**Kumano-Ensby**

**Sample translation**

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Introduction

Have you ever wondered what you would do if you had to make it on your own? If you were stranded on a deserted island or the family car broke down in the middle of nowhere.

What if you got lost in the woods and could not find the way home? Or if something happened so you no longer had a place to call home.

Even a short trip can get you in trouble if you fall and hurt yourself and can´t go on. Maybe you lose your way because of a shortcut or a detour. The weather changes quickly and wind, fog, darkness or a snowstorm can steer you off course or halt your progress completely.

However, making it on your own can also be a fun challenge, even when help is only a phone call away.

This book will teach you how to stay warm, dry and healthy and keep your belly full when you are all alone in the great outdoors. You will also learn how to navigate and signal for help when you need it.

Hopefully you will never find yourself in a situation where your life depends on this knowledge, but knowing how to take care of yourself is both useful and fun.

Some good advice:

* Never leave home without telling someone where you are going.
* Have a travelling companion and try to stick together.
* Even on short trips, bring the essentials.
* Try to stay warm and dry. Hypothermia is dangerous.
* Do not eat anything unless you are certain what it is. It´s better to go hungry for a while.
* Don´t panic! Sit down and make a plan.

Pack your bag

Before leaving on a trip, you will do well to think about what to bring. There is equipment and gear that can make your time outside easier and more comfortable, but if you bring everything you might possibly find a use for, your backpack will quickly become uncomfortably heavy. There are a lot of things to consider when packing your bag, such as weather, time of year, the nature and length of your trip.

Your backpack must sit comfortably on your back. It should rest above your bottom and follow the contour of your back, while still giving room to stick a flat hand between the backpack and your back. Put heavier items in the bottom and avoid hanging things on your pack that can make it hang askew.

Dress in warm, hard-wearing clothes when venturing out into the forest or to the mountains. Preferably multiple layers of wool from top to toe, with good shoes and a windproof layer. Remember raincoat and -trousers if the weather demands it. Anything that needs to stay dry should be put in plastic bags before going in your pack.

Even if you do not plan on spending the night outside, you will do well to prepare for unforeseen situations. A couple of garbage bags can be used as a sleeping bag or tarpaulin in an emergency.

Packing-list for a forest sleepover

1. At least one set of clean, dry clothes. Two extra pair of socks.
2. Cooking pot and water bottle.
3. Knife
4. Light weight, energy rich food.
5. Matches, lighter or a firesteel.
6. Flashlight or head lamp.
7. Map and compass.
8. Simple fishing gear.
9. First aid kit.
10. Sleeping bag and pad.
11. Tent or rope and a tarpaulin.

Home-dried food

Dried food is perfect to bring on a trip. When the water evaporates the food retains its energy and nutrition, but it´s much lighter and easier to bring on a trip. As an added bonus, dried food does not spoil as easily as mould and bacteria need moisture in order to spread. You can of course buy pre-dried food like instant soup, oat meal, dried fruit or beef jerky. But making your own is easy and fun.

While a dehydrator will give good results very easily, you can dry your food in a regular stove, use the sun or a cooking fire.

You can dry meats, vegetables, fruits, berries and mushrooms. If you are drying meat, use lean parts and cut away the fat and use the dried meats in soups or stews.

Dried fruits can be eaten as snacks or give flavour to twist bread or oat meal porridge. Other energy rich snacks, like nuts and chocolate are good choices to bring on a camping trip.

How to dehydrate your food:

* Make thin slices or small cubes. All the pieces should be roughly the same size.
* Vegetables should be boiled for a couple of minutes before dehydrating.
* Spread the pieces on a grate lined with baking sheet. Make sure no pieces are sticking together and that air can circulate freely between them.
* Place in the middle of the oven on the lowest temperature (50-70 degrees celsius) for about 6-8 hours. Keep the oven door ajar.
* Store in plastic bags, try to squeeze as much air out of the bags as possible.
* Soak the food in water for a couple of hours before consumption.

Make a shelter

When spending the night outdoors in Norway, there is one thing more dangerous than any other: the cold. If you do not eat for a couple of days, you will certainly be uncomfortable, but not in any danger. But cold weather is the real danger, especially if you are wet or not properly dressed. In an emergency, your are actually allowed to break in to cabins or empty houses.

When the weather is nice, sleeping under the stars is fantastic so long as you have a good sleeping bag that is appropriate for the time of year. In case of wind, rain or snow, however, you would do well to seek shelter.

A good camping spot should have access to water and firewood, and a good, flat place to sleep. Do not place your sleeping mat on an incline where snow or soil can slide out, neither should you camp under dead trees that might fall or drop branches. Camping near a river is a good idea, but do not put up your tent too close to the river bank where you risk getting soaked if the weather turns wet and the river rises.

Snow cave

In the winter, a snow cave can be the best way to seek shelter. Even though snow is very cold, it provides excellent insulation. Always bring a shovel when you are in snowy areas and keep away from steep inclines where there is a chance of an avalanche.

You need snow that is several metres deep to make a snow cave. Look for places where the snow has gathered into a snow-dune, where you can dig downwards, so the entrance is lower than the sleeping area in the cave. That way, the warmer air will gather inside the cave.

When digging the cave, you will get damp and sweaty, do not wear too much clothes while working and change into dry clothes once you are done.

If there are more of you working together, share the work so one digs inside the cave, one gets the snow out and one gets it away from the opening. Garbage bags or a tarpaulin can be used to move the snow. Change assignments once in a while.

Snow is good insulation against wind and cold.

1. Make the sleeping area higher than the rest of the cave.
2. A cold sink in the middle where you can stand upright.
3. Close the entrance with snow blocks.
4. Keep the air vent open, so fresh air can come in.

If you are surprised by bad weather in the winter, you might have to make an emergency cave and you do not have the time to dig a large one. You should dig a cave that is just large enough for you to sit upright. Use your skis together with snow blocks to close the entrance. Keep an air vent open by sticking your ski pole through the wall. You can also look for pits in the snow close to the base of large pine trees. That can make a decent emergency shelter by closing the roof with pine branches and snow blocks.

How to build a snow cave:

* Make an entrance high enough that you can stand upright.
* Carve out blocks of snow and keep them for covering the entrance later.
* Dig a tunnel a couple of meters in.
* Make bed platforms where you can sit upright and lie without touching the wall.
* Do not make the cave bigger than necessary. You will save energy and a smaller cave warms up more easily.
* Make sure that the roof and walls are at least half a meter thick.
* A cold sink near the entrance keeps warmer air inside.
* The roof should be curved and as smooth as possible to avoid dripping.
* Make a vent hole to ensure you get oxygen through the night.
* Bring shovels and luggage in to the cave and gather all equipment on the outside in one place before closing off the entrance.

<ill>In an emergency you should dig a cave that is just large enough for you to sit upright in.

<ill>Near the base of a large pine, you can often find the snow has formed a pit that can be used as emergency shelter if you close the roof with branches and snow blocks.

Lean-to shelter

A lean-to shelter will keep you dry and provides shelter for the wind. And if you light a fire in front of the entrance, you will keep warm even when the temperature drops. It is easiest to make with a tarpaulin or plastic sheet, but you can also make a traditional shelter with pine branches and sticks.

<ill>A lavvo is a traditional sami tent. You can make a lavvo from standing poles in a circle and binding them together at the top. The poles are covered by cloth, tarpaulin, felted wool or sewn-together animal skins that are fastened to the poles and the ground. The opening in the roof lets you light a fire in the middle of the lavvo to keep warm.

How to build a lean-to shelter:

* Put up the shelter between two trees, about two metres apart.
* Fasten a long pole or a strong rope between the trees, about one metre off the ground. Lean sticks from the ground to the crossbeam like a slanted roof.
* Fasten the sticks with rope or soft twigs.
* Make sure the wind comes from behind the shelter and does not blow into it.
* Between the sticks in the roof, weave pine branches and sticks into a solid wall. You can make side walls too, but the front should be open to the camp fire.

<ill>On a night threatening rain, a lean-to shelter can keep you dry.

Lighting a fire

One of your first priorities when you find yourself alone is to building a fire. A campfire will provide heat and light, help you cook food and boil water and it can make you visible from a distance.

Warning: A fire can be vitally important, but it can also be dangerous. If you light a fire in a dry area, the fire will easily spread. There are strict regulations for when you are allowed to light a fire, but in an emergency you can bend the rules somewhat. Secure the place around the fire. Build a stone ring around it, clear the area of dead leaves, twigs and pine needles. If there is snow, you will need to dig down till you hit the ground, otherwise the fire will go out once the snow under it melts.

You should build the fire before you try to light it. Build it like a tipi with the logs leaning against each other and smaller sticks and kindling like dry leaves or grass in the middle. Or you can build it with two parallel logs, and two more on top of those in the other direction. Alternate directions and put the kindling in the middle.

<ill>Pyramid- and pagoda-campfire.

Lighting the fire

There are several ways to light a fire. Matches and a lighter are the easiest, but they are not always available. You might want to practice some of the following methods before you are in an emergency:

Lens

A magnifying glass or reading glasses can be used to light a fire. Gather the kindling, like dry leaves, paper strips or shredded bark. You should do this out of the wind and make sure there is somewhere to lean your arms.

Hold the lens up to the sun and make sure the light is gathered in a focal point. It should be completely round and as small as possible. You will quickly see a small stream of smoke from the kindling, but do not move until you are sure the spark will be sustained when you remove the lens. Carefully add more kindling to the spark and gently blow on it to let the fire catch. Place the burning material into the fire.

<ill>Only the glasses of farsighted people will gather sunlight to a degree where you can start a fire. If you have a lens and a sunny day, it is an easy way to start a fire.

Firesteel

A firesteel can be bought in a sports goods store. They are lightweight and easy to bring in your backpack, more durable than matches and are not as quickly used up. They are, however, harder to use.

The firesteel is usually a rod of an alloy mainly of iron and a small piece of hardened steel. The trick is to strike or scrape these two parts together with enough force for sparks to fly into the tinder and light it up.

Tip: It is easiest to keep the steel piece or a knife still over the kindling and drag the firesteel against the edge, towards yourself.

<ill>Caution! The sparks are extremely hot.

Bow drill

The bow drill is one of the oldest way of lighting a fire. It is very demanding and requires a lot of determination, endurance and patience, but it is very satisfying when you manage to light a fire.

When making a fire with a bow drill, make sure you have all the parts ready before you begin.

Dig a small, round indentation in the friction board, near the edge. The blunt end of the drill should fit into the indentation. Cut a small wedge from the board into the indentation you have dug out. It should kind of look like a pizza with one piece taken out. Make a smaller indentation in the hand hold for the sharper end of the drill. Make sure the hand hold fits comfortably in your hand and does not have any sharp or rough edges.

The drill itself should be as straight as possible, not too smooth, as the rope will slip, but not too rough either, as that will wear the rope down quickly. The bow should be stiff and curved so you can keep a steady rhythm. Have all the pieces within reach and prepare the fire beforehand. Put a small flake of aluminum foil, a stiff leaf or something similar under the notch in the friction board. With your foot on the friction board, make sure it lies completely flat on the ground and does not wiggle around.

Fasten the drill to the bow and keep it steady with a light, but firm grip between the friction board and the hand hold. Move the bow back and forth, parallel to the ground, in a steady tempo.

Increase the speed and pressure on the hand hold when you see a wisp of smoke from the friction board. When the dust from the friction board gethers in the notch you carved out earlier, and you are confident it will not go out when you stop, fan the coal gently to give it more oxygen. You will need quite a lot of dust to form a self-sustaining coal, and it is hard work. Gently transfer the coal into the kindling. Keep blowing on it to provide oxygen. When the kindling catches fire, put it down with the firewood and build on it with larger pieces of wood when necessary.

<ill>Keep one foot on the friction board to keep it steady. Move the bow back and forth with increasing speed and pressure.

To make a bow drill set, you will need:

1. A friction board, a flat piece of wood, 1,5-2cm thick. The tree should be of medium hardness. Check to see if you can make a mark on it with your fingernail.
2. A drill, a straight stick about the length of your foot with one sharp end and one blunt. The blunt end goes in the friction board and the sharp end goes in the hand hold.
3. A bow. A bent stick, between half to one metre, with a piece of string or rope. The bowstring should be fastened tight enough to move back and forth at a steady temp, but not so tight that you can´t get it around the drill.
4. A small flake to gather the coal. It can be a stiff leaf, a flat piece of wood or a small sheet of aluminium.
5. A piece of hard, but smooth wood for a hand hold.
6. Kindling, shredded bark, paper, dry grass or other material where the flames catch easily.
7. Larger pieces of wood to build the fire once the flames have caught.

Water

Once you have made sure you can keep warm and dry, a source of drinking water is your next priority. You can survive a few days without water, but your health and well-being will quickly deteriorate, so you had better make sure to drink regularly. When you are out on a hike and move about a lot you need up to two litres of water each day.

In Norway we are lucky that natural sources of clean water are quite easy to find. River water is generally safe to drink unless there are factories, farms or other sources of pollution further up river. If animals have pooped in the stream, you can not be sure the bacteria have been filtered out. The same goes for lakes: if you get your drinking water from a lake, get it as far away from the shore you can manage. That way there is less risk of pollution from animals.

In the winter, you can often find free running water where the river meets the lake, even if both the lake and the river are frozen over. Do not eat snow! Eating snow will lower your core temperature. You can drink melted snow, but you will need a lot of snow to fill even a cup of water.

Never drink seawater or brackish water. They will contain so much salt that you will be more thirsty and dehydrated after drinking them than if you had not drunk at all. Be careful with melting water from glaciers as they can contain large amount of dust, dirt and bacteria.

If you are unsure of the water quality, disinfection and filtration can be a good idea.

Homemade water filter

You can buy portable water filters in the sports section at your local store. But you can also make a filter out of things you find in the forest. An old plastic bottle or a soda can is a good start.

Fill the filter layer on layer: first pebbles, then gravel, sand, peat moss, pieces of coal and more sand topped off with a layer of green grass. The water that comes out at first will be cloudy with dust. Toss it away and drink the water when it is clear.

<ill>grass - sand - coal - moss - sand - gravel - pebbles

<ill>By filtering, and then boiling water, dirty water can be made drinkable.

Disinfecting water

A physical filter will not clean the water of bacteria, virus and parasites. To do that, you need to disinfect the water, especially if there is a chance that dead animals or their droppings have contaminated the water.

Boiling the water for at least five minutes is the fastest way to kill the bacteria. And while you´re at it, why not throw in some pine needles or birch shoots to make tea.

You can also purify water using chlorine tablets or adding two drops of liquid chlorine for each litre of water. Let it sit for half an hour before drinking.

You can even use the sun´s rays to purify your water. UV-rays will kill bacteria, virus and parasites and there is no need for harmful chemicals or to ruin the taste. All you need is a plastic soda bottle.

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Purifying water with UV-rays:

* You need a transparent PET-plastic bottle. Look at the recycling-symbol at the bottom. It should have the number one inside the triangle.
* Fill the bottle with water, if it is cloudy, first make a filter.
* Let the bottle sit in direct sunlight for six hours during midday.
* If the weather is overcast, it needs to lay outside for at least two days before the water is safe.
* If the water gets warm while in the sun, it speeds up the process.
* In case of rain, it can be faster to gather rainwater.

<ill>With an old soda bottle you can kill bacteria and virus in the water by leaving it out in the sun for six hours. Look for a bottle with the PET-symbol on the bottom.

Water from trees

On a sunny day you can get clean water by tying a plastic bag around a leafy branch. If the bag is completely closed, the tree will “sweat” and water will gather in the bag.

<ill>Evaporating water is completely pure. It can be gathered on a sunny day with a plastic bag.

During springtime, when the frost recedes and the leaves are starting to sprout, you can get sap from the trees. Birch sap is a refreshing drink and it has some nutritional value as well. You can drink the sap from other trees as well, such as maple and spruce.

Pry your knife underneath the bark to check if the tree is ready to be tapped. If a sweetly juice appears in the cut, it is ready!

How to gather sap:

* You need a drill, a small piece of wood that fits in the hole and a bucket or bottle to gather the sap.
* Drill a hole, diagonally upwards into the wood, one meter above ground level.
* The hole should be about 3 cm deep.
* Carve a piece of wood and knock it into the hole, but be careful so you do not plug the hole completely.
* Place a bucket or a bottle underneath to gather the sap. Covering the bucket with a cloth prevents leaves, twigs and insects from getting into the sap.
* If you do not have a drill, you can cut downwards-facing branch and fasten a bottle to the end.
* Return after about a day to find a bucket full of delicious birch sap.
* Plug the hole when you are done to avoid damage to the tree.

<ill>You can drink the sap as it is, or boil it into sirup. you will need almost 10 litres of sap to make one cup of sirup.

Emergency Tools

There´s an old saying that good tools are half the work. But you will not always have access to proper, modern tools in quality steel. Sometimes you have to make do with what you can find and what you can make.

Rope

A good rope has many uses. When you want to bind, tie, fasten, lash or tether something you will need some kind of rope. You might have a simple task, like fasten something to your rucksack or a larger project like building a lean-to shelter. If you do not have a rope, a lot of things can be used as substitute. Shoelaces, cloth strips, a belt or cables are examples of things you might have brought with you, but nature has many alternatives as well.

How to twist a rope:

* Take a small pinch of fibres and roll them between your hands.
* Pinch the middle and lay the two ends parallel to each other.
* Twist them both in the same direction, let go of the middle and let the fibres twist together (in the opposite direction).
* Pinch further down the middle, where the two ends separate and repeat.
* After a while, one of the ends will be thinner than the other, you can add more fibres to the thin end and twist it in with the rest.
* Repeat until the rope has the proper length.

<ill>Twist the fibres clockwise and the rope counterclockwise. Add more fibre as needed, to get a longer rope.

New shoots or switches from trees can be used as rope, but they will often need to be softened before use. Hold one end and twist it as far as you can to make it easier to use like a rope. You can use the strong, thin roots from birch, spruce or heather. The roots need to be kept in water until they are to be used or they will dry up and break.

You can use fibre from plants to make rope as well. Inner bark from trees or plants with long fibres like nettles can be harvested for rope-making. Gather the nettles and let the stems out to dry (the leaves are edible, see page 58). You will need a substantial amount of nettles to make a rope. To avoid being stung by the nettles you can smear mud on your hands. Knock out, or tear away the fibres from the core. These long fibres will be your rope-making material.

Knots and lashes

When you have rope, you also need to know how to make use of it. There are hundreds of knots that can be used in thousands of situations, but here are a few useful ones that you can practice:

Square knot

The square knot is used to join two pieces of rope together. Make a simple overhand knot by laying the right end over the left and bring it around. Repeat, but this time with the left end on top. The same rope-end is on top both times. Tighten.

Clove hitch

The clove hitch is used to fasten a rope to a pole or a log. It´s not the strongest knot, but it can be used to easily fasten the rope. Bring the rope around the pole twice to form a cross, when the rope-end comes around, lead it behind the cross and tighten.

Bowline

The bowline is used to make an immovable loop. Make a small loop with the rope-end on top. Take the rope-end up through the loop, behind the rope and down again through the loop. Pinch the rope where the rope crosses the original loop and tighten.

Sheetbend

The sheet bend can be used for joining two lengths of rope, even with different thicknesses. Put the thickest rope in a loop or a bend, take the thinner rope and slip the rope-end through the loop from behind, around both arms of the bend and up again between the bend and itself. Tighten.

Timber hitch

The timber hitch has gotten its name because it was used when hauling timber. It can also be used as a starting point for lashes. It is not really a knot, and it is only tight when the rope is pulled. Slip the rope behind the pole. Take the rope-end behind the rope and pull in the opposite direction. Take the rope-end three or four times around the rope and tighten.

Diagonal lashing

The diagonal lashing is used to bind together two poles that cross each other, but not in at right angles. Start with a timber hitch on one of the poles. Lash the rope around the poles three to four times over the obtuse angle, then over the acute angle. Tighten the rope around the lashings, between the poles and fasten with a clove hitch.

Square lashing

The square lashing is used to bind poles that cross each other at right angles. Start with a timber hitch on one pole and lash the poles together by alternating the rope over and under the poles. It is usually enough with three to four times over and under each pole. Tighten as you go. Tighten the rope firmly around the lashings, between the poles and finish with a clove hitch on one of the poles.

Making an edge

A quality knife is hard to replace with what you find outside, but making a temporary cutting edge is possible. You might have heard about our ancestors making tools from flint, but flint is not found naturally in Norway and finding pieces that are large enough can be a challenge. You can, however, make edges from quartz as well, and quartz is one of the most common minerals on earth. You can also use pieces of broken glass as a cutting edge.

If you want to make an edge from quartz, you should look for a milky-white, translucent rock, the larger the better. You must be able to smash it to pieces and still have the pieces large enough to work with.

<ill>Break a stone and pick up the largest piece. Strike it on another rock parallel to the fractured edge.

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How to make cutting edges from sharp rocks

* Hit the rock against a larger rock to break it apart. Pick the largest piece.
* Look for a straight angle where one side is a flat surface where you can break pieces off and the other side is the fracture surface
* Use a smaller rock or a hammer to break off pieces along the fracture surface. The pieces that break off should have sharp edges.
* Even small pieces that break off can be used as cutting tools.
* Larger, more massive pieces can be used as primitive axes.

Bones can also be fashioned into tools. If you find bones from larger animals, such as sheep or deer, you can crush the bones between two rocks and file the pieces to sharp edges for knives, needles or fish hooks. Start by filing them against a rough surface and progress to finer and finer surfaces until you have a usable sharp edge.

Digging stick

If you need to dig a hole, but you do not have a shovel, you can use a wooden stick like a pick and loosen up the dirt. This will ease the work of scooping away the dirt.

If you are digging for edible roots, you can make yourself a digging stick. It should be sharp in one end and with a twig you can rest your foot on and push it down into the ground next to the root you want to dig up. Tilt the stick while you pull the plant up.

<ill>Digging for roots is hard work, but it gives can give you year-round access to vital carbohydrates. A good digging stick makes the job easier.

Birch bark drinking cup

It is not always possible to get your head down to the water´s surface to get a drink. A drinking cup made of birch bark is easy to make and can keep your hands dry while you get a drink of water from the stream.

<ill>If you need a water-tight cup, you can easily make one from a piece of birch bark and a small stick.

Foraging

If you are unsure whether something is safe to eat, it is better to leave it and go hungry for a while than to risk getting sick. But if you learn to identify some edible plants, you can find food in the ditch beside the road and deep into the forest. Healthy and free!

Anyone can forage for berries, mushrooms, herbs and nuts in Norway, so long as you are considerate and harvest in a sustainable manner. There are plants that are lethal to even get a taste of, so pick only the plants you know are safe!

Grasses and herbs

The herbs you can find outside have more taste and nutritional value than the lettuce you buy in the supermarket. Most herbs taste best in spring time, but you can find food at other times as well.

Dandelion

The dandelion is full of healthy stuff. You can eat the whole plant, from root to flower. The leaves have the best flavour before the flower has developed. They can be eaten raw, like lettuce or cooked like spinach. The yellow petals can be eaten raw, cooked or can be boiled to make a tasty syrup to pour on your pancakes or mix with water to a refreshing drink. If you plan on foraging for a proper meal, the dandelion roots can be dug up with a digging stick (see page 52). The have the consistency of potatoes, but the taste is slightly bitter.

<ill>Løvetann “The dandelion can be eaten from root to flower”.

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How to make dandelion syrup:

* Pick 100 dandelion flower without the stem
* Cut a lemon into slices
* Boil the flowers and lemon in one litre of water for 15 minutes
* Steep the petals in the water for six hours or overnight
* Strain the mixture and boil the liquid with 500 grams of sugar
* Pour into clean bottles and store them in a cool place

How to prepare dandelion roots:

* Remove the leaves, these can be eaten as a salad
* Remove the hairs. Scrub the roots thoroughly.
* Boil for two minutes. Put the roots in cold water.
* Pull the skin off, discard roots that are bad.
* Boil in new water until they are tender.
* Eat with butter and spices of your choice.

Burdock

The hooked burrs can be great fun when thrown at each other, but to have a nice burdock-meal you need to find the large heart-shaped leaves before they flower.

In Japan, burdock are cultivated as a vegetable, and the roots can be eaten boiled, fried and baked. Very young roots can even be eaten raw, like carrots.

Young leaves can also be eaten, but they have a slightly bitter taste. The flower-stem can be eaten raw or boiled if you remove the bitter peel.

<ill>Eat the burdock root before it flowers. The roots can grow very long, so make a good digging stick (see page 52).

Nettles

If you have ever been stung by a nettle, it might not seem like a good idea to shove the plant into your mouth. The small hairs on the leaves and stem excrete a poison that will sting and itch if you touch them. But cooked, the nettles taste delicious and do not sting. It can be used like spinach, in soups, pies or stews, or they can be dried and be used as a tea or spice. Leaves, flower and seeds are all edible, but save the stem for making rope (see page 44). The leaves taste best in spring. Use gloves when picking them, alternatively you can rub your hands in mud.

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How to make nettle soup:

* Fill a pot with rinsed, young nettle leaves.
* Crush a stock cube and two cloves of garlic into the pot.
* Pour a litre of water over it and let it simmer for ten minutes.
* Use a blender to make a smooth soup while you add ⅓ litre of cream.
* Let the soup simmer for another couple of minutes.
* Serve with bread and boiled eggs.

Ground elder

Ground elder or Bishop´s weed is nice to eat raw if you pick the leaves when they are slightly shiny and before they are completely open. You can prepare them in similar ways as nettles. If you know someone with ground elder in their garden, they will probably appreciate it if you take it, for even though it tastes nice and is good for you, it has a tendency to spread and be a nuisance for gardeners.

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How to make ground elder pie:

* Cover a pie pan with pie dough and cook in the oven at 200°C for 15 minutes.
* Rinse and chop a litre of ground elder leaves and fry them in oil for two minutes.
* Mix two eggs with some cream, salt and pepper.
* Put the ground elder in the pie pan with other ingredients of your choice, like salmon, leek or feta cheese.
* Pour the mix of egg and cream over and sprinkle cheese on top.
* Put the pie in the pre-heated oven at 220°C until the crust and filling are golden.

Lambsquarter

Lambsquarter is very common in Norway and it is full of minerals, protein and vitamins. The leaves are gray-green and if you roll them between your fingers, it looks like you get flour on your hands. Early in spring you can boil and eat the whole plant. Later you can eat the leaves and flowers. You can also make a porridge out of its seeds.

<ill>1. Nettles. 2. Ground elder. 3. Lambsquarter

Berries and wild fruits

In autumn, the forest is full of fruits and berries. They are tasty and contain important vitamins and antioxidants. Most of it is neglected while people pay hundreds of kroner to buy capsules of dried blueberries or rosehip extract. It is much cheaper and smarter to go for a walk in the woods and pick the berries for yourself. You will get fresh air, exercise and super-healthy food.

There are some poisonous berries, like the red berries from yew trees, honeysuckle and baneberry. Eat only berries you can positively identify!

Rosehip

You can find rosehip all over Norway, both in the forest and in the cities. Rosehip are good all through fall and winter and can be eaten even when they have gone soft.

Rosehip can be dried, used for tea, soup and jam or boiled to syrup. You can eat them raw so long as you avoid the hairy seeds in the middle.

Blueberries

You can find the blue gold of the forest between moss and heather on the forest floor of natural spruce woods. The berries can be eaten raw, dried or made into jam. If you have diarrhea, eating dried blueberries can help, but fresh blueberries can have the opposite effect if you eat too much. You can eat blueberry flowers and young leaves, while older leaves can be used to make tea.

How to make rosehip soup:

* Put the rosehip in a pot and cover with water.
* Crush the rosehip and heat to a boil.
* Turn off the heat and let it steep with the lid on for 15 minutes.
* Use a sieve or a cloth to remove the seeds and other solids.
* You can get more soup by putting the seeds and mash back in the pot and repeating the process.
* Heat the soup to a boil again and add sugar until it is sweet enough.
* If you want a thicker soup, you can add a spoon of cornflour, stirred into some cold water.

Lingonberries

Lingonberries can survive on little water and thin soil, but it needs a lot of sunlight, so look for it in open areas in the forest. The berries can be eaten raw, but they are not sweet, so most people prefer to make jam from lingonberries. The leaves can be used in the same way as blueberry leaves.

Rowanberries

The rowan tree is identifiable by the serrated leaves. The berries make a delicious jelly but eaten raw, they are very bitter. Freezing and thawing the berries will mellow the bitterness and make them more palatable. Lingonberries and rowanberries can give a nice tangy taste to your twist bread if you mix them into the dough before cooking them over the fire.

How to make twist bread:

* Mix two cups of flour, one teaspoon baking powder, a pinch of salt and two tablespoons of sugar.
* Add two tablespoons of oil and gradually add water until the dough has the consistency of modelling clay.
* Once out in the forest, roll the dough into long sausage-shapes.
* Knead blue-, lingon- or rowanberries into the dough.
* Remove the bark from the tip of a stick and twist the dough around the stick.
* Cook over the campfire until the bread is golden or the dough loosens from the stick.

Raspberries

Wild raspberry grows in rocky terrain all over Norway, in ditches beside the road and other sunny areas. The berries can be eaten raw, dried or boiled. Raspberries have several relatives whose colours tend towards blue or black: blackberries, arctic bramble and boysenberries. All of them edible.

Wild strawberries

The tiny, sweet wild strawberries can often be found at sunny places at the forest´s edge. If you find more than you can eat, thread them on a straw and keep them for later.

Cloudberries

Cloudberries are so popular that in some places in northern Norway you are only allowed to pick berries you eat on the spot. Look for the yellow-orange berries in marshes. If you are in an area with restrictions signs should be clearly displayed.

<ill>1. Rowan berries, 2. Blueberries, 3. Lingonberries, 4. Raspberries, 5. Cloudberries, 6. Rosehip, 7. Wild strawberries.

Trees

There are more edible parts of trees than just the fruit. During spring you can eat the new leaves and needles, and during autumn there are seeds and nuts. See page 41 on how to gather sap. The birch is easy to identify by its white trunk. Other trees with edible parts can be spruce, pine, maple, elm and juniper.

Shoots

Shoots from spruce and new birch leaves can be eaten directly from the tree. They are tasty and contain a fair amount of vitamin C. If you gather a good amount of spruce shoots you can make a pesto or syrup.

<ramme>

How to make spruce shoot syrup:

* Gather the soft, light green shoots that grow on the tips of spruce branches in early spring.
* Put them in a pot and cover them in water.
* Let them simmer for half an hour, sift away the shoots and leave the liquid in the pot.
* For every three parts of liquid, add two parts sugar.
* Let it boil until the consistency is like thick syrup. Pour into clean glasses or bottles.
* Use the spruce shoot syrup on ice cream, pancakes or over berries.

<ill>1. Spruce, 2. Elm, 3. Oak, 4. Hazel

Seeds and nuts

If you find a nut-bearing tree in the forest you are allowed to help yourself to the nuts you eat on the spot. The best nuts you can find in Norway are hazelnuts, which contain a lot of healthy fats, proteins, vitamins and minerals. The nuts can be eaten raw or roasted.

Acorns can also be eaten, but they are bitter. To improve the taste you can leave them in cold water and change the water several times until the bitterness is gone. If you have nuts and are going to build a campfire, burying the nuts under the fire will give you roasted nuts.

The round elm-seeds, birch catkins and the nose-like maple seeds can also be eaten while they are green.

Mushroom

You must never eat a mushroom unless you are absolutely certain it is edible. Some mushrooms are so poisonous that you can die or be hurt permanently by even a small bite.

The safest thing to do is to ask an adult expert before eating. Do you know someone who likes to go on mushroom-hunting trips? Join them and let them teach you which mushrooms are good and where to find them! After you have felt, smelt and seen how they look, they will be much easier to identify next time you go foraging for mushrooms.

Even good, edible mushrooms can be hard on your stomach, so do not eat too much and do not eat raw mushrooms.

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How to prepare mushrooms:

* Remove dirt, needles and other debris.
* If any part seems to be infested by insect larvae or look bad in other ways, cut it away.
* Cut the mushroom into slices and put them in a warm frying pan.
* Stir while excess water evaporates.
* When the water is gone, add oil or butter and lower the temperature and cook until the mushrooms are firm and slightly crispy.
* Fried mushroom is great on pizza, in an omelette, pie, soup or sauce.

<ill>1. Gills, 2. Boletes, 3. Teeth, 4. Polypores, 5. Ridges

Porcini (Boletus edulis)

Porcini or penny bun is considered to be one of the finest eating mushrooms. It can be found across Europe, Asia and North America. Like all boletes it has a sponge-like layer of tubes on the underside of the cap. The pore surface of the porchini is white when young, but ages to a greenish-yellow. The top of the stem is covered with a raised, white network pattern. The cap resembles a golden bun, and it has a nutty flavor.

Chanterelle (Cantharellus cibarius)

Chanterelles are egg yolk yellow, meaty and funnel-shaped. Underneath the cap and down the stem it has forking ridges or wrinkles. Unlike gills, the ridges can’t be removed from the cap. This delicious mushroom is common in northern parts of Europe, North America, Central America, in Asia, and parts of Africa. Chanterelles grow in clusters in mossy pine or birch forests. It smells like apricots and has a mildly peppery taste.

Yellowfoot (Craterellus tubaeformis)

The Yellowfoot or Funnel Chantarelle is a small yellowish-brown snd trumpet-shaped mushroom. It grows on moss in pine or spruce forests late in the autumn, where it can look a lot like fallen leaves. It can be found in temperate and cold parts of Northern America and Europe, including Scandinavia, Finland, Russia, and the British Isles, as well as in parts of Asia. The cap is convex and the stem is thin and hollow. The gills are yellowish-gray, widely separated and of lighter color than the cap.

Wood Hedgehog (Hydnum repandum)

The Hedgehog mushroom, also known as sweet tooth, has spines or teeth hanging down from the underside of the cap and down the thick stem. The cap is dry, colored offwhite with tones of yellow to light orange to brown. The shape is often irregular. The flesh is white, firm and brittle, and bruises yellow to orange-brown. It’s broadly distributed in Europe, Asia, Australia and North America.

Saffron milkcap (Hydnum repandum)

Saffron milkcap, also known as red pine mushroom, grow next to pine trees on acidic soil across Europe from Cyprus to Russia. It’s also found in parts of Asia. It has gills, brittle meat, and is shaped like a vase. It’s colored carrot orange, with darker orange circles on the cap. It bruises green, and bleeds an orange-red latex or milk if you cut or break it. The similar mushroom False saffron milkcap grows next to spruce trees, the orange latex turns maroon when exposed to air, and the taste is sligtly more bitter, but both are edible.

Shaggy inkcap (Coprinus comatus)

The young mushrooms are shaped like white cylinders and covered in scales. They open out to bell-shaped caps as they grow. The gills are white, but turn pink and then black, before they secrete a black inky liquid and the whole mushroom dissolves. Shaggy inkcap is only edible before the gills turn black, and must be processed or frozen within hours after being collected. It grows in groups on lawns, grasslands and meadows in Europe and North America.

Forest lamb (Albatrellus ovinus)

Common find under pines and spruces in mainland Europe, from Finland down to the Mediterranean, but not found in the British Isles. The cap is irregular, white with tones of yellow or pale grey. The underside of the cap is covered in tiny pores. Both taste and smell mildly. When heated, the mushroom turns bright yellow.

The ocean

Norway is a long country with a very long coastline. The ocean can provide fantastic experiences of nature and can be a gigantic pantry. That can be useful if you are lost or if you want to try to gather some of your own food on your next adventure.

Seaweed

Did you know that the seaweed-filled area on our coastline is about the same size as the total amount of arable land? (SJEKK) Seaweed is a staple food in Asia, but our rich crop of seaweed goes largely untouched except by marine animals.

Seaweeds are easy to harvest and it is full of vitamins and minerals, for example iodine, which is a mineral that many people need more of. Eat the weeds fresh, fermented, boiled or dried. No norwegian seaweeds are poisonous, but some should be consumed in moderation.

<ill>Seaweeds that are a good food source: 1. Dulse - red and leathery, broad flaps. 2. Sugar kelp - yellowish brown, grow in large quanitites, long leaves with wavy wings. 3. Dabberlocks - grows to several metres, with growths resembling sweet peas near the bottom. 4. Rockweed (Norwegian kelp) - olive green with bladders up the stem. The outermost shoots taste best. 5. Sea lettuce - Green lettuce with uneven edges, good fresh, boiled or fried.

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How to make seaweed chips:

* Rinse the seaweed in fresh water, let dry.
* Cut into appropriate size for chips.
* If you want more flavour, you can mix the seaweed in oil, soy sauce and spices like paprika, oregano, garlic or thyme.
* Spread the pieces on a sheet pan and place in the oven with the door ajar at 50-70°C.
* Let the chips dry until they are crispy. This can take up to several hours depending on the size and thickness of the seaweed.

Molluscs

At low tide you can find cockles and mussels near the water´s edge all along the norwegian coast. Remember to check the proper authorities before eating, though. Sometimes the mussels contains high levels of poisonous algae. Throw them away if they do not close when gently knocking their shells, and all who do not open when steamed or fried.

You can also find common limpets and periwinkles that are generally safe to eat even in the areas where the harvesting of mussels is discouraged. Limpets can be fried on a flat stone on the fire or be threaded on a stick and grilled over the flames. Periwinkles should be boiled for 5-10 minutes before they release the shell.

Cockles can be found buried in the sande. Look for them at low tide on beaches with visible empty shells. Look for two small holes in the sand, or their small protrusions. Collect them with a spade or a rake and leave them in clean water for a day so they can spit out any sand they have inhaled.

<ill>1. Common limpet. 2. Common periwinkle. 3. Mussel. 4. Cockle

Crabs

Crustaceans are generally more active at night, so it is best to catch them after sundown. You can, of course, set a trap in the afternoon and check it the next day, but if you are lucky and are brought along after sundown, crab hunting by torchlight is a lot of fun.

It is easier if there are at least two people, one can use the torch to try to find them and the other holding the net. If you hunt from a boat you need someone to control the boat as well. Remember life jackets! Boil the crabs in salt water for 20-30 minutes, remove the stomach and gills before eating.

<ill>With a flashlight and a net you can catch crabs at night when they come up to the water crust to feed.

Beach crabs can be caught by tying bait, for example a crushed mussel, to a string and putting it out in the water. When a crab grabs hold, pull it in and put it in a bucket of water. To kill the crabs as pain-free as possible, break their shells with a hammer or mallet before quickly putting them in boiling water.

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How to make beach crab soup:

* Put two tablespoons of oil or butter in a warm pot.
* Put 10-20 beach crabs in the pot (if you can´t find enough crabs, you can replace them with shrimp peel or seaweed to add flavour).
* Add a chopped carrot, a chopped onion, tablespoon of tomato puree and a cup of unsweetened apple juice.
* Stir and crush cabs and vegetables with a ladle.
* Cover with water and let it simmer for half and hour.
* Sift the soup into a new pot and discard the solids.
* Add ⅓ litre cream and let it simmer until the soup is thick and creamy.
* Season with salt, pepper and lemon juice.

Fish

Although some fish might have venomous barbs, all fish in Norway can be eaten. Along the coast, the most commonly caught fish are cod, coalfish, pollock, sea trout and mackerel. They can be caught from a boat or by fishing from the shore or from a pier, with a fishing rod or a simple hand-line.

The most common freshwater fish are pike, and fish in the perch- and salmon families. Familiarise yourself with the local species as there are local varieties that are abundant at certain times and others where fishing is restricted.

During spring, many fish keep near the reeds while they gather in deeper waters during winter. In the middle of summer it is generally easier to catch fish between sundown and sunrise.

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How to gut fish:

* Before you can cook a fish, you need to gut it.
* Cut off the tail and the head, right behind the gills.
* Insert a knife in the hole left by the tail and open belly all the way to the head.
* Pull out the entrails and rinse away the blood.

<ill>Fish you can catch with a rod or a net along the coast or in lakes and rivers: 1. Cod. 2. Mackerel. 3. Coalfish. 4. Pollock. 5. Sea trout. 6. Pike. 7. Salmon. 8. Perch.

Fish hook

If you want to try to fish, but you don´t have a hook, there are several ways to make one. A safety pin can be cut and bent into a hook-shape. Having a set of pliers will make this easier, but it can be done without one. A piece of bone can be filed to work as a hook and a small twig or thorn can also be fashioned into a fish hook by sharpening it in both ends and binding the fish line in the middle. Hide the thorn with the bait.

<ill>The size of the hook must be adjusted to fit the fish you want to catch. If the fish is small, you can´t catch it with a big hook.

<ill>There is a long tradition of fishing with nets in Norway. You can make your own by tying lines to each other on alternating sides. Tie rocks or weights to the bottom and floatation devices to the top so the net can stand upright in the water.

Raft

Anything that can float can be lashed together to form a simple raft. Historians believe that primitive humans made sea-going rafts before they made clothes and could speak. If Homo Erectus could do it, so can you! Build your raft close to the water, it can be heavy and hard to move when it is finished.

Rafts are hard to maneuver and are best suited to cross streams and narrow straits, where you can push forward with a long pole or float with the stream. The stream can actually take you quite far, like when Thor Heyerdahl let the Kon-Tiki be led by the ocean streams from Peru to Polynesia. Getting back can be a problem, though.

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How to make a raft:

* Find logs of approximately the same size and length and lay them out beside each other.
* Lay crossbeams across the logs. At least on both ends and one in the middle.
* Lash the logs and beams together with square- or diagonal lashings (see page 48-49).
* Finish with a clove hitch.

<ill>A lot of rope is required to build a sturdy raft.

Find your way home

Knowing how to use a map and compass can be the difference between getting lost and getting home. And even if you don´t have a compass or don´t know how to use a map, being able to determine if you are heading north, south, east or west can help you to stay on course and avoid going in circles. Knowing where you are in relation to your home base is also important. If you know your route has taken you northwards, knowing how to use the sun or the stars to find south can help you find your way back again.

Map and compass

To get the most out of your map and compass, don´t put off using them until you are lost. Pull them out frequently to keep track of your location. For a compass to work it has to lay flat.

<ill> “For a compass to work, it has to lay flat.” 1. Direction-of-travel arrow 2. Meridian lines 3. Orienting arrow 4. Magnetic needle 5. Housing

<ramme>

How to use a map and compass

* Find your current position and your destination on the map.
* Place the edge of your compass between the two points with the direction-of-travel arrow pointing towards your destination.
* Turn the housing so the orienting arrow points north on the map.
* Turn with the map so the magnetic needle aligns with the orienting arrow.
* The direction-of-travel arrow will now point you in the right direction.

If you haven´t brought a compass, there are other ways of finding your direction:

A wristwatch as a compass

If you have an analogue wristwatch, you can use its hands to find the north-south line. The watch must show the correct time and the sun has to be out for this to work.

* Keep the watch flat in your hand and point the hour-hand towards the sun.
* If you draw an imaginary line between the hour-hand and 12 o´clock, that line will be pointing south.
* If your watch is set to daylight savings time during the summer, you have to draw the line between the hour-hand and 1 o´clock.

<ill>”A wristwatch, set to the correct time, can help you find your way home”

Make a solar compass

* Knock a thin, straight stick into the ground, follow its shadow and put a small rock at the end.
* Wait about 20 minutes and put a new rock at the shadow´s end.
* Repeat once again so you have three rocks in a row.
* Put a straight stick alongside the three rocks. This is the east-west line. The first rock you put down is to the west and the last is to the east.
* Put down another stick over the first one so they form a cross. This is the north-south line. Looking along this one, with east to your right and west to your left means you are facing north.

<ill>Find a completely flat and unshaded area when making a solar compass.

Navigate by the stars

One of the brightest and most recognisable constellations on the night sky is the Big dipper. It is made up of the seven brightest stars in Ursa Major or Great bear.

* Find the two outermost stars in the “bowl”-part of the constellation.
* Follow a straight line up from these two, about six lengths.
* At the end of this line you will find Polaris or the North star. Facing this star means you face north.

Navigating by natural signs

Natural signs aren´t very precise or reliable, so be careful to trust them blindly. But they can help you find the way, especially if several signs point in the same direction.

* Free standing pines and spruces have fuller and longer branches on the sunny side to the south.
* On rocks and tree trunks, lichen grows better on the shaded part, to the north.
* A tree stump will have more space between growth rings to the south.
* If an anthill is built next to a tree trunk or a rock it will most often be placed to the south.

<ill>If the sky is clear you can use the stars to find north. Polaris. Big dipper.

Call for help

If you have an accident and you hurt yourself or get lost, help is usually not far away. Hopefully you have informed others about your route and plans, so the search crew can know where to find you if you don´t come home at the appointed time.

While you await rescue, you should stay still in one place. If you are travelling with others, stick together, it makes you easier to find. There are also a lot of other ways to help rescuers find you as quickly as possible.

When calling for help with sound or light signals the common way is with three signal flashes in succession. Even better is to use the international emergency morse signal, spelling SOS (save our souls) with three short, three long, three short signals.

Mobile phone

If you have a mobile phone, it is a great way to quickly call for help when you are in trouble. Remember, though, that reception can be poor in the wilderness.

You can call the emergency number 112 even if the phone is locked, the cash card is empty or the signal is too poor to call home.

Try taking the SIM-card out if you have trouble calling. That will allow the phone to connect to the network with best reception regardless of who is your provider. 112 works as an emergency number in the nordic countries and in most of Europe.

If you can´t get a signal by calling, try sending an SMS. A text message can get through with only a short period with connection. If you can get to high ground, reception is often better.

Signal fires

A campfire can be visible at long distances (How to light a fire, see page 27). A small amount of damp leaves or needles once the fire is going can make the smoke denser and increase visibility at a distance.

Ground signals

Making signals on the ground can make it easier to find you. You can use dirt, stones, gravel or sticks.

<ill>With the ground signals used by boy- and girlscouts you can leave messages with rocks and sticks. 1. Go this way. 2. Do not go this way. 3. Message in the arrow´s direction. 4. I have gone home.

<ill>Use rocks in a different colour from the ground to make the writing visible from the air.

Signalling flag

If you have an extra piece of clothing with bright colours, you can tie it to a stick and wave it like a flag. It can make you more visible at a distance.

Reflection

Using a mirror or other reflective surfaces is a good way to draw attention to yourself. The weather needs to be sunny or lightly cloudy for this to work.

You can buy mirrors with holes in the middle specifically made as signalling mirrors, but regular mirrors or other reflective surfaces like watches, knife edges or a mobile phone will work as well.

Hold the mirror to your cheek, right below your eye, so that it points forwards. Stretch your arm out and hold your fingers like a V. Aim by using your fingers as sights, keeping the people you want to signal to between your fingers and swipe sideways back and forth. If you can´t see any rescuers, you can swipe with the mirror across the horizon every now and then. Doing this can help people notice you even before you notice them.

<ill>Signalling with a mirror. Hold the mirror below your eye and use your fingers as sights.

Whistle

Shouting for help gets exhausting really fast. If you use a lot of energy on screaming you can get dizzy and tired. Blowing a whistle is a more energy efficient and less tiring way of calling attention to yourself. If you have not brought a whistle you can make one.

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How to make a whistle out of a soda can:

* You need an empty soda can and a knife or scissors.
* Cut two strips from the can. One should be 1.5 x 4 cm and one 1.5 x 8 cm. Be careful, the edges are sharp.
* Lay the strips in the form of a crucifix and fold the two “arms” from the shorter strip behind the long one.
* Fold the “head” the same way so all three protrusions are folded to the back.
* Form the longest part into a vaguely round shape, so it looks like a whistle. You need a small gap between the body of the whistle and the mouth piece.
* Use the knife or scissors to make a small gap on the overside of the mouth piece.
* Your fingers must completely cover the sides of the whistle. If your fingers are too small, cut off a piece of the end, so the whistle gets smaller.
* Cover the sides and blow into the mouthpiece. It is not always easy to get a note out of it, but keep trying at different angles and experiment with the force with which you blow.

<ill>You can make more sound with less effort with a whistle.

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How to make a willow whistle:

The willow whistle has a long tradition in our country. It can only be made during spring time when the sap rises in the tree and the bark is green. Although willow is the best suited tree to make a whistle from, you can also use rowan, maple or ash.

* Get a branch, about the thickness of your middle finger and about 20 cm. long.
* At the thinner end, cut diagonally so it looks like the mouthpiece of a whistle.
* Cut a small breather hole, shaped like a half moon near th mouth piece.
* Cut a circle around the whistle through the bark, but not into the wood.
* With the knife´s handle, knock the bark to loosen it from the wood.
* Carefully pull the bark off. Avoid breaking or cracking the bark.
* Cut a deeper notch where the breather hole should be.
* Cut a flat pane on thop of the stick from the breather hole to the meouthpiece.
* Carefully slide the bark back on.

If you can´t make a whistle, any loud, sustained sounds you can make will help rescuers find you. Loud whistling is less tiring than shouting. A stick can be made to knock on rocks or a tree to make sounds that can help rescuers locate you.

Health and hygiene

Hygiene and health go hand in hand. The best way to avoid getting sick, is by washing your hands with soap and water after every trip to the toilet and before every meal. If you are warm enough, full and well rested, the likelihood of disease and injury is minimized. But accidents can happen, and when it does, it is important to know beforehand what to do.

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Tips for staying healthy and injury-free:

* Wash your hands frequently.
* Stay warm and dry.
* Get enough sleep, and take a rest when you are tired.
* Eat and drink enough.
* Brush your teeth twice daily.
* Dress for the weather. Not too warm and not too cold.

Soap

In the olden days, people made soap by mixing fat with water that had run through ashes (potash lye). The lye was boiled until it was corrosive and harmful to the skin. Therefore, boiling soap was not children´s work. When in the forest, though, you can use some ashes from the fire when washing pots and tools.

Juniper concoction

You can make a traditional washing liquid by boiling sticks and twigs from the juniper bush. The resulting concoction has traditionally been used to clean floors, pots and pans and hands, hair and body. It cleans and disinfects and can help with everything from dandruff and eczema to mould.

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How to make a concoction of juniper:

* Fill a pot with small juniper branches and cover with water.
* Let it simmer for three hours, until half the water has evaporated.
* Sift and discard the branches.
* Pour the concoction on clean bottles and store in a cool place.
* If using the concoction as a substitute for shampoo, rinse your hair and massage it in afterwards. There is no need to rinse out the concoction, let it air dry.

<ill>Instead of using soap in your hair that dries out the scalp, rinsing it in water and juniper concoction is a good alternative.

Tannic acid

Tannic acid is another alternative to soap and can be used for mouth- and bodywash.

Tannic acid can give you a healthier, tighter skin and help rinse small cuts and help against infections, pimples and fungus. Like the tannic acid, your skin has a low pH-value to protect against bacteria. Soap, on the other hand, often has a high pH.

Tannic acid can be extracted from the bark of trees with high levels of tannin. Oak works best, but you can use spruce and elm if oak is not available.

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How to make washing fluid from tannic acid:

* Shred bark and inner bark from one or two branches (of about 20 cm).
* Put in a pot and fill with one litre of water.
* Give it a boil and let it simmer until the water turns brown.
* Use the brown water to wash hands, body, gargle it for better oral hygiene or as a footbath to treat blisters.

<ill>Water with tannic acid can be used as an all-round washing fluid, mouthwash or to treat cuts and small wounds. Bark from the oak tree has high levels of tannic acid.

Toilet paper

If you want your body to function properly it is important to go to the toilet every day. You can of course bring toilet paper and wet wipes in your pack, but trails of toilet paper all over the forest is definitely not something you want to see. And it is easy to find natural alternatives that do not litter or fill the trash bag you need to carry home.

Peat moss has earned the nickname “nature´s wet wipe” as it can be used in much the same way and is easy to find on your trip to the forest. Peat moss protects against virus and bacteria, and a handful of moss can be used to wipe off your hands or your butt.

Peat moss grows in marshes and in moist areas of spruce woods. It can be red, yellow, brown or green and all the different species can be used in much the same way. You can recognize peat moss by the way the top parts grows upwards while the lower parts of the moss dies and makes peat.

If you dry peat moss in the sun, it can soak up large quantities of water og be used as a diaper, on wounds to stop bleeding, as a mattress or isolation. When it is fresh and wet, it can be used as a wet wipe or toilet paper.

It can be hard to go for a poop when you are far away from a regular toilet. If you find a smooth fallen tree trunk it is easier to sit comfortably. Dig a hole behind the log and cover your waste with leaves and dirt before leaving.

When spending the night outdoors, even for just one night, it is important to make plans for the camping site. The “bathroom” should be on lower ground than where you wash yourself and your things. And if you get drinking water from the stream, you must get it from higher up than where your camp is. If you are uncertain about the water quality, you should always boil it before drinking.

<ill>Peat moss can soak up large quantities of liquid, and protects you against bad smell and bacteria.

<ill>The bathroom should always be down stream from where you sleep and get water.

Toothbrush

Bacteria in your mouth can give you bad breath, painful teeth and damaged gums and can even contribute negatively to your general well-being. Brushing your teeth every morning and evening is a good habit both at home and in the forest.

If you have not brought a toothbrush and toothpaste, you can make your own brush from a small stick. In large parts of the world, this is the preferred method of brushing their teeth. The most common is a stick called “miswak”. It comes from a bush, not found in northern parts of the world, but fresh birch sticks have components that fight bacteria and give a fresh taste in your mouth when chewed.

<ill>Cleansing your teeth with a chewed up stick can be just as effective as a toothbrush and toothpaste.

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How to brush your teeth with a birch stick:

* Take a small, green stick about the same size and thickness as a toothbrush.
* Remove the bark from one end and chew it so the end gets bristles.
* Brush your teeth with the bristles, make sure to brush behind the teeth as well.
* Chew on the brush once in a while to release more juices.
* If there is coating on your teeth that is difficult to remove, you can scrape it off with your fingernail.
* Use a wood chip as a toothpick to get clean between the teeth.
* You can chew on some resin from spruce or pine as a finisher.

STOP - Sit, think, observe and plan.

If you are injured when out on a trip, it is hard not to panic. But if something unforeseen happens, it is vitally important to think clearly and act rationally.

Trust yourself! If you have read this book, you know how to get clean water, how to stay warm and how to find food. That is a good start to manage the road ahead.

Every time you are unsure of the way forward, sit down and take a break. Think about what you need to accomplish, observe your surroundings, which challenges and problems you have before planning your next move.

<ill>Sit - Think - Observe - Plan. Do not walk around in a daze, sit down and plan the road ahead. It helps against panic and to keep a clear head.

Wounds

If you get a cut or a wound, deep or small, you should clean it and put something on to stop the bleeding and close the wound to protect it until it has healed.

To clean the wound, rinse it with clean water, preferably boiled, so it is free of bacteria. If you don´t have band-aids, there are plants in nature that can work as a substitute.

Resin and bark

Resin from spruce and pine is antiseptic and was often used to treat wounds in the olden days. If you have been careless with your knife and cut yourself, look for running, translucent resin and smear it on the wound like a salve. If you only find hard resin, try chewing on it for a bit until you have a soft lump you can put on the cut. Honey is another alternative, if you cut yourself in the kitchen rather than in the forest.

As a band-aid over the resin, you can use the thin inner bark of a pine or birch.

Broadleaf plantain

The broadleaf plantain is one of the most widely used medicinal plants in the world. The thick egg-shaped leaves can help wounds heal, prevent inflammation and soothe pain. You can find the leaves on paths and beside roads all over the world.

Place the plantain with the hairy side against the cut to clean it. Then place new leaves with the smooth side to the cut to work as an adhesive plaster that soothes it and helps it heal.

If you can feel the onset of a blister, you should act quickly so it does not get worse. Place a broadleaf plantain with the smooth side against the blister. Change to dry socks if you have them.

<ill>Broadleaf plantains help wounds heal, and can prevent pain and inflammation. Place the hairy side to the wounds that need cleaning and the smooth side against a wound to keep it closed.

Peat moss on larger wounds

If you have been really unfortunate and have suffered a larger wound with heavy bleeding, you need a bandage that can be fastened to put light pressure on the wound. This is both to stop the bleeding and prevent infection.

Peat moss is a good alternative, as it has a large capacity to soak up blood and counteract infection. Historically, peat moss has been used successfully on wounds many times, for instance during the first world war.

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How to make bandages from peat moss:

* Gather the new, green parts of the moss.
* Squeeze out as much moisture as possible, remove twigs and leaves.
* If you have the time, spread the moss out to dry it.
* Place a clean piece of cloth on the wound, then a thick layer of moss.
* Bind the moss in place with another piece of cloth, but do not bind so hard as to prevent circulation.
* Try to hold the wounded part higher than you heart until the bleeding stops.

Burns

Burning yourself is very painful and can be dangerous. Both the campfire and the sun can ruin an otherwise lovely trip if you are not careful. A lot of modern camping equipment is flammable, so keep your tent, sleeping bags and clothes at a safe distance from the camp fire.

The most important first aid to administer when you suffer a burn, regardless of the severity, is to cool the burnt area in water. Rinse with cold water until it no longer hurts and at least for 20 minutes. For lesser burns, where the skin is red and swollen, or if there are a few small blisters, it is usually enough to cool the burn with cold water. However, if you have larger burns or lots of blisters or if you have burnt your face, hands, feet or groin, you should call a doctor.

The most severe burns aren´t always the most painful as the nerves that feel pain can be damaged. The skin turns leathery and lifeless, dry and black, gray brown or white. If you get serious burns like these, call 113 immediately and get to the hospital.

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General advice on burns:

* Burns should be cooled with cold water until the burning sensation subsides.
* Do not put large body parts into the cold water, rather pour water over the wound.
* Do not puncture blisters.
* Do not remove clothes that are stuck to the skin.
* Keep the burn higher than your heart to minimise swelling.
* Drink plenty of water.
* Call emergency services (113) in case of severe burns.

<ill>1. First degree burns: Only the surface is damaged. The skin is red and tender. 2. Second degree burns: The damage goes deeper. The skin is moist and red with fluid-filled blisters. 3. Third degree burns: All layers of skin are damaged. The area is numb, the skin is leathery and dry.

Frost damage

You can get frost damage when the temperature is at freezing point if it is windy enough. If you are thinly dressed or get wet your core temperature goes down. If you start shaking with cold, get moving, put on additional layers of clothing or get to shelter. When you get really cold, it is harder to think clearly. You will often get the urge to just lie down and undress or do something similar that will only make matters worse. After a while hypothermia will cause you to lose consciousness and it can be fatal, so stay warm!

You can also get local frost damage on your skin, where ice crystals will damage the cells and blood vessels. First, you will experience tingling and itching, but after a while, the pain will be gone and your skin will be white and numb. Never rub skin that is frozen. Hands that are damaged by frost can be warmed in your armpits and use warm hands to hold to a frozen earlobe or tip of the nose. Frost damages can also be thawed using luke warm water.

Be prepared, the pain will get worse as the skin is thawed. If the damaged area is hard and frozen to the hypodermis, it needs to be treated at a hospital. Call emergency services at 113 and do not try to thaw it by yourself.

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How to treat frost damage:

* Get to shelter, preferably somewhere warm.
* Warm the exposed areas with your own or someone else´s body heat or in water at about 40°C.
* Make sure the damaged skin is not exposed to the cold again.
* If the damaged is so deep that the skin is hard to the touch, wrap it in dry, warm clothes so the damage does not spread and get to hospital.

Poisoning

Some of the wild plants and mushrooms in Norway can be deadly if eaten. Several more can cause irritation in the digestion system. Plants that are dangerous to eat does not necessarily taste bad, so you should never eat something that is unfamiliar to you.

If you have eaten something and you suspect it might have been poisonous, you should call the proper authorities (in Norway, Giftinformasjonen: 22591300) to get advice. One possible solution is medicinal coal, which binds to the poison so it is not absorbed by the body. Medicinal coal is treated to absorb as much poison as possible.

The coal tablets should be crushed and mixed in water. If you do not have medicinal coal, you can try with regular coal from hard woods like birch, but it is not as effective as the treated coal.

<ill>Coal binds to many substances and prevents the body from absorbing poison from plants and mushrooms.

Broken bones

It can be hard to determine whether a bone is broken or simply sprained. Pain, swelling, discolouration of the skin and tenderness can be signs of both fractures and sprains. If the arm or leg is sprained, keeping it cool for a quarter of an hour can help, before tying a bandage tightly over and under the damaged joint so it does not swell.

If the limb bends in places where it should not bend, or you can hear scraping noises or feel movement when you put pressure on the bone, it is fractured. If your arm or collarbone is broken, you might be able to get yourself to the doctor if you put your arm in a sling. If the leg is broken, it is best to call 113 and keep still until the ambulance personnel can help you. If you try to make a splint yourself, you risk making matters worse, so it should only be attempted if absolutely necessary, when help can not reach you.

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How to make a splint

* A splint can keep the bones in place and make moving less dangerous and painful.
* The splint should be long enough to extend from the joint below to the joint above the fracture. If you have broken you shinbone, the splint will have to start above the knee and reach below the ankle.
* Put something soft between the splint and the skin.
* Put a splint on each side and bind tightly so the broken bone does not move. Be sure to not bind so tightly that circulation stops.
* If it hurts more after you have made the splint, something has been done wrong and you need to remove the splint.

<ill>Putting a splint on the fracture can make matters worse, so if possible, remain still and wait for help.

Painkillers and antipyretics

The active substance in Aspirin is a synthetic copy of something that can easily be found all over Norway.

The substance is in the bark from willow and aspen and in the flowers and leaves from meadowsweet. In Norway, using the bark from the willow tree is the easiest. It grows all over the country and is easily recognisable. In spring from the pussy willow and in summer from the leaves that are shiny and green on the top and hairy gray-green on the underside, and in winter from the buds that are covered by red shells.

You can make a reddish-brown tea from the willow bark, and it helps against aches and soothes fevers. Do not drink more than three cups per day, though, the active substance can be hard on your stomach and can also have other side effects.

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How to make pain medication:

* Cut a few branches from the willow tree.
* Scrape off the bark.
* Shred the bark, and dry it if it is to be stored for later.
* Use four teaspoons of dried bark or one cup of fresh, shredded bark with two cups of water.
* Boil for 20 minutes, and let it steep for another 15 minutes.
* You can drink a small cup of the reddish-brown tea three times a day.

<ill>The active substance in Aspirin is a synthetic variant of a substance found naturally in meadowsweet and willow bark.

Vomit and diarrhea

Stomach flu is very uncomfortable, but fortunately, it passes fairly quickly. The most important thing to do in order to prevent catching it is to wash your hands thoroughly, be sure your drinking water is clean and to heat your food properly before eating it. If you are infected and the diarrhea lasts for several days, you need to get salt and water into your system to replenish what you lose.

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How to treat severe diarrhea:

* Mix six tablespoons of sugar, half a teaspoon of salt in one litre of water.
* Drink the mixture throughout the day in small sips.
* The recommended dosage is one tenth of a litre per 10 kg bodyweight per hour. A person weighing 50 kg should try to drink half a litre every hour until the diarrhea subsides .

<ill>When the diarrhea is thin and lasts for a long time, your body loses both minerals and water. Drinking clean water with a handful of sugar and a pinch of salt is helpful. Drink the mix in small sips for as long as you have the diarrhea.

Wild animals

If you are afraid of meeting wild animals, rest assured they are usually much less willing to meet you. Wild animals in Norway do not hunt humans, but they can be dangerous if they perceive you as a threat.

Do not be afraid to make some noise while you are walking. Let the animals know where you are before you see them and let them decide whether or not you seem dangerous. Never approach baby animals. Mothers are very protective of their young and can become aggressive if they think you are about to take their children away. If you come between a mother bear and her cub or a female moose and her calf, they might attack you.

Wolves

If you meet a wolf, try to walk slowly backwards, speak in a calm voice and move away. Do not look it directly in its eyes, for it might think you are challenging it. Do not run away, as it can make it run after you, either to play or to hunt.

<ill>Wolves are rarely dangerous to humans, but it can attack unattended dogs.

Bears

A bear is not necessarily angry when standing on two legs. It is usually just trying to get a bearing on the situation. If it shakes its head back and forth, biting the air and hitting bushes and trees with its paws, it is stressed or irritated.

Turn sideways and walk back the way you came. A bear might pretend to attack, but then stop right before it reaches you. Stand still, or take a step or two backwards. If it actually hits you, lie down on your stomach or in a fetal position, protect your neck and head. The bear will most likely understand you are not a threat and cancel the attack.

<ill>Walk slowly backwards, speak in a calm voice and try to seem unthreatening. Avoid swift movements and loud noises.

Common european viper

The european viper is the only venomous snake in Norway. You can usually know it by its diamond pattern on the back, but there are also vipers that are completely black. If you get too close, the viper will usually make a run for it, or lie completely still in the hope that you won´t notice it. Howeer, if it feels threatened or you step on it, it can bite.

The european viper can choose whether or not it will inject its venom when it bites and about 30% of viper bites are so-called “dry” bites. Being bitten is usually not dangerous. If you are bitten and you feel strong pain, nausea, dizziness and swelling, you should stay calm and try to get medical help. Even though a bite usually is relatively harmless, some react stronger than others.

<ill>The common european viper is the only venomous snake in Norway.

Ticks

Ticks are a kind of mites that latches onto humans and animals to suck blood. They are not dangerous in and of themselves, but they can spread diseases. If a tick has latched on to you, remove it as quickly as possible. The longer you let it stay, the more likely it is to infect you with its diseases. Neither should you squeeze it, as the infectious agents can then be pumped into your skin.

The easiest way to avoid getting bitten is to wear your socks outside your trousers. The most common place for a tick to bite you is your ankles. To remove a tick, use your fingernails on your first finger and thumb, or a pair of tweezers. Grip it as close to your skin as you can and pull it straight out. Call a doctor afterwards to get advice on further treatment.

<ill>The tick is small and hard to notice when it first bites, but after it has had a full meal of blood, it grows to the size of a pea.

Wasps and bees

Insects like wasps and bees are not dangerous in and of themselves, but some people can get severe allergic reactions when stung. Usually a sting just leads to a painful swelling directly around the sting. If you get severe swellings around the sting and elsewhere, a rash on your entire body, nausea and get hard of breathing you have to call 113 immediately. If you are stung repeatedly or are stung in the mouth or on the neck it is also advisable to call a doctor.

Conclusion

Nature has an infinity of wonderful experiences on offer. The companionship around a campfire, the breathtaking view from a mountain top or the serenity of the deep woods can not be replaced by anything else.

Accidents can happen, the weather can change rapidly and unfamiliar terrain can make it a challenge to be outside. The Red Cross were part of around 1000 search- and rescue-missions in 2015 and thankfully, most of them have a happy conclusion. It is important not to be afraid to be outdoors and experience nature, but have a healthy respect for the challenges you will face.

The Norwegian mountaineering code were developed by the Norwegian trekking association and the Red cross and were reworked in 2016. If you follow the mountaineering code, you will avoid most dangerous situations. You will feel safer still if you are prepared for the things that might go wrong. Do not panic, keep your head cool and your body warm, and have a nice trip!

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The Norwegian mountaineering code:

1. Plan your trip and inform others about the route you have selected.  
2. Adapt the planned routes according to ability and conditions.  
3. Pay attention to the weather and the avalanche warnings.  
4. Be prepared for bad weather and frost, even on short trips.  
5. Bring the necessary equipment so you can help yourself and others.  
6. Choose safe routes. Recognize avalanche terrain and unsafe ice.  
7. Use a map and a compass. Always know where you are.  
8. Don’t be ashamed to turn around.  
9. Conserve your energy and seek shelter if necessary.