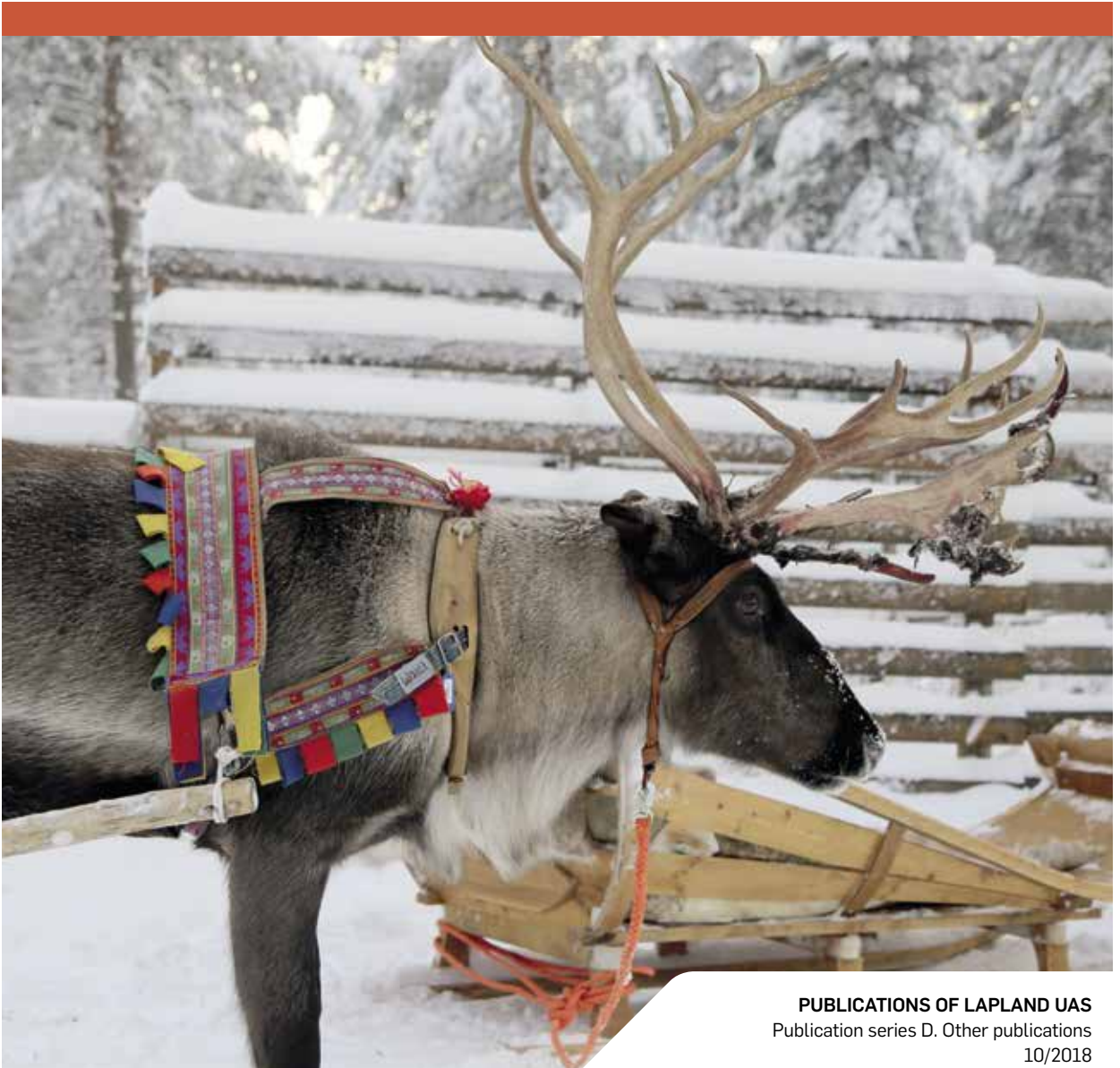


# My first reindeer used for tourism

## – information and guidelines for the purchase decision



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Maijala Veikko & Majuri Karoliina

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# 1 INTRODUCTION

The existing information on reindeer care is mostly targeted at persons engaged in reindeer herding in reindeer herding areas, as referred to in the Reindeer Husbandry Act. In addition to traditional reindeer herding based on meat production, reindeer are also kept for use in tourism inside and outside the reindeer herding area. In the reindeer herding area, mostly reindeer herders practise reindeer tourism as an ancillary business. Consequently, these entrepreneurs already possess a lot of information about reindeer herding and ensuring their well-being.

Sometimes reindeer are purchased for use in tourism or even as pets outside actual reindeer herding. In such cases, the reindeer may be used in activity services, such as pulling a sleigh or in zoos and zoo farms for tourists to look at. Meat production may also be a part of reindeer keeping outside the reindeer herding area.

This guide has been produced to ensure the well-being of reindeer and their handlers. The guide provides basic information about reindeer as a species, their care and where to find more information. The guide helps identify relevant factors when considering purchasing reindeer.

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# 1 BASIC INFORMATION ABOUT REINDEER AS A SPECIES

The reindeer is a part of the deer family and most closely related to its sub-species, the mountain reindeer (*Rangifer tarandus tarandus*), which also has some forest reindeer mixed in (*Rangifer tarandus fennicus*). Reindeer have adapted to live in northern and Arctic areas. Reindeer have changed very little from their feral original form, and this is one of the things that poses challenges when reindeer are kept in pens.

## 2.1 REINDEER STRUCTURE AND SENSES

A fully grown female reindeer weighs 60–100 kg and is 90 cm tall at the withers. A fully grown male reindeer weighs 90–180 kg and is 110 cm tall at the withers.

Coat colours can range from dark to very light to albino. A reindeer's coat covers its entire body, including the space between its nostrils. The thick coat keeps reindeer warm even at extremely low temperatures, with only a small increase in energy consumption. In summer, the old winter coat sheds in large wads, and the new winter coat starts growing back in August. Reindeer have no sweat glands, and hot summer days may cause stress. Reindeer cool themselves by breathing through their mouth and seeking out cool places, such as shaded or windy locations and marshlands. Summer heat causes greater stress to reindeer than winter frost.

Reindeer have adapted to snowy conditions and can walk on very soft snow by spreading their shovel-like toes. When reindeer move, the hoof bone joints make a distinct cracking noise at sub-zero temperatures. The clacking of hooves informs other reindeer that their neighbour is moving around and serves as a warning if other reindeer nearby are moving quickly and restlessly.

Both male and female reindeer regrow true bone antlers each year. The antler-growing or velvet antler phase takes 3–4 months. Unlike other types of cartilage, the cartilage of growing antlers is covered by velvety skin and a lot of veins and nerves, making it very sensitive to pain and prone to injury. This limits the ability to handle and transport reindeer during the velvet antler phase from early summer to August or September, even later for calves and castrated males or geldings. Adult males cast their antlers in autumn after the end of the rutting season, although geldings may keep their antlers up until late winter/early spring. Female reindeer cast their antlers in the spring after calving. Females which are not with calf cast their antlers earlier in



spring. Reindeer antlers are the fastest-growing bone in the world, and can grow up to 2 cm a day.

Reindeer have an excellent sense of smell. They can smell the best, most nutritious target under thick snow, for example.

### **Reindeer have excellent hearing and are quick to react to strange noises.**

Thanks to their ability to see UV radiation, reindeer have better vision than other animals. For example, the cell tissue of reindeer's most important winter food, lichen, and the fur cells of their most dangerous predator, the wolf, absorb UV radiation. This gives reindeer good chances of distinguishing good and bad targets from their background. Good vision is also an advantage when moving in winter terrain. Different types of snow and ice reflect UV radiation differently, and detecting such differences shows the reindeer the best routes for moving on snow.

## **2.2 SPECIES-TYPICAL BEHAVIOUR**

In the wild, reindeer browse over an area covering thousands of square kilometres, moving to the most suitable location based on the season and weather conditions. Reindeer diet consists of over 350 food plants, over 100 of which are the most important.

In summer, the metabolism of reindeer is many times faster than in winter, which poses high requirements for pastures. Digestible plants rich in energy and proteins must be easily available in the pasture. In summer, reindeer also favour plants high in minerals and trace elements. The reindeer is classified as an intermediate ruminant. In terms of its manner of nutrient uptake, its browsing differs from roughage eaters (sheep and cattle), which eat rougher and less digestible food plants and parts thereof. As summer turns to autumn and autumn to winter, the number of acceptable food plants decreases, and gradually reindeer metabolism slows down. In winter, reindeer stop growing, and nutrients are mainly needed for maintenance. Excessive protein intake in winter is detrimental to reindeer.

The need of reindeer to seek the company of other reindeer varies according to the time of year, their age and sex. In spring, just before calving, pregnant females isolate themselves from other reindeer and only rejoin them a few days after calving. This allows the calf and mother to imprint on each other and later recognise each other if they get separated. Sometimes, last year's calves have been seen to rejoin the "family unit" after the mother's isolation period. In summer, mothers, calves and young reindeer gather in a single herd to browse through the worst insect season. The herd can have hundreds, even thousands of reindeer. In summer, adult male reindeer often form a summer herd without females. In late summer and early autumn, reindeer scatter and only form small herds. In September, males gradually start gathering har-

ems, and in October the rutting season reaches its peak. After the rutting season, herds break down and reindeer seek out their winter pastures.

Reindeer behaviour is largely guided by the satisfaction of basic needs. Browsing freely, a reindeer can satisfy its food requirements with the available food plants solely based on its inner state. Similarly, in the heat of summer, it can go cool itself near water or on bare mountaintops, for example. In summer, during the worst insect season, reindeer may seek out windy areas. Reindeer are always forced to balance their dominant basic need and where they can satisfy it. In summer, reindeer need to recover from the strains of the winter by eating food plants rich in energy, proteins, minerals and trace elements as well as keeping their body cool and safe from insects. For this reason, reindeer need large areas to browse.

## 2.3 DEVELOPMENT FROM CALF TO ADULT

Calves are born in spring around mid-May. The first calves may be born in late April and the last ones in early June. A newborn calf weighs 4–6 kg. Before calving, the mother seeks out a quiet area. Calving is usually quick, taking less than half an hour. The mother licks the newborn calf dry. Immediately after being born, the calf strives to stand up and seek the mother's udder to drink milk. Within half an hour, the calf is already following after its mother. Newborn calves are well-suited to cool spring conditions. When dry, their coat insulates heat very well, and calves have no problems with mild frosts. Wet snow is the most problematic type of precipitation for young calves because it wets their coat and chills them. In such situations, calves can maintain their body heat for a time by using brown fat. However, several days of wet snowfall may prove fatal to young calves.

Under normal circumstances, female reindeer chase off last year's calves, or yearlings, before calving. If a yearling is still in the mother's vicinity, it poses a threat to the new calf. Once the calf has imprinted on its mother and grown stronger, the yearling may return to its mother. Indeed, in summer, it is possible to spot "family units" where the yearling is still following after the mother.

In their first weeks, calves are fully dependent on their mother's milk, gradually developing into ruminants. Starting from their first few days, calves fumble for the same food plants as their mothers. This promotes their development into ruminants. Reindeer milk is 15–20% fat, which makes it unsurprising that calves grow very quickly, some 300–500 grams per day.

In early summer, calves are already able eat the same food plants as their mothers. However, they still get a significant share of their energy from milk. In summer, calves gradually replace their calf coat with a summer coat. Blood-sucking insects are a nuisance to calves and can cause anaemia.

In early autumn, calves develop a winter coat, still follow after their mother and browse alongside her. Calves continue to drink their mother's milk, although in decreasing amounts. By autumn, calves have already reached a weight of 40–60 kg and their growth rate slows down towards winter. In autumn, during the reindeer rutting season, male calves in particular must be wary of the interest that male reindeer show towards the females. Males may drive calves away from their mothers.

Calves stop growing in winter and start growing again in spring. In early winter, calves still follow after their mother. Calves can often be found digging at the same hole as their mother. Calves whose mother is high in the herd hierarchy can browse in peace from the other reindeer. Male calves leave their mothers earlier than female calves. In early autumn, the growth of calves that have been separated from their mothers slows down. In winter, calves can already survive without their mothers in pen conditions. Reindeer reach their full growth at 4–5 years old. In the reindeer herding area, female reindeer are kept until they are approximately 10–13 years old when their calf production decreases. Studs are kept until they are 4–7 years old. Gelded draught reindeer used for tourism are generally used until they are 15 years old.

## 2.4 REPRODUCTION

Reindeer normally reach sexual maturity at 1,5 years. In order for a female reindeer to go into heat, it must be in good condition, which means weighing at least 60 kg. Male reindeer remain fertile for approximately 9 years and females for approximately 12 years. Females have their first heat at the turn of September and October and then approximately once every three weeks unless they begin gestating. The heat may return 3–7 times. Female reindeer gestate for 220–230 days.

Harems are characteristic of reindeer rutting behaviour. Male reindeer gather females and strive to keep them in their herd by actively herding them. At the same time, the male must chase off other male reindeer that approach his harem. Often, the male loses its females to a bigger and stronger male. When a male reindeer is defending its harem, it may mistakenly see humans as rivals and attack them.

In the reindeer herding area, male reindeer retired from being a stud are most often gelded and slaughtered the following autumn or fattened and slaughtered after the end of the rutting season. In autumn, the meat of male reindeer is inedible. Gelding is only permitted using Burdizzon castration forceps, which have jaws that crush the seminal ducts. Only qualified persons may carry out gelding. Gelding should be done outside the rutting season when the testicles are at their smallest with low blood circulation. Pain relief is highly recommended and is becoming more common in reindeer gelding.

# 3 HOW TO SPOT A HEALTHY/ SICK REINDEER

The reindeer is a prey animal and thus strives not to show pain and to hide its illness as much as possible. Reindeer handlers must observe them carefully in order to spot any sick reindeer. Knowing the reindeer as individuals helps in spotting deviations because there are individual differences in reindeer behaviour; what is normal for one may be a significant deviation for another. For the best herding results and to ensure reindeer welfare, the treatment of a sick reindeer must start as soon as possible after the symptoms occur.

The most common illnesses that require treatment among penned reindeer include feeding-related issues as well as mouth and eye infections. Reindeer are also known to have other illnesses. The basics of reindeer health care include feed suited to reindeer, which must be of high quality, and being kept in clean premises. Their feeding place and drinking water or snow used for hydration must be clean.

## 3.1 HEALTHY REINDEER

A healthy reindeer does not stoop, moves normally, holds its ears up and slanted sideways, has clear eyes and its coat shows no signs of excretions. Healthy reindeer usually avoid human touch unless they are fully accustomed to it. It is typical of healthy reindeer to eat at the same time and ruminate regularly, meaning most of the time when not actually eating. Healthy reindeer are alert and react to the stimuli in their surroundings. The stool of healthy reindeer mainly consists of solid droppings. However, for example in summer, access to fresh food may significantly soften their stool.

## 3.2 REINDEER BODY CONDITION

Reindeer condition is determined based on their body condition (1 = extremely thin, starved, 2 = thin, 3 = normal condition, 4 = overweight). When penning reindeer, it is advisable to divide them according to their condition and/or production phase (for example, pregnant or non-pregnant females, growing reindeer and male reindeer) into separate pens, in which case additional feeding can be targeted based on their age and condition. In continuous penning, however, the condition of reindeer should be maintained at the same level throughout the year.

## 3.3 SICK REINDEER



In the image on the left, the reindeer's body condition is 1, starved. In the image on the right, the reindeer's body condition is 4, overweight.

The marks of a sick reindeer may include withdrawal from others, loss of skittishness and not eating or ruminating. Continuously lying down as well as standing for long periods of time may be signs of illness. A sick animal must be transferred to an individual stall to prevent infection and ensure nutrient supply.

A tangled, sparse coat that does not change appropriately for the season and the reindeer's age is a sign of illness or deteriorating general condition. Asymmetrical antlers and delayed shedding of their velvet also indicate a sick or weakened reindeer.

Sick reindeer may have wet secretions around their eyes, the sides of their mouth or under their forelegs, which get wet from oral secretions when reindeer sleep with their head against their side. In case of food-based problems, watery stool may leave a mark on the reindeer's behind. Visual symptoms of sick reindeer may also include swelling in the stomach, joints, udders or cheeks. Floppy ears, a stooped back or glassy eyes are also signs that something is wrong. Panting without a reason related to the weather or exertion may be another sign of illness.

## 4 REINDEER DISEASE HAZARDS

Infectious diseases in reindeer are caused by viruses, bacteria, yeasts, moulds, parasites and toxins. Infection can occur through the reindeer's bodily secretions, food or liquids and carrier insects.

Many reindeer pathogens are common in the soil and the mouths or intestines of healthy reindeer. They do not actually cause disease until the reindeer's resistance to disease decreases, for example due to stress.

Pathogens in other animal species may pose a threat to reindeer health. Reindeer should not come into contact with feral deer or other domesticated animals. Even carnivores, such as dogs and cats, may transmit illnesses to reindeer. Reindeer handlers should never visit other reindeer farms or livestock farms without changing their gear in between.

When monitoring reindeer health and disease status, attention should also be paid to currently unknown diseases. Warming due to climate change or transferring reindeer from the reindeer herding area to a warmer climate may expose reindeer to diseases that reindeer have not previously been known to get.

## 5 ANIMAL PREMISES

The Reindeer Husbandry Act applies to reindeer herding practised in the reindeer herding area within the reindeer herding cooperative system, wherein reindeer herding may be practised in the reindeer herding area irrespective of land ownership or possession rights subject to the restrictions provided in the Reindeer Husbandry Act. In practice, reindeer are allowed to browse freely on privately owned and state-owned land, although they must not cause damage. Outside the reindeer herding area, reindeer must always be kept in a fenced area on own or rented land.

According to Chapter 2(9) of the Reindeer Husbandry Act, a reindeer herding cooperative may also, under a fixed-term agreement, look after reindeer that belong to other reindeer owners. Therefore, a tourism entrepreneur could perhaps give their reindeer to a reindeer herding cooperative's care outside the winter tourism season, for example. The possibility can be investigated by contacting the chairman of the nearest reindeer herding cooperative.

## 5.1 SPACE NEEDS

The reindeer herding area has an average of 1.6 reindeer per 1 km<sup>2</sup>. In the winter penning of reindeer, the recommended number of animals is up to 50 reindeer/10,000 m<sup>2</sup> (200 m<sup>2</sup>/reindeer). However, reindeer should have access to a pen of at least 1,000 m<sup>2</sup>, which is the minimum requirement for reindeer in zoos and permanent animal exhibitions.

Outside the reindeer herding area, it is challenging to have a large enough pen that reindeer can fully satisfy their natural behaviour. The reindeer herding area has an average of 1.6 reindeer per 1 km<sup>2</sup>. Indeed, year-round penning requires many decisions and measures to ensure reindeer welfare. The care needs of reindeer and the intensity of that care depend on, for example, pen size and the quality of the pasture within. In large pens, reindeer can browse more naturally and select the best food plants to eat. In summer, reindeer need several times more nutrients than in winter, and so the supply of energy and proteins must be ensured with feed additives even in large pens. In winter, in year-round penning, reindeer are almost always completely dependent on the feed provided.

In smaller pens, ensuring reindeer welfare requires more actions. Reindeer must receive enough feed of sufficient quality and appropriate nutritional value in a hygienic manner. Fresh water must be continuously available. Feeding places and equipment must be cleaned and disinfected by whitewashing, which reduces the on-ground disease pressure. The feeding place should be moved annually, if possible.

The premises must have insect protection that is also effective in hot weather. Relationships between animals should be taken into account so that there are enough shelters from the elements. All animals must be able to use the shelter at the same time. During the worst mosquito season, mosquito deterrents help protect reindeer. A varying terrain ranging from open terrain to thickets reduces the nuisance from insects as long as the reindeer are allowed to freely choose their pasture.

There is a handling pen reserved for care measures, to which the reindeer can be safely transferred. Reindeer should wear a collar to avoid the need to touch velvet antlers.

In regard to pen placement, it must be considered that pens must not cause a health hazard or risk of contaminating water systems or groundwater.

In stations grounds or town planning areas, a notification in accordance with Section 13 of the Health Protection Act must be submitted to the municipal health protection authority.

## 5.2 PEN STRUCTURE AND STRUCTURES

A reindeer pen must be safe for the reindeer and their handler. The structures must make it impossible for the reindeer to escape. Structural solutions can reduce the risk of loose dogs and predators getting into the pen, for example by partly embedding wire-net fencing in the ground or, at a minimum, blocking any gaps under the fence. It must be possible to lock the gate, if necessary.

A fence of 1.8–2 m can be considered tall enough for a year-round reindeer pen. The pen may be mostly made of wire-net fencing. Pens where reindeer are handled should be made of wood so that they are strong enough and reindeer cannot get tangled in the fencing. Pen structures must not have any sharp angles that reindeer could pack into while moving. The wire ends on wire-net fencing must be bent to prevent reindeer from injuring their eyes on them. Gates must be planned such that reindeer cannot pack into them and injure themselves.



Sturdy and tall enough timber fences help ensure reindeer welfare, particularly in reindeer handling premises.



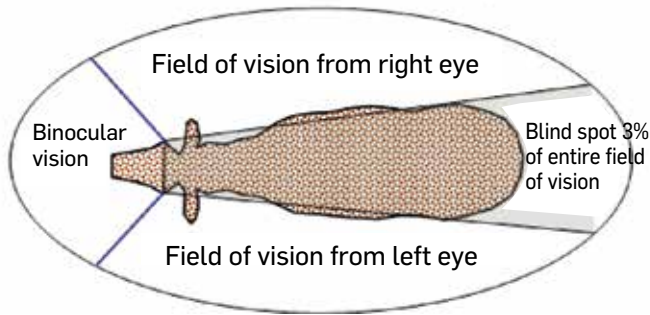
# 6 HANDLING

## 6.1 REINDEER BEHAVIOUR AND HANDLING

Knowledge of reindeer behaviour is important to ensure their safe handling and promoting their well-being. Reindeer behaviour is influenced by their natural, species-typical way of behaving and reacting as well as individual learned and genetic characteristics. For example, tameness varies and is inherited from the mother, partly genetically and partly as the calf learns from its mother how to react to handling. A sufficient weaning period for the calf helps ensure its mental development and manageability. Indeed, the behaviour of human-raised individuals may include imprinting on humans in a way that is atypical of the species. In such cases, for example during the rutting season, the reindeer may behave aggressively towards humans because they see humans as rivals.

Reindeer are prey animals that live in herds. They react easily to sudden movements or loud noises as if to a predator, causing them to flee. For this reason, reindeer must be handled calmly and without noise. As herd animals, reindeer do not like to be alone. Isolating a single animal from the herd may seem like being hunted by a predator, and so reindeer strive to stay in the safety of the herd. It is usually easiest to move reindeer in herds. Typically of herd animals, reindeer behaviour is also transmitted from individual to individual. If one reindeer is stressed and nervous, for example due to being caught, it may spread to the entire herd as panic and thereby make them flee. For this reason, premises for reindeer must be designed with care (sturdy timber structures, tall catching stalls, gate dimensions).

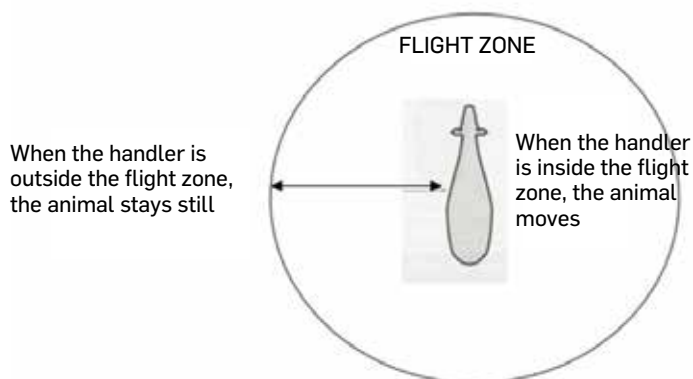
The reindeer is a typical ruminating prey animal whose eyes are located at the sides of its head, enabling a very wide field of vision. The field of vision directly ahead from both eyes is very narrow but sharper than to the sides or diagonally backwards. Reindeer have a “blind spot” in their field of vision directly behind them. A wide field of vision helps detect approaching predators. Reindeer detect movement easily but cannot necessarily recognise who or what is coming straight away. As for colours, reindeer see blue and violet the best as well as gradations in dark tones. As prey animals, reindeer startle easily and should be approached in a way that ensures they notice and recognise you, for example talking to them. Reindeer should be approached diagonally from the front. Looking away from the reindeer can reduce its sense of being hunted.



Recognition of the field of vision typical to ruminants affects animal handling. (Pesonen M.)

## 6.2 MOVING REINDEER BY HERDING

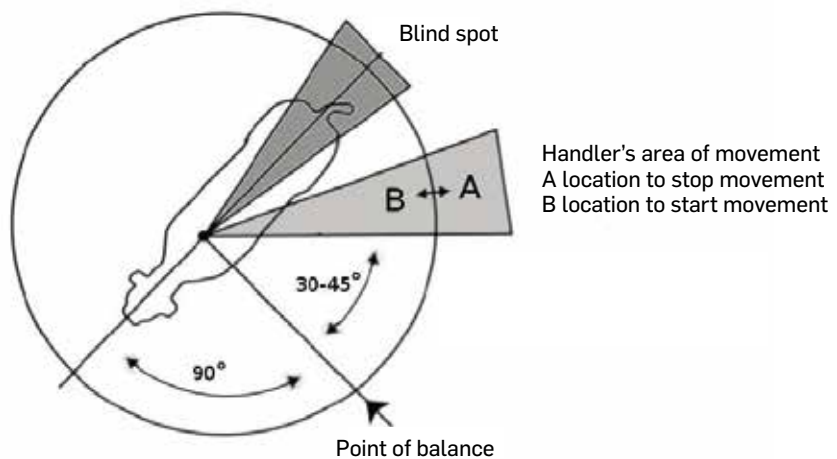
Reindeer can be moved by using their flight zone. The flight zone is a line defined by the animal regarding how close it allows humans. Being outside the flight zone stops the animal. Moving inside the flight zone gets the animal moving. By staying at the edge of the flight zone, the animal can be moved and kept calm by leaving the flight zone immediately once there is enough pressure on the animal to make it move. Invading too far inside the flight zone is stressful for the animal and makes calm and controlled herding impossible. The flight zone varies between individuals and grows smaller in proportion to how tame the animal is. In practice, animals that are completely used to handling completely lack a flight zone, and moving them by herding requires touch and loud sound stimuli. In such cases, it is recommended to walk the animal on a lead or lure it with food.



By increasing and reducing the pressure on the flight zone, the animal can be made to move and stop. (Department of Primary Industries)

The animal's direction of movement can be steered through awareness of the animal's point of balance and how to influence it. The point of balance is located at the animal's shoulder. When there is movement behind the point of balance, the animal moves forward. Moving forward past the point of balance makes the animal stop or try to go backwards by turning or backing up.

When herding reindeer calmly by using the flight zone, point of balance and reindeer field of vision, if the reindeer stop, arm motions, taking advantage of reindeer vision detecting movement, are usually enough to get them moving again. Reindeer must be given enough time to plan and choose their route when being herded. Trying to make a reindeer move in a rush only focuses its attention on the handler instead of the route.



The handler's movements in relation to the animal's point of balance and flight zone steer the animal in the desired direction. (Jokinen H.,2016)

### 6.3 REINDEER HANDLING WITH TOUCH

Reindeer can be walked on a lead and moved by a halter, if they are trained for it. In regard to halters, it is important to ensure that they are not too tight. Reindeer must be able to ruminate without trouble, and the halter must not be too tight even over a thick winter coat. However, a loose halter must not cause a risk of the reindeer getting tangled by its leg.



The reindeer's antlers may affect the selection of halter type. Regardless of the model, there must be enough space to fit a hand under a halter, and halter tightness must be checked regularly.



Reindeer without antlers can be moved on their hind legs by holding onto their neck and foreleg.



A hold can be enhanced by holding the reindeer by the diastema, or gap between bottom teeth, as well as by its antlers.

Using a lasso to catch a moving reindeer is not recommended and should be avoided due to the stress it causes. In some cases, it may be necessary to use some kind of tool to catch reindeer.



A "vimpa" is a combination of pole and rope used for catching reindeer.

# 7 REINDEER CARE

## 7.1 REINDEER AS RUMINANTS

As intermediate ruminants, reindeer are selective about their food and eat every two or three hours. The feeding of ruminants is primarily the feeding of rumen microbes because the microbes condition and use most of the food eaten by the animal.

The energy and nutrient needs of reindeer vary significantly according to the season. The food of reindeer that browse on a fully natural pasture also differs greatly between summer and winter. In summer, reindeer feed on a wide range of different plants, getting a rich supply of nutrients. During the short summer, reindeer must grow, repair tissue damage from the winter, accumulate fat stores, renew their coat, produce milk and grow new antlers. The insect season and rutting season also increase the energy needs of reindeer. In autumn, the mushroom harvest plays a significant role in fattening up freely browsing reindeer and helping them recover for winter, since mushrooms provide reindeer with a lot of protein as well as plenty of vitamins, minerals and trace elements.

The weight and body condition of reindeer that are penned year-round varies only slightly depending on the season, as long as the reindeer are properly cared for.

In winter, reindeer metabolism ramps down and their pulse and respiratory rate slow down. Reindeer almost stop growing in winter and their activity levels fall. In winter, in the wild, the primary food of reindeer is lichen, but they also dig up wavy hair-grass and dwarf shrubs to eat. Lichens have a low protein content and their crude protein is poorly digestible, but they contain a lot of easily digestible sugars and a low fibre content.

In winter, excessive nitrogen supply may become a problem because reindeer are used to low-nitrogen food and enhance their nitrogen recirculation in winter. Reindeer must remove excess nitrogen in their urine. However, reindeer are unable to concentrate their urine much, so removing excess nitrogen requires extra fluids. Therefore, reindeer must eat more snow, which requires a lot of energy to melt and heat up. The change in temperature is also harmful to rumen microbes, which function most effectively at a constant temperature.

In Finland, the maintenance energy requirements of reindeer penned in winter has been specified as 12.9 MJ (1.1 feed units). If reindeer spend their winter in a pasture, they expend more energy in finding and digging up food. In summer, their energy expenditure can be twofold or threefold that of winter due to heightened metabolism. In pen-feeding, uneven distribution of feed between reindeer must also be taken into account, especially if there are a lot of reindeer in the pen as well as individuals of different ages, sizes and sexes. Reindeer high in the hierarchy will try to eat the other

reindeer's feed. Some feed may go uneaten, for example due to roughness. In such cases, reindeer must be given more feed than they would computationally need.

When reindeer are given feed that is high in protein or dry matter, their water needs may increase up to twofold from the natural levels. For example, a reindeer on hay and complete feed needs a square metre of untrampled snow in a 5 cm thick layer. If the pen has less than 200 m<sup>2</sup> of space per reindeer, it will grow too small over the course of winter. Reindeer prefer to satisfy their need for water by drinking water rather than eating snow.

## 7.2 REINDEER FEEDS

Reindeer like silage best when harvested at a young stage, preferably when the first heads are emerging or, at the latest, when 10–20% of the heads have emerged. As the growth develops, the digestibility and D-value of silage decrease. An appropriate D-value for silage produced for reindeer is approximately 700 g/kg on average (D-value = 70). Second-cut silage is also tasty because the second harvest has a greater ratio of leaves rich in water-soluble carbohydrates to poorly digestible stalk. Reindeer dislike eating silage that is largely straw. Silage can be made from own/rented fields or purchased from farmers in round bales. When purchasing silage, special attention must be paid to its hygienic quality and leafy consistency.



Silage grass with timothy grass, meadow fescue and clovers at an ideal stage for harvesting for reindeer.

Hay should also be harvested for reindeer at an early development stage. Reindeer only eat rougher hay in ground or granulated form, in which case it must be mixed with high-energy feeds. Hay can be grown or bought in bales.

Hay and silage offered to reindeer must be leafy and “thin”. Reindeer will not eat and cannot utilise straw-like feed harvested at a later stage.



Concentrate refers to high-energy feeds, such as grains. These cannot be the sole feed given to reindeer. Reindeer complete feed refers to feeds intended for reindeer feeding produced by various feed companies that can be given as the sole feed. Even with these feeds, however, it is recommended to also give the reindeer roughage, such as silage or hay. Concentrates, complete feeds and feed additives should be selected to supplement the nutrients in grass forages. Mineral mixes, such as salt licks, supplement the vitamins, minerals and trace elements that reindeer get from their food. The most common brand names of reindeer feed in Finland are Poro-Elo, Tähti-Poro and Poron-Herkku. It is important to note that the protein and energy requirements for summer feed are significantly higher than for winter feed.

Leafy branches of deciduous trees and willowherb are suitable for reindeer year-round, fresh or dried. Reindeer like willow and birch leaf fodder, which are also more easily available than rowan. Reindeer can be given leaf fodder to prevent indigestion. Leaf fodder should be harvested in mid-summer.

Reindeer prefer water horsetail to hay. Reindeer get a lot of energy from the easily digestible carbohydrates in lichen. Lichen and lichenised fungi can be used like leaf fodder as a health feed. Leaf fodder, water horsetail and lichenised fungi are not commercially available. In autumn, lichen is for sale at least in Ostrobothnia and is sold by private foragers in different parts of the reindeer herding area.

### 7.3 FEED DISTRIBUTION

Pen-fed reindeer must get all the nutrients and energy they need from the feeds they are given. In order to prevent feed contamination and resulting illnesses, feed should be served from an appropriate holder or vessel. There must be enough feed vessels that even reindeer low in the herd hierarchy get to eat. When feed troughs are used, there must be at least 30 cm of eating space per reindeer. If there are many reindeer and they have plenty of space, it may be acceptable to spread the feed into small piles over a large area of fresh snow. Very tasty feeds, such as concentrates, must be distributed quickly so that all reindeer can eat at the same time. This also prevents rumen problems due to excessive feed intake. Whenever feed is distributed, it must be checked that all reindeer come to eat. The eating behaviour of the most skittish reindeer, in particular, must be monitored.



Roughage, meaning hay or silage, should be freely available to reindeer. The hygienic method of serving feed is to keep it off the ground.

Reindeer should have access to high-fibre feed (silage or hay) at all times. This allows reindeer to satisfy their dietary needs as well as their natural behavioural needs. Silage or hay can be distributed once a day. The daily allotment of concentrates can be distributed in one or two portions. Minerals (salt lick) should be available at all times. Vitamin supply must also be ensured. All transfers from one feed to another must be done such that rumen microbes have enough time to get used to the new feed. Such situations include moving from silage to hay, for example. Roughly 2–3 weeks should be reserved for any changes in feeding.

Anyone who pens reindeer year-round must register at Evira, the Finnish Food Safety Authority, as a business operator in the primary production of feed.

## 7.4 PARASITE CONTROL AND DRUG RECORDS

Reindeer should be treated against internal and external parasites annually in September or October. The most troublesome external parasites are reindeer warble fly and reindeer nose botfly. Ivermectin injections work well against them. Oral paste (ivermectin) is not recommended due to its lesser effectiveness and risk of creating resistant parasite strains. Records must be kept of all drugs administered to reindeer, including the following information:

- Drug administration dates
- Identifying information of the animal or group of animals
- Person(s) administering (veterinarian, animal's owner, possessor or their authorised representative)
- Reason for administration
- Drug administered
- Dose administered
- Prescribed withholding period
- Drug vendor



## 7.5 BREEDING

A large, wooded and clean area further away where reindeer have not wintered should be reserved for female reindeer with calf. The water must be absolutely clean. This reduces the transmission of diseases to the calf. Reindeer usually calve without problems and only rarely is human assistance required during calving. However, there should be readiness to provide assistance, if necessary. When calving time approaches, the female reindeer's belly "drops", its udders grow and it isolates itself from other reindeer. The calving phase itself only takes a few minutes and can occur with the reindeer standing up or lying down. Immediately after the calving, the mother starts licking the calf dry. The calf receives useful bacteria from its mother that help it develop into a ruminant. The calf struggles to its feet immediately after birth and can follow after its mother as soon as half an hour afterwards. Immediately after finding its feet, the calf seeks out its mother's udder and starts drinking colostrum. For the calf's future well-being, it is very important that it receives colostrum, which contains antibodies, soon after birth. Later on, the antibodies are no longer absorbed from the small intestine as complete proteins. It is normal for the mother to eat the placenta from the ground after calving. At the beginning, the well-being of the mother and calf should be monitored and the calf helped, if necessary. If the mother rejects the calf, the calf is fully dependent on human care and bottle-feeding (milk substitute) from that point on.

# 8 TRANSPORT

Legislation and consideration of reindeer welfare impose certain conditions for transporting reindeer. Temperatures of over +18 °C or below -25 °C are considered unsuitable for transporting reindeer. At extremely low temperatures, the front of the transport vehicle must be solid so that the reindeer are not exposed to draught.

The driver should have skills and equipment to end the life of a reindeer if needed, e.g. in the case of an accident.

## 8.1 COMMERCIAL TRANSPORT

Animal transports are considered commercial transports if they are connected to wage-earning activities. This means that transports of reindeer connected to tourism services are commercial transports. Commercial transports require a transport permit if the distance exceeds 65 km. In order to obtain a transport permit, reindeer transport drivers must undergo transport training, for which they receive a participation certificate. Unlike other animal transports, reindeer transport drivers are not required to pass a driver test and obtain a certificate of qualification.

## 8.2 FITNESS FOR TRANSPORT

Depending on their sex, the safest time to transport reindeer is, on average, between October and April. At other times, transport is restricted by the antler growth stage and possible gestation in females. Transporting reindeer is not allowed when females are 90% through their gestation period or have calved in the previous week. Newborn calves can be transported once their navel is fully healed.

Reindeer must not be transported during the velvet antler phase. Velvet antlers are easily damaged, causing pain and possibly leading to the reindeer's death. The velvet antler phase lasts while the antlers grow, meaning approximately 3–5 months from early summer to autumn. For geldings, it can last until October. The velvet antler phase is over when the circulation in the antlers ends and they no longer feel warm to the touch.

Reindeer must be healthy and in good condition in order to be transported. Reindeer fit for transport are capable of entering the transport vehicle on their own feet.

## 8.3 TRANSPORT VEHICLES

Commercial transports of over 12 hours can only be carried out with vehicles inspected and approved for long transports. After 14 hours of transport, there must be an hour's rest break, after which the transport can continue for another 14 hours.

The transport vehicle must be marked as animal transport. The reindeer must be kept visible in the vehicle so that they can be checked on during the transport. Reindeer can be transported in vehicles intended for animal transport, vans or transport boxes. Reindeer can be put in a separate transport box for the trip. The specified minimum space requirement of the transport vehicle is 1.3 m tall and 0.4 m<sup>2</sup> of space per reindeer. At the end of the day, however, the space needs are determined based on the size of the reindeer to be transported. The reindeer must have room to stand up and lie down in a natural position in the transport vehicle. The floor of the transport vehicle must not be slippery. The floor can be covered with a rubber mat or bedding.

Reindeer which are used to being restrained can be tied by the halter for the trip such that it cannot get tangled up in the rope but can lie down if it wants to. Reindeer must not be tied by their legs in a lying position.

Reindeer that are used to each other, such as a mother and its calf, can travel together. Otherwise reindeer, especially individuals of different sizes and ages, should be separated for transport.

Reindeer prefer to go towards light, so they are easier to load onto a lighted transport vehicle. During the journey, reindeer remain calmer in a dark transport vehicle. Reindeer prefer to travel with their tail to the direction of travel.

#### **8.4 FEEDING, WATERING AND REST DURING TRANSPORT**

Reindeer must be watered every 12 hours and fed once a day. However, facilitating eating even during shorter transports supports reindeer welfare. Drinking vessels placed in the transport vehicle can be filled with lichen to prevent splashing, or the reindeer can be given fresh snow for the journey. The transport vehicle must not contain any loose items that could cause a risk of injury. The drinking vessel must be carefully fixed into place, and any handles on it should be removed for the safety of the reindeer.

#### **8.5 TRANSPORTING REINDEER FROM ONE COUNTRY TO ANOTHER**

Transporting reindeer from one country to another means either trading on the single market (EU countries, Norway or Switzerland) or import/export (non-EU countries).

Animal disease situations affect import and export requirements, so the current situation of the country of origin must always be checked when planning to transport from one country to another. In Finland, the transport of living animals from one country to another is supervised by Evira, the Finnish Food Safety Authority (starting from 1 January 2019, the Finnish Food Authority). Import requirements come from the country of destination.

TRACES is short for Trade Control and Expert System. TRACES was developed to ensure the traceability and control of live animals and products of animal origin both in intra-Union trade between EU-countries and in imports from non-EU-countries. TRACES is also being expanded to exports – the health certificates for exports of live animals and products of animal origin to certain countries are generated using TRACES. TRACES is an internet-based program and is administered by the European Commission. The TRACES program is used both by authorities and companies. (Evira 2018)

The occurrence in Finland of chronic wasting disease (CWD), which causes a chronic illness in cervids, is being investigated. As a precaution, the export of living cervids, such as reindeer, to other countries has been stopped until further notice. The import of reindeer from Norway and Sweden has also been restricted subject to certain conditions.

## 8.6 TRANSPORTING REINDEER WITHIN THE EU

There are no Evira or EU guidelines for transporting reindeer within the EU. Evira has issued very detailed guidelines regarding bovine transport, for example. However, in reindeer transport, it must be taken into account what authorities have laid down regarding transports taking place in Finland. The country of destination may have its own guidelines issued by authorities, for example in connection with the prevention of infectious diseases.

## 8.7 EXPORT TO OUTSIDE THE EU

Export requirements (for export to a non-EU country) are always within the purview of the legislation of the country of destination. In most cases, exporting animals outside the EU requires a certificate on the health of the animals. The export country's authorities specify the terms on which export can take place.

Exporters must be entered in the exporter register kept by Evira. The obligation of an exporter to register is based on the Animal Diseases Act of Finland (441/2013, Section 70). In Finland, the animal health certificates required for export are only issued by official veterinarians (municipal/city veterinarians, official inspector veterinarians) in their own territory.

When transporting mammals or avians, the transport vehicle must be such that animal stool, urine, bedding or feed cannot leak or otherwise exit the transport vehicle.

## 9 PURCHASING REINDEER

When purchasing reindeer, the selection of individuals should be based on their intended future use and existing resources, such as pen size. The safest way to start keeping reindeer is to purchase reindeer that are already used to being kept in pens. Despite their familiarity, reindeer should first be put in a strong and tall enough wooden pen for monitoring. Once the reindeer have settled in, they can be moved into a pen with wire-net fencing.

Reindeer used for tourism should be acquired from an experienced reindeer tourism farm so that the selection of reindeer and purchase timing can be planned with someone who knows the reindeer.

Purchasing just calves is not recommended; calves need at least one adult reindeer to calm them and give them a sense of security.

Actions should be planned well in advance before bringing the reindeer into their own pen. A self-supervision programme makes it easier to manage the new duties of reindeer care.

- Basic information about the farm
- Pen and storage sanitation
- Machine, equipment and transport vehicle sanitation
- Care measures requiring reindeer to be tied
- Sensory quality control of feed and water
- Pest control
- Waste management
- Precautions to ensure food safety and traceability when bringing animals and plants to a primary production site
- Participation in animal health care and health monitoring programmes
- Traceability
- Use and storage of feed additives, animal drugs, fertilisers and hazardous chemicals
- Familiarising staff with animal welfare law and prevention of infectious diseases
- Visitors to the farm
- Other considerations

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**This guide** has been produced to ensure the well-being of reindeer and their handlers. The guide provides basic information about reindeer as a species, their care and where to find more information. The guide helps identify relevant factors when considering purchasing reindeer.

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