Preventing the extinction of the Dinaric-SE
Alpine lynx population through reinforcement
and long-term conservation

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Collecting lynx noninvasive genetic samples

Instruction manual for field personnel and volunteers

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LIFE Lynx, Action A.3: Pre-reinforcement survey of the potential release sites and the genetic and demographic status of residual lynx

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Introduction

Noninvasive genetic sampling is increasingly becoming one of the most important tools in a management and research toolset for wildlife species. Genetic samples collected noninvasively (without any contact with the sampled individual) provide invaluable information that is impossible to obtain by any other manner.

Lynx is no different, and noninvasive genetic sampling is one of the main methods we have for guiding the population augmentation and monitoring its success. The critical issue for successful sampling is appropriate collection, storage and delivery of samples, which is the purpose of this manual.

The idea of this manual is to be modified according to local needs. If sampling is done by project staff exclusively (as it will be in several areas), this manual can be used as-is. However, where it is used for working with various volunteers, it should be translated into a local language. Importantly, the **sample delivery instructions** should be modified according to local arrangements, and contact information provided for the people in charge of a local sampling. Where a large-scale sampling with volunteers is planned, it would be beneficial if these instructions were also designed by a professional graphic designer and printed as a booklet.

I'd like to thank to all colleagues who provided photographs and illustrations (in no particular order):

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Please send any comments or corrections to tomaz.skrbinsek@gmail.com and they will get included in the next update of this manual.

Happy sampling! ☺

Contents

Collecting scat samples

CHECKLIST

1. We recognize the species
… we make sure that the scat is really from lynx.

2. We collect a sample
… from the surface of a scat, small amount (think “pea”)!

3. We estimate the age of the scat
… fresher is better! Main guideline: smell!

4. Write the data on the flask label
… a sample is useless if we don’t know where and when it was collected!

5. Mark the sample
… so it doesn’t get picked-up again by someone else.

6. Store and deliver the sample
… store in a cool and dark place, return for analysis as soon as possible.

Figure 1: Lynx scat. Notice blunt ends and the little "tuft" at one end, which is considered one of the best parts to collect for a genetic sample. (Illustration: Igor Pičulin, photo: Franc Kljun)

Figure 2: Left: Buried lynx scat. Only a pile of leaves is visible. Right: Lynx scat taken from a snow pile, large (50 ml) sampling tube for size reference. We most often find lynx scats while snow tracking. (photos: Miha Krofel)

1. Lynx scats

Lynx scats should be carefully evaluated. The easiest way to reliably recognize scats is if we ask ourselves about their **size, contents, shape and location**.

Size: The typical diameter of the scat "sausage" in an adult lynx is around 2 – 3 cm, rarely more. This is a bit smaller than the diameter of the large (50 ml) sampling tube at the bottom.

Contents: Lynx scats will usually have some hair of its prey (either from ungulates or dormouse), but usually less than a typical wolf scat. It can have bone fragments. It may also have some plant material, usually individual blades of grass or leaves of trees, but this happens rarely. It shouldn't have pieces of anthropogenic foods.

Shape: Lynx scat is usually in a single "sausage", often in several more or less connected segments and with blunt ends.

Location: Lynx tend to hide/bury their scats (similar to domestic cats), but this is not always the rule, especially with older animals. Thus special attention should be given to heaps of snow along lynx tracks or heaps of leaves around kills sites and other locations frequently used by lynx. If you find a scat on a visible spot (middle of a crossroads, exposed rock…) it usually means that it's NOT a lynx scat, but a different species (wolf, fox). Sometimes individual lynx repeatedly used same site for defecation, typically under rock shelters.

Frequent errors

It can be a problem identifying lynx scats from those of other species. A most frequent error would be a dog, fox or wolf scat, which are also easier to find than lynx scats. Lynx scats can also be easily confused with those of wild cats. **If you are not sure, still collect the scat and write a note on the label. You can also take a photo of the scat and send it to the person managing the sampling in your area. Make sure you provide the data with the photo so that we can later link it with the correct sample.**

Bear: This will usually not be a problem, however bear scats can contain a lot of animal material if the bear ate carrion, and scats from bear cubs can be small enough to cause confusion. Bear scat will be usually in a pile, while lynx are in the characteristic “sausage”. Bear scats are also usually considerably bigger than lynx scats.

Dog: Dog scats are problematic since they can be of various shapes and sizes. Dog scats typically don’t contain hair. Sometimes we can see identifiable food items, e.g. dog food or other anthropogenic foodstuffs. If the scat is found while snow tracking, there will usually (but not always) be human snow tracks in vicinity. Dogs also don’t bury their scats.

Wolf: Wolf scats have typically more hair than lynx scats. They are often in several pieces, and the ends are usually not blunt but more conical, especially the last part with a “tuft”. An experienced person can also tell both apart by the characteristic smell. Wolves don’t bury their scats and they will be often located on the forest roads and logging trails.

Fox: Fox scats often contain mammal hair, but frequently also contain seeds and other plant material, which is rarely found in lynx scats. Size is on average smaller, but can be similar to those of lynx scats, but fox never buries their scats and fox scats are often spirally twisted along the longitudinal axis, which does not occur in lynx scats. Fox scats will often be found on roads and various conspicuous sites.

Wild cat: Wild cat scats are very similar shape to those of lynx and also wild cats often bury them. They mostly contain hair from small mammals (but keep in mind that also lynx scats frequently contain dormouse hair). Easiest way to distinguish them from lynx is size, as wild cat scats usually have diameter smaller than 2 cm.

Figure 3: WOLF scats (NOT LYNX!). Notice that the ends are more "conical", not blunt like in lynx. There is often a lot of hair from the prey. When in doubt, still collect the sample and make a note. (Photos: Miha Krofel)

2. Age estimate

Estimate of scat's age is important since it gives us an idea of the expected DNA quality in the scat and allows us to make a plan of the analysis.

We're collecting relatively fresh scats that **still have the characteristic smell** (unless they are frozen). Estimating age is more difficult than with bears since a fresh scat may soon look dry and desiccated. **The best guide is your nose!**

Estimating scat age is never precise, and the appearance of the scat will depend on weather conditions and content. However, we've noticed that most people can estimate how fresh a scat is using just common sense, and this subjective estimate is of great help during analyses. Estimating age easier when snow tracks are also present.

A few pointers:

Fresh scat will appear fresh at first sight. It has a strong smell, looks moist and possibly slimy.

Older scat may still look fresh. The smell will be less intensive, but still characteristic. After 3-4 days the scat will not look slimy anymore. In dry weather in summer, especially in the sun, a scat may look older even after a single day, but it will still have a lot of smell, which indicates that it should be collected for genetics.

Old scat loses most of the smell and is not slimy anymore. Such scats are usually dry, but can be moist from a recent rain. Very old scats are without smell, dried-out and often light in color. **We don't collect old samples that don't smell for genetics**.

Scat age is of less concern during winter – when a fresh scat freezes in the environment, genetic material in it will be conserved like in a freezer. Such scats are always worth collecting for genetics.

3. Collect a scat sample

You can use **both small and large flasks** for either urine or scat samples! If you're using the large (50 ml) flask, make sure to still not collect more than a pea-size sample of scat.

A sample is collected from **surface of the scat, if possible from a part that is not in contact with ground**. That part of the scat is the first to dry out, which conserves the DNA. If we see the end of the scat (the conical "tuft" or "tail" sticking out from one end) we should try collecting a sample from there.

If the sample was exposed to heavy rain, we try to take a sample from the least exposed part.

If there is **mucus** on the sample, we should try to collect it since it contains a lot of target DNA.

We collect a **pea-sized** sample of the scat and put it in the flask with scat conservation liquid. Remember, **LESS IS MORE!** Make sure **not to collect too much sample** since in this case the

DNA will not get conserved. The liquid in the flask should in no case spill over or even reach the edge of the flask.

Figure 4: Left: Collecting a scat sample (large (50 ml) tube for reference, shown with a wolf scat). Right: Small (8 ml) tube with a scat sample. We collect SMALL (PEA-SIZE) AMOUNT of sample – better less than more! (illustration: Tomaž Skrbinšek)

It's the easiest to collect the sample with the enclosed wooden sticks which can be harmlessly discarded in the environment after sampling. If you don't have those, you can make a "tool" from a piece of wood or small tree branch. You can also use these sticks to mark the scat and let other people know that a sample has been collected. **You should use <u>new "tools"</u> for each scat to prevent cross-contamination of samples!**

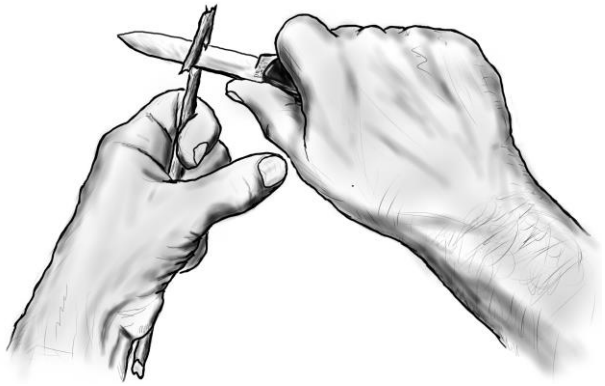

Figure 5: Making makeshift "tools" for scat collection (illustration: Tomaž Skrbinšek).

4. Record the data for a scat sample

The data about the sample should be recorded on the label of the sampling flask. If you're using the small (8 ml) flask, put the flask back into the resalable bag with the label! There is the same data form for both scat and urine samples, and different data are filled-in as appropriate.

Species – in some areas, samples of bears and wolves are being collected in parallel with lynx samples. Please note which species you think you're sampling.

Date of sample collection.

Name of the person that collected the scat which will enable you to get feedback about your samples.

Location where the sample was found. If you have a GPS, write down the coordinates. If not, record the local name of the place where the sample was found. Please also note the wider area/region so that we can later place the sample on a map as precisely as possible. If you can't determine the precise location, still collect the sample and write down an approximate location.

Age of the scat – circle the number of how old you think the scat is.

Snow tracking data – if the sample was collected during snow tracking, please fill-in also the snow tracking data (track size, number of animals in the group).

Note – write down anything you consider useful noting with the scat, also if you have some particular questions

species ☐bear ☐wolf ☐lynx
name/surname
date location
GPS coordinates and/or geographic name
SCAT
scat age (circle) 0 1 2 3 4 5 days size (diameter of the „sausage", cm):
URINE / SNOW TRACKS
non-marking (ground): Y N | blood in urine: Y N
object of marking?
num. of animals in group track size (cm) note

Figure 6: Data-entry label for urine and scat samples, writing data on the bag label for small (8 ml) sampling tube. Large tubes have labels directly on the tube (illustration: Tomaž Skrbinšek).

5. Mark the scat

After collection we must **mark or remove the scat**, so that it doesn't get sampled twice. The best is if we can cover it with a large rock or put some branches over it. If it's on a trail, we can also remove it using a rock or a branch.

The mark/removal must be permanent and clear!

Marked samples should not be collected again.

6. Store the scat sample and send it for analysis

After collection, keep the sample in a cool and dark place. Don't leave it in a car on the sun!

The sample should be **sent to be analyzed**. While scat samples, once stored in conservation buffer, are more robust than other samples, this should still be done sooner rather than later. Specific details on how to do that will vary between countries and should be provided by the local team leading the sampling in a particular country/area.

Collecting urine samples in the snow

Urine samples are also a viable material of DNA for genetic analyses. Since lynx use urine to mark their territory, such samples can often be abundant if a residential lynx is snow tracked. This is especially true for males, which mark considerably more frequently than females, and during the breeding season.

Collecting a urine sample is just as simple as collecting a scat sample. We're providing larger (50 ml) flasks which make urine collection easier, but the small (8 ml) flasks can also be used for this purpose to the same effect.

CHECKLIST

1. **We recognize a lynx track**
   …we make sure that it's really lynx we're tracking.
2. **We collect a sample**
   …as much of the "yellow snow" as possible!
3. **We record the data**
   …a sample is useless without the data and will not be analyzed.
4. **Store and deliver the sample**
   …store in a cool and dark place, return for analysis as soon as possible.

1. Are the tracks really from a lynx?

While lynx tracks are relatively easy to recognize in ideal conditions, this becomes more difficult when snow conditions are less than ideal. Some pointers to consider:

Is the size and the shape of the tracks correct? Are tracks in-line?

A lynx footprint is round, with diameter between 7 and 9 cm in an adult lynx (forepaws are larger than back paws). However, one should be careful – as snow melts, footprints get larger and rounder, so a hare or fox track can easily be mistaken for a lynx. The main rule is always that several footprints should be observed if at all possible.

Lynx tracks are also usually in a straight line (similarly also wolf), while dog tracks tend to "wander" around in a zig-zag pattern. Lynx are also very agile, meaning that they will often go on fallen trees, through dense vegetation, over rocky outcrops and make large vertical and horizontal jumps. Observing this type of behavior in the tracked animal almost always indicates a lynx.

Figure 7: Lynx tracks. See the round shape and absence of claw marks (although not always!). Diameter is 7 - 9 cm, with the front paw larger than the hind paw. (photo: left: Franc Kljun; right: Urs Breitenmoser)

Did you see a single footprint, or are you able to follow the animal and observe many footprints? The most common mistakes are done when a single footprint is observed. With sufficient imagination and appropriate field conditions (melting, falling snow from trees…) a single footprint of almost any appropriately sized animal may be misidentified as a lynx footprint. If you've observed several footprints in a row and they all look like lynx, you may be reasonably sure you're tracking a lynx.

Can you see claw marks in the track? Like most cats, lynx retract their claws when they walk and you usually don't see claw marks in a lynx track. In other words, if you're seeing claw marks you're probably not tracking a lynx. A notable exception to this may be when lynx walk on frozen snow or in steep terrain and can occasionally use claws as "crampons". Such claw marks are narrow and sharp, quite different than blunt claws we can observe in dogs, wolves or foxes. Also keep in mind that claw prints are not always visible in canids.

2. Collecting a urine sample

First check if **more than one animal urinated in the same spot**. While this is not common with several lynx, it often happens that a fox will mark the same spot as the lynx. Collecting such mixed samples should be avoided.

We try to collect as much as possible of the "yellow snow" in the flask. We can carefully remove some of the snow around the yellow spot with urine to make collection easier and get to the deeper parts of the urine stream. When vertical object is marked, check also snow on the ground below the object, as urine often drips from the marked object. When finished, we close the flask well to avoid leakage.

Large (50 ml) and small (8 ml) flasks can be used interchangeably, depending how easy/difficult a specific sample is to collect.

When **following a lynx track**, especially for males and during the mating season (February-March), we can find many urine samples of the same animal. Since not all samples will be successfully genotyped, it makes sense to collect several samples. The typical procedure is to collect the **first two urine samples** of the same animal that are fund in separate small (8 ml) tubes. When **additional urine samples** are found while tracking along the same snow track from the same animal, they should be collected (as many as practical) in **a single large (50 ml) tube** (several samples in the same tube). If such "bulk" samples are collected, we should be very careful that **the samples are really from the same animal**. If there is any doubt, stop collecting new samples in the same flask.

If you find a **non-marking urination** (on the floor) when tracking **a lynx family**, collect it as a single (not bulk) sample since it may belong to a kitten.

3. Recording data for a urine sample

Most of the data is the same as with the scat sample, with a few exceptions.

The number of animals and track size is also recorded.

Marking/non marking behavior – was urination on the ground (non-marking) or on an object (marking)? If marking, what was marked (e.g. small tree, forest house etc.).

Blood in urine – can be sometimes visible after mating. Such samples should definitely be collected.

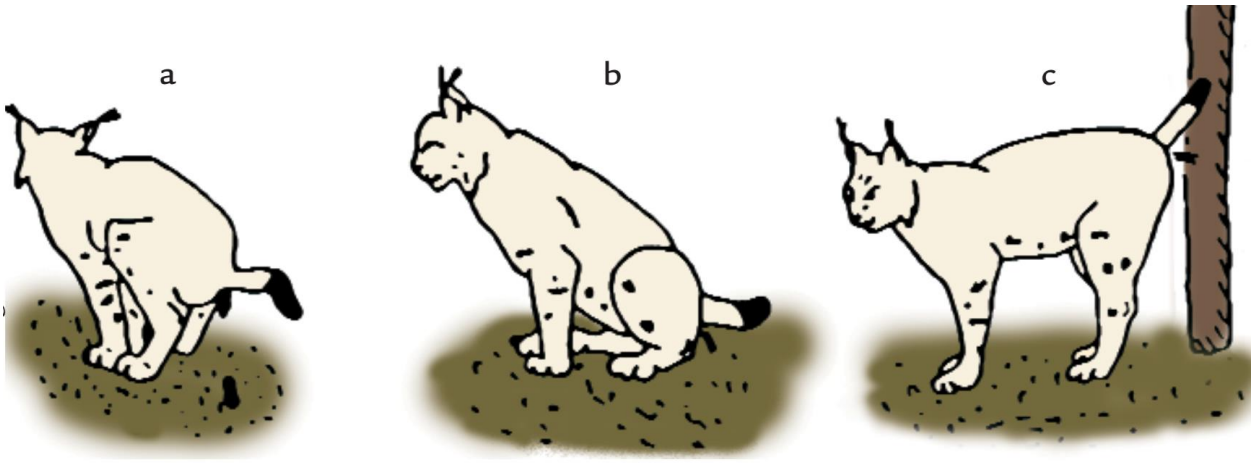

Figure 8: Defecation (a), urination (b) and marking (c). While urination will typically be on the floor and larger quantity of urine, marking is often a few drops sprayed against a vertical object. (illustration after Hucht-Ciorga 1988).

4. Store and deliver the urine sample

After collection, keep the sample in a cool and dark place. Don't leave it in a car on the sun!

The sample should be **sent to be analyzed** as soon as possible. **This is especially important for urine samples** since they degrade faster than scat samples. Specific details on how to do that will vary between countries and should be provided by the local team leading the sampling in a particular country.

Collecting Hair Samples

Hair follicles provide a good source of DNA. Hair samples can be collected systematically (using hair traps) or opportunistically when lynx leave hair on various objects and in daybeds. Here we deal with opportunistic samples, but the same principles apply to systematically set hair-traps.

Similar to other noninvasive genetic samples, DNA in hair samples will degrade in environment and the probability that the analysis will be successful drops with time. However, different to scat samples they don't store well and should be transferred to a laboratory for analysis as soon as possible.

CHECKLIST

1. We look for hair samples

…opportunistic samples can be found at some places lynx mark and where they are resting, but we need to look for them.

2. We collect a hair sample

…in a paper envelope, which we put in a sealed container / bag with desiccant.

3. Write the data

… a sample is useless if we don't know where and when it was collected!

4. Store and deliver the sample

… store in a dark place, return for analysis as soon as possible.

1. Finding opportunistic hair samples

Opportunistic hair samples of lynx will typically be found while snow tracking, meaning that we will already be quite sure that the hair is from a lynx. However, there are a few pointers where these can be found.

Look around a marking spot – lynx often rub against objects before they mark with urine, leaving some hair behind. They may mark the object they rub against, but it's not necessary. When you find marking with urine, make sure to look around for lynx hair. Hair will get stuck in wood, on a broken branch, even on a rock – look for objects that would appeal to a cat to rub against. But you will miss them unless you specifically look for them. If you are not sure whether hair is from lynx, check for the characteristic smell of felid urine that often accompanies hair at rubbing sites.

Look at the places where lynx rest – when snow tracking, you may find places where lynx lie down to rest. This will often be sheltered places with a good view – e.g. under a fell-down tree, under a rocky outcrop, edge of rock cliff etc. Carefully check such places for hair, usually several hair can be found.

Lynx have regular marking places where you may find hair samples also when there is no snow. Once you know terrain well, you will know places that lynx regularly visit. Interestingly, the same places seem to attract different lynx over many years. Once you know such places you may check them also outside of tracking season. A good idea is also to put a hair trap at such a place. However, samples found outside of a snow tracking session are of unknown age, which makes them less likely candidates for a successful genotyping since they may already be old and DNA in them may be degraded.

Recognize lynx hair – it's not always easy to recognize lynx hair, and lynx have different types of hair. Lynx hair is usually of light color, relatively thin (compared, for example, with bear) and often with black tip. Guard hairs of the top coat can be quite long and thicker, while the under coat hairs are shorter and very fine. Both should be collected if possible.

Figure 9: Lynx hair.

2. Collect a hair sample

Hair is collected in a **paper envelope**, which is then **stored** in a plastic flask or resealable plastic bag **with desiccant** (silica gel). Desiccant is critical since it dries-out the sample and conserves the DNA, but it must be in a sealed environment. Envelope, on the other hand, allows the sample to dry and protects it. If required, you can put several envelopes with samples in the same plastic bag / flask with desiccant.

WARNING. When exposed to air, desiccant will absorb moisture and become ineffective. Sampling kits for hair are vacuum-sealed and if the seal is not broken, they should keep indefinitely. However, once a kit is opened you should use it within a couple of days, or throw it away if for whatever reason you can't collect a sample.

The part of the hair that has DNA is the **follicle**, a bulbous end of a pulled-out hair. Not all hairs you may find will have follicles and they're often difficult to observe without a magnifying lens, so it makes sense to collect **as much hair as possible**. Also, make sure to collect entire hair – cut-off hair is useless. Also make sure to **also collect the thin and short undercoat hair**. Remember, the hair itself is not very important so its length doesn't matter, it's the follicle that has the DNA.

If there are **several places** with lynx hair on the same site, collect **hair from each** of these places in a **different envelope**.

Ideally the hairs are collected by tweezers, which are burned with a flame (e.g. a pocket lighter) before each collection. However, since cross contamination is less of a problem with such samples and human DNA is not a problem, you can use your fingers to pluck the hairs and put them in an envelope.

Make sure you **seal the flask or bag with desiccant/sample envelope really well**. Otherwise moisture from the air will damage the sample.

3. Write the data

Much of the recorded is the same as with other sample types, with some exceptions.

Hair age – how old do you think the hair is. There is no objective way to tell this directly from the hair, but often we can estimate (e.g. if found while snow tracking, you can estimate how old the track is with regard to last snowfall, other weather conditions, shape of tracks…). In many cases this will be a guess. You may also note the time interval since you last checked that marking site for hair (which provides the maximum age).

Hair collected from – note if the hair was collected from a hair trap or something else. If other, note what type of object (e.g. dead tree, feeding place, forest cabin…).

Figure 10: Data collection label for a hair sample.

4. Store and send the sample

First, always make sure that the envelopes with samples are well sealed in the supplied plastic bag or flask.

The sample should be **sent to be analyzed** as soon as possible. **This is especially important for hair samples** since they degrade faster than scat samples. Specific details on how to do that will vary between countries and should be provided by the local team leading the sampling in a particular country.

Saliva Samples From Lynx Prey

When we find a fresh lynx kill, we can try taking a saliva sample around bite wounds. The tricky part is contamination with scavenger DNA, but with lynx this is less of an issue since contamination with DNA of the most frequent scavenger, the fox, is not a problem in the analysis.

CHECKLIST

1. Find a good place to swab

…killing wound (neck), most recently eaten part of carcass.

2. Collect saliva samples

… collect 2-3 swabs at each prey, from different places. Seal well!

3. Write the data

… a sample is useless if we don't know where and when it was collected!

4. Store and send the sample

… store in a dark place, return for analysis as soon as possible.

1. Recognize lynx prey

Lynx kill the usually kill larger prey (roe deer, red deer calf, chamois) by biting the neck from below. Occasionally they would kill the prey by biting the neck from above, severing the spinal cord.

In lynx prey you can often see 4-8 deep wounds in the larynx area (neck, below). The wounds are typically clean, neat holes, without large lacerations that are typical in wolf kills. Sometimes no holes will be visible from the outside. However, have in mind that this picture may be disturbed by scavengers. Fox, for example, will often chew through the neck and take the head away.

Figure 11: Killing wounds of a lynx, in nature (above) and dissected (below). Wounds (shown by arrows) made by teeth are usually neat holes with little laceration. A saliva sample would typically be taken by rubbing a forensic swab around and between the wounds at the top photo (photos: Miha Krofel).

Lynx also have a particular manner how they consume the prey. They eat muscle tissues, typically starting at upper thigh or shoulder. They don't consume the intestines, but usually (unless they catch another prey) return to eat for several days until all edible parts are consumed. Lynx in most cases also cover their prey with snow, leaves or grass.

Figure 12: Lynx prey. Lynx starts eating muscle tissue, usually starting from butt or shoulder (left, photo: Hubert Potočnik). If undisturbed, it will often consume all edible parts (right, photo: Miha Krofel).

2. Find a good place to swab

When the predator bites its prey, it leaves saliva which contains its DNA. So, wherever you find bite marks, you can try wiping the area around with a swab to pick-up the DNA. As always – the fresher, the better.

Since genotyping success from such samples is not good, **always collect 2 or 3 samples** from different places on the carcass. One sample should always be from the **kill wound** (the neck), which is with lynx often just a few holes with minimum laceration of the surrounding tissue. Cats often lick the neck after the kill so if the kill is fresh, there is a good chance to collect useful DNA.

The rest should be collected **at the place where lynx has most recently eaten**. Lynx come back to feed on a prey for several days, so you should try to estimate which part of the carcass was most recently eaten and collect samples there.

Figure 13: Collecting a saliva sample. We vigorously swab the area around and between bite wounds (top). When the carcass is already mostly eaten, we try to find the places where we think it's the highest possibility that the lynx ate last (bottom; photo: Tomaž Skrbinšek).

3. Collect saliva samples

We're using special **forensic swabs** which have desiccant integrated in the storage tube and are provided in sealed bags that prevent ingress of moisture. **Open the bag with the swab immediately before use** – don't open the swabs if you're not planning to use them. If you happen to unseal the swab and not collect the sample for whatever reason, this swab should be used in a couple of days or thrown away.

Once you identified the area you think has the predator saliva, **rub the tip of the swab over the entire area**. Don't swab too large areas – about the size of a man's palm should be the maximum. Collect a single area with the same swab – e.g. one swab for the neck, two at two places where the animal has most recently eaten.

Avoid swabbing in areas **with a lot of blood** since your swab will quickly get soaked and won't collect any new material.

After collection, **return the swab to the original tube** it came in and **seal well**. If possible, seal the connection between plug (swab handle) and tube with the electrician's tape or other sealing material. An airtight sample will remain conserved longer.

4. Write the data

This is similar to other types of data, with a few exceptions.

Prey species, % consumed, prey description: Describe the prey… species, estimated age (young/old), sex & physical condition if possible. Also estimate how much prey has already been consumed.

Single predator/family: Does this look like it was a single lynx, or a mother with young? If the later, try to estimate how many (usually possible only in snow).

Sampled from: In a fresh kill, it is particularly important is to take a sample from the killing wound (neck) if at all possible. Note from which part of the prey the sample was taken.

Carcass decomposition: The state of decomposition gives some indication of the chance of obtaining a successful genotype.

species ☐ bear ☐ wolf ☐ lynx	**date:**
name/surname:	**location:**
GPS coordinates and/or geographic name:	
prey species:	**% consumed:**
prey description:	
single predator ☐ family ☐ if family, how many?	
sampled from: neck☐ rump☐ shoulder☐ other:	
carcass decomposition (circle): **0 1 2 3 4 5** (0 - fresh; 3 - bloated t.; 5 - liquification of tissue, mumification...) **notes:**	

Figure 14: Sampling label, predator saliva on prey.

4. Store and send the sample

Double check if the swab tubes are well sealed. The sample should be **sent to be analyzed** as soon as possible. Specific details on how to do that will vary between countries and should be provided by the local team leading the sampling in a particular country.