't pick up, for example the veins of a leaf, the microorganisms and your own hand. ▶



Ecology, from the Greek oikos = house, home, housekeeping (compare economy). The teaching of the interaction between living organisms and their non-living and living surroundings.

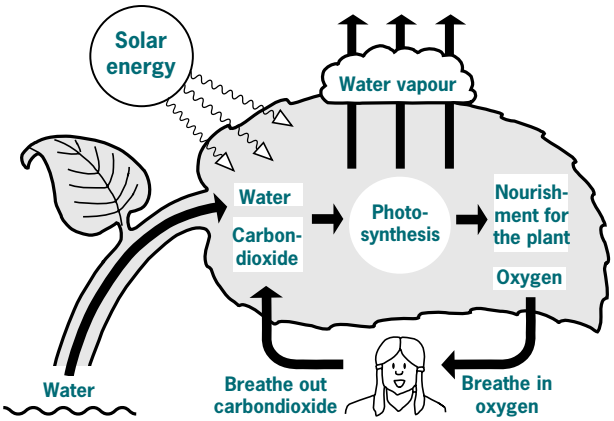
BENGT NIHLGÅRD & STEN RUNDGREN

The reason that this science has come into the spotlight is mainly due to the emergence of different environmental problems. How much poison has Östersjön, the body of water that surrounds my camp site, been contaminated with? The negative development with regard to environmental problems was already in the 1990s described as follows. This was written in a report about the global situation from the World watch Institute in 1993.

Despite all efforts to save the environment, all the trends are continuing towards further damage, just as they were 10 years ago. The earth's forest cover is continuing to shrink, the deserts are continuing to spread, a third of all farming land is subject to severe erosion. The number of plant and animal species that we share the Earth with is diminishing. The concentration of greenhouse gases in the atmosphere is increasing every year. On the plus side however, we can note that engagement for the future of the Earth is continuing to grow around the world, which gives hope that one day the destruction will be able to stop and reversed.

The seriousness of the situation can be illustrated by the fact that we will have used up all of a given year's resources by the start of the autumn. Due to the use of fossil fuels, meat production, over fishing the seas resources etc. the day when we will have used up the current year's resources comes earlier and earlier every year.

The Earth is a system. An animal or a plant doesn't "just" die. The death frees, with the help of tiny organisms, the substances that each animal or plant was made of. These freed molecules are part of a big cycle that nature is made of and will, sooner or later, build up new structures. But is this really something new? We have all seen how autumn leaves decay and become earth, that



later provides the nutrients for a seed to grow into a new tree. "Of earth you have come. To earth you shall return" is written in the Swedish Christian burial ritual.

A North American Indian said "if the people spit on the Earth, then they are spitting at themselves". In our time we often use different ecological terminology to try to understand and explain the links in nature.

Sustainable development

What is it that's "sustainable"?

Environmental discussions today are often about a more sustainable development (see chapter 12 on page 217 "Friluftsliv close to nature, an environmental pedagogic"). These discussions have clear links to ecological perspectives. The thing that "sustain" is the photosynthesis that, using the energy from the Sun, builds up the green plants that are then eaten by humans and other animals. (The word photosynthesis means to manufacture with the help of light.)

Since only about a 10th of the energy is taken up by the next link in the so-called food chain (plants – herbivores – carnivores) this chain is seldomly more than 4–5 links long. This means that it is an incredible waste to make the food chains unnecessarily long, for example through catching fish (that have eaten smaller fish that have eaten animal plankton that have eaten plant plankton) to then feed to farm animals and only after that are eaten by us. It is better to eat as far down in the chain as possible, for example vegetables (that live directly from photosynthesis) or fish (without the detour through a domesticated animal) or lamb (that can graze where we can't grow anything else that we can eat).

What population size can be "sustainable"?

Animals and plants become more and more abundant until something puts them in check. This could be a lack of food (or light for the plants). It could be too many predators (foxes that eat hares etc.) or something else that means there is "no more room" for this species in this area. The species has

Reflection: By working in groups with only a few instructions the group has to agree on, for example, which leaves have certain traits. The participants learn to take sides and to argue for their opinions. But the training also includes accepting the decisions of others. As a leader you have a good chance to see how the group can work together. Is it always the same person who gets their will through or who steps out of the decision making saying "you decide"? The exercise also brings attention to the variety found in nature and in leaves. They are not just a green mass. With this as a stating point you learn to understand that the leaves belong to different species and later, using a flora, learn about the different colours, shapes and characteristics of leaves.

How many fit in?

(about the carrying capacity of different areas for plants and animals)

One way to start to think about the carrying capacity for different species in various places is to start counting them. How many trees of a given species can be found in an area in the pineforest, in the grazing pasture, on the mountain and in the deciduous forest? Why is a certain species less abundant in a particular location? Perhaps it is low levels of light, lack of nourishment or food. Or perhaps the number of competitors that have grazed, picked or eaten the food?
In winter you can search for the tracks of animals. What kind of tracks are found and where? Were there many or few tracks? What might be the reason? Read more in books about animal tracks. Reflection: By counting for yourself you can deduce reasons and this in turn forms a basis for ecological thinking.

The world as a dinner guest

(About a good dinner and World trade)

Invite friends or parents to a dinner that you make yourselves using ingredients from across the world. In the grocery store today you can find food that has come from many exciting countries. Discuss over dinner where each ingredient has come from and consider questions about their transport, manufacture, packaging etc. Is it reasonable that

▶

reached the area's "carrying capacity". Animals and plants cannot consciously change their diet, but humans can.

Through our use of technology we can raise the carrying capacity, so there is space for more of our species in a certain area. The food in a given area can support more people when they are engaged in farming than if they lived by hunting and fishing.

In the industrial society the resources from other areas and other time periods are important to maintain the carrying capacity. That so many people can live in Stockholm relies on transport of food, fuel, waste etc. that all the time enters and leaves the city. Many of the resources are derived from other ecological times than our own, for example oil and other minerals, and will not be returned to the overall cycle until a long, long time after we, who have used the resources, have died. Typically, an industrial society uses resources from greater distances to sustain material well-being, resources that are distanced both in time and space.

> Today every Swede is gnawing on patches from all over the Earth.
>
> TORSTEN HÄGERSTRAND

For how long can it be "sustainable"?

Some limiting factors (things that halt the growth of a species) are reached straight away, for example predators or lack of sunlight for plants. Other limitations such as overgrazing or intermittent dry periods can occur more gradually.

Humans have built large systems of transport, industry, research and payment to meet our needs for energy, food etc. These large systems are needed in order to maintain the carrying capacity of society at today's level.

Today's environmental and resource problems are largely to do with the stability of these systems. We know that natural resources that are non-renewable for example oil, coal and nuclear power, are important as cornerstones for our carrying capacity today. Is there enough time to replace these with more sustainable energy resources?

Humans are not only special in relation to other animals because they can use technology to raise their carrying capacity. They are also never satisfied. An elk cannot eat a limitless amount – it becomes full up!

Humans seem to be able to think of ever new ways to increase their material consumption. For humans the carrying capacity is not only a question of how many can be supported in an area, but also how much resource each person can use. You can wonder if the striking differences between the use of resources by the rich and poor will be levelled before damaging conflicts break out and threaten the whole structure of society. Added to this is of course the deep moral injustice in how the resources are allocated!

There are, therefore, great uncertainties as to how many people the earth can support in the long run. This means that you increasingly need to discuss "principles of prudence" and that you always have consider "surprises" when you try to understand ecosystems as well as environmental and natural resource questions. Despite advanced science and forceful technology mankind cannot be too complacent about its ability

to control nature, we have to be careful and ready to reconsider our knowledge.

All material on earth is circulated in a shorter or a longer time scale (nothing disappears). The only thing that is incoming to the earth is solar energy, and for sustainability in the long run, we must build on this. You can liken the whole system to a waterwheel where everything goes round and where the movement (life) is driven by a flow. The solar energy, that is our flow, "pours" after use out into space in the form of diffused heat radiation. "Sustainable development" was defined in the Brundtland report (1987) as:

> "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

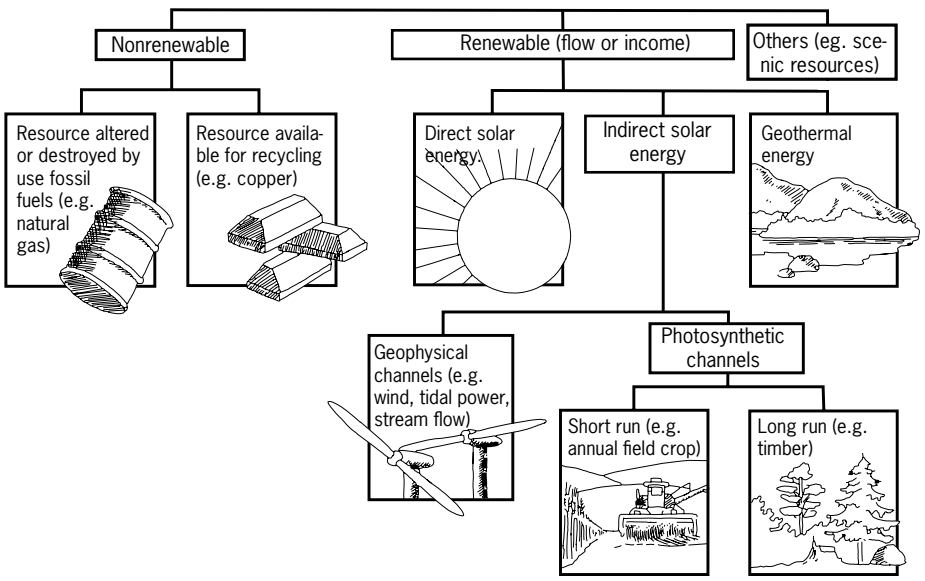
Ecology and feeling

The developmental perspective we are part of today, with ever increasing material growth built on largely un-renewable resources, is about to "hit its head on the ceiling", and we keep banging it harder and harder! It is a ceiling made of both environment and politics.

- We experience increasing difficulty eliminating waste products.
- The raw materials are diminishing, pollute the environment when used or become increasingly expensive (amongst others clean air and clean water).
- The population of the world is growing.
- There are not so many "virgin" areas left to exploit or expand into.
- The rich often have more than they need at the same time as the poor do not have resources to buy what they need.

Natural resource

Derived from Peter Haggets *Geography: A Modern Synthesis*



we should be able to buy cheap food from the whole world all the year round in Sweden? How much energy has been used to get the food to our table compared with the amount of energy contained in the food itself? End the meal with an exotic fruit salad, and you will taste the whole world in one mouthful!

After this meal when you have discussed where it all came from and how it was produced you can plan a second dinner. This time, try and cook something that is as environmental and sustainable as possible. Information to help you decide what is sustainable can be found through the environmental co-operation "Friends of the Earth" (Jordens vänner) or other similar organisations. Finish off this meal with an exotic fruit salad and cream and "fairtrade" coffee, where production and processing, in other words a greater share of the income, go to the developing countries themselves. Solidarity needn't only be about sacrifices.

Reflection: We often talk of sustainability without fully understanding what it's about. In this exercise you get a hands on feeling for shopping in a sustainable manner. It isn't always easy but with willpower, motivation and practice it soon becomes a habit to choose the best option. To shop as environmentally sustainably as possible, it's often a good alternative to choose local produce. It involves shorter transport distances and local businesses are supported. Hopefully we also acquire an ecological way of thinking.

Oh deer

(about an ecological game on the need of deer)

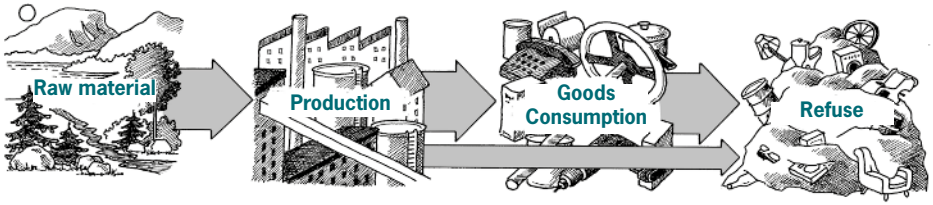
The three primary survival needs for life are water, food and shelter. Make two lines 10 m apart. Split the group (preferably about 15 for a good outcome) so that about ¼ are standing by one line and the rest along the other line with their backs facing each another. The small group are deer. The others are water, food and shelter. Each participant decides for themselves which of the resources they represent at the start of each turn. This is done by showing the signs: Water – hands to the mouth, Food – hands on the tummy. Shelter- hands like a roof over the head. The deer choose what resources (water, food, shelter) they need using the same signs. At a given signal both lines turn around showing their signs. The aim is for the deer to run across to the resources and find one showing the same sign as themselves. The one who was chosen joins their deer on the "deer line" and are now also a deer. The deer that didn't find a resource they needed will "die" and become a resource themselves. Each new round the participants choose a new resource they represent or need. Each round is equivalent to one year. To visualise what happens over time you could make a diagram on the status of the deer population each year. What if nobody shows the same signs? Catastrophe, the deer become extinct!

▶

As this ceiling becomes more apparent, there is a growing need for an ecological point of view. However, apart from ecological knowledge there is also a need for a feeling for nature. There is furthermore a need for a feeling for humans, but not only the ones living here and now. Developmental theory shows us that chance and coincidence are important drivers in nature. Ecology as a science cannot give us guidance for our actions, other than certain boundaries and limitations. Environmental politics, resource and developmental questions are largely to do with values. Feelings for nature and other people give us responsibility and we have to try to make these decisions and take action. This also applies to decisions about how we choose to live our own lives. We can strive not to increase the use of, for example, fossil fuels or the production of various long-term dangerous substances – which still happens today! We can choose to challenge political decisions that lead to increasing division between different people, both in Sweden and throughout the world, which occurs today. Apart from divisions being deeply unjust they also lead to conflicts and increasing environmental damage.

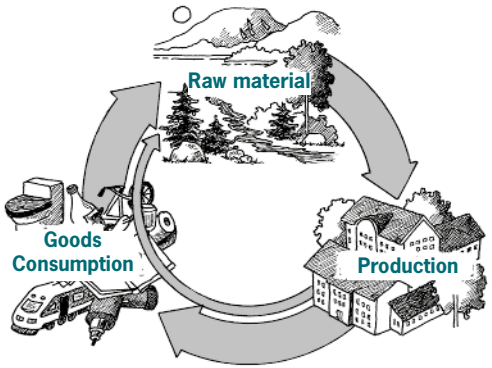
Linear use of resources (today)

(To a large extent driven by non renewable energysources)



Cyclic use of resources (tomorrow)

(Driven by renewable sources of energy)

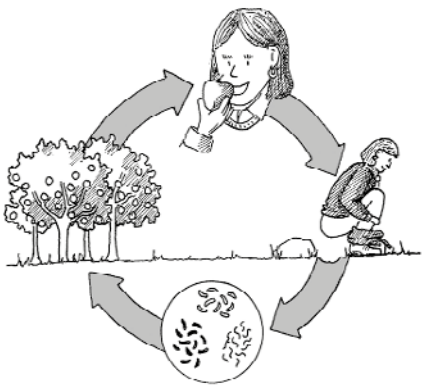


My body – a meeting with nature

From tea to pee

Even my own body is of course part of an ecological system. In this respect not much separates us from other animals. If co-operation and balance is rocked in our lives then we notice it in the form of deteriorating health.

We are in the midst of a continuous exchange of the building blocks with our environment via the food we eat and our waste products. Cells are broken down, die and are removed and replaced continuously by new ones taking over their role. The fastest example can be found in our gut system (mouth, throat, stomach and intestines) where the outer wall of the intestines is replaced almost every 24 hours. For this regeneration we need both building materials and energy. The building blocks are carbohydrates, fats, proteins, minerals, vitamins and water. The energy comes from carbohydrates, fat and protein. I'm just wondering if I'm not feeling a little hungry – I just need a pee first.



A short term loan

The waste products that we eliminate through faeces, urine, breathing and sweat can be used for other life. We have the material on a short term loan in our bodies, a loan from up to a few hours to maybe a lifetime. During the time we have the loan of this material, it can be seen as a link in what we call life. But when the body lets go of it becomes dead material.

> From somewhere in the cosmic vastness came the elements to build the provisional me. Sometime, they will swirl on. They have never before been aligned in this way, that made me, and will never align again in the same combination.
>
> ROLF EDBERG
> (loosely translated)

It will come to life again when bacteria or fungi build it in to their own life processes. The interchange between living and dead material has happened innumerable times in the history of life and will continue as long as there is life. No matter is recreated or used up – everything is just circulated in cycles where the shape and forms change. My body is not my own, but a place for life where building materials and energy are taken in, serves a purpose and then is set free. What belongs to me is life – or rather, life is me. The body and its material are just a short term loan.

> The body is the humans access to the world and the worlds access to the human.
>
> ERLING KROGH
> (looosely translated)

Reflection: In this exercise you can clearly see what might happen if the ecological balance is rocked. It may give a chance to discuss how one can affect nature. By making a diagram the fate of the deer population can be visualised. Maths can be brought in too by making calculations on how many deer, as a percentage, survive each year.

Dinner is served

(About seeing what different animals eat)

When there is snow on the ground it is easy to find out which animals are in the area. At a suitable place you put out different kinds of food. These could be cabbage, apples, nuts, boiled or raw potatoes, bread etc. The participants could bring something themselves. The next day you re-visit the same place and find out which animals have been there.

Reflection: it is exciting to see what food has disappeared and which animals have taken it. As it's quite easy to distinguish the tracks in the snow there is also a chance to learn what they look like and to differentiate one set of tracks from another. Curiosity leads to new discoveries and new knowledge.

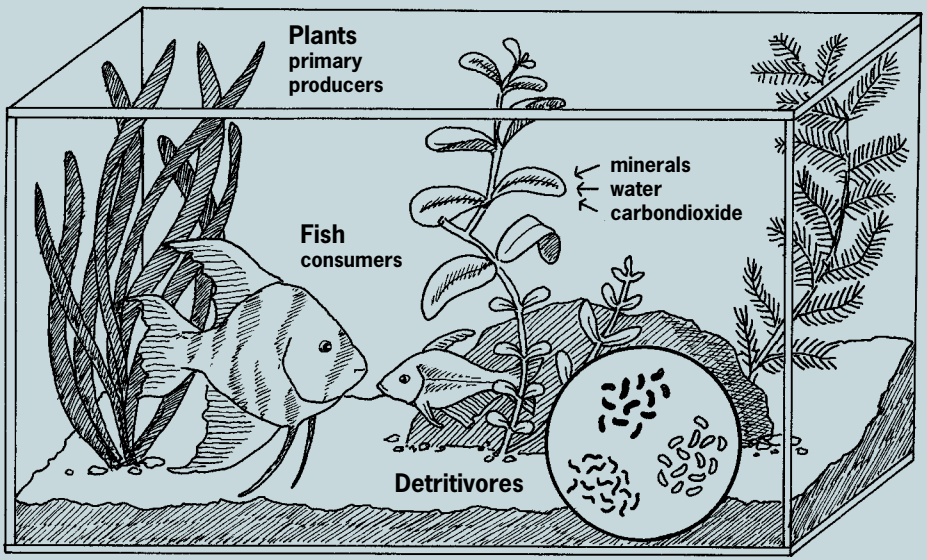
Our aquarium

(about ecological studies using an aquarium)

One way of following an ecosystem is to create an aquarium. It can contain plants and animals from the lake at home (see chapter 7, Wet Waters Page 133) or bought fish and plants that you normally have in an aquarium. The plants are not only for decoration, they use the energy in the light to make sugars from water and carbon dioxide. They release oxygen that can be seen as small bubbles on the leaves (photosynthesis). Using sugars and minerals from the water and the sand the plants build up tissues that make stems and leaves.

The fish in the aquarium have to eat the plants (or possibly the food that we gave them) to get energy and material to build up their tissues and continue and be able to grow. (In reality there would also be bigger fish that eat the herbivorous species). There are also small organisms, mainly bacteria, that break down the plant parts, the fish faeces etc. to their constituents, mainly water, carbon dioxide and minerals. The cycle is closed. You can close such an ecosystem completely so it's totally sealed apart from light (energy) that has to be added. See if you can get as good a balance between the producers, the consumers and the detritivores (those that breakdown matter) in your aquarium and no extra food or oxygen is needed.

Reflection: using an aquarium you can study what happens over time and what might happen on a larger scale in nature. Being responsibile for an aquarium requires commitment. By following the life in the aquarium many questions about life will arise. It becomes a living source of knowledge and can lead to further studies in nearby water bodies and a growing interest in aquatic ecology.



Are you bio-degradable

(about practical experiments in bio-degradation)

Where are, for example, our kayaks and other outdoor equipment when we are dead? Yes, that depends of course on what they are made of. Take a plank and nail to it rubbish made of different materials (try and find material that breaks down at different rates). Place the plank with the objects facing down on the ground in a nearby place. Revisit the place every now and then to see what happens. You can make many planks and place them in different places (in water, on dry land, in the vegetable garden or on the mountain-side). What is outdoor equipment that shows respect for natures cycles made from?

Reflection: Seeing for yourself what happens can lead to a greater understanding, for example the reasons for sorting and recycling materials in everyday life.

The history of the landscape

– about basic environmental relationships

BY BRITTA BRÜGGE AND KLAS SANDELL

The natural landscape

Finally at the summit!

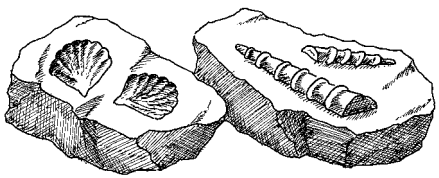
The height above sea level as shown on the map says 163m. The last 50m felt like ten times that! But on reaching the summit of the mountain I feel it was all worthwhile. I can see over wide flatlands and blueish ridges. Here the coffee in my thermos flask tastes especially good! My thoughts travel back in time to when the ridges, like the one I'm standing on were formed.

I have sat down on the bare rock, a small shard has come off. In the clean cut face you can clearly see that the ridge is made up of different interwoven rock types. A mineral is a chemical compound creating a certain crystal shape, colour and hardness. The minerals I can make out here are quartz, feldspar and gneiss, these are the components of granite. It's mainly the feldspar that gives the granite it's colour. In this location the feldspar is red – red granite.

The hardness of a minerals can be helpful when trying to determine what type it is. One of the softest is chalk. You can make marks in it using your nails. Diamond is the hardest.

On picking up a piece of rock I see that it doesn't have the same structure as the stone I looked at below the hill on the flatlands. Up here the rock is made of crystallised formations (eruptive). They have come from the hot melting pots inside the earth's crust or hardened from lava on the surface of the crust.

On the flatlands, that once lay under the ocean, the rocks in some places are layered (sedimentary). They were constructed by wind, water or glaciers over millions of years transporting gravel, sand or mud. The matter sank to the bottom of the ocean of the time and have subsequently hardened and joined together (cemented together). This is still occurring on lake and ocean floors today. Sedimentary rocks are for example sandstone, limestone and shale. In limestone you may find fossils. These can be formed from coral, shells or octopus (straight horns, Orthocephalus). Have a look next time you walk on a limestone staircase!



Stone knife

(about cutting leather using flint)

Flint can be found in limestone that contains dense areas impregnated with silica. When the flint is broken it often has a muscle shape with sharp edges that can be used for cutting. Flint was therefore an important tool before humans started using metals. Flint can be found in the south of Sweden, for example by the coast of Skåne.

Leather was an important storage material in hunter gatherer societies. A flint scraper, for preparing leather, may have been kept in a leather pouch hung around the waist, together with some needles of bone, an object of bone or stone (to make holes with) and a magical amulet. Make your own leather pouch using a flint knife (a shard of flint with a sharp edge). Take a piece of leather, draw a circle 20 cm in diameter with a piece of coal. Place the leather on a flat surface (for example your hike tray) and cut out the round piece of leather. Cut out small holes (shaped like "cats eyes") with 2–3 cm space between them and 1–2 cm from the edge of the piece of leather. A leather strap can be made by cutting a sliver from another piece of leather. Thread the strap through the small holes and draw the bag together. As an alternative to the flint knife a normal knife could also be used

Reflection: when you make something practical with simple tools you experience the same satisfaction as felt by people in former days.

There is a third group of rocks: the ones that have changed themselves (metamorphic rocks). These rocks, initially granite or sandstone, have changed from their original state due to pressure, heat or elements in their environment. Examples of metamorphic rocks are marble, mica and gneiss. The gneiss that is derived from granite under high temperature and pressure inside the earth's crust, has a structure that looks like "streaky bacon". (it can be compared to the granite's corny structure reminding us of a "spotty sausage")

The inland ice

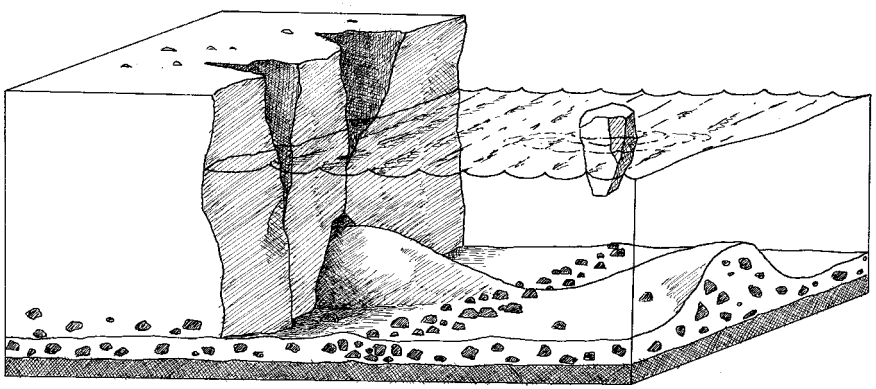
I let my eyes scan the landscape. This is where the inland ice lay and, when it melted some 10,000 years ago, it left it's traces. There are no pointed summits to be seen, the shapes have been rounded off. On rock faces I can see traces of the movement of the ice. Gigantic rocks frozen in the ice have left marks ("ice scratches") on the underlying rock as the ice passed over it. I can also see how the ice has "planed" the mountain's surface from the north, the direction it came from (the approach side) and I can see how much steeper the mountain is on the "lee side", where the ice also left blocks of stone.

At the edge of the inland ice a line of sediment built up. Some was built up at the mouth of big ice rivers where rounded stones, gravel and sand were gathered. That's how the glacio-fluvial eskers were formed. It is these eskers that I can see on the horizon and that today play an important role in our water supply. The eskers work as giant water pipes. The groundwater percolates though the gravel and can be pumped up. In many places the glaciofluvial sediment is used to clean water that comes from lakes or rivers. This water we later use as drinking water. Other deposits were made by the ice and left as end moraines along it's edges.

Moraine

I leave my vantage point and start to walk down the slope. Soon, I leave the bare rock behind and enter a forested area. Here the mountain is covered by a layer of earth. The inland ice has scraped the loose sediments that were lying on the rock.

The ice could even break loose blocks of rock hundreds of metres across. When the ice disappeared, it left this material behind.



The land form that was then created is called a moraine and is common in Sweden. Since the ice took everything in it's path the moraine can include both small clay particles and large blocks of stone. The rock types found in a moraine depend on where it came from. From where I'm standing now, I can see that the moraine has travelled a long way with the ice, it has fine particles with lots of clay and small rocks. The moraine that hasn't come so far won't have been ground as much and contains coarse, sharp edged material. The glaciofluvial eskers contain sand and soft material due to the forceful melt-water causing the stones grind against each other.

In a small gravel pit I look at the material under my feet and make a sketch to compare it with the excavation for a new car park in the city. In the gravel pits I can also see how nature heals its wounds by the way different plants occur. An early colonist is the rosebay willowherb or fireweed (*Chamerion angustifolium*) that already shines pink at the edge of the gravel pit.

The forest came

But it wasn't the rosebay willow herb that came first when the ice disappeared. On the tundra moorland that was created you would have found similar vegetation that occurs today above the tree line in the mountains. The first trees were low, bush-like birches. After a while as the climate became warmer, the trees became bigger and the forest spread.

For many thousands of years the forest consisted of birch (*Betula spp.*) with pockets of aspen (*Populus tremula*) and rowan (*Sorbus spp.*). As it grew warmer new trees appeared in the landscape. Pine seeds spread from the south. The warm climate enabled the forest to grow at higher altitudes in the mountain regions than they do today. Pine stumps have been found in the area of Helags, proving that the pine forests grew at least a couple of hundred metres higher than they do today.

Apart from the pines (*Pinus spp.*) the oak (*Quercus spp.*), elm (*Ulmus spp.*) and hazel (*Corylus avellana*) were also common species of trees. The birch had to make space for alder (*Alnus spp.*), lime (*Tilia spp.*) and maple (*Acer spp.*). The forest began to consist of giant trees with glades of lush grass and many flowers. Young forests of maple and ash grew so close together that it was hard to penetrate.

The trees wander

The forest that I'm walking through now consists of birch, rowan and pine, but spruce fir (*Picea abies*) is the most common. When did they arrive? About 4000 years B.C. the climate changed to become colder and wetter. Trees that needed warmth were forced back by two new tree species that appeared. These were the spruce and the beech (*Fagus sylvatica*). The spruce came in from Finland, north of the bay of Bothnia, and spread south through Sweden. Because it likes the shade when it is a seedling, it survived amongst other vegetation. When it becomes mature it shades and out-competes neighbouring species that need more light. Today the spruce has almost reached the South and West Coasts of Sweden. The spruce fir trees that do occur in the coastal areas of Southern Skåne, South Blekinge and Western Halland have been introduced by humans.

The beech spread into Sweden from Denmark about 500 years A.D. and is now found

Stone age tea

(About soup or tea made of rosehip and fireweed)

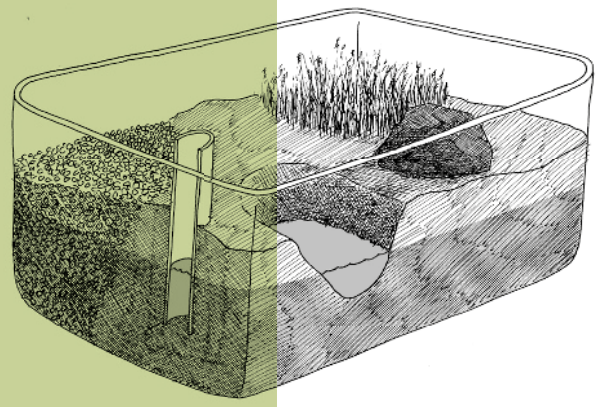
It wasn't only people from the Iron age who gathered things in preparation for winter. Humans still do so today. Gather the red rose hips (*Rosa canina*), dry them and boil soup or tea during the dark winter evenings. Sweeten with honey. Fireweed (*Chamaenerion angustifolium*) leaves can also be dried to make a splendid tea

Reflection: Using of what's found in nature is a good way of showing that there are many useful things that you would otherwise buy in a shop. When you use them in the winter you will think back to the time when you picked them.

Underground water

(About illustrating groundwater in a plastic aquarium)

Groundwater is the water that fills all holes and cracks in earth or rocky ground. The groundwater level is generally found some way below the surface and it is visible in the form of lakes or ponds. One way to illustrate it is to take a plastic aquarium (or other transparent tub) and fill it with stone, gravel and earth (including a tuft of grass) so that it looks like a miniature landscape. Pour on water, for example with a watering can, and you will see the water trickling down through the ground and filling the aquarium. If you have a hollow in the "landscape" the groundwater level will be visible as a small lake. If you put down a plastic tube split in half lengthways (for example an "electrical tube") on the inside of the aquarium, the groundwater level a bit down is visible in this "well". If you leave the landscape alone a while allowing it light and water, it will soon become a small living landscape wih plants and animals. ▶



in the whole of the southern Sweden as far North as lake Mälaren. During the centuries that followed the climate varied with warmer and colder periods up until the 1600's when it again became colder. Due to this cooling the spruce forced the beech back as far south as Skåne and favoured the animals and plants we see today.

Deciduous or coniferous forest?

Apart from man's intervention the climate and the soil are what determine which type of forest occurs in different places. By studying what grows on the ground you can determine what must lie underground. Try comparing what plants you see with a geological map (showing the rock and soil types) next time you go for a walk. Sweden with its northern position is dominated by coniferous forests. But in the mountains that have a harder climate and in southern Sweden with its mild winters it is instead the deciduous forest that dominate. The birch, that was first to appear after the ice age, can be found in the mountains. There, the climate and the ground conditions are still favourable for this pioneer species.

In southern Sweden the deciduous beech and oak thrive and establish forests. Between these two areas you mostly find pine and spruce. After storm damage or clear felling it is the leafy trees that always come back first. As time goes by the conifers increase and ultimately pine and spruce fir dominate.

The forest floor will be affected differently depending on whether it's coniferous or deciduous. A leafy tree loses its leaves every autumn, adding material to the ground. The breakdown of organic matter is faster and the leafy forest gets a thicker humus layer than the needle forest. This layer consists of unrecognisable remains from dead plants and animals that are broken down (see brown earth amongst the characteristics in the end of this chapter). Coniferous trees don't drop all their needles every year. In the south of Sweden the pine's needles last 3–4 years, but in the north it can be 8–9 years. The spruce tree needles can last 7–10 years. When they end up on the ground and are broken down acidic degradation products are created making the soil in the coniferous forests acidic. Breaking down is slower for needles than leaves, so the layer of dead plants and animals that have yet not started to be broken down becomes thicker in a needle forest (see pod soil among the characteristics at the end of this chapter).

The ants extremely beautiful little
face next to a pine needle
– and she takes the pine needle,
balances it's green glow finely over
her back and carries it home.

GÖSTA FRIBERG *(loosely translated)*

The Cultural Landscape

Humans make an entry

When the inland ice disappeared, the reindeer wandered into the tundra. They were sought after by humans who followed them onto the land. When the climate became warmer and the growth of plants increased it became possible, apart from hunting and fishing, to gather roots and berries. The people followed the animals and the changing of the seasons and didn't affect the landscape that much.

But as the human population grew, they started growing crops and became more fixed in one place (in Sweden about 4000 to 1500 BC). But in order to grow things they needed fields. All the ground was covered by forest that first had to be cleared. Suitable tools for clearance didn't exist yet. Instead, they used fire and the forest was burnt down. Roots that rotted and ashes then provided nourishment where seeds were sown.

Historic landscapes today

We can sometimes find piles of stones, fences and oaks in the middle of the deepest forest. By the dark forest lake, where an ant trail runs, there are some old stakes sticking up, evidence of early harvesting. Everywhere around us in the landscape we can see the remains of the earlier buildings and other human tracks. They bear witness to a different use of the landscape than the one we see today. And today, even deep within a mature forest there were once many little houses, each with a tiny field enclosure. There may have been some smaller plots, further in the forest and maybe a cow in the barn. The forest was then inhabited and not empty like today, empty and mostly only used by forestry companies. It is interesting to search for traces of how people lived. But you have to be a "detective" to discover the signs

Hiking grounds and expedition areas become more alive when you find an old road or some fallen fence poles of oak in the forest. You can link this together with how the area was inhabited and used in former times. People who still remain, old maps, local writers and local organisations can become fantastic sources of information. They can often give an explanation of the stone walls, the collapsed food cellar or the little barn on the mire, far away from habitation. Making such discoveries gives us a reason to stop and ponder on our own view of nature. It also tells us of mankind's dependence on nature and provides opportunities for poignant experiences.

The "footprint" of the cultural landscape

You can compare the cultural landscape with footprints from the activities of people of earlier times. These footprints come in the form of, for example houses, roads, fields and mines placed side by side and on top of each other, in the natural landscape that the ice left behind. In a similar way to when a school class or another group tramples over a muddy area the last persons tracks are the clearest. If many have passed you need to be a very good detective to find the tracks of the first people. But if somebody has made a track slightly to side of the rest, where no-one else

Reflection: through visualising what happens in reality in this way it is easier for children to understand what happens in nature. It can for example be a discussion about what happens after clearing a forest (there are no longer any trees to take up the water) or an environmentally dangerous emission (illustrated by for example by food colouring).

Nature patterns

(About looking for details in nature)

Draw a number of shapes onto pieces of paper. They could be a square, a wavy line, a spiral, a circle etc. Let the participants in pairs take this diagram and look for similar shapes in nature. When they find a shape, they tick it off the list and continue to look for the next. One variant is to construct small cards with one shape on each. When the participants have found a shape, they take a new card and continue looking. If they get the same pattern more than once the challenge is then to find different objects. The tasks can also be to search for a leaf of an oak, a cone eaten by animals, a nut etc. depending on what can be found in the landscape.

Reflection: by doing the exercise in pairs participants practise expressing what they see. They also learn to see details in the larger picture. If you add points to the different shapes/cards then you also include a mathematical activity.

Jewellery of clay

(About working with clay)

This is a simple way of working with clay and firing it outdoors. The results become a useful necklace. Use clay, it can be bought in an artist's material or colouring shop.

Take a small piece and form a bead shape around a thin stick. The stick needs to be a little thicker than the final hole will be, since clay will shrink during drying. You can make numerous shapes on the beads: round, flat, screw, triangular, oblong, pyramid shaped etc. Carefully remove the beads from the stick and place them to dry in the shade. When they have dried and become as hard as leather, you can start polishing them with a teaspoon or any shiny object to give them a glittering surface. Add them to a metal thread to keep them together for the firing, otherwise it's difficult to find your own beads.

Thereafter, let them dry completely. You can take them home and bring them back another time for the firing, or you can sun-dry them during the day. On a grey rainy day it can take longer to dry outdoors, in which case you need to put then close to a fire, but not too close as they can crack.

The firing can take place in a biscuit tin of metal with a lid or in a burnt clay bowl.

Place the beads in the tin when they are totally dry. Put on the lid and put the tin on some stones ready for firing. Make a circle of fire around the tin for about 20 mi-

▶

has walked, then it will remain even if he or she was one of the first passing through. In a similar manner we find inside the forest remains from time periods long ago, not found close to urban areas (unless they have been specially protected).

What the "tracks" look like will depend on the situation. In the mud tracks will show clearly but may disappear after heavy rain. On hard ground or a mountain-side it needs a heavy force to make any tracks, but these will remain for a very long time. In a similar manner the fields quickly become overgrown but piles of stone, the earth cellar and the stone bridge can be found for long time.

Village landscape

Closest to us

The tracks we find in the landscape today and that were created before industrialism, are often to do with what we could call the "village community's" use of the land. Because of this it may be beneficial to consider how people lived and used "nature" in those days, even if it will have looked different in different parts of the country and will have changed at different speeds. Even before industrialism people developed and changed their ways of using the nature – although not as fast as today. Typical for the "village landscape" was that people used different resources and were highly self-sufficient.

Nearby plots and adjoining land

In the village the houses and outhouses of different families were generally gathered close together. The farm animals used the outer grounds, beyond the fences and the stone wall to graze and were brought in and out along the village road (cattle road). The distant areas were used for grazing but also for hunting, fishing, scything grass, craftwork, and building material, wood etc. These "outer lands" were owned communally by the village and reached to the next village. Inside the fence that kept the animals out, there were fields, household gardens and pastures. The fields and household gardens were generally split, so that each family had their own section, even if you they had to co-operate to use them.

How house gardens determined the size of family plots

To keep a record of how great a part – for example of a new field – that each family had the right to, people often used the plot's border with the village road as a measurement. By then using the clockwise movement of the sun people knew which part of the field belonged to each family.

How winter feed determined field sizes

Hay was the most crucial resource in a village to feed animals during winter. How much food you could gather through harvesting and scything in distant lands and taking leaves from the trees (pollarding) etc. determined how many animals you could keep during winter. The number of animals in turn decided how much manure you had to put on the fields and hence how much harvest you made and how large a field area you could have.

The modernising of the landscape

The shifting

During the 1700's and 1800's, when Sweden had a population explosion, the Swedish lifestyle changed radically. Not least in the countryside, where the increase in the population was the greatest. The pastures were converted to permanent fields. New farming was started in amongst other places the North (Norrland) and in many places the water level was lowered and dykes and drainage systems were established in wet areas. The 19th and the 20th centuries were therefore periods of agricultural expansion in Sweden.

> We have got fodder for cattle in previous years of poverty! Also, we have received dyking funds. Thirdly, we are referred to as people living in the deserted lands. It sounds like we are a bunch of boys to be brought up with no other rights than to crawl after each other in the ditches. The people in the real Sweden, they should talk about growing and about improving the state of the earth so as to give better yield. But we are at the bottom of the ditch should not hear it, as our ears are full of peat. We should measure our grass straws with the neighbours grass straw and not know of any ways of measuring. We should become such ditchers and shovelers that shovels will grow directly from the shoulders, as if on a mole.
>
> SARA LIDMAN

Crofters and paupers, who did the farm work, occurred from the 1700's onwards. The increasing population that grew at a faster rate than food production, forced them out from the villages. Hunger and starvation started to spread amongst these people. Something had to be done to break the crisis. The solution came in the form of the farming reform, known as "shifting". The different shift reforms meant that ownership of the land was transferred from many small individual plots to a few larger privately owned areas. Even the communally owned plots, for example the forests (see earlier in this chapter) were split.

It began in 1749 with the "big shift", continued in 1803 with the "one shift order" and finished in 1827 with "shifting by law". These orders took a long time to complete and the reform has continued largely up until today.

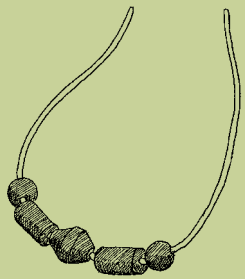
In village life farming, animal keeping, problems, sorrows and celebration had largely been shared and done together. With "the shift" the villages were split up as households moved out to their own lands. This was done to reduce travelling distances and to rationalise use of the fields furthest away. The safe, but possibly also limiting, community feeling of a village was replaced with loneliness and individualism. This was done to raise productivity and the standard of living. We now have the landscape that we are used to seeing in many places in Sweden today. Single spread out houses with surrounding fields separated from each other by forested areas.

The shifts, migration to America and especially industrialisation resolved many of the great worries of the times. Industry produced

nutes, then gradually move the fire closer to the tin over 15 minutes, finally add a lot of wood and burn strongly for 30-60 minutes. When the tin has cooled off the beads can be taken out. If you want to have black beads you can put dry grass in the tin and place the beads on this. The oxygen level is reduced during firing and the beads will become black.

After firing the beads can be polished with beeswax while they are still a little warm in order to give them a smooth, shiny surface. They will also become slightly darker. Thread the finished beads onto a leather cord and the necklace is ready.

Reflection: clay is a material that many people like working with and here you can follow the process from raw ingredients to ready beads. Naturally you can also fire other objects but you should be aware that the firing process is the most difficult and doesn't always succeed.



Summer omelette

(About making an omelette with cheese and white goosefoot.)

For two portions. For the filling: 1 L of leaves from white goosefoot (*Chenopodium album*), two decilitres of grated cheese. For the omelette: four eggs, two pinches of salt, one dL cold water, 1 tablespoon of butter.

Rinse and clean the white goose foot, remove any bad leaves. Boil the leaves for three minutes in salty water (1 L water and 1 tablespoon of salt). Let the white goosefoot drain. Whisk the egg with salt and water. Heat up a frying pan with butter and pour in the egg mixture. Prick the omelette with a fork whilst cooking so as to let the runny mixture go to the bottom. Spread cheese over the omelette and fill it with the hot white goosefoot. Place the finished omelette, folded in double, on a warm dish and serve hot!

Reflection: White goosefoot is a common weed that is easily recognisable. When children make this summer omelette the hardest part can be tipping it onto the dish. It can then be useful to get the help of an adult.

better tools and new farming methods were devised. The population moved to the cities (urbanisation) where labour was needed in the steadily growing industries. Man's relationship to nature changed in its core, you didn't need to worry in the same way about your daily bread.

The sanitary situations in the growing cities were however often poor. New types of natural resources and environmental problems would also be more and more noticeable as time went on.

A croft adventure

It is spring, the last week in April and it's sunny and bright today. Roughly 20 immigrant children from many different countries, are enthusiastic and curious. Today they going to walk in the Swedish landscape. It will be a nice day to try and walk on an old school road that was once used by the crofters' children.

We have met not far from the place where the school itself was in the 1930's. The hike goes to the croft called "Larslund" and will cover a distance of 3-4 km through a landscape of deciduous forest, fields and pastures. Today large parts of the old road lie in a nature reserve.

I have met the children a number of times throughout the year. We have visited the area surrounding the croft and tried all sorts of activities associated with crofting, played old cultural games and talked about crofting folklore. We have integrated the experiences with education about the Swedish language and also had inputs of practical maths. In this way the children's learning has had a good foundation. Through this Nature school project it's teachers have wanted "to give children experiences through using practical knowledge together with a linguistic development perspective". Today it's the old school route that's the topic. The children are well prepared by having read "The children of noisy village" (Astrid Lindgren).

We start by splitting the group using pictures – three birds and three flowers. They show species that might be seen during the trip. We wonder how long it took to go home for the crofters children. The groups discuss and write down – most think between 30 minutes and an hour. After this we discuss how far it is and how it will feel to walk that distance. I measure 10 m and the children count their steps and write down how many they take over this distance. I show them I have a pedometer and will measure how far I walk. We look at the map and agree to take a break beside the lake that's halfway.

The children are gatherers and by the forest edge I read a poem about a gatherer. I have written "fetch poems" with instructions to fetch things that are each other's opposites, often with the focus on adjectives. The children fetch poems to read for the groups, together with material from nature. Lively voices are heard talking about what could be short and long, hard and soft, big and little. They also find long sticks that they use to poke, dig and hit.

The sun is shining and down by the lake the children are tired, hot and hungry. Then it's nice to eat a packed lunch and in front of us in the water we have both mallard ducks (*Anas platyrhynchos*) and grebes (*Podiceps spp.*).

Now it's time to build something using

material from nature. The children are supposed to create a crofter girl and a crofter boy. The flower groups and the bird groups work separately. What should the crofter children be called and what do they do on the way home from school? There are many suggestions – they play football, they play computer games, they play basketball, they do homework etc. They ask: could the crofter children really do this on their way home, through forests and pastures, on the crooked bumpy path's? The children have difficulty understanding the question about what the crofter children did on their way home.

When we continue our walk we pass a big badger (*Meles meles*) sett. We creep silently around, count all the holes and look for tracks. Why has the badger at least 20 holes to their sett? That bears thinking about. The song thrush (*Turdus philomelos*) sings and woodpeckers have left piles of cones under an old oak. There is so much to explore!

Three hours later we arrive at the old croft. Now there are many questions in the minds of the children. Did Santa really come here?

We sit down by the fireplace. How does it feel now? How far was it to get here? I look on the pedometer – a little over 3 km. I rephrase the question: what do you think the children of the crofters did on the way to and from school? What have you done yourselves on the way? Naturally things that we have done and seen come up. What did you play? After much thinking a girl remember she played with sticks. Exactly! Maybe the crofter children also did that sometimes. Another day maybe they gathered cones and threw them around at each other. The games were made up on the way home so that it wouldn't feel so far.

Just imagine the crofter children walking the same route twice a day every day, year-round in all weather. For many in our group that seemed unthinkable.

Now we split the crofter family's jobs up between us. Some help to make a fire to heat the vegetable soup and potatoes. They fetch sticks, chop wood, pump water and arrange the serving. Others make a birch wood whisk and whisk the cream. The soup tastes wonderful and calm ensues around the fire. There are embers left for grilling apples and the grilling sticks that were carved in the autumn get brought out. The apple halves with sugar, cinnamon and cream taste at least as nice as the soup. The day is finished with an old Swedish circular game down on the meadow. Tired and very happy the children waved to me when they went to the bus.

I think it's important to try and have a working method that is placed in a real context. Our cultural landscape and our cultural heritage is such an arena where you can find traces and imagine a world where silent practical knowledge is visible in things people have left behind. All the children in our country ought to be given the chance to gather knowledge and familiarity with the sensual and unspoken aspects of our cultural landscape.

AMMI WOHLIN,
Teacher in biology and environmental science

Cutting, cutting oats

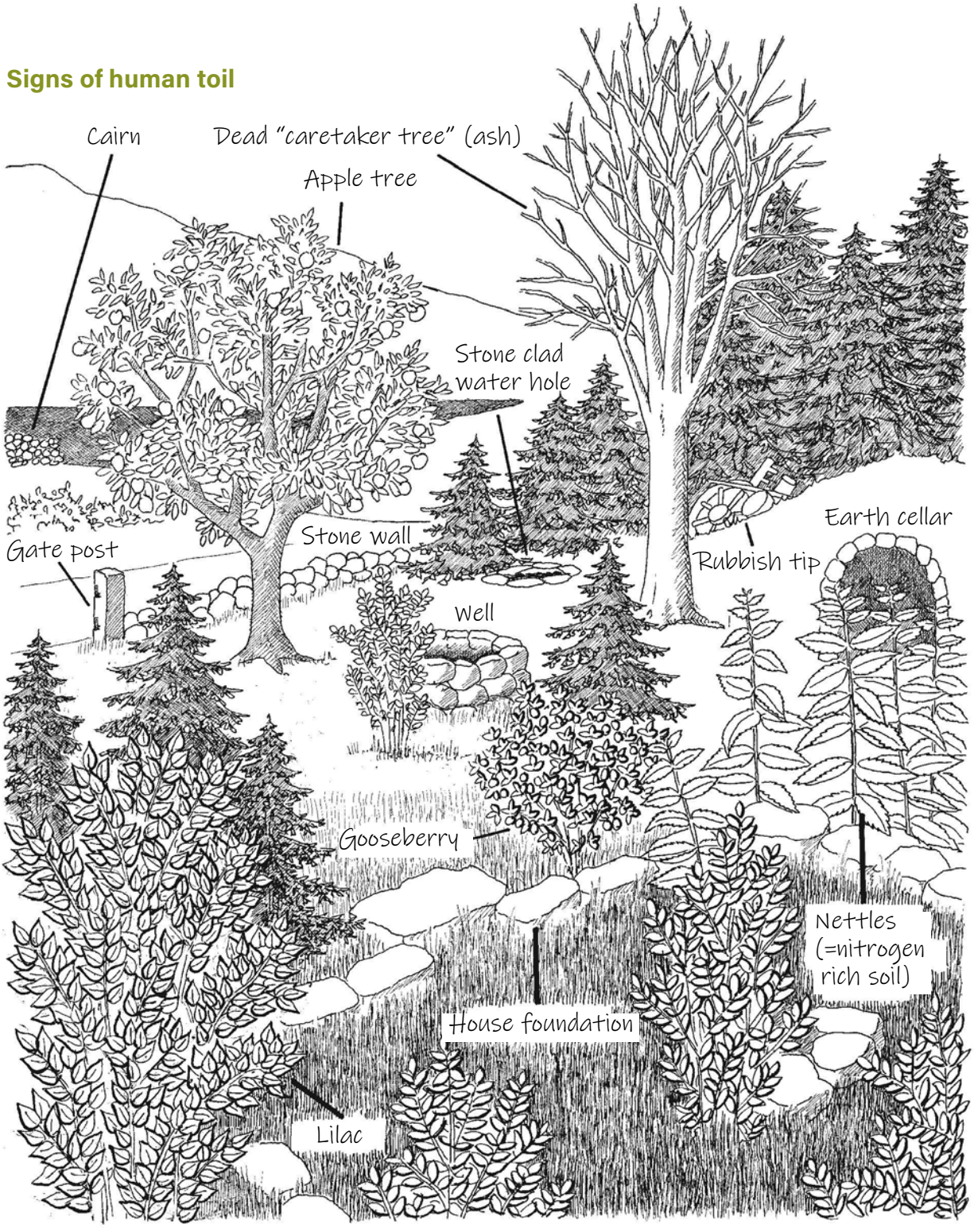
(skära, skära havre – from a Swedish folk dance)

(About our cereals)

Work with cereals during an excursion or theme day. Get some unground wheat and grind it yourselves into flour that can then be used to bake bread (maybe there is an old hand mill you can to borrow in a local cultural organisation). Bake bread using different types of flour. The camp porridge can also be made using different types of cereal, for example, oats, rye flakes and semolina. To get a long-lasting image you can make plaster casts of the cereals (see the activity tip "fingerprints of nature" about casting on Page 56).

Reflection: the different types of flour form the basis of much of our food, something you don't always think about. By making a study visit to a farm you can see the raw material for basic foods. By making casts it can be easier to learn the differences between the cereals.

Signs of human toil



Nettles *(Urtica dioica)* grow where there is a lot of nitrogen in the soil. Maybe the site of a dung heap or an outdoor toilet.

Gooseberry bush *(Ribes uva-crispa)* – prickly – but still with small and hairy gooseberries. Maybe you can also find a blackcurrant bush *(Ribes nigrum)* that is recognised by its characteristic smell when you touch the leaves. Rhubarb *(Rheum rhabarbarum)* can maybe also be found. In the spring there are possibilities to find narcissi *(Narcissus spp.)* daffodils *(Narcissus pseudonarcissus)* and one or two tulips *(Tulipa spp.)*. The myrtle *(Vinca minor)* with its small blue flowers is common by the old crofts.

The big decaying ash *(Fraxinus excelsor)* – vårdträd (a caretaker tree). If you chopped it down the house might be struck by bad luck. The ash is, according to mythology, the great tree that grew in Asgård and whose crown covered the whole earth. This special ash is called Yggdrasil. In Norse mythology the first two people, Ask and Embla, were created from two ashes. It was also said that snakes hate the ash tree and that the leaves from the ash could treat snake bites.

A knotted and wild apple tree *(Malus domestica)*. In the Nordic saga apples are mentioned, and before you set off on long trips you collected supplies of wild apples During 1100's there were many cloisters created in Sweden and with this the monks brought in knowledge about grafting (a method for enhancing the apple tree to get better fruit). Apples are good for you, there's a saying that "an apple a day keeps the doctor away".

Lilac bushes *(Syringa vulgaris)*, with their nicely smelling violet flowers, can have stood just by the edge of the house or the outdoor toilet. The earth larder –- often dug into a hillside and mainly built of stone. Partly underground it was at +5 C. It was therefore warm in the winter and cool in the summer.

A water well where you brought up buckets of water. Stone clad water holes where the animals came to drink

House foundation with a broken chimney or a worn threshold stone- the main accomodation house.

The stone wall that stopped animals coming in and eating the meadow and field. You can also find stone walls in the forest and they are often straight and long. They mark a boundary. In Småland and Blekinge there's plenty of stone and the stone walls there are wide and stable. In Bohuslän they are thin, unstable and easily fall down – a way to frighten the cows and teach them to stay on the right side. In northern Sweden stone walls were unusual as there were many forests and wood was used instead.

A cairn – made of stones taken from the field (and later also from the meadow) and placed in a pile. Between the cairns the ground was often flat and free from stones, a sign that things were grown there.

A standing stone, may be a gatepost, look for remains of hinges or holes on them.

The house rubbish tip can today sometimes be seen as a ditch or a pile where there are, amongst other things, are old buckets and broken porcelain.

Rake or rake?

(About making a rake)

Before the summer camp or in order to keep an area of the school tidy you can make your own rake. Rakes looked very different depending on where in Sweden they came from. At the museum you can find out how they looked in your area.

Here is a description of making a rake from Västergötland: take a small stem for the shaft (spruce, pine or hazel) and peel away all the bark. Partially split the thick end about 30–40 cm up the shaft and whittle the two ends so that they become square. For the head of the rake use a naturally bent branch (ash, oak, birch or willow). Make two square holes, where the split shaft can be inserted. Drill 1 cm diameter holes for the rake tines with 4 cm spacing between them. Whittle the tines (to be made of bird cherry tree (*Prunus padus*), ash (*Fraxinus exelsior*) or lilac (*Syringa vulgaris*) about 8 cm long and bang them down into the head of the rake. Finish it off by carving the makers name.

Reflection: By making your own rake you get to try carving in different types of wood. You practise your skill and the result is usable. Raking is also more enjoyable when you can use something you have made yourself. Looking back in time, when rakes were used at the hay harvest and beautifying the meadows you touch on cultural history in contrast with today's farming.

Historic hike

(About deciphering old maps)

Get maps (or copies of maps) from different time periods. The general military staff map that was drawn in the 1800's can normally be found in many different editions. The economic map and the topographic map can sometimes be found from different years. Perhaps you can also get hold of one or more orienteering maps. Compare the different maps and you will discover for example where the old road was, how many houses once stood where there is now only an earth cellar, that the big forest was once fields. Do you dare to make a hike using only the old maps (with a new map, smart phone or a GPS in your rucksack for safety)? The old maps can be found at the county surveying department (Länsstyrelsens lantmäteriavdelning) and the newer ones in the bookshop or on the internet. Don't forget to ask older people in the area if they can lend you old maps.

Reflection: this exercise is primarily aimed at teenagers or older. Younger children do not have the ability to translate an abstract thinking to reality. For their part it can be enough to make their own maps of the local area.

Protected and nurtured nature

Parallel with industrialisation and urbanisation came a realisation of the need to protect and take care of nature. It might be a rare plant or a large area of habitat. There are laws and regulations that give society the ability to protect and conserve nature, both in it's own right and for human benefit. In the environmental law's opening paragraph it states:

> … Nature has a protecting value and… Humans right to change and use the nature is coupled with a responsibility to manage the nature well…

National Park. The biggest national parks are in the northern part of the country. In Sweden the first national parks were created in 1909. They were made on the state land through formal decision by the government. Today, you mainly want to establish national parks in landscapes with great natural beauty that are hardly affected by the humans. The area should also be representative or unique and be classified as a valuable area.

Nature reserves are for protecting and nurturing areas that have a significant importance for nature or importance for friluftsliv. The regional authority is responsible for deciding about nature reserves, but communes when delegated to, can also decide on this. All types of valuable nature can be protected. The nature reserves can for example be created to protect nature with limitations for the general public or to stimulate friluftsliv, with camping places, fireplaces etc. In a similar manner even cultural reserves can be established.

Nature protected areas are not as common as nature reserves but can have the same limitations for the general public as described by the right of public access (allemansrätten). The normal use of the land cannot be prevented; most nature protection areas were established to preserve the features of the landscape or to maintain pastures, grazing grounds and hay meadows as well as protecting popular friluftsområden. Nature protected areas are nowadays counted as a nature reserve.

Natura 2000 is a network of protected areas throughout the EU. The aim is to stop extinction of species and habitats and many of these areas in Sweden are also nature reserves or national parks.

Nature heritage are small protected objects. They could be old trees, unusual stone formations or small areas with interesting natural features.

Animal protection areas can be created especially for protecting the animal life in a certain area. The regional authority decides on these and they often occur during certain times of the year. Bird protection areas are the most common but areas for seal protection also exist. It is prohibited to for example go ashore on islands in an animal protected area or to go too close to

Nature trail

land (applies to canoes of course) during the whole or parts of the year. It is the boat driver's responsibility to find out if there are any protection areas before they set off. At the regional government office you can obtain maps indicating the protection areas.

Protection is used to safe-guard certain plants or animals. It could be for the whole country or just a local area. Everyone ought to know the protected plants in their area so as not to pick them by mistake. The regional authority decides on what should be protected and produce information leaflets. Nowadays all orchids are protected throughout the whole country.

Beach protection has been added to safeguard natural values and access to places for friluftsliv on seas, lakes and waterways. Beach protection includes the land and water areas 100 m (sometimes more) from the shore line. This means that you generally cannot prevent access, for example, by erecting new buildings.

Added to these examples more and more tools are becoming available, for example "World Heritage", "Biosphere areas" and different compensation schemes for landscape management. Information about nature care can be found from both the national and regional conservation authorities. The size and the scope of nature protection and management is constantly being discussed. It is important that the volunteers, as well as those working professionally with friluftsliv and outdoor education, join in this debate and show an interest in protecting nature and caring for it, as well as maintaining appropriate accessibility – both for the natural and the human benefit.

From diversity to monoculture

After the shifts

The consequence for the countryside following "the shifts" was mainly that forestry and farming became more specialised, effec-

In nature's tea shop

(About making tea from leaves and needles)

Try to make different sorts of tea from leaves and flowers when you are out on a trip. During spring and summer, you can use freshly picked herbs. Dry them for use in winter! Place the newly picked leaves in a dry and airy place. When they are totally dry store them in paper bags. When preparing: boil up water and add a few pinches of leaves or flowers. Let it brew for 5–10 minutes. Place the pan on a wooden board to contain the heat. Drain away the leaves ready to pour into a cup. Possibly sweeten with honey.

Try making different mixtures. Rowan leaf tea smells nice and tastes strong. Needle tea is made from spruce, pine or juniper. Crush the needles and pour boiling water over them. Leave to brew for some minutes. Forest tea: mix the leaves of lingonberry, bilberry, raspberry, rowan with heather flowers and juniper berries. The whole forest is in your wooden cup! Please be aware of possible allergies! Learn to recognise what you pick so as to avoid the poisonous plants!

Reflection: show that there are alternatives to normal imported tea. Your own tea tastes different perhaps but you know what it contains. Some of our plants can be used to soothe illnesses, for example camomile tea can be drunk to cure colds.

The right of public access

(About different ways to work with "the right of public access" (allemansrätten)

A cornerstone for being in the Swedish nature is "the right of public access "(allemansrätten) an old right that says what we can and cannot do. (See the section on the right of public access (allemansrätten) in the end of this book). Through working with "the right of public access" (allemansrätten) in different ways, you gain a deeper understanding. The following exercises are examples of what can be done:

1. Work in small groups. Each group gets an area from "the right of public access " (allemansrätten) to discuss. The result can be acted up for the others either as a pantomime (without words) or as a drama. The audience say what they see.

2. Split an area into a "yes" and "no" side. The leader says different statements or poses questions. If you agree with them you run to the "yes" side, if not you go to the "no" side. Examples of questions and statements: are you allowed to pick bilberries? (Yes). Sweet wrappers can be thrown in the forest (No). Do you have to stay on existing paths? (No).

The one that is the 1st to arrive (alternatively last) can decide on the next exercise.

3. Go for a walk in the surrounding area, look and discuss what can be tied to "the right of

▶

tive and mechanised. Compared with 100 years earlier only a few people now needed to be employed to produce the food and materials that we think we need. This is amplified by the fact that so much food is now imported. Some single farms now manage all the fields that previously all the farms in the old village worked. The other farms have either fallen into disrepair, become holiday homes or homes for people who commute to an urban area nearby.

"The right of public access" (allemansrätten) - the right to what?

In Sweden every person has a right to, in a respectful way, be on other people's land and water without asking the land owner's permission (see especially the special section on allemansrätten's content at the end of the book, Page 256). "The right of public access" (allemansrätten) is protected in the Constitution but is not specified in law. It can be seen as a "habit" from the pre-industrial society that then became a part of the emerging theme of friluftsliv. A habit for the individual to travel in the countryside as long as they don't disturb or destroy anything of value for those people living in the area. You were not allowed to take or damage anything of economic interest, for example trees, grain, birch bark and nuts (used for animal food) and this still applies today. Things that were "left out", for example picking mushrooms, flowers and berries, became part of what we today call "allemansrätten".

At the start of the 20th century nature protection needs were added to support certain areas and species by forming national parks, protected species, bird protection areas etc. (see above). This introduced further limitations on how to be and travel in nature. We can therefore liken today's "right of public access" (allemansrätten) with the right to use the space left over between the legal protections for: the landowners economic interest, the residents right to peace and quiet, as well as different protected natural values.

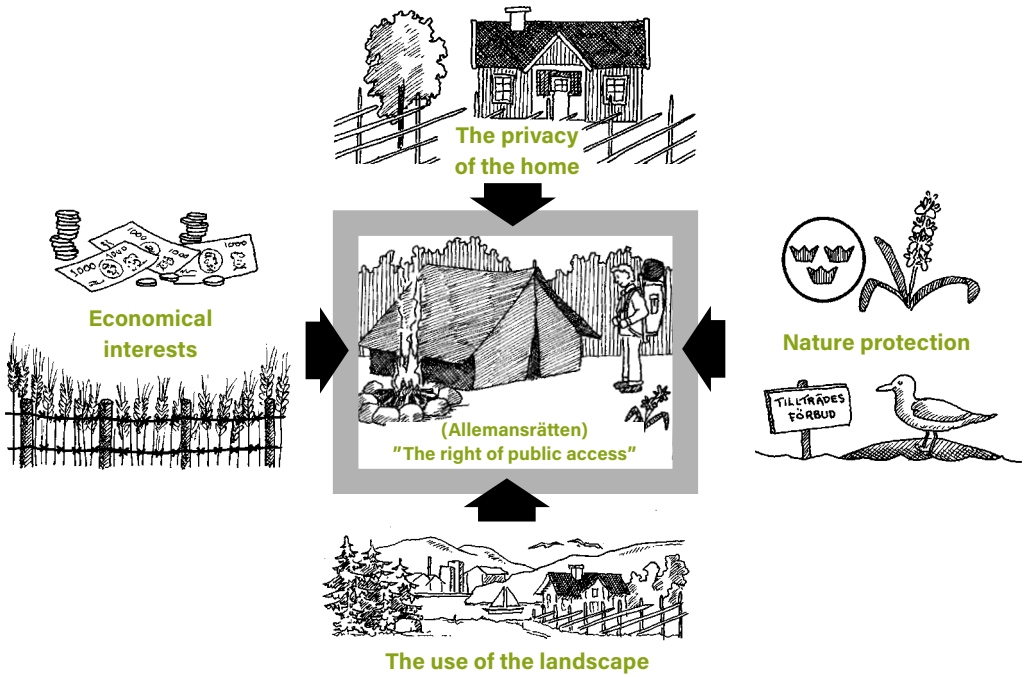
Sometimes there have been conflicts between these factors: littering, noise levels, over use, chopping down trees, frightening birds of prey etc. The border lines between the interested parties are not clearly defined but are more of a "grey zone" about what is "forbidden" and what you "ought not" do. Every now and then there are demands from landowners and local people that "the right of public access" (allemansrätten) should be limited.

The use of the landscape

Another less discussed threat to "the right of public access"(allemansrätten) is the specialisation of the landscape. This links to the general change in the landscape that's happened in parallel with industrialisation and urbanisation. The changes have gone from a diverse, varied farming and forestry that's in tune with the needs of the local population to great specialisation and efficiency to provide for a large market. The question is:

> Should Sweden bank on forestry and golf as part of the European community or retain a balanced countryside and be self-sufficient?

NILS-ERIK LANDELL



"The right of public access" (allemansrätten) cannot be used as an excuse to stop development of the landscape. The basis of "the right of public access" (allemansrätten) is that you accept the landscape for what it is, it's uses and changes, for example for farming, forestry, roads and buildings.

In the more specialised landscapes it's important that owners and users can survive in a competitive market. You have to sell most and have the best service, both within the country and in the export market. To get this to work requires a big and effective transport system (compare the demands of motorways, bridges etc.).

A certain landscape is then seen primarily as a resource for the national, or more often, the global market. If a certain place is used to grow cereals (for bread flour) then it should be done as effectively as possible. Then things like limiting fertility, open dykes, mounds, grazing paddocks or similar are seen as hindrances. These are eliminated by applying fertilizer, using buried pipes to drain the land, removing mounds and large boulders.

In a similar manner other "fields" should be managed for maximum efficiency, for example mass produced timber, housing and industries – but also for friluftsliv! This type of field is recognised by wooden wind shelters, permanent orienteering posts, planks to walk on, ready-made fireplaces etc. Of course, this can be seen as a necessary channelling of friluftsliv (and can hopefully tempt new groups out) but it also risks taking away the friluftsliv experience.

public access" (allemansrätten) Examples could be children playing, someone picking mushrooms or exercising. Things that are not included in allemansrätten could be discarded beer cans, a car in the forest or the broken top of a tree.

4. Arrange a walk about the right of public access (allemansrätten) for the general public, visitors at a camp site or overseas friends who wish to feel comfortable in the Swedish nature. Other suggestions are to arrange walks at places that are often visited by tourists or cooperate with immigrant organisations and use these inform newly arrived Swedes about the right of public access (allemansrätten)

5. Digital techniques give great opportunities. Let smaller groups make a film about allemansrätten. Find out the regulations that apply in other countries. What similarities and differences are there? Could the film result in more visitors coming to Sweden?

6. Parents meetings at a school are also occasions when the right of public access (allemansrätten) can be presented as a theatre, exhibition or quiz.

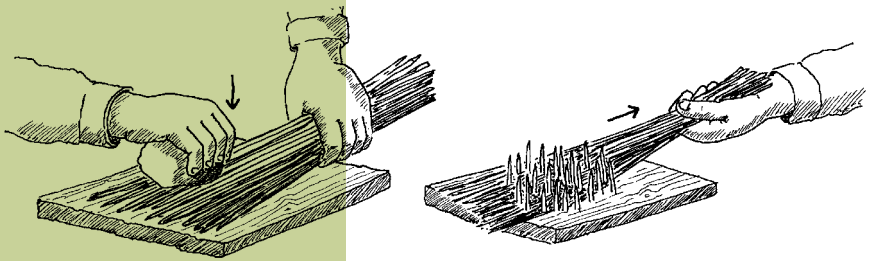
Reflection: The right of public access (allemansrätten) should always be kept on the agenda. Through working with different methods new angles are opened and questions are explored. If in doubt you can contact the natural protection agency who will tell you what is allowed. You can also order brochures in different languages, these simplify the spread of knowledge about the right of public access (allemansrätten)

The rope trick

(About making ropes from nettles)

Making history come alive is one way of explaining the differences between the past and today. Through making your own rope you can show how natural materials were used and compare with today's synthetic fibres. Gather a large bundle of nettles (*Urtica dioica*)– using working gloves on your hands. Remove the leaves from the stalks. Place the stalks in water for a 24 hour period (or at least five hours in warm water). Bang the stalks with a stone so that they are crushed. Hang the nettles up to dry thoroughly. Get a board with nails and "comb" the dry nettles. Through combing you get hard wearing, thready fibres. These can then be plaited to make a rope.

Reflection: making a rope from nettles is an activity for all ages. The nettles are normally seen as weeds but can also be used for among other things food and material.



Another aspect of "the right of public access" (allemansrätten) in the more specialised landscape is accessibility. It can sometimes involve trying to balance on a thin strip of land between a giant cereal field (with no ditches groves or similar) and the "wall" of a not too old "plantation of spruce fir trees". Conservationists have for a long time been pointing out that this landscape impoverishment is a big threat to many birds, plants and animals that have difficulty in finding habitats when all the borders zones are thinning. In summary we have another limitation of the The "right of public access" (allemansrätten), that of the use of the landscape.

Landscape for all?

Forces working against this can be found within farming and forestry when it comes to impoverishment of the landscape and work is ongoing to improve biological diversity. An alliance between the people living in the countryside and those using it for recreation and leisure is needed when it comes to the use and appearance of the landscape. Such a common interest could serve as a platform to help address the increasing importance of more sustainable, ecological and locally inspired tourism. If you find more common interest between the stakeholders in the countryside, then it would probably also be easier to fight ignorance and misuse along the other frontiers of "the right of public access" (allemansrätten).

That "the right of public access" (allemansrätten) is built on accepting the landscape as it is, with its uses and changes due to forestry and new roads, is both a weakness and strength. It is a weakness when it comes to demanding access to the landscape for friluftsliv. But, it is a strength when it comes to access to a living and producing landscape, that we all need. Not least, this can help us become more engaged and knowledgeable about how we use the landscape to meet our varied needs: everything from food and wood to beauty, training and ecological knowledge.

One of the strengths of "the right of public access" (allemansrätten) is that the landscape itself "tells" the user what is or is not possible. The use of the land, the season, the view etc. in relation to the size of the group and the activity will determine what you can and cannot do – a pedagogic challenge that also includes great opportunities to learn about the environment.

New multi-use and a new start to friluftspolitics

The title for this chapter, from diversity to monoculture, fits the modern societal relationship with nature and the landscape. But the government's combined conservation policy from 2002 describes the start of growing interest during the 21st-century in friluftsliv, allemansrätt and their connections with tourism and traditional conservation.

Two basic elements in nature conservation are to sustain working ecosystems including preserving plant and animal populations, their habitats, species and the geological basis and elements that underpin these as well as to establish good conditions for friluftsliv and rich nature experiences in Sweden.

In Sweden the environmental protection agency has responsibility for questions regarding friluftsliv and special funds are available. There is also an increased interest in other drivers such as public health, quality of life and education. Sweden has had its first friluftsliv white paper and the government have made it a priority.

There are also new challenges and possibilities in the relationship between friluftsliv and nature and adventure tourism. There is also a special challenge to contain and develop friluftsliv in the increasingly mobile, multi-cultural and urban society (where environmental regulations provide limited means to restrict or manage organised outdoor activities). All in all, the future looks exciting, for the landscape and its role in education, public health, environmental engagement and rural development.

Sweden's first national city park

Ever since the beginning of the 1900s there have been different forms of nature protection in Sweden such as national parks, nature reserves, beach protection and biotype protection. At the end of the century another form of protection was created through the law for national urban parks (the governments proposition 1994/95:3) that came into power in 1995. At the same time one area was given this protection, it was Ulriksdal-Haga-Brunnsviken-Djurgården. This is an old park landscape adjacent to Stockholm city centre and therefore in the middle of an urban area. It contains some of the first important places in the history of Swedish friluftsliv. One of them is the nature surrounding the cottage Fiskartorpet on Northern Djurgården, sung about as being "of the Gods" by Bellman in the 1700's. An important starting point for the new law was that:

… access to a rich and varied nature and culture environment is important for peoples well-being. For living in urban areas the access to parks and green areas is of great importance both as an enriching element in the everyday environment and to address the need for recreation and friluftsliv. The park landscape and the natural environment in these areas also contain important cultural and historical values that contribute to the identity and character of the city. Furthermore, such areas are important for health and environment of people and they are necessary so as conserve biological diversity close to urban areas.

The background to the law was that the park areas close to Stockholm city centre had been gradually over-exploited for a decade, despite the government's continued opposition. By the 1990's the exploitation had become very seve-

Town planners at work

(About creating a more environmentally friendly society.)

Split the participants into groups (maximum of five in each). Choose a varied stretch in nature and mark a virtual river on the ground.

Each group should work as planners with natural equipment and plan one stretch along the "river". Where are people going to live? Where should industries, schools and recreation areas lie? The different groups show their plans. Discuss the different plans from an environmental perspective. Does any group have to rethink? Which industries do you need for society to function? What does a real landscape look like today? Where are the buildings? Industries? Does this fit with the thoughts they had when they planned their society?

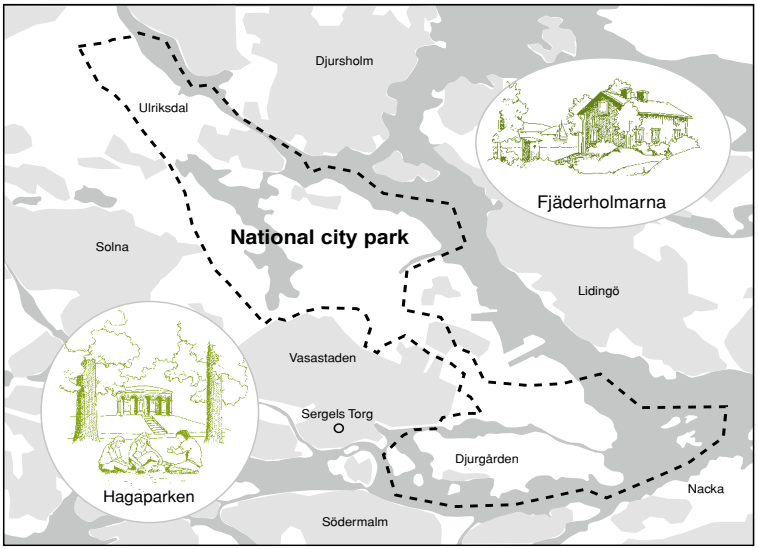
Reflection: here you have the chance to let imagination flow during the building phase, but also to discuss the suitability of placing of industries, water intake etc. Has the landscape always looked like it does today? How would a perfect landscape look? What does it look like in the near landscape – in Sweden – throughout the world? This is an exercise in social science and has many alternatives. As it is done outdoors it invites creativity and solutions outside the normal sphere of thinking.

Words of reflection

(About writing down five words ahead of a gathering)

Giving the participants a chance to breathe out and experience a moment of peace is sometimes necessary ahead of continued adventures. Give out paper and pencils to the participants and ask them to find a nice place where they cannot see each other. They have 30 minutes together with nature to summarise what they have experienced using just five words. Add the subsequent gathering the written words are handed in. At a suitable occasion (at the end of the day or another gathering) the notes are handed back to the participants (no-one should receive their own note) and each reads out the words.

Reflection: this exercise gives a chance to "just be". Certain people have never been alone with just themselves and the forest. This exercise can help them to be comfortable with this experience. The length of time can vary depending on the age and how accustomed the participants are with being in nature.



re. Then the government and parliament reacted by introducing a law to give the area special protection that would be "strong enough to stop the continued exploitation and fragmentation of the historical landscape far into the future".

> "The area Ulriksdal-Haga-Brunnsviken-Djurgården is a national city park. Within a national city park new buildings, facilities and other measures can only be allowed if they can occur without intrusion into the parkland of the natural environment and without the historic landscape's nature and cultural values being damaged. A central message in the proposition for the park was that development should be directed towards "strengthening the area's natural, cultural and recreational values and maintaining biological diversity".
>
> MILJÖBALKEN 4 KAP, §7

After the first national city park was created the then environment minister, Anna Lindh, took the initiative to establish more national city parks in Sweden (SOU 1996:38). This Swedish innovation within town planning has then spread to amongst others Finland, where eight national city parks have been created. The interest for this new protection form is in many ways a natural one. The question about the sustainable development of society points towards the importance of green areas in urban centres, not only in Sweden but also internationally. The life qualities that these green areas bring to urban environments also play a large role in why people and businesses choose to be located there. Further reading can be found in the book the "National City Park – An experiment in sustainable development" by Holm & Schantz (2002) and on www.nationalstadsoarken.se.

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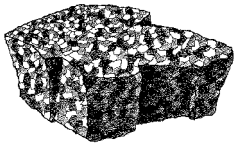
Characters

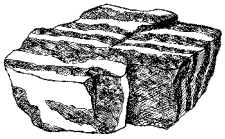
Granite

Granite is one of our most common types of rock. It's is characterised by it's grainy structure. The grain size can vary but is always visible to the naked eye. Granite contains mostly quartz, feldspar and mica and is often used for buildings, floors, staircase coverings, foundations, arches, street coverings, gravestones and sculptures.



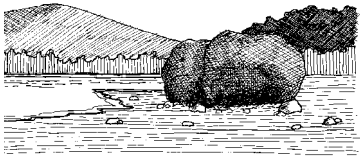
Gneiss

Another of the common rock types is gneiss, that is pressed together and fine grained in its structure. You can often see different coloured "bands" in gneiss and in it's crushed form it is commonly used in road surfacing.



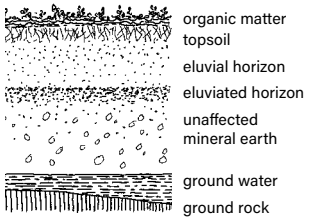
Erratic boulders

Erratic boulders are giant blocks of stone that have been transported by the inland ice from their original locations and left as gigantic rocks in an otherwise rather flat landscape. The erratic boulders are in some places referred to as the Giants throw. They often have their own history associated with a giant who wanted to destroy the local church but didn't manage to throw it far enough.



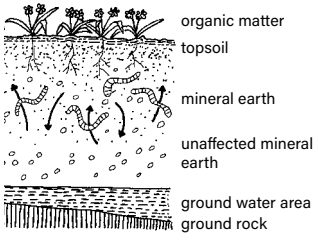
Podzol

The most common types of earth in Sweden is the podzol. It is found in pine and spruce fir forests. The rather nutrient poor and acidic, needle-filled, organic layer acidifies water that runs through it. Because the leaching takes out nutrients then, underneath the organic layer is an ash grey structureless layer (the leaching layer) called the eluvial horizon. This eluvial layer is typical for a podzol.



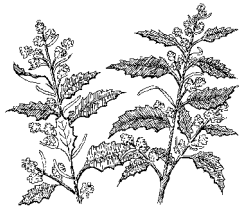
Brown earth

In deciduous forests the soil is often known as brown earth. In the organic matter you find many soil organisms, for example the earthworm that brings up minerals to the surface. The mineral soil is mixed with dead plant matter that is then partially pulled down into the soil. Due to a lower acidity (higher pH) you find a clear leaching layer under the soil and there is a chocolate brown or a grey brown layer. Brown earth is the most common soil type in the south of Sweden. Forests found on brown earth indicate that the land has previously been used for agriculture.



Couch grass

Couch grass (*Elymus repens*) has tough and dense roots. It is often considered to be a weed but in some countries it is used to bind the earth and to stop soil erosion. In the Netherlands it is used to strengthen the banks when land is reclaimed from the sea. The roots can be dried, ground and mixed with normal flour to make bread. Flour made of couch grass and water makes a good glue. The roots can be roasted and used instead of coffee.

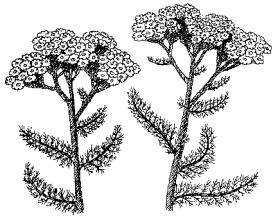


White goosefoot

The white goosefoot (*Chenopodium album*) produces large numbers of nutritious seeds. Grind them and use the flour to make porridge or mix in with flour for baking. Young stalks can be boiled in salt water and eaten with butter. The leaves are good to eat boiled like spinach or raw in salads.

Nettles

Nettles (*Urtica dioica*) can be cooked to make a soup. The young nettles are the nicest and most rich in nutrients. According to folklore cooking the nettles gives a shine to newly washed hair and protects against dandruff, itchiness and hair loss. Freckles are supposed to disappear if you wash in nettle water! Dried nettles are used as fodder for sheep and chickens but can also be mixed into bread. The long stalks are treated like linseed and can be used to make material (nettle cloths) or for ropes (see activity tip "the rope trick"). The nettle is a host for the tortoiseshell butterfly (*Aglais urticae*) that lays its eggs under the leaves and on the stem.



Yarrow

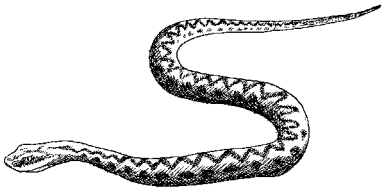
When the leaves of the yarrow (*Achilla millefolium*) dry they roll up (the Swedish name is Rölleka). Both the flowers and the leaves of the yarrow have been used for healing. The pink flowers cured men and the white cured women. The fresh leaves were crushed between stones and placed on wounds. Soldier herb and lumberjack herb or other names that tell of it's former uses.

Grass snake

A grass snake (*Natrix natrix*) is totally black snake with yellow dots on the neck. Frogs and fish are it's preferred foods. On the oval head the grass snake has large and relatively few scales and the pupil of the eye is round. The grass snake is not venomous.

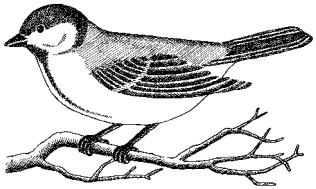
Adder

The adder (*Vipera berus*) hunts using sight and smell. Dormice and mice are it's favourite foods. They cannot hear anything but feel vibrations in the ground. On the triangular head it has small scales and the eyes have oblong (vertical lined) pupils. On its back it can have a zig-zag band or be totally black. The young are born in August and they are also venomous. The venom is the same as the parents, just a smaller amount and they also have smaller teeth, meaning that the bite doesn't go very deep. After birth the young adders survive totally by themselves. The adder is most likely to bite when it is worried or surprised. For most adults the bite is not life-threatening, but you should go to hospital.



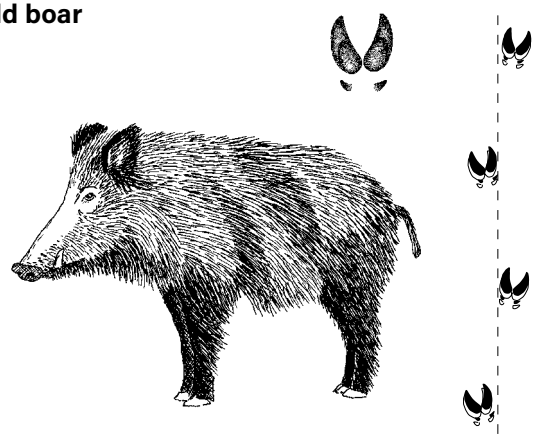
Great tit

The great tit (*Parus major*) can be found throughout the country where there are forests, even close to buildings. It eats the adults, pupae and larvae of insects as well seeds rich in oil. The great tit overwinters in Sweden if it has access to food. It makes a nest in hollow trees and bird boxes where it can also spend the night when it is cold. The spring song (sounds like the squeaking of a bicycle pump) is the first sign that spring is on its way.

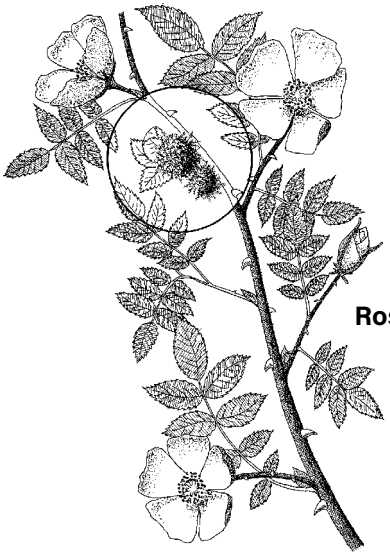


Wild boar

The wild boar (*Sus scrofa*) occurred in Sweden during the Stone Age. Due to the damage it causes it was eliminated in the 1940s. Today, the wild boar is usually fenced in but it has spread to neighbouring forests. Adult animals can weigh 200 kg. The young ones (piglets) have yellow and white stripes along their sides. The wild boar is nocturnal and prefers to be in a herd. It's rummages in the earth for roots, worms, insects and root vegetables, which means that they create large areas of damage in fields and cultivated areas. The wild boar is very timid and usually runs away when it hears people However, when it has young then you need to be careful.



Wild rose, wild briar



The wild rose (*Rosa canina*) is considered to be the flower of love. It's symbolism is very strong and it's associated with the Virgin Mary. The five petals were thought to symbolise the five letters in Maria's name and according to saint Bridget the rose was a symbol of Mary's honour, mercy, mildness, beauty and happiness. For us it is the rosehip that's the most relevant. It contains a lot of vitamin C and works against spring tiredness and increases resistance to infection. Pick the red rose hips and dry them for use during winter in rosehip tea and rosehip soup. If the rosehip bush flowers twice in the summer it is said that there will be a mild winter.

Rose Gall Wasp

The rose gall wasp (*Diplolesis rosae*) is a small insect that lays its eggs in the rose bush leaf buds. The leaf bud then grows into a woolly, red and green ball. In the middle of the ball there are small hollows where the eggs can develop into larvae that emerge as adults the following spring. At that time the ball is brown and the slightly smaller. These galls, (sömntorn, sleeping towers in Swedish), were once thought to give a good night's sleep and could be bought at the chemist.

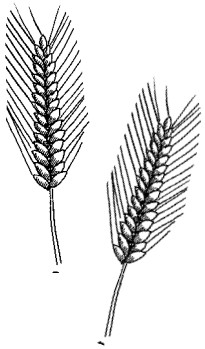
Barley

Barley (*Hordeum vulgare*) is one of the oldest cultivated plants. It originates from the orient and was grown in Egypt 7000 years ago. From about 6000 years ago (early Stone Age) it was grown in Sweden as far North as lake Mälaren. Barley is the hardiest of all the cereals and can be grown as far up as the border of cultivation towards the mountains. It can also be cultivated in the tropics. It is used as animal feed and for beer production. Other products made from this cereal are barley grain and barley flour. The northern Swedish Tunnbröd (thin bread) is baked using barley flour.

Oats

Oats (*Avena sativa*) have been grown in Sweden since the Iron Age. They are hardy and can be grown on very meagre soil all the way up to the arctic circle. From the seed you can make grain, flour and other food. Who hasn't eaten porridge made of oats? Oats are the most important food cereal for cows and horses. The old tradition of hanging a bunch of oats at Christmas demonstrated that it wasn't just the people who were going to eat well, but the birds too.

Rye

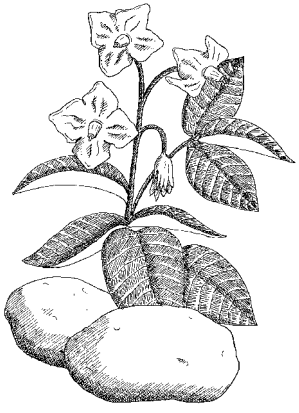


Rye (*Secale cereale*) came from Asia but was cultivated North of the Black Sea during the Bronze Age. It came to Sweden about 2500 years ago. When the rye is in flower it pollenates with the help of the wind, the rye is said to be "smoking". It is mainly cultivated as a cereal for making bread. In order to make baking easier rye flour can be combined with wheat flour. Rye flour is used to make crisp bread and coarse bread. The long rye stalks were previously used as a roof covering (thatching). Weaving baskets and rugs were other uses for rye stalks. Nowadays it's used for animal fodder. The old saying "if Eric gives an awn then Olof gets a cake" means that if the rye is carrying awns on the 18th of May (Eric's name's day in the Swedish calendar) then you would hopefully be able to reap the harvest on the 29th of July (Olof's names day).

Wheat

Wheat (*Triticum aestivum*) is the most important bread flour in the world. Apart from making flour it is used for pasta, semolina and breakfast cereals. It's also used in animal feed. Wheat was used in Egypt 6000 years ago and wheat kernels have been found inside the pyramids. The oldest find of wheat in Sweden is roughly 5000 years old. During the iron age climate cooling caused the area of wheat cultivation in Sweden to fall. Today both spring and winter wheat are cultivated (sown in the spring and the autumn respectively). Previously wheat bread was a luxury only eaten by wealthy people or on special occasions.

Potato



The word potatoes – patata – is originally a Haitian word. The potato (*Solanum tuberosum*) originally came from the Andes in South America. The potato that we eat today is an organ for vegetative proliferation but the plant can also have berries. Both the berries and the foliage contain solanin that is poisonous. The potato is grown all over the whole world but mostly in Europe. Jonas Alströmer realised the value of potatoes as food and taught the Swedes to use it, but it was not widely cultivated until the 1800's. Today there are many different sorts of potatoes. Tomato and tobacco plants are in the same family as the potato (*Solanaceae*) as well as the very poisonous plants henbane (*Hyoscyamus niger*), deadly nightshade, (*Atropa belladonna*), thorn apple (*Datura stramonium*) and mandrake (*Mandragora officinarum*).

Deep Forests

– About the forest as a landscape and a friluftsliv environment

AV BRITTA BRÜGGE OCH KARL ERIC KARLSSON

Forests for business, nature or friluftsliv?

The forest as a friend

In the forest it feels calm and peaceful. The trees provide shelter from the wind, give shade from the sun and dampen the force of the rain or the snow storm. In the forest there is a local climate that dominates and that's different from the open fields. But the forest also affects it's surroundings. It soaks up water and can therefore reduce flooding. It protects the soil that would otherwise have been eroded by wind and water. The forest produces oxygen that we breathe.

There are many creatures that live or spend time in the forest; animals, birds and insects. People also work or spend their free time there. Each has their own view of how the forest should be looked after and what suits one doesn't always suit another. It is therefore important that forests are as varied as possible.

The long history of forestry

In order to know the forest today we have to look and think back in time. Apart from "slash and burn" to free up land for agriculture, extensive mining in Sweden in the 17th and 18th centuries also led to deforestation. As the pace of iron ore mining grew, there was also an expansion in charcoal production, since charcoal was used in the production of iron and steel. Charcoal kilns were so close together that sometimes they had to move the mining as the nearby forest had been cleared. When industrialisation really took hold the large forested areas were almost only found in the north of Sweden, hence the saw mills and paper industries were established there.

Forestry then and now

Forestry used to be a seasonal occupation. People worked in farming during the summer and forestry in the winter. The forest workers often lived in huts close to the felling locations. The trees were felled with long hand saws or logging saws. It took two ambitious lumberjacks about 10 minutes to fell a mature spruce tree. The planks were sawn by hand where the tree had fallen.

Weaker trees were cut down with special wide bladed axes. With the development of water-powered saws along waterways timber was then transported to them for sawing. Right up to the 1950's most of the forest was cleared using hand tools and moved using horses. Forest work was hard and physically demanding and you always worked in teams. Nowadays most of the work is done by machinery, from organising the ground before the felling, taking away the branches and chopping the trees into predetermined lengths.

Whilst it's possible to criticise the role of modern forestry in shaping the landscape, plants and animals, it is worth remembering that wood is viewed as an ecologically acceptable raw material. The paper bag, the newspaper, the red spirit, wood, charcoal, the wooden chair, a wooden ladle and carrying frames made of wood all return to their origins after about 100 years. By maintaining the forested areas at a similar size as they are today, their use won't have a negative environmental impact, apart from those connected with how it's been handled outside the forest (exhaust from the transport, mass factories etc.). In other words – it is good to use wood for as much as possible and preferably locally produced. In parallel with this we have to work for a more balanced global division of the forests goods whilst minimising the negative environmental effects of transport etc.

The production cycle of forestry

Just as the farmer looks after his fields the forester looks after his forest. To do this he needs to make a long-term production plan. Depending on where you live in the country you have to ensure the re-growth of the forest, usually within 3 to 5 years. This can be done using self-seeded trees, sowing seeds or planting saplings. The saplings are only a few decimetres tall when they come from the nursery. When they are planted they have to withstand drought, frost and avoiding having their tips eaten by the capercaillie or the elk.

After some years the saplings grow but they have to compete with grass, herbs and other trees that have self-seeded from nearby. Often these are tree species you don't want to keep such as deciduous brushwood.

Forest that is less than 1.3 m high is called a plant forest. After that it becomes a young forest. Then it's often hard to get through as the trees are very close together. When the young forest reaches a height of 4 m it is cleared. Then it will stand untouched until the forester makes a thinning. After the thinning there will be fewer of the original trees standing and there will be sticks and branches on the ground. After some years the sticks and branches will have rotted and returned to the forest soil in the form of nourishment. The forest then gets the character that we humans prefer.

Depending on where in the country the forest grows it will be thinned two or three times before it's left to stand untouched and grow until it's ready to fell. When the pine or spruce forest is between 80 and 120 years old it is harvested, as a rule by total clearing. It is then time to plant the next generation. Hence the trees have a life-cycle, just like any other living thing.

Slice of a birthday cake

(About year rings in a tree trunk)

Cut a slice of a tree trunk or stump (after having asked the landowner). Count the year rings and decide how old the tree is and when it was felled. Through counting the year rings you can see how wide it was each year. Mark the years when each member of the group was born, the first trip to the moon, when the school was built and other important occasions. With the help of the wood slice you can get a historic cavalcade. Why not associate modern history with this specific tree where you have text and drawings illustrating what has happened? What do you think will happen during the same period of time into the future?

Reflection: Here you have the chance to use facts, fantasy and the joy of research. With smaller children it may be enough to see when they were born and how wide the tree was at that time. Try to compare it with a growing tree nearby. For all the children it could also be a mathematical exercise with historic connections. By comparing the colours of different timber you can distinguish the different trees. The pine has a dark heart, the spruce's wood is light, the aspens colour is almost white and the alder is reddish.

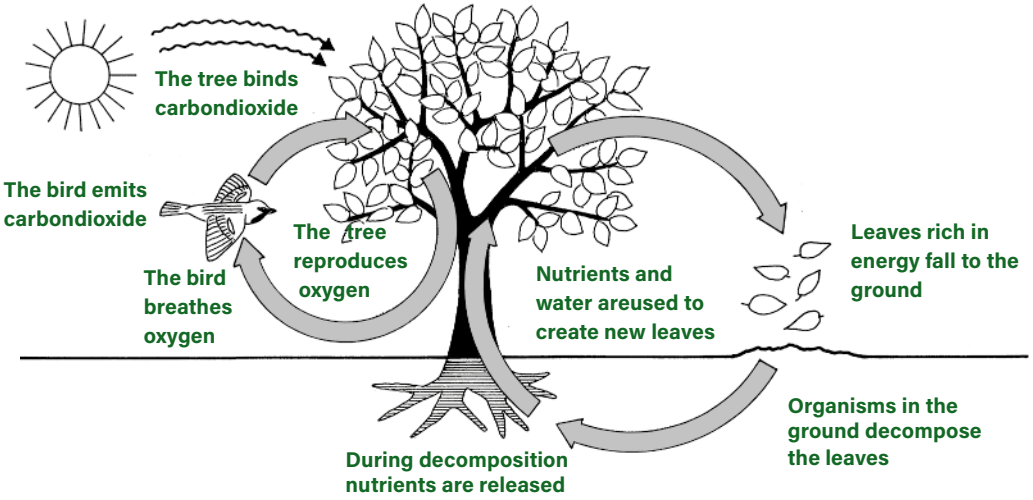
The mystery of the wood anemone

(About gaining an understanding for the way the wood anemone grows)

Wood anemones multiply mainly through a rhizome that grows under the ground. The rhizome divides every year and eventually thick mats of wood anemones result.

One participant is selected as a wood anemone in "blossom" (stretches up their arms). She "dies down" (crouches down). Now the rhizome splits into two new root branches . (The "wood anemone" stretches out both arms). Two participants crouch in front of the "wood anemone" who places a hand on the back of each one. Now the two grow up together, blossom and die down. The hands should again be on the participants backs. The most recent people stretch out their arms and a new participant goes to every "free" hand the new wood anemones grow – and died down. New arms out to more participants etc. until all have become wood anemones. You can see that the number of these "wood anemone's" increase in a similar manner to real wood anemones blossoming right now

Reflection: This exercise should be done at the same time as the wood anemones are blossoming. It is naturally a simplified picture of what happens but can still give an understanding of reality. The discussion can lead on to other species way of multiplying and it can also be an example of a mathematical exercise.



Aspen tells of the natural forest

From root hair to chlorophyll

The canopy of the tall aspen (*Populus tremula*) rustles in the wind. The sun is shining and you can really see how the water evaporates from the leaves. What is it actually happening inside the tree?

The hairs at the root tip suck up the water and the nutrients (for example nitrogen, phosphorous and potassium). These are brought up through the stem to the leaves. This is where the photosynthesis happens in the green leaves. Chlorophyll (the green in the leaf) uses the sun's energy to produce sugars (carbohydrates) from carbon dioxide and water. This is the photosynthesis that forms the basis of life on Earth!

Inside the bark on the stems there are two different layers of cells with transport channels for nourishment. In the cell layer closest to the bark the nourishment is transported from the leaves down to the root. The cell layer closest to the core transports nourishment from the roots up in the tree. New cells are made in the layers closest to the bark, both inwards (wood cells) and outwards (bark cells). This cell division ensures that the trees become thicker every year. The trees have two growing phases during the year, one in the spring and one in the summer. The growth that occurs in the spring has a lower density then that of the summer and therefore makes lighter year rings in the tree. Coniferous trees grow more in the spring than in the summer, whilst the deciduous trees grow more in the summer than in the spring. This means that fast-growing coniferous forests become soft and porous, whilst fast-growing deciduous forests become hard and heavy.

The Aspen's View

The great aspen has a view over the landsca-

pe and sees the clearing that was made when the mature forest was cleared. The clearing will, in the next few years, be covered by light loving fireweed (*Chamaenerion angustifolium*) and raspberry (*Rubus ideaus*) before the trees have become so large that they prevent light reaching the ground. Here the roe deer (*Capreolus capreolus*) will rub their horns against the young trees and the elk (*Alces alces*) will find a sheltered place to rest (elk lair).

The well-kept forest – cultivated forest – is formed by humans. Largely speaking the whole of Sweden is a "cultural landscape" that humans have used and affected in different ways. The opposite of the cultivated forest is the primeval forest, where forest fires ravage, the forest is self-seeded and the trees themselves compete for space. Nobody chops it down and the mature trees grow for as long as they can and ultimately fall down during storms. The primeval forest has a great diversity of both plants and animals. For us humans we often see this forest as shrubby and difficult to access, but also exciting. It is not profitable. Therefore, there are only small areas remaining today that can be called primaeval forest and these are often in inaccessible terrain.

Aspen's friends and enemies

A gust of wind brings life to the leaves of the aspen. Hence the expression to "tremble like an aspen leaf". There are many explanations as to why aspen leaves tremble. One is that Jesus was nailed to a cross made of aspen. Since then, the leaves have been trembling in fear of the terrible fate of the tree. Another is that Jesus didn't get to rest under an aspen on his way to Golgotha. As punishment all aspens now quiver in shame and disgrace. The rustling aspen leaves have also been likened to chattering tongues of women. The kindest version is that the trees fear of becoming matches make them tremble. But the truth is that the long thin leaf stems are flat at their attachment point, making them very mobile

The nearly cylindrical trunk can stretch 25 m high. It is not as old as you might think.

Trees have a lot to tell:
mumbling like Bedouins in the hour of
prayer, leaning together, rustling and
making music, arguing with the magpie
that is stealing sticks. Many trees are
formidable thinkers,
this especially applies to the fully dressed
spruce tree
and the maple that shadows the garden.
Memorable also are the conversations
between the oak's crown and the hay
meadow's source. Many riddles are revealed there.
Some find their meaning in the storm,
others love the monasterial still night,
when only the fixed star trembles. Some
leaves stand their whole lives and shout
with shrub like arms.
The trees fate: stand and perish. Humans
often die in the distance, in graveyards
near the horizon

WERNER ASPENSTRÖM

Building landscapes

(About discovering the landscape through making a model)

Work in small groups (4–8 people). Each group chooses on a map an area about 500×500 m. At the same time as working in your area you create your own map where you mark out the types of forest, how the river is flowing, the whereabouts of different animals, the presence of historic remains of human activity or other exciting things. When you come back together each group represents their map by recreating the area using natural objects (for example in a square 5×5 steps) and describe their observations. They can also ponder upon what it might look like in 100 years time.

Reflection: In this exercise you practise noticing the main characteristics in nature and perhaps seeing things you may otherwise always have passed by. Recreating the map using natural material is an exercise in passing on observations and experiences to others as well as collectively thinking about the future. The exercise can be done together with an adult.

Stick bread making

(About fuel value and stick bread dough)

Make fires with similar amount of wood but of different tree species, for example aspen, pine, birch and maple. Which fire burns down the quickest? Guess, after first using a knife to whittle the woods. The hardest wood will burn the slowest and give the best embers. Sieze the chance to grill over the fires that have a good ember pile. Stick breadmaking can be an alternative. Heat the sticks thoroughly before the dough is put on! Otherwise it's difficult to get the bread fully cooked

Recipe for sticky bread dough: 4 dL wheat four is mixed with 1 teaspoon of salt and 2 teaspoons of baking powder. Crumble in 50 g of margarine, so that it becomes a grainy mass. Add 1 dL of water and knead into a dough. Split the dough into small pieces and roll each into a "snake" that is then wrapped around the warm stick. Cook the bread over the embers until it's golden and doesn't stick. You can also use the bread recipes that can be found on the back of the flour bag.

Reflection: the art of making a fire is something you always need to practise, this applies to adults as well as children. Sitting around the fire baking bread give us a good opportunity to exchange thoughts

At the most 100 years old, but since it multiplies through root shoots the individual plant can become more than 1000 years old. Aspen produces many seeds, but they have a short lifespan and find it difficult to establish. Aspen therefore places its trust in its root shoots. These root shoots are of great importance for many animals, for example the elk, deer, hare and mice, as they can easily eat both the bark and the leaves. If you look closer you will discover many insects that live on the loose wood in the trunk. The insects attract birds that have a great feast. Woodpeckers are faithful guests. Crows hack and create nesting holes that will then be taken by wood pigeons (*Columba palumbus*), owls, goldeneye (*Bucephala clangula*), marten (*Martes martes*) and bats.

The insects, that live on the aspen, often cause a lot of damage. As do many fungi, causing root rot, stem rot and mildew. Aspen is also the host for a fungus (*Melampspora pinitorqua*) that damages young planted pines.

The uses of aspen

Voices are heard in the forest. A group of walkers are looking for firewood. Naturally they make tracks towards the old aspen in the hope of finding some dry branches. But aspen isn't as good to make fire with as you'd have thought. In former times they used to say "the Devil himself sits in one end and prevents the fire burning through the wood". This shows that the knowledge of aspen's poor ability to burn is old. The group find dry fallen branches from a pine and small twigs from a dead spruce tree. Quickly a fire is made for the coffee. But some thicker branches of pine have also been found, they burn slower and they have a higher fuel value. Knowing the fuel value of trees can be useful, especially when you are able to choose, chop and dry the wood in advance, for example for a summer camp or a permanent wind shelter. The higher the fuel value, the harder the wood which then burns longer and has better embers, for example when cooking.

Poor	Average	Good	Excellent
aspen	alder	birch	elm
linden	pine	oak	ash
poplar	young oak	spruce	maple
young pine	larch	beech	

The large aspen feels proud when it thinks of its importance for the outdoor people. Every time they light a fire they get out the matches – made of aspen naturally! After a little while they sit and have a cosy time round the fire. When it starts to die down the voices become softer and the talking has changed character. Now it's no longer the exciting experiences of school that you talk about. The wonderings are more about what every person carries within, but so seldomly has a chance to talk about. It can be of life and death, love, the mystery of the stars, about God or just being. The notes of the recorder…

Aspen isn't only used for matches. When you come home to a sauna and sit on the bench you can think about it. The aspen boards are neither resinous or feel as hot as, for example, pine. In earlier days aspen was also used for tingles on rooves. Many household articles are made in the easily workable aspen. Take a chance to make your own hike ladle!

For outdoor people who hike a lot the aspen can help those that suffer from foot odour. Take three cloves in your mouth, make a walking stick of aspen and place three aspen leaves in each shoe. Then walk three times anticlockwise around the church and you will see that the foot odour disappears (according to old folklore!)

Casting a last glance from the aspen's viewpoint we can see that the forest has many areas of use and that there are many different types of forests. Forests to produce timber, for hunting, exercise, walking, picking berries and mushrooms, fishing, orienteering, living friluftsliv and lots more. The forest can contain native valuable trees, old deciduous forest, scree slopes, wetlands and orchid bogs. If you are far enough north you also find mountain forest and reindeer grazing forest. If we look closely we discover croft ruins, cairns, capture pits and other remains (for more information see chapter 5, "The history of the landscape").

The Friluftsliv forest

The forest as an educational opportunity

We put on the rucksacks, take a bearing with a compass and again feel like real lumberjacks and pathfinders. "Forest, here we come!" Already taking the first steps the responsibility starts and we make use of our friluft skills. Which choice of route shall we make? Can we see where we place our feet or do we leave traces of trampled flowers and destroyed mushrooms? Naturally it is not so! The journey through nature continues with care, as the stress has been left behind. It is here – in nature – that we can find ourselves. It is here that we realise that the world contains more than we meet in our everyday lives. But we mustn't rush, and instead do things in the "right" way.

For children the forest is a place of possibility. Here you can get an outlet for all your energy, creativity and fantasy. Here everyone can climb as high as they dare without someone standing next to you with a measuring tape and comparing. To jump from stumps and stones or to scramble up the mountain develops both motor skills and physical training. Crawling under the spruce branches and feeling the stillness gives birth to new thoughts. The forest is also an excellent place for training your balance, with lots of irregularities, climbing possibilities and soft falls. Placing your ear next to the tree stump and listening to what it's inhabitants are having for dinner can even make a grown-up become hungry.

Food time! The question is: how should the food be cooked, on the stove or over an open fire? This decision is affected by allemansrätten, fire safety and the availability of suitable wood. The choice of the open fire means that everyone gets a communal activity of carrying stone for the fireplace, gathering wood, chopping and sawing.

Types of fire

The pyramid is the most common type of fire and usually suitable for the type of wood that the right of public access (allemansrätten) gives us the chance to use. But if you have more time and can select the wood with care then it's good to know about other types of fires.

Ants and liverwort

(About showing how liverwort spreads)

The ants are attracted by the oil in the liverwort seed but it is not always possible for them to take them all the way back to the anthill.

Split the group into two. Place one group by a tree. These participants are now ants in an anthill. The remaining participants are liverworts that are spread out in the terrain at least 15 –20 m away. The aim is for the ants to fetch home as many liverwort "seeds" (participants) by carrying them to the anthill. If you drop a "seed" or the "seed" puts a foot on the ground you stop where you are. When the exercise is stopped you look around and realise that there are seeds in different places. This is what happens in reality when liverwort spreads.

Reflection: This is a way of using your whole body to feel what it's like to be an ant or a liverwort seed and to gain understanding of how their spreading occurs. An experience that maybe springs to mind next year when you are waiting for the first liverwort to arrive.

Those who managed to bring the "seed" all the way to the stack naturally feel proud that they have "won". It is then important to say that it's thanks to those who didn't get so far that we can find liverworts in different places. Every ant is important for the spreading of the liverwort!

Tree tag

(About hugging trees)

This game has many names and can be found in different variants depending on where you live in the country. Choose the participant who is "it" and that is going to tag and one that will be chased (these can be called fox and rabbit). The other participants choose a tree each in a given area and places their hand on the tree. The fox and the rabbit place themselves apart and at a given signal the hunt begins. The hunted can run to a tree where there is another person and grab hold of that tree. The one who is standing by the tree then has to let go and becomes the person being chased. If the one chasing tags the other, who is free and has not got hold of a tree, then it will be this one who becomes the hunter instead. The game continues for as long as you wish. As a variation you can let more than one person be without the tree at the same time. It could also be suitable to limit the area of the hunt.

Reflection: here you get warm through running at the same time as you work on attention span and speed.

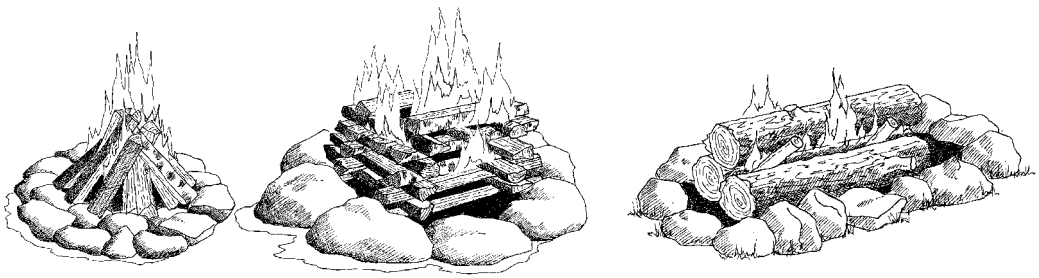
A Jenga fire made with birch, ash or beech (hard woods) gives a good bed of embers. Jenga fires are often used as a campfire. For the chilly night a log fire is the best. The log fire that's simplest to make consists of three logs of pine, the thicker the better. With an axe the logs are splintered so as to catch fire more easily. One log is placed on top of the other two. By having a stick at each end between the supporting logs there is a space where you can start making a fire with tinder. With sticks lying across the logs, you can also regulate the draft, so that it doesn't burn too fast (when it's burnt for a while you can normally remove the cross sticks). The top log burns faster than the other two so it's good to have an extra in reserve.

Another variant is to cut a dry pine log in half and make a fire between the two halves, which will however give a fire that doesn't last as long. The "authentic" log fire is supposed to be one made from only two very large logs placed on top of each other.

Pine is the best wood for night fires. The spruce has a habit of "sparking", embers can easily end up on the sleeping bags in the wind shelter which can have fatal consequences. Read more in the chapter 1, "warm, dry…. "

Whichever fire you prefer the most important skill is to be able to extinguish it! One rule is to pour on as much water as needed to put out the flames and then apply the same amount again!

Sitting round the campfire often provides a good opportunity to think about important questions, for example different techniques that we humans have access to. What techniques we have the "right" to use and what techniques we can use in the "right" way. It is also a good occasion to reflect back in time. Subjects such as gene mapping, nuclear power and animal testing don't only pose technical questions, but also those about what is right and wrong. Previously, large and difficult questions were captured in myths – stories that could be told from generation to generation. Myths often have important things to tell us even today. The fire (mankind's best friend and worst enemy) has been one of our most important and forceful techniques. According to the Navajo Indians creation myth, fire was something that was stolen from the gods and that humans didn't necessarily have the right to use.



Pyramid fire Jenga fire Log fire

Humans didn't find anything to make fire with. Everything that could burn belonged to Hashjeshjin, the God of fire.
Then the Coyote rushed over and finally found the place where Dontso, the messenger fly, and the God of fire lay sleeping, while the boulders were burning around them.
There, Coyote stole the fire and brought it home to his people.

RETOLD BY GÖSTA FRIBERG

Making food without a pan

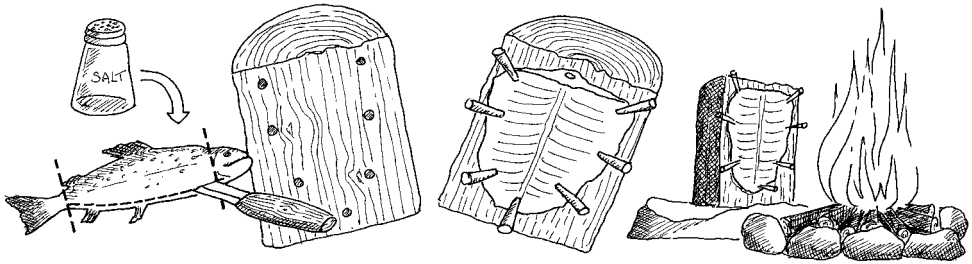
The fire doesn't only give heat, light and community but it's also a possibility for cooking. Primitive cooking then lies close to hand. There are some simple reminders.

- Make a good bed of embers.
- It is only when you start to grill meat that you need an open flame to burn the meat (in order to close the pores so that the meat juice doesn't disappear).
- Don't use sticks of rowan or other foul smelling tree species to stick into the meat or the sausage, it can ruin the food.
- Don't be in a hurry!

In the handicraft forest

To work with your hands – and create and shape – can be done by the campfire or when you just feel it would be nice and sit and "fiddle". There is lots of material. By using the abundant shrubs you can create many useful things. Shrubs are bushes of deciduous trees that grow close together, for example in young clearings, abandoned or overgrown fields and meadows or in ditches. The landowner, who naturally has to be asked, will often appreciate help getting rid of shrubs.

Fish on a plank



1. Gut, cut open and salt the fish. 2. Attach it to a thick half cut log using sticks. It is easier if you prepare the holes with a knife. 3. Place the half log at a suitable distance from the fire.

Dry as tinder

(About making tinder and striking fire)

Through "striking fire" you get a chance to challenge your skill. You need a fire steel, flint and tinder. You can collect tinder from the hoof fungus, often found growing on dead birches. Take off the hoof fungus from the tree. Cut away the outer hard, grey layer (or use a scraper) under this is the soft, brown layer that is the tinder. Beneath the tinder layer lies the tubular spore layer that is not supposed to be used.

1. Cut the tinder into thin slices and let these dry.
2. Boil an ash ball by mixing the same amount of birch ash and water and let it simmer. (Alternatively, you can use a tablespoon of saltpeter or potassium nitrate (KNO_3) that is mixed with 5 dL of hot water.)
3. Place the tinder in the ash ball for a 24 hour period.
4. Take up the tinder and bang it lightly so that it becomes thin, soft slices.
5. Dry the tinder and when it's properly dry it is ready. When it is going to be used it should be rough so that it becomes a soft fuzzy material. It is here that the sparks should be caught when you strike the steel against the flint.
6. When the sparks have caught you need to have dry, fine material at hand (thin juniper bark, thin strips of the outer birch bark, dried grass) and carefully start blowing so that the fire catches. One way could be to place the

cont. ▶

tinder with glowing embers together with the dry material in a birch bark roll and blow through the roll. When the birch bark has caught fire, you place it in the fireplace, that has been prepared with thin twigs.

Reflection: striking fire is an old technique that needs to be practised in order to be mastered. Children can practise striking fire, exchanging the tinder with a fine steel wool (without soap). To make a fire in this way means that the participants appreciate the importance of selecting the wood and understand the process, as well as feeling humility for the skill of our forefathers.

A mini charcoal kiln

(About making charcoal in a tin)

In former times charcoal burning was a very important activity in the forests. The charcoal was used for heating the iron in huts and smithys. The principal to make charcoal is that wood is heated without oxygen. It was therefore the charcoal burners job to walk around the charcoal kiln trying to plug all air holes with earth and old coal dust (earth mixed with coal). To make charcoal in a kiln usually took many days and during that time the charcoal burner couldn't sleep for more than a short time.

You can also make charcoal, a little more easily and quicker. Take a tin (e.g. a coffee tin) and fill it completely with bits of wood, for example birch. Then place the

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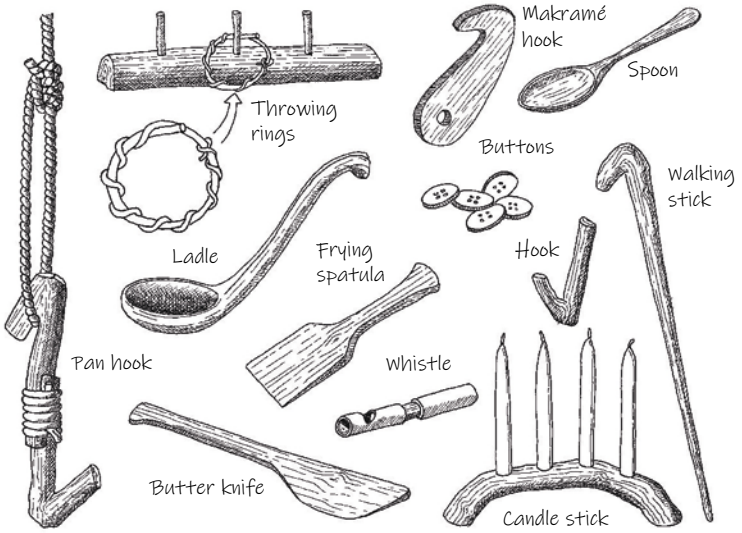


Items that you whittle don't necessarily have to be directly usable. Sometimes it's enough to just feel how the wood has been formed. Maybe you can just bring your favourite sculpture to decorate the bookshelf at home.

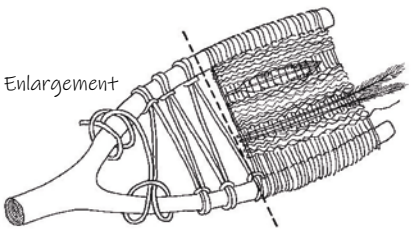
Using the wood of shrubs, preferably birch, you can make: a pan hook, whisk, broom, clothes peg, ladle, butter knife grilling grate, PT (pancake turner), a wall hook, hiking stick and lots more.

Birch leaves can also be used in baking (always think about the risk for allergies). For birch leaf bread dough you need: 0.5 L of water that's mixed with 50 g of yeast, 1 teaspoon of salt, 1 tablespoon honey, 2 tablespoons butter, and one decilitre of birch leaves. Thereafter add 3 dL coarse flour (for example Graham flour) and as much wheat flour so that the dough doesn't stick to the bowl.

Cover and put in a warm place to rise for about 45 minutes. Split the dough into smaller parts and cook them on a stone by the fire or as stick bread, or in a frying pan or oven.

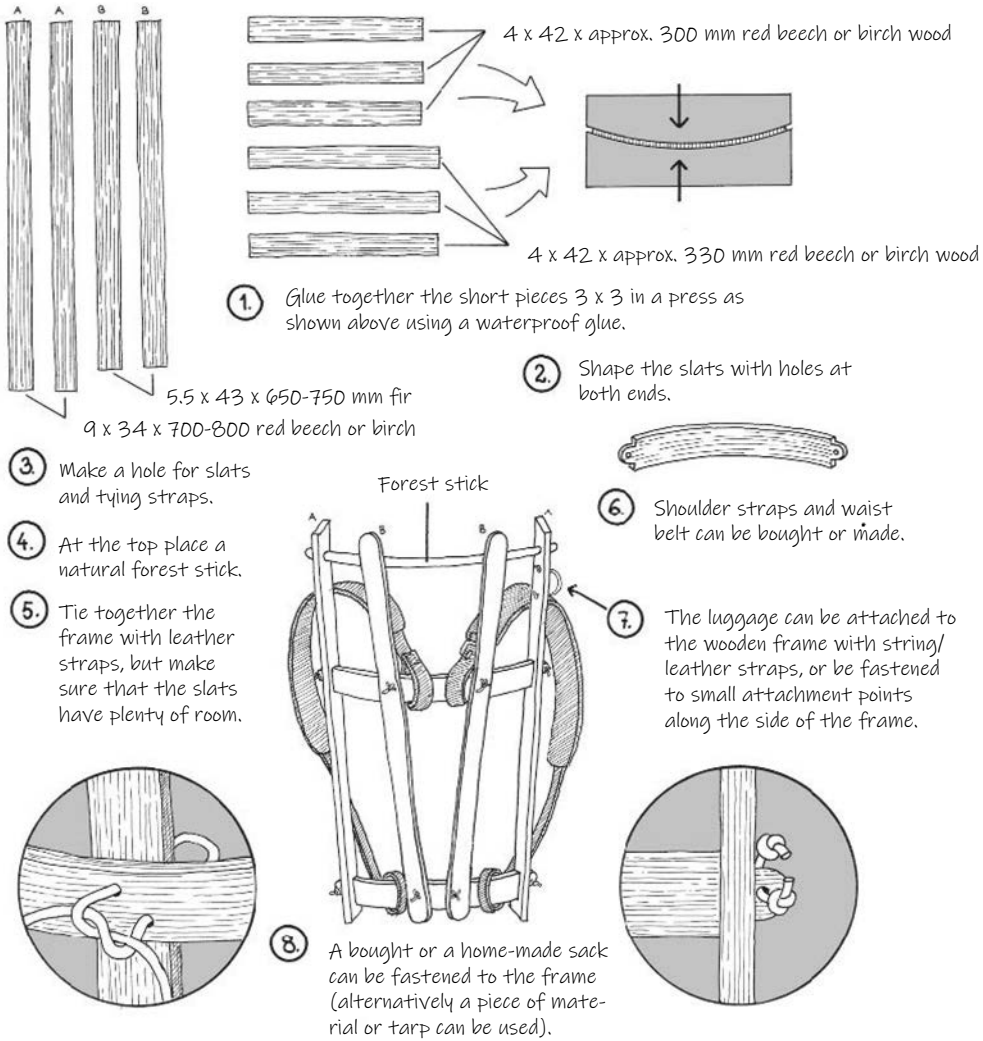
Birch bushes can also be used to make lashings, used to bind things together instead of rope. Woggles and bracelets can be made from thin twigs or birch roots. The birch leaves can be used for tea (but always think of the risk for those with allergies). Birch leaves used in colouring wool give a yellow colour.

Have you tried weaving in the fork of a branch? Find a nice fork. Put the threads (maybe your own coloured yarn) so that you get a weft. You can then weave using yarn, plants and other things you find. It can make a fine hike memory.



To carry what you built

(about carrying using a frame made of wood)



tin upside down in a fire with the fire burning around it. Make sure the bottom is buried in the ashes so that no air can enter that way.

Avoid placing things on top, any gases should be able to escape. Practise with a small tin to start with so you get a feeling for how it is done. In some cases the tin catches fire and the procedure stops. After about half an hour (depending on the size of the tin) you can take the tin away from the fire and let it stand to cool. You may have to test if the wood is charcoaled by knocking on the tin and listening whether it sounds empty and hollow. Be aware of the risk of the charcoal catching fire when oxygen becomes available. Be ready to cut off the air supply by placing the tin upside down. The charcoal can be used next time you are going to grill.

In a similar manner you can make your own charcoal pencils. If possible, use linden or hazel as they make the best charcoal pencils. Shape your own sticks of wood, engrave a pattern so you recognise them later. Placed the wooden sticks in a tin to charcoal as above. Then it's only a matter of starting to draw!

Reflection: this is a way for both children and adults to understand the process of charcoaling. The result is also something you can use. If you have more time, access to land and wood you can make a full sized kiln.

Food without a pan

(About boiling potatoes, eggs and other food in the fire.)

Potatoes and bananas can be placed directly in the embers without tinfoil (who needed tinfoil in the olden days?) Make a cut along the banana and embed pieces of chocolate. The banana is placed directly on the embers. When the peel is black the banana is ready. Eggs can be boiled by wrapping a handful of wet white moss around the egg, that is then placed on the embers. When the white moss has burnt up the egg is ready. Another way of cooking eggs is to let a flat stone become very hot in the fire and, after brushing away the ashes, fry your egg on the stone. It can be helpful to put a slice of bread with a middle taken away around the egg so it doesn't pour off the stone. You can also use a hot stone to bake on.

The problem with cooking over an open fire is that you have to have plenty of time. It's therefore a good idea to plan the cooking before you are hungry. To make a fire, find grill sticks and prepare a dough for baking, takes time. But if everything is prepared cooking directly on the fire is a thoroughly enjoyable. Just as with other cooking, practise makes perfect!

Reflection: cooking requires constant attention in order to get good results. Through cooking you can let your fantasy flow. You may discover many new combinations. Take the chance to experiment and perhaps make your own cookbook.

Pine and Spruce

The useful pine

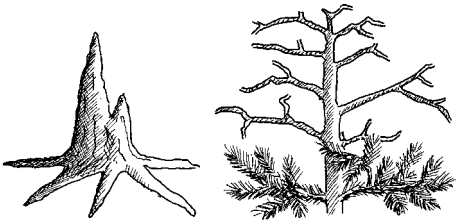
The pine (*Pinus sylvestris*) can be found throughout Sweden. It has originally spread, mainly from south and south-east, but also from the north. The trees that have come from the south have a short wide crown as opposed to those that are come from the north that have a long, thin crown of branches. The pine or fur (in Swedish) today means the same thing, but for a very long time ago the fur was the name of the tree that today we call the oak.

The pine is fully grown when it is about 100 years old. The oldest known pine tree in Sweden is about 500 years old. If you look at the cut surface or a piece of timber from a pine you find that inside the bark there some year rings that are lighter than the rest. This is the part of the trunk that is alive. The wood inside is dead, pale pink coloured and darker. The deadwood cells are filled with resinous substances that protect the wood from rotting. Heart wood is therefore much stronger and has always been used for timber in buildings but also for furniture, carpentry and plywood. In the chemical industry apart from paper, wood is also used for red spirits, resins, acetone, medicine and much more.

"Topptöre and stubbtöre" (resin rich wood from the tip and the stump of a tree)

Look around you in the pine forest! Here and there you can see pines that are large and fine but where the crown ends in a dry tip. This is probably the fungus *Cronartium pini* (the most common fungal disease of pine) that has attacked it.

The fungal mycelia grow in towards the trunk and cut off the water supply. To fight the fungi the pine develops resin – it's wood becomes resinous, called töre or tyre in Swedish. This results in a dry tip (resin tooth). However, there is also a resin in the old stumps. When the pine is felled the roots continue for a while to produce resin and turpentine that gets concentrated in the stump. This makes the core of the stump extra resistant to rotting. Therefore, a pine stump rots from the outside to the centre. It becomes a stump top with resinous wood (stubbtöre). Practise finding them – they make excellent resin kindling to

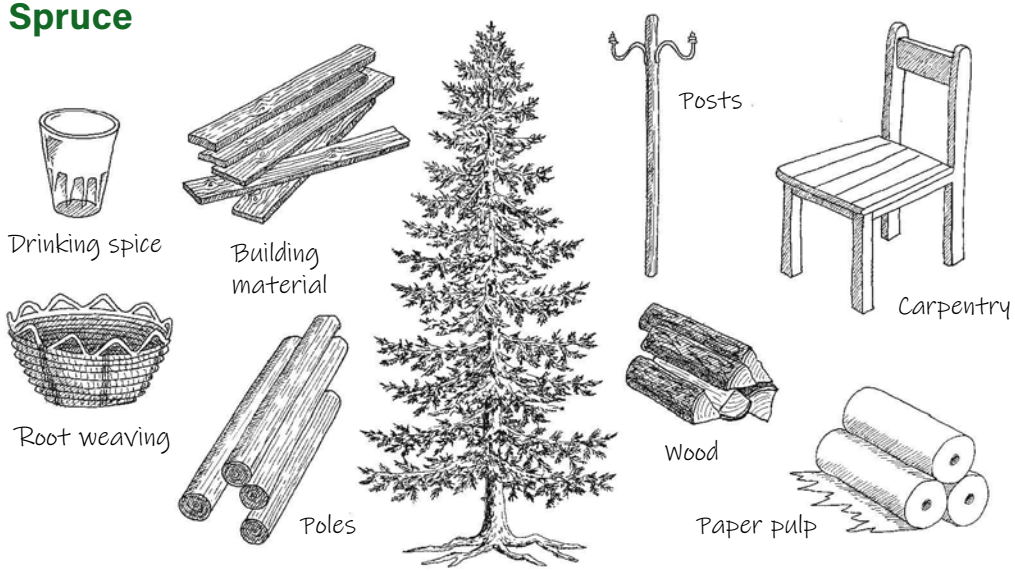


have near at hand when lighting a fire. The best wooden axe shaft is made of töre.

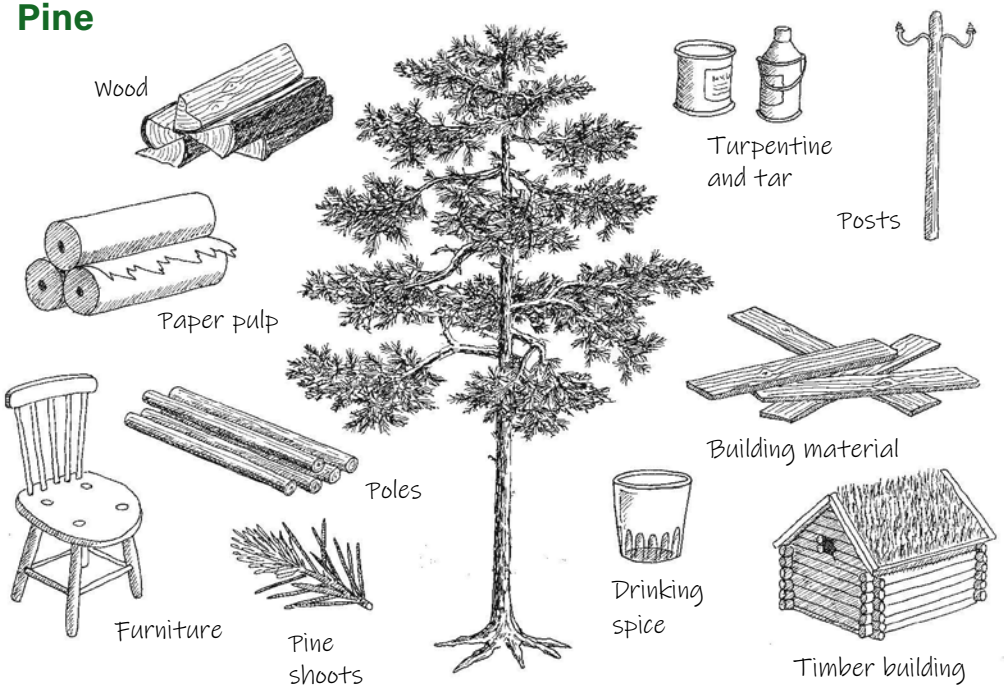
Wood tar

Wood tar was for a long time Sweden's most important export. The tar was extracted from pine. Some years before the pine was felled you removed parts of the lower bark to get a rich flow of resin – more tar could be made this way. The wood was chopped into bits and stacked in a tar valley. It was covered with earth and set on fire. Due to the heat that was created at the charring, the resin melted and other substances from the wood poured along the bottom of the resin valley into barrels, in which the tar was later transported. Today you can still find the remains of tar valleys. They lie on a slope. If you lift

Spruce



Pine



Leaf prints

(About discovering the patterns in leaves)

Nature is full of works of art that we often don't notice due to its diversity. One way of studying, for example a leaf, is to make a print onto material. For this you need: a piece of cotton or linen material, a hammer or a flat stone, a sturdy surface and a green leaf. The leaf is placed between the folded material that is placed on the hot on the hard surface. With a hammer you carefully hit the material on top of the leaf. When you have finished hammering the leaf is removed and a print remains. The chlorophyll in the leaf colours the material green and its structure is clearly visible. As chlorophyll is water resistant the material can be used for different things, for example a tablecloth, material bags or pillowcases. The material can also be mounted as a picture or laminated and used as a table mat.

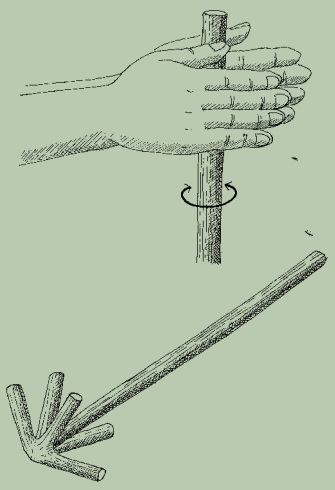
Reflection: all ages have a chance to succeed in their creation. The joy when you see the finished work evokes a sense of pride. The exercise can give inspiration to seek further knowledge about the importance of chlorophyll and its characteristics. What happens when the leaves change colour? How is chlorophyll formed? Thoughts of natural cycles…

Peeled pine top

(About making a porridge tool)

In the recently cleared pine forest you have the chance to make a porridge tool (to stir the porridge with so it doesn't get burnt). Take the top from a young pine, sawn down at the recent clearing, including the side branches. Cut the side branches so that 5 cm of each remains. Remove the bark and make the edges round. If you don't choose to use the stirrer in the porridge you can hang up towels on it instead.

Reflection: making the porridge tool is a rewarding activity as it involves using a knife and often gives good results.



the moss that covers the tar valley you will still find a layer of earth drenched and black from old tar.

Our forefathers uses the young shoots of pine as a treatment against scurvy, they are rich in vitamin C. Other illnesses could also be treated. You cut a sharp splinter, pricked yourself in the painful place and then banged it into the bark of a healing pine, that took on the illness. Healing pines were often a little strangely crooked and knotted.

The pine, like the birch, has to have plenty of room to grow tall and big. In un-thinned forests the trees become thin and tall, so that the snow sometimes breaks them. A pine standing alone in a field (and that is not a seeding pine after a recent clearing) has anchored itself well with its tap root. By the shape of the trunk you can see that it can manage the next approaching storm without breaking. It also has its strongest branches towards the south – useful to know when you have forgotten your compass!

Dwarf mountain pine (*Pinus mugo*) is a slow-growing, knotted pine that grows in adverse and exposed places for example rocky ground, beaches and marshes. With its often crooked, thin trunk and sparce crown it differs markedly from the common tall pine.

The Spruce

Spruce (*Picea spp.*) is our most common tree. It is easily cultivated and gives valuable and usable wood. When the spruce forest is young it seems dark and sombre in its character. But when it then matures and there are fewer trunks after thinning it allows light to reach the ground. Then sorrel (*Oxalis acetosella*), artic star flower (*Trientalis europaea*) and even berry plants start to thrive.

The old spruce forest is probably the best environment for those who wish to hike. Also, it is calm, green and pleasant for large parts of the year. Make an excursion to the spruce forest in spring when it's in blossom. The red flowers fill the tips of the spruce and the yellow pollen hovers between the trunks in a marvellous light.

The birch

First in

In Sweden we have many different species of birch. The downy birch (*Betula pubescens*) has the whitest trunks, smooth branches and rounded leaves and is most common in the north of Sweden. It thrives on somewhat damp ground. The silver birch (*Betula pendula*) has rougher branches. On this there are small warts that have given the tree its name (wart birch in Swedish). It can grow on much drier soil than the downy birch. In central Sweden both these species occur as well as hybrids. The mountain birch (*Betula pubescens var. tortuosa*) is a variant of the downy birch. It is normally crooked and not as tall, but it grows in difficult places. The dwarf birch (*Betula nana*) is a species that creeps along the ground. Hybrids and local variants make you wonder if the birch is allowed to look however it likes. Often in interesting, tall and beautiful shapes. It is the tree of happiness, light and the Swedish idylls.

In the birch forest it is light and airy. Lots of light reaches ground level and many herbs and grasses grow there. Before the birch

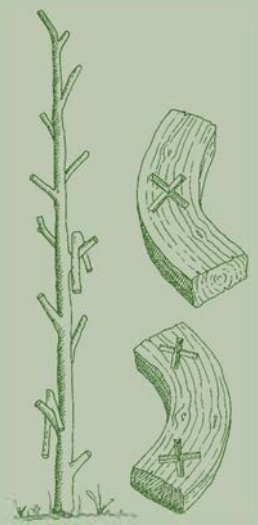
Birch

Sheep Sky

(About playing a game)

An old game called "sheep sky" can be played in pairs or as a group. Material: a stick where the branches have been chopped about 10 cm from the trunk, play markers, two dice. The first participant rolls the dice and moves their marker as many steps up the stick as the dice indicates, starting on the lowest branch. The next player rolls the dice and moves their marker. The first player to the top is the winner. The rules can be made up. They could be: if you arrive at the same branch you can "push" away the other player or, that the game isn't finished until you have gone up and back down to the start.

Reflection: an old game the practises maths and that also gives a moment of peace.



Interviewing trees

(About gathering information about a tree)

The participants are split into groups of 4 to 7 people in each. They need access to a "forest library" with literature where they can read about different trees. This can consist of everything from reference literature to fiction and lyrics. Each group is allocated a special tree. This is done so they get the personal relationship to the tree. It's up to each group to find as many facts as possible. The time allowed will depend on the age group. For adults 30–40 minutes can be sufficient. Facts can be presented through drama. This might be an "at-home-with-report" or the latest news from the TV, perhaps a post from the tabloid press or a musical about "the life of pine".

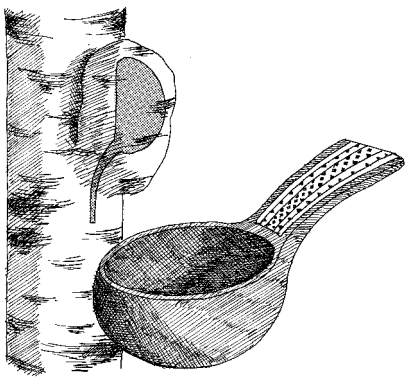
Reflection: here you acquire knowledge from different sources, realising that all facts are not found in one place. Apart from factual knowledge there is also room for fantasy and creativity as well as co-operation and personal performance. When introducing the task, it may be useful to give an example of a presentation with plenty of empathy and fantasy and not solely to explain what should be done. Otherwise, the focus might end up as "finding facts" and the presentation may be forgotten. It also helps to point out that just reciting facts isn't the aim, but they need to be put it in context.

leaves emerge the ground gets all the sunlight and then flowering liverwort (*Anemone hepatica*), wood anemone (*Anemenoides nemorosa*) and yellow star of Bethlehem (*Gagea lutea*) can flourish.

Birch was the tree that first colonised after the ice age and it is still the fastest tree to conquer abandoned fields and pastures. Even after a forest fire and on clear cuts it comes early because it self-seeds easily.

Uses of birch

The birch has always been a useful tree. Today the wood is used mostly in the pulp industry and in sawmills. Dry birch wood burns well in an open fire. Birch bark can be used to create all sorts of boxes, baskets and shoes (in early days the bride was supposed to give the bridegroom 20 pairs of birchbark shoes!) Birch bark was used as roof tiles or between the stone base and log layers in house building to prevent damp getting into the wood. The "authentic" Canadian canoes were made of birch bark. The wood is light and doesn't give any aftertaste. It is therefore used for household tools such as bowls, ladles and lots more (see the woodcraft tip earlier in this chapter).



In the bark of most deciduous trees are resting buds – adventive buds – that the tree can allow to grow if it needs to. This might be so as to protect the trunk against light or a way to get more leaves if the crown has been damaged or broken. When such a bud is making a new branch, it can sometimes end up tying a knot on its self and growing around, and around without shooting. A knot is formed on the trunk, almost made for scraping out a cup. But you cannot chop it off without permission from the landowner!

Beech and oak forests

The atmospere of the beech forest

Pure deciduous forests are uncommon in Sweden apart from in the most southerly parts. There it's mainly beech, but also oak, that can make a forest. The beech (*Fagus sylvatica*) has its widest distribution in the Balkans but makes large forests all the way to India. Here in Sweden, it lives on it's absolute northern limit since it usually only thrives in warm rich soil. In a dense beech forest the trees are close together. It is almost impermeable as a young forest. Not until it becomes very old – 100 years or more- does it gets a special storey atmosphere, as described by so many. The different seasons in the beech forest look very different. In the spring, just before leaves emerge, wood anemonies and other spring flowers occur. Later, when the beech leaves shut out much of the light reaching the ground other plants

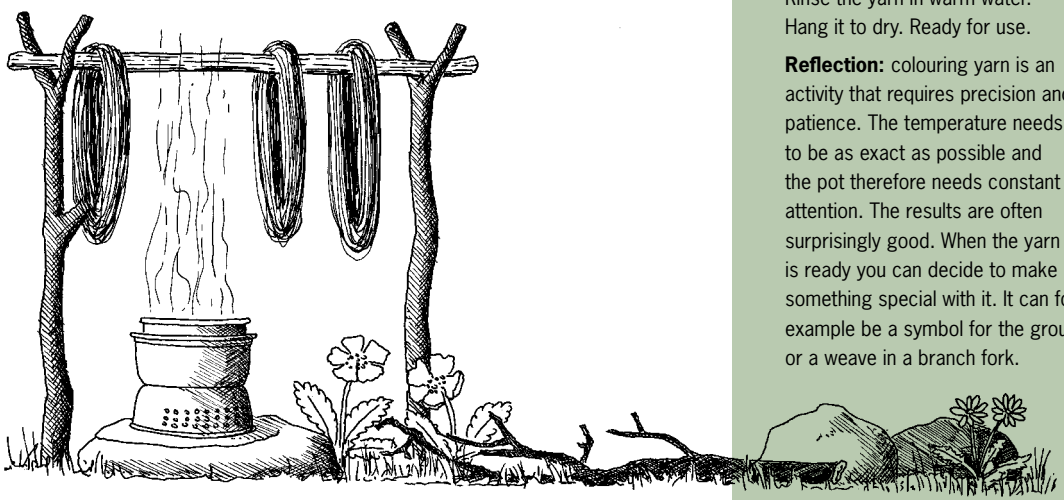
can't grow there. What is left is a mat of dead leaves from last year.

The beech wood is hard. It is therefore suitable for use on a grilling fire, as it retains the embers for a long time. The tree is easily recognisable, as there are small "comma" signs in it. Look next time you eat an ice cream! The stick is made of beech!

The oak forests two layers

The oak forest as a different character. When it becomes older it wants to have a covered foot and a free body. The oak forest is then so sparse that it grows in two layers. The lower layer consists of very dense hazel (*Corylus avellana*) – or other bushy forest trees. This prevents the oak from getting branches on the lower part of the truck where the most valuable timber can be found. Beech and oak forests are cared for by thinning just like other forests but are best renewed by sowing seeds. The old beech forest today is derived from nuts that have been broken down by swine, that previously lived of nuts. According to the old farmer's almanac from 1622 the beech tree was a reliable weather predictor. Loosely translated as:

> If you wish to know how the winter will be then you should on all Saints Day go into the forest and thereafter find a beech whereby you shall know there you should cut a slice
> If is it dry, warm winter will be near
> But if the same slice is wet and damp
> Then a cold winter will come.



A colourful stove dish

(About colouring on the stove)

Prepare a coil of wool for each camp stove and bind it together in at least three places to retain the coil. Before colouring the wool using plant dye it needs to be mordanted with alum: 20 g alum (can be bought in the chemist) for 100 g of wool. Heat the water and the alum to 40°C. Wet the wool in water and then place it in the alum solution. Heat the water to 90°C and then let it rest for one hour. Turn the wool every now and then using two sticks. Do not rinse!
(Mordanting can be done at home in advance).

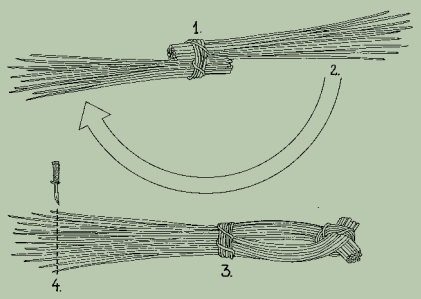
Then place into the pan one of the following: birch leaves, ladies mantle (*Alchemilla vulgaris*) or spruce needles. Naturally you can try other plants! Pour water into the pot and add the yarn. Heat the water to 90°C and maintain this temperature for about 30 minutes. Rinse the yarn in warm water. Hang it to dry. Ready for use.

Reflection: colouring yarn is an activity that requires precision and patience. The temperature needs to be as exact as possible and the pot therefore needs constant attention. The results are often surprisingly good. When the yarn is ready you can decide to make something special with it. It can for example be a symbol for the group or a weave in a branch fork.

Whisks

(About making a birch whisk)

The spring and early summer are the best times to make your own birch whisk. Pick birch twigs and peel them (after contacting the landowner). It's easiest to place the twigs against your thigh and, using the backside of a knife, to pull. In former days you took a stick of hard wood about a 10 cm long, made a cut in it and pulled the twig through it where it grew so as to remove the bark. After this you cut off all the debarked twigs from the tree. Split the peeled twigs into two piles. Place the piles with their shafts overlapping and bind with cordage. Fold back one pile next to the other to make a whisk. Tie with a new cord and cut off



the twigs so they are the same length, ready to use.

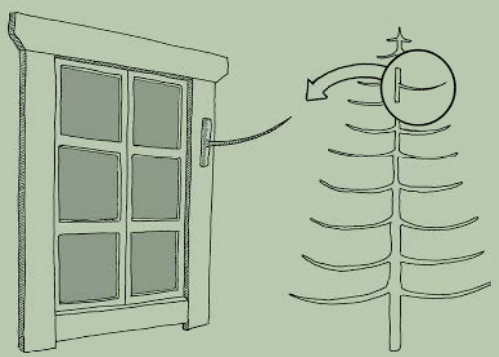
Reflection: here you make something practical and useful. This is an activity for a sunny spring day when you want to sit and enjoy the sound and the smell whilst still making something.

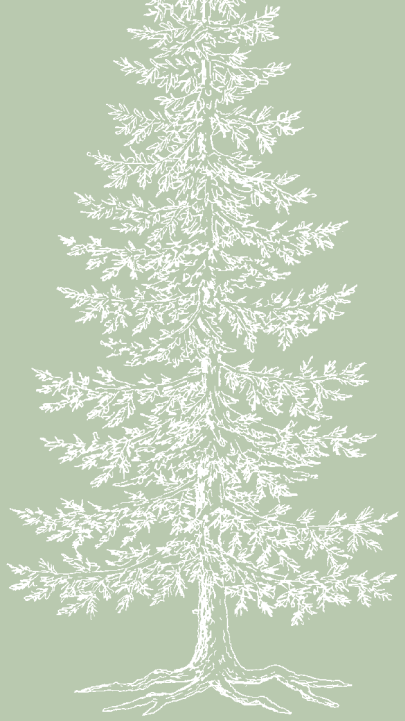
Weather forecast

(About predicting the weather)

Take a dry twig with a piece of the trunk from a small spruce. The twigs should be 40–50 cm long. Let's for example the Christmas tree (or a piece of it) dry and use this. Peel the branch. The trunk piece is nailed to the wall outside the window. The stick will bend up if dry weather is on the way and point down when a low pressure and rain is arriving

Reflection: with the help of the weather stick you can follow changes in the weather before they occur..





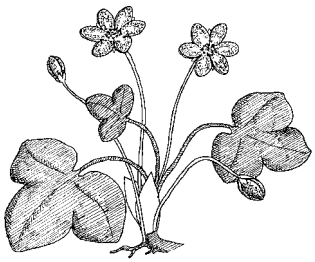
The forest
(a loose translation from Swedish)

Have you forgotten,
that the forest is your home,
and that the deep still forest
stands and waits for you like
a friend.
Leave the cities worry, come to the
forest again,
only then will you be whole again.
Have you forgotten, that the forest is
your friend?
The path of the ant under the sky,
The spring, where there grow light
conversations,
the glade, where you play with
a rain,
are they forgotten? Don't you remember
them?

BO SETTERLIND

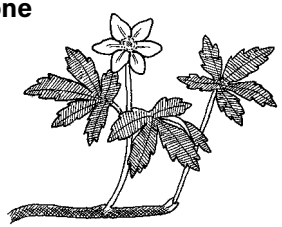
Characters

Liver wort



One of the earliest spring flowers is the liverwort (*Anemone hepatica*). At the top of the vertical earthstem there is a bud with the genetic material for the next years flowers and leaves. When picking liverworts there is a risk of damaging this bud. Liverworts are protected in many counties. A plant can become 700 - 800 years old. Every year the rhizomes get scarred after that years leaves, this can be useful when you want to find out the age of a plant. The seeds contain an oil that ants like. On the way to the ant hill they sometimes drop them. In this way the liverworts can spread to new places. Before it was thought that the liverwort was a good remedy for liver illnesses as the leaves look like a liver. The liver wort is poisonous.

Wood anemone

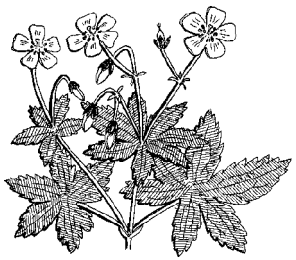


The wood anemone (*Anemenoides nemorosa*) is a weather flower and opens in the sunshine and closes with overcast and damp weather. In England the children thought that the wood anemone closed its leaves so that the elves could sit protected from the rain and the cold inside the flower. The wood anemone multiply vegetatively and that is why they grow so close together. The wood anemone is poisonous. The plants sap is sharp and corrosive and can irritate the skin of sensitive people. According to Linneaus the wood anemone is supposed to flower at the same time as the swallows return.

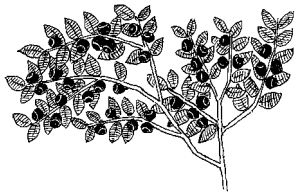
Sorrel

Sorrel (*Oxalis acetosella*) grows in forests and copses. The flower is white with streaks of pink and violet. It opens in the morning and closes at night. You say that it predicts weather. If there is bad weather coming the flower closes and bends it's shaft. If you poke at the seed capsule when the seeds are ripe they will crack out. The three fingered, thin, sour tasting leaves can be eaten but contain oxalic acid, so don't eat too many!

Wood cranesbill

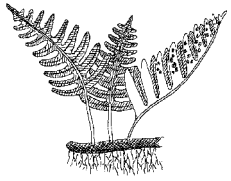


One of the flowers that have existed longest in in Sweden is the mid-summer flower or cranesbill (*Geranium sylvaticum*). Pollen has been found from warm periods after the ice age. It is a magical flower and should be part of any mid-summer bouquet's nine different flowers so that you can dream about your beloved. When the flower has finished flowering the seed pod develops so that it looks like the beak of a bird. It is probably from this that it's got its latin name (geranium = crane beak).



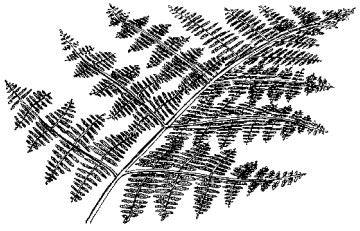
Bilberry

Bear berry, fox licking berry and tell-tale berries are all dialect names for bilberry (*Vaccinium myrtillus*). That they are enjoyed by bears is shown in the children song "Mors lilla Olle… ". Other animals that like to eat bilberries are fox, hare, hedgehog and different birds. If you eat bilberries your tongue becomes a blue to lilac colour. A colour that shows that you have been in the jam jar (tell-tale berries). Bilberries were previously used against diarrhoea as they contain tannin that combats this. Bilberries require lots of sugar when conserving, therefore poor people mostly ate fresh berries or dried them for use in winter.



Rock fern

The rock fern (*Polypodium vulgare*) can be found throughout the world. It grows on cliffs, in massive forests and sometimes on old trees. The orange or brown under sides to the leaves are spore gatherings. Taste the root, it can be eaten and has a sweet, licorice-like taste.

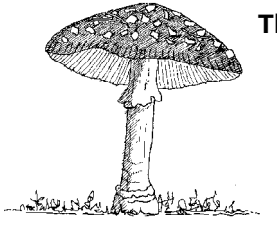


Bracken

Bracken (*Pteridium aquilinum*) is a plant that thrives in wet ground, amongst others in open spruce forest. It gets its name from a story that says that if you cut the stem just above the ground, you should see the image of the heraldic double eagle. Another interpretation is that if you placed dried bracken in your pillow you slept well. Wounds and swellings on neck and ears were healed.

Iceland moss

The iceland moss (*Cetraria islandica*) is a lichen that grows on rocks in spacious forests. In the summer it is brownish, during the winter it changes to green. It contains many nutrients. Previously you could exchange two barrels of ground iceland moss for one barrel of rye. It is harvested in the early summer in rainy weather. Then it is easiest to collect as it doesn't crumble. When it has dried, it is ground to flour that can be used in gruel and porridge, that ought to be spiced to taste. Bread becomes rich in nutrients but black and bitter. The lichen can also be used for colouring.

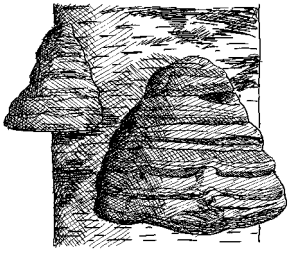


The red fly agaric

There are at least 22 different species of fly agaric in Sweden. The red fly agaric (*Amanita muscaria*) is the easiest to recognise. The white dots are remnants of the universal veil. Certain mushrooms are solely red, then the veil has washed away. In the past dried pulverised fly agaric was placed in milk to kill thirsty flies. The white fly agaric

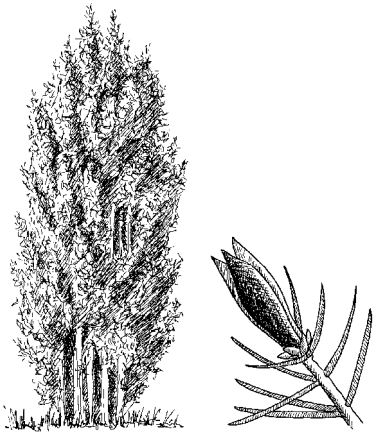
(*Amanita phalloides*) is the most poisonous fungus and can easily be mistaken for the edible toadstool. The difference, amongst others, is that the fly agaric always has white gills. The toadstool gills are pink or brown. If you are in doubt? Let it be!

Hoof fungus



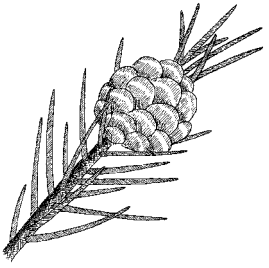
The grey hoof fungus (*Fomes fomentarius*) grows on deciduous trees, primarily on birch. The shape is reminiscent of the hoof of a horse. Between the hard shell and the tubes on the underside of the fungus is the trama layer. It is from this that you get the tinder that can be used when making fires. (See the activity "dry as tinder").

Juniper



The Juniper (*Juniperus spp.*) can have a very varied appearance. It can be 20 cm or 20 m high, depending on where it grows. The Juniper is the dual builder, i.e. there is a female and a male plant but also some that are sterile. The female plants have cones (that are often called berries). It takes three years for the berry to ripen: the first year it is a light yellow fruit, next an immature green berry and finally it becomes blue black and ripe. All three stages exist on the same bush. Lots of mysticism and magic are associated with the holy trinity. Three years to ripen. The berry is surrounded by three cone casings. The needles are placed in three radials. You took three twigs, broken on the third week day to be used in ointment and medicine. The juniper has been used for everything from boatbuilding to remedies against snakebites. In the leafy folds of the fresh shoots the mosquito (*Cecidomyidae*) lays it's eggs. This resulted in the needles being deformed and can be likened to a little green bluebell. These contain the egg or orange larvae. Before, it was believed that when these berries were boiled in milk they treated whooping cough.

Pineapple gall

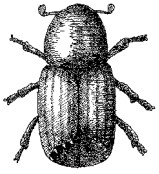


The pineapple gall (*Adelges abietis*) can be found in the spruce forest. There are often small pineapple or cone-like galls on the spruce branches. This is the spruce needle bug that has laid it's eggs at the base of the needles. The needles swell up and make a yellow white cone that later becomes brown and hard. Inside is a chamber for larvae that emerge from the eggs. The galls taste sweet when they are yellow white and were happily eaten by young goat herders. The pineapple gall was therefore also known as the goat apple.

Rowan

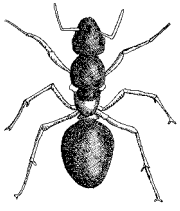
The rowan (*Sorbus aucuparia*) grows throughout Sweden. The berries are eaten by birds. When you use the berries in cooking they shouldn't be picked until there has been the first frost, as a lot of the sour taste disappears after then. The rowan berries can be used for jam, jelly, liquor, porridge and as a spice. In the old days you made harness rods for carriages from rowan so that the horse wouldn't be enchanted. Shoe polish was made of rowan bark that had been boiled in water. Using the berries for tea could help kidney illnesses and the berries have also been used as replacement for raisins in black pudding. If you gave away a twig with rowan berries it meant in the flower language: "get to know me more, I am better than you think".

Spruce bark beetle



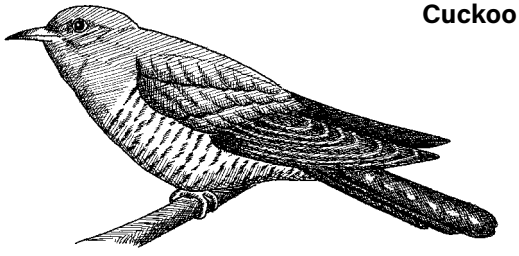
The spruce bark beetle (*Ips typographus*) lives between the bark and the wood on damaged or a weak spruce and pine trees. Each species of bark beetle creates its own typical pattern. The male gnaws out a "bridal chamber" and from this the female gnaws a passage where the eggs are placed at equal intervals. The hatched larvae then gnaw perpendicular to the first passage. The larger the larvae, the wider the passages. Take a piece of baking paper and place it over the trunk with the galleries. Using a pencil or a wax crayon, rub it over the paper and it will create a nice pattern. Go on a pattern hunt and you will get many nice works of art.

Wood ant



Wood ants (*Formica rufa*) live in anthills that can become over 100 years old. A third of the ant hill lies above the ground. The working ants live there with one or more queens, eggs, pupae and larvae. The ants overwinter in "clumps" at a frost free depth. The larvae are fed with "honeydew" that the ants "milk" from aphids. In comparison to their size ants are the world's strongest animals. They can carry 10 times their own body weight! When ants communicate with each other they drum their antennae against the other ant's antennae.

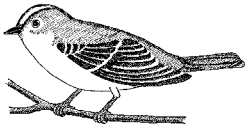
Cuckoo



One of the most well-known bird sounds is probably the call of the cuckoo (*Cuculus canorus*) that can be heard in May. The cuckoo returns to Sweden to find a suitable foster home for its babies. The female lays her eggs in the afternoon in different small bird's nests. Already in July the adult cuckoos move south. The young move many weeks later. Their favourite food is hairy butterfly larvae. In the old days a girl who wanted to get married, went out in the forest to hear the first cuckoo. She counted how many times the cuckoo called – that was thought to indicate the number of years that would pass before she got married.

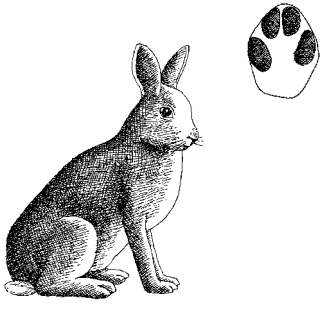
Firecrest

The firecrest (*Regulus ingnicapula*) is the smallest bird in Sweden with the weight of only 6 g. It prefers being in the spruce forest and the older birds remain in the country over winter. The firecrest is fearless so you can get quite close and see it's nice colours. The male has an orange to yellow crest on his head. According to the story the firecrest got its name when the birds were going to choose the king. The one that could fly the highest would become king. The great eagle spread his wings and rose to the skies. He flew higher and higher and was sure he had won. After a last push, when he couldn't get any higher, he heard a weak voice shout: "I am higher than you – I am the king". It was the little firecrest that had hidden on the back of the eagle. As a prize he got a golden crown on his head and got his name, (in Swedish kungsfågel, the kings bird).



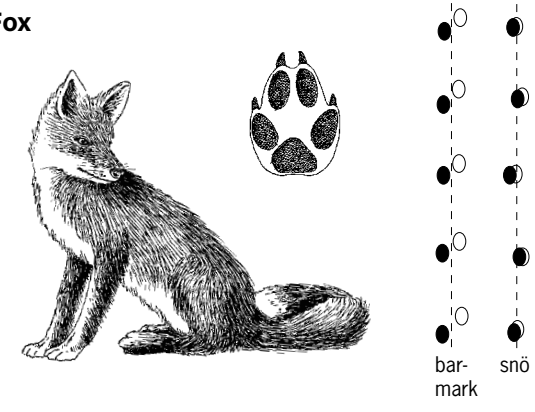
The hare and rabbit

In Sweden there are three species of lagomorph: the forest hare (*Lapus timidus*), the field hare (*Lapus europeaus*) and the wild rabbit (*Oryctolagus caniculus*). The forest hare in the north of Sweden turns white in the winter (further south it becomes grey). The tips of the ears are black and the tail is white all year. The field hare is larger than the forest hare. It is grey brown and the top of the tail is black. The field hare is most common in the south of Sweden and it readily enters gardens for food. The wild rabbit can be found in the south of Sweden and on Gotland. The hare places his back paws before the front paws when it jumps. When it bites twigs the cutting edge is very clear, as it cut by a knife. To improve digestion of its food it eats its first droppings. The second time the food comes out it is in the shape of round, dry and somewhat flat marbles.

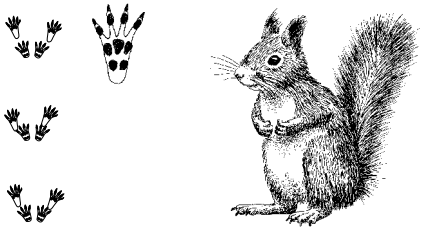


Fox

The fox (*Vulpes vulpes*) is a dog-like animal. The fur is reddish brown with a white tip on the tail. It occurs throughout Sweden, even in urban areas. In April the pups are born in the den (or burrow) and have thin black fur and are blind for two weeks. Their favourite food is mice. Their diet includes earthworms, insects, birds and hares. The droppings are similar to those of a dog but have a pointy pulled out tuft at one end. They are often found lying on a stone or a tree stump. The fox is active at night. When it walks it places it's back feet in the same tracks as the front feet. In snow it leaves a straight trace. The fox is supposed to be clever. According to folklore you become hoarse when you meet a fox. A less common relative is the arctic fox (*Vulpes lagopus*), it is only found in the mountains.

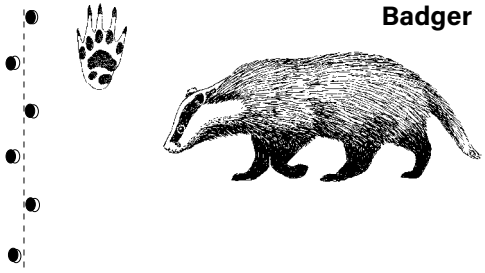


Squirrel



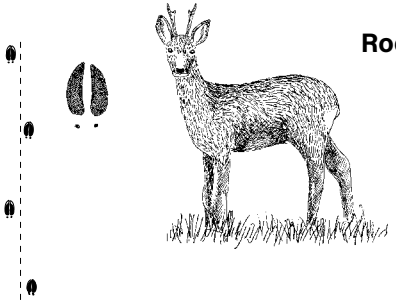
In Dalarna the squirrel (*Sciurus vulgaris*) is called spruce crazy. It needs over 4000 seeds a day and therefore has to peel about 30 spruce cones. It takes about six minutes to peel a cone. The squirrel readily eats mushrooms, berries, nuts, insects and birds eggs. It builds its nest in trees, close to the trunk, where it can be supported by the branches. The nest is round with a hole on one side as an entrance that the squirrel can close in bad weather or when there are babies in the nest and the parents have to leave in search of food. It can have many nests and even hollow trees and bird boxes can be good alternatives. If the nest is discovered the babies are moved. The male has a nest where he only sleeps.

Badger



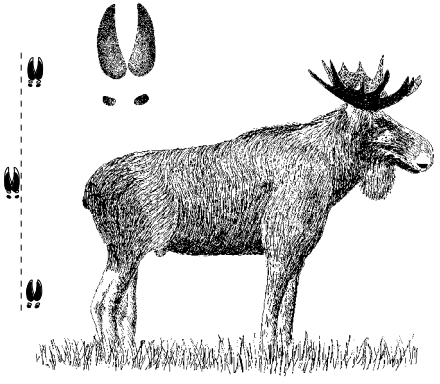
The badger (*Meles meles*) is found throughout Sweden but not on Gotland. In it's diet you find earthworms, oats, small invertebrates and sometimes food from compost. In setts that can be 100 year old it sleeps during winter, from October to April. The badger makes its own paths and has its own "toilets" (hollows in the ground) close to the sett. It is most active at night. A badger can live for 10 to 15 years. The myths say that when the badger is angry and bites he doesn't let go until he hears the crunch of the bone. People used to place charcoal in their boots to fool them.

Roe deer



The roe deer (*Capriolus capriolus*) can weigh up to 30 kg. In the winter their colour is grey brown, in the summer reddish brown. Around the backside there is a large white area. The male is called a buck or roebuck. It loses its horns in November – December. The female is called a doe and gives birth to 1 - 3 young (kids) in May – June. You might find the kids in long grass or dense brush. The doe is probably nearby and it's best to move away. The roe deer droppings look like olive kernels. During hunting season roe deer are shot for their tasty meat. Their food consists of, amongst others, herbs, buds, bark, leaves, juniper, berry plants, grass and lichen.

Elk



The elk (*Alces alces*) is the king of the forest. It eats the shoots and bark of aspen, willow, birch and rowan. For a good digestion it also has to eat about 700 g of pine needles every day. Droppings can be found in large piles and consist of 40–50 dropping pellets. An old bull drops its horns from November – December, and the young drop them between January – February. After losing them new ones will grow. The elk can live for up to 25 years. The elk cow gives birth to 1–3 calves. They follow the cow for a year, after that they have to manage on their own.

Wet Waters

– About lakes and waters as a landscape and a friluftsliv environment

BY KURT OLSSON

Lakes and bogs

Life giving water

The campsite isn't complete if it doesn't have a lake nearby. On a hike we often choose to camp by a lake side or beside a river. The lure of the water is deeply rooted within us. Baptism and rebirth are often associated with water and so our attraction to it isn't so strange, we have to drink at least a litre every day so as not to be thirsty. In our daily lives we don't think so much about it – water comes out when we turn the tap.

For those who know the feeling of placing the heavy luggage in the canoe and gliding out on the water it won't come as a surprise to learn that waters have been important as transport routes, for both people and goods. It took a long time before roads, carriages and carts were good enough to transport heavy goods. It was easier by boat. Building canals became an important part of Sweden's industrialisation. Floating timber on waterways was for a long time the easiest and most effective way of transporting it to the coast and the sawmills. The big forests separated people whilst the water connected them.

People learnt to use the running water to drive mills, saws, smiths etc. In many places along Swedish rivers, you can still see remains of this in the form of dams, channels and the foundations of buildings. In some places these facilities are still in use, often now powered by electricity. In recent years large dams have been built for power stations, especially in Norrland. Their impact on the waterways is large – but at the same time they are a renewable source of energy.

Lowering water levels and building dykes

For a long time, the meadows beside lakes were used for growing crops and for grazing. However, this land was often waterlogged. From the middle of the 1800's to the beginning of the 1900's there was a drive to gain land for fields by lowering the water levels. The outlets from lakes were straightened, cleared and made deeper so that the water level would drop. However, the results were often not what was hoped for. Land was made dry, but in smaller areas than first thought.

Keep your head cool

(about training for safety on ice)

Friluftsliv beside, in and on lakes dosn't stop when winter comes. It's therefore important to know where the ice will be strong and where it will be weak. Both where ice is generally weaker (at headlands, in sounds, over shallow water, by the exits and inlets of streams and by pontoons) and where it is weak at your own specific location. It can be helpful in the autumn to observe where the ice formed last as in the spring this will be the first to break. It is of course also important to practice using ice dubs, ice pick and a lifeline as well as how you recover after falling through the ice. It is an exciting theme for a winters day. The exercises need to carried out safely. Contact the life-saving organisation and local swimming pool staff for advice and instructions.

Reflection : Many drowning accidents occurring during the winter. It is important to know how much weight the ice can withstand, to have practiced getting yourself up after a fall through the ice and how to help someone who has fallen through the ice. Here it is important to have knowledge and to practice what you already know.

The newly exposed land was often also waterlogged and difficult or impossible to use as fields, especially with machinery. Shallow lakes became overgrown with, for example, reeds and water lilies. During the twentieth century the lakes and rivers received more and more sewage water as well as nutrients from fields, which contributed to them becoming overgrown.

In forested areas, dyking was also carried out to drain the land and increase production. As a result, the biological diversity of the landscape declined with adverse consequences for the different animals and plants that depended on that environment. The straight, deep dykes are often perceived as ugly interventions by those out walking for enjoyment.

The seabed

On the seabed there is often detritus or mud. It's only where wind and waves dominate that the seabed consists of sand, gravel or stone. Detritus consists of dead parts of plants or animals, in the process of being broken down by animals and bacteria. What is left after the breaking down is called mud. This contains humus that has come from deitrus or from the surrounding areas. Snow-melt or rain move the slurry with the surface water into streams and lakes that are then coloured brown.

Plants of the beach

Moving from the beach into deeper water different types of vascular plants grow. In shallow water closest to the beach you most often find emerged plants, for example reeds, in the nutrient rich lakes. The abundance of reeds is a measure of how nutrient rich a lake is. They have the green parts above the water surface. Further out, floating-leaved plants grow for example water lilies (*fam. Nymphaeaceae*), that have their leaves floating on the surface. A little deeper submersed plants grow, for example spiked water milfoil (*Myriophyllum spicatum*) that grows totally underwater. You can also find rosette plants, for example water lobelia (*Lobelia dortmanna*), with a basal leaf rosette on the lake bed. Light levels fall as you go deeper in the water, limiting the range of species found. In deeper water only animals and micro-organisms, living off each other or off dead plant matter that drops to the sea or lake bed, occur.

Plant and animal plankton

Small unicellular free floating algae are called *phytoplankton*. They can be seen using a microscope with high magnification. Sometimes algae can occur in masses in the water and colour it, the so called water blooming. The yellow "water blooming" that happens in the spring is however caused by spruce and pine pollen floating on the water and not by phytoplankton.

Zooplankton can be both unicellular animals, such as rotifers or multicellular, such as daphnids and copepods. Fish spawn eat both phytoplankton and zooplankton. When the fish grow many continue to eat larger zooplankton, but also add insect larvae, other fish and plant parts to their diet.

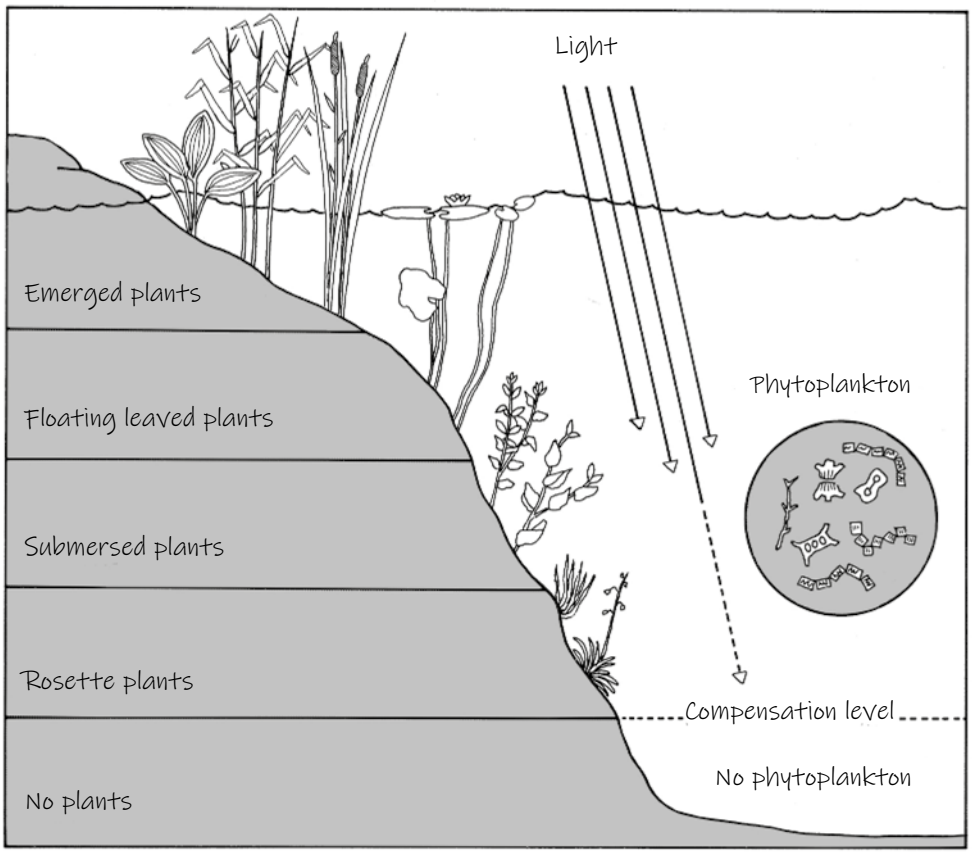
The ageing lake

The lake's history started when the inland ice melted. The lakes that existed then were generally rich in minerals. The newly created land after the ice left, had plenty of nutrients. Over thousands of years large quanti-

ties of minerals have since been removed, via waterways to the sea. The lakes in areas with poor earth have then become more and more lacking in minerals. But lakes in fertile areas have had continuing nutrient input from the surrounding land.

The land close to the lake is of great importance in determining it's water qualities, which organisms it contains and how it works. Generally, there are two main types of lake, *nutrient poor* and *nutrient rich*. These are however not two distinct groups, but more of a sliding scale between the two types.

The breaking down of dead plants and animals on the bottom of the lake doesn't happen as quickly as the supply of fresh organic matter. The layers of mud therefore grow slowly. In nutrient poor lakes it grows a lot slower if humic substances aren't added. In nutrient rich lakes it grows faster. The growth rate can there be ¼ – 1 mm per year. If the lake receives water with nutrients from sewage or farmland the bottom sediment layer becomes thicker more quickly.When there is little water flow the bottom sediment grows especially fast. Within the sediment large amounts of minerals are bound.



A glass of water

(about purifying water)

If you are unsure if the water is drinkable the easiest method to clean it is by boiling. An exercise to illustrate this: place all participants as close together as possible in a small area. The leader tells the participants to slowly start to "boil". The participants start loosely moving arms and legs. The leader requests harder "boiling" and the participants make stronger movements. Their whole bodies now demonstrate the water's boiling bubbles

Reflection: This exercise makes the body feel the movements of the water, which strengthens the memory at the same time as getting yourself warm.

The water cycle

(about understanding how water circulates)

The exercise above can also be used to understand the water cycle. The "water vapour" cools and changes to water droplets (jumping) that in turn becomes a small stream (the participants create a long line with hands on each other's shoulders and make a winding path). The stream runs out into a lake (you create a large ring) where you can find big waves. (The ring moves in and out). When the waves have calmed the sun is shining (everyone stands as close as possible), it becomes warmer and the water starts to evaporate (the participants start with small deliberate movements and the exercise begins again).

Sphagnum moss brush

(about recognising and washing up with a sphagnum moss brush)

Who can ring out most water from a handful of sphagnum moss? Compare the weight when the moss is wet and when all the water has been squeezed out. The moss is now almost white – hence the Swedish name white moss). Take moss from different places and compare the amount of water each holds. Forgotten your washing up brush? Use a natural disposable brush instead. All you need is a handful of sphagnum moss to washup .

Natural mosquito repellent

(about using bog myrtle, wild rosemary and white man's foot (*Plantago major*) against mosquitos)

Are the mosquitoes troublesome? Rub your skin with leaves from bog myrtle or wild rosemary (that you can find on lake shores and wetlands – where there are often many mosquitoes) and the problem will ease. Have you been bitten: rub the skin with leaves from white man's foot and it will calm a little.

Natural variation

(about reproducing a profiled walk)

Do a walk, if possible from the mountain down to the lake. After the walk the participants are placed in small groups to depict a stretch using natural materials. Show each other. Discuss

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When the lake becomes shallower the rooted beach vegetation can spread to larger areas on the bottom. This results in increased circulation of the minerals that were bound in the sediment. The water is warmer in a shallow lake and the production of vegetation increases, resulting in rapidly increasing overgrowth.

Bogs

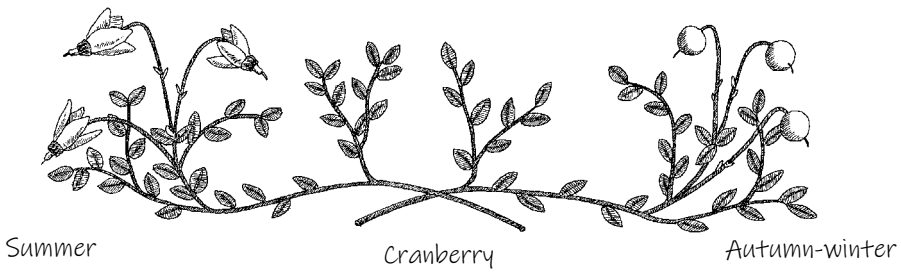
Many of the original rather shallow lakes have already become overgrown and become bogs. Then they are examples of marshland, which covers about a fifth of the surface area of Sweden. The bog is supplied only by rainwater or other precipitation. If you drill in a bog you often find lake mud and sand that have been at the bottom of a former lake.

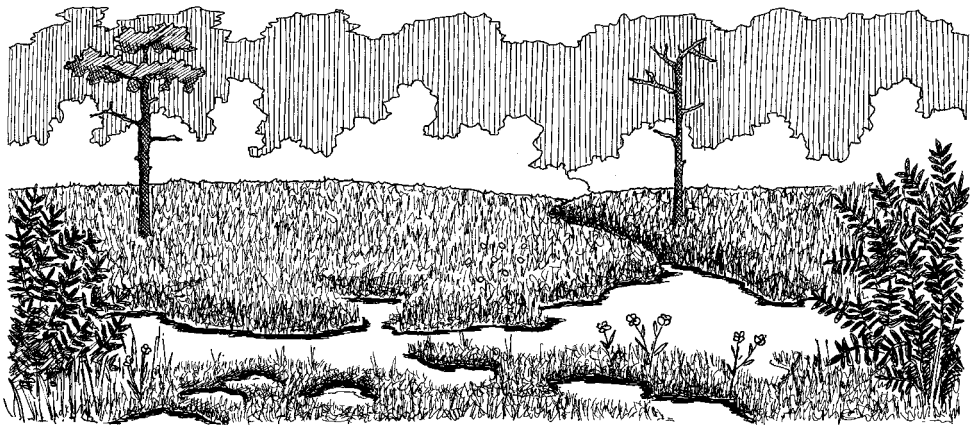
The bog is like a great water reservoir, built up of different mosses (peat) and rising over the surrounding area. A typical bog is highest in the middle and lowest where it borders solid land, where there is often open water. In the past these areas were also used for farming. The bog was drained and oats and potatoes were often grown. But, since the frost comes early in marsh lands the crops often failed. When these cultivations were abandoned, the land returned to being forest.

Out on the bog, pine trees grow short and gnarlty due to the lack of nutrients. You can also find cloudberry (*Rubus chamaemorus*). Cranberry (*Vaccinium oxycoccus*) with its red droplet like berries, is another bog plant. It grows with long thin strands and has a beautiful red to violet flower. The berries are preferably picked late in the autumn after some frosty nights. They are extremely tasty in icing sugar together with ice cream!

The half rotten sphagnum moss is called peat and has a high fuel value (this means that you should never make a fire on bogland as it often spreads and is difficult to extinguish). In former times peat was often used for heating houses. The peat was dug up with a pick axes and spades (and later by using machines). With a spade you cut out squares that looked like rough firewood. These were left to dry in the sun on the bog where they would be turned, stacked and finally stored in airy barns. Turning the peat was often work for children.

The drying barns can still be seen in many places as can the ditches, where the peat was once cut. These ditches could be rather large with vertical walls a couple of metres deep.





Over time they filled with water and became overgrown by new moss that today lies floating on the water. Care must be taken when you walk on the bog where peat was once taken.

Nowadays peat is dug using large machines, that break up the moss pieces. When they've dried, they are gathered, packaged in sacks and sold as soil enrichment for gardens. Peat can also be a local energy source, particularly in the north of Sweden. This energy source is renewed faster than oil and coal. But with a growth rate of 0.1–0.5 mm annually it is debatable whether it can be considered to be renewable.

Digging peat from bogs can make a scar in the landscape. Perhaps we end up with the lake that was once there and had become overgrown over thousands of years.

Nutrient poor lakes

Forest lakes

The nutrient poor forest lakes are typical of the highlands in the south of Sweden, part of mid-Sweden and large parts of the north. They are found in areas where the soil is poor, so the lake water contains few minerals. The nutrient poor lakes have clear water (*clear water lakes*) or more or less brown water of humus substances (*brown water lakes*). In clear water lakes you can typically see to a depth of 15–20m in the north and 3–7m in the south of Sweden. Visibility in brown water lakes is often less than 1 m.

The pH value of the water is low, 4.5–5.0 (pH is a measure of the acidity of the water, the lower value, the more acid it is, 7.0 is neutral). These lakes are also particularily sensitive to acidification where wind and rain bring acids from industries and car traffic in Sweden and the rest of mainland Europe. Sulphur pollution has diminished greatly in recent years but the continued high nitrogen

amongst other things why the plant growth has changed. Reflection: by saying what you have seen after the walk you sharpen your senses. Creativity, language and your own thoughts are tested.

Is the deserted island deserted?

(about a survival hike with nature studies)

If you are an experienced outdoors person then it can be a challenge to manage with as little outside help as possible. Today "survival techniques" have become popular. An island is a good place to practise this and also gives a chance to learn about what grows and what animals there are on the island. Consider the need to contact the landowner if you are staying more than one night, or are larger group or want to do things that are normally not covered by the right of public access (allemansrätten).

Lakes at dusk

(About making lakes to experience darkness, light and sound.)

In groups (4–8 participants in each group) with the help of a piece of plastic (bin liner) you should make a lake in a suitable place in nature. It could be a fantasy lake, a lake where the great lake monster lives, a waterhole where animals can come to drink, the lake by the cottage or where you have made water investigations. It's important that there is water in the lake to get the correct effect. When the lakes are ready you have to add sound to the lake and its surroundings. For example, by the waterhole with the animals you could hear the trampling of hooves, drinking noises and the sounds of the animals leaving.

Show the lakes to the other groups during daylight and explain your ideas, but wait with the sound illustrations until the second visit, preferably when it's become dark.

Every group then get five tea lights to be placed by their lakes. The groups revisit the different lakes. On arrival the sound illustrations are enacted. Try to walk in the darkness without torches (it's easier if the groups hold hands). Try to avoid frightening sounds as this needs to be a calm safe walk. When you've seen all the lakes everyone gathers in the ring to silently say good night and walk home.

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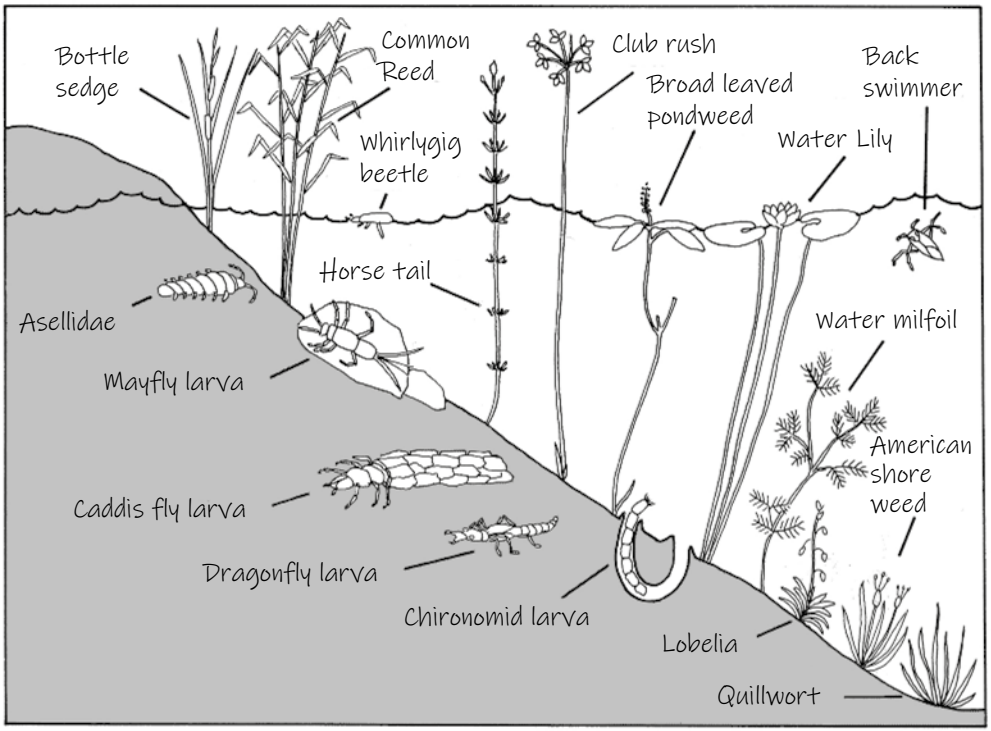
pollution makes acidification, not least of lakes, a serious environmental problem, with a risk of extinction of populations of different fishes and plants.

The animal life in these forest lakes is also very sparse. On the surface pond skaters, (*Hemiptera, Fam. Gerridae*) also called water striders, run and whirlygig beetles (*Coleoptera, Fam. Gyrinidae*) swim. Water striders are predators that live by sucking out the contents of other insects they find on the surface. The small black whirlygig beetles whirl in shoals on the surface, hunting small animals. Their eyes are split into two halves as an adaption for living on the surface. The upper half is used to look above the surface and the lower half to see in the water. In the water you can find diving beetles (e.g. *Dytiscus marginalis*) and backswimmers (*Hemipitera, Fam. Notonectidae*), that amongst other things eat copepods and cladocerans, but they also eat frog spawn and fish spawn. The backswimmers and the diving beetles bring a small air bubble on the underside of their body so as to breathe when they dive.

Typical fish for the nutrient poor lake are eel (e.g. *Anguilla anguilla*), perch (*Perca fluviatilis*) and pike (*Esox lucius*). The younger perch live on animal plankton, dragonfly larvae and small copepods, while the older prefer fish. The pike live almost exclusively on fish but sometimes also catch frogs and ducklings.

Bird life is often sparse on the nutrient poor lakes. The common goldeneye (*Bucephala clangula*) is the most characteristic of the lake birds. Along the beaches (*Actitis hypoleucos*) are often common sandpipers that rise quickly on stiff wings and fly close to the water's surface, or run with a bobbing tail on stones at the edge of the lake where they hunt insects. Sometimes the osprey (*Pandion haliaetus*) nests by these lakes.



Brown water lakes

The nutrient poor lakes that occur in areas with marshland have brown coloured water from the organic matter. Forest tarns are typical brown water lakes. The beach vegetation is often a quagmire of sphagnum, common reeds (*Phragmites australis*) and club-rush (*Schoenoplectus lacustris*). Further out water lilies (*Nymphaea alba*) grow. The underwater vegetation is limited as the strongly brown coloured water means that light does not reach very deep. The quagmire by the beach slowly grows out into the lake that becomes smaller and smaller.

The lake bottom consists of thick layers of mud. There are small amounts of minerals that the plants can use. These lakes contain fewer species compared to the nutrient rich lakes. The production of plant material is low, which also limits animal life. The low level of plankton production would have resulted in clear water, if it hadn't been for such a large quantity of organic matter in the water.

Clear water lakes

Along the borders of a clear water lake there can be sparse, low sedge consisting mainly of the bottle sedge (*Carex rostrata*). In protected bays they become more dense and higher with some rushes, reeds (e.g. *P. australis*), and horse tail (*Equisetum fluviatile*). Here you can also find plants other emerged plants such as water clover (*Marselia spp.*) and tufted loosestrife (*Lysimachia thyrsiflo-*

Reflection: When you make lakes, you discuss facts that are combined with fantasy. This exercise provides knowledge as well as training in experiencing the forest in darkness. Those who feel unsafe might prefer to walk with friends. Your experience the nature with many senses.

Reading the water

(about practising white water paddling in a small stream)

Surely you cannot learn white water paddling in the stream? No, but you can learn a lot about white water paddling by sitting and watching how running water acts. To be able to "read a rapid" forms the basis of white water paddling. Throw small sticks into the water and see how they find their way. Watch them gain speed where the water creates downstream "V" between two stones, how they get stuck on the round height that shows that there is a stone under the surface and how they then end up in peace in a backwater. Who's stick wins, "best of five starts"?

Reflection: White water paddling is not for beginners. It's about being able to read the water and understanding what happens. Therefore, this is a useful exercise that easily can be transferred to white water paddling.

Waking up in the Canoe

(about night paddling)

When you have worked up the basic competence of canoe paddling then a night paddle is a good way to get that little "extra" outdoor experience, both for the individual and the group. All safety margins (weather, the water, the canoe safety, alternative routes and landing places) must naturally be of greater importance during night paddling (alternatively paddling at dawn or dusk). Take care, at night when paddling on water with other boat traffic the canoe must always show a white light. With a small group (2–6 canoes) you can travel without a light (but with the ability to show one if needed). How large a group you paddle in depends on the ages, the experience of the participants and the number of leaders. It is sometimes appropriate to delegate leadership to sub-groups. Bearing in mind that bright lights will affect your night vision is can be a good idea to hang your "navigation light" from the stern of your canoe using a stick. After a night paddle the leader should think about how tired they really are and consider taking a rest before driving a car.

▶

ra). Further out in the water are floating-leaved plants. The most common are waterlily (*Nymphaeaceae spp.*) and broadleaved pondweed (*Potamogeton natans*). There are also some submersed plants, for example the alternate water milfoil (*Myriophyllum alterniflorum*).

The shallow bottoms in the clearwater lakes consist mainly of sand, gravel or stones. On the bottom you can find caddis fly larvae (*Trichoptera*, several genera and species), that spin tubular cases made for example of sand, small leaves or sticks. The case is protecting their soft abdomen. These caddis fly larvae eat algae and pondweed and are herbivores, primary consumers. It is only in protected bays and in deep water that there is organic matter (mud) on the bottom. In the water column plants and algae of different types occur. There are you can also find zooplankton, for example Cladocera and Copepoda.

Nutrient rich lakes

The lakes of farmland

Nutrient rich lakes are mainly found in farming areas of Skåne, mid Sweden, as well as smaller areas in for example Dalarna, Småland and Eastern Jämtland. You can also often find them as polluted lakes in urban areas. The water contains high concentrations of minerals. The water then has a higher pH value than in nutrient poor lakes (often around or just above seven). Although, considering the pH in isolation isn't very useful, the most important thing is a large and varied mineral content.

Conditions are therefore good for phytoplankton and for macrophytes, which leads to there also being a rich animal life (feeding on the plants or the herbivores). The high production of organic matter results in the bottom consisting of deep mud layers. It is only the most exposed beaches that have a sandy bottom. The breaking down process requires a lot of oxygen and it is not unusual to find low oxygen levels in the deeper parts of these lakes. The rich abundance of plankton clouds the water, so visibility is often less than 1–2 m.

Plants in nutrient rich lakes

Many plants and animals can be found in both nutrient rich and nutrient poor lakes. But in the nutrient rich lakes there are many more species. The plant life in the nutrient rich lake is lush with big, tall and dense rushes. Here you find species such as reeds (e.g. *P. australis*), greater water parsnip (*Sium latifolium*), cowbane (*Cicuta virosa*), bullrush or reedmace (*Typhaceae*), manna grass, (*Glyceria spp.*) yellow iris (*Iris pseudacorus*). In the rushes are floating plants such as duckweeds (*Lemna spp.*) and common frogbit (*Hydrocharis morus-ranae*). Further out are the rooted floating plants such as water lilies and broad leaved pondweed (*Potamogeton natans*). Underwater plant life is dominated by submersed, such as water milfoils (*Myriophyllum spp.*), coontail (*Ceratophyllum demersum*) and many pondweed species (*Potamogeton spp.*).

Zooplankton and phytoplankton exist in large quantities in both nutrient rich and nutrient poor lakes, but there are considerably more species in the nutrient rich. In spring and autumn, the water of the nutri-

ent rich lakes are often blooming with blue green algae (*Cyanobacteria*), nowadays called blue green bacteria, as the temperature is roughly the same from the bottom to the surface and nutrient rich water from the bottom is brought up to the surface and the light.

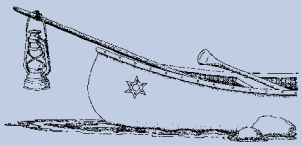
Animals in nutrient rich lakes

In the nutrient rich lake there are also more fish than in the nutrient poor lake, for example bottom living tench (*Tinca tinca*) and common bream (*Abramis brama*). The tench tolerate much lower levels of oxygen. In the open water the predatory zander pike (*Sander lucioperca*) hunts. Amongst the plants you can find rudd (*Scardinius erythrophthalmus*), common roach (*Rutilus rutilus*) and carp (*Carassius Carassius*).

Among the predatory fish you notice European perch (*Perca fluviatilis*) pike (*Esox lucius*) and eel (*Anguilla anguilla*). It is the protected areas close to the beach that have the richest animal life. Here, just as in nutrient poor lakes, the herbivores such as caddis fly larvae, (*Trichoptera*) and pond snails (*Lymnaeidae*) are found together with many others. There are also plenty of "filter feeders". These are animals that live by filtering plankton and particles from the water. Larger filter feeders, for examples mussels (*Bivalvia*), are common in nutrient rich lakes and live buried in the bottom. Shells and mussels have to have calcium for their shells. They are therefore only abundant in calcium rich lakes.

Many insects, including dragonflies (*Odonata*) and mosquitoes (*Diptera*; *Culicidae*), spend the winter as eggs or larvae in lakes and waterways. During spring and early summer they eat to get strong and pupate. The adult insects can then fly for a short time when they mate and the females lay eggs.

Predators that swim in the waters include dragonfly larvae (*Odonata*) and many dif-

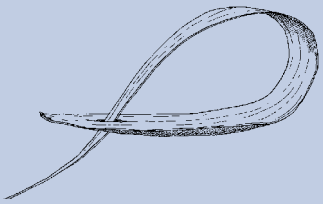


Reflection: when you are travelling in total darkness you really feel that you're in nature. The distance to stars, contours of land and each other become intensified. With lanterns lit in the canoes your attention is drawn to the light instead and you concentrate more on where the other canoes are.

Reed boat

(about making a boat from the leaf of a reed)

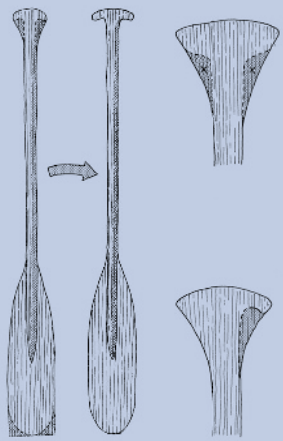
Take a leaf from a reed, make a hole in the widest part. Then, bend the thin end back and stick it through the hole.
Reflection: By experimenting with leaves you discover which qualities of the leaf you can take advantage of to make the boat sail well.

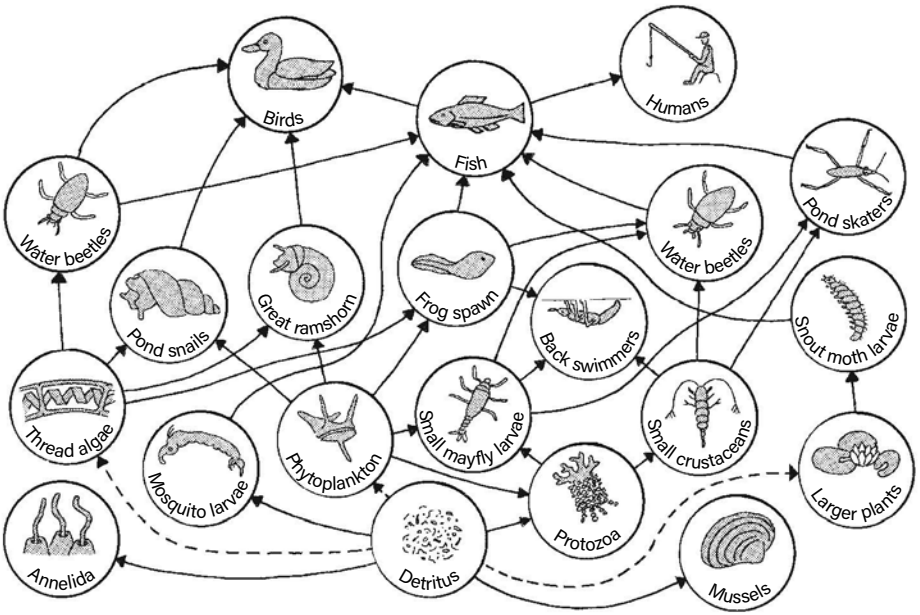


Paddle or a handle ?

(about making or improving a canoe paddle)

To make a personalised paddle you can start with the normal standard paddle made of wood. Round the bottom corners of the blade so you can paddle silently, scrape and create a better grip. Sand them until they are smooth. Perhaps paint or draw something personal, a "totem" (animal figure) or other signature. Oil them many times until the wood is filled, using a mixture of boiled linseed oil and turpentine in equal parts. For the blade, you may choose to use varnish instead to get a shiny, light and hard surface (in this case you will need to take





ferent types of beetle, for example the diving beetles (*Dytiscidae*) and their larvae. There are also different types of leeches (*Annelida; Hirudinea*). Some eat insect larvae, snails and worms, for example the horse leech (*Haemopsis sanguisuga*) and dog leech (*Erpobdella octoculata*), whilst others, for example proboscis bearing leeches (*Glossiphoniidae*) and the glossiphoniid freshwater leech (*Hellobdella stagnalis*) suck the haemolymph from shells and insect larvae. There are also those that suck the blood of fish and frogs. Only the seldom found medicinal leech (*Hirudo medicinalis*) can suck blood from humans.

Birds in nutrient rich lakes

Many of the nutrient rich lakes, especially those with big areas of reeds, are rich in birdlife. Colonies of the black headed gull (*Chroicocephalus ridibundus*) are common as are coot (*Fulica atra*), mute swan (*Cygnus olor*), mallard (*Anas platyrhynchus*), tufted duck (*Aythya fuligula*) and great crested grebe (*Podiceps cristatus*). The bird species each have different feeding habits. The northern shoveller (*Spatula clypeata*) mostly eats plankton, the coot and the mute swan mostly eat plants. The mallard, the tufted duck and the great crested grebe prefer insects and snails. The gulls eat fish when then can but also lots of earthworms and insects on land. The black headed gull gives protection to other birds with it's pronounced alarm call. In the dense rushes you often find the reed warbler (*Acrocephalus scirpaceus*) and reed bunting (*Emberiza schoeniclus*) who feed on insects and other small invertebrates. The marsh harrier (*Circus aeruginosus*) also nests here. When it hunts, it flies low over the rushes and fields looking for water voles (*Arvicola amphibius*), coot chicks and frogs. A

nutrient rich lake, with all the species that live on, and by each other, is an example of how different food chains (who's eaten by who) are woven together into a food web (see the picture on page 142).

Moving water

From a stream to a river

The speed of flow is the most important environmental factor in running water. The current takes with its nutrients and food but also threatens to wash away plants and animals. At its source a stream starts with clear, cold water. It runs fast with many small rapids and waterfalls so the water is fully oxygenated. The stony bottom creates whirlpools and the surface and bottom water are mixed all the time.

As the stream continues towards the sea or the lake, it becomes larger and larger as small tributaries join. The channel becomes wider and deeper and the current becomes slower. Soon the stream has become big enough to be called a river.

Plants in moving water

Along the stream banks there are often shady trees providing dappled sunlight. The autumn leaves are the most important energy and food source for the organisms in the stream. The powerful current washes away gravel and sand from certain areas. The stones that remain are a good place for algae and mosses to grow. The algae can be recognised as slippery covers on the stones. Here you can find the red algae (*Hildenbrandia spp.*) that grows like a thin red crust. The common water moss (*Fontinalis antipyretica*), with triangular shoots and branches, is found in clean streams and rivers.

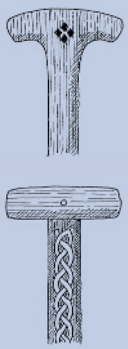
Animals in moving water

The animals that live in the stream are often specialised to be able to live in flowing water. Here there are caddis fly larvae with heavy cases of sand and gravel. Some caddis fly larvae don't build a house but spin a net between branches or stones. In the net they catch algae and detritus that come with the current. The blackfly larvae (*Diptera; Simuliidae*) have suction discs on their body and stand in the current filtering the water that flows past. Even the river limpet (*Ancylus fluviatilis*) has a suction foot. They crawl around grazing algae that grow on the stones. Some animals have a flattened body making it harder for them to be washed away with the water, for example certain mayfly larvae (*Ephemeroptera*) and flatworms (*Turbellaria*). Of the small predators there are amongst others free living caddis fly larvae, that have strong hooks and claws to grasp with.

The common fish species, found in a stre-

care of it and re-varnish it if the surface gets damaged).

Paddle improvements are good activities for the winter season that can give the paddling a special "feeling" for summer. You can naturally build a paddle from scratch too.



Reflection: the personalised paddle creates a feeling for the material and the value of caring for your outdoor equipment. Through making your own paddle you also learn about different sorts of wood and carpentry techniques.

From a drop to industry

(about water from many perspectives)

Split the group into smaller groups (at least three in each group). The theme for the exercise is water and how it's used. Each group gets an exercise that they have to demonstrate with the help of the groups participants without saying anything. The exercises could be:

- water changing from sea to rain, how raindrops reach the earth, become small streams, larger streams and rivers.
- Show some of the ways water is cleaned (for example by man-made cleaning plants or naturally through the earth's layers).
- The water's importance for recreation during different seasons.
- How do we use water in daily life?
- The industry's need for water. The preparation time varies depending on the age of the group. Each group show the others and they guess what happens. Afterwards the groups discuss the different scenarios and possibly other examples or environmental questions.

Reflection: this exercise can be used to demonstrate theoretical reasoning but also as an "alarm clock" when it comes to the environment. As your own body is mostly made of water you have a chance to wonder about its importance. You also practise co-operation and presentation skills.

am, such as the minnow (*Phoxinus phoxinus*) and brown trout (*Salmo trutta*), are predators. The minnow feeds on small crustaceans (*Amphipoda*), caddis fly larvae and stonefly larvae (*Plecoptera*), whilst the brown trout prefers to eat the minnow. By the river you also find the white throated dipper (*Cinclus cinclus*) that dives for amongst other things the caddis fly larvae.

In the river the slow flowing areas are dominant. On the bottom fine material gathers and creates soft beds of mud and particles. The temperature in the surface water increases as does the light. Plant and animal life therefore becomes different, compared to a stream, and becomes similar to that found in a lake. The minnow and the brown trout don't thrive in the warmer but less oxygenated water. They are replaced by, the ide (*Leuciscus idus*) and somewhat further downstream by the common roach (*Rutilus rutilus*), the common bream (*Abramis brama*), the perch (*Perca fluviatilis*) and the pike (*Esox lucius*).

The last rivers flow in the veins of the earth so that our children's children and their unborn offspring should be able to experience free flowing water and untouched forests where animals roam and birds mate, as they have done since the ice age and before then.

REIDAR EKNER

The canoe wave

Into nature - carried by water

Silently we glide forwards in our canoes on an early summers day. All you can hear is the dripping from the paddles (I need to round off the paddle blade so it becomes a little quieter). The nature around us is oozing with life. Birds are singing and frogs are croaking. Oh dear, there is an osprey (*Pandion haliaetus*) quickly rising from a tree only 25 m away and a common sandpiper (*Actitus hypoleucos*) is flying very close to us, almost as if it's showing off. We really get close to nature and have great chances to look in detail at the animal life when we are paddling.

But why did the osprey lift off so suddenly? And the common sandpiper isn't normally so fearless. When we came so quietly, we disturbed the nesting bird and it rose in panic. Normally, when it discovers a threat in time, it carefully covers the eggs before it calmly flies away from the nest. Now the eggs are unprotected and getting cold and are easily discovered by crows (*Corvidae*) and other robbers of nests.

There is a big risk that the hatching will fail if such disturbances occur often. The frequent canoe paddlers have meant that for example osprey (*P. haliaetus*) and great northern diver (*Gavia immer*) have disappeared from many of our lakes where they used to nest.

Good advice for considerate paddling

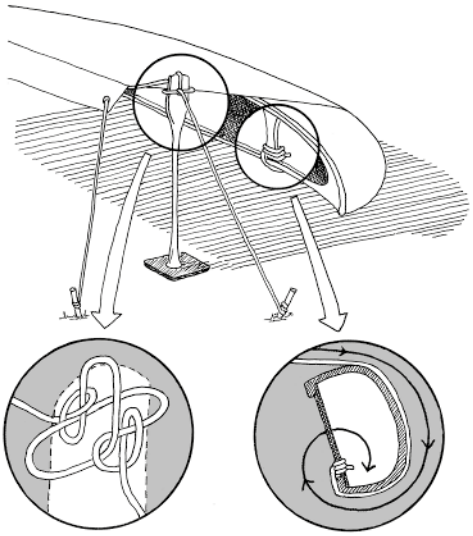
Can we do anything to make sure that our bird populations aren't declining? Yes, we can lead by example and avoid canoe journeys during the time when the birds are most sensitive to disturbances, in other words

during May. During the rest of the spring and early summer there are some things we ought to think about for example:

- To find out if there is an especially sensitive bird area where we had intended to paddle and avoid this (look at the map or ask the local nature protection authority or field biologists).
- If a bird lifts in panic paddle away.
- If we see a bird that seems to beckon us to follow then we follow for a bit, it probably has a nest that it wants to protect.
- If we see a bird with chicks following then keep a distance and don't separate them.
- If we see where the bird has its nest, then we go ashore in a different place.
- We save paddling on the small winding waterways (where we mostly disturb) till the late summer or autumn.

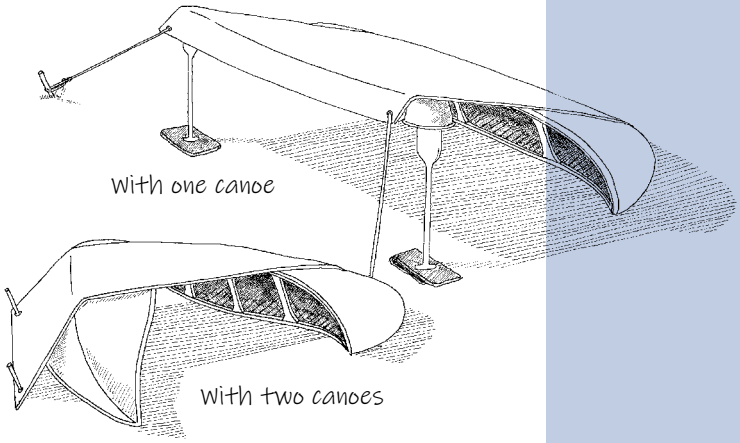
By doing this we not only get to know nature, we also care for it. In the late summer and autumn the water is also warmer (a safety issue) and often at that time of year you get clear days over wide waters.

Consider that the equipment and other things (for example paddles and canoes) that have been used in water that is contaminated by crayfish plague (an algae called *Aphanomyces astaci*) must be cleaned before being used on different water. The easiest way is to use red spirit (T – red) that you are usually carrying anyway. Wash the canoes, paddles and the wellies. Don't forget to also rinse the sponge and let it air dry (the sponge that you keep in the boat).



Knotting around a paddle

Tying around the canoe



With one canoe

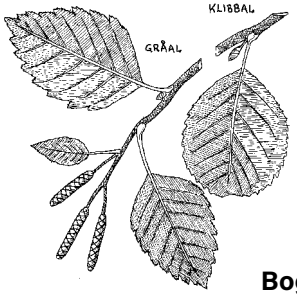
With two canoes

Sleeping with a canoe

A good and exciting way to organise camp during a paddle trip is to build a canoe bivouac. There are as many models as builders but the simplest is to place a canoe on its side under the back end of a normal tarp and then tighten the tarp forwards with lines and the paddles. If the canoe has a low bow it may be necessary to support the sides using sticks or luggage. Place something between the ground and the paddle for example grass, moss or a pack bag, so that your handle isn't damaged by stones and gravel. Also place something between the paddle and the tarp so as not to damage the thin fabric (for example a pack bag folded a few times).

Reflection: to be able to erect your tarp with nothing more than a canoe and paddles means that even a bare, rocky island could be a campsite.

Characters



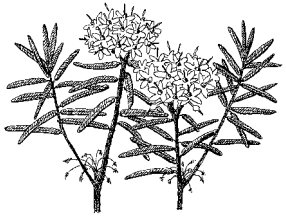
Alder

The alder (*Alnus incana*, and *Alnus glutinosa*) grows by beaches or in bog areas. The alder has bacterial nodules on its roots that enables it to fix nitrogen. Therefore, it can be wasteful with nutrients and drops its leaves whilst they are still green. Hollowed out alder trunks have been used as water pipes. Alder is a light wood that is especially suitable for making wooden clogs.

Bog myrtle

The bog myrtle (*Myrica gale*) grows as a low bush by wet beaches and bogs. Its leaves and flowers have small yellow heart spots that give off a strong smell when you rub them between your fingers. Bog myrtle boiled in water was used to wash allergic reactions and rashes. Bog myrtle has also been used as a beer spice but could cause headaches (or was that due to the beer itself?).

Wild rosemary

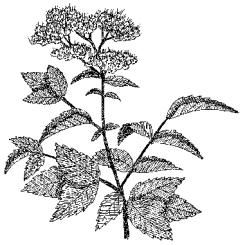


Another name for wild rosemary (*Ledum palustre*) is marsh labrador tea. It grows on marshes in or near to pine needle forests (seldom in western Sweden). The leaves are green all the year round. When it's cold and there is a lack of water the leaves roll up to reduce water loss by evaporation. The plant was once used to keep lice away. It is slightly poisonous. To fight mildew on gooseberry bushes (*Ribes uva-crispa*): place some wild rosemary twigs in the bush.

Peat moss

Throughout the country you can find peat moss (*Sphagnum*) in bogs, marshes and wetlands. The 52 different species have many variants in colour, everything from dark green to purple red. The peat moss is called white moss in Swedish because it becomes white when it dries. Dried it can be used amongst other things for peat litter in barns and as a fuel. In former times it was used in babies cots and in nappies. The moss contains substances with a disinfecting quality and was used when bandaging wounds. Peat moss is not the same thing as window lichen (*Cladonia stellaris*) that you often use to decorate advent candle sticks (it's often incorrectly described as peat moss on the bag).

Meadowsweet

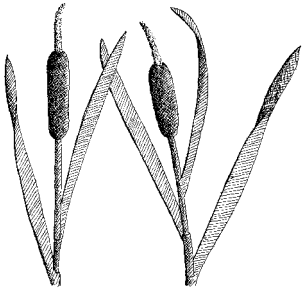


The meadowsweet (*Filipendula ulmaria*) (meaning mead) grows in ditches or on wet meadows. The white flowers are strongly scented and were used by bee farmers, who placed crushed flowers at the beehive's entrance to beckon swarming bees. Meadowsweet was used in beer production, hence the name mead wort. In the plant is the substance salicylic acid, which is also found in headache tablets. Meadowsweet is rich in vitamin C and meadowsweet tea can relieve headaches.

Common reed

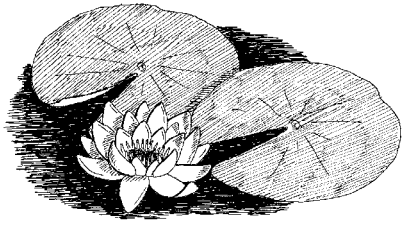
The common reed (*Phragmites australis*) is Sweden's longest grass. It grows in wetlands and by beaches. The roots and young shoots can be eaten raw. The dead and dried reed can be used as roof cladding. Many dens and hideouts have been built using common reed. The flower heads give a green colouring. If you look closely on the leaf, you can see three small marks, as if someone has bitten it – the reeds devil bite. According to the saying the reed got this when God and the Devil had a bet as to who could make the longest grass. When God showed the common reed, the devil had to admit defeat. But in his anger, he bit the leaf. These are the marks we see today.

Bulrush



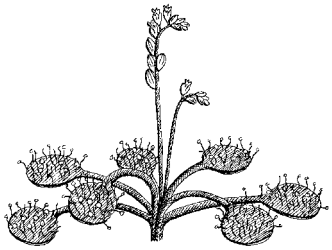
Bulrush (*Typha latifolia*) grows in nutrient rich lakes, marshes and ditches with its big brown "cigars". The green unripe cone can be boiled and eaten like a corn on the cob. The lowest part of the stalk can be eaten raw. The marrow in the root is edible both raw and cooked. If you peel the shoots on the root you get a tasty mouthful. The leaves can be plaited to make baskets, sleep mats and roof cladding. The down in the ripe "cigars" was used for the filling in pillows and mattresses as well as for insulation in clothes and shoes.

White water lily



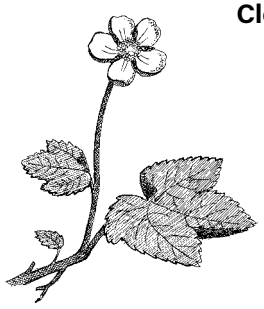
The white water lily (*Nymphaea alba*) is the landscape flower of Södermanland. There are air channels in the flower stalk and the leaf stem, enabling the flowers and the leaves to float. The flower closes at night, to reopen the next day. The roots are rich in carbohydrates and a delicatessen for elks (*Alcus alcus*) and beavers (*Castor fiber*). According to folklore, if you stand by the shore on a summer's evening you may hear the Näcken, sitting under the white lily leaf and playing his fiddle.

Sundew



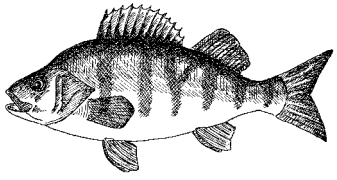
The sundew (*Drosera rotundifolia*) is an insectivorous plant that grows amongst the peat moss on bogs and marshes. The leaves are covered with long, sensitive, glandular hairs that omit a sticky slime. These glitter like a dew and lure insects to visit the plant. The insect gets stuck on the leaves and is enclosed by the glandular hairs that emit a fluid that dissolves the soft parts of the insect. In this way the sundew obtains the nutrients that it can't get from the nutrient poor bog. The flowers are white and sit on a thin flower stalk that grows from the middle of the leaf rosette.

Cloudberry



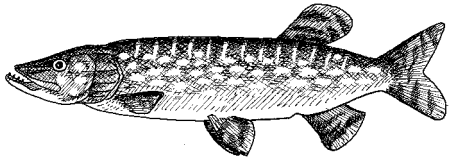
The white cloudberry (*Rubus chamaemorus*) flowers in May – June given anticipation of gold gleaming berries in the autumn. Cloudberries are hermaphroditic with male and female flowers on separate plants. A successful cloudberry year results in stores filled with berries rich in vitamin C. They also contain benzoic acid (50mg/100g) and therefore do not require extra preservatives. It is said that if there is a lot of snowfall on Good Friday it will be a good cloudberry year. In Norway you say that the number of stars you can see on Christmas Eve matches the number of cloudberries you will harvest in the coming summer.

Perch



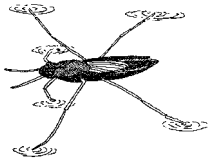
The perch (*Perca fluviatilis*) thrives in both sweet and brackish water. It can live for up to 20 years and by counting the year rings on the scales, you can determine the age of the fish. It is easily recognisable by its stripes. The legend has it that the perch got his stripes as a punishment for not fetching the keys to heaven's door when St. Peter dropped them in the lake. As a punishment the other fish were ordered to beat the perch. It is the marks from these beatings that we can see today. Apart from eating perch, it was used in former times for predicting weather with its fins and innards.

Pike



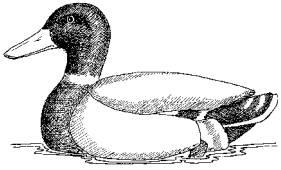
The pike (*Isox sciurus*) is a predator and it's often hunts using stealth. When the prey comes, it quickly swims up and attacks in the middle of the body, turns its catch and swallows it headfirst. The pike's teeth are very sharp, so you shouldn't put your fingers in its mouth. In spring, when the pike is sunbathing in shallow water, it can be caught with a snare. For this you need a short rod with a copper thread as a snare. Slowly lower the snare and bring it over the pike's head. When it is next to the gills you pull and dinner is sorted!

Pond skaters



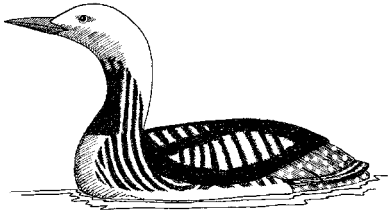
Pond skaters (*Gerridae*)(or water striders) can be found on the water's surface. The art of walking on water is possible due to its hairy legs, that are polished with an oil that is secreted from a gland by the mouth. If the hairs get into disarray it will drown. With the help of sensitive cells on the legs it feels the vibration when a prey item falls onto the water surface and hurries over to suck out the insect's soft parts. When winter arrives, the males die. The females overwinter under stones on land or in damp mossy ground.

Mallard duck



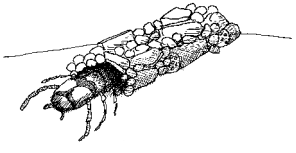
The mallard (*Anas platyrhynchus*) can be found throughout Sweden. It is a good swimmer thanks to the webbing between its toes. With its flat beak it stirs the bottom to find insects and water plants. The only thing that can be seen is the backside standing straight up in the water. The male (drake) is handsome in his colourful plumage when he courts the female. The green head, white neck ring, grey back and the dark reddish brown breast distinguishes him from all other water fowl. During winter the mallard can stay in Sweden if it has access to open water. Otherwise, it's mid or Western Europe that beckons.

Black throated diver



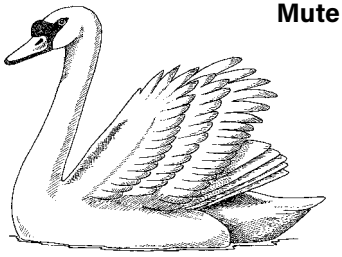
The black throated diver (*Gavia arctica*) thrives in clear, fish rich lakes. It is a timid bird that can be found in deep waters and dives beneath the surface if it is frightened. The black throated diver is a strong swimmer due to its strong legs that are far back on the body. On land it has trouble walking due to the position of it's legs. The black throated diver has a characteristic lonely call. The nest is placed close to the water. Too often boats at high speed create such big waves that the nest is washed away. But the silent canoe can also be a danger. The bird becomes frightened, leaves the nest and the eggs cool. The black throated diver is considered a weather bird. It is said to call more before the onset of rain.

Caddis fly



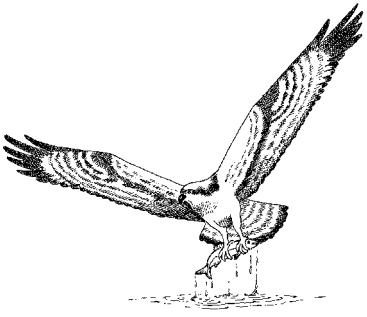
At dusk you can see how the caddis fly (*Trichoptera*) adults swarm over the water. The larvae live in the water and build larvae cases. These cases look different for each species and are built to form tubes of sand, parts of plants or shells. The larvae are also called house worms and are mainly herbivorous. There are also caddis fly larvae that make nets under the water. These nets are changed in special ways when there is pollution in the water. The caddies fly larvae are a favourite for amongst others the white throated dipper. Are you going fishing? Put a caddis fly larvae on the hook!

Mute swan



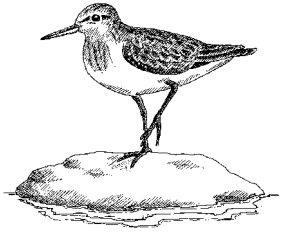
Mute swans (*Cygnus olor*) are Sweden's heaviest bird and can weigh up to 20 kg. As their name (in Swedish) suggests (Knölsvan) they have a black tubercle at the base of the red beak that develops once they are two years old. Mute swans mate for life. Their food consists of underwater plants that they can reach with their long necks. A whining sound can be heard when they are flying. The Swan is the landscape animal for Östergötland.

Osprey



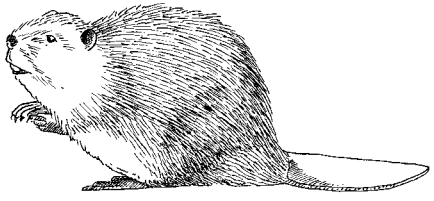
A moaning sound "klyi" breaks the silence. The osprey (*Pandion haliaetus*) circles over the lake with a white head and belly and a brown black back and with long angled wings. When it sees the fish, it dives at an angle down towards the water with wings spread. The prey is caught by stretching forwards it's open claws and cutting into the water. The nest is built in an old freestanding tree and made of twigs. The male and female are similar but the female is generally larger. The osprey is the landscape bird for Södermanland.

Common sandpiper



Sweden's most abundant wader is the common Sandpiper (*Actitis hypoleucos*) that can often be seen on stony beaches and shores. It is roughly 20 cm tall and is constantly bobbing its tail when it's running on the beach. It flies close to the water's surface with rapid wingbeats and glides with curved wings. The summer plumage is dark grey/brown on the top, white on the belly with a grey brown belt over the chest and a white wing band that shine in flight. It generally migrates to Africa during the winter.

Beaver



The beaver (*Castor fiber*) is a shy night active water animal that can weigh up to 22 kg. It lives along the water systems where it builds dams and constructs it's lodge. The lodge has a basement floor where the food is kept and where the entrance tunnel arrives. The dam must be looked after since if the water drops too low the entrance will be clear for other animals to enter. If the water is too high the young, that stay on the top floor, will drown. The teeth of the beaver are like wide chisels and are used to bring down trees for building material and food. In case of danger the animal beats its flat tail in the water to warn other beavers.

Wide coasts

– About the coastline as a landscape and a friluftsliv environment

BY RONNIE STÅHLE AND KLAS SANDELL

Our coasts

2500 km coastline!

Our long coastline has many different appearances. From Bohuslän and North Halland's archipelago via Halland and Skåne's sandy beaches, Blekinge archipelago, the Kalmar coastal cliffs, Öland and Gotland. Then we have the long archipelago that starts at the northern limit of Öland, passes through Östergötland, Stockholm and continues up to Söderhamn. The Northern part of the archipelago, the High Coast, between Hudiksvall and Örnsköldsvik, is known for it's deep bays and high cliffs. The archipelago continues after this via Kvarken all the way to Haparanda.

About half of Sweden's population lives within 30 km of the coast. In total we have a 2500 km (250 Swedish miles) long coastline in Sweden, if you don't measure around islands or into bays.

Archipelago life

Large parts of our coastline are dominated by archipelagos that offer people a piece of land, even a long way out into the sea. In the outer coasts of Bohuslän (on the West Coast) the sea seldom freezes in winters. Traditionally, it was common to follow the seasons and spend time in the archipelago fishing, combined with farming and keeping animals. People also hunted, especially for seal but also for seabirds.

Many archipelagos today are sparsely populated with a falling number of permanent residents. It has become harder and harder to live on a combination of fishing, farming and hunting. The cost of running boats and equipment has increased. Through wealthy summer visitors house prices risk becoming too high for the permanent inhabitants. The large number of people in the summer time means that sewage plants and drinking water supplies have to cope with large fluctuations in demand. A "living archipelago" is important for nature, the environment and friluftsliv and must be based on people being able to live and make a living in the archipelago all year round. Although it's important to safeguard the traditional industries of fishing and farming, distance working and high-speed internet can make it possible to work on other things in the archipelago

Tourism can also be an important source

Crayfish and crabs

(About multiplying on the bottom of the sea)

In the sea there are, amongst other things, crayfish and crabs. They don't want any intruders in their area, therefore they try to catch each other.

Split the group into two teams. One team are crayfish, the other are crabs. The crayfish have their nest at one end of the "seabed" (an open place) and the crabs at the other end. During the game all participants say, krrr, krrr, krrr, as they walk towards each other. The leader shouts "crayfish"! The crayfish then try and "tag" the crabs before they have time to return to their nest. Those who are tagged also become crayfish. If the leader shouts "crab" the crabs hunt the crayfish who, if they are tagged, then join the crab team. It's important to remember that you have changed next time the leader shouts.

Reflection: this game, that keeps everybody active at the same time, is suitable where there is an open area. There are no winners or losers as the teams continuously change for each round. Here you practise speed, attention and reactions. Through making the sound krrr (or other difficult sounds) you can also get phonetics training in an enjoyable way. As an introduction to the game, you can discuss the sea, which animals and fish live there, what they eat and other exciting things. Using your imagination, you quickly find yourself on the seabed where crabs and crayfish live.

of income but its impact on the local population and wildlife needs to be considered. Along the coastline, as elsewhere, it is good to follow new ideas of "eco-tourism" and use its strategies of nature awareness and local involvement. These strategies consider what the tourists do, where and how they do it and who earns the money from it.

Sensitive nature

Many environmental and natural resource problems coincide in the coastal areas. They may be an oil slick or pollutants that run off from the land or are given off from, for example, boat antifouling. Certain pollutants are then caught up in nutrient chains and can affect plants, animals and humans. The old two stroke engines are being replaced by more environmentally friendly four stroke and electrical engines. Attempts are being made to replace the environmentally damaging antifouling with bottom washing and rinsing plates. Nowadays, boats must not empty their toilets directly into the sea and must empty holding tanks at special facilities.

The Baltic sea (Östersjön) is especially sensitive to pollution since the exchange of water with the world's seas is so small and there is little mixing of the surface and bottom waters. This, together with the fact that there are large concentrations of people around the Baltic Sea (Östersjön) and that many countries are involved, make the pollution problem difficult to address without international co-operation.

Coastal nature types

Salinity, light and fertilisation

Because typical sea plants and animals need high salinity, fewer species are found on the East coast compared to the West coast. The Baltic is an inland sea with a large addition of fresh water via rivers and direct precipitation. From the Kattegatt every now and then salt water enters. As this salt water has a higher density than the fresh water it runs along the bottom of the Baltic and eventually mixes with the freshwater from the surface.

There are very few saltwater species left in the bay of Bothnia. There are also relatively few freshwater species that have managed to survive in the somewhat saltier water further south. Therefore, animal and plant life along the Baltic coast is relatively small compared to the west coast of Sweden. The following description of the nature types above and below the sea's surface mainly applies to the west coast as it is Sweden's typical sea coast.

Green algae, brown algae and red algae

A prerequisite for plants to be able to exist in the sea is that they can take energy from the sunlight that reaches down to them. The white sunlight's constituents of red, blue, yellow and green light are stopped in different ways by the water. Red is the most easily stopped, blue goes a bit deeper and green can go the deepest. In very cloudy water all light is stopped sooner, hindering plant life even in relatively shallow waters.

Green algae (to a depth of approximately 2 m) look green in the sunlight at the surface, which is because they absorb red and blue

light whilst reflecting green light. The green algae don't grow very deep beneath the surface as there is no red light further down. These algae are often small.

Brown algae (to a depth of approximately 15 m) contain many different coloured substances that together give them a brown colour. They can take up the green light better than the green algae. The brown algae are the largest we have in our waters, for example bladderwrack (*Fucus vesiculosus*) and toothed wrack (*Fucus serratus*).

Red algae (to a depth of approximately 25 m) look brown to red in sunlight, which is due to the red light reflecting whilst the other colours are absorbed. These plants grow the deepest as they are the best at taking up the green light that penetrates to a greatest depth in the water.

Apart from the accessibility of light it is the access to "fertilising" substances that limit the growth of plants in the sea. Certain substances that we consider to be "pollutants" from agriculture, industry, car exhausts, toilets and washing waste water are at the same time necessary for the life of the plants. The levels of these substances have increased greatly due to different emissions. Filamentous green algae increase the most because of this. Often, these grow on the surface of the brown algae such as bladderwrack and thereby shade them. After these algae die, oxygen is needed to break them down. The same amount of oxygen that these algae produced when they were alive is needed to break them down, so there is often a lack of oxygen at the sea bed.

Apart from the anchored and visible water plants – that we often call "seaweed" –the majority of the plants in the sea occur as free floating microscopic phytoplankton.

Cliff beaches

Cliff beaches are areas with more or less naked stone cliffs or a proper cliff coast. You often find a large number of lichens there. Around the cliff tops, where lots of bird droppings lie, there grows maritime sunburst (*Xanthoria parietina*) and strap lichen (*Ramalina polymorpha*). Below that you often find rim lichen (*Lecanora atra*) and under that there is often, like a thin crust,

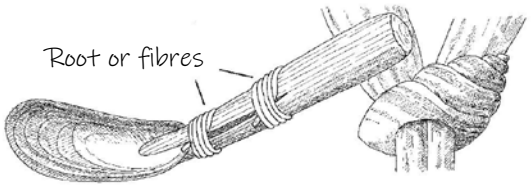
Beach treasures

(About beautiful beach treasures and a mussel shell spoon)

At the beach you often find weathered stones, old pieces of wood shaped by the waves and other exciting finds. Bring them home, to the classroom or the bookshelf, to enjoy nature's artwork.

Using a mussel shell, you can make a spoon and a sea shell can become a buckle for your scarf. Different finds (not only the beautiful ones) can be linked to how humans affect nature. Create an exhibition of what you have found. This can raise thoughts of how the environment is affected by everything we throw away.

Reflection: when you go through the finds think also about where the rubbish has come from. How quickly is it broken down? How does it affect the sea and the wildlife? How can we change things and create a better environment?



Thread the scarf through the natural opening of the shell ....

....and out through a hole in the shell.

To find food

(About predators that find mussels)

Is it a still day by a sandy or a muddy beach? Open a mussel with a knife and place it in the water at some decimetres depth. After a little while the predators on the sea bed and also the animals that eat dead matter will appear, looking for food. How do you think they find the mussel? Through their sense of smell!

Reflection: this is a way to show what happens in nature. For some it may seem harsh, then you need to explain what happens in nature. It can be a good chance to, amongst other things, talk about the nutrient chain and food webs, see chapter 4, Page 79, "Ecology, human ecology and sustainable development."

a belt of orange lichen (*Caloplaca marina*), as it needs to be intermittently washed over with sea water.

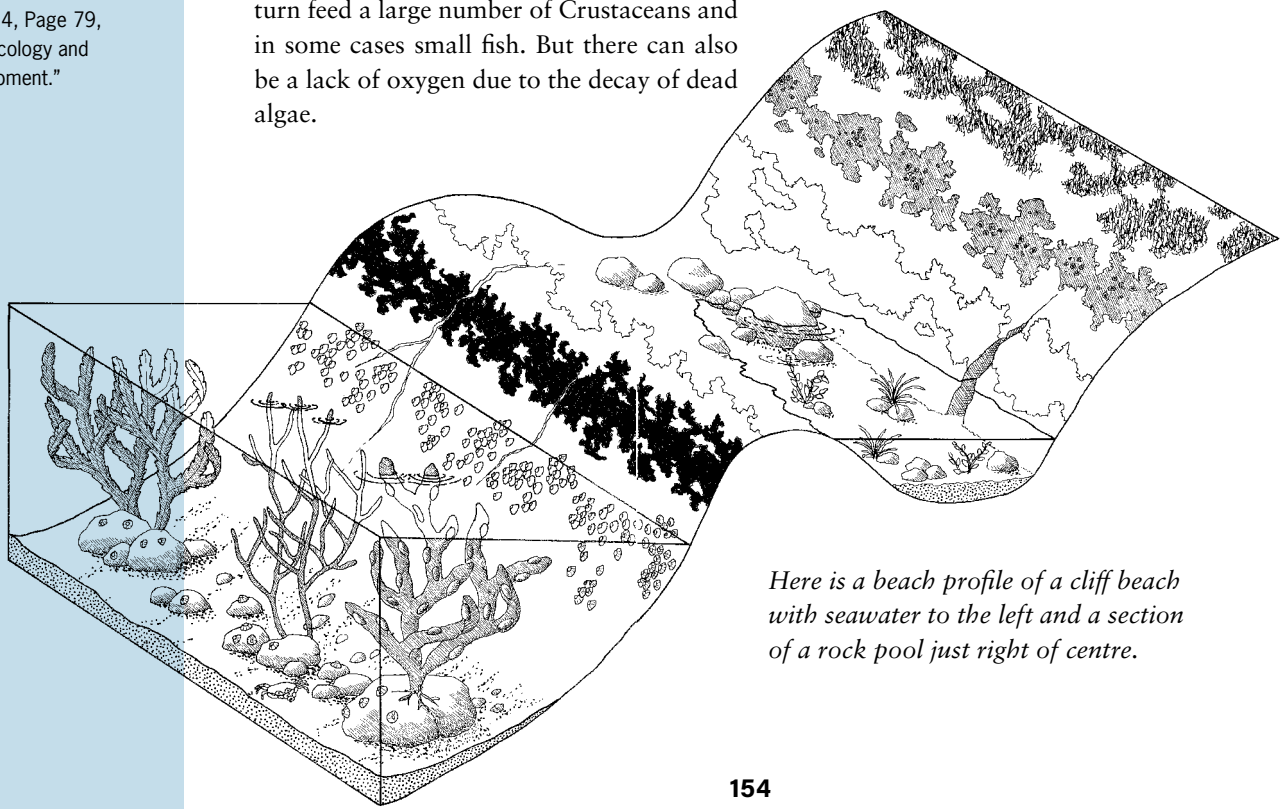
Rock pools are puddles on the cliff above the sea's surface. Rock pools that lie high up mostly contain fresh rainwater, but close to the shoreline they often contain salty water from the waves. The smaller the rock pool, the more demanding the environment for the plants and animals living in it.

The salinity of rocky pools varies greatly and there is a risk of them drying out. Especially in the Baltic, big rock pools create a lake-like environment, where you can find freshwater plants such as bulrush (*Typha latifolia*) and mares tail (*Hippus vulgaris*). As the rock pools receive the nutrients from the bird droppings, algae can flourish and in turn feed a large number of Crustaceans and in some cases small fish. But there can also be a lack of oxygen due to the decay of dead algae.

Closest above the waterline along the west coast and some way up the east coast you find a black tar like belt. In shady areas this consists of fungus (*Hydropunctaria maura*). It cannot cope with drying out. On the sunny side the belt however consists of blue green algae. If you are unsure if it is the fungus or blue green algae, you can step on the wet part of the black belt. The blue green algae is as slippery as soap.

It is common that the cliffs have a band of rock that is bare, by the waterline. Mostly this is caused by the rubbing action of ice during winter. Up and along the waterline you find the balanid barnacles (*Balanidae*) attached to the cliff. They have a great ability to resist the waves.

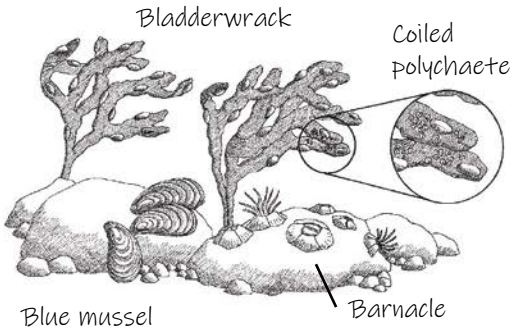
In places washed by the waves, such



Here is a beach profile of a cliff beach with seawater to the left and a section of a rock pool just right of centre.

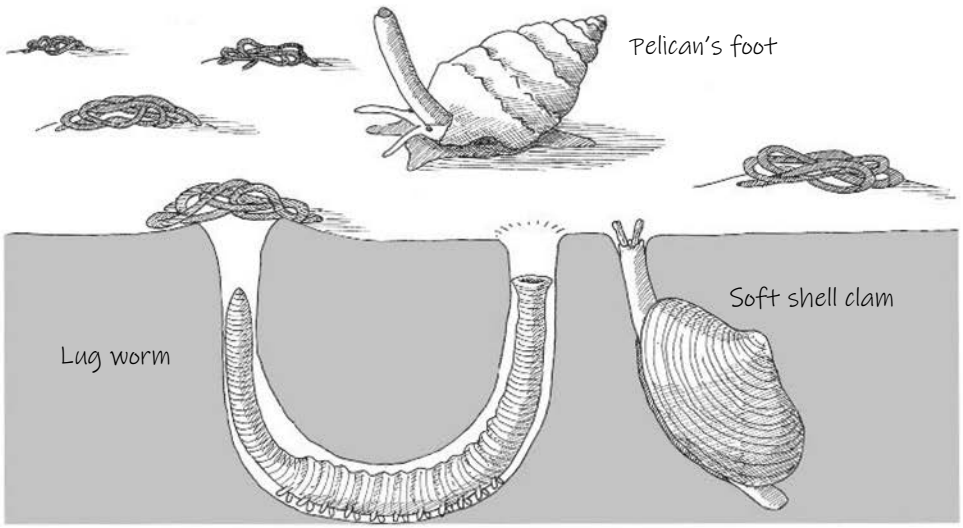
as cliffs and freestanding rocks, there is a constant mixing of the water, so nutrients are added all the time. This creates a rich plant and animal life. Certain species however cannot attach themselves in one place due to the strong waves. The blue mussel (*Mytilus edulis*), the Belanidae, the coiled polychaete (*Spirorbis spirorbis*) and the moss animals (*Bryozoa*) can withstand waves as they are firmly attached to the surface (that may be stone or other plants or animals).

If you look at these animals you realise that it can be a problem to be attached to the surface. Animals that live close to the water, for example the blue mussel and the balanid mussel, have to cope with the dryness when water levels are low as well as not being eaten. Solving this problem has resulted in them having dense, hard shells, that they can crawl into. In shady places you can find animals and plants that normally live at greater depth, for example certain red algae.



Soft seabed

When the mixing of the water, due to waves and currents, isn't so strong then particles drop to the bottom and create a sediment. Large parts of this sediment are edible and support a rich animal life. Such sea beds are called clay beds. Another type of soft seabed is a sand bed, where the stirring of the water has led to the clay particles being washed away.



A beach picture

(about creating a piece of artwork using beach treasures)

By the seashore you can often find small pieces of wood rounded by the water. At the same time gather sea shells, stones and other small beach finds. Glue these onto the piece of wood. Place a hanger on the back (a small bent paperclip is normally good). The result is a memory from your day at the beach.

Reflection: By using what you find in nature you train both the eye and the hand. Since shapes and colours already exist in the objects you cannot fail. This can also be a way to record your experiences. When you look at the picture you will remember the day. The picture is also a good aid for language training when objects are described with a new vocabulary. By describing what you've found, where and how you found these objects and why you chose them, brings the time at the beach back to life. Put a title on your picture. Write a story about the finds.

A diversity of stones

(about using language to explain the colours, shapes and positions of stones)

Gather the group by a beach where there are weathered stones. In small groups ask each person to find five stones. When the groups come back together, use the stones in different steps.

1. Compare the stones and place them in order according to their colour
2. Place them in order according to their size.
3. Weigh each stone in your hand and place them in a row according to their weight.
4. Pair stones together, so that each pair has a similar weight..
5. Use the stones for a piece of artwork.

For each exercise you explain the terminology. Colour, larger than – smaller than, weight – lighter etc.

Reflection: using the stones you can explore expressions and language. Let the group describe the stones for each other and the thoughts behind the artwork. The participants walk freely looking for their stones which attract their attention to what can be found in nature. To remember this exercise let the participants choose a stone to take home. In the classroom you can have more material to continue working with.

Shallow, calm bays with mostly clay sea beds are ideal spawning grounds for many fish species due to the good supply of nutrients. This should be borne in mind when there is a discussion about more land reclamation by filling in the bays or creating marinas for small boats. In the harbour there is nearly always an oil spill and also often the boats are painted with antifouling that affects plant and animal life.

The plants and animals of the beach

Harsh conditions for plants

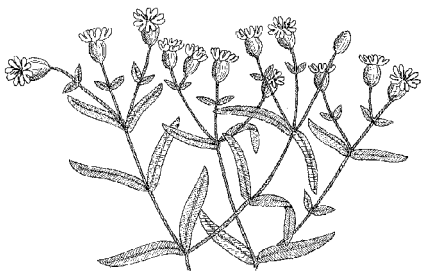
On the West coast there are large differences between the plants normally found on land and those found closest to the sea. The land rise in Sweden has resulted in many muddy bays becoming overgrown, first by the most salt tolerant species. These areas have nearly always been used by farmers. Where it hasn't been possible to cultivate crops then cattle have been allowed to graze there.

Along the coast, salt water splashes over land. To manage in this salty environment plants need to be able to "extract" the freshwater they need from the salt water or to minimise their water losses as much as possible. This is similar to the problem faced by desert plants. Therefore, typical sea plants are similar to those from very dry areas.

Different ways to solve this water problem include, for example sea kale (*Crambe maritima*), having a waxy leaf covering which leads to less evaporation. Small leaves as found on the scurvy grass (*Cochlearia officinalis*) have a smaller surface area and as a result less evaporation. The Chenopodiaceae have bladders for salt removal and can tolerate a salty environment.

From the waterline towards land there will be a change from the saline to fresh water environment, so-called zoning. Closest to the sea, in the nutrient rich seaweed banks, you can find part sea plants such as sea mayweed (*Matricaria maritima*) and wild celery (*Angelica archangelica*), and partially "common land based plants" that thrive in the nutrient rich environment, such as the common couch (*Elymus repens*) and mugwort (*Artemisia vulgaris*). In muddy bays you can find the common glasswort (*Salicornia europaea*), sea side arrowgrass (*Triglochin maritima*) and black grass (*Juncus gerardii*).

Furthest out on the sandy and gravelly bays you can find plants that can cope with a very nutrient poor environment. Examples of this are the sea sandwort (*Honckenya peploides*), European marram grass (*Ammophila arenaria*) and lyme grass (*Leymus arenarius*) but also sea kale (*Crambe maritima*) and prickly glasswort (*Kali turgidum*). Other plants you can find by the sea side are sea campion (*Silene uniflora*), sea aster (*Tripolium pannonicum*) and common scurvygrass (*Cochlearia officinalis*). Take the



chance to find out which plants are protected in your region!

The birdlife of the coast

Even if the shallow sea areas are rich in nutrients the birds still need to be adapted to the habitat, in terms of their appearance or behaviour, in order to obtain food. The long neck of the swan allows it to feed on algae while it swims on the surface. By diving, as seen for example with the common eider (*Somateria mollissima*), common goldeneye (*Bucephala clangula*) and the velvet scoter (*Melanitta fusca*), food can be obtained from a much greater depth. The Eurasian oystercatcher (*Haematopus ostralegus*), the common redshank (*Tringa totanus*) and the black tailed godwit (*Limosa limosa*) can wade with their long legs. Using their long beaks they can reach deep into the mud and get access to their "own" larder. Birds with a short, strong beaks can manage to feed on mussels.

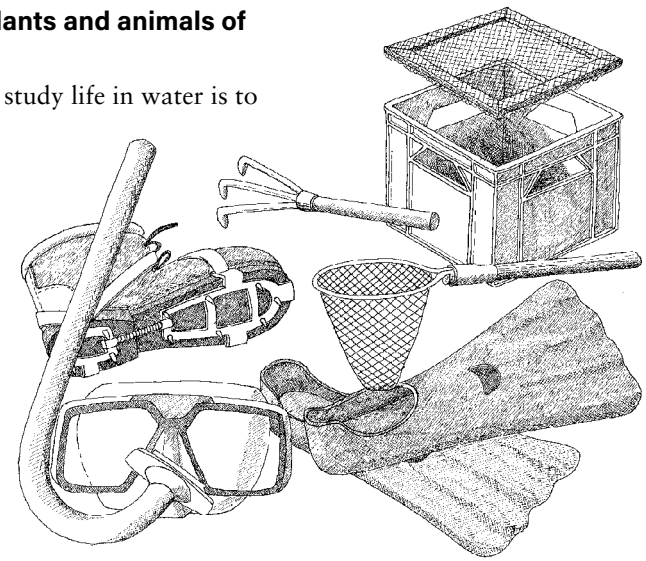
To study the plants and animals of the water

The best way to study life in water is to move yourself to the plants and animals. Dive! A mask and snorkel make it possible to lie on the water's surface looking down. By using a wet-suit it can be enjoyable for a long time.

The alternative is to bring up the plants and animals with different types of scrapers and sieves. A hoe or a common rake can be used to break off seaweed tufts from the cliff. When the seaweed tufts are floating in the water they can easily be picked up. A good sieve can be made by fastening for example a mosquito net on a frame that you then place on the bottom of an old plastic beer crate.

When you are on cliff beaches!

- Use a lifejacket, the water cools quickly.
- Possibly get spikes so as not to slip into the water.
- Always have a lifeline handy. It isn't easy in wet clothes to get up a slippery cliff beach. Especially if the sea is rough.



A home in the seaweed

(about what can be found in a bunch of seaweed)

Carefully take a piece of seaweed and shake it over a bucket of water. Which animals can you find that live in the protection of the seaweed? Also look at the surface of the seaweed where plants and animals have attached themselves.

Reflection: many small creatures fall out and your magnifying glass will be useful. Even if you cannot give them names you can look for similarities and differences.

Warmth around the head

(about fish in embers)

A good way of preparing a newly caught fish is to grill it over embers. Clean out the fish and put it on a spit of fresh wood from the head along the backbone. A little bit of juniper inside the stomach is tasty. Stand the fish with its head down in a thick bed of embers. When the head is totally burnt the fish is ready to eat (applies to small and medium-sized fish).

Reflection: to prepare your fish in this way awakes wonder and gives a new sensation of taste.

Coastal trip

(about a themed hike along the coast)

A different trip or excursion can have the theme "coast". Plan a trip along the shoreline or through the archipelago. If you're concentrating on the cultural landscape then get in touch with local people in the coastal area and ask them to describe life in former times and life today. Compare old fishing tools with those of today. Ask to join a fishing trip. If you are concentrating on the natural landscape then let the group focus on different areas and then explain them to each other. For example: under the water, in the beach, on land or: what flies, floats, swims, crawls, grows etc. This activity works well in all seasons – even in the winter. To keep it safe, the journey must consider the participant's abilities. The archipelago can be a very harsh (but at the same time fascinating) outdoor environment when it's cold in the water and wind picks up.

Reflection: inspire the participants by splitting them into "research teams". Prepare the groups so they have basic knowledge which makes their research easier. This activity is an example of how studying geography could be brought to life.

Friluftsliv by the coast

A light green shadow reveals a rock, just to the side of my kayak's bow. The green algae on the rock waves in the current and some small fish swim off. I slow the pace even more and glide on through the shallow sound.

Soon, a new fjord opens up and I almost get a sensation of vertigo when the sea bed, once so clear, quickly disappears down into the darkness. A quick glance at the map and I paddle out through the bumpy waves.

KLAS SANDELL

The return of the kayak

Friluftsliv by the coast and in the archipelago are really something special and alongside sailing, the kayak is an increasingly popular means of transport. To build a kayak in natural material can be a good project for a frilufts group during the winter.

The kayak does not have a long tradition as a useful vessel in Sweden, as opposed to Greenland or North America. It was introduced for recreation instead mainly by the Scot, John McGregor, during the second half of the 1800's. He visited Sweden during his long excursions with his rather clumsy wooden canoe "Rob Roy".

A more general spreading of the kayak oc-

curred in the 1920s and on up until the Second World War. They were often built at home or in a factory with a wooden skeleton that was clad with canvas and then painted. Sven Thorell's boat "Åland" is a typical example of these kayaks that were quite stable, with a large cockpit and raised ends.

The kayaks were used even by the younger population of the archipelago, not least during the Second World War, when there was a shortage of fuel for boat engines. It was quick and safe to use the kayak to go to barn dances and the cinema but it was also used for hunting sea birds and seal. After the war the kayaks were placed in barns and boat houses. Many are still lying there waiting for a new canvas and new journeys. With the exception of a few enthusiasts kayak paddling disappeared from the archipelagos. Racing paddling was still done by canoe clubs and sometimes there was also a "long distance" section, but even after a rise in the popularity of the Canadian canoe, there still wasn't much paddling on the coasts.

From the end of the 1980's a new wave of kayaking arose in Sweden. This was inspired by sea paddlers from Great Britain and North America. They derived their designs from those of the traditional kayaks and Baidarkas from Greenland and Alaska respectively, often with relatively narrow hulls and small cockpits, suitable for "Eskimo" rolls and large open waters. Their material however is hardly "close to nature", as in the traditional skin on frame kayaks. Now instead, they are mostly made of plastic, fibreglass or carbon fibre. The return of the kayak represents a piece of Swedish outdoor history with inspirations derived from across the northern half of the globe!

The Friluftsliv of the coast

In many ways it's reasonable to compare outdoor life by the coast with that in the mountain regions. Both require a lot more knowledge, care and experience than friluftsliv in the forest and on the small lake. Not least, it is important to be aware of how fast the conditions change due to seasons and depending on where you are. A calm mid-summers day in the inner archipelago has nothing in common with late autumn in the outer archipelago! Here the saying "paddle within your ability" really applies.

This means that regardless of whether you paddle, sail, dive, go on long distance ice skates or in a motorboat you have to see friluftsliv by the coast as the challenge it is. At the same time there's the possibility of a "cool" and exciting friluftsliv to look forward to. For example, it's not suitable to use a Canadian canoe if you are going to travel on open water, it requires a kayak.

Make use of different "experts" and educational opportunities, as a way to raise the level of excitement in friluftsliv. For example, get in touch with organisations involved in canoeing, sailing and diving to find out where you can get instruction and rent equipment.

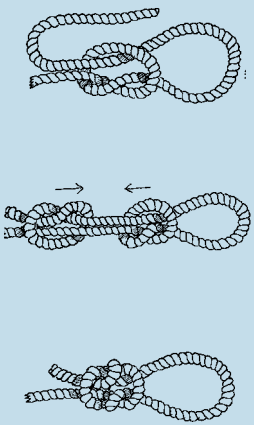
Knotting a love band

(about making a love knot)

Below you can see how you make a love knot. According to tradition it got its name when lovesick sailors made this knot – but without pulling together the two halves – and sent them home to their beloved. She either chose to pull the knots together (i.e. wanting to get married) or to let them be separate, when she sent it back.

Learning to tie the right knots was a crucial skill for sailors. A wrongly tied knot could cause an accident.

Knot tying was also a pass-time on board sailing ships. It could for example result in rugs, knotted bottles or belts (see the tip "belt to remove" on page 20). Many knots have exciting stories that makes them easier to remember.



Soup with caution?

(about making mussel soup)

Mussel soup is also an interesting way to study animal life. But don't make mussel soup unless you are absolutely sure that the water they came from was clean. As mussels sieve particles from the water you can get an accumulation of toxins, for example of bacteria from sewage or poison from plankton in algal blooms.

What you need to make mussel soup on your stove (for two people): a dozen mussels, 2 tablespoons of chopped leeks, a tablespoon of butter or margarine, 3.5 dL water, the juice from one lemon, two potatoes chopped into small cubes, 1 dL cream or milk, salt, garlic, white pepper and parsley. Brush the mussels clean and rinse them. Knock lightly on their shells. If any muscle that was open hasn't closed immediately then throw them away.

Fry the leek in the butter and then add water and the lemon juice. Bring it to the boil. Add the mussels and let them boil vigorously under a lid. After a few minutes when they have opened take them out. Add the potatoes and boil them until they are soft. Remove the mussels from the shells. Pour in the cream to the soup and season with salt and white pepper. Return the mussels to the pan and garnish with parsley before serving.

Reflection: cooking food straight from the sea is an experience that not many people have had. It is also not hard to get everyone to eat food that they've cooked for themselves.

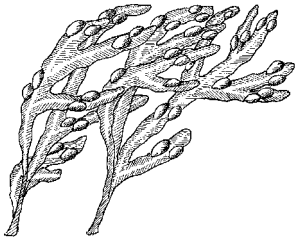
Ten rules of the sea

1. Make sure the boat is seaworthy and that the people are organised on board!
2. Always have the necessary safety equipment aboard. Each person should wear a life jacket or buoyancy aid.
3. Don't go onto larger water than the boat is suitable for.
4. Always leave a float plan and carefully study your route choice. If you change your destination then be sure to inform those at home.
5. It is your duty to know the rules that apply on the water.
6. Don't overload the boat and always stay seated.
7. Always keep a good lookout. Be careful with the speed.
8. Check the weather forecast. If it's bad then stay at home; if you are already at sea, seek shelter or go into the nearest harbour.
9. If the boat capsizes but floats, then stay with it! You are much safer there than if you swim towards the shore
10. Do not leave litter, on land or on the water. Take your rubbish home or leave it in a dustbin.

Characters

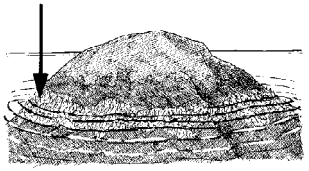
Bladder wrack

The bladder wrack (*Fucus vesiculosus*) is a flat fork-branched brown algae with floating bladders arranged in pairs. It can be found on cliffs and rocks along the coast. The Bladder wrack thrives on the west coast, but can also manage to live in the Baltic. It acts as protection and provides a habitat for many species. Lift a bladder wrack and put it in a bowl of water. In the bladder wrack tufts you can, amongst other things find bristle worms (*Polychaeta*), cockles (*Fam. Cardiidae*), malacostracan Crustacea (*amphipods*), red algae (*Rhodophyta*) , moss animals (*Bryozoa*), shells, blue mussels (*Mytilus edulis*), brown algae (*Phaeophyceae*), Asellidae (*Crustacea: Isopoda*) and flatworms (*Platyhelminthes: Turbellaria*). Bladder wrack washed ashore was once used as a fertiliser and to improve the soil in fields.



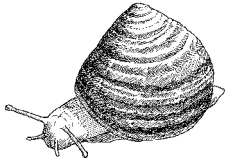
Green algae

In both freshwater and in the Baltic you often slip on the green algae (*Cladophera glomerata*) at the water's edge. It looks similar to loose tufts and creates slippery belts just along the shore line. When the algae detach and rot they are often a problem for fishermen. Due to nutrient run-off from the land green algae have increased, which in turn has had a negative effect on life in the water.



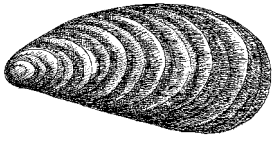
Common periwinkle

The common periwinkle (*Littorina littorea*) has a thick, brownish coloured cone shaped shell about 2–3 cm high. It can vary in both size and looks depending on where you find it. It likes shallow water, where it occurs on stones, algae or mud bottoms. It is accustomed to life in the wave-breaking zone. On a sandy seabed you can see it's tracks, roughly 7 mm wide.

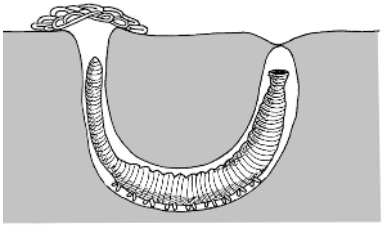


The blue mussel

The blue mussel (*Mytilus edulis*) can grow to be about 10 cm long and 3–4 cm wide. The shell is blue black to brown black and the inside is a shiny pearl blue to white. It can be found both in salt and brackish waters. The blue mussel is one of the Baltic sea's most common seabed animals and is found in large areas on hard sea beds as far North as the sea around Åland. It's abundance can be explained by the absence of European green crabs (*Carcinus maenus*) and starfish (Asteroidea), both predators of blue mussels, in the water due to its low salinity. The blue mussel feeds by filtering plankton from the water and attaches itself to the surface with a so-called byssus threads (a secretion of collagenous protein that hardens in water). Humans and animals enjoy eating blue mussels – one of the delicacies of the sea.



Lugworm



The lugworm (*Arenicola marina*) can become roughly 25 cm long and it is found on the West Coast of Sweden. It lives under the surface of the sea bed in U-shaped burrow. It eats sand and extracts nutrients from it, squirting the remains onto the bottom of the sea bed. The lugworm creates characteristic small piles, similar to squirted out caviar from its tube. These piles are easy to find at low-water. An indentation in the sand shows where the mouth is and the excrement pile reveals the other end. It can be quite deep down, but it's well worth the trouble of searching for it as it is an excellent bait for fishing.

Blackberries

By the coast in southern and mid-Sweden you can find a bush with long spiky branches – blackberries (*Rubus rubus*). The berries look like raspberries but are black, blue black or red black. They ripen in late summer. The berries can be used for among all the things juice, jam and different deserts. In May – June the new leaves can be picked, dried and you can enjoy blackberry tea in winter.

Scurvygrass

Scurvygrass (*Cochlearia officinalis*) was seen as a "gift from above" for early seafarers in Northern waters. Scurvygrass can be found on the beaches of the arctic sea and saved many early polar travellers from scurvy (lack of vitamin C). The dark green spleen shaped leaves are juicy and you can find them all the year round, even under the snow on the beaches of Southern Sweden. They are very rich in vitamin C. It is said that in the 1600's people salted scurvygrass for use during winter. The leaves can be used for spicing potatoes, salads, scrambled eggs and to add flavour to a sandwich.

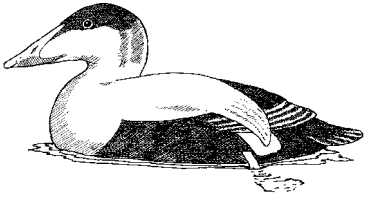
Tansy

The tansy (*Tanacetum vulgare*) is a tall plant with dark green flaky leaves and yellow button like flowers that you often find next to the road or in other dry places. The tansy can be dried in bouquets to spread a nice scent in the house. But it also drove away witches and demons. In traditional medicine it was once used against disrupted digestion, hysteria and gout. Boiled with milk it was placed as a poultice on swellings. When the beer didn't have enough flavour, tansy was added to make it both strong and bitter. Tansy has also been used for colouring wool yarn yellow. Finely chopped new tansy leaves added to the batter gives a special taste to pancakes.

Sea kale

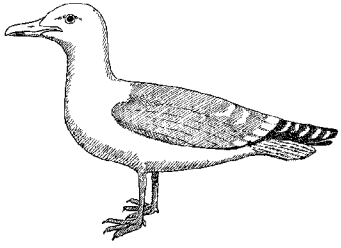
On the beaches of the west coast of Sweden, large meaty blue-grey leaves with wavy edges and strong stalks can be found. These are sea kale (*Crambe maritima*). It flowers in the middle of the summer with large, white flower brooms. The leaves can be eaten raw with salad dressing. You can also cut them into small pieces, boil them soft and eat them with butter. Naturally you can also use the leaves like a normal cabbage. The sea kale is rather rare (they are protected in the regions of Blekinge and Gotland).

Common Eider



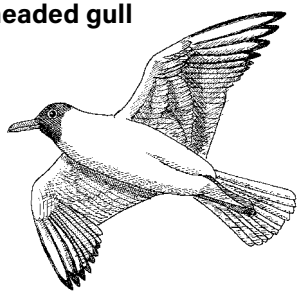
When the common eider (*Somateria mollissima*) returns to our coasts it is spring! The eider is a relatively large bird that is easily recognised by the high, long beak that directly joins the low forehead. The female (hen) is speckled brown. The male (drake) has black sides and stomach but is white on its back. The head and the neck are white with a black crest and a green base to the neck. It generally breeds along our coasts. The eider eats amongst other things shellfish and blue mussels. In the down insulated nest you can find 3–6 eggs. The eider has always been an important bird for the people of the coasts, as it was valued for its meat, eggs and down.

European herring gull



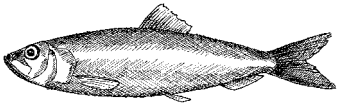
The European herring gull (*Larus argentatus*) is a large gull with a clear yellow beak, with a characteristic red "gull spot" or dot, on the lower half. As an adult it is white with a blue grey back and wing feathers with black tips and white flecks. This is Sweden's most common gull. As well as by the coast they can also be seen in urban areas, often around rubbish tips. It's a generalist and seeks its food along the shores, after the trawlers and where there is a chance of fish scraps. It generally lives in colonies together with partners. The nest is on the ground and they typically lay three eggs.

Black headed gull



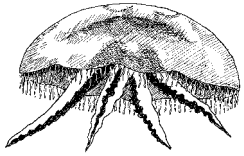
The black headed gull (*Chroicocepehalus ridibundus*) is white with a chocolate brown head and white eye rings – it is easily distinguished from all other gulls during the summer. In winter the whole bird is white with a black dot behind the eye. It breeds in nutrient rich inland lakes and coastal bays where is creates large colonies on protected islands, often in reeds. It is not frightened easily and adjusts well to new environments. The black headed gull eats what it can find, among other things small animals of all kinds, left over grain, worms in a newly ploughed field, rubbish in cities and floating waste after the boats.

Atlantic herring



In the Baltic the Atlantic herring (*Clupea harengus*) that's caught north of Kalmar is called strömming. It is a shiny silver thin fish with a dark grey or green back. It feeds on plankton. During the day the shoals are be found in deeper waters. During the night the fish rises to the upper water levels. The Atlantic herring is one of Sweden's most cherished fish and can be prepared in many different ways. Try "chimney sweep": the herring is salted and then placed directly on the embers for some minutes. Ready to eat!

Moon jelly fish

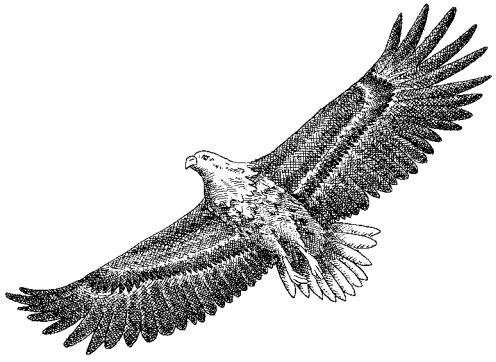


Along our coast all the way North to the Bay of Gävle, you can find the moon jellyfish (*Aurelia aurita*) that can be up to 40 cm in diameter. The violet "ear-shaped" patterns are its sexual organs. Along the edges it has a short, dense fringe of tentacles. On this you find lots of stinging cells with which it numbs small animals that make up its food. The moon jellyfish is harmless to humans.

Lions mane jellyfish

On the west coast in the summer, you find the reddish coloured lions mane jellyfish (*Cyanea capillata*). It can be up to half a metre in diameter and has long veils of tentacles filled with stinging cells. You ought to look out for the lions mane jellyfish when you are swimming as the jellyfish stinging cells can burrow in to human skin and even loose pieces of tentacle can sting.

White tailed eagle



Sweden's largest bird of prey is the white tailed eagle (*Haliaeetus albicilla*). The female is larger than the male and can measure up to 2.5 m between the tips of the wings. The wings are wide with splayed feathers at the tips. The tail is short and wedge shaped. The upper part of the legs are clad in feathers. Old eagles have a totally white tail, pale head with a strong yellow beak and lighter grey brown feathers than the younger birds. The eagle is a bad hunter and generally finds its prey among animals that are injured or dead. The young birds can be seen during winter in Skåne or on the West Coast.

High Mountains

– About the high mountains as a landscape and a friluftsliv environment

BY ANDERS NILSSON OCH KLAS SANDELL

The high mountain landscape

A morning between the fells.

It is very warm and sticky in the sleeping bag when I wake up. The yellow inner tent makes my blue down sleeping bag look green. Outside the tent it seems totally calm. As soon as I wake up I unzip the door and see a glistening alp reflected in the crystal-clear lake.

Yesterday the view was a totally different one. A cold rain was driving horizontally and the raindrops felt like needles in my face as we crossed the low ridge behind us. We had to use skill and experience to pitch the tent in the wind without the guy ropes becoming tangled. But it was certainly a nice feeling when, soon after, we were able to stretch out our legs in the sleeping bags inside the tent, leaning into the tent porch to eat our meal of hot macaroni and smoked lamb. After a desert of dried fruit washed down with tea we fell asleep quickly, as the rain whipped against the roof of the tent.

But now it's still and if I don't get a swim in the lake soon I will float away like a blob of butter in a frying pan. Our friends in the neighbouring tent have also woken up and it would be a shame if I wasn't to beat them to the lake. A new day in the mountains has started.

> The most beautiful thing in the mountains
> is not the stone, the rigid shield around
> the heart of the Earth.
> The most beautiful thing in the mountains
> is not the greenery that, shimmers like velvet along the side of the valley. The most
> beautiful thing in the mountains
> is not the light, that moves like a caress
> over the ground.
> The most beautiful thing in the mountains
> is not the shadow of the cloud, lighter than
> the wing of a bird.
> The most beautiful thing in the mountains
> is an affection,
> So unspeakable that it can only be felt.
>
> ERIK BLOMBERG
> *(loosely translated)*

Old mountain range

The Scandinavian mountain range is, compared to for example the Alps, an old

Mountain food

(about edible plants in the mountains)

To vary the menu during your mountain hike you can make the salad of the day. Ladies mantle, fresh birch leaves (think of the risk of allergy), sorrel and mountain sorrel are chopped and mixed. With a little vinegar and some spices the meal will be extra memorable. The newly emerged soft parts of Norwegian angelica can be eaten raw. The shoots of alpine bistort (*Bistorta vivipara*) and the leaves of arctic root (*Rhodiola rosea*) can also be eaten in salads. Marmalade made from both sorrels can be made by boiling chopped leaves together with water and sugar. It is ready when it looks like a green porridge. Sorrel marmalade is good to eat both on bread and on porridge. Why not try it rolled in a pancake! Those who aren't able to tolerate oxalic acid should avoid sorrel. Drinking milk neutralises the oxalic acid.

mountain range. It was created circa 400 million years ago. Ever since then it has been exposed to degenerative and reshaping forces. Glaciers, water, frost and wind have acted as nature's own planing tools. These forces are still in action. Areas such as the Sarek National Park have resisted erosion better as they are covered with stronger rock (amphibolites). In these areas high mountains with sharp ridges and clearly distinguishable tops can be found.

A large part of the mountain region is however made up of soft shale. Here the bedrock has been ground down to leave today a flat heath landscape. An example of this is Padjelanta.

The dominating winds in the mountains come from the west. The Atlantic and the Gulf stream therefore gave the western parts of the mountain range a milder and more humid climate. The tree line is higher up and spring comes earlier here. East of some mountain regions you can find a rain shadow (the clouds from the sea in the west drop their rain before passing over the mountain). In Abisko for example, the annual precipitation is as little as 300 mm. By the station Riksgränsen, only a few Swedish miles west of Abisko, the yearly precipitation is over 1100 mm. On the eastern side of the mountain range in the valleys you find cold holes. A good example of this is Vouggatjålme. It is one of Sweden's coldest places with temperatures as low as -55°C.

When the last of the inland ice retreated, animals and plants followed in its tracks. Through fossil records it has been shown that many species came from the south. Others have come from the Kola peninsula. Some researchers believe that animals may have overwintered during the ice age along the Norwegian coast. In Bohuslän and the highlands of Småland you find mountain plants that have stayed as they moved north. Golden root or Arctic root (*Rhodiola rosea*) can be found both in the mountains and in bushland, which highlights the similarities of the environments.

From Mountain Birch to high mountains

Height dependency

Those who walk in the mountains will soon discover that plant and animal life varies greatly depending on altitude. The mountain areas are normally split into downy birch forest (*Betula pubescens* var. *tortuosa*), low, medium and high mountain landscapes. However, these growth zones seem to be changing due to ongoing climate change.

Downy birch forest

In the northern part of the mountain ranges the downy birch forest stretches up to a height of 500 to 700 m above sea level. In the southern parts it grows 800 to 1000 m above sea level. On eastern facing slopes the birch forest extends 100 m lower then on the western side.

The upper limit is also the limit for continuous forest and lies where the temperature in July doesn't rise above 10°C. Although you can find downy birch above this limit, they are scarce and don't grow to be tall.

The area is totally dominated by downy birch, that is supposed to be a sub-species of

the glass birch. It's Latin name, *Betula pubescens var. tortuosa*, describes its twisted way of growing (tortuosa = twisted). What grows beneath the trees is variable and depends on access to nutrients and humidity. Nutrient poor soil can be found on hard shale rich in quartz, whilst nutrient rich soil is found in calcium rich areas.

On dry ground you mostly find reindeer lichen (*Cladonia*) which is the main source of food for the reindeer. On moist ground the shrubs bilberry, crowberry (*Empetrum nigrum*) and dwarf cornell (*Cornus suecica*) can be found. Where it's very wet under your feet you find peat moss (*Sphagnum*), dwarf birch (*Betula nana*) and different willow (*Salix*) species and cloudberry (*Rubus chamaemorus*) -the northern gold. If the ground is both damp and rich in nutrients then the edible *Lactuca alpina* thrives as well as the poisonous Northern Wolf's bane (*Aconitum lycoctonum ssp. septemtrionale*). In the western parts you can even find ostrich fern (*Matteuccia struthiopteris*) and other large firms. Animals and birds sometimes build their nests in one part of the mountain and hunt in another. It is therefore not so easy to talk about character species amongst the birds in the same way as for flowers.

One bird that you may find in this region is the willow ptarmigan (*Lagopus lagopus*) that in some years has multiple broods. Here you also find redwing (*Turdus iliacus*), brambling (*Fringilla montifringilla*), common redpoll (*Acanthis flammea*) and the master singer of the mountains, the bluethroat (*Luscinia svecica*). It can sit among the bushes, along the river or at the edge of a bog where it copies the song of other birds. The merlin (*Falco columbarius*) is our smallest falcon. It feeds on small birds and breeds mainly in trees in the mountain birch forest, where is happily uses old crows nests.

The elk (*Alces alces*) sometimes comes all the way up to the bare mountain. Here they are often larger than their relatives in the south, which makes it easier for them to retain heat in the colder climate. The red fox (*Vulpes vulpes*) is more commonly found on the bare mountain. It is often associated with human activity and is in the process of out competing the arctic fox (*Vulpes lagopus*).

The low mountain landscape

The low mountain landscape can be found 700 to 1100 m above sea level in the northern part of the mountain range and about 1000 to 1400 m above sea level in the southern part. The greatest difference in vegetation between the downy birch forest and the low mountain region is that in the latter there aren't many trees. Other species are often the same. Nutrient availability and humidity are also important factors here. Above the tree line the wind is a key factor and determines how the snow settles. You often

Shovel up

(about shovelling together a snow pile that is then hollowed out)

The forest Indians in Alaska and northern Canada sometimes use a snow shelter for sleeping in that they called a "Quinchee". They are made in the following manner: shovel together a large pile of snow. Then let it freeze for a couple of hours. Push in 30 cm long sticks over the whole surface of the snow pile. Hollow out the inside until you see the sticks, then you know the roof and walls are about 30 cm thick. For safety reasons: make a ventilation hole, don't cook your food inside the shelter and make sure you have the spade with you when you are inside. If you want to spend the night in a shovel up it could be good to know that as a test, with two people sleeping in a "Quinchee" (with no external heating source) and -20 °C outside it was only -6 to -7 °C inside.

Reflection: Snow is appreciated by children of all ages. Here you get to be active, train your body by digging and enjoying being in a snow hole, even if it's bad weather outside. An "outdoor room" with the safety during winter.

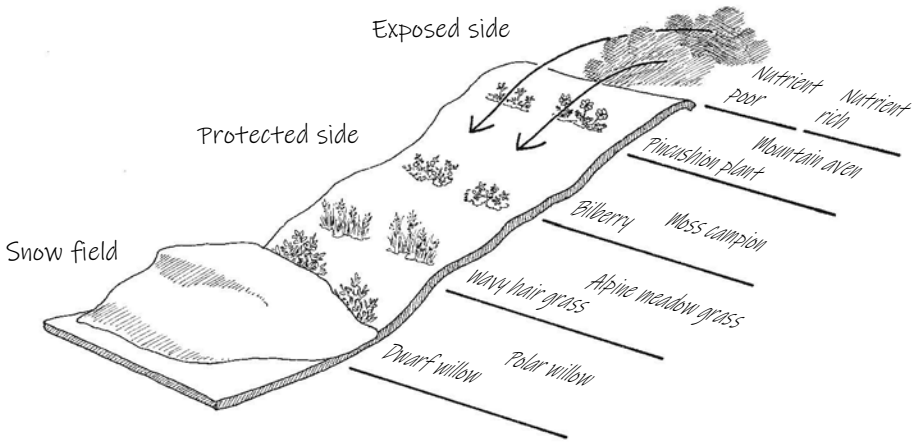
And what do we find there?

(about different types of plant records)

To discover the diversity of nature, similarities and differences you can record a nature area in different ways.

1. Make simple map sketches of the pre-determined area (or copy the maps in advance). In pairs, agree a special plant that you want to look for in a given area. You mark your finds on the map and practise both knowledge of the species and reading a map.
2. Mark a square on the ground, for example a square metre. Try, with the help of a book, to identify all the different species that you find within this area. Possibly place one of each on a piece of paper using tape. Compare the squares with other places that other groups have recorded.
3. Place an imaginary line (or a real transect by using a string) from, for example the top of a hill down to the beach of a lake or across a steep river valley. At even distances along the line explore the flora and compare the size and appearance of the plants.

Reflection: all these methods are suitable as a starting point for thinking about why the plants look and spread as they do. Later the finds can become pieces of art at home on the wall.



talk about a windy spot, a lee side and snow patches where snow lies for a long time.

Plants that occur in the windy spot are able to survive the freeze drying of the winter and the thawing and re-freezing of the spring, as well as the washing away of the soil. The lee side has a snow covering during winter but a relatively long vegetation period. The snow patches can be snow-covered right into July – August. In the most extreme places only certain mosses can survive.

Many lowland plants can also be found on the bare mountain. Often, they are smaller and have a low way of growing. Sometimes the adaption to the harder climate has gone so far that the plant doesn't even bother to make seeds, but has growth nodules that grow directly on the mother plant. Instead of seeds it spreads and multiplies vegetatively. The alpine meadow grass (*Poa alpina*) is an example of a species with such adaptive reproduction. Other adaptions are for example the pincushion plant's (*Diapensia lapponica*) tufts that resist drying out due to the strong winds. (Compare with when we are out in the wind, we often creep close together). The hairiness of the *Hieracium alpina* and the thin inward facing needle-like leaves of the crowberry stop evaporation.

The middle mountain landscape

The middle mountain landscape lies between 1400 -1500 m above the sea level in the southern part and 1100 - 1300 m above sea level in the northern part of the mountain range. The transition from low mountain landscape to middle mountain brings with it a harsher climate Many of the plants from the lower mountain region grow here, but bilberry bushes, dwarf birch and willow are missing. The plant cover is no longer continuous and there are fewer species.

The glacier buttercup (*Ranunculus glacialis*) is one of the characteristic plants. It represents a fantastic adaption to the short growth period. In the first year it grows from seeds to have only a couple of heart-shaped leaves. During the next few years only individual leaves are added until one summer, when the

flower quickly develops and produces seeds.

The high mountain landscape

The high mountain landscape starts at about 1300 m above sea level in the North and 1500 m in the South of the mountain range. The high mountain areas are dominated by snow and ice. The vegetation periods are often only one month. Here you can find about 20 different species of flowering plants. Lichens and moss are dominant. Dwarf willow (*Salix herbacea*) is the most important species up to about 1600 m above sea level. It's roots are bigger than it's above ground foliage.

Sometimes you can see a light red tinge at the edges of the snow fields. It is a green algae that's called *Chlamydomonas*. It can survive despite freezing temperatures

Few animal species can be said to be at home in the middle and high mountain regions. Most breed further down and only spend time there when they are looking for food. The snow bunting (*Plectrophenax nivalis*) is one of the birds that can be found at high altitude. You can even find it in boulder fields.

Geology

The mountain geology is special as it's so clearly affected by weather and the wind. Stone rings and stone ditches are created in the water rich grounds that sometimes freeze solid and sometimes thaw during the spring. In this way stones are lifted up to the surface. On sloping ground the very wet earth loses its grip and slides. Landslides are most likely to occur when the ground frost melts and this gives the slope a wave like pattern.

Opaque and blue coloured meltwater indicates that there is a glacier upstream. This water contains finely ground rock particles that cloud and gives the water its colour. If you need to wade over such a water course then do so in the morning when the snow melt is less and the water level will be at its lowest.

The Sami

As soon as the ice receded

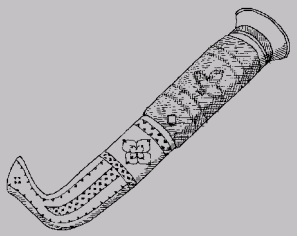
The first colonisers of the mountains were the Sami. It is believed that they moved there as soon as the area was free from ice. New archaeological finds mean that Sami history is re-written making it both longer and richer. The oldest text where such a group of people is mentioned dates from 90 A.D. There, the Roman Tacitus writes about a wild hunter people, Fenni, that lived North of the Germanic people. In year 550 A.D. the Sami were called Skrithipinoi. The name

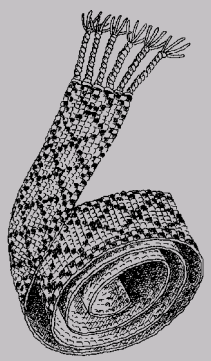
A pretend Sami

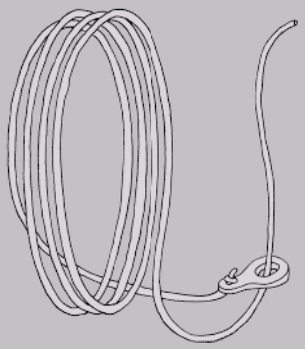
(about Sami inspired handicraft and making it yourself)

Sami are skilled at handicraft – something we can be inspired by. In an ironmonger or from different catalogues you can buy a knife blade (if you don't make it yourself of course). Then it's just a matter of working with horn, wood, leather, birch bark etc. To weave a band is also an enjoyable handicraft. Buy or make a rigid heddle loom.

Reflection: good handicraft requires good guidance and the right tools. An arts and crafts teacher is a natural source of knowledge.







Easy catch...

(about making and throwing a lasso)

For making a lasso you need a stiff rope for example a tarred rope, or the more modern but far from natural plastic clothesline. Make a sliding loop (in Sami called a "giella") of bone or wood and tie it as shown in the picture above. Before throwing, coil a large amount of the line in your hand. Then take the end and throw your coils making a large loop, that hopefully gets caught around the target, for example a tripod or a tied up horn. To finish off the exercise: gather the group and talk about how the Sami people live today. Make time to practise some Sami words that you can recognise when you look at the map of the mountainous area.

Reflection: through trying to throw a lasso yourself you realise that it's not as easy as it looks. It can result in a desire to try different techniques and generate respect for those who are skilled in its use.

comes from an old Nordic word for skiing. To start with the Sami lived on hunting wild reindeer and fishing. As a bait for their hunting they used tame reindeer. This formed the basis for today's reindeer herding.

When the tame reindeer herding started to develop the Sami developed a partly nomadic way of life and moved regularly between the high mountain, where the reindeer were kept in the summer, and the forest landscape, where the reindeer were protected and more easily found food during winter. During the mediaeval ages the Sami had to pay taxes to the Birkmen who were tradesmen and tax collectors from the region of Birkala in Tavastland in Finland. Later, they paid directly to the Swedish state through a Lapp factor. People then moved in from the South and there was competition, mainly for the forest land.

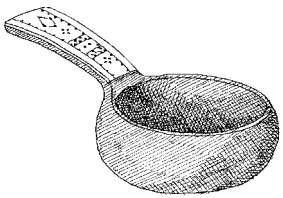
The pre-Christian religion of the Sami was characterised by a large number of Gods. Nåjden was the man that deciphered the God's wishes. During the 1600s the priests from the coast forced the Sami to change religion and become Christian.

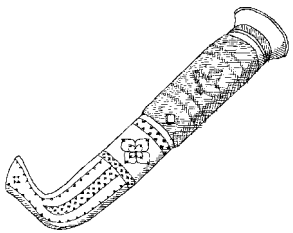
When you read the map you encounter many Sami names. A small word list is given below explaining some of the most common words:

alle, alep	west, westerly
alemus	most west
ape	large bog
jaure, jaur, haure	lake
jåkka, jåkkå	Stream, river
jägna	glacier
kaise	pointed mountain top
kaska	middle, in between
luokta	bay
luspe	source
pakte	cliff
passe	holy
stuor, stuorra	large
tjårro	mountain plateu
årjep	southern
ätno, ädno, äno	mountain river

The Sami people today

Today the Sami live in Sweden, Norway, Finland and Russia. The language consists of a large number of dialects that can be split into three main groups South Sami, North Sami and East Sami. The border between the first two is near Arjeplog. The Eastern Sami dialect is not spoken in Sweden. The South Sami dialect is considered to be one of the world's most difficult languages!





Did somebody tell you
that we live in Sami land
Said he
that this is Sápmi
He also admitted
that this is ours
He didn't talk of
a primitive culture
with simple people
nor did he say
that they came here with light

NILS-ASLAK VALKEAPÄÄ
(Loosely translated)

Today, only a few Sami are involved in reindeer herding in Sweden. The reindeer are semi-wild and can roam freely for much of the year. From having been a transport, milk and slaughter animal the reindeer is today only used as a slaughter animal.

Traditional Sami handicraft is flourishing and is passed on by many artists. Reindeer horn carving, silver thread embroidery and band weaving are the most common forms of handicraft.

Space for all?

Tourism

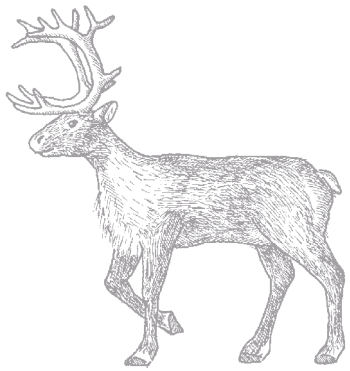
Nowadays many people want to be in the mountains. Tourism means that the permanent residents have a chance to remain. It brings income through cabins, lifts, walking trails and other means, providing necessary employment opportunities. But there may also be adverse effects, such as litter and dispersed herds of reindeer. For the sake of tourists many villages have been extended, but during long periods they stand empty.

Through large-scale technological development we can now regulate rivers and construct giant dams. We can build roads deep into the mountain region and, through mining re-shape whole mountains. Many job opportunities have been created but at the same time large areas of Sami reindeer grazing land have been destroyed. The fishing in many mountain waters and the relatively untouched landscape, unique to our part of the world, is in the process of being extinguished forever.

How do we protect the "wilderness"?

In order to protect the "wilderness" national parks and nature reserves have been created. Sarek, Padjelanta and Stora Sjöfallet are examples of national parks in our northern mountain region

Restrictions and laws concerning roads, forestry and mineral extraction attempt to limit exploitation in these areas. Tourism is also managed by information and by channelling, for example the 400 km long Kungsleden, where along the trail there are tourist stations, cabins and kåtor (Sami wigwam).



The wild hunt for reindeer

(about a game where you need to be fast)

Once a year the Sami people mark their reindeer. The reindeer are herded into pens where they run around, until selected animals are caught using a lasso.

Two of the participants are Sami people, the rest are reindeer moving in an enclosure. The Sami people have a tree each as their "home tree". Now the Sami have to gather as many reindeer as possible by tagging them. The reindeer/participants have to watch out and avoid being caught by the Sami. When the reindeer have been caught, they are taken to the "home tree". The aim is to catch as many reindeer as possible. When there are no more reindeer the different players count their reindeer. The Sami with the most reindeer is the richest. When the game is played again those who were caught "first" become Sami.

Reflection: this game is good if you are cold and need to move. Everybody is active, even those standing by their home tree cheering.

Characters

Norwegian angelica

Norwegian angelica (*Angelica archangelica*) is a much loved mountain plant, that can grow to be up to 2 m tall. The flowers are pale green and sit in a round clump. They thrive on damp land. The shoots are rich in vitamin C and can be eaten raw or boiled in bullion. The stalk can be peeled and eaten raw. The angelica was considered in mediaeval times as the only cure for the plague when it occurred in Europe. It was also used to promote libido. Angelica was hung from the ceiling to spread a pleasant smell and to combat clothes moths and lice.

Alpine blue-sow-thistle

Alpine blue-sow-thistle (*Lactuca = Cicerbita alpina*) is a northern tall herb with violet flowers. In Norway it's called wild rhubarb and it is eaten raw. It's bitter taste disappears if the stalk is allowed to wilt. The peeled stalk of the alpine blue-sow-thistle is eaten by the Sami as a raw salad. The Sami speciality "Gompa" has alpine blue-sow-thistle as a main ingredient, brewed and spiced with Norwegian angelica and mountain sorrel. The stalks can be roasted over the fire and you eat its insides. The leaves can be used in salads and as sandwich filling. Dried leaves were used in former times as tobacco.

Northern wolfsbane

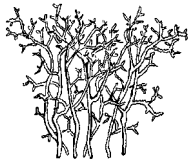
Northern wolfsbane (*Aconitum lycoctonum ssp. septentrionale*) is one of our most poisonous plants. The saying goes: God wanted all flowers to be of happiness for humans but Satan didn't like that. Therefore, he tried to poison them with his gaze. God then let a wind blow and all the plants bent that their flowers to protect themselves from the evil eye. But the northern wolfsbane disregarded the wind and stood tall and mighty and was therefore touched by the gaze of Satan. Since then, the whole plant has been very poisonous. In former times it was used to kill everything from fleas and flies to wolves. The northern wolfsbane can grow to reach the height of a person. It grows in lush mountain valleys together with Norwegian angelica and alpine blue-sow-thistle.

Mountain sorrel

The mountain sorrel (*Oxyria digyna*) grows in damp places in mountainous regions. It's kidney shaped leaves contain vitamin C. Soup or marmalade made of mountain sorrel is very tasty. See the activity tip "mountain food" on page 166.

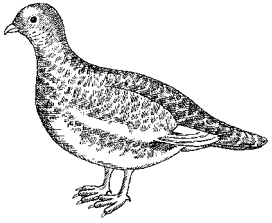
Reindeer lichen

Reindeer lichen (*Cladina spp.*) is, like all other lichen a double organism, consisting of algae and fungal threads. There are two main species, yellow-white and grey. Both grow on rocky ground in sparse pine forest and on mountain tundra. It can cope with complete drying out for a long period of time and can therefore grow in extreme environments. We find it in our walks throughout the country. When dry, it is very brittle but when it is wet it is soft and tough. In the northern part of Sweden this lichen is an important nutrient source for reindeer. The reindeer lichen has been used as a food of last resort for people as well as for making alcoholic spirits.



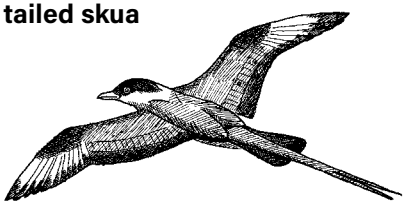
Rock ptarmigan

On the high mountain rock ptarmigan (*Lagopus muta*) can be found all year round. Before the bitter winter it changes its plumage from the summer grey brown to the white of the winter. Over the eye ptarmigan has a red ridge, the male also has a black eye line. Legs and toes are covered in feathers. To protect itself from the worst of the cold it digs itself down into the snow. It's diet consists of crowberry (*Empetrum nigrum*), alpine bearberry (*Arctous alpine*) and different types of seeds and buds. Eggs and young are protected by the female acting as if injured, crawling along the ground dragging her wings to distract the attention of the intruder.



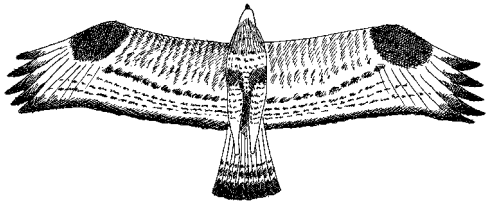
Long tailed skua

An elegant and quick gull-like bird is the long-tailed skua (*Stercorarius longicaudus*). It has a pathetic meowing and whinging sound. Older birds are easily recognised by their pointy, enlarged middle tail feathers that are more than twice the length of the tail itself. The eggs are laid directly on the ground. Their diet consists of lemmings and fish. During years when lemming numbers are low they don't breed at all.



Rough legged buzzard

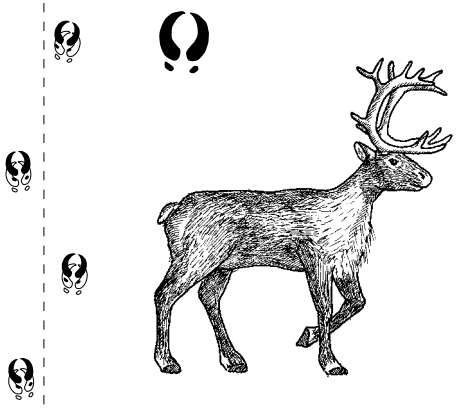
The rough legged buzzard (*Buteo lagopus*) occurs throughout the mountainous region. As you wander over the fells you will be followed by it's haunting call, a drawn out "meow" sound. It feeds on lemming, other small rodents and bird chicks. The nests are built on cliff ledges or high up in trees. It can often be seen hovering in the air with quick wing beats as it searches for it's prey. During the winter months it is sometimes found in the South of Sweden.



Norwegian Lemming

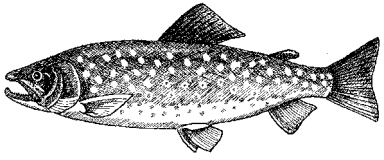
The little gnawing Norwegian lemming (*Lemmus lemmus*) is speckled in several colours like a hamster and is probably our oldest Nordic mammal. The Norwegian lemmings are also called the "lice of the devil". The lemmings multiply throughout the year (even in winter if conditions are favourable) and have on average 6 litters per year. In some years they increase in number explosively and create a mass walk – "a lemming train". They feed of grass and mosses but are themselves important food for predatory birds and mammals.

Reindeer



The reindeer (*Rangifer tarandus*) is the only deer where both the male and the female have horns. The horns on the male are larger. The reindeer bull is called Sarv, a reindeer oxen is a castrated reindeer bull and he's called Härk. Another name for the reindeer cow is Vaja. The härk used to be used as a towing animal. Their most important food is reindeer lichen and iceland lichen, which during winter is dug out from under the snow, as well as the fishbone beard lichen (*Usnea filipendula*) from trees. In summer time the reindeer eats grass, herbs, willow and mushrooms. In the winter it goes down to the lowlands. When mosquitoes and blackfly are irritating for the animals, they return to the higher regions where there are no mosquitoes. The reindeer has always been a useful animal for humans. It is not only provided food for the table but also materials for clothing, household goods and other useful items. Even today the reindeer farming is of great importance for the income of the Sami people. On your next mountain hike be sure to include dried reindeer meat in your pack!

The arctic char



A fish that has always been of great importance for mountain people is the arctic char (*Salvelinus alpinus*). It is glittering silver with olive green and pink shades. When it's fertile it's back and sides are dark green brown, the underside is yellow-red or blood-red. It's thrives in the clean, clear and cold water often found in mountain lakes. The arctic char leads a wandering life and is often found in shoals. Its food consists of plankton, insect larvae and small animals. Larger char also eat small fish. In the winter people are drawn onto the ice for fishing. By looking down through the ice you can see when the arctic char is there and be ready when it bites.

Suburban friluftsliv

– About the cities as a landscape and a friluftsliv environment

BY MATZ GLANTZ, PATRIK GRAHN AND PER HEDBERG

From countryside to urban life

The importance of relationships with nature

Regular contact develops a relationship between people and nature. Such a relationship has always existed, but it has changed over time and looks different in different cultures and in different societies (see Chapter 2, Page 29, "From a natural life to friluftsliv").

An important change in our relationship with nature occurred during the relocation from farms and farming land to indoor work and cities. Recently, much of our relationship with the world has been increasingly affected by different types of mass media. Nature programs on television do not develop the same relationship as a walk in the forest. Beautiful nature books and inspiring digital media do not develop the same relationship with nature as a swim in the early morning in the dark forest lake on a sunny summers day. The relationship with nature is about activating different senses whereas today's communication channels are usually limited to the senses of sight and hearing. The relationship is also about the memories of the things we have done, often together with a good friend or a relative. Last but not least, it's about feelings, that have built up in our everyday happenings, impressions and stories, where nature can retain some of the mysticism and history that it has in our culture. Our contact with nature changes and this has consequences for what we do and how we think. It is therefore important to protect the qualities of nature and natural environments that exist in urban areas and work so as to enhance their size and variety. Hence, this chapter focuses on urban friluftsliv and the interaction between the city and nature. Firstly, through a general reasoning and considering research results. Secondly, with more practical illustrations and suggestions about the pedagogical role of green areas in cities and urban areas.

Parks, nature areas and green areas.

Long term studies by organisations as well as by individual users have shown that green spaces in suburban areas have many different functions and fulfil many different needs. These needs depend on which activity you wish to do and the atmosphere you're looking for; they could include smells, sounds, views and activities, as well

Find the history

(about the city, past, present and future)

Everything changes, even the environment in which we live. Many people have been dismayed to see their local forest or copse covered by an asphalt road or filled with high-rise buildings. To get a picture of how your area looked in previous times a historic walk can be interesting. You can often buy old postcards or get hold of old photographs (ask in a photo shop or a camera club). In small groups you go and search for the image on the postcard, describe where the picture was taken from and what it looks like today. In order to provide the right level of difficulty the teacher can supply a map with the locations of each picture marked on it. Take photos, make drawings or maps where the changes are obvious. To be a detective can include finding someone who lived when the picture was taken to make the whole thing extra exciting. The changes and also the future can be discussed afterwards. With nature material you can also build your vision of the future.

Reflection: the winds of change blow quickly and this is a way to stop and look back in time. Apart from documenting the place you can also find out how every-day life once looked.

as experiences based on Sagas and history. All this can be considered under eight main headings or characteristics that return again and again when people are asked about what they appreciate when it comes to the functions and appearances of green areas:

1. **Wild** – that could be about appreciating and finding self-seeded bushes and trees, or that you guess that the path you're walking on is as old as time. There is humility and mysticism in this characteristic.
2. **Rich in species** – here you have the chance for example to discover the first spring flower, find mushrooms in the autumn, see a small tortoiseshell butterfly (*Aglais urticae*) or hear a nightingale (*Luscinia luscinia*).
3. **Space** – here you can enter into another world, separated from the hurry and stress, and thereby have time to immerse yourself in your own thoughts and forget that the green area finishes only 30 m away.
4. **Play** – in this place there is space for the children of the city, where they can learn from their mistakes, explore and try as well as change the physical environment somewhat: maybe by damming water in the stream or building a den without having to be afraid of the traffic or the disapproval of adults.
5. **Open plane** – a flat grassy area, a pasture in the city. This type of place has existed and been appreciated in our culture throughout history. Previously courts and markets happened in such places, today maybe there could be kite festivals, ball games or flea markets.

6. **Peaceful** – a place where you can hear the sound of nature: the singing of a bird, the rustle of leaves in a transient breeze or your own breathing. It could also be a place where you can get away from the "visual noise", from litter, untidiness, advertisements or signs.
7. **Social** – a place in the green where you can visit a café, listen to music or watch people who are relaxing and playing.
8. **Culture** – can be about finding sculptures in the park or a well-kept rose garden. In another green area it could be a ruin or the grounds of an old house. It could also be a visit to a graveyard full of atmosphere. All of it seems to be about an area containing mysticism, history and folk-lore, linked with the characteristic "wild", No. 1.

Well planned parks can contain many of the above qualities at the same time, thereby achieving many functions for different age and interest groups. Surveys have shown that when a city is well equipped with parks, green areas and nature areas with the above characteristics, people generally choose to be out in these areas, which can be beneficial for public health as well as improving knowledge of nature. People in institutions such as schools, hospitals and pre-schools that have their own nature areas, are happier and more often outside than those that don't have this opportunity. Good city planning and provision of parks, gardens and natural areas leads to an increased use and appreciation of the outdoors.

People of nature, view of nature and garden therapy.

Many people experienced in the outdoors consider that if you regularly spend time in nature then you will develop a positive relationship to everything living. Such a relationship leads to an interest in protecting natural processes and diversity – you don't harm what you care about. This theme is extremely topical when it comes to recent research in psychology and garden therapy. In these fields, theories developed by Harold Searles are based on this belief. He claimed that those who are affected by psychological trauma need a route to return to health. This, he claimed, can occur if people have a chance to experience nature – processes and occurrences – that place reasonable demands. This can be expressed as a friendship relationship. The things that promote the least anxiety, aggression and frustration are stones and water, then trees and finally animals. A stone cannot place demands, cannot run away or let you down. It can only be there, natural, as a reassuring anchor point year in and year out, rain or shine.. A rabbit can escape, it can also die, but it cannot place blame, belittle you, apply double standards or lie. The way back to health is about finding a way to find yourself and your new role after the crisis. The easiest way is if you have a relationship with a stone, after this an individual tree in the forest, then a relationship with a garden and finally with an animal. Only after this can you make contact with human beings, especially those who make big demands.

Nature smells

(about finding different smells)

Go out in pairs in the local environment to find different smells. It could be something that smells nice or really bad. What does earth smell like, freshly emerged leaves, exhaust from the traffic, vegetables from the market or the sun-warmed wall of the school? The couples come together afterwards to talk about the different smells and together visit places that are extra exciting.

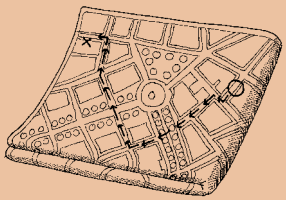
Reflection: by concentrating on smells you get a different experience than when you use all your senses at once. To feel the scent of a rotting mushroom or the plants in the park gives new experiences. You also practise explaining smells using words, which isn't always so easy.

City hunt

(about navigation training in the city)

At the local authority office there will be city maps showing roads and buildings (they can also be found digitally). Get some for the group. They can be used for different orienteering exercises such as looking for the secret treasure by following a drawn in route. You could also find different clues in marked places leading to the treasure. On another occasion it could involve finding an area that's been drawn on the map and when you return explaining what can be found there. With a map in the hand head out for a nature hunt and in a certain area draw in a number of natural phenomena. They could be a large stone, a birch by the school, an ant trail outside the shop etc.

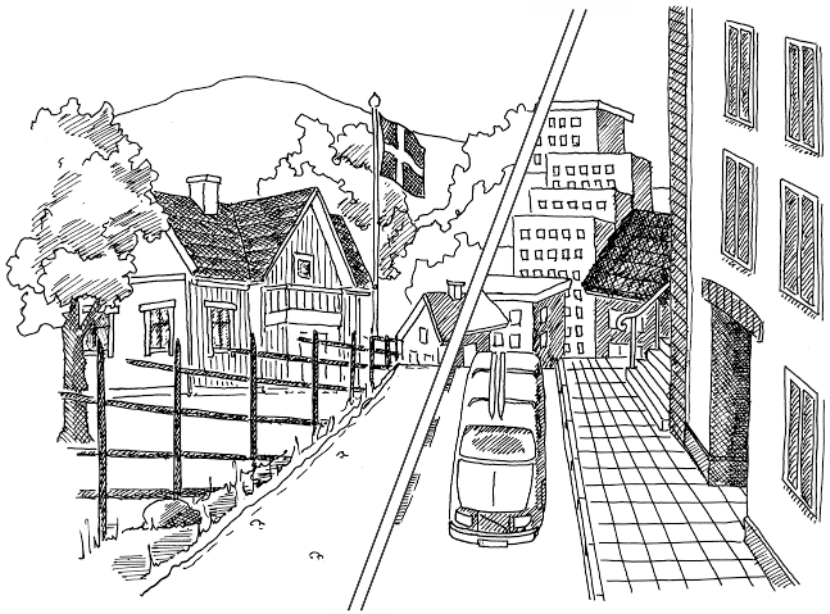
Reflection: in order to learn to translate a map to reality different types of training are required. It could be to follow a route on the map or to draw it in yourself. It is by practising in the local environment and translating the map from abstract thoughts to reality or the other way round that you will be able to use the map when you are in unknown terrain.



An interesting question is the extent to which this "friendship relationship" with nature is genetically driven through the evolutionary development of people in natural landscapes. At the same time however it is clear that the love of nature in our society is also, to some extent, a cultural construction –for example connected to holidays and relaxation. (See chapter 2 page 29).

To overcome an obstacle

Distance from the natural landscape is in itself a hindrance for friluftsliv and contact with nature, but there are more. Most people experience lack of time as the largest obstacle when it comes to getting out. Studies show that when an outdoor area is less than about two minutes away from the home then people will use it in their everyday lives. This means that time and distance are intimately connected. Town planning should strive to limit distances and increase accessibility between the home and the nature as far as possible. Many people think that they don't have enough time to do outdoor activities lasting more than half an hour, and absolutely not those that must be planned! For these people an increased distance to nature is even harder to handle. But when these people do get out and experience regular visits to nature, many of them want more. It may be as little as improving the area around the housing so that it's more attractive or that the children's school grounds are so exciting that the children pull their parents out of the house to play there. When everyday use



increases it leads to a greater demand for outdoor activities. A couple of hours in the outdoors is then no longer too much.

Others, but nowhere near as many, feel that they don't have money for an active free time. Probably many of these have been led astray by adverts and marketing in the belief that friluftsliv costs money. Naturally, nature is (still) free and being there for a short amount of time doesn't need any special equipment. However, economy plays a decisive role for all those working with children. Overtime pay, tight budgets, conservative organisations and the priorities of other fields generally present problems for many who wish to work with environmental and outdoor pedagogics.

All these hindrances can be addressed or overcome. There are more and more positive examples where involvement in caring for the qualities of nature and for an increased contact with nature occur. School forests, nature schools, nature rooms, friluftsliv areas, living playgrounds, living school grounds and protected nature areas are continuously developing and form a basis for meeting with nature. With today's communication techniques it shouldn't be difficult to spread experiences that guide other people to engage with nature, not only nationally but across the world. This could be done by considering school playgrounds and pre-school surroundings as teaching materials with similar importance as books and sports equipment.

Children must get time and space to explore environments in their own way. Experiences using senses are for the child the gateway to reality. A rich and varied catalogue of sensual contact with the environment lays a good foundation for the inner development.

FREDRIKA MÅRTENSSON

The nature of the city

The possibilities of city nature

Nature can be found closer than many realise. The plantations in the shopping mall, the trees along the pedestrian route, the river that runs through the city, the gardens and parks are examples of nature that many meet daily. At a first glance you may not see all the possibilities there are, but with the help of imagination and ingenuity you have the chance to practise outdoor techniques and enhance your feeling for and knowledge of nature.

You do not have to travel to Timbuktu or the Himalayas for experiences – nature exists around the corner!

TORD S. ERIKSSON

Trees in the city

The first things that come to mind when you think about nature in the city are the trees. There are often many different tree species since many are planted (this varies in different parts of the country). Birch (*Betula*

The tree recognising professor

(about knowledge of trees)

The professor of trees has come to the city and he's on a tree hunt. The members of the group are experts in gathering different leaves. They could be from species of different trees or leaves with different colours. The aim is to gather as many as possible and find out from which tree they come. Feel if they are soft, hairy, smooth or rough. With the help of the professor you can later identify them by looking in a book about trees. Save two leaves from each tree by fastening them with plastic film onto pieces of card. When you have enough you can play tree memory with the cards. Another activity is to make a leaf mobile: dip the beautiful leaves in melted paraffin (a jar of paraffin heated in a water bath so that the paraffin melts). Hang the leaves with a thread from a twig to make a decoration in the room. Painting colour on the back of a leaf (where the veins are thickest) and then pressing them onto card (for a postcard) or onto materials, you make nice leaf prints. Split the group into pairs. The pairs stand back to back. One will take out a leaf from his pile and describe what it looks like (and maybe feels like). The other has to guess which leaf it is.

Reflection: through working with leaves you discover both colour and shape. It is also a way to learn the characteristics of the leaves so that you can recognise them when they grow.

Dried rings

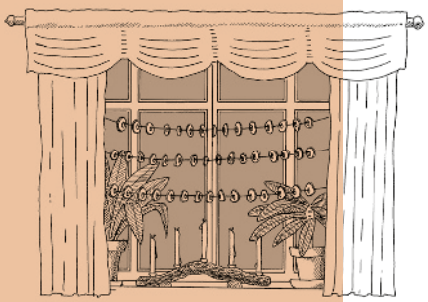
(about drying apples and making apple soup)

When apples and pears are ripe it is time to lay down supplies for the winter. There are many garden owners who will happily share their fruit if you ask them. The fruit is cut into slices and placed in a warm, airy place to dry. Alternatively, you can hang the rings on threads. The winter excursion apple soup will taste extra good.

Apple soup:

1 L of water
75 g dried apples (two handfuls)
equals 500 g fresh apples
one cinnamon stick
3 tablespoons sugar
2 tablespoons of potato flour

Boil the water and add the dried apples when the water is boiling (not earlier) as well as the cinnamon. Let it simmer for 10 minutes. Add the sugar (or honey). Stir the potato flour in a small amount of cold water, add to the soup and let it boil again. When the soup has cooled it is time to enjoy!

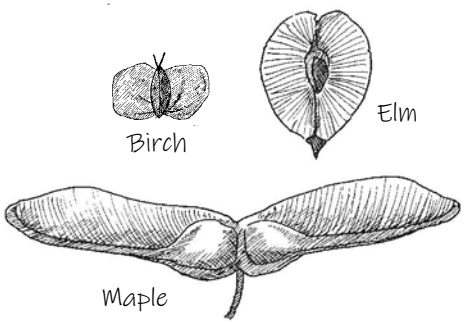


spp.), norway maple (*Acer platanoides*), rowan (*Sorbus aucuparia*) and oak (*Quercus spp.*) are trees that many recognise, but in the city small leaved lime (*Tilia caudata*), wych elm (*Ulmus glabra*) and chestnut (*Castanea sativa*) are also common.

There are many exciting things that you can learn about trees. You can, for example, adopt your favourite tree. Throughout the year you can then follow what happens, from the first buds to the falling of the leaves. How much does it grow in circumference in a year? Which birds sit in the tree? Are there any insects, any larvae? What does the tree experience during the day and the night? Have a party when the first leaf has emerged! By following a tree over time, the interest grows and you will observe many changes. If the landowner allows (normally the parks organisation or the house owner) then you may even be able to plant your own tree to follow.

Spread by the wind

The spreading of seed by different plants can get our seemingly lively fantasy to seem very dry. The trees have solved this in many different ways. Nearly all release their seeds to fly or hover to reach new places. Some sail away on their own small wings (birch, elm), others simulate a helicopter (lime, maple) or wool (aspen, willow), that the wind carries. Try and find out how different tree seeds fly. Trees that don't spread with the help of the wind are for example chestnuts and fruit trees.



Lawns

Lawns generally include grasses that can withstand being cut often, so we don't see so many other plants. In some places you can find a so-called fairy ring. These are fungi, often fairy mushroom (*Marasmius oreades*) or Clytocybe that smells like bird cherry (*Prunus padus*) growing in a ring. Due to the way the fungal mycelia grows the ring will widen over time.

The city is really not a place where you would expect to find many different plants. But if you look around on park walkways, between stones in the square or along the bottom of houses you soon find that these areas have their own flora. Examples of species that can survive are broadleaf plantain (*Plantago major*), german chamomile (*Matricaria chamomilla*) and prostrate knotweed (*Polygonum aviculare*). The knot weed is one of the most common plants in the city. It spreads on the ground and the lawnmower cannot reach it. It can stand heavy lorries driving over it. Outside the city it doesn't have this way of growing and is more similar to the bilberry plant. The seeds are a delicatessen for sparrows.
Another of the cities flowers is the dandelion (*Taraxacum officinale*). It doesn't only grow in gardens, but has an ability to push through the asphalt and come up in the most impossible places. It is often called the flower of asphalt. Why not go on a dandelion safari and look for the largest dandelion or the one that grows in the most unlikely place.

In the foliage the busy twittering of the house sparrow (*Passer domesticus*) can often be heard. They are easy to study at close hand. The male has a grey head and a small black bib. The female and the young are brown and grey. The house sparrow is easy to mix up with the Eurasian tree sparrow (*Passer montanus*). A sure sign is that the tree sparrow (both male and female) have a brown head and a small black fleck on each cheek.

Water

If there is water or a lake nearby you can be sure to find birds all the year round. The mallard (*Anas platyrhynchos*) is nearly always found in the surroundings. Normally the mallard is a frightened bird that commonly breeds by small lakes and in protected waters. But in the city it shows a totally different behaviour. Here it has become so used to us that it happily comes to be fed.

Exciting observations can be made throughout the year by the water! Here you may have the chance to study tadpoles, dip a net for small invertebrates and larvae and in some places even fish, which involves concentration, awareness and patience.

Creatures great and small

If you are an early riser then besides cats and dogs you may see roe deer (*Capreolus capreolus*), hare (*Lepus europeaus*) and European badger (*Meles meles*) in the city. The red squirrel (*Sciurus vulgaris*) is a spirited animal that often becomes so tame that it sits and begs by the outdoor restaurants in summer. The European hedgehog (*Erinaceus europaeus*) is attracted to the leaf piles in gardens to hide and hibernate in during the winter. In the summer you can see it here and there as it eats worms, snails, insects and frogs.

The city's smaller creatures are amongst

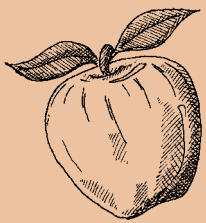
Reflection: to dry the fruit yourself (everything can be dried) gives an a-ha experience as it is so simple and tastes so nice. If you make your own fruit mixture it becomes extra exciting. Apart from knowing what you dry it's also a way to save money. Calculate how much your own soup costs and compare it to the price in the shop.

Apple sweets

(about frying apples)

Remove the core and cut the apple into thin slices (one apple per person). Fry the slices in butter. When they are soft add cinnamon and brown sugar (the sugar makes them crispy). Can be eaten directly or together with lightly whipped cream or ice cream. Chopped almonds or nuts make it even nicer. (Remember to consider allergies).

Reflection: this dish can satisfy the sugar craving that comes when you are outdoors. It is simple to cook apples but first they have to be cut and that means that everybody can help.



Hope for the springtail

(about looking for small animals in the ground)

In the earth beneath a large footprint (size 44, down to 10 cm depth) you can typically find five earthworms, 75 spiders, 150,000 threadworms and many other animals. An outdoor activity based on this can be done in the following manner:

You will need a white surface (a tablecloth or an old sheet), spade, magnifying glass, small jars. Give the members of the group the following names (a maximum of seven participants in each group): springtail, earthworm, spider, woodlouse, beetle, ringed worm, millepede. Also, give them a picture of what their animal looks like. Each group digs in the earth and places the contents onto the white surface. The aim is to find "yourself" (the name you've been given). But watch out! The springtail is quick and disappears fast. With a magnifying glass you discover which wild animals you've caught and how many strange small creepy crawlies there are. Because you start looking for "yourself" you concentrate on one thing which makes it easier to discover and also feel happiness at the recognition. When you have found "yourself" you show the others and help those who haven't yet found themselves. Don't forget to replace the earth and the animals when you have studied them.

Reflection: as each person looks for a special animal their eagerness to find it is also awakened. Using a magnifying glass you discover

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others the ladybird (*Coccinella septempunctata*) and the not always popular earwig (*Forficula auricularia*). In warm damp areas you can find earwigs whose back ends are like a pincer and is used as a weapon of defence. It used to be thought that if you lay and slept on the ground then an earwig would creep into your ear. But that is only a myth. However, it thrives in our letter boxes.

Lots of even smaller animals can be found underground. Every step you take, you step on many tiny animals. To dig in the earth and to see what you find, especially with a magnifying glass in the hand, gives new experience.

Play and learning environments close to nature

If children were to decide

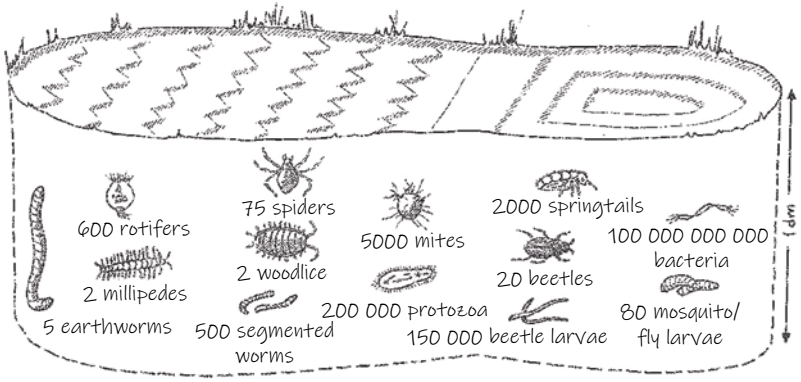
The way children play is greatly affected by their environment, and this in turn can affect their development. This applies both indoors and outdoors. Therefore, it is so important that we shape the environment so it invites different kinds of positive play.

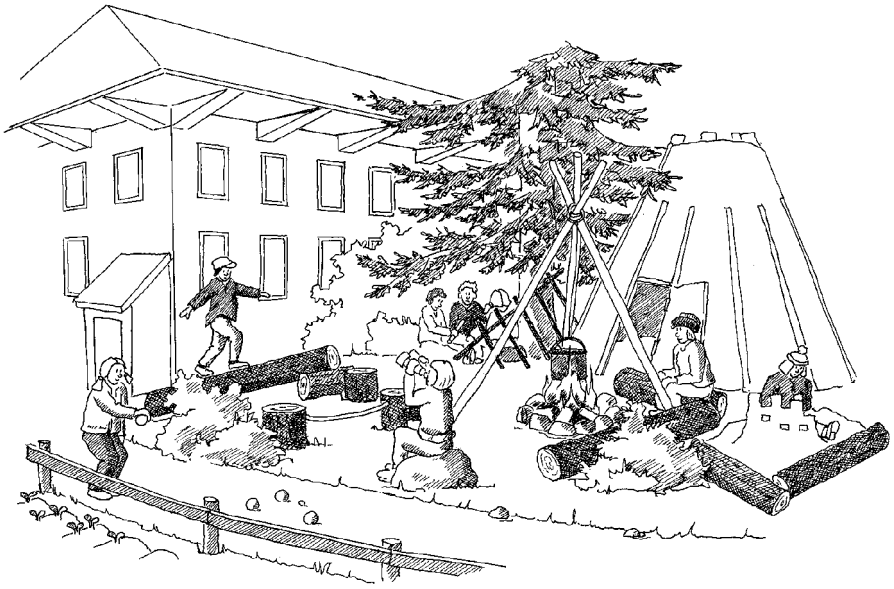
If children were allowed to decide over the school playgrounds maybe we wouldn't need to have any theme parks where parents have to pay an entrance fee in order for children to have varied play. Then children and parents would visit the school grounds even during the holidays.

EVA NORÉN-BJÖRN

In a hard and boring place where children are crowded and the environment is neither inspiring nor enables positive activities, the children group and rub against each other instead of having fun. Such an environment generates conflict and isn't nice for anybody. In the cities there are too many such areas, both in schools and pre-schools as well as in the housing areas. High quality play areas outdoors should offer:

- inspiration for positive and developmental play and companionship.
- space for all; for large groups, for small groups and for those who need to be alone.
- Regular encounters with nature, the larger the diversity the better.





Practical advice on how to do this can be found under "more inspiration" on page 258. There are also courses, advice etc, for example through the think tank MOVIUM at the Swedish University of Agricultural Sciences in Uppsala

Inspiration to play

Both standing and fallen trees invite physical play, as well as balance courses made of tree stumps, stones, trunks and rope. A slope provides the possibility of a slide if there is nothing dangerous in the way. For smaller children this doesn't need to be too big.

Nature also inspires role-play. Between the trees Robin Hood, the robbers and hunters play. Between the large boulders the trolls live and in the thick foliage families live in small dens with kitchens, sitting rooms and bedrooms.

The creative game is stimulated in two ways. Nature itself is creative, as well as offering exciting materials in the shape of twigs, cones, sticks, stone, earth, gravel, grass and others that can be used for imaginative creations. Miniature lanscapes are shaped by a pile of sand, cones become horses that compete in jumping courses made from sticks. Branches are made into pretend bows and pretend swords.

Room for all

With trees, bushes, plants, rockeries and imagination you can create large and small rooms in the environment. These rooms can have different characteristics and offer activity space for both the small and large group or be shielding for those who need it. A large advantage with nature as a play environment is that there is a lot of room. Children that have behaviour need for space and are therefore difficult indoors, can be in their element

those things that you cannot see with the naked eye. As a leader you need to be aware, as the participants are eager to show their finds.

Numbers or letters in the snow

(about practising letters and numbers)

The participants stand in line holding their hands on each other's shoulders. The person at the front gets a note with a letter or a number. The aim is to move forwards using small steps and make the letter. The rest of the line follows. This can be done in at least two ways: the person who has started to walk finishes the whole letter (with a line following), or when the first person has walked a small part, the line stops and the person next in line takes the note and continues walking. The person who was at the front reconnects to the back of the line. The change can for example happen when you sing a song and the song finishes, or at a given signal from the teacher, or when you've counted to 10.

Reflection: A way to use the snow, practise numbers/letters through working together as a group. To get an insight into different shapes.

in nature without disturbing others.

Comparative studies indicate that in preschools with more outdoor activity and contact with nature, play behaviour is positively affected (as well as having positive effects on physical health and motor skills, see chapter 11, Page 203, "Friluftsliv, health and quality of life"). The children can decide more for themselves about their games which also have a clear start and finish. Children disturb each other less and those who wish to be alone can do so. The staff don't have to intervene as often to resolve conflicts between children.

Good advice when it comes to both the shaping of green outdoor environments and children's games as well as other activities in such environments, is to think of the "four elements": water, wind, fire, earth. By trying to introduce these elements into the physical environment and letting yourself be inspired by them when it comes to different activities you promote learning opportunities with everything from the water wheel and photosynthesis to grilling sausages and growing crops.

Furthermore, the educational programme should contribute to the development of the pupils' interest in and knowledge of nature, technology and society, by giving them the opportunity to explore and pose questions on and discuss phenomena and relationships in the world at large. Additionally, education should provide pupils with the opportunity to develop knowledge of how the different choices people make can contribute to sustainable development.

CURRICULUM FOR THE COMPULSORY SCHOOL; PRESCHOOL CLASS AND SCHOOL AGE EDUCARE (LGR 11 (REVISED 2018)

The day trip

The distance to a more natural landscape means that you will need to travel to get there. Often you may want to go at short notice, without planning too much when the sun shines or when you just want to be outside. The simplest is to make a day trip or just go for a few hours. Previous experience makes this easier over time, however some advice is given here to simplify getting out.

The most important is to have all the kit in order, both your own and the group's, so that you don't have to look for rain clothes, ski wax, stoves , wellies, axe, life vests etc. If these things are easy to find and access, then you can leave quickly and easily.

When it comes to the food, then a day trip is also less complicated. You just bring what you find at home, or stop at a shop on your way out to get the little extras such as coffee, chocolate, sausage to grill or whatever you like. In the winter however there may be a reason to think twice, as some foods may freeze. It may also be a little more complicated to handle cooking outside so pre-made sandwiches with a warm drink in a thermos is preferable for many.

When working with children and outdoor groups it is easier if as much of the outdoor equipment as possible is communal. An outdoor store in a school or in a club, where everything you need is it easily accessible, simplifies things for all excursions in the local environment.

The school forest

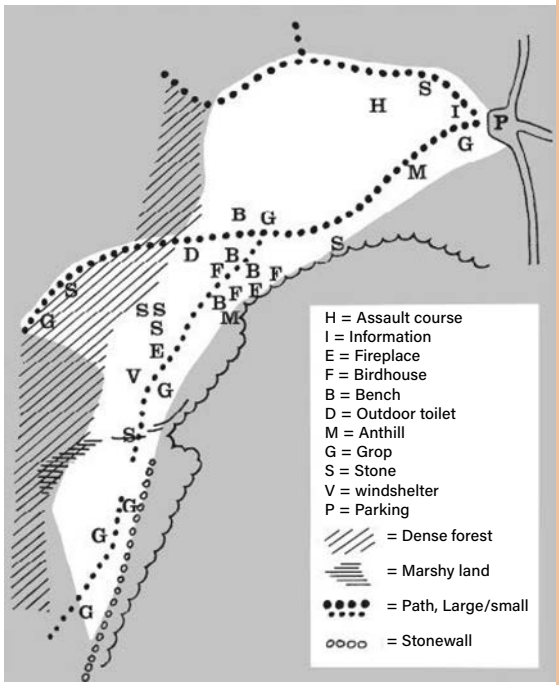
The forest is a natural environment with many forms of life. It is also a significant

nature resource and has since time immemorial played a large part in cultural development. Here you may find craft materials, such as wood, roots and birchbark (in agreement with the landowner) and here it's easy to find a place that is sheltered from the weather and wind. The forest also evokes mixed feelings. It could be either safe, cosy and protective, or dark, deep and frightening. Sometimes both at once! In other words, the forest gives endless possibilities for outdoor life, nature studies and adventure (see chapter 6 "deep forests"). Below Anna Malmström from the organisation "Skogen i Skolan", describes how you can create a school forest in cooperation with the landowner.

The school grounds

School grounds can be shaped so that they are usable both during breaks and during lessons. They can be planned for play, edu-

Forsen's school forest, Tidaholm



Natureseekers

(about gathering natural objects)

The whole forest is filled with valuable things. Some are more common than others. You have been selected to discover what exists there. To help you have a list of wanted objects.

The leader has in advance written down different natural objects on a large piece of paper: wanted! Birch leaf, spruce cone, moss, a cone partly eaten by an animal, a feather, an animal with six legs, a stone that is round, an acorn, seeds from a flower, something from a four-footed animal… each object also has a numerical value. Split the group into smaller groups. The participants now have a certain amount of time to gather as many objects – points as possible.

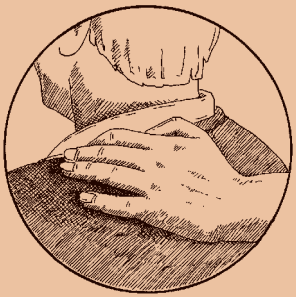
Reflection: this exercise can be run with all ages. If you work with smaller children instead of writing a list you could have gathered different objects as examples of what they have to fetch. For older people the list can be made more advanced and used for practising knowledge of species.

Forests as a learning environment

By leaving the school and going into the forest you access a classroom that enables teaching, experiences, movement, and play at the same time. To have access to a school forest creates a resource for continuity in outdoor education and becomes a safe place to return to. The idea with the school forest is that it should be used often and therefore it's a good idea if it is close to the school. Proximity to the school is more important than size, but it mustn't be too small that wear and tear becomes a problem.

At "Skogen i Skolan" we define "school forest" as a limited area that is available to the school for outdoor activity , in other words for both education and play. The school and the land owner make an agreement that gives the school the right to do a little bit more in the forest than what is allowed by the "Right of public access" (allemansrätten). This could be to build a wind shelter or a fireplace, mark paths or put up bird nesting boxes.

Many landowners are positive towards such a cooperation as they realise the benefits of



Robots

(about steering robots)

Split the participants into groups with three people in each. One is a machine operator and the other two robots. The robots starting position is back to back. The aim is that they should finish standing face-to-face. In order for that to succeed the machine operator has to steer the robots by tapping them on the shoulder. The robot walks in a straight line. When it gets a tap on the right shoulder it will turn 90° to the right and continue in the new direction. At the next tap it rotates again through 90° in the direction that the machine operator has specified using a tap on the shoulder. The machine operator may only give one tap at a time to the same robot. The aim is for the machine operator to be able to steer both robots at the same time in order for them to meet. After the meeting you at change roles so that one of the robots become a machine operator. This exercise is works well in snow.

Reflection: You have to anticipate how you should steer, run fast

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children and young people being in the forest and on the land. It is a good idea if the school has a continuous dialogue with the landowner who continues to look after the area in a normal manner. In some cases the school may be able to get access to the plans for management of the forest and may even be able to participate in the simple activities, such as clearing and planting.

Often one or a few enthusiastic teachers drive the school forest idea at a school. If you want to ensure that the work is sustainable long-term and doesn't depend on one person then it may be a good idea to involve the whole school and it's management.

Through Skogen i Skolan you can both get help with setting up a school forest as well as inspiration for activities. Skogen i Skolan have helped schools throughout Sweden to start school forests since 1982. On their website there is an agreement that may be used as a basis for dialogue with a landowner.

ANNA MALMSTRÖM
Skogen i Skolan

Skogen i Skolan was created in 1973 and is a countrywide organisation that works for spreading knowledge about the forest and forestry to pupils and teachers. Skogen i Skolan organise, among other things, inspiration days in outdoor pedagogics for teachers and help schools to get their own school forest. Read more at www. skogeniskolan.se

cation, meetings between people, health in the outdoors, relaxation, and activities stimulating all the senses. Such school grounds positively influence the pupils development and are at the same time a resource for both teachers and pupils during break time and lesson time. The schools around the country that work actively in developing their ground become such a resource. The work can preferably be done by the adults and pupils together.

Earlier in this chapter we described the importance of nature in a children's play environment. The school grounds are an example of such a play environment, as a child's need to develop through play are greatest during their school years. Nature studies in foliage, copses, school gardens, dams, pastures etc. enable an experientially based learning process, activating more senses than possible in the classroom. This type of learning can offer intellectual knowledge about species, biotypes, ecosystems etc as well as emotional knowledge which forms the basis for socialisation and affect pupils personal development, their view of nature, morals and values. The education authority highlights moral and ethical questions when it describes the aim of learning for a sustainable development:

Sustainable development is about questions concerning value, moral, human rights, democracy, participation, equality, ethnicity, power, societal conflicts of interest and our relationship with nature.

THE EDUCATION AUTHORITY`S THEMED PAMPHLET; LEARNING FOR SUSTAINABLE DEVELOPMENT

A school environment that enables nature studies and nature experiences is an excellent place for education that works with these base values in parallel with the traditional natural sciences.

To change or develop the school grounds can be both simple and more complicated, depending on different prerequisites such as the original design, topography, climate and staff interests. In some schools it is maybe best to start simple at the classroom level by planting a tree together or growing potatoes, whilst in other schools the process needs to involve all staff and pupils. To get full support for the work, irrespective of size, it is helpful if the school management and staff decide together to use the school grounds as a room for learning. From this common starting point you can work together to develop the outdoor environment with the same priority as other classrooms.

School gardens

In the first Swedish curriculum of 1842 the school garden was described as a place for "education in tree planting and garden care". In today's curriculum there is no direction as to where the education should happen, it's up to every school and teacher to decide on their own teaching environment. Petter Åkerblom in his thesis "The garden in the school – the school in the garden" shows the possibilities for using the school garden as a teaching environment. Below he gives us a picture of how a day in the school garden might look.

Play Safety

When planning an environment for play it is important to know which rules and regulations apply with respect to childrens' safety. Within local authority management there are always experts who are responsible for

Increasing educational quality

On a warm sunny october the pupils pour out into the school grounds. Blankets, cardboard boxes, skateboards, wooden cars, trolleys and prams all appear. Now it's going to happen, the great lifting. They are lying there. Large, harrowed and golden and now they are coming in! The children's eyes shine with excitement. 200 pupils roll up their sleeves and set off.

The golden treasure can be found in the school grounds and during the autumn term the students have been there many times to see how it goes. This is the second time just this morning. Earlier, they looked at how staircases, walls and other things in the way could create problems. They worked out different ways of transporting heavy things. Many hours were spent building different means of transport-with or without wheels.

and keep a check on both robots at the same time. The machine operator is guaranteed to get warm as he is chasing. How warm depends on the speed of the robots.

Friendship ball

(about practising different skills)

Rehearsing school work and revising knowledge can be done in many different ways. To move it outside the square room is one alternative. The group creates a ring. It helps to use a ball or a tied up knot that is throwing friendly.

Friends of 10: the ball is thrown to someone in the ring at the same time as you say a number between 0–9. The recipient then has to carry on with a number so the sum will become 10. The person who has got the ball should spin one 360° turn, throw the ball on and say a new number, for example: 4–6, 2 –8. The exercise can be made more difficult by for example adding up to 100. Multiplication or other mathematical functions can naturally be trained in the similar manner.
Apart from mathematics you can revise opposites: white – black, lazy – hard working, slow – fast etc. Vocabulary: Swedish word that the recipient has to translate to English or vice versa.

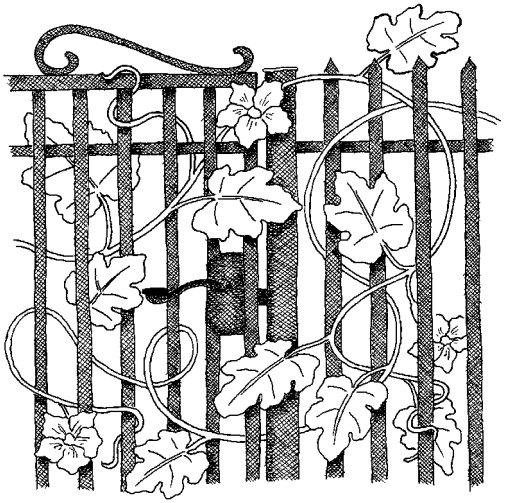
Reflection: Here you practise co-ordination, knowledge and movement. The exercise can be made with different levels of difficulty and be used to practise knowledge using the whole body.

Satellite navigated treasure hunt

(about geocaching)

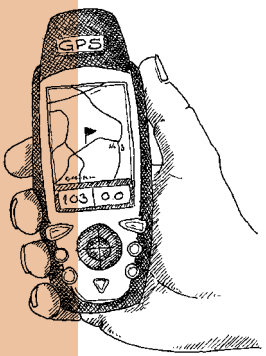
Geocaching is basically a treasure hunt using a GPS (positioning system using signals between satellites and a portable receiver). From the internet you get positions where somebody has placed a "treasure" (for example a box with small items). When the "treasure" is found you can exchange one of the objects with something you brought yourself and write in the logbook in the box. This it is reported on the internet homepage. Variations have been developed where you can, for example, find coordinates to the next cache or search for places where certain lines cross.

Reflection: Geocaching is one of many new trends within Friluftsliv with its clear international profile (many countries, quick spreading, English language), strong technical interest, playful challenges and with a competitive element. Satellite related navigation using portable receivers or telephones has become fairly standard and it's important to reflect over its pedagogic perspective. For further reading see for example the web page: www.geocaching.com.



There was no end to the imagination! Boxes were tied to skateboards, old dolls prams and boxes were strengthened with sticks, ropes and string in the most ingenious way to manage the task.

Now the children are there, by the fence. Inside, there they are, everywhere on the pink covering mat. Already early in the summer, when the children cut holes in the mat to put the plants in the earth, they understood that the weeds might have a chance to get the upper hand.



Lianas weave everywhere and the gate is so covered that it cannot be opened. Therefore, the pieces of gold have to be lifted over the fence. How should this be done? Many children are pulling, shoving and breathing heavily.

In the midst of the children there is a man watching. This formerly solemn man who, year after year, only did was what was expected of him. Never had he expected that on this day he would be standing here feeling so happy! Wasn't it him who was the reason for all this? That day, the other year, they stopped him when he was cutting grass to ask for help? They needed him, they said. Not for the usual job he normally did. No, this time it was him and his muscles they wanted to use – and of course his machinery. He still remembers when the mown grass disappeared beneath the screaming iron blades and how the stable's strong smelling manure was mixed into the earth.

He had of course debated with himself many times how it actually came about that he did this for the pupils despite having other things to do. But it was of course that his new boss had reacted with surprise when he said something about the school wanting a pumpkin jungle. "Sure they can" the boss has said short and sharp. And now, afterwards, when you can hardly get through with the lawnmower anymore, his thoughts go in a totally new direction. How can children survive in the school grounds when they don't have these possibilities? And without us who have the know-how? Just imagine a machine driver almost feeling like a teacher.

He's woken up from his thoughts when some pupils go by dangerously close with the most

incredible construction he's ever seen. Everywhere there are pupils and pumpkins on the way to the classroom – even the headmaster is there.

The task was as usual to get the crop to the classroom without carrying the pumpkins in their arms. As soon as everyone has got in the teachers gather their pupils and praise them for their ingenuity, emphasising at the same time that nobody has made a wrong solution. On the contrary! It was because there were both successful and less successful constructions that everyone could learn so much.

In the classroom the pumpkins are examined, Halloween lanterns and pickles are made. The pupils measure, count, write, draw and weigh – and in that way many school subjects are included; maths, language, art… The caretaker is still in the room. "I wonder how they will compost all the old pumpkins" he thinks. He realises that he needs to talk to his boss one more time.

PETTER ÅKERBLOM,

Senior lecturer at the Swedish University of Agricultural Sciences with a specialisation in Children's outdoor environments.

playgrounds. The suppliers of play equipment are always careful that the safety regulations are followed. However, if you are a corporation or a private school without access to this expertise it is important to know about the regulations. It could be for example if you want to use a fallen down tree as a climbing frame, if you want to put up a simple swing or want to build a play den for the children.

It is always the property owner who has the responsibility for the play environment regardless of who created it. It can however be difficult to follow all the details in the regulations and in many cases it may be good enough to read a condensed summary, for example from the local authority (kommun in Sweden). All local authorities have specialists who can be helpful and guide in the planning stages of a play environment. There are also private companies that can offer this service. It is most important to gather the knowledge needed before you start the work of creating a building and play environment – irrespective of it's size.

The permanent outdoor place

A permanent nature place can have many advantages, qualities and possibilities that are otherwise hard to acquire. It can be created by a school, a club, pre-school, a housing estate association, a friendship group, family or some other group. By co-operating with the land owner you can often solve the problem of wear and tear of the vegetation which occurs when you regularly revisit the same area.

This outdoor place ought not to be too far from the home and it should be easy for everyone to get there. At the same time, it should have relatively untouched and inspiring nature. This is not always possible so

Drama in the grass

(about dramaticising the local environment)

Lots of things happen right in front of our eyes if we give ourselves enough time to look. The participants place themselves on the ground and look at a limited area (maximum half a square metre) for 15 minutes. After this the participants gather in smaller groups (4–5). In the small group they tell each other what has happened in their squares. After this you put together the different happenings in a play that is performed for the larger group.

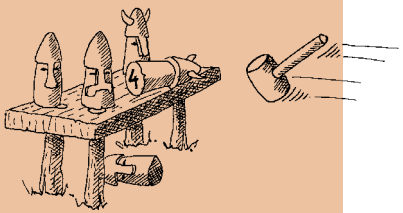
Reflection: to look at a small area for a long period of time gives you a chance to realise that a lot happens that you maybe haven't seen before. By dramatising this you pass on your experiences at the same time as you practise acting in front of a group.

Simple games close to nature

(about old games)

Thors hammer

Nine viking figures are stood on a sturdy board. The figures have different appearances and different points that are engraved on them from 1–9. The aim of the game is to knock down as many points as possible by throwing Thors hammer. Each player has two throws per round. The hammer is made of wood like a sledgehammer. If you wish to do woodcraft then each person can create their own hammer, see the figure..



"Varpa"

In the outdoor area the participants each search for a stone to throw. Mark the stones with names if they are similar. Hammer a stick into the ground about 10–20 m from the pitching area depending on the age of the participants. Each person now has to throw their stone towards the stick so it lands as close to it as possible. The aim is to get closest to the stick. The person whose stone is closest gets one point. The first to reach 12 points wins the game.

you may have to choose between the accessibility and the environment. One of the great advantages of a permanent outdoor place is that you can get to know it and over time feel at home there. Especially for children this security is of great importance. For the group this means that you slowly develop the norms and routines together. This also means that working with children becomes easier, as all participants after a few times become aware of the rules that apply for cooking, gatherings, consideration for nature etc.

An outdoor place such as this can be totally unplanned, apart from a simple fireplace to gather round. The wilderness then means that you feel close to nature. Calm and tranquility dominate the place.

An alternative to the untouched natural place is to establish a simple store with outdoor –, play –, educational – and craft materials. There are plenty of examples of these in this book's chapters and here are a few more: lasso, stones, carving knives, baking pans, fire steel, reindeer skin, saws, clay, band looms, pots and pans, birch bark, sieve, climbing ropes and baskets to pick berries or mushroom in. You can also build a living area with a tent tipi, a grass roofed hut, a coal workers cabin, an iron age house or similar to use for overnight protection from the elements. In such cases it's a good idea to have a good relationship with the landowner and make sure you establish a cultural environment close to nature rather than a natural place. Such a cultural place can in turn be a mid-way stop for onward journeys into the nature. You can leave your luggage there and make a hike in the surrounding area before returning. If you choose to shape the place into an exciting cultural historical environment then it is not only an outdoor room for studying nature and outdoor activities but can also be an inspiration to learn about cultural history, for example about Vikings and Sami, about Stone Age

and Iron Age, about logging on rivers, old methods of handicraft the forestry.

Outdoor Camp

From world camps to family camps

If you're a group, for example a school class, outdoor organisation or a bunch of friends, that want to visit the natural area for several days then an outdoor camp is a good option. It could be as large as the scout movement's jamborees (World Camp with many thousands of participants) or a small camp in the form of a few tents or wind shelter in a beautiful natural place. They can be structured in many different ways depending on the aim of the camp, here are some ideas:

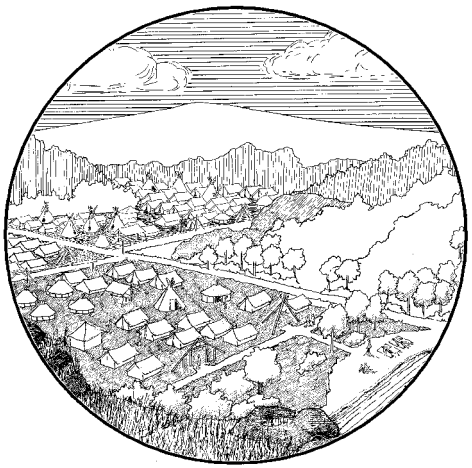
- Family camps focussing on natural handicraft. A group of families that gather in order to create objects together made of natural materials such as roots, wood, birch bark, animal hide, bones etc.
- Class camp with environmental and outdoor pedagogics. A school class that arranges a tent camp with smaller tents for sleeping and a larger central tent, for example by the sea so as to study the ecology.
- Fishing camps by a mountain lake. A group of friends or an outdoor group that goes to the mountains to fish for a few days by the edge of the forest.
- Large world camps. Small or national organisations that arrange a meeting place close to nature, where friends from different countries can meet to exchange experiences and live together.

A camp can be for a specific group of people who plan and conduct a range of activities together or an open gathering, perhaps arranged around a theme or with teaching courses throughout the day.

The outdoor camp as a model town

A larger outdoor camp can be likened to a town or a village. It is a place where you for a time gather a large number of people. In order for it to be successful you need food, water, fuel etc brought in from outside and rubbish taken away and disposed of properly. Inside the "town" lots of activities occur that require different resources, for example electricity, elastic, paper or string. Everything you bring to the "town" and need to get rid of afterwards requires transportation. Transportation is also needed when the people travel to and from the camp.

Using this short-term living place – at the camp – as a model, you can show how the real living place – the real city – works when it comes to natural resources and environmental questions. It is for example easy to



The secrets of the bag

(about gathering knowledge)

This exercise can be carried out with many variations. You have to use your whole body. The participants are split into smaller groups 3–6 in each. At the starting place each group is allocated an area of 0.5 m × 0.5 m as a "base". In line of sight in different directions bags containing natural objects (5-10 in each) are hung up. The leader has the same objects. The participants hold hands throughout. Each group gets one of the objects from the leader. This should then be fetched from one of the bags and placed in the groups "base". After this the group gets a new object to fetch. When the bags are empty all the groups gather and show what they have found.

Reflection: this exercise can be useful for many subjects, for example geography: you get a capital or a flag to find in one of the bags or historical happening with a year. For younger participants it's simplest to fetch the same thing that as you get from the leader. The older the participants, the harder the task can be. The aim is to remember in which bag the different things are placed. Through holding hands cooperation is practised and looking after one another. Those that don't run so fast may be good at remembering where the objects are. Here, movement and learning are combined.

Nut biscuits

(about making biscuits by the fire)

250 g nut kernels
2 tablespoons of honey
1 egg
2 tablespoons flour
Large leaves

Chop the nut kernels finely. Mix in the honey, egg and flour. Make small balls of the paste and roll them in the leaves. Bake them on warm stones or directly on the embers.

Reflection: Sometimes it can be nice to have something sweet. Nut biscuits were made in Stone Age times but then they didn't have flour. Please consider that there are people who are allergic to nuts.

see what is transported to and from a camp. On backs and bicycle trolleys, in cars and buses and perhaps also in pipes and cables. If one starts by looking at how the outdoor camp is connected with its environment then the next step can be to think about how we and our everyday activities affect our environment.

To ensure that the camp works as an environmental learning project it is important that all participants are involved in its planning, running and evaluation. As always, when planning something together take care to ensure that everyone agrees about its aim. For example: which costs are we prepared to accept, partially in money and partially in the form of affecting the environment? Which resources have we got access to when it comes to leaders, equipment, knowledge, landowners, time etc.? If all participants have understood – and accepted – the considerations for the environment behind these decisions then you are a long way towards making it environmentally friendly. The camp will then hopefully become an inspiration to also making the everyday life in the city more environmentally friendly.

Choosing the camp site

The choice of the campsite is the decision with the largest impact on how environmentally friendly a camp will be, as it is affected by many factors, for example how are you to get to and from the camp, which possibilities there are to use local foods and wood, does it have water – and how sewage questions can be solved etc. The choice of the campsite is also important from a practical and pedagogic perspective. The following tips and experiences can be useful when planning and choosing a campsite:

- Preferably use earlier campsites to minimise wear. If this is not possible then make sure that the ground vegetation isn't sensitive and that the regrowth can occur as fast as possible.
- Avoid places with sensitive animal – and plant life, for example nature reserves.
- Discuss with the landowner about the use of the environment and the material for handicraft. For larger camps also discuss with the local planning and environmental authorities.
- Make sure there is water nearby. Heavy water transporters are both energy demanding and impractical.
- Think about where the personal hygiene and washing up will take place. If this is in a waterway then the washing up should be upstream of the washing place, and downstream from the water fetching. At a larger camp you have to think about where the sewage water goes and possibly discuss this with the local authority environmental office.
- Try to limit all transportation to and from the camp to minimise environmental impact and try to use environmentally friendly means of transport where possible. Perhaps you can cycle to the campsite, walk with a bike trolley to the local farmer to fetch water, use electrical vehicles or limit the food transport by using the local shop.

Camp Equipment and Camp Food

Personal equipment doesn't need to be as advanced as many believe when you go on a camp. But it's important that it's functional and practical. Equipment should never be the reason for anyone being unable to participate. If you do not have everything that is needed it is often better to borrow than to buy new, especially if you don't use the things very often (see the chapter 1 "warm dry…")

The communal equipment is rather large and demands some planning. Just as for day trips it is an advantage if it's easy to access the equipment you need. An outdoor store at the school or in a club, where camping equipment is ready to use, makes it easier for everyone to go camping. What you haven't got you can often borrow or rent from outdoor organisations in the region.

When it comes to buying food for an outdoor camp the customers have some power. If you buy large quantities of food for a camp, you can ask the shop to provide alternatively cultivated food that's normally more expensive, at a lower price. For younger participants it is also important that we use raw materials as much as possible. That means that they get knowledge of where their food comes from. Cooking can be a large and important aspect of camping.

Latrines and waste

When it comes to latrines and waste, different hygiene rules place greater demands on the big camps. Read more in chapter 1 "warm, dry…" and discuss with the local health authority.

Unfortunately, there is quite a large amount of waste at an outdoor camp. Food packaging, food remains, broken things, lost things, sweet wrappers, batteries etc. One way to limit the environmental consequence of this waste is of course to bring as little as possible to the camp area that can become rubbish. It is also important that you take care of the rubbish in a sensible manner. That means sorting litter and making sure the different categories get back to the recycling centre as fast as possible. Some good advice:

- Use washing bowls and soap instead of wet wipes.
- Limit the amount of rubbish already when you buy food and materials.
- Have different places for different rubbish and sort the rubbish into the following categories (discuss in advance with those that you are going to deliver the rubbish to):

1. *Paper* (possibly split into cardboard and other paper). Remember that some cardboard can be reused, like egg boxes.
2. *Glass* (split into uncoloured and coloured glass). Jars of glass are just as good to recycle as bottles (glass that can be returned is sorted separately).
3. *Compost material* (either dug down, ask the environmental authorities if you're unsure, or in a closed compost bin that

Surprise maths

(about doing a mathematical walk)

This exercise can be used to make a normal walk exciting. Decide on a number, for example 8. Start the exercise when you leave the house. Count 8 steps then stop – look for something red. Multiply two with eight. Stop – look for something round.

Walk a further 3×8 steps – look for something that feels soft. Walk 4 x 8 steps – Discover something that looks like an animal.

Before you start the walk decide on "today's number". What you should do it each stop is decided before the walk, written down on notes that are folded into lottery tickets. This increases the excitement as you have to pull out the lottery ticket when you stop. You can also decide if everybody should find the different things or if you should split in the group and allocate a person to do each exercise.

Reflection: this is a combination of mathematics, powers of observation, movement, creativity and knowledge. The participants in the group take turns to solve the different tasks.

To make the walk have variation you can take giant steps, jump with feet together or on one leg – the imagination has no limits. Inventiveness is tested if for example you cannot find a beetle you then have to create one. Multiplication is practised in a practical manner.

"Stomach bread"

(about letting bread rise on your stomach)

2.5 dL flour
1 dL warm water (if you're using dry yeast the water needs to be warmer, see packaging)
1 teaspoon salt
breadcrumbs
1/4 of a packet of yeast

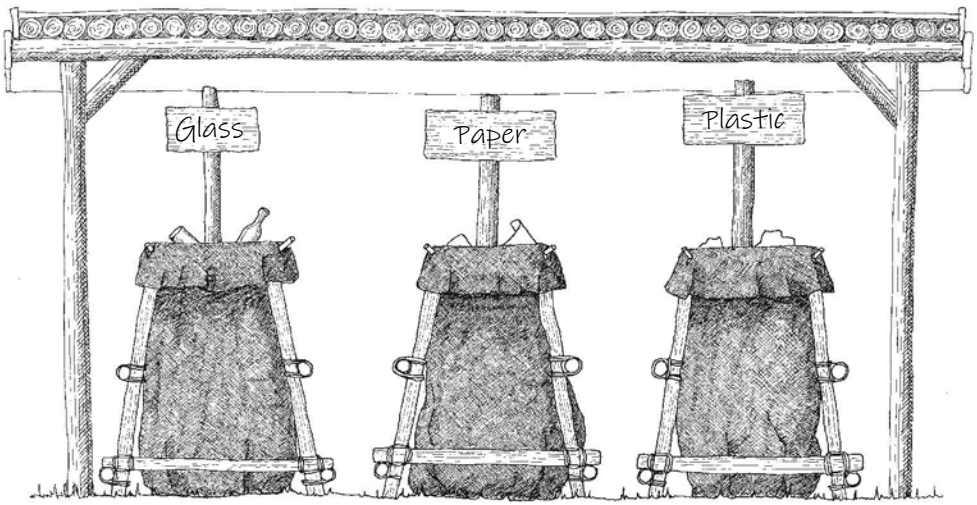
Mix the dry ingredients in a plastic bag (at least 2 L) and pour in the warm water. Knead the flour in the bag so that all ingredients are mixed and give the dough a nice consistency. If you're using normal yeast it should be mixed with water before it's added. Dried yeast is mixed straight into the flour. When the dough is ready and has been kneaded the bag is closed with a knot so that there is space for the dough to rise. Place the bag under the sweater "on the stomach" so that it gains heat and the dough rises. When it has finished rising roll out thin pieces and bake them in the frying pan, on warm stones or on the grill. Brush off excess flour. Burnt flour gives a bad taste. The warm bread should be enjoyed with butter, cheese and a good soup.

Reflection: To bake bread is an activity for many senses. Not least when the warm dough is being kneaded. When the dough rises on the stomach you experience a unique sensation. A conversation about what happens when the dough is rising results in, among other things, knowledge of chemistry.

you then bring home and later compost, see tips below).
4. *Metal* (aluminium cans can be sorted separately).
5. *Plastic*
6. *Combustible material*
7. *Other non-combustible material*
8. *Batteries* (if they are environmentally marked they belong to the section non-combustible).
9. *Environmentally dangerous debris* (paraffin and paint etc.).

Wood and timber

In Sweden there is often no problem getting wood. Mostly you can fetch wood for burning and timber for activities from the forests, after talking to the landowner. But if it's a large camp you may want to consider not putting too great a demand on the nature. If wood and timber have to be transported then transport should be as short as possible. Consider having a wood store to keep the wood dry and try to limit the use of wood, for example by building fires that use less wood. Don't be wasteful with building materials you use to make the camp, for example tree saplings (long poles), spruce branches etc.



Nature interpretation – about revealing the hidden stories of the landscape

Humans have always spent time nature guiding. We have over generations had to understand enough about the nature around us to survive. But parallel with industrialism and the welfare state, knowledge about the connections between humans and nature have diminished. In an urbanised world more and more people live distanced from nature. It is a problem in a time when we face large challenges regarding climate change and loss of biodiversity. Knowledge and understanding about nature are now essential for the survival of humanity.

Nature interpretation is in this context more and more important as a tool for knowledge, understanding and discussion about the possible solutions. Nature interpretation can also help to re-establish emotional relations with nature for those that have partially or completely lost them. Organised friluftsliv, and the meetings between people that it generates, is an important arena for nature interpretation – not least because the basis of friluftsliv is the feeling for and the love of nature.

Nature interpretation is a concept that arose some 20 years ago in the Nordic countries. The concept gathers all activities that aim to give knowledge and awaken feelings for nature. The nature interpreter that takes you on the birdwatching activity, the "wise woman" at the outdoor museum who teaches you which plants were once used to reduce back ache, or the worker in the county office using signs explains the values that can be found in the nature reserve – all of them are nature interpreters.

Nature interpretation is defined in the pamphlet Nature guiding in the Nordic countries (Nordiska minister rådet (1990) in this way:

> Nature interpretation means giving a feeling for and knowledge about nature. Nature interpretation aims to increase understanding of the basic ecological and cultural links and the role of humans in nature. This enhances the possibilities for positive experiences in nature and for increased environmental awareness of the individual and of society.

Velcro and hares

(about spreading seeds)

Plants spread seeds in many different ways for example with the wind, water or with the help of animals. The Velcro seeds are equipped with hooks, that easily attach to the fur of animals. When the seeds fall off and grow the animals have helped the plant to spread itself.

Mark two areas about 10-15 m from each other, these are protected areas. Choose a participant as Velcro, who stands between the marked areas. All participants (hares) start off in one area. At a given signal the hares must cross over to the other side. The "Velcro" should then try and attach onto a "hare". Hooking an arm through the arm of the "hare" and creating a couple. The next time the "hares" run the "Velcro" tries to attach onto new "hares". It then creates a chain where everybody links arms. The outer people in the chain are those who hook onto new hares. When everybody has been caught the one who was last attached is the new Velcro.

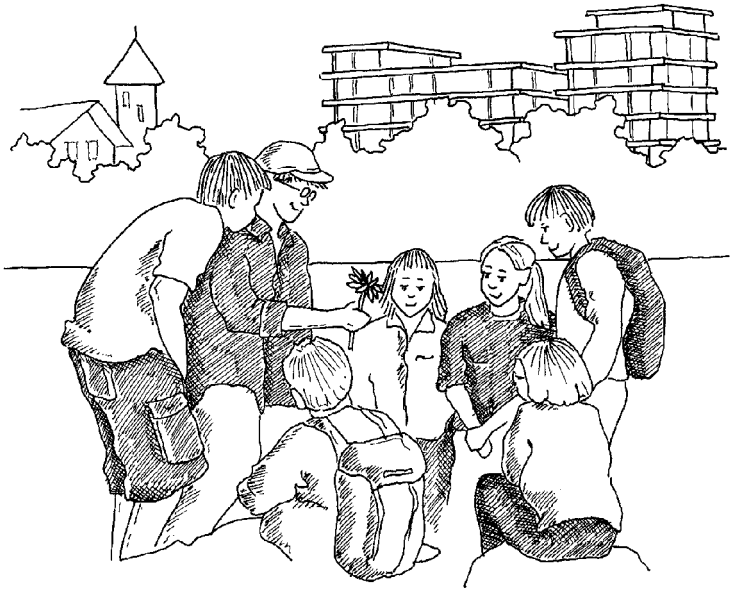
Reflection: the exercise shows how seed spreading happens and enhances movement and co-operation. Seize the occasion to consider how other seeds spread. With wings: spinning around a certain distance (for example lime and sycamore) flying like dandelion seeds or falling straight down like an apple (jump with your feet together). This exercise is suitable to do in autumn and winter when you can find fruit and seeds in nature.

Find your tree friend

(about having a tree friend)

Find a tree that you feel is good for you. Touch it, hug it, give it a name. Now you have a friend to trust. Sit down by the tree when you're happy, sad or just want to be alone. When you are near the tree you will feel that both of you belong together.

Reflection: Today many people are stressed, worried or wondering about life. Then it can be good to have someone to share this with and the tree will be the friend that is always nearby, ready to listen, and letting you experience nature during the different seasons.



Leaders of friluftsliv are according to this definition nearly always nature interpreters. They seek and develop methods to give people the possibility to gain knowledge and feelings for nature. They help their participants to get out and feel safe outside. To experience starry nights and hikes through landscapes, campfires and how you become at one with the sea in a kayak. To feel comfortable beyond the limitations of roofs and walls, ceilings and doors.

The term heritage interpretation has been used long in English speaking countries. It implies a special approach to communication about natural and cultural heritage and is similar to the Swedish use of nature interpretation. In the USA people have been working with interpretation since the early 1900s when the national parks were created. The parks became a strong national symbol that shouldn't only be experienced but also communicated and understood by their visitors. Today interpretation is a world wide that spans over research, exhibitions, nature and cultural management, tourism and environmental communication.

The English organisation Association for Heritage Interpretation describes what nature interpreters do as follows:

> … reveal the hidden stories of the landscape; making places come alive, happenings and ideas; provoking the thoughts and giving memorable experiences; visualising our nature and cultural inheritance through deepening our understanding and widening our perspectives.

Many believe that through nature interpretation we can discover and learn so much more about ourselves and the world around us that we are assumed to become environmentally friendly, recycling environmental activists in one go. It isn't quite that simple (read more in Chapter 12, "Friluftsliv close to nature – an environmental learning opportunity") but the communica-

tion that can develop between a nature interpreter and a participant in an activity makes this possible. The nature interpreter that, together with their participants, can decipher real and authentic things in the landscape gives us a good basis for wider reflection. "What would it have looked here a hundred years ago and how might it look in another hundred years?" Those of you who are leaders in friluftsliv have the chance to describe the world, humans and nature for your participants in situ in nature. The discussions that in turn are based on your (and others!) stories can help bring knowledge, engagement and reflection. Your stories and these conversations become more and more relevant.

EVA SANDBERG

A biological and geological expert and manager at SLU Swedish Centre for Nature Interpretation

SLU Swedish Centre for Nature Interpretation has existed since 2008 at SLU in Ultuna. The centre works as a resource of competence, for development and as a meeting place for all who work helping to increase knowledge of and feeling for nature and the cultural landscape. CNV organises seminars and education, gives out newsletters, works as an arena for current nature interpretation questions and strives to increase the quality of Swedish nature interpretation. Read more at www.cnv.nu

Seasonal delicacies

(about enjoying fireweed and funnel chanterelles)

During the spring and early summer you can find lots of things to prepare and eat, amongst others fireweed. Leaves from fireweed are fried in butter and salted. They become lovely chips. The uppermost part of the young fireweeds stalk is boiled in lightly salted water for five minutes. They can be eaten directly or fried in butter. Eat them together with newly baked bread. The autumn delicacy includes amongst other things funnel chanterelle soup. For two people you need 0.5 L funnel chanterelles, 2 tablespoons butter, 1 tablespoon of flour, 4 dL water, half a stock cube, one dL of cream or milk, salt and pepper.

Fry the mushrooms in the butter, spread on the flour and stir. Add water, stock cube and cream. Boil for 15 minutes. Taste with salt and pepper.

Nature schools

Nature schools can be found in almost 100 different places in Sweden. Some are owned by the local authority and some are private and they work in slightly different ways. They all use the method "to teach in the outdoors" which means that they use nature as a place for learning.

When the first nature school started on Söderåsen in Skåne in 1982 it mainly worked with nature and environmental knowledge. Today education includes most subjects using a natural outdoors environment, similar to those described in this book.

As a resource for teachers and pupils, Nature schools work together with teachers and pupils in two different ways; either the nature school comes to the class or the groups and school classes come to them. Some nature schools use both methods.

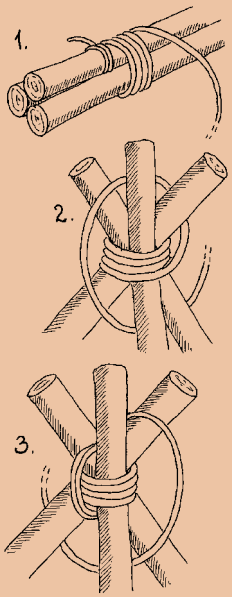
Mobile nature schools visit the class in their home environment and can guide the pupils in the local natural environment. The nature schools teachers are often used to urban nature and can show examples of the

Binding a tripod

(about binding sticks together)

A tripod is useful in many circumstances, for example for hanging the pots over the fire or to build constructions of different kinds that have to be sturdy. Here comes a description of a simple method to bind sticks together for a sturdy tripod.

1. Place three sticks of similar length and diameter together as shown in the picture. Fasten a string/rope to one of the sticks and wind it around the outside of all three sticks many times.
2. Raise the stakes up and separate them. Bind the string as in picture (2) and pull tightly so that the tripod becomes stable.
3. Finish off by winding some extra times in another direction and tie off carefully either on the starting string or onto the tripod.



bustle of life in the ditch behind the woodwork classroom or show how the surrounding nature can be used for education in different subjects. Apart from competence they also bring with them lots of resources and tools for education outdoors.

Nature schools that you visit usually have prepared pedagogical environments that inspire learning. They are normally situated in areas with good access to nature and are an ideal starting place for excursions in the surroundings. All practical considerations for outdoor lessons have already been dealt with, for example agreements with the land owner, handling wood and deciding on suitable rest places. These schools also have both knowledgable staff and suitable materials available.

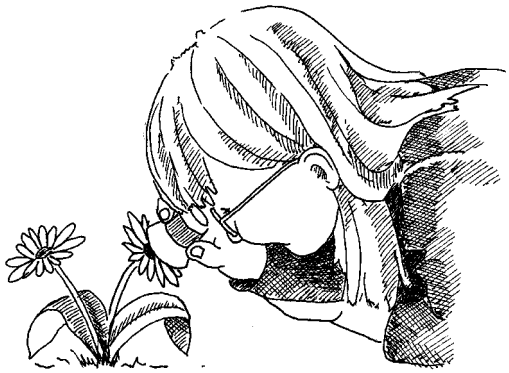
Developing the competence of teachers and leaders

Many nature schools offer teacher development in, for example, outdoor pedagogics, learning for sustainable development or something more subject specific, for example maths or history in the outdoors. The nature schools have also written a number of books with lesson suggestions in different subjects to be run outdoors, see more in the chapter "More inspiration" on Page 258. When teaching in nature a basic outdoor knowledge is essential for the pupils to feel safe.

Nature schools can train teachers in these skills on development or teacher training days

Planning for outdoor pedagogics

Many schools are making their playground environment multi purpose. It can be used for games, movement, rest, reflection etc as well as a space for learning (see more about the school yards above). Nature of schools can be a useful resource in this work.



Discovering technologies

GPS, RFiD, SMS, & MMS are abbreviations for different technologies that are common today. New ones arrive and others are simplified and become cheaper so more people without specialist knowledge can use them. We can't say what the next technology that will make the natural and the cultural landscape more accessible will be, but by using different technologies for different purposes we can influence it's development.

Some years ago the inspection camera was something expensive that was used to inspect inaccessible holes. It is still used for that today but the price has now dropped making it suitable for other uses, such as looking into a birds nest. The next step was to connect the camera to a smart phone and this immediately opened up new possibilities. What was previously difficult and expensive has become cheaper and more usable today.

One can wonder about which technology is most suitable for outdoor teaching. Is it digital aids, optical instruments, bird call pipes, or what is it? In my opinion it's anything that helps me show and visualise in a different manner. The technology can enhance the guide or the teachers stories. I have a friend who builds exhibitions about nature and he uses expressions to describe his way of thinking in as many ways as possible. He calls it rainbow storytelling, to say the same thing in many different ways. It describes in a good way how I view using technology to enhance the story

The map and the compass are aids in orienteering but without decoding the map, translating it to what I see on the terrain and understanding the best route to choose the technology doesn't help me much. So, how do we make it easier for more people to go out? The most common way, that we don't see as technology, is to build cairns or to mark the path. To walk on a marked path gives a feeling of safety and of knowing where you are, and where you are going. In a way, it's the same feeling as the GPS gives

Playground maths

(about using personal measurements)

The participants get a task to guess how far a given distance is (at least 20 m) and write this down. They then have to in small groups guess how many "ant steps" (1 foot is placed in front of the other, toe against heel) the group take communally and then write down the results. In the next exercise they have to measure the distance using outstretched arms. Then they have to add up the groups arms and write down the result. In the third exercise the participants have to take normal walking steps – count these, add them together and write down the result. Using these results the participants then have to try and work out the distance. Let the participants double check by measuring ant steps, outstretched arms and the walking steps. After that they work out the length of the distance. How does it coincide with their estimates? Decide who got the closest by measuring the distance with a measuring tape.

Reflection: this exercise can give a feeling for distance, their own personal measurements combined with maths. Their own guesswork and measurements become an exciting mathematical exercise.

What should be removed?

(about comparing in order to disappear)

Gather four natural objects for example pine cone, spruce cone, nut and stone. Discuss with the group which objects have things in common and which should be discarded. In this case the stone should be discarded because it doesn't grow. Or the nut should be discarded because it is round. The spruce cone should be discarded because it's been eaten by an animal. The discussions can be intensive when you argue for your object. It's important to be convincing. When you have decided which objects should be discarded new ones are found.

Reflection: this is a way to look at objects, their similarities and differences as well as arguing as to why one should be discarded. This is an exercise in observing details, making arguments and accepting defeat.

when you are in unknown terrain. Just like all technology it has its weaknesses, the colour fades away, the markings disappear or the battery in the GPS runs out.

The old paths carry some of our oldest stories. They lie like a red thread through the landscape, through periods of time. But the stories are becoming harder to follow when society develops and hence the collective memory are changed in a manner that distances us from understanding the landscape. It is here that tools such as Augmented Reality (AR) have a place. In a simple version we can see it as map programs such as "Google Maps" or the Tourist Information sites with details about what to see and the chance to view it at home on the screen. In its more advanced form, you can use a smart phone to look around the landscape and get a picture of how it would have looked like previously. Standing in the ruin of a house an image of the whole house can appear and you could perhaps go into the kitchen in the year 1872 and eat breakfast.

Technology can be used in a way to reach new groups and help them get out, for example geocaching or Pokémon GO. It can also be used to make the visit to nature have a deeper dimension in the form of facts and knowledge. Facts on the map that was given to you at the tourist information, signs along the path's or a GPS coupled "App" that guides you when you're walking. The borderline between using different technology to discover and using them to pass on facts is not clear. It is you who decides when, and in which way, technology will give your participants more ways to learn, to see and to experience.

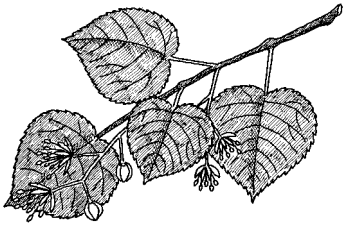
Different types of technology create different possibilities to widen or deepen an experience. A risk, that I believe is worth taking, is for the technology to become a filter that changes the direct meeting with nature to a "screen meeting", similar to what I could experience at home, eventhough it's real. Do as humans have always done; use old technology in new ways and new technology in old ways, in short: dare to try and have fun with your participants.

Curious greetings

ANDERS JOHANSSON,
Outdoor teacher at Friluften

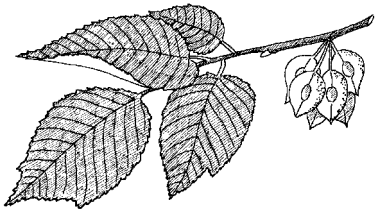
Characters

Lime



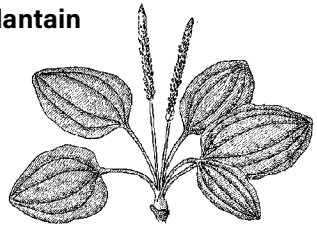
The lime (*Tilia cordata*) is the tree of happiness and the love. According to folklore it was the tree in which the elves and pixies lived. It was therefore important to care for it. The lime was often seen as the "care tree" that protected houses from thunder and lightning. The leaves are heart shaped, with one side slightly larger than the other. The yellow/white smelling flowers were dried for tea. The fruit are nuts that are spread with the wind. The wood is white and soft and can be used for fine carving. The inner bark fibre was used to make twine (instead of rope). Lime charcoal is top quality for drawing (see the activity tip "a mini charcoal kiln", Page 118).

Elm



The wych elm (*Ulmus glabra*) is a tree that can become up to 500 years old. The leaves are tough and hairy on the top. Brush it over your cheek and you can clearly feel "daddies beard". The elm produces inconspicuous flowers before it's leaves develop. The unripe fruit can be eaten and are nice in salads. The wood is hard and is often used for furniture. In the old days wheels, skis and the keels of boats were made out of elm. The inner bark is rich in starch and was once used to make the best and most easily baked bark bread.

Broad leaved plantain

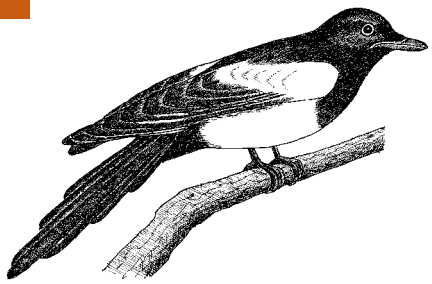


The broadleaf plantain (*Plantago major*) leaf rosettes grow close to the ground. They have a long, stiff stem with small flowers. The leaves can be applied to a wound so that it will heal and grow together. For toothache a fresh or dried root was placed on the tooth. The plantain was called the white man's footsteps. The Europeans brought the plantain seeds that got stuck on their shoe soles, clothes and belongings on their route to the New World. The plantain leaves were also used also to predict the future. By carefully pulling off a leaf and looking to see how many threads stuck out from the stalk you could predict how many children you would have.

Chamomile

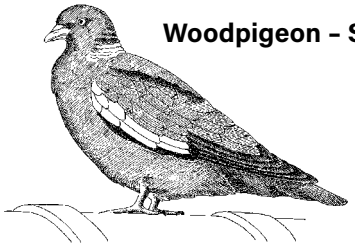
The white daisy-like chamomile flower (*Matricaria chamomilla*) has a sweet and spicy smell that reminds us of the wild strawberry and apple. It is one of our oldest medicinal plants. Chamomile tea has been used for colds, bad digestion, weather tension, colic etc. Chamomile grows as a weed on fields and by the roadside.

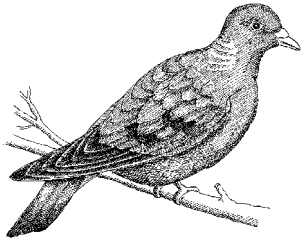
Magpie



One of the commonest birds in Sweden, that can be found throughout the country, is the magpie (*Pica pica*). Magpies live in pairs and stay together for life. The nest consists of twigs with walls, a roof and two entrances. In the bottom the magpies make a bowl of clay. Many nests can lie on top of each other creating a "multi-story house". The saying goes: "if the magpie builds low to the ground the summer will be dry and warm, if the nest is built high it will be rainy". The magpie is an omnivore and sometimes takes birds eggs and chicks. It was previously seen as the holy bird of the house that brought luck. "Where the magpie builds a nest the farmer can rest at ease". To damage the nest or the eggs could bring bad luck. If the magpie stays close to the door and croaks, then visitors will come.

Woodpigeon – Stock dove

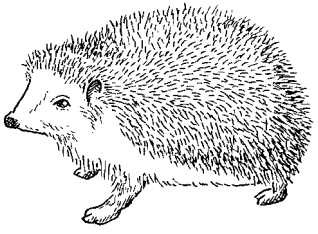




The woodpigeon (*Columba palumbus*) is pastel coloured in brown and grey tones. The head is relatively small with a short break. You often see them walking on the ground.

The wood pigeon is the largest dove with white colouring on the neck and wings. It is also a dark band on its tail. It's often seen in crops, in parks and open places in the city. The sound is a soft "ko-koo-ko, ko-koo". The stock dove (*Columba oenas*) has black wing tips and two black wing bands. It thrives in deciduous forests. It's call is a two syllable "oo – vó".

Hedgehog



The hedgehog (*Erinaceus europeaus*) is one of our oldest mammals. It is often lives in close proximity to humans where it finds food in the garden, amongst other things insects, worms and birds eggs that it finds in nests on the ground. We often give it milk which it doesn't digest so well, water is better! An adult hedgehog can have roughly 5000 spines. It hibernates in winter, preferably in leaf or twig piles. The hedgehog is the landscape animal of Gotland.

Friluftsliv, health and quality of life

– About friluftsliv as a method for health

BY MIKAEL QUENNERSTEDT, MARIE ÖHMAN AND JOHAN ÖHMAN

Health and contact with nature

Petra jumps: About the positive effect of fresh air

"Now I'm jumping", shouts Petra, looking around from her position high in the tree. Admittedly there's no-one underneath, but it feels quite high and a little scary and then it's important that many people are watching when you dare to take the leap. Many other friends and even the teacher look up from their games among the branches, stones and piles of leaves. And Petra jumps down!

To spend time in nature has long been considered healthy for children and young people. At the end of the 1700's Jean-Jacques Rousseau argued that children have a natural need for movement and learn best through their experiences of reality. He therefore regarded nature as an ideal place to develop young people into free, independent and thoughtful individuals.

These ideas on the benefits of fresh air and outdoor experiences for the next generation were also a driving force in the movement for outdoor activities for children and young people in the 19th century. In the Swedish National Plans for School Buildings of 1865 it was written …*"the children should always, equally during rainy and hard weather, spend play time in the open air"* and that *"play as much as possible should be conducted outdoors"*.

Later, when sports days became obligatory in the primary schools of 1942, the Swedish National Board of Education believed that *"hard and strengthening outdoor activities"* would be a *"healthy counterbalance to other school work"*.

Today these words seem rather oldfashioned but the positive effect of nature on young people and children's health, is still one of the most important arguments for friluftsliv.

Many reports about children and young people sitting still and being generally inactive indicate the risk of widespread ill health in the future. This is what it says in the Swedish curriculum for the compulsory school, preschool class and school aged educare (rev. 2018):

Young children in nature

(about children's own activities)

By conducting outdoor activities daily your practice will meet the shifts in nature. Small children don't need organised activities, they know the art of discovery, enjoyment and training their senses. By using play clothes there is no problem to jump in puddles, what joy when it splashes. Finding out that you can make the water splash is an observation of cause and effect. Pulling the branches when it's rained or snowed, something happens then as well. To climb over the fallen tree is a great exertion that develops muscle power. Up onto the stone and skip down on your bottom. Here you don't need any factory made slides. When the sun shines it feels warm if you turn your face towards it. A worm! Oh dear it's happened to be split in half through careless handling. The snail that's coming along the path studied for a long time. A special stick must be brought home.

Reflection: To be out with small children can give the adults an indication of how much there is in nature that is interesting. Here you need patience (you don't move fast) and be appropriately dressed. As an alternative to all plastic toys, bring some things back from nature. Stones, cones, sticks can initiate activities back home.

> Physical activities and a healthy lifestyle are fundamental to people´s well-being. Positive experiences of movement and outdoor life during childhood and adolescence are of great importance if we are to continue to be physically active later on in life.

In the Swedish curriculum for the preschool (Lpfö 18) it is noted:

> Children should be given the opportunity to develop comprehensive mobility by being able to participate in physical activities and spend time in different natural environments.

Nature and health in an historic perspective

The relationship between nature and health has interested people in many different ways thoughout history. A common idea has often been that when people lived in harmony with nature then they had a good health. Certain philosophers with romantic ideas, especially Jean-Jacques Rousseau, as previously mentioned, were highly critical of urban life. For Rousseau the natural and simple life-style in the countryside was the counter balance to the unhealthy and artificial life in the city.

These romantic ideas, with an alternative scientific point of view and a deep criticism of civilisation, have persevered throughout this century and can largely be seen as a reaction against the scientific and technical development of industrial society. The natural landscape was seen to be pure as opposed to the artificial, commercial and manufactured environment of the city.

On the one hand there was a belief in developing the city landscapes whilst on the other hand there was nostalgia for the natural landscape. When humans were distanced from nature it became exotic at the same time. People became distanced from the wild with the same breath as they dreamed about it.

People supressed their animalistic feelings at the same time as they longed for the natural and moved out to the countryside in their summer holidays.

It could be said that the effective and rational life of the industrial society was compensated for by peace, quiet and rest in nature. This dual feeling could be explained in the terms of living in a world where control and discipline often prevail whilst at the same time there is a longing within us to meet the uncontrolled, both in ourselves and in the environment around us. Based on this it can be considered that free time in nature has totally different qualities from every-day life in the city and the toil of the manufacturing society. Qualities such as sensibility and integrity and thoughts about the body have been coupled to the wild, the emotional and passionate.

The relationship between health and friluftsliv

It is not so easy to clarify how friluftsliv affects people's health. In our meeting with nature cultural patterns coincide with our biological conditions. Hence, different people have learned to experience different things when they're out in nature. For some, friluftsliv is a necessary breathing space and feeling of harmony and meaningfulness, and

for others it's associated with something cold, wet and full of mosquitoes, where you eat strange food and sleep uncomfortably. There are at the same time many things that indicate that there is an evolutionary basis to our positive experiences of nature. Our senses, our bodies and our brains are from this perspective not made for an indoor life in the city and hence we experience a harmony when we live in the natural landscape in a way and in an environment that we were biologically created for. Against the background of the complexity of the above it is hard to point to direct connections between friluftsliv and health, even if important indicators can be found (see also chapter 10, Suburban friluftsliv, Page 175). Hence quantitative statements like: "if children go out in the forest this or that many times a week then it will have this effect on their health" are problematic. It is further compounded since the concept of health has many dimensions and can mean different things to different people. Furthermore, friluftsliv can be performed in an infinite number of ways. To continue this reasoning around the importance of friluftsliv for children and young people's health we must clarify what we mean by health and which type of friluftsliv we refer to.

Perspectives on health

Health as a philosophical vision

What do we mean by health? Scientists, philosophers and authors have for centuries tried to capture the concept of what health is. Their descriptions have always been based on fundamental ideas and values of how the world is and how it should look like.

Different power structures in society, for example religious or scientific, have therefore had an impact on what health means. Change or modifications to the concept of

Awaken your senses

(about seeing, listening, tasting and feeling)

In nature you can train your senses. Draw or paint these experiences afterwards. This is a great occasion to create without peer pressure or a need for perfection. Because, who knows what a spruce smell should look like?

Sight. Look for something very large, like the sphere of the sky and the shape of the landscape but also for the very small like the pine needle attachment to the branch, the sand grain's shape or the "fantasy tree" of the moss.
Hearing. Sort through and then peel away the sounds of civilisation (cars, people etc.), nature sounds (rustling of leaves, birds, mosquitos buzzing), so that you can then hear your own sounds (the rumbling of your stomach, the beating of your heart…).
Smell. What does the earth smell like in the spruce forest, out at the edge of the moss or by the lake shore?
Taste. Make different herb teas (see for example the activity tip "Stone age tea" and "In nature's tea store" in chapter 5). Let the participants guess what is being served.
Touch. Learn to recognise different plants through touch, close your eyes, ask somebody to remove one plant. Which one was removed?
The sixth sense. Lying still with peace in your mind sometimes you can hear how the trees are talking to each other and have the birds are wondering who is lying down there seemingly asleep.

Reflection: Stimulating the senses can be a way to get the liveliest of children to take it easy for a while.

Meow

(about a game where kittens are looking for their mother)

When kittens are born they are blind and therefore dependent on the cat mother. To express where they are the kittens "meow", but as soon as they find their mother they quieten down.

When the game starts everybody has to close their eyes. The leader selects somebody to be the cat mother. The cat mother is the only participant allowed to see. The rest of the participants move with their eyes closed within an area and as soon as they meet someone they have to say "meow" (sound like a cat). The one they meet then answers with a "meow". But when a participant meets the cat mother she may not answer. The kittens then place themselves behind the cat mother with their hands on her shoulders or if there is already somebody there then after the one that's last in line. As soon as the kitten has reached safety with the cat mother it can see again but has to be totally silent. If a kitten doesn't meet the cat mother but a kitten in the line behind her then that kitten can join the line at the end. But the cat mother and her tail of kittens moves within the area so that those who have their eyes closed have a chance to find her. The game continues as long as there are kittens with their eyes closed.

Reflection: this game demands that you trust yourself and don't cheat. When you close your eyes you become a bit unsure and it's often easier to peek a little. If you do so you are breaking the rules.

health can clearly be seen as power structures have changed in society. Health is therefore not a given, but instead a cultural phenomenon related to the context where the concept is being used.

Health has historically often been associated with the dream of the good life and often been described as an utopian and desirable ideal condition. The absence of illness and death has been an essential part in many religious traditions. The myth of Paradise for example in the Jewish/Christian tradition or the ancient golden age are good examples of utopian notions, where humans lived in harmony with nature and the spiritual. Life as it appeared in reality with work, illness and death was seen as a punishment for sin, when humans have abandoned their purity and acquired torments.

Within Christianity a good life, or health, was following the will of God, with the Bible and especially the 10 Commandments as the moral and ethical code for all to follow. Sickness and death naturally appeared in the Christian view of the world as punishment, a fate or a godly warning to humankind about the "shortness of life on earth and it's mortality". The idea that there was a life after death meant that people felt that their life on Earth wasn't so important, as life after death was a gift from God. The Christian perspective of the world gave a feeling of completeness and reality that could be explained as the work of God. But with the decline in the influence of Christianity the rise of the science, with it's rational thinking, became the dominant ideology regarding health.

Health as a science

In ancient times nature was superior to the art of healing and was highly respected. It was the nature that healed illnesses, not the doctor. The doctors only simplify the work of nature. This thinking about the natural life persevered, but during the scientific revolution in the 1600's it changed towards nature being something that should be conquered and made subordinate to mankind. The search for the ultimate objective truth, reduced to mechanical terms, became all the more important. People rejected the conventional understanding of all illness having the same base and a so-called biomedical approach, where health was conceived as the opposite of disease, began to emerge. Body and soul as well as mankind and nature were considered to be dualistically separate. The soul was an expression of God and couldn't be studied scientifically. The body however was considered to be a machine that could be studied from outside and all its parts. People were healthy when the machine (the body) worked and sick when it didn't. As the concept of disease came to dominate medical science and not the concept of health; disease and health were considered to be opposites. Health was hence seen as a condition in the absence of illness.

"...complete physical, mental wellbeing..."

At the start of the 1900's healthcare became more specialised and doctors gained a higher status in society. Science took over the role of religion as main bearers of "truth". The medical view on disease and health has been predominant throughout the 21st-century and still has a strong position regarding these questions. But the health concept was developed during 1900's on parallel fronts, where (natural) science stood for one perspective whilst other areas stood for a more holistic concept of health. One sign of this was the World Health Organisation (WHO) almost classical definition of health from 1948. It focussed on a vision of health that emphasised the healthy and also the social life of humans, instead of only disease and absence of disease. This definition has been important in the debate about health and the concept of health and has stimulated more profound and holistic health theories:

> Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being without distinction of race, religion, political belief, economic or social condition.
>
> WORLD HEALTH ORGANISATION, (1948)

WHO's definition describes health as something positive that concerns the whole human being and her whole life situation.

The human being is a combination of physical, psychological and social characteristics, she can think, feel and perform actions. She is even a social being that acts in a social and cultural context. This means that a number of different factors influencing health need to be considered rather than just individual factors.

The snake guards the treasure

(about a game where you practise creeping)

In the forest there is a treasure. The problem is that the treasure is guarded by a diligent but blind snake. As soon as the snake hears a rustle it hisses.

A participant is selected to be the snake and a blindfold is placed over their eyes. The snake sits on the ground with the treasure in front of them (it could be anything from a hat to a nicely wrapped package). Mark a circle 10 to 15 m around the snake. It is now the aim of the children to creep up to the snake and take the treasure. If the snake happens to hear something it's reaches out the arms toward the direction of the sound and hisses. The one who was discovered then has to start from the beginning. The participant who takes the treasure can be the next snake.

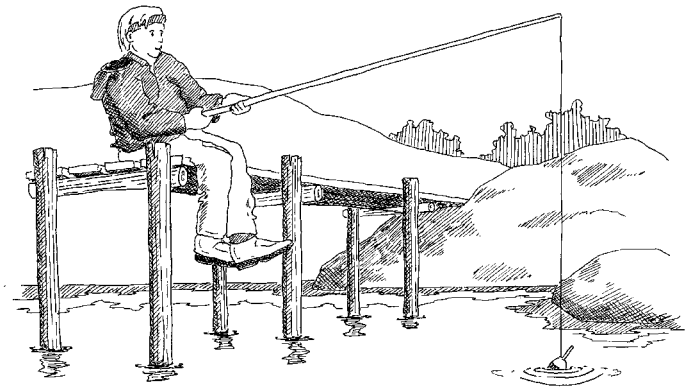
Reflection: this game gives training in creeping and making precise movements as well as concentrating and being attentive. The aim is to adhere to the rules of the game, to start from the beginning when you've been discovered. This game can also be played when it is dark. Then the snake does not need a blindfold over the eyes. Instead of pointing, the snake has a light ray from a torch that they aim at the sound.

The scruff in the basket

(about searching for natural objects)

In order to make a hike more exciting the leader can have a basket with the animal "Scruff" hidden under a piece of cloth. Scruff is a curious creature and wants to receive different natural materials from the children during the walk. It could be for example a spruce cone. All the children then run to find a cone. You look at everybody's cones and decide on a special cone that is placed in the basket. The next thing to be found could be a white stone. Then you maybe choose a white stone to put in the basket. When you get to the end of the walk the animal Scruff (that could be a handheld doll or a stuffed toy) is revealed and together you look through the objects collected.

Reflection: Here the children practise looking for certain pre-determined objects in nature. They can also learn knowledge of species, shapes, colour or textures. Together discuss what has been found and decide which object should be placed in the basket. This practises cooperation. As a leader it's important to be attentive so that everybody gets to show their objects and everybody gets to place something in the basket.



Health work as a mobilisation of resources

How could one regard health today and which type of health vision is applicable to friluftsliv – and in particular in working with children and young people?

The biomedical stance has a dominant position in large parts of society and it is therefore relevant to study or prevent factors that cause illness. But in education, in this case within friluftsliv, this point of view brings limitations to the health developing potential of the outdoors. Frilufstliv is seen as a positive influence on health not only by avoiding the things that cause illness. But what are the alternatives.

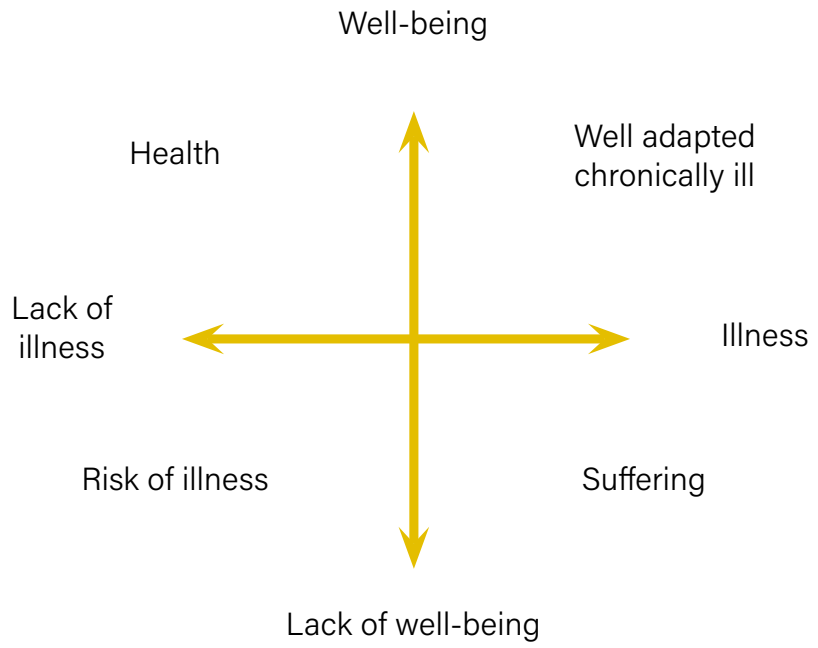
As a result of the criticism of the biomedical approach another, more profound and more holistic view of health have emerged, inspired by the WHO health definition. These theories give a wider meaning to the concept of health. Here physical, psychological and social factors inter play and the presence of something positive, for example quality of life, well-being or meaningfulness are central. We often say that these health theories have an action theoretical or salutogenic approach to health.

The person is according to these theories seen as an acting being in social relationships and salutogenic roughly means "that which creates health". The whole person's functions and activities are taken into account, and the parts are only interesting if they can be seen as factors to the functions of the whole. It is hence not the parts that determine health but the total life of the individual. Health is seen as a dynamic process. The individual has according to these perspectives the chance and opportunity to shape their own life. It often centres on choosing the right actions, where health is seen as a means or a condition to live a good life. Health work with children and young people in this perspective employs resources to understand, handle and create a balance in life as well as finding a meaningful existence. Here friluftsliv close to nature can be an important factor for many.

Disease and well-being

The term health can also be described in a model with both an objective dimension illness, and a subjective dimension, well-being. An individual has health when she experiences well-being and doesn't have any illness. Four conditions can be called "health", "well adapted chronically ill", "risk of illness" and "suffering", see the Figure below.

Based on these areas an individual's health situation can be considered. What is then seen as well-being and illness will be both an individual and a cultural phenomenon, amongst other things depending on the current health view and the view of what it means to be human. Health can as a consequense be affected by a number of different factors both external and internal as well as by human activity. Examples of external factors are physical environment (on local and global level), cultural environment, psychological environment, living environment, social networks or economic standard. Internal factors are for example physical strength, psychological strength, interests or illness. The human activity is what I do with my life. Health is then created through human action. It then becomes interesting to see how friluftsliv and meeting nature can develop health at a more profound level where both objective and subjective factors are incorporated.



Who lives in the tree stump?

(about using imagination)

On a walk through the forest there is lots to look at. Not least, the tree stumps and the moss clad stones. Who lives here?

Split the children into small groups and let them with the help of their imagination and a magnifying glass explain who lives in this tree stump and what happens there.

Reflection. Through studying, fantasising and retelling the children practise expressing their experiences. Here you also experience different shapes, colours and smells.

Name game

(a game that practises species knowledge)

This game can be played where there are lots of stones and trees. Here you practise the names of species of birds, mammals, flowers and fish. If the leader calls "seagull" then everybody has to move from the ground up onto a stone or up in a tree. If the leader shouts "elk" all participants have to stand on "all fours" (hands and feet on the ground), Wood anemone - stand with your feet together and the arms above the head, "pike" – lay down on the ground. When the leader has called a few times then the participant that was first can choose the new name of a species.

This-we-just-have-to-do

(about having pre-determined places where you do the same things)

When you walk to your home place in the forest the walk can be made more exciting by doing things along the way. It could be to creep under the spruce, climb up onto the large stone, climb up into a tree, jump over the path, walk in a line with hands on each others shoulders around a sharp bend.

Reflection: by repeating activities the child becomes accustomed to its environment and begins to explore alone and in this way increase their experiences. The feeling of security can then help the child to dare to try something new.

Experiencing your senses

(about leading a friend)

The participants pair up. One in the pair is blindfolded. The "seeing" child leads their friend in nature. Here you can challenge the senses by giving the blindfolded person different tasks for example:

- How does the terrain feel where we are walking? uphill, downhill, hard, soft?
- Can you feel with your hand what you're holding?
- Taste this! Can you guess what you are eating?
- Smell! What is this?
- I'm stroking this against your cheek. Does it feel soft, hard, warm or cold?

Friluftsliv and health

The growing up conditions of children and young people today

Children and young people's health situation today must be understood in relation to the development of society. The quick pace of change in modern society strongly influences the life situations and habits of children and young people.

There is a strong need for young people to adapt and function in the modern society and there are many descriptions of the consumer society affecting human health. The modern society is characterised as a world of technology and bare facades, where urban inhabitants are distanced further from the rhythm and senses of nature. In such a critical stance to civilisation human isolation from nature is seen as a mirror of the individual's isolation of oneself. Many people in our culture spend their life trying to realise ideals to impress others, to become famous, and constantly perform and strive for a higher material standard. Our society is in other words largely embossed with the values and rhythms of technology and material production. People therefore find themselves in a conflict which expresses itself in an existential uncertainty, making

them question themselves and their life projects. They are therefore seeking alternative life values.

An increased supply of mass and social media and other types of commercial activities occupy a large amount of time in the lives of young people. Youth have a strong purchasing power which is courted by the entertainment industry, social media and adverts. Most children born in Sweden today grow up in an urban environment. It is thus the responsibility of adults to widen their world – and give them experiences and knowledge that contain alternative values. They need real impressions and experiences that go through their own bodies and not only artificially experienced via mobile phones and computers. Against this background it becomes interesting to discuss the relationship between health, nature and friluftsliv.

Friluftsliv as a method for health

We can consider the relationship between friluftsliv and health from two different approaches. The first is about seeing friluftsliv as a method to reach certain goals, the other as a goal in itself, in other words that it is the intrinsic value of friluftsliv that is in focus (see chapter 2 “From a natural life to friluftsliv”, page 29). This approach can be seen as two extremes to facilitate our understanding. In practice these approaches are mixed and play a larger or a lesser role.

Friluftsliv as a method means that the value of the activity in nature is primarily outside the activity itself. It could be a way to strengthen a person’s health. This implies that friluftsliv has a value only if it fulfills this aim. The meeting with nature is of subordinate interest, the benefit is the main thing.

From a health perspective the benefits of different activities in nature are generally aimed at the physical health, for example to get a better stamina, increase muscle strength or stimulate motor skill development. Nature is then an environment, when you train your body through for example games, walking, orienteering, canoeing, skiing or running.

There are a number of studies that show that friluftsliv has a great benefit for public health in this way. A large proportion of Swedes get their training through different activities in the outdoors. Pre-school children that have spent lots of time outdoors are generally healthier than children who spent lots of time indoors. Children who have been allowed to play freely in natural environments generally have better motor development than those who play in constructed environments.

Friluftsliv as a life quality

It is however important to be aware that the above described way of using nature more or less as a backdrop, doesn’t necessarily lead to a deeper relationship with nature. It is also not self-evident that this approach touches people’s health on a deeper plane. From earlier descriptions of children and young people’s growing up conditions today we mean that it is precisely these deeper dimensions of health that are in great demand. That should mean that the friluftsliv where there is a meeting with nature as a life quality and a goal in itself is the most important in order to promote children and young people’s health.

Patterns that unite

(about similarities between people and dandelions)

Bring the group to the nearest grassy area where the dandelions are standing shining like clear yellow small sunshines. Normally in spring or autumn it’s easy to find a bunch. Split the participants into smaller groups and let each group sit in a ring around a dandelion.

The task for each group is to find as many similarities between a dandelion and a person as they can!

Let the groups have plenty of time and ask them to write down what they come up with on a piece of paper. After questions and a slow start the discussion and creativity normally flows. It’s about finding patterns that unite, the glue that creates meaning and context in life.

Reflection: Normally the participants discover that much more unites people with dandelions than separates them! Such insights can often make the feelings for a dandelion change and you discover that there might be reasons to question our relationship to the dandelion. From having looked at this flower as a weed you might even see it as a co-representative for life on this planet. This can also be a way in to discussing more general questions about how we understand and relate to life, the living and the world.

Reverence for the values of nature

(about taking responsibility for nature)

To leave a place in the same way as it was when you arrived, should be a given. That means that natural material that has been used for different activities should be returned to nature. By selecting two participants, who together can find a nice place to put the material and at the same time say "thank you for the loan!", you treat what you have used with respect. It becomes an exercise in showing respect and understanding for the ecological system. In connection with this it's suitable to talk about cycles and what happens when things break down.

Reflection: to give thanks for the loan is a way to show humility in front of nature's values. When you work with small groups it is good that somebody in each group takes responsibility for returning material that has been used. It is also a way to create a larger understanding for things that grow and also get the participants to be responsible for their actions.

This approach aims for friluftsliv to provide unique experiences and that these experiences have their own value. The meeting with nature that has not obviously been controlled by man is of great importance. The individuals meeting with herself and other people are also seen as important motives for friluftsliv.

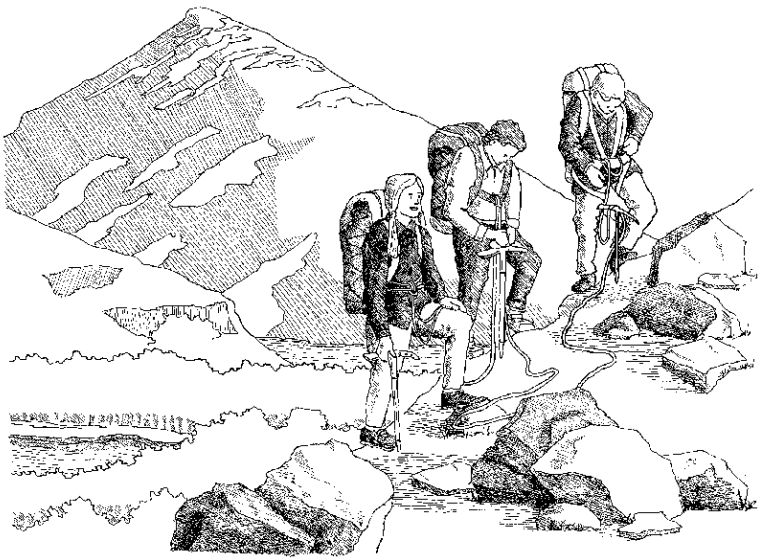
Friluftsliv accordingly becomes a part of health as it is a way of getting to know yourself, get perspectives on life and create meaning. In other words it is the existential dimensions of friluftsliv that are central rather than it's endurance building qualities. The primary importance of friluftsliv for children and young people's health is therefore that it offers them an increased quality of life.

Nature is seen as a sanctuary where we can escape our complex reality, chaos of society and problems of everyday lives. Friluftsliv then becomes an antidote to our everyday lives and enables us to reach a balance in our existence. This approach builds on a romantic tradition and is often embodied by a large measure of criticism of civilisation and can therefore be considered a possible vehicle for societal change. An important educational purpose is to show the alternative life values and an alternative lifestyle (see chapter 12 "Friluftsliv close to nature – an environmental learning opportunity", page 217). The rich but simple life close to nature is here highlighted as an ideal in life.

The health education qualities of friluftsliv

When people describe their nature experiences from a deeper perspective the following qualities often feature:

– In nature we can experience peace and we seek silence, quietness, and tranquility.



– In nature there is also the opposite, the excitement and challenge. This adventure theme often occurs in conjunction with very extreme and cool activities. But for most people the canoe trip on a relatively still river or a walk along a way-marked trail is sufficiently challenging. Even a walk in the forest close to home contains uncertainty about what could happen. There could be an elk in the middle of the path around the next corner. Friluftsliv becomes a contrast to our otherwise regulated, monotonous and predictable life.
– Irrespective of what you're seeking from friluftsliv the situation is concrete and tangible. Compared to our every-day lives it is a simple reality, where the demands on us and our needs are clear and evident; if your stomach rumbles you need to eat, when tired you need to rest or sleep, in order to move on you first have to wade across the river etc. More and more of our free time is otherwise filled by other people living our lives, playing, laughing and crying for us in films, TV and via social media. Friluftsliv is about real things that are noticeable with our own senses; to experience tiredness, hunger, pain, happiness, satisfaction of eating and joy. The results are that we meet ourselves in a way that enables us to gain new energy and build us up. When we have managed the challenges then we grow as people.
– Nature as an antidote to every-day life gives a feeling of freedom. The free space, without the constraining walls and with the sky as a ceiling contribute to the feeling being physically noticeable. But there is also a psychological freedom through the absence of constraints and musts that are externally enforced. Each situation offers a free choice: "I can take this route or that, I can eat now or in an hour and I can sit here in the sun or ski up to the top of the mountain". The concrete reality gives a direct feedback as to whether your choice was wise or not
– Being together and experiencing a feeling of community with other people provides additional qualities that are important for health. It could be grilling sausages with a class or a more tangible need for close cooperation in smaller groups in connection with risky activities.
– People for whom friluftsliv is a goal often talk of it being a way of gaining perspective of themselves and life as a whole. This wholeness often seems to have ecological significance. Perhaps it has to do with our affinity to and reverence for living things. Our ability to love living things becomes a source of strength.

Friluftsliv as an alternative body culture

Against the background of children's growing up conditions in today's society being in nature has a value as both a life rich with simplicity and as an alternative body culture. Today we see a tendency towards institutionalisation of play and movement, where activity is done in a regulated organised manner in separate play and activity environments. The supply of physical activities on offer for our children is often performance orientated, where the competitive element is

The trees buds

(about visualising details that simplify recognition in winter

Many people recognise trees when they have leaves, but it is harder when they are bare. Studying the structure of trees and their silhouette can give clues. Another way is to study the buds of trees. Use, if possible, a magnifying box so that the details are easier to see. Certain buds are hairy (for example rowan and hazel), others are round with shiny exterior or spool shaped and sharp (beech and aspen). In his book *Väntande, spännande natur* (1992) Anders Rapp describes the buds of trees giving them characteristic names, for example Violet Alder, the Twin Maple, Sharp Aspen… (you can also find these names if you look up the Swedish word for buds "knoppisar" on the internet).

In the following exercise the participants get to study the details of the tree. Divide the participants into groups (3–6 in each). Every group gets given a tree where they should study a bud and by using snow make a bud sculpture, the same height as one of the group members. The forest is transformed through this exercise to a sculpture park.

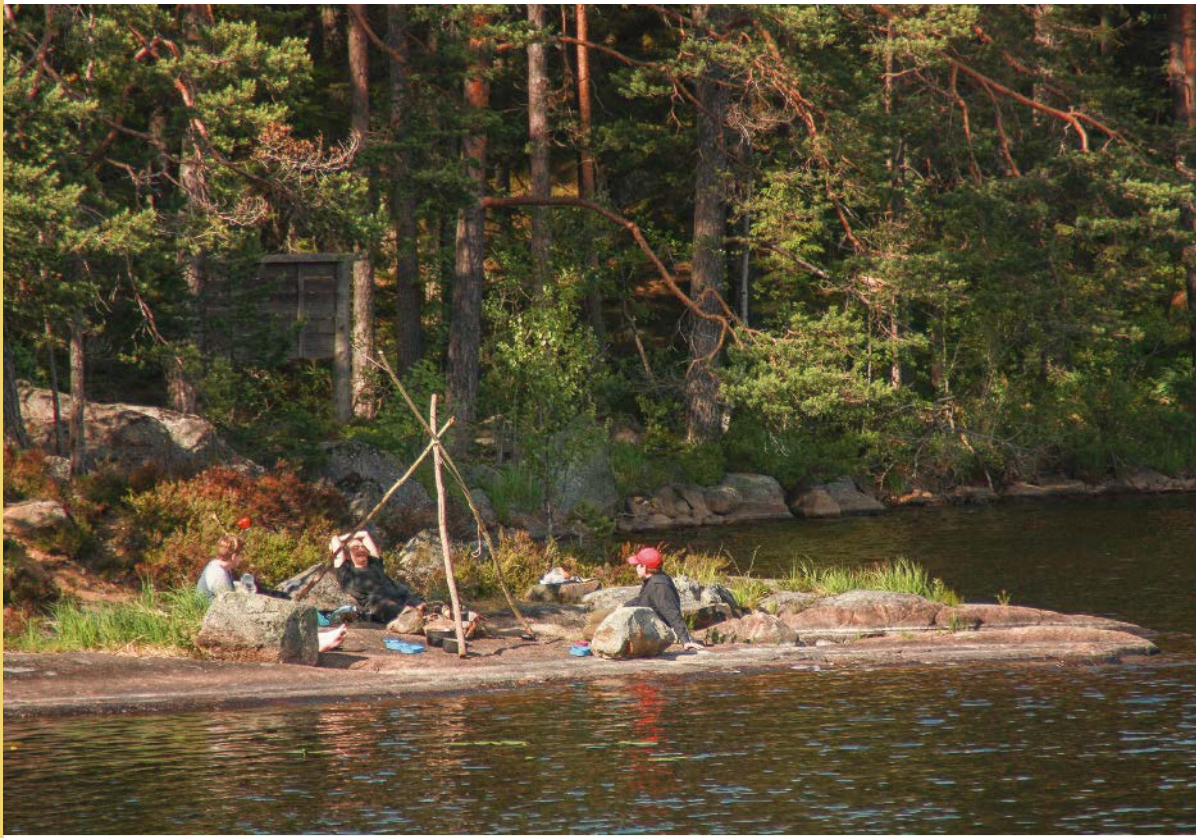
Reflection: this activity requires snow that can be shaped. The participants get an outlet for their energy building the bud large and full of detail. When everyone is ready each group describes what is typical for their bud. Co-operation in snow inspires creativity which in turn leads to happiness.

The hunter gatherer family

(about living as if in the stone age)

About 5–8 participants in each family. The family has arrived at a place that seems to be a good place for a camp and they will together help each other with the chores.

- A fireplace must be built. Fetch stones, gather twigs and branches as a preparation for making a fire. Get some rhythm instruments, dance a rhythmic fire dance, let the rhythms be heard in the next village.
- Soon it is time for the hunt. The whole family have to throw cones at a tree from roughly 10 meter distance. Throw until you feel that the hunt has been successful. It requires precision in the hunt.
- At the hunt movements have to be soft and agile. Can you approach a rabbit without being discovered? The rabbit lies in hiding at a pre-determined place. The others then try and creep as close as possible without being discovered.
- The flight. Two in the group are foxes. They have to hunt the others through the forest at high speed.
- The best hunting grounds are on the other side of the river. Find something to balance on. One person in the group then becomes a dead elk that has to be carried home over the river by the rest of the group.
- The family climb a 4m high tree and mark the "territory" with a flag. Let the hunting sounds carry across the forest.
- Gather something edible, sit comfortably and enjoy the day.



central based on comparing the performance between individuals. This breeds a body culture that is performance related and whose base values rely on competition and a fixation on results. This is a perspective that can be found in some outdoor sports and adventure projects and leads to an approach that objectifies the body. It develops a mechanical relationship and from this machine body a way of seeing the body has emerged with hard self-control and a forceful attitude to everything regarding the body's feelings and movements.

Friluftsliv and movement in nature can instead be seen as an alternative body culture for children and young people. Central to this are experiences, filled with joy of movement, sensuality and cooperation. A jump over the ditch does not have the same rules and demands of technical execution as a long jump with a measuring tape, performed in the athletic arena. It's about creating

conditions for children to find themselves in movement, in the limitless possibilities of their body, and in a being, where children dare to feel and express themselves freely. The stealthy emerging from a "pretend jungle" where you crawl, creep and walk silently gives an enhanced feeling for the movement. The escape "from the tiger" is an explosion of speed and agility. To lie hidden behind a stone and listen if somebody is approaching requires stillness.

Criticism of a body culture built on results in an environment of standardised aligned tracks comes from many directions. Criticism is also directed towards sports arenas and sports equipment with their functional and appropriate designs that are perceived as being artificial and one sided, thereby limiting creative activity. Instead, the experience itself is central, the expressive, where the forest and nature with their surprise elements can be seen as a symbol for a different approach to the body and movement. A body culture that has a focus towards nature because nature is incalculable, filled with surprises and experience that does not have a straight lines, i.e. the meeting with the uncontrolled. Many highlight nature, the green room, as a criticism towards the conventional sports halls. You can also see a growing interest for the development of a body culture where people can enjoy the experience in the motion, free from measurable results and performance fixation. Nature is then the ideal place.

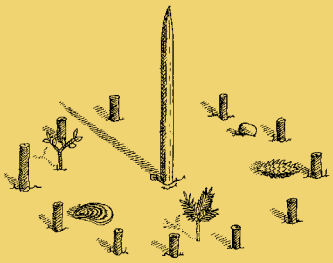
To give children and young people a possibility to really experience body movement is an important step in our striving to get them to develop holistically. Activities out in nature are not so performance related and they do not involve a standardised rule system. Performances are rarely compared in nature. You seldomly talk about who was the best in walking, grilling a sausage or smelling flowers. The focus of friluftsliv and activities in nature (hopefully) do not lie on technical competence but on the process where the individual and the group together meet challenges. Nature as an environment can thereby become a valuable way of giving children a harmonic development and life-joy that is not necessarily related to materialism.

Perhaps it is the meeting with the uncontrolled (meeting with the wild nature, where we also meet ourselves in our bodies) where nature affects health? If physical activities in the outdoors can fill the task of reaching the whole person (i.e. to feel both the body and nature as an organic unit, not as a machine), it represents health in a holistic perspective.

Physical activity and nature represent an alternative body and movement culture. The meeting with nature and friluftsliv has a new function in a society where the supply of commercial and artificial experiences are continually increasing. The thoughts from the romantic era about the free air and the "nature itself" as a route to health and quality of life becomes applicable.

Pedagogic possibilities and problems

Whilst it is easy to be attracted to this approach to friluftsliv we need to be aware that it can be problematic to apply it in an educational setting. What is considered as "correct" friluftsliv is by necessity bounded by tight borders. In order to meet the intrinsic



Time in the shade

(about making a sun dial)

Sometimes you want to manage without a watch. Then a sundial is good to find out when you should have a food break or when the group should gather. Place a straight stick in the ground. When the sun shines you see the shadow from the stick on the ground. At 6 o'clock the sun is in the east, at 12 o'clock it's in south and at 18.00 it's in the west. With the help of the shadow mark the times when it is breakfast, lunch, dinner or other times that you have decided with the group. In order to know what is expected food times can for example be marked with a slightly larger stone and other meeting times with a cone or sticks stuck into the ground. The shade then tells what is waiting instead of the time.

Reflection: this exercise gives knowledge about the movement of the sun and you can "read" a lot in nature, things that you otherwise might not think about.

Bottle race

(about racing in snow)

Find a large pile of snow. (You get these when you have cleared snow in school grounds or parking places). Split the participants into pairs. Give each pair a plastic bottle and let them fill the bottle with water. Each pair makes a "bobsleigh track" for their bottle in the snow heap. If you want to make it simple then make a track that goes straight down. The task could include making a track that includes a number of curves, tunnels, jumps, something that makes a sound when the bottle passes through, etc. If you want to develop it more you can time the bottles. Try and see if it's faster with warm or cold water, which shape of bottle is the best etc.

Reflection: Snow heaps are always exciting and by trying different curves, jumps etc. it is also a chance to think about building curves and other obstacles. This exercise is mostly about physics, speed, acceleration, friction and other exciting things. Naturally you don't have to have two people to a bottle but it's often exciting to discuss the solutions with someone.

values of friluftsliv described above large demands are placed on its practices and approach to nature.

For the simple and close to nature approach to gain greater importance from a pedagogical perspective it needs to be interesting and appealing to the group at hand as well as being thoroughly thought through and ideologically anchored.

To grasp the values that friluftsliv offers can take a long time as this lifestyle stands in contrast to the life that most young people lead today. It is an art to acquire the stillness and calm in nature, to experience the large and the little and see the simple as a value in itself when you live in a world of very quick and spectacular impressions. To awaken interest in these values you need to work with a relatively small and highly motivated group, allow plenty of time for the activities and practise them with continuity. These are precursors that are not easily met, for example in schools.

However, the gains seem to be so great, not least in the form of life-long health, that we ought to have no hesitation in trying!

Friluftsliv close to nature – an environmental learning opportunity

– About friluftsliv as a method for environmental concern

BY KLAS SANDELL

Environmental questions and environmental comittment

From nature protection to sustainable development

Today it is normal to be environmentally aware and preferably also environmentally committed. Friluftsliv is seen as an important teaching method to awaken and bring about a profound environmental commitment. But what is an "environmental commitment", isn't it enough to believe that nature is important or do we have to sort our rubbish too? Is it necessary that you neither use an aeroplane or a car and that you cultivate your own poison free food?

Parallel with the emergence of industrial growth there have been protests against it's negative environmental effects. Coarsely speaking you can split the growing environmental movement during the 1900's into four parts: nature protection, nature conservation, environmental control and sustainable development.

Each of these perspectives have dominated the debate during different periods but all also have their roots further back in time. You can also find them parallel to each other (and sometimes in conflict with each other) in the environmental debates of today.

The interest in **nature protection** at the start of the 20th century was based on using scientific, local cultural and national reasons to safeguard especially interesting objects or places. It could for example be a giant block of stone, a waterfall or old oaks. Sweden's first national parks and national monuments were established. Organisations for tourism (STF) and nature protection (Naturskyddsföreningen) were created. Starting with the upper and middle classes "nature" was given a recreational value for the urban population – as a challenge, as fostering and as contact with other values. The plant and animal protection laws, reserves and other types of nature protection are still important.

A fantasy story

(about making a story together)

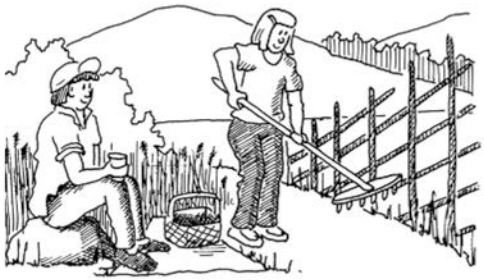
Nature hides many secrets. The participants in groups get given a letter and then go on a walk to find natural objects starting with their letter. When they reunite, somebody starts by showing their object and begins a fantasy story about it. The next person continues the story with the help of their object. When everyone has participated, they will have made a story together.

Reflection: The participants have a chance to move in peace and quiet in their surroundings. Split a large group into smaller groups (6–8 participants) so that the waiting isn't too great when they are telling their story. Using fantasy and creativity the story grows. Here you train co-operation, your own reflections, fantasy and storytelling.

Teaching the Right of Public Access

(about the right of public access (allemansrätten) for foreign guests or new Swedes).

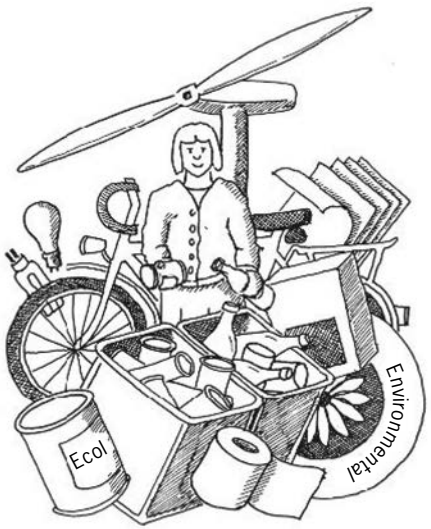
One way to explain the right of public access (allemansrätten), for example the right to make a campfire, can be to teach foreign friends what the right of public access means, not only via a brochure but tangibly in the countryside. Why not organise a walk on the theme in the local area during the tourist season or in co-operation with immigration organisations.



The nature conservation perspective involves people co-existing more actively with nature. This approach emerged especially during the 1920's and 1930's to keep, not least, representative areas for similar reasons as above, but also social reasons, friluftsliv and recreation, were more clearly a driving force. People realised that to a large extent humans had created the landscape that we see around us, for example meadows and pastures. This nature care perspective is of course still highly relevant in the shape of care plans for nature in forestry and farming etc.

Environmental control contains a systematic ecological perspective that together with ecological knowledge tries to understand the interplay between the nature and society.

This approach grew stronger after the Second World War (especially during the 1960's). Focus was placed on addressing indirect environmental problems of poison entering the food web (for example when small birds eat grains containing heavy metals that then poison their predators, especially birds of prey). The environment now became a more central question for governments with environmental protection laws, physical government planning and ministries for the environment. When it came to leisure and friluftsliv there was also an intense development regarding society planning and equipment. Many people acquired second homes, caravans, leisure boats and modern mountaineering equipment. Private cars became both more important for friluftsliv and one of our times largest environmental problems.



The need for a more **"sustainable development"** is the fourth perspective that started around the 1970's, even if there were already voices during the 1950's and 1960's.

Common concepts linked to this approach include: alternative, ecological, carrying capacity, sustainable and cyclical society. The aim now was not only to try to protect areas and counteract the negative environmental consequences of industrial and urbanised societies. The global perspective with pollution crossing borders and exploitation of natural resources, as well as distribution questions between poor and rich countries became all the more important. You seek to some extent "alternative" forms for a living, farming, forestry, trade etc. During the 1970's new environmental movements such as the Friends of the Earth and The Future in our Hands, were formed who raised these global life changing questions.

The fact that you can now buy environmentally produced and fairly traded goods in the shops are examples of how this has resulted in practical action. It is however pertinent to discuss the extent to which more radical perspectives will dominate the work for a more sustainable development. The tension between, on the one hand a more profound interest for an "alternative" societal development and on the other hand a somewhat polished (and as mentioned globalised) version of the more symptomatic "environmental control" perspective, are prominent environmental discussions today. The latter, less radical perspective, doesn't question in the same way the development and direction of society.

Friluftsliv, sustainable development and radicalisation

Some people within friluftsliv, especially in the 1970's, sought a less materialistic lifestyle, closer to nature as a radical way of moving towards sustainable development. To be radical means to go to the roots and be thorough. With respect to environmental problems this often involved basic life ideology. What is this good life and how can we strive towards it?

> What we react against is that our living standard has cheated us… If we are made dependent on lots of dependencies we lose our freedom. You become defenceless to change – insecure, as we based our life on material and commercial values… Effort is reactionary, the uphill lethal, the strife undemocratic - SWEAT SMELLS BAD! A comfort till death?
>
> TORVALD WERMELIN

However, the groups that radically criticised the material growth of society were (and are) quite small. When it comes to friluftsliv a commercial branch grew in the 1970's and 1980's with special equipment and individual fashion trends (see further in chapter 2 "From a natural life to friluftsliv"). But at the same time environmental concerns became more mainstream in politics and mass media, especially during 1980's, amongst others through education and organisations such as Greenpeace. The general public nowadays regard the "Environment" and "Climate change" as being the most important questions of our time.

From moss to art

(about different ways to get to know mosses)

The participants are split into groups (4–8 people). Each group should pick five different mosses and do as follows:

1. The groups reunite, look and feel their mosses and give them names based on what they look like or how they feel, for example Christmas moss, parabolic moss, messy moss etc. They shouldn't be names according to the flora. The mosses are presented.
2. The groups visualise one of the mosses by making a statue using the group's members. The other groups guess which moss they are supposed to look like.
3. Each participant chooses the moss they like the most and using charcoal (see the tip mini charcoal oven) or chalk they draw the moss on a piece of strong card.
4. The groups place the moss on the back of the cardboard that they drew and cover it with a piece of map plastic. They then find out the real name of the moss.

Reflection: By working with the moss in different ways, with different senses it is easier to remember it. When you make a statue of the moss with the group's members, you get the mosses character, but also practise talking together to decide which moss you should use and how it should be done. The exercise can naturally be stopped between each step.

What do you mean rucksack?

(about learning and trying to carry in ways used by other cultures)

The basic needs we have when we live an outdoor life, for example to carry, to keep warm, to make a fire and cook food, can be used as "cultural bridges" to people in other countries, that are still living or have recently lived closer to nature. Choose a theme, for example "to carry". Using the library, museums and people who have travelled try and understand how other cultures solved their carrying problems: the carrying frame of wood and leather straps in North America, conical basket with a headband in the Himalayas, carrying oak and carrying wood in the old Swedish farming society, on the head in Africa and with plastic bags and soft pack in Sweden today. Try out different ways of carrying whilst you are doing friluftsliv. A headband can for example be a good compliment when you are carrying heavy things.

Even if all four perspectives above (nature protection etc.) in different ways aid today's environmental political debate it is the latter, the "sustainable development" perspective, that is the most profound. It is reasonable to assume that if an individual or a group adopt one of these perspectives they also agree with the one's that come before. If you for example support the nature conservation perspective then it is probable that you also support the nature protection perspective, but not a given that you stretch as far as the environmental control or the sustainable development perspective. Without a doubt our knowledge of environmental problems has increased greatly, especially in the 1980's. But now, during the continuing 2000's it's a question of how this knowledge translates into action! Environmentally classified goods and services, car emission reduction and increased environmental interest in schools and media are important steps in the right direction. But when it comes to basic questions on resources and global distribution not much has happened.

Different research reports have shown that the ecosystems of the world cannot cope long-term to support more than about half a billion people, given today's western lifestyle. Already today more than 1 billion people are living like we are. And the number is increasing quickly.

ANDERS WIJKMAN
former Deputy Head of the UN developmental program

A borderless enviroment - but different environmental problems

Pollution or poverty

Even if the environment is borderless the environmental problems are different for people in different parts of the world. Roughly speaking you can say that the more industrialised a country or region is, the more it's about poisoning and pollution due to over consumption not least of non-circulating resources (for example oil, coal, uranium). In the countryside in the poorer countries the main problem is often poverty that drives people to over exploitation of natural resources – forests (for wood, new areas for cultivation and export income), drinking water (for irrigation) and good soil (for example on slopes where the soil risks being washed away by rain).

At the start of the 21st century, the environmental and natural resource problems become both more global and more local than before. Many of our current problems have global causes and global effects. Examples of such environmental problems are pollution of the oceans by plastic particles (that affect marine life) and the greenhouse effect (that changes the climate of the Earth).

But the problem is also more local as the reasons often directly connect to the life-styles and consumption of individual people. The greenhouse effect is caused by for example both emissions of carbon dioxide from fossil fuels (for example from car exhausts) and by deforestation in poorer

countries (for example to gain more fertile land). The problem is therefore not only to do with the "factory over there" and the "politicians up there" but has to a large extent to do with the choices made by each person in their own every-day situation. It is there the changes must happen. At the same time, it is not easy, not to say impossible, to be environmentally friendly in an environmentally unfriendly society. The societal development determines the choices that we have when it comes to for example transport, living, food and energy.

Environment and ethics

The material standard in the world is very unevenly distributed. This is how it's described in the United Nations report when the new millennium started (2001).

> The world's richest countries, with 20 per cent of global population, account for 86 per cent of private consumption, the poorest 20 percent account for just 1.3 per cent. A child born today in an industrialized country will add more to consumption and pollution over his or her lifetime than 30 to 50 children born in developing countries…Nearly a third [of 4.4 billion in the developing countries] do not have access to clean water, one quarter lack adequate housing, 20 per cent do not have access to modern health services…
>
> UNITED NATIONS POPULATION FUND

In Sweden we import oil and uranium for energy to our cars and hairdryers. In for example Africa you chop down what little forest remains to get wood for your cooking and so on and so on!

The quantities of resources used by each individual represents one side of the coin when it comes to sustainable development over time (see Chapter 4, "Ecology, human ecology and sustainable development"). But the quickly increasing number of people on the Earth is the other side. Some people maybe ask: why should I consume less, for example drive my car less, when those in poorer countries may have 10 children per family?

There are at least three good reasons why we in industrialised countries ought to reduce our material consumption and work towards a fairer division of the earth's resources. Firstly, there is a "debt" to pay back that is about colonialism, debt traps etc.

A twinned class

(about getting a twinned class abroad)

Something that may be fun and interesting is to find a twin class in another country. Invite the class to Sweden. Let your guests experience a program that contains as much of what is typically Swedish regarding every day and frilufts life: hikes, sailing, simple cooking over an open fire, berry and mushroom picking etc. It is unique to have as much access to nature as we have in Sweden. Therefore, we have a great chance to pass on feelings for nature and to explain what the right of public access (allemansrätten) means. The twin class may view nature in a different way, which could lead to interesting discussions and exchanges of ideas.

Reflection: Children in school classes often have different experiences of being out in nature. They learn quickly from each other and their experiences of outdoor life can be used as inspiration, even for the parents. Family days or evenings where the pupils can lead the way in nature, could be a way to inspire adults to spend time in the outdoors.

Numbers in the ring

(about mental arithmetic, numbers and storytelling)

Prepare the exercise indoors. All participants get a piece of thin card, A4 size. The card is then cut into 10 sections. On each piece of card write a number between zero and nine, as well as a plus and a minus sign. On the other side draw a simple picture, for example the sun, moon, a house, car, book, flower… the group is gathered outdoors in a circle. Everyone places their pieces of card with the numbers visible inside the ring. The leader then says a number (for example 7) and the participants now take cards that create the number seven (for example 5+2, 3+4, 9-2, 1+3+3). The pieces of card are placed in front of the participants in the ring. When everyone is ready, they move around the ring with the numbers and discover that seven isn't only a number but that it can be expressed by many. If you want to strengthen the learning fetch objects corresponding to the given number, for example cones or stones and place them in the ring. The pieces of card are placed back and you get a new exercise.

The cards can also be used when learning a new language. Everybody takes a card, looks at the picture and describes what they see or which feelings they get.

Reflection: this exercise uses mental arithmetic as well as working with language skills and discovering diversity. To speak about something that you're holding in your hand can

▶

> Until the lions get their own historians the hunting histories will always glorify the hunter.
>
> AFRICAN SAYING

Secondly, in the long run it is not sustainable to have increased discrepancies between countries or in the world globally. Neither is it sustainable to continue with the large scale use of non-renewable resources. Changes must occur and it is better to make changes willingly than to just wait and see what will happen. The environment and natural resource problem is not least a question of peace.

> In the simple lifestyle there is a harmony with creations given order… The richer countries have a chance to develop a simple society, that is rich in community and spiritual culture, that stands in solidarity with the poor and in harmony with the given order of nature.
>
> FROM: Rich And Poor, A Letter From The Bishops Of The Swedish Church About Righteousness And Morality In The Global Economy.

Thirdly, we know from history that the most important reason for diminishing population growth is that people achieve a better standard of living. Sweden has also had it's "population explosion". The Swedish population increased from around 2 million at the end of the 1700's to more than double that 100 years later and re-doubled again in the next hundred years, reaching the 10 million of today. If so many Swedes hadn't emigrated to North America we would now have had at least another 3 million in this country. Great Britain has more inhabitants per square kilometre than for example Pakistan. But we do not think of Great Britain as "overpopulated". The Netherlands has more inhabitants per square kilometre than for example India etc.

Although we mustn't forget that the size of the Earth is limited, the question about whether a country is seen as "over populated" is more about production relationships and trade relationships than just the number of people. The environmental and natural resource problems become to a greater extent ethical questions. There is of course no "true" scientific answer to questions like "how much can a Swede drive their car today bearing in mind the risk that the greenhouse effect might make large parts of Bangladesh uninhabitable in the future".

Friluftsliv and environmental teaching

Proximity, feeling, action

It is often argued that proximity to nature leads to a feeling for the same, which in turn leads to a desire to change one's behaviour for the benefits of nature. This chain between close contact and environmental concern takes it's base from the importance of *enjoyment* and *feeling safe* in nature. The importance of both the *discovery* and the *experience* is often emphasised, even at the cost of the more traditional factual knowledge. To be a *role model* is important, and when it comes to *respect* and wonder in front of nature's different creepy crawlies and shapes. Children and young people need to be *actively engaged* and not only spectators and liste-

ners is of course, as in all pedagogic work, of central importance. The ability to *connect* the friluftsliv teaching to families, neighbours, indoor activities – and in schools to other subjects – is important in order to anchor the perspectives to a *wider context*.

There are many good reasons to believe that such a positive connection exists between nature contact and environmental activism. But it is definitely not just a simple causal chain. Not least the type of nature contact plays a part, the "friluftsstyle" as well as the teaching and the social setting. Added to this we know very little about the role friluftsliv and outdoor organisations have in building an understanding when it comes to environmental questions. Even if the nature contact has been a very important precursor there may be other factors, for example TV programmes, environmental organisations, education, that make the environmental engagement visible. It is often very hard to decide with certainty what is the cause for such activism.

We must not forget how different environmental activism can come out with different people and groups. Eva Norén-Björn writes about children's environmental awareness in *Uteboken*:

> To carefully hold the worm and let it down into the Earth again; To carry the frog over the road; To bury the dead bird.

help you forget that you are shy. Talking about something everybody knows can results in acknowledgement when the participants nod knowingly.

A voluntary journey

(about travelling and working as a volunteer)

Many organisations are members of the Swedish volunteer group, SVS. This is an organisation that enables people to go to other countries as volunteers and offer their knowledge to others. These voluntary activities often happen in developing countries, for example a local project for more sustainable agriculture. You become a volunteer because you want to give something to the country, you do not get a salary, but sometimes the cost of your food and accommodation is covered.

Is it relevant to you, perhaps

Is it relevant to you perhaps
What I do?
and what I think?

Is it relevant to me perhaps
What you do?
And what you think?

Are we relevant to each other
perhaps? You and I and all of us
That happen to live here
just now
And on whom it all depends
what will happen with the world.
Are we relevant to each other

perhaps
Perhaps that's it.
Perhaps…

INGRID SJÖSTRAND

A fireplace tells us of our future

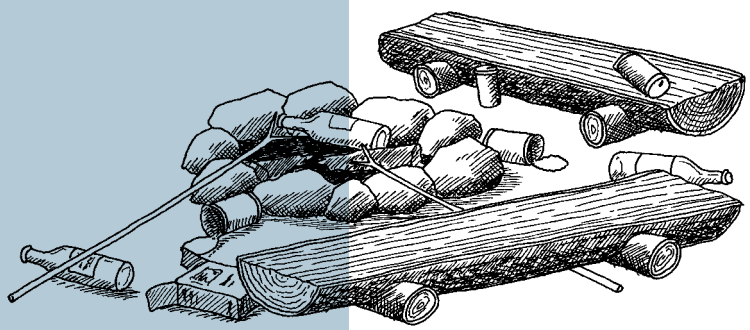
(about exploring a fireplace)

Together with a group explore an old fireplace, preferably one that has been used a lot, for example along a hiking trail (to clean up is at the same time a good deed for today). What will be left? What will probably be left in 100 years? In 1000 years? From where do the things come that disappear quickly and those that remain for a long time?

Reflection: by explicitly showing the remains of for example tin foil, aluminium cans and closing clips for plastic bags you might understand the importance of considering what you use and how important it is to bring home what you have taken out with you.

When researchers have tried making general models of what leads to environmental activism they tend to contain many boxes, arrows and re-couplings. Often factors that directly connect with the person themselves (education, attitude, feeling of being able to make a difference in society, upbringing etc.) play a role. But there are also more general societal factors that are about for example the aptitude for debating and the economy as well as situation dependent factors such as if you happen to get in contact with a certain environmental question for an environmental action.

But research still indicates that personal experience of nature – not least in the early years – probably has a large bearing on what we later call environmental commitment. A strong coupling between friluftsliv experience and deeper feelings of meaning and quality of life are here probably of great importance (see also chapters 2 “From a natural life to friluftsliv” and 11 “Friluftsliv, health and quality of life”).



When your motives for environmental engagement are only based on facts, they are often questioned, when reserachers contradict each other or when new findings overthrow old “truths”. It’s important to be able to separate on the one hand an interest in the simple qualities of friluftsliv and understanding of the impossibility of a constantly increasing use of resources, and on the other hand questions about which packaging is most environmentally friendly or which chemical substances are the most dangerous.

One shouldn’t underestimate the possibility that friluftsliv, or maybe especially the choice of friluft style, can be seen as a result of environmental interest awakened in other ways. You could therefore through, for example, media and education have gained an environmental concern that then expresses itself by the way you put special demands and interests on how you live your outdoor life. Much of today’s interest in “sustainable tourism” and “ecotourism” are probably the result of environmental concern awakened in many different ways that have affected how you choose to be a tourist.

Using Friluftsliv for environmental teaching

On page 226 you’ll find a model of some important aspects in the relationship between environmental engagement and friluftsliv. The model builds on the concepts and divisions that have been presented earlier in this book. In order to subtly differentiate the elements in the concept “environmental engagement” the four main

perspectives are used in increasingly radical steps – nature protection, nature conservation, environmental control and sustainable development - that were described earlier in this chapter. To differentiate the concept of friluftsliv I link to the two main motives for spending time in the outdoors – friluftsliv as a method and friluftsliv as a goal in itself. This division was described in chapter 2 "From a natural life to friluftsliv" and also used to discuss different health pedagogic perspectives in chapter 11, "Friluftsliv, health and quality of life".

When it comes to the question of the design of friluftsliv (the activities and the natural perspective etc.) a division into three main styles is used, as described in chapter 2, "From a natural life to friluftsliv" in other words the "active domination", the "active adaption" and the "passive adaption" styles. It is important to be able to mix and match between the different styles in relation to the group, landscape and aim. But the balance between the styles probably plays a role, not least when it comes to the environmental teaching of friluftsliv.

There are many reasons to believe that the choice of frilufts style and motivation has a determining role in the success of environmental concern. In the figure on the following page you will therefore see five important routes of friluftsliv that can work as a source of inspiration for environmental concern (1–5 in the figure).

In summary, it's about trying to elevate friluftsliv as a method in, for example, schools, planning in society, leisure programs and tourism. It is to a large extent enjoying friluftsliv as a goal in itself and at the same time find the teaching bridges that can slowly radicalise environmental engagement. When it comes to the choice of friluftsliv style it is important to try to include aspects of the "active adaption" to emphasise the person as a co-actor in nature – one reason that we include a lot of crafts in this book. But the "passive adaption" style is probably also a useful tool, even though it's mainly used for a more limited nature protection perspective.

The "active domination" style probably plays a limited role in environmental teaching. This is in part because it is in itself often damaging for the environment through its large need for fossil fuel driven transport, specialised synthetic equipment etc. Partially, due to it's activation fixation, it doesn't often give space for the deeper, softly spoken and finely tuned approach that is central to inspire friluftsliv as a goal in itself. However, it is worthwhile remembering that the "domination" style can play a significant role in awakening interest in friluftsliv (even through the media) that can in turn become a starting point for the other perspectives. Often, spokespeople for advanced and performance orientated friluftsliv (in line with the dominant perspective) are those who themselves emphasise the value of the frilufts experience - something that is probably of great importance as a role model for others, for example children and young people.

Can you keep the embers alive

(about saving embers in a tin)

One way to increase both your outdoor knowledge and awareness of the importance of fire is to try and save or transport embers. Fill a tin with (in order) 1/5 ashes; 2/5 embers; 1/5 ashes and 1/5 moss (as heat insulation). Embers and ashes can be taken from your fireplace using for example pieces of birch bark and the fire can be re-started from the embers using dry, thin birchbark strips and a "fireball" of dry and crumbly juniper bark.

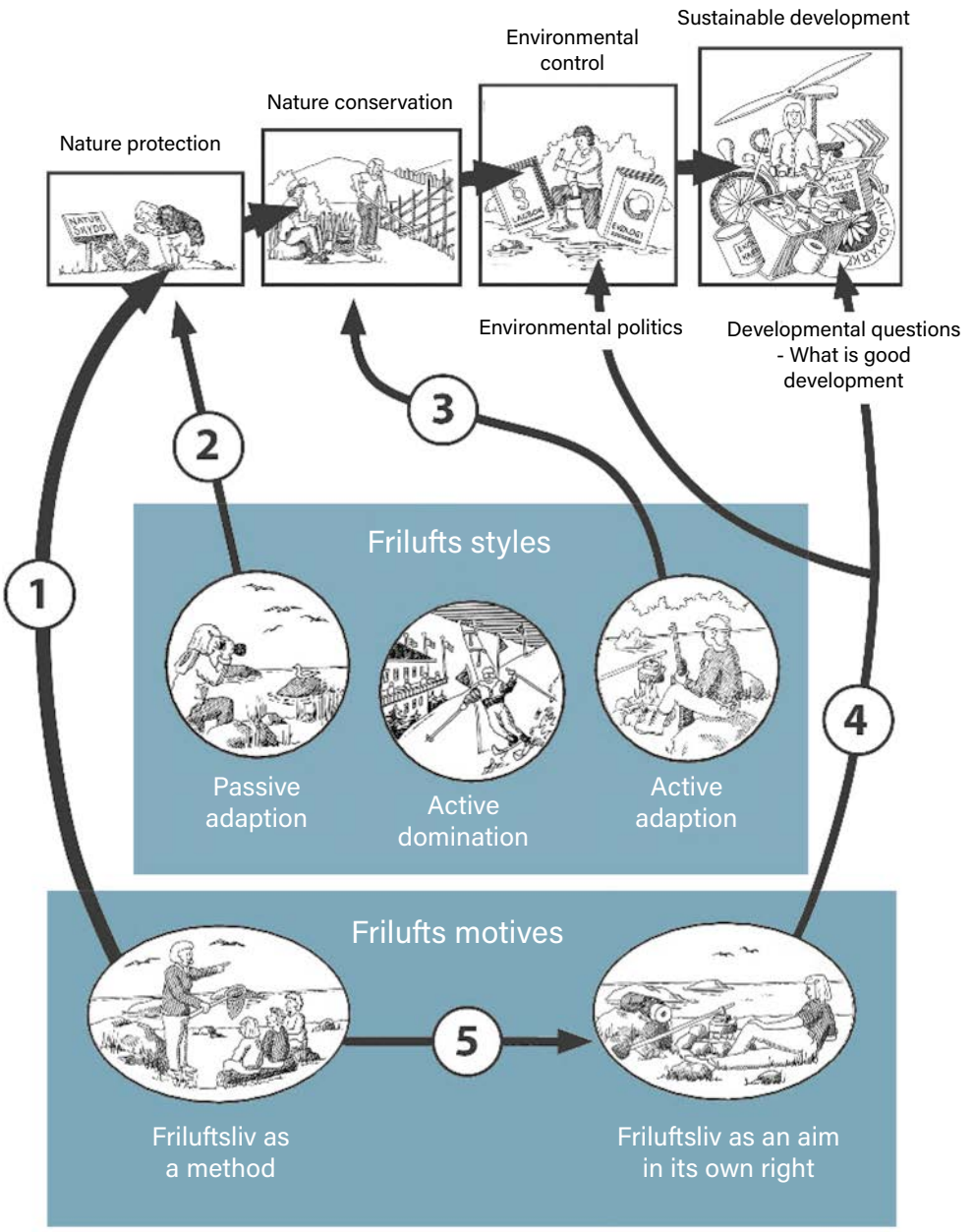
Although humans have used fire for a long time it was probable that in early-times they had to keep alive the embers from naturally occurring fires, such as those that occur after lightning strikes. Later, fires were started using a friction drill and then, when iron could be made, you could start a fire with the spark from a metal striker. Matches didn't arrive on the scene until the middle of the 1800's and the so-called safety match that can only be lit when struck against a special surface, started to be used at the beginning of the 1900's.

Reflection: the difficulty is to revive the embers and bring the fire "back to life". Here it is important to have dry and thin material and add oxygen by carefully blowing life into the embers.

It's simply all about which future society we want to create and thereby which possibilities and limitations humans will have to shape their lives.

From the swedish book: *Miljödidaktik: naturen, skolan och demokratin* (SANDELL, ÖHMAN & ÖSTMAN, 2003)

Environmental engagement



Friluftsliv

1. The first arrow is about "pedagogic bridges" as a deepening of enviromental concern. The starting point is friluftsliv as a method (in this case for environmental engagement) and it's about using different experiences as a base for discussion, illustration of humans relationship to nature and questions about life quality and development goals. By, for example, experiencing and discovering the changes in the cultural landscape (see chapter 5, "The history of the landscape") you can as an outdoor teacher show the continued interaction of the people with a landscape, which motivates not only the need for "nature protection" but also "nature conservation". Through ecologically inspired studies, illustrations and discussions (see chapter 4 "Ecology, human ecology and sustainable development" and the landscape chapters, 5-9) you can point to the importance of deepening the concept of environmental concern from nature conservation to environmental control. Experiences of friluftsliv with the chances of reflection can include environmental ethical reflections (see chapter 2 "From a natural life to friluftsliv") where a more limited environmental perspective is widened towards sustainable development. This could be about who has the right to do what in conjunction to others – other species, future generations or exposed people in poorer countries. What are reasonable developmental goals and what is life quality when it comes to for example material consumption and experiences?

It is important that these outdoor pedagogic bridges indicate possibilities so that the environmental problem doesn't push away the positive experiences of friluftsliv. A "barrier" towards continuing from nature protection in the direction of sustainable development could, for example, be resistance to "political" questions or that you perceive representatives of the more radical perspectives as being too extreme.

2. The passive admiring adaption friluftsliv activities can be an important inspirational source in order to want to protect certain species, plants or habitats from exploitation in accordance with the nature protection perspective. You will want to save the things you like. Here we mustn't forget the inspiration that can come from "surrogate" passive admiring adaption friluftsliv, in the form of nature programmes on TV and nature and friluftsliv magazines.

3. A more active use of landscape in friluftsliv can probably inspire a nature conservation perspective – you will want to continue using the nature/place for what you do. Research indicates, however, that such an active use of the landscape for friluftsliv (for example for hunting and fishing) without a more overarching human ecological relevance (about human – nature – development) probably doesn't lead to a more radical environmental activism other than for local issues.

4. In the figure, environmental politics (for example the need to make laws and use economical tools) and developmental questions, are presented as probable motivators for environmental control and sustainable development. But the motive of friluftsliv as a goal in itself can probably also work as an important inspirational source. This inspiration can stand more freely and be more stable than the constant twists and turns of the environmental debate about what is or isn't environmentally friendly. Friluftsliv as a goal also emphasises values that differ from those of the conventional fixation with materialism and consumerism.

5. Even friluftsliv used as a method can awaken the perspective of friluftsliv as a goal in itself. It's possible to find that friluftsliv becomes an inalienable quality of life, and a life ideal, which can then form the basis for a profound environmental engagement far beyond the facts and figures of the informed political debate. As an outdoor teacher it's good to weave nature contact into your planned activities and give it a value of its own, even though the activities might have been motivated by different aims (natural knowledge, self-confidence etc.) – include the still moment in nature that gives perspective.

Coal bun

(about cooking coal miners food)

Fry diced pork in a frying pan. Pour over a paste that consists of wheat flour (preferably mixed with cornflour), a pinch of salt and some water. The paste should be thick like a pancake batter. Cook the coal bun on both sides. Eat with lingon berry jam.

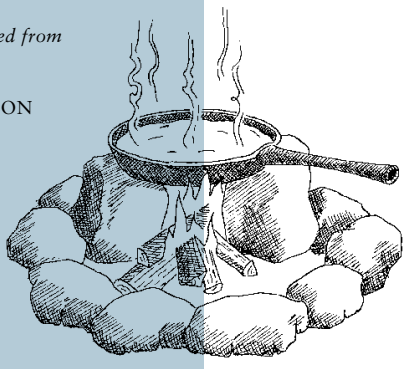
Reflection: The coal bun was a typical dish for forestry workers in previous times. It is simple to cook and has few ingredients. Take the chance to read some coal miners stories by Dan Anderson or sing one of his songs. Then you will have the coal miners ambiance whilst you eat your buns.

I am waiting

I am waiting by my log fire
Whilst the hours pass by
Whilst the stars wander
And the night pass.
I am waiting for a woman
From a far-away place
The most beloved, the most beloved with
Eyes blue

Loosely translated from a poem by

DAN ANDERSSON



The practical teaching of environmental activities

Why frilufts activities?

How much of the "pedagogical force" in friluftsliv do we actually use and how often does the landscape become just a backdrop for the programs that we have already decided to do? *Why* are we really doing friluftsliv? Are we going into the forest only because it's a way to keep us entertained and that friluftsliv ought to be included? Or, are we trying in advance to decide what we want to achieve? Are we making hiking trays or carving ladles because it's a fun thing to do, or are we working the group together using materials close to nature?

It is of course not only one or the other reason, maybe both because it's a fun thing and a way to unite the group. But a more conscious friluftsliv pedagogic perspective could include:

To consider different materials when we are sewing pack bags. Are we going to use materials close to nature, such as cotton and linen that are quickly renewable? Or are we using synthetic materials, that needs millions of years to be created? Are we sure that the latter is better? How much of such natural resources, that are non-renewable, have we today and in our society the right to use? Are we saving the synthetic materials for those functions where we really think we need them?

To raise current environmental and political questions, and their ethical dimensions, even though we often have to admit that we are unsure and don't have a "right" answer.

To have a cultural historical connection in our friluftsliv, which is often a simple way to make a good programme. Preserving knowledge about how you survive in the outdoors, using old methods, materials and ways of being. A theme day by an old mill give us an exciting insight into human ecology and history.

To build the base for more international solidarity and even healthier food habits by avoiding chemical farming, long-distance transport and animal factories. The participants on the friluftsliv day or week camp can help each other to chop wood and peel potatoes instead of somebody stirring the potato powder from the factory over a gas stove and somebody else trying to think of something to do.

Friluftsliv close to nature- a lifestyle!

The chance to join together words such as "environmental concern", "solidarity" and "awareness" to friluftsliv sounds good. But for each one of us we must make these happen in our own way, depending on what we and the participants can achieve, where we live, the time of year, the weather etc. It is not a question of trying to hold a lecture in a forest but more of catching the moment and sometimes adding a reflection that links the

practical experience to the larger questions.

There is a difference between sitting in a classroom and talking about energy, and finally getting the fire going and feeling the heat spread through your body, to dry those wet socks, hear the pancake sizzling in the frying pan and finally get enough light so that we can organise the sleeping bags in the wind shelter. There is certainly a difference between talking about the importance of co-operation when you're sitting in the conference room, and experiencing having carried a heavy pack, about to make dinner when it starts to rain again! There is an extra teaching force in the experience, and not only the intellectual and the abstract term, but through feeling and sensing it in your own body!

An important strength is people who through Friluftsliv and outdoor experiences know that some of the richest moments in life are often found in very simple environments! Hence, there is a golden opportunity to show that an environmentally suited lifestyle isn't a sacrifice but a possibility.

Nature is the home of culture.
Natural friluftsliv is a joyful way home!

Motto for the norwegian mountain school

This more natural lifestyle today can for example include that we:

- try to minimise our use of cars and when we must use them to drive more slowly so as to emit fewer greenhouse gases from the Earth's "hidden store" of energy.
- try to increase the use of bio-fuels and other energy sources, in part through actions, and in part by creating opinion (have you ever, for example, considered that gasoline is fossile whilst methylated spirits is made from wood?).
- are prepared to pay more for goods that come from poorer countries so as to increase their purchasing power for the worlds energy resources and energy development (start for example by buying coffee, tea, fruit etc that are labelled with a fair trade mark).
- we shop for food, trying to buy raw materials that have been produced close to home (with shorter transport) and in as environmentally sound a way as possible (for example environmentally labelled).
- as far as possible use natural materials in, for example, outdoor equipment and clothes and avoiding packaging and other things that risk a long time impact from our careless actions.
- together, in various contexts and in different ways, try to influence others and the society at large to choose a more sustainable way forward.

Necessary, unnecessary, damaging?

(about what you really need)

This is an activity that can lead to many important thoughts (and actions) when it comes to our needs and our responsibilities. Split the participants into small groups (3–5 in each group). Each group gets an envelope containing a number of pieces of paper (preferably about 50). On each note an item is written, for example, a washing up brush, drinking water, a music player, hairspray, a newspaper. The exercise is for the groups to choose 10 things (notes) that they regard as absolutely necessary and 10 that they consider totally unnecessary. Each group explains their choices and everyone considers what they really need. The discussions can continue by considering where the different things come and what we can do to live in as environmentally friendly a way as possible.

If you use real things, as opposed to the notes, you could combine the exercise with going through the outdoor equipment and making a list for the coming hike. A reading tip is chapter 4, "Ecology, human ecology and sustainable development".

Reflection: in the little group it's important to argue for your preferred items and practise defending your decisions. However, when presenting their choices to the large group the little group stands united in its position. These reflections over what we need and what we have access to, compared to the needs of people in other countries, can be a start for international involvement.

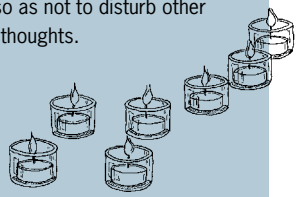
Starry skies

(about star signs)

Stars beckon to our thoughts and feelings. The darkness of the autumn and winter evenings is the right time to study the stars. Use binoculars so the constellations come closer.

To get a different feeling you can make your own star sky. Copy a star chart with the constellations clearly shown. Let the participants (in pairs or small groups) get a star sign each. The participants should now place tea lights in the shape of their star sign in a large open area. (For fire safety the tea lights should be placed in a glass. The glass will protect against snow melting and extinguishing the candle.) If possible, this exercise should be started while it's still somewhat light. After the participants have put out their star signs all gather around the campfire and tell the legends of the different star signs (at the library there will be books about this). When it's dark you slowly walk back through the constellations and have a chance to think and wonder.

Reflection: to get closer to astronomy in this way can kindle an interest. Apart from knowledge about star signs this gives a chance to enjoy a sensitive moment that you have created yourself. The walk should be done alone or in pairs so as not to disturb other people's thoughts.



The importance of nature encounters in education for sustainable development

Nature encounters have been used within environmental education for a long time but their pedagogic role and content has changed over time, depending on which educational context is being used and on the aims of the education. Three important traditions within Swedish environmental education are: a fact-based (where the environmental problem is seen as a problem of knowledge), normative (where the environmental problem is seen as a life-style problem) and pluralistic (where the environmental problem is seen as a conflict between different values, viewpoints and interests). It is primarily to the third tradition, the pluralistic, that education for sustainable development can be said to belong to. The important borderline that differentiates the pluralistic tradition from the others is that neither facts nor certain norms are seen as enough for the basis of environmental education. Partially due to the fact that it's not always clear which environmental actions results from those facts or norms, and partially because it's not always obvious which facts or norms are most relevant for sustainable development; what is it that should be sustainable, for whom/who, in which time perspective? The aim of education in the pluralistic tradition is that the students become competent to actively take part in the democratic debate about sustainable development.

It is mainly within the two earlier traditions that the nature encounters have been used. The fact-based tradition has emphasised how nature encounters with all the senses gives more effective learning with more dimensions and that more knowledge is retained. In the normative tradition the role of the nature encounters has been to use positive natural experiences so as to create a desire to care for nature, resulting in more environmentally friendly actions. These methods can of course play an important role even in the pluralistic tradition, but here are six suggestions of how to enhance sustainable development within a pluralistic education.

I. Experience-based knowledge of nature

In our research we have seen that outdoor activities constantly initiate sensual and experience based understandings of nature that are important compliments to scientifical descriptions. Nature encounters can have a static, moral, practical or emotional context.

II. Relational ethics

Many environmental ethicists and philosophers believe that traditional value-based environmental ethics are unfeeling for personal,

situational and contextual aspects of our moral relationship to nature and have therefore developed alternatives. These alternatives are based on the relationship perspective and the experiences that the people have in connection with outdoor education. These can therefore play an important role in developing a moral reaction and a spontaneous care for animals and plants.

III. An existential perspective on sustainable development

Many people believe that education for sustainable development means a widening of traditional environmental education through not only involving an ecological perspective but also including economic and social aspects. The nature encounters adds a fourth perspective on sustainable development – an existential one – that has its base in aesthetic and emotional relationships to nature.

IV. Human ecology in practice

Throughout the growth of the modern society people have gradually become distanced from nature, both practically and in mind. But our dependency on nature when it comes to food, water, energy and material is today as large as ever but to a large extent invisible. Friluftsliv and education in nature offer a chance for people to have direct and tangible - into the bare body – experiences of connection with nature and our dependence on nature to meet our basic needs.

V. "Rich life with simple means"

Friluftsliv and outdoor education can offer a position from which daily life, the modern lifestyle and the development of society, can be critically viewed. "A rich life with simple means"

where teaching can give rise to new questions and discussions about the values that ought to dominate future societal development.

VI. Place relations

From a democratic perspective the general public's understanding and motivation can be seen as absolute when it comes to the long term acceptance and development of environmental politics. Here your own experience probably plays an important role –the personal relationship to the landscape that provides ecological evidence of the environmental needs of humans.

KLAS SANDELL AND JOHAN ÖHMAN
Professors in Human geography and Education, respectively

Further reading in for example: Östman, L. (red.) *Naturmötes-praktiker och miljömoraliskt lärande*, Uppsala universitet, 2015; och Öhman, J. & Sandell, K. *Environmental concerns and outdoor studies: nature as fosterer.* I: Humberstone, B.; Prince, H. & Henderson, K.A. (Eds.), *Routledge International Handbook of Outdoor Studies*, Routledge, New York, 2016, s. 30–39.

Bats in the dark

(about illustrating how bats navigate)

In Sweden there are 19 bat species. They feed at night on insects and small animals that they capture in flight by sending out high-frequency sounds that reflect off their prey. Bats need to eat about 3000 insects every 24 hour period. The participants stand in a ring. One is selected to be a bat, given a blindfold and placed in the centre of the ring. The bat sends signals by clapping their hands.

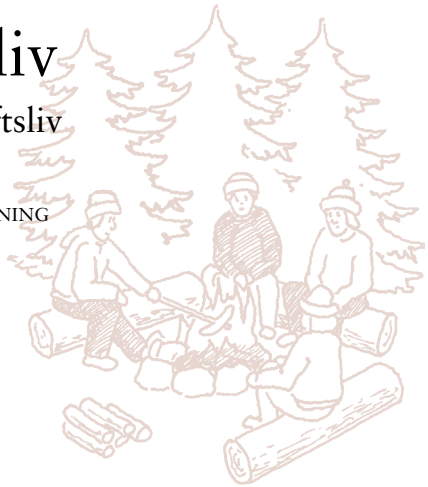
The participants in the circle answer with two claps. Using this way to orientate the bat goes from one participant to another, who then become bats when touched. The exercise can be made harder by the participants in the circle being allowed to move between each clap, but only by one step at a time in the direction of their choice.

Reflection: an exercise in training different senses and possibly wondering about how different animals find food.

Planning for friluftsliv

– About different ways of using friluftsliv as a teaching method

BY BRITTA BRÜGGE, MATZ GLANTZ AND STEPHAN SVENNING



The possibilities of friluftsliv within different subject areas

Friluftsliv as a habit

In order for people to feel that friluftsliv is "natural" they need to spend a lot of time in nature. They need to practice friluftsliv in all the various situations it encompasses so as to experience the different values often talked about in connection with friluftsliv as well as practising the art of being in the outdoors, whilst at the same time feeling good. Those who are not used to being out in bad weather often encounter problems that can give them negative experiences. It's an advantage to dress for the weather and also be mentally prepared. In this chapter we tie together a number of the key perspectives from the book, adding thoughts on and suggestions for activities that complement the different activity tips.

We know that friluftsliv has a number of different values and is supported in different ways. This is demonstrated by the fact that it has become increasingly popular to take different occupational groups (e.g. teachers, nurses etc.) and children out into natre. The aim of an activity has a decisive bearing on how it's planned, arranged and organised. The nature can be considered to be only a space, where different activities are done, or as something inherently valuable. It is possible to make connections with different subject areas or to work with special themes. Most subjects or disciplines can be included. It's probably easiest to connect friluftsliv with subjects such as biology and human ecology. The environmental perspective is clear, but subjects such as history, geography, social science, Swedish, music and arts and craft are also very relevant as starting points or themes. Lots within friluftsliv can also be tangibly connected to questions within mathematics, languages etc. With this said, it's not always an advantage to be outdoors but the option to include outdoor work is useful.

The human in nature

Time spent outdoors can contribute to us becoming less ill and can aid co-operation

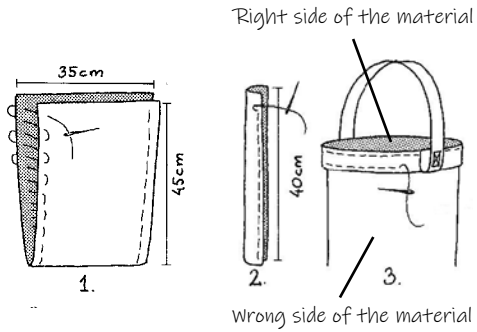
and group processes. Nature can also be a source of inspiration and creativity. All these values can be included within friluftsliv but are naturally dependent on how the activities are planned. There are many factors that contribute to and affect the result. As we continue writing about planning for friluftsliv the basis is: friluftsliv is a natural part of life, a life where nature plays an important role. Humans are a part of nature.

This is especially urgent in a time when many people feel lost in a world that's becoming more elusive. Words such as "faster" and "quicker" are dominating and affecting us, most probably in a negative way. Here nature can offer calm and stillness as an important contrast to the otherwise hectic life. Silence in nature is an increasingly important counter to the high sound levels that often occur around us. Friluftsliv provides an opportunity for us to understand ourselves and our part in the bigger picture.

Making outdoor activities possible

Using friluftsliv as a method in schools, childcare and leisure activities isn't always simple. It requires all involved to see the possibilities. Too many concentrate on the difficulties at the start and then everything seems quite problematic. Many children/young people also do not understand what it's good for – it is much more comfortable indoors! But it's possible to find solutions if you want to.

You don't learn to thrive outdoors by sitting and looking out of the window. There is a need to practically demonstrate that with the correct clothing, equipment and knowledge of frilufts techniques you can enjoy being outdoors, even if it's several degrees below zero.



Best to use a sewing machine to make it strong

When it comes to food most things can be solved if planning is done a long time in advance and staff are informed. The large problem of time-tabling can be solved by working in teacher teams or leader teams with people who have similar ideas.

When you introduce something new it often seems large. It's an idea not to place all education outdoors (even though it would be exciting), but instead to start with a small part so as to gauge what it involves. The outdoor experience can be an introduction or a compliment to the indoor learning. To have a flexible academic situation also allows students to seek knowledge from places outside the classroom. If you work in projects it could be to seek knowledge in the wider society – which is also a form of outdoor pedagogics.

In order to establish as good a relationship as possible to nature and the outdoor room you need continuity. Through regular planning for outdoor activities (for example

Personalised handicraft

(about sewing carry bags to use for presents)

A home-made carrier bag with added printed or painted patterns is an environmentally friendly shopping bag. It can also be a good present to say thanks to a landowner. Apart from the bag, it could contain, for example a bag of dried apples, a jar of lingon berry jam, a cake or a plant.

Reflection: In this task it is not only the finished product that is important. You also get a good chance to discuss what we can do for our environment.

Sheet bend and reef knot

(about tying together two pieces of string)

The most common knot for joining together two pieces of string are the sheet bend and the reef knot. The sheet bend is the most reliable and useful and can also be used if the lines vary in thickness. However, you then have to be careful to knot the thinner line around the thicker.

The reef knot is commonly used but is not as secure as the sheet bend. It can come apart if the ends are under load. This often happens with more modern synthetic ropes. It is however very decorative and is used as a basic knot in macramé.

a morning or a day every week) it soon becomes a habit to plan for friluftsliv. It should be part of the whole perspective where preparation is done in the classroom. Apart from working with factual knowledge for children – students also work with physical activity and make use of all different senses. When you return to the classroom you work through and reflect on the experiences. By integrating indoor and outdoor activities soon friluftsliv in the local nature seems a normal part of the curriculum.

Making Friluftsliv have an affinity with nature

Our need of time

The following advice attempts to make friluftsliv have an affinity with nature. Having an affinity with nature may seem extreme in this context, as friluftsliv ought to be close to nature. Affinity with nature should use simple means, preferably in the local environment to develop a good relationship with nature. To experience nature takes time. We recommend allowing plenty of time. Naturally, shorter visits may be worthwhile but they could be part of a larger arrangement.

The reason that it is important to have lots of time is that there must be space for each and everyone to be alone and do the things they enjoy. Whether to sit and think by a stream, go to a quiet place and listen for birds or whittle a stick, depends on personal preference which can change with time. Many will have experienced that there's always a huge amount to be done. The time outdoors is often planned with different projects that at all costs must be accomplished by everyone.

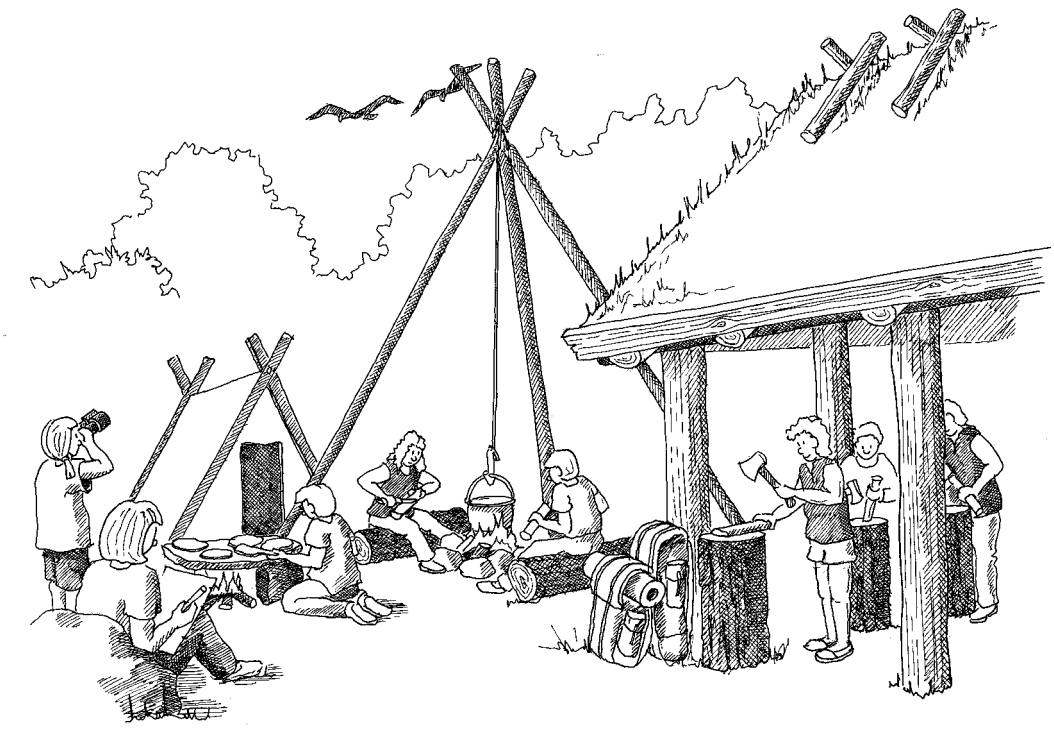
There is no time left to be on your own or in a smaller group doing things together that might be more about just being – a moment to feel in harmony with nature.

This reasoning is a general one and depends a lot on how accustomed to friluftsliv one is. For beginners it could be wise to have a clear structure where activities can be a way to get an affinity with nature. However, it is as important for both children and adults to allow enough time to "just be". The main aim is for the individual to manage better by themselves and decide what they should do and how they should do it. The more experienced you are, the more you can also help others and offer advice. Group dynamics can place different demands on the leader who must adapt and constantly be aware of the group. As the leader you should always be available to help and to listen, ensuring that the resources within the group are fully used.

The importance of the location

It is valuable to have a place that you return to often. It's helpful if it's near your base. This saves time and also means that you don't have to worry about transport. The area should be as varied as possible.

It is important to have the landowners permission to be there, make fires and bring down smaller trees (brush). Later you could build a camp, a base for continued friluftsliv (see also chapter 10, "Urban friluftsliv"). A



permanent camp often creates a feeling of "home" after a time. There are many advantages to be able to use the same place throughout the different seasons. The time of year will affect whether it is possible to sleep over and which nature studies can be done.

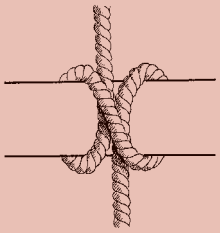
Basic sense of safety

If you are unaccustomed to dressing for friluftsliv then you might be cold and it's then hard to experience anything positive, regardless of how wonderful the experience (see chapter one warm, dry…). If you have built the fantastic wind shelter but then freeze all night long the positive experience can be changed into something negative. Therefore, it is essential to create a good feeling. This is a process that requires different amounts of time but the goal is that it should be a good experience right from the start. The more experienced you become, the more you can focus on other things.

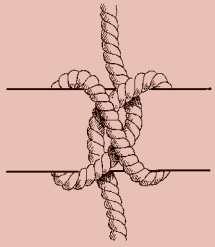
Clove hitch and the constrictor knot

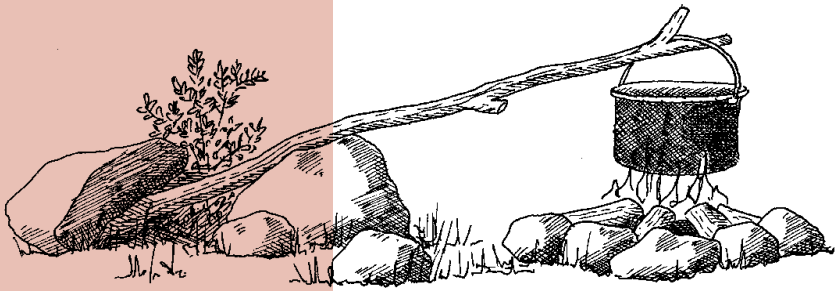
(about fastening a line around an object)

When you need to fasten a rope around for example a branch or trunk the clove hitch and the constrictor are useful knots. The cloves hitch locks the line when tight but is easy to loosen when the tension disappears.



A more effective locking is achieved by using a constrictor knot around the object. In the illustrations you can see the similarities between the two knots, but the ends of the constrictor knot are secured in a better way. When the force on the constrictor knot is eased it stays tight as opposed to the clove hitch.





A hanging branch

(about the art of hanging a pot over the fire)

When you quickly want to have a pot over the fire then the hanging branch could be an option. Take a branch and using a stone or a tree stump, suspend the pot at a suitable height over the fire. The thick end of the branch is stuck into the ground and anchored with a stone.

Cooking hollow

(about cooking food on hot stones)

An alternative way to cook could be to use a cooking hollow. Start by cutting out a grass turf large enough to be used as a "lid". The size of the hollow depends on how much food is to be prepared. A normal size for a hollow is 1.0 × 0.5 metres and half a metre deep. Line the inside of the hollow with stones (the size of 1 to 2 fists). Make a fire in the hollow for at least 1 ½ hours. When the fire dies down you remove the charcoal and ash using a spade. An alternative to making a fire in the hollow is to heat the stones in

▶

Light a fire, eat and live

Meals

Meals provide an opportunity for connecting with people, co-operation, relaxing and feeling of contentment. Therefore, make preparing meals a priority in friluftsliv. Cooking over an open fire means that other activities take place too, gathering wood, sawing and chopping it and not least making a good fireplace. The food to be cooked needs to be prepared, different cooking techniques demand different preparation, dough should be left to rise and equipment made etc. All this means co-operation of some sort, but everybody isn't necessarily involved in the cooking. There could be other projects happening at the same time. To eat a meal together is an important social act that has a central role in all cultures. There are really no limits as to what you can cook outdoors. If you have the ingredients and the knowledge then there is no problem. What you need to work on is the know-how i.e. how you do the cooking without the things that you would normally use at home.

Here you can consider how meals were made in former times? This could then be combined with more recent knowledge to become a good synthesis. If you then want to create a meal from a special perspective, for example a Viking meal, then that could be an interesting activity in a long-term theme. Or why not make a meal that's typical for a certain region of the world, learn about that country or the area in question, it's culture, dance, clothes, traditions and history.

The fire

It is a challenge to try to make a fire using old techniques. Really old methods like drilling, using a fire steel or flint, but also newer methods such as a knife and a fire steel, can be exciting to use. But all these methods demand a great deal of preparation. That it takes time to make a fire, that it is difficult and that it's not always successful are important lessons to learn. It is also good to learn how to manage a fire in different ways so as to heat, boil, grill, or smoke the food.

Cooking

When planning cooking you can choose between cooking on the stove or an open fire. If you choose an open fire then larger pots of about 5 L are very useful and they can be used for all sorts of soups, stews and vegetable brews but also to raise dough. The fire is used as the source of heat and there are many examples of how it can be built, depending on the size of the group and your personal preference (see chapter 1 "Warm, dry…" and chapter 6 "Deep forest").

If you are a smaller group the simplest way may be to place the pot directly on the

fire. Then the tripod is a simple solution and a stick holding the pot another. The strength of the heat is regulated by the distance from the fire and you have to adjust it carefully. If you're a larger group then you can use different variants of camp stoves. The larger the groups, the more work. There are many things that need to be organised and kept an eye on so there's nearly always something meaningful for people to do.

Meat can preferably be grilled and automatically gets a flavour from the grilling. The meat or fish can be placed on sticks and you can create grill beds to place the food on. It's important to place meat at a suitable distance from the fire. A good rule is to have the meat close at first and then to increase the distance. If you have the chance of spicing with herbs from the local area it's a lot of fun, for example juniper berries, juniper twigs and spruce twigs. Few things are as wonderful as having caught a fish and then spicing, preparing, cooking and savouring it's taste (see the activity tip on page 157 about cooking fish).

It could be a good idea to have a frying pan as an alternative to a pot, or to combine with, as frying pans are a little larger. There

the campfire. It is safer regarding the fire risk. Even here you should heat the stones for one to 1 ½ hours before transferring them to the hollow.

The food can be prepared by spicing and placing it for example in rhubarb leaves, birch bark or wet newspaper. Place some organic material (such as juniper twigs or fern leaves) in the base of the hollow and add the food on top of this. After this you place another layer of leaves so that loose earth doesn't fall into the food when you placed the lid (grass turf) on top. Cover with a lid and cover with earth or sand so that no smoke or steam can come up. Leave the food for about one hour per kilo. When the food is ready then all you have to do is lift the lid, take up the package of food and then enjoy new culinary experiences. Be careful with the fire, it has a habit of spreading through roots in the ground!

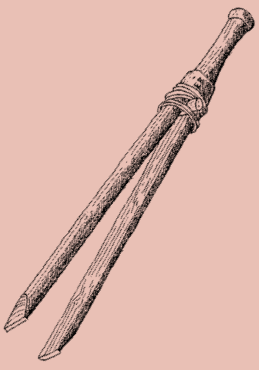
Reflection: food is always exciting. Here you have no control over what happens in the hollow during the cooking time. It's important to prepare well. Organising the hollow takes a lot of time. During the time that you're waiting for the food to cook you can perhaps make your own spoon or some other handicraft.

Meat turner

(about making fire tongs)

When you're working with a fire it is not always easy to for example turn the meat over when grilling or to pick up warm stones. Then you can make personalised tongs. The size of the tongs depends on its use. Do as follows: Whittle a large enough stick about 50 cm long and 1 ½ to 2 cm in diameter. To make it personalised you could decorate the handle by carving patterns. Split the stick for about ¾ of it's length. Be careful towards the end so it's not split totally. After this insert a small piece of wood or stone so that the opening of the tongs is widened a little. The piece of wood is fixed in its place using a thin root or string, both in front of and behind it. Now it's ready to use.

Reflection: by finding solutions that replace the ones you have at home you practice thinking outside the box. How can we solve this problem? The results are often a simple solution where you can use both your creativity and dexterity.



are "wok like" pans on tripods to place over the fire. In the shops you can find sizes up to 1 m in diameter, large enough to make a meal for 75 people.

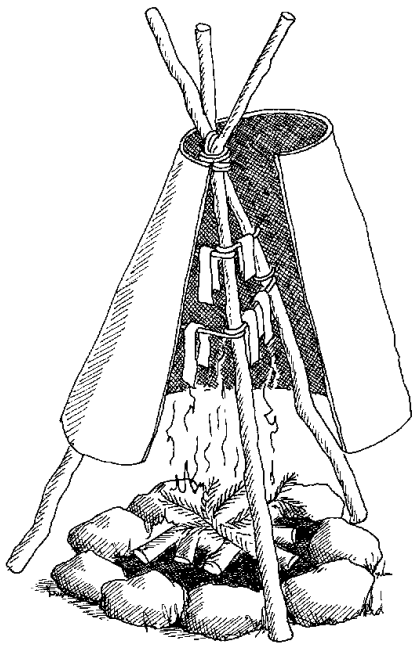
Stones have been used since time immemorial for cooking and heating all over the globe and are still used in traditional cooking by some groups of people, for example the Mauri people on New Zealand. This method means that you heat the stones directly and they then radiate heat to the food you're cooking. The stones are placed in the fire for at least an hour. When they are very hot they could even be glowing. If you have a pot with water and you place a fist size stone into it, the water boils almost immediately. The larger the stone, the longer it takes to heat up but it retains heat for longer.

Using a cooking hollow (see activity tip "Cooking Hollow" on page 236) is an ancient cooking technique that uses heated stones. In the hollow anything can be heated through a kind of steam boiling. You can cook meat, fish, root vegetables and bake bread if you place the dough in a dish, tin or pot (clay). It's worth remembering that root vegetables take rather a long time to cook. If you are using potatoes, they need to be similar sized and quite small. A long thin ingredient is quicker to cook than a spherical one. Much can be learnt by trial and error. As a basic rule for meat, you need to cook and allow one hour per kilo meet, if the stones are sufficiently hot.

Smoking food is another interesting preparation method. Smoking has a certain conserving effect, but it also gives a good flavour to both fish and meat. The hotter it is when you smoke, the shorter the time it takes for the meat or the fish to be ready. Smoking can be done in a normal large tin or in a purpose built smoker. In order to obtain smoke from the fire you use fresh green branches of for example alder or juniper. You can combine drying and smoking when it comes to meat and fish. The food is both reduced in size and weight which is especially interesting to work with ahead of a hike when you have to carry your food. It is possible to dry most things (see chapter 1 "Warm, dry…") but you should bear in mind that the thinner the ingredients and the better the ventilation, the quicker it will dry.

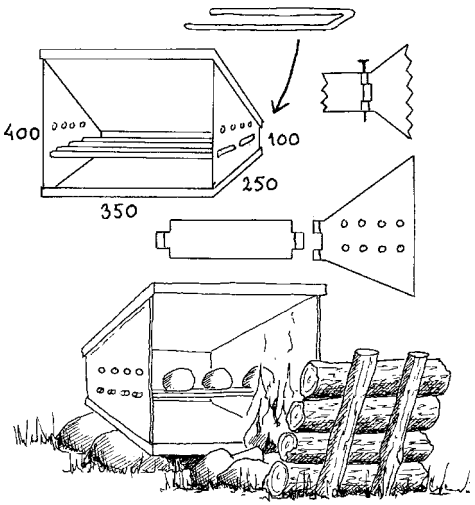
Baking bread

There is something authentic about baking your own bread. To build an oven, set a dough that rises and then shape it into buns



that are then cooked and eaten, often brings great pleasure and a certain degree of excitement. Recipes for buns and bread can be found in most cook books so we will not consider them here. However, we will give an example of how you can make a variant of a stone oven (see the activity tip page 239). Note that this oven is one example among many. It is important to make sure that the heat reaches what is supposed to be baked in the best manner possible. The oven can be used for more than just baking. To be part of the creative process, in this case building an oven, has a great value in its own right.

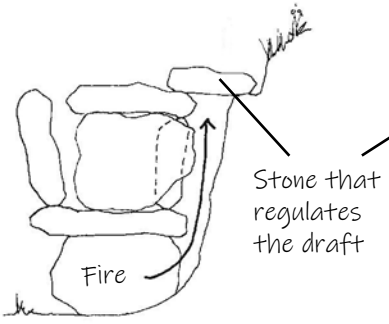
An oven that could also be worth trying is the so-called "reflector oven", that you place next to a fire. Reflector ovens can be bought or made at home by those who know how, which could be a project in itself. The reflective oven shown here is a simple folding portable version.



The heat is regulated by adjusting the distance between the oven and the fire. In the reflector oven you place some form of a baking tray (like the the frying pan from the camp stove) and then you cook for example muffins – perhaps with some blueberries that grow nearby. Pizzas and pirogues are also popular dishes. The advantage of a reflector oven is that it can be used as soon as the fire has been lit.

Overnight stays

The places where you stay and spend time are important for a good friluftsliv experience. What the living space looks like also has an impact on co-operation and atmosphere.

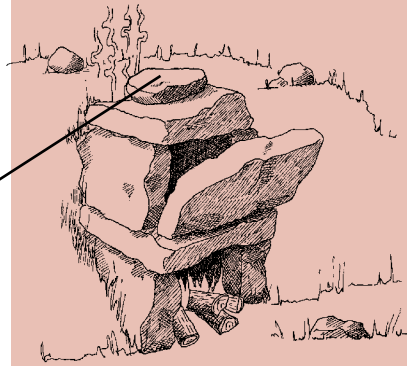


There are many variations of the living space: wind shelter, tent, Sami tipi (Kåta) etc. It is often the terrain, activity and the group that determine what you choose. The wind shelter is an example of a common living area that is usable throughout the year. If wind shelters are placed opposite each other with a fire in the middle then the fire is used to its best advantage and you have good contact with each other. Wind shelters commonly used today are mainly made of fabric

Stone oven

(about baking bread in the forest)

Is it possible to bake bread, pizza or other foods in the forest, just as you would do at home in an oven. You first have to go on a stone hunt to find suitable oven stones. The size of the oven can vary and it is often determined by the size of the available stones. When the oven is ready it takes quite a long time to heat up (as all the stones have to be fully heated) but when it's warm you only need a small supporting fire.

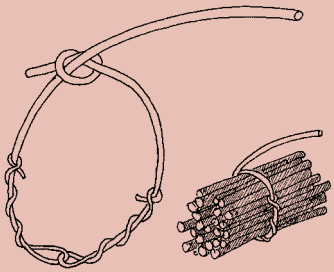


A wicker carrier

(about making a wicker to carry for example hay or sticks with)

When you rake together hay, gather sticks or similar then it's practical to use a wicker to carry it away. Wickers are made using brush from birch or willow (Contact the landowner if necessary). Take a thin straight branch and cut away all the small twigs from the stem. Place your foot at the tip and take a steady grip near the thicker end. Turn the wicker clockwise and move your foot and hands towards the thicker end as the wicker is being curled. To make it more supple you can pull it backwards and forwards over around trunk. If you need a longer wicker, you could use two pieces that you scarf together. Another variant is to soften spruce branches in the fire and then twist and curl them in the same way. They can then be used for tying together a tripod.

Reflection: the wicker is an old carrying tool that you used when you didn't have access to rope. The technique is useful today when something should be carried or bound.



(specially sewn ones) or of tarpaulins. Wind shelters made with spruce branches can only be made if you have the agreement of the landowner. To build a wind shelter in wood is a larger project that requires patience, knowledge and the landowners agreement. With these prerequisites in place, it can be a rewarding and bonding project for all. The simplest variant of weather protection is a tarp, that can protect against wind, rain and sun.

Many prefer the tarp for its simplicity. It's often light and is more open, which confers a feeling of closeness to nature.

Different shapes of tipi can be linked to different themes, everything from different variants and techniques to the history of the tipi. The tipi can be both permanent or mobile. Apart from using it for overnight stays it can be used as a meeting place or as a community room in rainy weather.

The tepees as used by the North American Indian tribes vary greatly in appearance, customs and uses. By studying the shapes and designs of different tipis you could make and paint your own to give friluftsliv a new dimension.

Handicraft close to nature

Nature as inspiration

Many artists, handicraft makers, musicians and poets use nature as inspiration for their creativity. Children's play close to nature, by water, on open fields, between bushes and high up in the trees is full of simple creative fantasy. Many will agree that friluftsliv is well suited to creative activities in different ways. Friluftsliv gives many opportunities for creativity and handicraft. Nature is full of the raw materials.

With a little planning it is easy to create space for play, spontaneity and creative activity, all things that we find hard to prioritise in our everyday lives. The creative process in itself contains qualities that encourage personal development as well as gaining experience.
Increasing competence gives a feeling of satisfaction that raises self-esteem and confidence. If you connect the craft to a historical perspective then it also stimulates learning about your own and other cultures. In practice, making use of historical handicraft techniques leads to a deeper appreciation and understanding for the origins of a culture than is possible by second hand information via books and computers.

The innate knowledge of the hand

Regular practise of a handicraft results in an innate knowledge of the hand (that only comes with regular repetition). It is rewarding to make something useful using materials found in nature. This is partially because the result is tangible, partially because there is a creative aspect where you get a chance to, individually or in a group, create something that is useful. On top of this there is an aesthetic value when you make something by hand.

To develop creatively

Many people find that it's hard to be creative, possibly because we are not used to expressing ourselves personally and artistically. One of the greatest obstacles is created

by ourselves when we, both at home and in school, place performance requirements on both adults and children which lead to everyone thinking in a similar manner rather than promoting diversity. Many people don't even dare to try creating something as it will not be good, in other words it is not going to be as "beautiful" as in newspapers and books or meet the expectations of others.

If we can leave these perfectionistic demands to one side and instead be creative using our own abilities then everyone can whittle, do craftwork in birch bark, embroider with silver thread, paint, bind reeds etc. and also develop a personal skill within the respective handicraft field. Not everyone will like what they have created. But that is not the aim. The main thing is that you have a fun time and feel satisfaction in the creative process. It is a qualitative opportunity that we all have. This way of being is especially important when working with the development of children's creativity and self-confidence. It is then urgent to boost their personality and encourage spontaneity in their work.

Planning for handicraft

As we are so used to time-tabling (read planning) our every-day lives, we often bring this behaviour into the planning of friluftsliv. However, creativity can never be time-tabled in this way, as it relies an inspiration that can occur at any time. It is therefore hard to plan for handicraft.

If we instead choose to plan so as to be able to do handicraft when we feel we want to, then this planning is about making the starting position for a creative process. It is about having access to a knife and axe so that if you find a funny bit of wood you can start whittling, or colours and paint brushes to hand so when you find a beautiful flower you can start to paint. Such planning is also about creating space for the unexpected and spontaneous. If all of the friluftsliv has a square timetable then there is no space to stop and be creative at a special moment. Therefore, always make space for spontaneity.

Packing for handicraft

When you pack your rucksack it is obvious that you should bring good clothes, good food and practical equipment. This is essential in order to make friluftsliv positive and

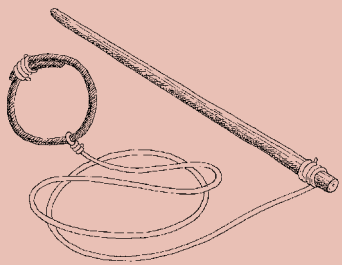
Making wickers can be done by both children and adults. All you have to do is adjust their thickness. Thin wickers can be used for making whisks (see the activity tip "Whisks" on Page 26). Making wickers also shows how nature can be used for many things.

Capture the ring

(about training eye to hand coordination)

A very old game is "capture the ring". Carve a stick about 15 cm long. Make a ring out of a thin, supple twig, about 5 cm in diameter (the smaller the ring the harder the game). Tie a thin length of string (about 30 cm long) to the ring and the bottom end of the stick. You now have to swing the ring and capture it on the stick.

Reflection: this game can be found in many places in the world. The ring could be made from bone, reindeer horn or wood. This exercise practises eye to hand coordination.

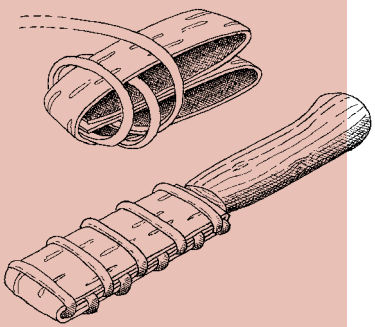


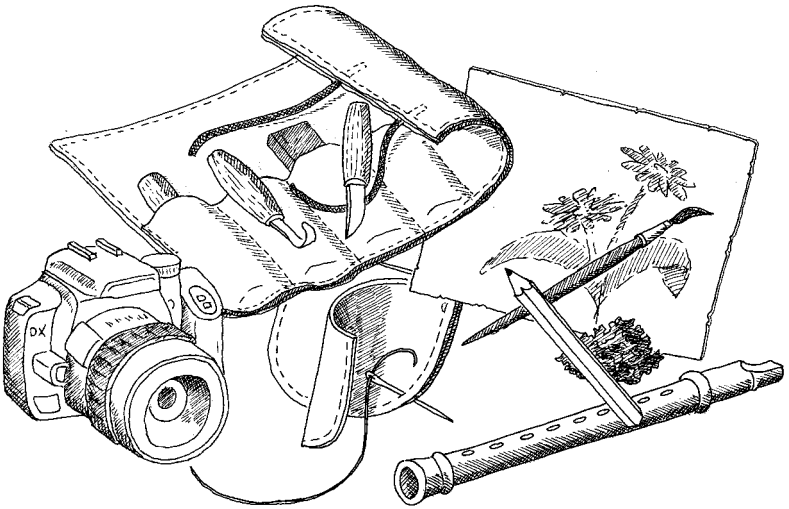
The sharp blade

(about a sheath made from birch bark and root)

To protect sharp objects, for example scissors and knives, you could make a sheath of birch bark and root. Cut a birch bark strip a little wider than the knife blade. The strip should be four times the length of the blade. Fold the strip in half. Then fold both ends towards the middle. Now you take a hard root (alternatively a 4 mm wide birch strip) and bind the folded sheath as shown in the picture below.

Technique for splitting the root: after having de-barked the route to start holding it from the thick end. If the split starts to deviate from the mid-line of the root, then bend the thick end to bring it back into line. In this way you can split roots to become smaller and smaller until finally you have thread.





enjoyable. Just as important should be including in your luggage the tools and equipment that enable a creative friluftsliv, for example whittling knives, axes, water colours, musical instruments, notebooks, handicraft books etc. Examples of such creative equipment are:

Tools to whittle with. Whittling knife, spoon knife, whetstone, engraving knife and a small axe. With these simple tools you can craft with wood, birch bark, roots, bark as well as horn.

Water colour equipment. Water colour techniques are perfect for friluftsliv as the equipment is both simple and light. Colours, paintbrushes, sponge, pencil and watercolour paper go a long way.

Paper and pencil. For many it is enough to draw their experiences, either as thoroughly worked pictures or as simplistic mini sketches. Paper and pencil also make it possible to write down your experiences in words. Small poems, diary notes or text in the form of novels, all depending on inspiration.

Wool and weaving. Plaiting and weaving bands are a simple handicraft that can be brought into nature. Perhaps you even want to dye the wool yourself? A weaving band takes little space and is easy to bring out during breaks.

Pewter thread embroidery and sewing in leather. A little piece of leather, waxed linen thread and pewter thread is simple to bring and also takes little space. The technique to sew a little leather pouch to keep your sewing things in or to embroider a bracelet can be learnt quickly from handicraft literature.

Recorder and harmonica. In nature you can play because it is fun, even if you don't think you're so good. Both the recorder and the harmonica on easy to carry with you, and are mostly appreciated by your friends.

Camera. With photographs you can create your own flora or fauna book that continuously grows as you encounter new animals and plants. Taking digital pictures you

can then use a computer and combine the text and a picture into a small booklet or a compendium.

The handicraft place

Some of the handicraft equipment cannot be carried out into nature. Instead, you can easily create a handicraft place close to nature, where tools and materials can be stored and where a fireplace and rain shelter are available. Such a place could be very simple in the form of a lockable box in the forest or more culture-like, such as a hut, tipi, a wind shelter or an iron age house. If you choose to tie the place to a cultural historical perspective then it can also inspire learning, for example about the Stone Age, the Iron Age, logging timber along rivers, Sami culture or perhaps North American Indian culture. Such a handicraft place can also enable activities that require more resources such as smithing, plant colouring, logging, smoking or charcoaling. For teachers/leaders here are many good starting points to inspire children to learn through craft and games.

Whittling is for adults largely about finding the right grip for both the knife and the wood and to learn the characteristics of the wood. Practice makes perfect, and the basic rules are to carve in the direction of the fibres as well as pulling the blade of the knife sideways. On the next page there are examples of simple objects for both beginners and for the more accomplished whittler. Tools that are good for whittling are descri-

Tar

(about making tar from pine and birch)

Take a tin with a lid (for example a commercial sized food tin). Find a piece of tar wood (see chapter 6, "Deep Forest"). Chop it into small pieces and fill the tin with them. Make holes in the lid so that the tar can run out. Take another tin and dig it into the ground. Place the wood-filled tin upside down on top of the buried tin and cover the join so that no air can get in. Make a fire around the wood-filled tin and let it burn for an hour. Carefully remove the tins (so that no earth ends up in the tin with tar). You have now made tar which could be used for example for smearing onto your shoes.

Tar can also be made from birch bark. You then fill the tin with birch bark instead of pine wood. The birch bark tar or "Russian oil" was used in former times to waterproof leather.

Reflection: making tar in a tin is an alternative to a proper tar valley and shows how tar is produced. Discuss what happens and where and for what you can tar. Make sure you do actually use it. Wood tar was one of Sweden's biggest exports during the 1700's. In conjunction with making tar you can also discuss industrial development, the forest's importance and the chemical process.

Does peeling potatoes take time?

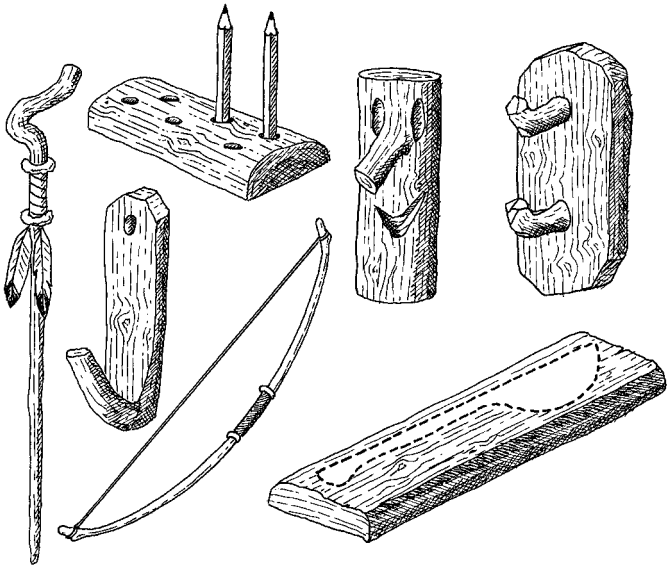
(about potato peeling games)

Dicing potatoes. The participants sit in a ring with a dice, a potato peeler and tub of potatoes. The dice is rolled by each person in order in the ring. When someone rolls a six they have to rush into the ring and peel as many potatoes as possible until the next person rolls a six. Whoops, all the potatoes are peeled!

Potato relay. The participants are split into similar size groups and placed in lines. One potato peeler and the same number of potatoes in front of each line. The last person in the line pats the shoulder on the person in front of them who then repeats, sending the pat forward. When the pat reaches the front person, they run up and peel a potato, run back and go to back of the line, sending a new pat forwards, until all the potatoes are peeled.

The cosiest way is probably to sit in the grass together with the leader in a calm area and peel the potatoes together as you discuss school, friends, what do you like most or what you're afraid of.

Reflection: potato peeling is a good exercise that trains, amongst other things, the fine motor skills. Many children find potato peeling fun. You get to do something with your hands that gives results. It is a positive activity that adults often make into something negative, a chore or "punishment".



bed under the section packing for handicraft on page 241. It is easiest to work in fresh wood as it is softer to cut. If you talk to the landowner it is usually not a problem to take small amounts of wood, as long as you don't leave ugly traces behind.

For children it is mainly the motor skills of the hand and the strength that needs practice when you are whittling. At the age of seven all children can use a knife, even if their abilities may vary. Obviously, you may sometimes cut yourself, but if you learn to whittle at an early age then the cuts are small compared with when you learn at that older age, when the strength is large and the skill is little.

As with all first exercises with small children a walking stick is a suitable task. They can be part of choosing the wood, whittling off the bark (which is easy and practices the knife movements) and decorating it. It is also important to succeed with a task at this age, and it is possible with a walking stick.

Knife rules are good for younger children. The motivation to follow them is high, as it is exciting and fun. Here are some suggestions:

1. Sit down when you're whittling (don't walk about with a knife).
2. Whittle away from the body (good to do at the start but as the skills increase you have to quickly learn more grips meaning that you sometimes also whittle towards yourself).
3. Only whittle when it's calm around you.
4. Ask an adult before you start whittling.

Painting with water colours

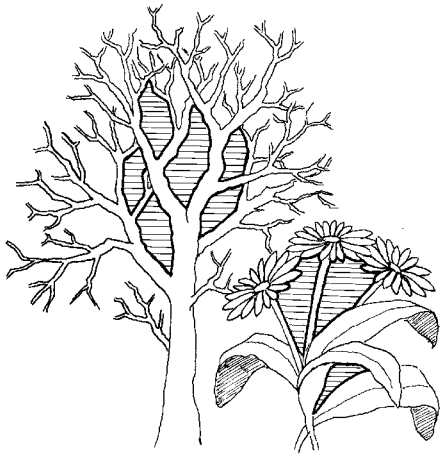
Water colouring equipment is small and easy to bring into nature. The technique is not so hard and everyone can attempt it. Just remember that it needs training to become good.

Equipment: a box of paints with colour cups. Paintbrushes: don't choose the thinnest as the more detailed you paint the harder it is. Watercolour paper: use a paper that is glued on all four sides, so that the paper is stuck while you are painting and while it's drying. Then it doesn't buckle. Pencil: to sketch around objects. A little sponge: to wet the paper with.

Technique: wet the paper initially using the sponge. Make sure that the water is evenly spread and that the paper is lying flat so that the water is evenly absorbed by the surface. When the surface is dry it's time to start painting. If you wish you can sketch the object first using a pencil. Paint using lots of water. If you do not want the colours to flow into each other they have to dry before you paint over or against the previously painted area.

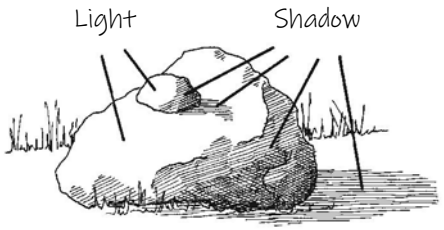
Exercises:

1. Start by trying to capture the shapes. Don't worry about what colour you are using. Concentrate instead on limited shapes like a petal, a stone or a leaf. Try to see and recreate the basic shapes and paint them with lots of colour. Then continue trying to paint the shapes in between in the same manner, for example the shapes between the branches of a tree, between the trunks of trees or between large boulders.



2. Ignore the shapes and try to capture the colours instead. Concentrate on one colour and try to paint it. Take care to look. A pine tree trunk is often green and orange even if it looks to be brown. We cheat ourselves by simplifying our experiences.

3. Paint shades and shadows. Find a simple motif, for example a stone or a tree trunk, and try to capture the relationship between the colour on the light side and on the shady side. Notice all shadows. They are hard to see if you don't concentrate.



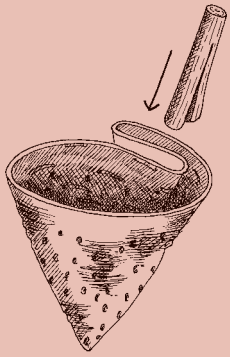
4. Put together all the exercises and work without getting swamped by the details to start with.

Sap lotion

(about making lotion using spruce sap)

Mix 1.5 dL olive oil, 15 g spruce sap (running sap is best), 15 g bee wax in a tin (or a used pan as it's hard to get it clean afterwards). Heat over the fire until everything is melted. The mixture shouldn't be boiling but kept just below boiling point. Sieve the runny lotion (for example using a birch bark sieve) and let it cool before pouring it into pots. Sap lotion is used for small wounds and irritated skin.

Birch bark seive: cut a round piece of birch bark (about 10 cm in diameter). Make a number of holes in the bark and shape it into a cone, making a fold and fastening it with a small stick.



Our frilufts years

Fire and bread baking on a stone bed or in a frying pan.

"City Hunt" (about orienteering training in the city).

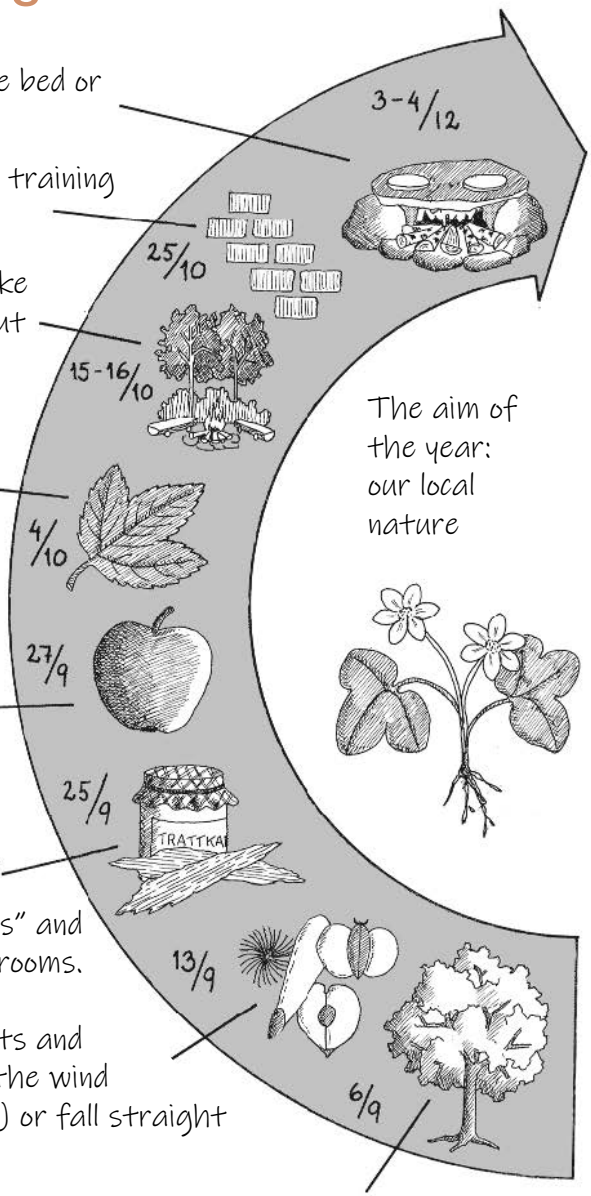
Trip to the little groups own hike place. "Home sweet home" (about the art of feeling at home in the forest).

We go hunting for different trees and look for beautiful leaves. "The tree expert" (about tree knowledge).

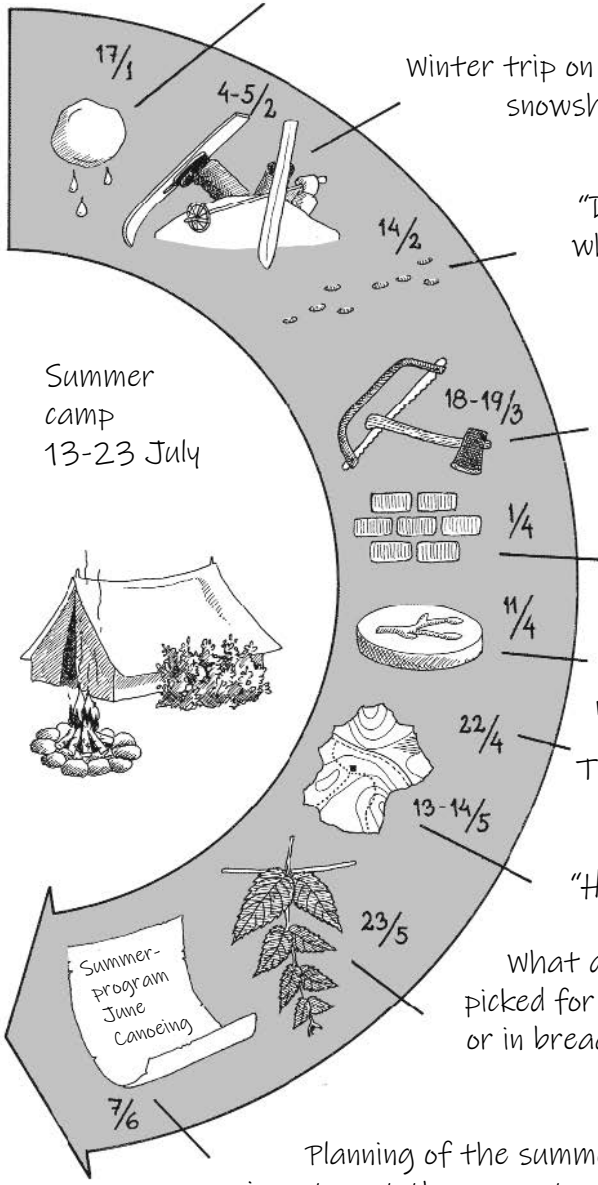
Dried rings (about drying apples and making apple soup).

Full day in the forest where we ask the permission from the landowner to gather tar sticks for the "fire lighting bags" and we pick funnel chanterelle mushrooms.

Make a display of different fruits and seeds. See if they spread with the wind (maple), using hooks (like velcro) or fall straight down (chestnut).



We choose a tree that the group will follow throughout the year. Draw it or take a photo of it together with the group.



What does the snow contain? Make snow experiments posing your own questions.

Winter trip on skis, ice skates or why not try snowshoes? We look for life under the snow.

"Dinner is served" (about seeing what different animals eat). We look for signs using a torch.

Hike where, using newly shar pened saws and axes, we help "our" landowner to make a style over a fence.

Evening walk amongst the houses. Which stone has been used for the buildings?

Time to "take fingerprints of nature" (about plaster casts).

Trip to the lake to look at birds and look for signs of spring.

"Historic hike" (about old maps).

What does nature offer? Nettles are picked for drying and for use in tea, soup or in bread. Other leaves are also picked for future needs.

Planning of the summer program. The light summer evenings tempt the group to undertake excursions and hikes.

Apple theme day

(about working with apples)

Apples are well-known from many different countries and give rise to many exercises in the school yard or the local environment around the school. Split the groups into 4 to 8 participants. Each group gets as many apples as participants. The apples should come from different countries. The participants each choose an apple. The task should be written on paper and hung, folded over with a clothes peg on a line. The group takes a paper, performs the task and then returns to paper. Help and assistance should be available.

Examples of tasks:
Which apple is the largest and most colourful? Each person writes an apple poem and gives it to the leader. Sing an apple song. From which countries do your apples come? Which countries have they passed as they flew over here? How do you say apple in different languages? Be a tourist guide from the countries your apple comes from and tell the group. Make an apple game. Create art work with natural materials whose beginning letter makes the word apple. Share what you know about apples (history, myths). When you hear the word "apple" what do you think about? Write down your thoughts. Balance with an apple on your head. Make a drama where an apple is included in the story line. The performance can take place at the end of the day. Peel your apples and see who gets the longest piece of peel?

▶

The year of Friluftsliv

Year round friluftsliv

Practising friluftsliv and awakening a curiosity for nature isn't bound to seasons and can happen all year around. Here are some tangible suggestions of activities for the different seasons and how you could use the activity tips from this book. The examples are not customised according to age or knowledge and can be modified to suit any group.

Make the groups friluftsliv cycle called "our friluftsliv year" (see page 246). In this you write down what kind of outdoor activities you do, put up photos, nature momentos and other exciting things.

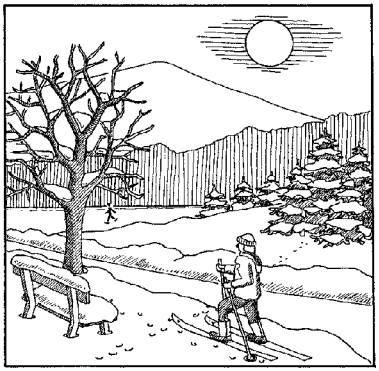
High clear autumn air

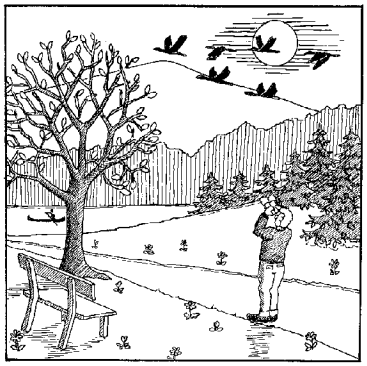
Autumn is the time when you should do as much as possible outdoors. Both for practising friluftsliv techniques and because the autumn offers many possibilities for studying nature. Find a piece of nature that you can easily access. It could be the edge of the copse, a small part of a park or garden, a plantation in the shopping mall or similar. Make a large drawing of the area, if possible, to cover a whole wall (or a large board), with an outline of what is visible. Every other week visit the area to discover something new. It could for example be a leaf from a tree, a grass straw, beautiful moss or a can of beer. Agree on things that you may bring home and glue up on the drawing. Animals or creepy crawlies can be drawn or made. This could be a way to practise seeing changes and learn about the nature nearby. Autumn activities whose results you can enjoy during dark winter days are to make use of berries, fruit and vegetables. All ages can dry different sorts of fruits and vegetables. Lingon berries can be boiled to jam and rosehips dried to make winter soup rich in vitamins. It's also good to make time to enjoy the autumn colours. Work with autumn leaves as a game of memory, press them for postcards or leaf mobiles. Autumn is also a good time to study mosses and lichens. Make a moss landscape to bring home. Water it every now and then and you can study mosses throughout the winter.

Winter and cold

Dark winter evenings are a gift for planning future trips and hikes. Old maps can inspire your imagination and you can visit the local outdoor museum to research your ideas. Schedule time for crafts when the beginner can make hike tray and pack bags and the more experienced mosquito nets for their sleeping bag or a home-made carrying frame.

Snow invites studies of animal tracks and feeding habits, but also making snow ang-





els and playing "follow my leader". During cold winter nights in the wind shelter, you are heated by a log fire and the warm apple soup from the dried apples, at the same time as you can have deep discussions about life. The trip to the city is used for discovering animal life in the city, the bird table or to walk to the water with food for the ducks. During the dark evenings the stars shine the strongest. It is then time to find the star chart, binoculars and warm clothes. Spring winter evenings are also a good time for listening to owls.

Bursting Spring

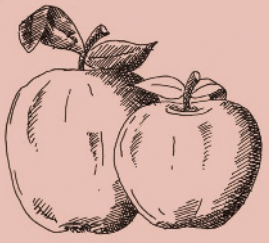
A spring trip with binoculars and a bird book to greet the spring birds and welcome them back also give us a chance to discover what else is happening. The nature diary will get lots of sentences about when the first spring flower (Coltsfoot, *Tussilago farfara*) was picked or when the larks trill was heard. Connect the return of migratory birds to a study of the country where they overwintered. The bare tree's swelling buds are perfect for making plaster casts. Visit the anthill and see how it wakes up. When the first leaves have burst it is time to make willow or rowan whistles. How do you discover that spring has arrived in an urban setting? Make a trip to the water to see what happens there. When the leaves have emerged on the tree that you follow year round then it's time for a birthday celebration. Nettles are picked for soup and dried to be used for example in bread baking. In May it's time for a dandelion Safari, who finds the longest, largest, smallest dandelion? A day for the birch can result in newly baked birch leaf bread, colouring yarn, birch whisks, poem writing, a special study of the inhabitants of the birch and possibly a tasting of birch sap. An exhibition about the right of public access (allemansrätten) in the local shopping arcade or library can be a way to inform the general public about what rights and responsibilities you have when you go into nature.

Summer and warmth

Summer is well suited for camp adventures, when you can practice all that you've planned and prepared during the darker seasons. Allow plenty of time for cooking

Slice the apples and fry them with cinnamon and sugar.

Reflection: the tasks are adapted to the age group and can involve many subjects. Since all the materials are in one place the leader can manage without needing much help. At the end of the day the apple poems are read.



Accommodation wanted

(about making a bird box)

Modern forestry has meant that there is a lack of nesting sites for birds that live in old holes in trees. By making and putting out bird boxes in the local forest or environment you can help these birds. A simple bird box is made from a plank according to the illustration below.
It is important that the bottom is securely fastened. Fasten the roof with hinges so that the birdbox can be cleaned out in late autumn. The size of the bird box is adjusted to suit the species that we hope will use it. Some examples are:

Blue Tit *(Cyanistes caeruleus)*: opening 30 mm, depth 150 mm.

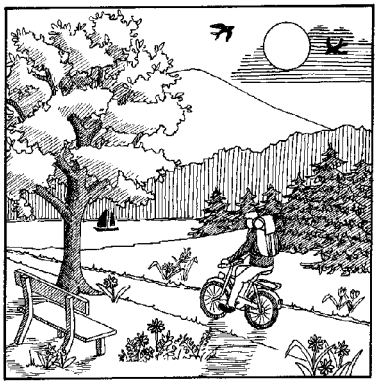
Great tit *(Parus major)* : opening 35 mm, depth 150 mm.

Starling *(Sternus vulgaris)*: opening 50 mm, depth 200 mm.

Stock dove *(Columba oenas)* :opening 100 mm, depth 300 mm.

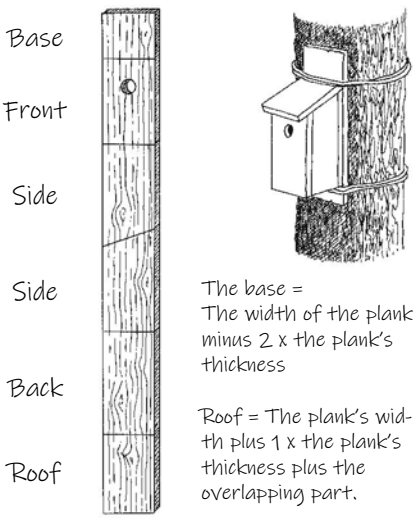
Tawny owl *(Strix aluco)*: opening 120 mm, depth 500 mm.

Reflection: Using notes and a camera the life in the bird box can be documented and you can get an insight into what happens with "your" bird family.



food and roaming in the forest. Water activities, everything from swimming to looking for creatures at the beach, are popular. There are also many different edible plants that are now worth trying.

The warmth in the ground invites you to lie on your back and study the clouds. With a bike you can get further afield on longer excursions. Why not make a visit to the local nature reserve or national park?



Theme days

The example of Ronja the Robber's daughter

By combining fantasy and nature you can get many new experiences. Previous activities can once again become new and exciting. Story books can be an inspiration. Astrid Lindgren's Ronja the Robber's daughter has for example many episodes that could be used. This is how a "Ronja the Robber's daughter" inspired day might look. Gather the group in a cosy place: under a spruce, between a couple of boulders or perhaps in a gully in the mountain side. Start by reading or telling the start of the story. Split the group into smaller groups or pairs (depending on the size of the group) and do the following activities (before each activity can you tell or read a piece from the book): *Ronja goes on a discovery trip in her forest with all the animals and fox cubs:* let the group go on a truck hunt within a limited area.

Ronja becomes angry at Birk when he discovers her fox cubs and leaves him. Then the mist comes and Birk wants Ronja to wait for him and help him find his way home. Ronja doesn't want to touch Birk but tells him to hold onto the end of her leather belt: the participants split in pairs. Each person gets a two meter length of string. One has to be Ronja, the other Birk. Birk has to close his eyes (or be blindfolded). Ronja, with the help of the string between them, guides Birk a certain distance through the forest. You then change roles and Birk leads Ronja (just as in the story). On arrival you discuss

what it felt like to be unable to see and have to trust a friend.

Ronja gets stuck with her foot down in the Rumphob's (an elf or a goblin's) house: In pairs take the time to look at a stump or a stone and using your imagination discover how the Rumphobs live or if there are other small creatures in the forest. On your return tell each other what you have discovered.

Rojna and Birk move to a cave and bring with them the things they need: what kind of outdoor equipment do we bring when we are outdoors? Other things we need to add next time? Are there things we can make ourselves?

It is time to make a fire in the cave: where do you find lighting material? How do you make a fire? Let the participants make a fire and use it later on for cooking.

The knife has disappeared and Birk blames Ronja: show different knives, explain how you look after them and how you whittle (de-bark a thickish stick about 20 cm long and use it later for baking stick bread on).

Ronja and Birk bake bread to survive: make a dough and bake bread cakes on warm rocks or make a stick bread.

The wild horse has been wounded by a bear. Ronja uses peat moss to clean the wound: what does peat moss look like? What is the difference between peat moss and reindeer lichen? Are there other medicinal plants nearby?

Ronja sometimes falls asleep to a special song: make your own forest music using instruments created in the forest with natural materials. Sticks that are hit against each other give different sounds, two mature spruce cones give a rasping sound, little stones rattle in your hand, the fallen birch trunk could be used as a drum.

Finish the day by splitting the larger group into smaller groups, that get a task to make a drama about different events from the book. Finish together for example with the Robbers dance.

During the day you will have trained frilufts techniques (for example discussed equipment and knives) as well as baking bread. You will have also gained knowledge about nature (for example by discovering the uses of different plants) and used your senses to experience through hearing, feeling the ground with your eyes closed, enjoying newly-baked bread, the happiness of song in the music. Last, but not least, you will have practised co-operation, creativity, leadership and fantasy through working in smaller groups.

The life and ecology of the birch

Gather the participants for a day at the end of May or in early June in a birch coppice where you have the permission of the landowner to take raw materials from trees and scrub. Now you really have a chance to delve into the life of the birch. You will need literature describing it's practical uses, facts and anecdotes, poetry and songs.

Start the day by gathering around a birch tree, where everyone can help with their knowledge about the birch (see the activity on Page 61 "Circle reasoning"). Split the participants into smaller groups, according to their interests. The leaves can be used for yarn colouring, dried for tea, as sandwich spread and for baking with. From the scrub you can create whisks, wicker, butter knives,

Whittling techniques

(about carving safely)

Whittling is an art that requires lots of training. Here are different methods that can simplify learning. Preferably used fresh wood, 3 to 4 cm in diameter. The length of the piece of work should be at least 40 cm. Alder, birch and aspen are easy to work with. Avoid rowan and bird-cherry as they have very hard wood.

Russian grip

Hold the knife loosely in the hand and rest your hand against your knee, it's the knee that should be supporting and not the arm. The knife should be held still and the wood should be pulled against the knife. It is important that the direction of pull is correct to give a good angle to the knife. Put the stick to the side of your ribs as if it was a long ski that you are working on. If the knife grabs too much or too little, don't change angle of your hand to correct it but turn the knife in the hand to get the right angle! Otherwise, you lose the important support against the knee. Avoid pressing the knife forwards, instead let it follow a tiny bit as you pull the stick.

Reflection; This grip comes from the Russian Sami, the Nenets, who are gifted handicraft workers and still make many of their every-day objects using a knife and axe. The grip is restful to use as the hand with the knife isn't put under so much pressure and the risk area in front of the knife is very small. This way to

▶

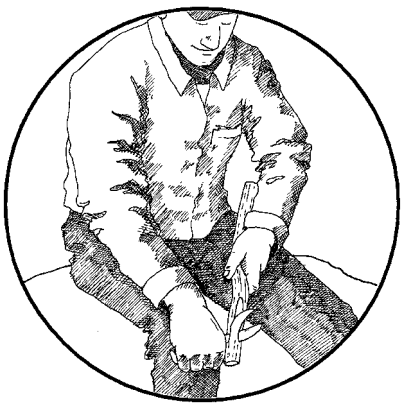
spoons, hooks and candle sticks. From the birch bark you can plait baskets. It is also usable instead of tinfoil for cooking in their cooking dish and as lighting material.

Some people may feel inspired to bring out colours to paint, make handicraft with a birch as a base or write poems.

The inhabitants of the birch (birds, small animals, lichen) can also be an exciting subject. At the end of the day gather everyone together to tell what you've done. If you have a school class that could be followed up in a classroom with an exhibition and games using new knowledge. Apart from the normal use of the birch you can also find out where in the country or in the world it is found, which climatic conditions it prefers, how it has moved in and its appearance in literature and songs.

The secrets of the pine forest

Use a day (or two, as you then get to experience an evening and a night) to see, try and feel the pine forest. If you're staying all day in the same place then it is important that you make it feel comfortable. Making a fire requires a properly organised fireplace that should be made before you start with anything else (see Stone bed on page 17 in Chapter 1 "Warm dry…"). Material for different projects and studies or crafts should also be brought along. In smaller groups you work throughout the day with a pine forest from different perspectives.



One group looks at growing things that are taller than the shortest member of that group. How many pines can you find within a square of 50×50 m? How old are the trees? Relate the tree's age to what happened in Sweden or the world during the life-time of the thickest pine tree. Make a drama about this for the others.

Group two researches the plants that don't reach up as far as your knee: different types of shrubs, mosses, lichens. Are they useful for anything special? Make a walk where you stop at each place and show the other participants the different plants and explain their uses.

The third group spends time looking for animal signs. Not only large animals but also insects and smaller creatures that hide in the moss and in old tree stumps (use a magnifying glass). Animal signs are not only foot prints and droppings but can also be gnawed pine cones, places where the roe deer has rubbed it's horns or tunnels under the bark of old trees. Collect examples of what you found in the tree stump in a glass jar and describe their appearance by making a picture of them using materials from nature. (Don't forget to release the animals afterwards.)

Presentations can be done in exchange groups, where new groups are created and everyone explains and shows what they have found.

The afternoon is spent looking for pine stumps and burning tar (see the activity "Tar" on page 243). During the tar burning allow time for individuals to explore and make things by whittling or weaving (read about crafts in chapter 3 "Deep forests"). Cooking over an open fire requires time and practice.

Do a longer evening walk if possible in different habitats, allowing some stops to feel and experience the mire, the leafy forest, the old field which may contain young spruce trees. When you then return to the pine forest you will have experienced some of nature's different features.

The theme for the evening gathering around the fire could be "the forest". You would then have prepared songs, poems, stories or myths. Here there is also a chance for the participants to express their own feelings about the forest.

Create your own outdoor equipment

It's drizzling lightly where I sit by the edge of the ditch, with both hands around my wooden cup (Kåsa). The coffee warms through the thin wooden walls. My thoughts go to the mountain birch forest where Hurrasjåkkå runs down into Laisälven, on a summer's day many years ago.
I remember the green grass,
the streams playful whirling below the pasture and the sunlight colouring the white yellow birch trunks.
The "burr" that gave me the wooden cup stuck out as a bump from the knotty tree and the days after were filled with carving, with fibres that always wanted to stop the curly knife.
I look down into my steaming cup
and once again feel content with my handicraft. The memories from Hurrasjåkkå and times by the edge of the road colour the coffee so that the taste becomes sublime and unsurpassable.

Baggböle, october 2OO1.

A deeper preparation

To make your own equipment can inspire future outdoor activities as well as give satisfaction from the handicraft itself. When you use equipment that you've made the outdoor experience becomes more profound. The practical work can take place both as outdoor activities around the campfire or indoors, for example during the winter months.

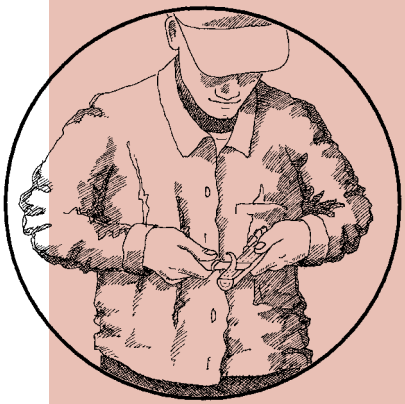
Small and large pieces of craft work

The beginner chooses to create something simple, for example a walking stick, butter knife, pack bags, fire bag, birch whisk, hike tray or a knitted woollen hat. Amongst the activity tips in this book (see the index on pages 280-283) there are numerous different examples. When knowledge and skills increase you can make more advance works, perhaps a spoon, wooden cup, sleeping bag cover, carrying frame, snow gaiters, paddle, knife or a wind shelter.

The most advanced handicraft takes more time and resources, but the greater efforts use the knife is easier to teach for those who have not used the knife before.

The bus grip
The knife and the piece of wood are held in front of the rib cage. With the flat of the hand facing upwards, the knife is placed in the hand with the blade facing out, the blade is turned away from the body, the fingers around the handle. The wood is held in the other hand, gripped as if it were a baseball bat. Both hands should be moved away from each other but all the time they should have contact with the rib cage. This grip gives very good control of the work and the risk area around the blade is small.

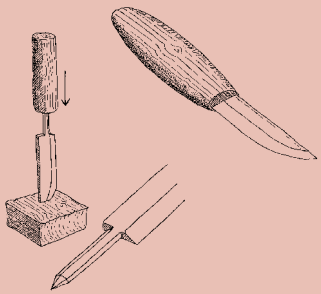
Reflection: this grip gives very good strength and control, especially working with smaller pieces. The term bus grip comes from the fact you should be able to sit close together, as if on the backseat of a bus, and whittle without risk.



Knife handiwork

(about making your own knife)

A simple method to make your own knife is to attach a fresh piece of birch wood onto the tang of a knife blade (the thinner part above the knife blade). The birch should be straight growing, without twigs and about 5 cm thick. It should be longer than the width of the users hand. Start by cutting the time so it's about 7 cm long. Sharpen it and then file down the edges with a metal file. Put the pointed part of the tang against the soft inner marrow (the middle of the branch) and carefully bang it with a club, a piece of wood or the back of an axe. Loosen the knife blade from the surface every now and then so it doesn't get stuck. Wrap some tape around the blade to carve the handle so that it suits your hand. When the wood dries it shrinks and therefore fastens properly around the tang. Smear the wood of the handle with fat or boiled potatoes during drying to avoid cracks. Once it's dried polish it with a cloth and treat the shaft with a mixture of boiled linseed oil and 25% balsam turpentine.



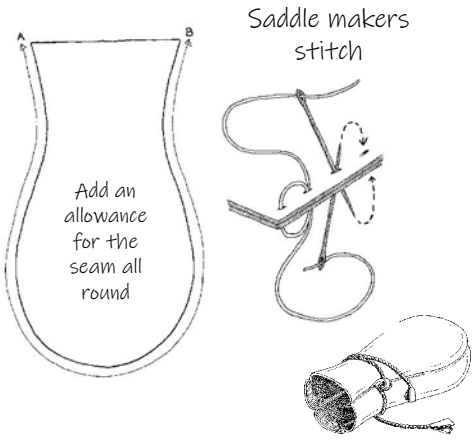
result in an even larger satisfaction, both intellectually and emotionally. Those have paddled in a kayak that they've built themselves, lived in a tent they made themselves, walked with a backpack and or an anorak sewn using their own measurements or skiid with a homebuilt pulka, will know what this means, both for the experience and for the self-confidence.

Leather pouch

This is a simple design of a leather pouch with a leather draw string, that can be used for food, fire equipment, small tools etc. If you have a plastic bag inside the leather pouch then porridge oats and coffee stay dry, as the leather protects the plastic bag from breaking. If you make the pouch very small you can put inside a lucky charm stone or small nature find and hang it around your neck.

The leather needs to be thin and malleable, for example reindeer, calf or goat. Cut out two similar shaped sides according to the figure in the size that you want. Then create a leather strip that is a little longer than the distance A – B. The width depends on how large you want to make your pouch but shouldn't be wider than the sides.

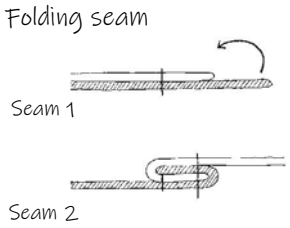
You sew the two sides together with the waxed linen thread and a curved handicraft needle. Thin leather is fine to sew through directly, whilst thicker leather must be pre-punched using a bradawl against a block of wood. Use two needles and sew with a saddle makers stitch (see drawing). Very fine leather can be sewn using a sewing machine. Add a small leather loop in one of the seams where the bag is at its narrowest and make sure it's fastened properly. This can be used



for attaching the pouch to a belt. The twisted leather draw string is created using a long and very thin piece of leather that is put in warm water. Take it out of the water and roll it by sitting and holding one end whilst you pull the other with the flat of your hand against your thigh. Hold the middle of the draw string in your teeth and bring the two ends together without letting go. When the ends meet and your teeth let go, they will twist themselves together. Even out the twisting over the length of the draw string and tie the ends together with an overhand knot so it doesn't unwind. Pull the draw-string through the loop as in the picture and wrap it round the bag to close it.

Wind shelter

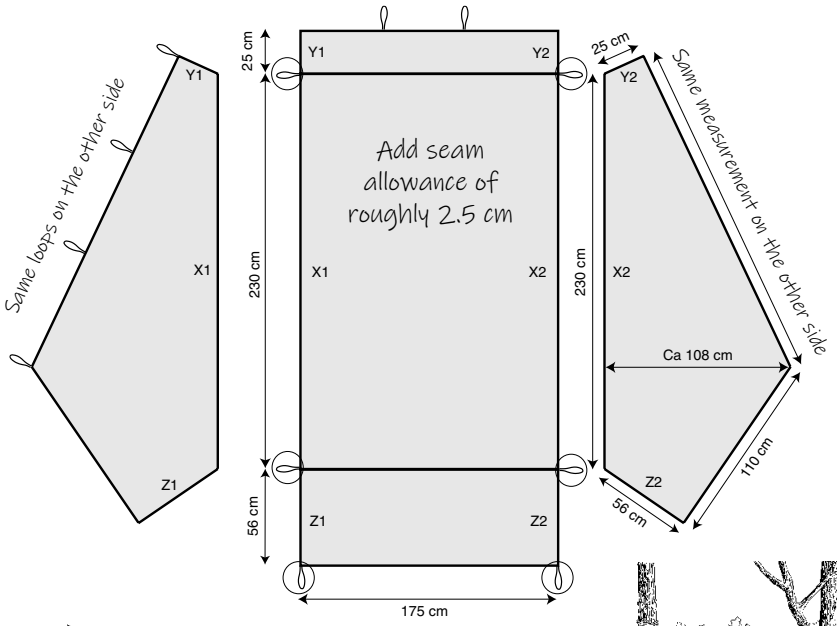
Your own personalised wind shelter gives a homely feeling when you take a break or camp for the night. The pattern shown here is suitable for 2–3 people. The advantage with a small wind shelter is that it's simple to find a good spot and you don't need any long sticks. The material should be finely woven close and if it's not watertight it can

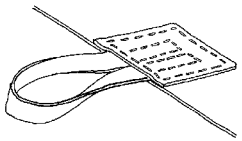


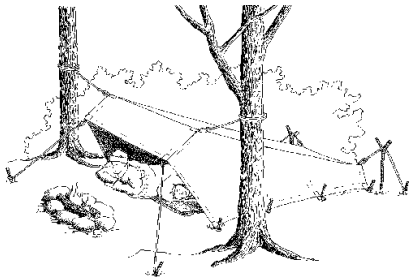
be treated. Sew all the seams with "flat-felled seam" so it doesn't leak. Start by copying the pattern and making a paper wind shelter to see the principal. The measurements of the wind shelter can naturally be changed depending on the width of the material.

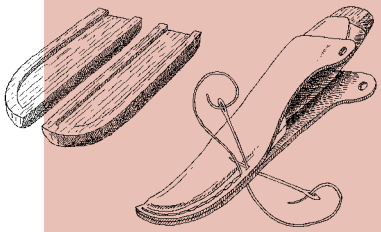
After that you just have to cut out the pattern and start sewing the different parts together. In order to make it strong you should fold over all the edges that are not sewn together with material.

When the wind shelter has been made then it is time to attach the loops for the guy lines and pegs (Loops are stronger than holes). Tie pieces of string (guy ropes) onto the loops that hold the roof and the front of the shelter (marked with a circle on the drawing). Whittle or buy lightweight tent pegs. To store the wind shelter during the hike you can also make a bag.









Protect the blade

(about making a sheath of leather for your knife)

This model of a knife sheath is simple, traditional and functional. It consists of a wooden centre that is dressed with leather. Start by shaping two dry pieces of wood (see Fig.) to the shape that you want and slightly larger than the blade of the knife. Carve out the recess in each piece to match the shape of the blade. Treat them with boiled linseed oil and 25-50% turpentine. The leather to be used should have raw-hide on the inside. Wet it first to make it soft and supple to work with. Cut a piece according to the figure. The length should cover two thirds of the knife handle. The width should be enough to go around the knife and the pieces of wood and leave enough space for a seam. Start by sewing the leather from the bottom with a waxed linen thread. The knife has to be inside during the work and should be wrapped with 2 to 3 layers of thin paper. Use the saddle makers stitch (see leather pouch, page 254) and sew with two needles. Even the edges and make a small hole at the top to fasten a leather strap. Let the knife sit in the sheath for the whole time whilst the leather is drying

The Right of public access (allemansrätten)

The text below comes from the pamphlet *Right of public access – a unique opportunity Naturvårdsverket* (http://www.naturvardsverket.se/ Allemansratten). Further information in Swedish may also be obtained from the book *Allemansrätten: Vad säger lagen?* by B. Bengtson, 2004, and the rapport *Allemansrätten och dess framtid* by K. Sandell and M. Svenning, 2011. Pedagogic material on allemansrätten may be obtained from the organisation "Håll Sverige Rent".

The right of public access is a fantastic opportunity for all of us to roam freely in nature.. You make use of the right of public access when you go for a walk in the forest, paddle a kayak, go climbing or just sit on a rock and think. Usually it is completely natural for us. In order for everyone to enjoy nature, we need to take care of nature and wildlife and show consideration for landowners and others who are outdoors. We can sum this up with the phrase "Don't disturb – don't destroy"

Hike, bike, ride...

We have a wonderful opportunity to experience nature and pursue many different activities. Swedes are extremely interested in outdoor life and nature. So that everyone can enjoy nature, it is good to keep some things in mind:

- Remember that crops, replanted forest or other vulnerable land should not be damaged.ark.
- To avoid disturbing those who live in the area, do not cross over or occupy someone's lot. Residents have a right to be undisturbed.
- Do not interfere with the activities of landowners.
- When you ride or cycle in terrain, there is a risk of damaging the ground. Do not ride or cycle over soft, fragile ground or on designated jogging tracks, ski tracks or hiking trails.
- If you cross enclosed pastureland, do not disturb animals or damage fences. Close the gate after you so that livestock does not get out.

Camping

By all means pitch a tent for a night or two in the countryside! Remember to pitch it in a suitable place – in other words, where farming is not carried on and not too close to a residence. Indeed, the greater the risk of disturbing someone, all the greater reason there is to ask for permission. Consideration is especially important when camping with caravans and motor homes outside designated areas. Such camping is governed by off-road vehicle use laws.

Take rubbish with you

We all want clean nature, free of litter. So take rubbish with you. Glass, tins, plastic bags and bottle caps can injure both people and animals.

Fire

The campfire adds spice to our outdoor life, and you are allowed to build a fire in nature.

But fires cause concern among many landowners because much valuable forest goes up in flames every year due to carelessness with campfires. To minimise the risk of fire spreading, it is good to keep some things in mind:

- Do not start a fire if there is the least danger of it spreading – in dry weather the lighting of fires often is prohibited.
- Choose a place where there is no risk of the fire spreading.
- Do not build a fire directly on or right next to rocks. They can crack, causing scars that never heal.
- When you are done with the fire, make sure that it is thoroughly extinguished.
- Leave no trace of the fire in the form of a fireplace or such.

Picking flowers, berries, mushrooms, twigs...

You are free to pick flowers, berries, mushrooms, twigs and branches from the ground. To avoid damaging nature, it is good to keep some things in mind:

- Remember that certain plants are protected by law and they may not be picked. The county board can provide information on protected plants. Orchids are protected throughout the country.
- Do not take twigs, branches, birch-bark and other bark from growing trees. They can be damaged.

Dogs

Obviously dogs may accompany you in

nature. March 1 to August 20 is a sensitive period for wildlife, and dogs are not allowed to run loose then. During other times of the year, you also must have your dog under sufficient control so that it does not disturb or damage wildlife and other people. In some parts of the country dog leash laws are in effect.

Swimming and boating

The right of public access applies both on land and water. You may swim by the shore, boat almost everywhere, moor your boat and spend a day or two on board. The same rules for consideration of your surroundings apply as on land. In other words, don't disturb – don't destroy. To be able to enjoy nature by and on the water, it is good to keep some things in mind:

- Do not moor your boat or go ashore by a dwelling or where there is no admittance, such as a sanctuary for protection of birds and seals.
- It is okay to moor a boat temporarily at someone else's jetty if it does not interfere with the owner. But not if it adjoins the rounds of a house, of course. It is preferable to contact the landowner.
- Special rules, such as speed limits and no admittance, may exist.
- Remember that motorboat operators need to be more considerate than quieter boaters.

Hunting and fishing

The right of public access does not cover hunting and fishing. But you are free to fish without a licence with a rod and certain other hand gear along the coasts and in Sweden's five largest lakes: the Vänern, the Vättern, the Mälaren, the Hjälmaren and the Storsjön. Fishing in other waters requires a fishing licence or other permit. Along the Norrland coast, the west coast and Skåne's southern coast certain other fishing methods are allowed without a licence. Otherwise fishing with nets, trolling or tip-up fishing is not permitted without a licence, nor is salmon fishing by the Norrland coast. So that everyone can enjoy nature and avoid damaging it, it is good to keep some things in mind:

- Remember to always take note of the rules that apply in the place you want to fish.
- Do not leave hooks and lines behind you in nature. They can be death traps for wildlife.
- Remember to leave wildlife's young and nests or dens alone.
- You are not allowed to take bird eggs. That is considered hunting. All wild animals and birds are protected by law. Hunting may be carried on in accordance with hunting regulations. Species threatened with extinction, such as frogs and snakes, are protected.

Organised outdoor life

Adventure tourism and other organised outdoor life have tremendous opportunities to make use of the right of public access for activities. The right of public access can be used commercially and by many users simultaneously. Those who organise activities on another's land bear a great deal of responsibility. The very best way to proceed is for the organiser to make contact with the landowner, municipality and county board before the activities begin.

- Obtain the necessary proficiency
- Choose a suitable location
- Implement measures for security and prudence
- Inform participants about the right of public access

In nature close to population centres

In nature close to population centres the right of public access is all the more important. It enables many people to take part in nature activities close to home without going away. In populated areas many people live side by side, sometimes in crowded spaces. The right of public access makes it easier for all of us to coexist in nature in a respectful manner and to avoid conflicts and wear and tear on the land.

No motor vehicles on the ground

There is no right of public access for motorised vehicles. According to Terrängkörningslagen (terrain vehicles law), it is forbidden to drive cars, motorcycles, mopeds and other motorised vehicles on bare ground in the terrain. Nor is it permitted to drive motorised vehicles on private roads that are closed to motorised traffic. Such restrictions must be indicated by road signs.

Protected nature areas

In national parks, nature reserves, Natura 2000 sites or other protected areas, special rules apply. Sometimes the right of public access is limited, sometimes expanded. Information is posted at the entrances to the parks or other protected areas.

More inspiration

A wide multi disciplinary field

This book covers many different scientific disciplines and multi-disciplinary subjects. It has been necessary to include knowledge gained through experience, frilufts technique, handicraft and poetry to express what we want to say. At the same time new literature continues to add to our knowledge and the internet has become an important source for both knowledge and possibilities.

This book is also a teaching aid for university studies, however, references are not presented in the normal way with parenthesis or footnotes. References are mainly provided for two reasons; to give the reader suggestions of where they can find further studies and to provide evidence of what's been written. But when it comes to a book *in* frilufts pedagogics (not *about*) then the more in-depth suggestions for the reader are based on experience and practical work that aren't found in references. The book is based to a large extent on so-called "proven experience", which makes the presentation of the authors especially relevant.

We have chosen in the suggested literature to give suggestions from a wide general literature, mainly in Swedish, that will remain relevant for many years after publication and which in turn contain many references. We have identified especially important sources. Something to bear in mind for all the chapter headings below is that new material is being produced all the time. This material you can find in libraries, databases and within organisations. To strengthen the book's scientific content and to provide a basis, for example, for essay writing, we have also a special section about friluftsliv research with some key issues where examples are given of publications and journals within various subjects. After this you find the common reference list for the whole book but note that the sources to all the citations in the book are given separately in the list of poems and citations. It is important for those who work professionally in this area to ensure that they follow current policy documents and curricula etc.

Some wide overviews

A rich source of information about historic aspects of Sweden's nature, environment, population etc. can be found in *Sweden's National Atlas* that since 1990 has been released in many volumes, covering for example: Plants and animals; Climate, Lakes and water courses; Cultural landscape and buildings; Mountains on earth; Sea and coast; Environment and forest. General publications such as *The National Encyclopedia* can tell you more about for example the "romantic era", "gneiss", "the history of fire" or "the thinning of the ozone layer". *Friluftshistoria – från ´härdande friluftslif´ till ekoturism och miljöpedagogik* (Sandell & Sörlin, 2008). This is a broad anthology about Swedish friluftsliv history, from nature tourism, children's activities and the right of public access (allemansrätten) to promoting health, environmental engagement and future perspectives. The book contains many references to the scientific articles and reports that these chapters rely on. An extensive work in Swedish friluftsliv is the anthology Fredman *et al.* (2014) and a book about planning friluftsliv referring to international literature is *Planera för friluftsliv* (Emmelin et . al. , 2010). An important source for deeper understanding of Sweden and a multicultural friluftsliv is *Det gröna finrummet* (Lisberg Jensen & Ouis, 2014).

Current tendencies about "sportification" and new relations to indoor environments (such as climbing walls, indoor skiing etc.) can be found in San-

dell *et al.* , (2011). A wide international work about education outdoors is *"Routledge International Handbook of Outdoor Studies"* (Humberstone *et al.*, 2016) and an overview of international outdoor recreation research can be found in *"Studies in Outdoor recreation"* (Manning, 2011).

Many older books on practical friluftsliv are often relevant today and can be found in libraries. *Scoutuppslagsboken* (1993) is a good source for practical outdoor questions. You can read about knots in *Knopar och rep* (Berkeman, 2000) and when it comes to cooking the following can for example be useful: *Bortom frystorkat* (Hultén *et al.*, 1999) or the classics: *Torkning av bär …* (Sahlin, 1981) and *Kan man äta sånt* (Ingmansson, 1978). *Friluftsliv och hantverk* (Glantz & Olsson, 1987) offers not only many concretete suggestions and instructions when it comes to frilufts related handicraft but also provides information concerning history, how to establish a permanent campsite, exciting games and competitions that are easily done in nature as well as much more. Another book on handicraft where different techniques are carefully described is *Tälja med kniv och yxa* (Sundqvist, 1988). *Överleva på naturens villkor* (Källman & Säpp, 2001) can also be an exciting in depth practical inspiration. When it comes to the need for different group exercises and cooperation activities for example Forsmark's (2008) *Handledarboken för samarbetsövningar* could be useful. A very good classic is *Nycklar till naturen: Med barnen i närmiljön* (Ekström & Szczepanski, 1991).

Through the index to the papers of the organisation Argaladeis you can find many practical outdoor tips, see also the history of this exciting organisation (Waldén, 2001) and the paper "Väglöst." The activity bank of the scouting movement is a web-based databank with tips, knowledge and inspiration. When it comes to species literature on plants and animals, information about nature and environmental questions or literature on pedagogics and safety questions – and so much more – then as a rule it's best to combine searches on the Internet with visiting a good library. On internet pages such as "Utenavet", organisations such as Skogen i Skolen, Centre for Nature guiding, Nature protection organisation, the Scouts, Keep nature clean and Forum for outdoor pedagogics as well as on the contact page for research about friluftsliv there is information about current literature, Swedish research on friluftsliv and conferences etc (www.friluftsforskning.se).

For teachers in preschool and school it is important to keep up to date with current policy documents, such as the national curricula and course plans and how they prescribe friluftsliv, outdoor pedagogics and nature contact. The same applies to youth leaders in different organisations.

Chapter 1: Warm, dry, well fed and happy

Classics such as *Scoutuppslagsboken* (1993), *Friluftsliv och hantverk* (Glantz & Olsson, 1987) and *Torkning av bär …* (Sahlin, 1981) as well as *Ute* (Wermelin *et al.*, 1982); and *Mera ute* (Tordsson *et al.*, 1984) offer a good foundation towards a deeper technical outdoor knowlledge. Here you can also find many other ideas around friluftsliv and outdoor teaching. In Isberg's book *Enkelt friluftsliv* (2002) there are many practical suggestions as in Fält (1998) and Olsson (2001), Hegart & Kramer (2014), Hegart (2017), Johnson *et al.* (2014), Fält & Weslien (2010) and Johnson & Lundqvist (2014).

Chapter 2: From a natural life to friluftsliv

The basis for this chapter, when it comes to the relationship of humans to nature over time, is mainly wide overviews covering nature view and environmental history in for example Sörlin (2001; 1991), Sörlin & Öckerman (2002) and Worster (1996) where further references can be found. When it comes to the history of friluftsliv, this rests on the authors research which can be found in amongst others the anthology *Friluftshistoria* (Sandell & Sörlin, 2008). Here you also find some thoughts on current trends which are also based on the authors reserach see Sandell *et al.* (2011), Sandell (2016a och 2016c). A more thorough presentation of the different "friluftsliv styles" can be found in for example Sandell (2016c) and Emmelin *et al.* (2010).

Chapter 3 Pedagogics, didactics and leadership

In the anthology *Friluftshistoria* (Sandell & Sörlin, 2008) there are many chapters with a pedagogic focus for example about the childrens nature school "mulleskola" through Friluftsfrämjandets, as well as the outdoor educations in schools. Tordsson (2003; 2010); and Isberg (1991) look into the teaching methods and the values of friluftsliv. Overviews on nature guiding can be found in Ham's book on Interpretation (2013) and further reading on the historical roots of outdoor pedagogics can be fopund in Dahlgren & Szczepanski (1997). Szczepanski has also written his own texts (for example. 2006; 2008, 2018, 2019) where further references may be found. Other references on the roots of outdoor pedagogics can be found in: Rousseau (1979); Lagerlöf (2005); Fröbels (1995); Keys (1996); and Dewey (1999 and 2004). Flow-terminology can be found in Csíkszentmihályi (2000) and about Outward Bound in Booth *et al.* (1990). The source of the statement that 85 % of our communication is non verbal stems from the Norwegian professor of music Bjørkvold, the author of *Sköldpaddans sång* (1998) and *Den musiska människan* (2005). Nordahl & Skapell Misund (1998) is mainly relavant to staff of preschool and the lower school ages or those within special needs education see for example Ericsson (2002) and Molander *et al.* (2005). Books on immaterial stories and sagas are Schön (1996) and Bang & Dahlström (2004). Innate knowllege can be studied in: Hartman *et al.* (1995); Waldén (1994); Öquist (1995); Molander (1996) and Svenning (2004). International litterature are for example Ogilvie (2005), Priest & Gass (2005) and Humberstone *et al.* (2016).

Chapter 4 Ecology, human ecology and sustainable development

This chapter is mainly based on human ecological and environmental historical overviews such as Sörlin (2001), Sörlin & Öckerman (2002). The source for the figure on different types of natural resources is a basic book on human geography (Haggett, 1983). Uddenberg's books (for example 1995 and 2003) are highly revered and the books *Vad ska vi med naturen till?* (Sjöberg, 2001) and *Naturen för mig* (Ek-Nilsson *et al.*, 2014) give many different aspects on the humans relationship with nature in the early 21st century as do Holm (2008) and Lundgrens anthology about the 100-year jubilee of Nature Care in Sweden (2009).

Chapter 5 The history of the landscape

This chapter is based on the authors research and teaching life within human geography as well as different volumes of *Sveriges Nationalatlas*. The first part of *Fårad mark* (Cserhalmi, 1998) gives directions on the use of historical maps to understand the lay out of the land of today. The next part of the book concerns reading the cultural traces in the landscape. Bengtsson (2004) gives an authoritarian way of understanding "The Right of public access" (allemansrätten) and a more in depth discussion can be found in Ahlström (2008) and Sandell & Svenning (2011). Suggestions on different teaching methods focussing on historical perspectives of the landscape can be found in Larsson & Öborn (1995). For an exciting method of binding together history, drama, landscape and nature in roleplay ("lajv"), see for example Käll (1998). For an understanding of nature conservation politics see Lundgren (2009) and on the City Nationalpark Holm & Schantz (2002).

Chapter 6 Deep forests

Lots of useful information regarding the history and pedagogical use of the forest can be found in Nitzelius & Vedel (2000), Glantz & Olsson (1987), *Scoutuppslagsboken* (1993), Wermelin *et al.* (1982), Larsson & Öborn (1995) as well as the classic series *"Vad jag finner"* Coulianos & Mandahl-Barth (2000). The volume on forests in *Sverige Nationalatlas* (1990) is beautiful and informative. For the wider historical perspectives see Schama (1997) and an anthology on Swedish forests can be found in Almered *et al.* (2004). In *Blomsterspråk* (Wingård, 1997) some 40 of the most common plant species are presented.

Chapter 7 wet waters

Apart from more general Flora and Fauna litterature, *Vad jag finner i sjö och å* (Mandahl-Barth, 2000); *Småkryp i sötvatten* (Mandahl-Barth, 1980) and *Sötvattensfisk och fiske i Europa* (Dahlström & Muus, 1990) can be specially mentioned concerning lakes and rivers. On paddling, the classic *Tidens kanotbok* (Rennermalm, 1983 gives an overview and for winter themes *Isboken* (Lindquist & Tysk, 2007) is useful.

Chapter 8 Wide coasts

The material for this chapter has mainly been gained through university courses in biology, natural science and environmental science. Falk & Kallenberg (1996) provided a useful source of inspiration. See also: Køie, (2004); Kristiansen (2001); Holmberg & Nelsäter (2000); Johansson (1987) and Nilsson (1992). Other inspiration can be sourced from various "science centers" for example "Havets hus" in Lysekil or via the internet, for example "Vattenkikaren" at Tjärnö marinbiological station. Rosén (1999) gives a classic introduction to kayaking as does Mentzing (2000) and water safety is discussed in *Scoutuppslagsboken* (1993). To gain more information and know-how on building your own kayak using natural materials , friluftsprofiled folkhighschools and similar organisations for example *Argaladei: Friluftsliv – en livsstil* can be a way forward.

Chapter 9 High Mountains

Fjällboken (Grundsten & Palmgren, 2001) offers a wide overview of most things concerning the mountain environment and examples of species litterature are Nylén (1996) and Holmåsen (1981). An historic case study is given by Per Åke Nilsson in his rapport *Fjällturismens historia* (1999), which together with many useful material is published by ETOUR, Mitt-university. A couple of examples of literature on the history of the Sami and the right to land issues are Lundmark (1998) and Isaksson (2001). *Vinterfriluftsliv* by Rolf Olsson (2001) can be useful when planning expeditions and friluftsliv in winter.

Chapter 10 Suburban friluftsliv

The think tank MOVIUM at the Swedish University of Agricultural Sciences in Alnarp and Uppsala provide valuable overviews, research and practical tips when it comes to planning green urban spaces and school playgrounds, see Grahn (1991; 1992); Grahn *et al.* (1997) and Olsson (1998). Boverket together with MOVIUM have published *Gör plats för barn och unga* (2015), as a guide to planning, design, care and running of the outdoor environment of children and young people. Practical teaching literature about children and nature are for example Norén-Björn (1993) See also Åkerblom (2005) and Olsson (1995; 2002). The methology book series "Att lära in ute" (Naturskoleföreningen and Outdoor Teaching publisher AB) are inspirations for both school and pre-school. Other inspirations: Gustafson (1976); Rapp (1992, 1996); Granberg (2000) and Drougge (2005). Larsson & Öborn (1995) and Glantz & Olsson (1987) are also relevant in this chapter. Safety and accessability of childrens playgrounds are central in (Henriksson, 2001), something that Boverket address on their homepage. Furthermore Sörlin (2001), Uddenberg (2003) as well as Lindsten (1991), and *Kompostboken* (Alm *et al.*, 1997) have been used. About planning suburban friluftsliv and garden therapy: In 2010 Routledge published the book *Innovative Approaches to Researching Landscape and Health*, and in 2020 Studentlitteratur published the book *Gröna Rehabs modell*.

Chapter 11 Friluftsliv, health and quality of life

A basis for this chapter is a wide historical perspective of mankinds relationship to nature, for example Sörlin (1991) and Worster (1996) as well as the authors own research for example Quennerstedt (2006), Öhman & Öhman (2011) and Mårtensson *et al.* (2011). The impact of relocation from the countryside into urban areas in the last century is covered in Frykman & Löfgren (1987). Uddenberg (1995) gives a picture of the importance of nature today, as does Jensen (2008) and thoughts on the deeper dimensions of friluftsliv can be found in for example Thoreaus *Skogsliv vid Walden* (1947, original: *Walden*, 1854). Historical perspectives on relationships between nature, sport and friluftsliv is discussed in

Eichberg & Jespersen (1986). The book about physical education, that is mentioned is Öijen (2005), see also for example Duesund (1996); Antonovsky (2005); Eriksson (1997) as well as the section on health in "About frilufts research" below. An historical perspective on the role of nature in physical education in schools can be found in Sundberg and Öhman's chapter "Friluftsliv for health and quality of life" in Sandell & Sörlin (2008). Lindholms dissertation (1995) discusses the importance of the natural environment in childs play (also historically) and general overviews of children, nature, friluftsliv and health can be found in for example Frischenfeldt (1996). From MOVIUM, texts such as Grahn *et al.* (1997) and Olsson (1998) may be useful.

Chapter 12 Friluftsliv close to nature - an environmental learning opportunity

A more in depth content of this chapter can be found in Sandell & Öhman (2013). See also Sandell *et al*. (2003; and the revised copy in english Sandell *et al*., 2005) as well as the section on pedagogy in "About friluftsliv research" below. A thorough discussion about the industrial society's relationship to nature and ethical questions are well presented in amongst others von Wright (2000) and different "ekosophical" works such as the classic *Ekologi, samhälle och livsstil* (in Swedish, Naess, 1981). When it comes to nature contact, children and environmental perspectives see Östman (2015) not to forget the today well established pre-school organisation "I Ur och Skur" with its roots in Friluftsfrämjandets "mulle-schooling", see Rantatalo (2008) on its history and for example Bertilsson & Larsdotter (2013) as well as Drougge (2005).

Chapter 13 planning for friluftsliv

This chapter is a practical conclusion of the book and hence builds on literature already mentioned, for example: *Scoutuppslagsboken* (1993), *Ute* (Wermelin *et al*., 1982); *Mera ute* (Tordsson *et al*., 1984), *Friluftsliv och hantverk* (Glantz & Olsson, 1987) as well as *Nycklar till naturen* (Ekström & Szczepanski, 1991).

Organisations

Below you find examples of Swedish organisations and institutions which may be of use for further studies (their addresses are not included as they quickly become outdated). Their homepages often have internet links and other platforms of contact (for example, reports and newsletters):

- Argaladei: Friluftsliv – a lifestyle
- SLU Centrum för naturvägledning
- ETOUR (European Tourism Research Institute) at Mittuniversitetet in Östersund
- The research network Friluftsforskning.se
- Folkhögskolornas informationstjänst, FIN
- Formas: Forskningsrådet för miljö, ariella näringar och samhällsbygande
- Framtiden i våra händer, FIVH
- Friluftsfrämjandet
- Svenskt Friluftsliv (an umbrella organisation för outdoor organisations)
- Scout (The Swedish Scout movements homepage)
- Fältbiologerna
- Förbundet skog och ungdom
- Greenpeace
- Håll Sverige Rent
- The Sports University in Stockholm, GIH
- Friends of the Earth
- The think tank MOVIUM at the Swedish University of Agricultural Sciences (SLU)
- Forum för utomhuspedagogik, Linköpings university
- Naturskoleföreningen
- Naturskyddsföreningen
- Naturvårdsverket
- Skogen i skolan
- Skolverket
- Styrelsen för internationellt utvecklingssamarbete – Sida
- Utenavet – national network for promoting outdoor learning
- World Wildlife Fund, WWF.

About Friluftsliv Research

BY: KLAS SANDELL

Friluftsliv as a field of research

Friluftsliv is a broad and multiscientific research field covering many disciplines and research directions. The field links the most basic theoretical questions and practical tangible experiences and activities. It is not obvious how much the Swedish/Nordic word "friluftsliv" can be translated to "Outdoor recreation" in searches about international frilufts research. (For the authors point of view see Sandell, 2003; 2016b). In short Friluftsliv is a field where the traditional academic way of finding information only scratches the surface.

The overriding aim of this section about "frilufts research" is to strengthen the use of our book as a base for different projects, for example essays, groupwork and critical discussion. To be able to seek information and debate and discuss the concepts, experience and "truth" is a necessary part of going into depth in your own area as an outdoor teacher. It is also a way to slowly increase the friluftsliv and the outdoor teachers identity and significance in society, schools, planning and politics.

It is also our belief that a book *in* (not *about*) Frilufts pedagogic benefits by not being burdened by the traditional scientific language and the obligation for literary references and the constant questioning of it's own hypothesis. These references and questionings are the strength of the scientific approach but they also mean that you often avoid creating a poetic frame around the activity – that at the same time is often necessary to give strength to the outdoor learning. Whilst practical outdoor teaching often requires both practical and mood creating frames, as an outdoor teacher you also sometimes have to return to critical reflection. Hopefully this section will serve as an overview of where and how you can find material about research into friluftsliv, in which fields such research works as well as give examples of different themes.

Scientific validation

Before a discussion about research possibilities and themes it is important to consider the principles of research and scientific validation. One aspect of scientific work is the difference between what is considered *interesting for research* (for example how good it is to be in nature?) and what from different perspectives is seen to be *research possible* (for example how can we tackle this question using scientific methods). When it comes to what is interesting there is often a difference between what different groups in society consider to be interesting (relevant for society, good, user oriented, of economic benefit etc.) and what is considered within science interesting to research (for example theory or method development). When it comes to the question of what is research possible the answers vary greatly depending on who you ask. In other words, what different researchers with different traditions, disciplines and methods have as a requirement or view as to whether a research approach can be seen as "scientific". Examples of this can be to what extent quantification (measuring with numbers) is seen as a necessary criterion for scientific acceptability or, for certain types of research questions, is more likely to risk giving a false precision and moving the focus from what is important to things that can be measured quantitatively. An important aspect of this, of special relevance for frilufts teaching, is the discussion about "knowledge in action", i.e. knowledge that is not clearly described in traditional terms; see for example Hartman *et al.* (1995); Waldén (1994); Öquist (1995); Molander (1996) and Svenning (2004); see also Caselunghe (2012).

Another field of tension is between the research approach that aims to be *illuminating* compared to the one that wants to be *proving*. The former is often about describing and understanding different

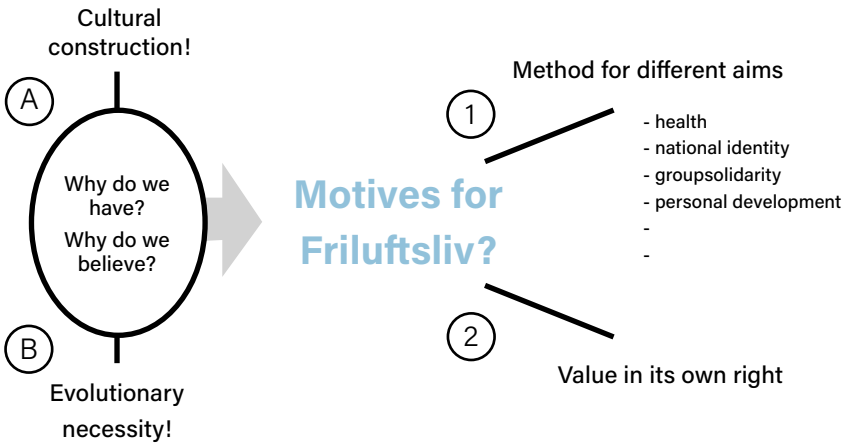
phenomena, for example how friluftsliv grew in Sweden, or a particular groups experiences, for example preschool teachers experience how children are affected by being in nature. The proving research approach sets out to link cause and effect in terms of which sort of outdoor experience leads to what type of improvement in health. Often, but not always, these two research perspectives – the illuminating versus the proving, involve different methodological approaches. Illuminating and describing often happen in qualitative terms whereas proving is usually quantitative (the illuminating approach is often connected to the arts and some social sciences whereas the proving approach is found in other social sciences, natural sciences and medicine). The great strength of the proving approach is that you can clearly show relatively strong links. But it is also important to see its need to break down the research problem into relatively isolated phenomena (for example a certain chemical in connection to a certain bodily reaction) as well as its difficulty to tackle complex and difficult to define questions (for example upbringing, feelings for nature and environmental concern). Differently expressed; to prove that it is unhealthy not to move your body at all is relatively easy, but to prove that it's better to move your body in a natural landscape than in, for example the sports hall, is considerably harder – especially if we claim that the proof concerns everyone, always and everywhere irrespective of, for example, upbringing or pedagogic method.

The figure on the next page tries to illustrate an important basic reference frame for discussions about the values of friluftsliv. It shows a basic split that was made in the second chapter of the book between viewing friluftsliv mainly as a method for different aims ("1" in the figure), for example health, group solidarity, personal development etc. , compared to having a value of its own, something existential, a quality of life and a goal in itself ("2"). An important difference between these two motives is that when it comes to the former (instrumental) perspective it is relatively easy to see that there can be alternative methods. For example if the aim is bodily movement then you could for example go to a gym, dance or play football to reach the same goal and if the aim is environmental concern then a TV programme, literature and political debate could be an alternative. But when it comes to the inherent value of friluftsliv there can be no alternative. If it is just the feeling that you have in front of a campfire that is the aim then friluftsliv is necessary to achieve this value, and if the contact with a natural landscape is an important part of the wider health perspective, then the gym can be no alternative.

The left side of the figure is for these scientific reasonings of great importance. It is about what we see as the main questions as to how we believe that friluftsliv works for different motives. It is comparable to the split that was done in the second chapter of the book between seeing friluftsliv as an evolutionary necessity ("B") or as a cultural construction ("A"). In the first case friluftsliv is seen as a consequence of human developmental history in a natural landscape. To feel good and develop physically and mentally we therefore need to find the type of environments that we evolved in. If instead we see friluftsliv as a cultural construction, then the positive in, for example, walking in the mountains, living in a tent, swimming in the sea and grilling sausages, is something created by the society we live in, through the influence of parents, teachers, adverts etc. That this is not least about what you include in the term "friluftsliv" itself is of course obvious.

On a superficial level it is of course not difficult to find arguments for both the evolutionary and cultural perspectives. For example, how our body's need for movement or the shape of its sensory organs (for example eyes and nose) are dependent on our evolutionary history and how this affects our ability to undertake friluftsliv.

But it is also clear, for example if you study history, how thoughts about what is nature, what is beautiful and what one should or shouldn't do in the countryside vary over different periods of time and between different groups of people. It's difficult to show with any certainty how important these perspectives are in



relationship to each other (evolution vs. culture, respective goal vs. method) but this reference frame plays a large part in how you consider for example which research ought to be done, how it should be done and how one should interpret it. Discussions in Swedish about genetic vs. cultural interpretation patterns are for example: Hacking (2000); Grahn (1989) and Uddenberg (1993), see also a classic such as Kellert & Wilson (1993) or the wider perspective of Ingold (2011). When it comes to reviews in Swedish of changes in how the outdoor and cultural landcapes were seen as well as the development of friluftsliv see for example Sörlin (1991) or Sandell & Sörlin (2008).

Finally, I would like to point out that peoples interest and engagement is an important argument in itself (and also scientifically researchable). In a democratic society there is every reason to prioritise what many people experience as important values (for example friluftsliv and contact with nature as a method with different aims and as a value in its own right).

Then you can also, of course, accept that different people can have different reasons for their values (for example in terms of cultural construction and evolutionary necessity according to above). That it's not been possible to prove scientifically (for example that stillness in a natural landscape can be replaced by meditation indoors) is of course no reason that society shouldn't invest resources in stillness in natural landscapes, if many people consider it to be beneficial! Parallel with these democratic aspects it is fundamentally important that research deepens our understanding. Not least, it is important that research tries to control for prejudice and critically evaluates different assumed connections and relationships, even though many believe that they are true. This ought to apply both to illuminating research (for example about the emergence of friluftsliv and what different groups experience when they are living an outdoor life) and proving research (for example physical and psychological health effects of friluftsliv compared to other activities).

Database searches

One way to search for international research material is to use the larger databases that can be reached via libraries and that contain different types of material from scientific journals and other publications. These databases can be thematic regarding the type of material (for example dissertation abstracts) or regarding different areas of competence (for example health). In collaboration with the library staff, you can create profiles that initially search a relatively wide subject area. Later, the search terms can be reduced or combined to find information on precisely the questions you're interested in. For example, for part of this text the term "outdoor recreation" was used in conjunction with "benefits" in a search for the values of friluftsliv, which were later combined with "review" to prioritise condensed material. But this also means that it is important to have a constant and critical dialogue between the search terms that you use and what you're interested in, so as not to find that you're reading about something that has lots of material but is really about something else. Here, the

difficulty in finding an obvious term in English for friluftsliv is a good example (furter topical reading in Henderson & Vikander, 2007; Isberg & Isberg, 2007 and Sandell & Öhman, 2010). A good introduction to research on friluftsliv can be found in the research network www.friluftsforskning.se as well as internet portals such as:

ResearchGate, Digitala Vetenskapliga Arkivet (DiVa) and Academia.edu.

Scientific Journals

Friluftsliv can both be considered within multiscientific thematic journals with a specialisation towards outdoor questions, social planning or tourism, but can also occur in the journals of traditional disciplines (for example psychology, human geography, pedagogics or history). When searching in these archives you often use the search services of the publishers that produce the respective journal and can therefore include more journals in your search. Examples of relevant scientific journals are:

- Annals of Tourism Research
- Environmental Education Research
- Environment and Behavior
- Health and Place
- J. of Adventure Education and Outdoor Learning
- J. of Applied Geography
- J. of Ecotourism
- J. of Environmental Education
- J. of Leisure Research
- J. of Outdoor Recreation and Tourism
- J. of Rural Studies
- J. of Sustainable Tourism
- Leisure Studies
- Scandinavian J. of Hospitality and Tourism
- Society and Natural Resources
- Sport, Education and Society
- Tourism Geographies.

Thematic overview of frilufts research

Here are some examples of recurring themes in friluftsliv research.

It is obvious that these could be titled and split in different ways, but I still hope that this can provide a frame of reference when you, for example, are wondering what you want to immerse yourself in and which approaches have been used before in a particular field. A combination of a thematic and a search of current research is recommended. In such a way you get a broad picture of what research considers it knows as well as terms and which methods are normally used. Based on this you can then wonder how you might pose the question in a slightly different manner or to a group or in a situation that hasn't been studied before. Or perhaps you want to use a different theoretical starting point or use methods that have not been used before.

Existential approaches. As the first theme I wish to consider what could perhaps be called the deeper dimensions of friluftsliv. With the term existential I mean such approaches that are about what is considered defining for humans/individuals existence; questions that touch friluftslivs basis, for example nature terms, landscape and identity. Here are some example of subthemes and suitable keywords for database searches that lead to current examples of research and researchers within the respective themes:

(i) What we in different times and in different groups called nature, if it can be separated from humans, if there is something that's called "wilderness" and what if so signifies it.

(ii) The characteristics of the Nordic friluftsliv traditions, differences and similarities with outdoor recreation in North America and similar in other places in the world.

(iii) The contents and changes over time of the landscape experience amongst different groups.

(iv) The contact with nature and friluftslivs deeper dimensions as a source of inspiration for critical discussion of civilisation, including for example the Norwegian ecosophical discussion and its connections to the Nordic friluftslivs tradition.

A reflective societal approach. Here I think about the research as a more overarching term showing how friluftsliv is an important part of the evolution of modern society. It could be about friluftslivs arguments, organisations, pedagogic perspectives, special places and footprints in the landscape, it's role in physical planning, school politics etc. This means that it's about history and environmental history, but it could also

be to study the general public's recreational use and follow its change over time. It could also be on, for example, tensions between friluftslivs and the closely related – but definitely not synonymous – terms such as nature tourism, nature conservation and sport. Under this heading I consider four sub-themes:

i) How friluftsliv and closely related phenomena grew historically.

(ii) Special interests groups and their needs, for example gender, ethnicity, age, economic or disability.

(iii) The accessibility of the outdoor landscape, nature conservation and the right of public access (allemansrätten)

(iv) Changes in the content of friluftsliv or its frame of reference for example sportification, commercialisation, technification, as well as its relation to indoor environments (such as climbing walls, adventures swimming pools etc.).

Pedagogic approaches. This is about affecting, motivating and giving knowledge through friluftsliv for different aims, for example nature knowledge, bodily health, environmental concern, group work etc. A common research approach here is to try and measure different variables for the sought value (for example natural knowledge) before and after the outdoor method was used (compare "1" in the Figure above). Such approaches can have value as a description of what happens in different pedagogic situations. But to get the value of friluftliv itself it is important to compare different "interventions" (affect/changes) that used different methods but have similar aims, and where one of these interventions is friluftsliv. You can for example compare special projects in sports, dance or friluftsliv when it comes to promoting bodily movement; or compare music and massage with friluftsliv when it is to do with effects on wellbeing. Deeper knowledge can be gained if you also include different types of friluftsliv in terms of, for example, which type of landscape you are in (such as wilderness compared to a park), choice of leadership, which activities etc. Not least, it is important to be aware of the longerterm effects when you try to compare friluftsliv with other methods, for example, in terms of leader and teacher presence, planning in society, economics, combinations with other positive effects, the need for prior knowledge and safety aspects. The pedagogic methods can also be about affecting, motivating and giving knowledge to friluftsliv where the meeting with the landscape itself and the specific values of friluftsliv are the desired effects of the teaching method. Often this argumentation goes towards the "existential" theme above. Research with this latter focus increasingly becomes a question of describing and interpreting the contact with nature and the experience of friluftsliv itself followed by discussions about their significance (compare "2" in the figure above). Apart from healthrelated benefits the environmental pedagogic approach is one of the most frequently used arguments for friluftsliv as a teaching method (compare the chapter about environmental pedagogics in this book and see an overview about environmental pedagogy in Sandell *et al.*, (2003). Here we find for example the following perspectives:

(i) Friluftsliv and outdoor pedagogics as a part of the preschool and schools daily operations with different aims and connections to different subjects.

(ii) Understanding of the landscape is seen as valuable knowledge in its own right and forms the basis of activities about what you perceive as it's values, using for example excursions, guided tours and landscape interpretation.

(iii) That through friluftsliv an emotional engagement with nature is awakened together with a more radical environmental political stance, in solidarity with the values that you have experienced, which are not bound to a given location, but more generally inform your view of the world.

Before we leave this large field of friluftsliv as a pedagogic (especially an environmental one) we should also remind ourselves about the general difficulties that research has; that in an unambiguous way tie opinions and knowledge to behaviour. So, even if you believe that contact with nature through friluftsliv is a very strong environmental pedagogic tool you shouldn't assume that the groups that live friluftsliv will definately become engaged in sustainable development (see the chapter about friluftsliv as an environmental pedagogic and its focus sections).

Health related approaches A health-related approach is one of the most important research areas concerning the values of friluftsliv. We should remember here the breadth of the health perspective, from sustaining and supporting health and wellbeing to treating specific illnesses (see chapter 11 "Friluftsliv, health and quality of life, Page 203). It is of course also important to critically evaluate friluftsliv in connection with other methods. We can, for example, point to the old tradition to breathe "fresh air" at sanatoria as an element in the treatment for tuberculosis, an illness that we now know is best treated with chemotherapy and prevention through vaccination. But at the same time it's obvious today that encouraging different types of physical movement in natural landscapes (friluftsliv, jogging, walking with sticks, skiing, forest walks etc.) is the main strategy when it comes to getting an urban population to be active. Similarly, it is obvious that breathing "fresh air" in the destressing natural environment even today can be an important part of treatment for different illnesses and maintaining quality of life. Apart from more medical and natural science perspectives of friuftsliv and health, we can see many different aims and ambitions, including more opinions in line with the existential theme above.

It seems here important to relate to the principal approaches that are illustrated by the figure on the motives of friluftsliv above (which of course doesn't have to mean that you agree with and adhere to only one perspective). It is also important to include different types of multiscientific approaches in order to pave the way for new and alternative ideas to understanding the results. The aim is not only to try and describe the effects of friluftsliv (compared to not using friluftsliv) but to a greater extent to evaluate friluftsliv relative to other possible methods (for example: art, music, social arrangements, exercise indoors etc. etc.) with respect to the health supporting or illness treating affects you are interested in.

Economic approaches. My view is that of all the research into the benefits of friluftsliv, the economic approach occupies a large proportion of the international literature. This approach is about trying to estimate the value for the individual (for example through environmental economic questionnaires) of, for example, doing friluftsliv, being able to visit a National Park or having access to nature areas close to home. It is also about trying to estimate the actual economic effects of friluftsliv and nature based tourism (for example the buying of equipment, travel and entrance fees).

Closing words

During the nearly 15 years from the first edition of Robert Manning's overview of outdoor recreation research in 1986 to the third edition in 2011 (Manning, 2011) the book grew from 166 pages to 468. This is a good illustration of increasing interest. But outdoor recreation (and friluftsliv) is not only a quickly growing research field, it is also exciting and important. Outdoor recreation and friluftsliv are quite simply a part of the industrial society´s human ecology, an important part of the public's relation to nature, the environment and landscape. Research in this subject is therefore a part of our society's understanding of itself and a necessary frame of reference for sustainable development in the future. We do not have a free choice as to whether we want to have a relationship with nature or not; we are a part of it, even if our lifestyle is more and more distanced from nature. The question is which activities, landscapes and attitudes should form the frame for this relationship. Most probably friluftsliv in its traditional sense has a very important role to play for many people both now and for a long time into the future – and hence it is also a central area for research.

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Poems and other citations

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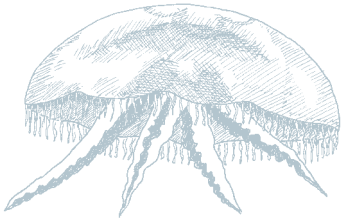

Geological or soil terms

Activity Tips

Friluftsliv explored follows on from the books The Dewdrop and Woodcraft that were published in 1981 and 1995 respectively by the Scout movement. Hence it is more than 35 years since we first weaved together a modern environmental engagement, a landscape perspective with nature and culture and the scout movement's experience of using friluftsliv as a method in child and youth work. It has been very pleasing in this manner to make this blend of environmental and outdoor teaching approach for knowledge, emotions and quality of life in "friluftsliv explored" available to all the groups that professionally and as volunteers are working with these questions which are so fundamental for the future.

An environmental and outdoor teaching approach for knowledge, emotions and quality of life!

"This book contains comprehensive teaching material for friluftsliv close to nature, usable by teachers in pre-school, elementary school, after school activities and by nature guides. You can open the book almost anywhere and become both inspired and reflective about friluftsliv. The authors have really managed to capture the term friluftsliv from every angle. There are lots of practical activity suggestions; from tips on cooking in the outdoors, pedagogic games, craft ideas to suggestions on how you keep your loo roll dry! A book rich in content but also easy to read and inspiring. The obvious book for all leaders in the outdoors but also useful for anyone who might spend time in nature."

From the library's review of an earlier edition of this book. Anders Hellborg

Friluftsliv explored doesn't only include nature knowledge, techniques in the outdoors and outdoor pedagogics but also covers ecology, human ecology, geography, environmental and societal questions, history, health, biology, craft and lots of practical activities -both for urban and rural friluftsliv. In this translation to English of the revised fifth edition of the Swedish book there are many activities and the text is suitable for the modern day.

LINKÖPING UNIVERSITY

Friluftsliv embraces the feeling around the campfire, paddling along winding rivers and walking towards the distant blue mountains. But, it is also to whittle a stick, to remember your waterproofs and to find your way home.

Knowledge emerges when you combine imagination with facts and the glint in your eyes, using all our outdoor environments: forests, water, the coast, mountains and the nature close at hand.

Emotion is to swim in crystal clear water far out in the archipelago and to see the clouds gliding across the sky. But also, to be able to present other sides of yourself, to be fascinated by your own body, the struggling ant and the sight of frost on trees.

Quality of life is to experience friluftsliv – as it happens!

The editors **Britta Brugge, Matz Glantz, Klas Sandell, Therese Lundqvist Jones, Anders Szczepanski** and **Per Andersson** have extensive experience within education (from preschool to university), leader education and research about friluftsliv, perspectives on nature, development issues and environmental engagement. Together with the co-authors: **Patrik Grahn, Per Hedberg, Karl Erik Karlsson, Anders Nilsson, Kurt Olsson, Mikael Quennerstedt, Ronnie Ståhle, Stephan Svenning, Marie Öhman** and **Johan Öhman** and in co-operation with **Roger Isberg, Ebba Lisberg Jensen, Anders Johansson, Anna Malmström, Pernilla Ouis, Eva Sandberg, Peter Schantz, Ammi Wohlin** and **Petter Åkerblom** they present a unique and all-encompassing knowledge of this subject.