

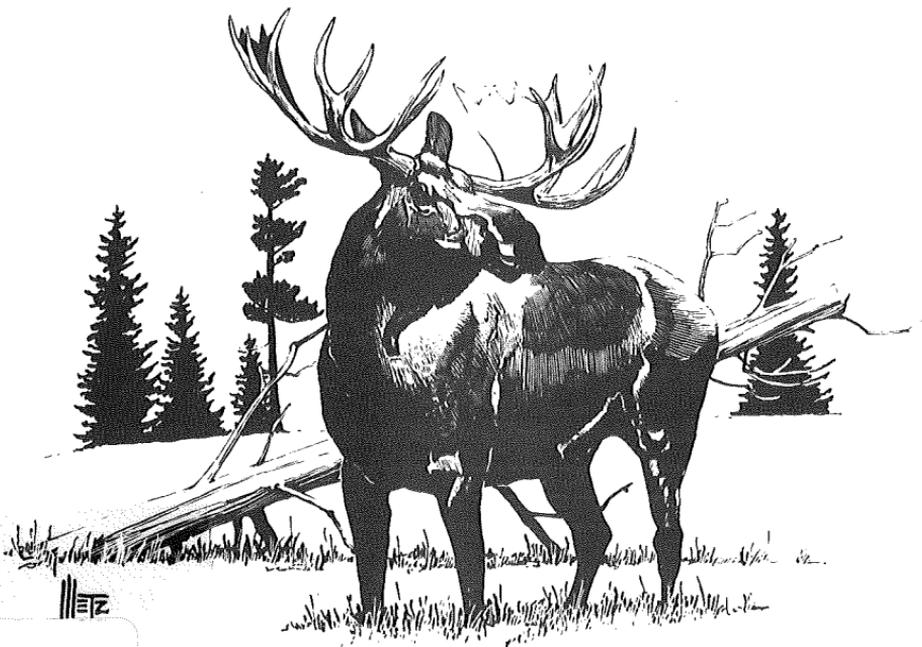
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# A Guide to Field Care of Moose Meat and Trophies



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**A Guide to Field Care of  
Moose Meat and Trophies**  
by  
**LeRoy Rutske**



**Wildlife Section  
Department of Natural Resources  
St. Paul, Minnesota  
1987**

**ACKNOWLEDGMENTS**

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## INTRODUCTION

The challenges of moose hunting do not stop with the bagging of a moose. In any but the easiest situations a fallen moose presents some major problems for you to solve: the carcass can be up to five times larger than a deer; the weather can be much warmer and wetter than in November deer hunts; and the terrain over which the moose must be moved can be especially difficult. This booklet has been compiled to assist you in meeting those challenges successfully.

There are several ways to field dress and cut up a moose. The best way depends upon your means of transportation, the weather, how you are equipped, and personal preference. Unless you are a resident in the moose range, or a relative of one, your moose is likely to cost as much per pound as good beef from the supermarket. It makes good sense then to be sure that it is not only fit to eat but tasty and tender as well.

To produce meat of good quality you must meet four essential requirements: (1) cool meat quickly and age properly, (2) prevent dampness, (3) keep meat clean, (4) keep flies off. The first section that follows describes how you can meet these requirements.

Some procedures, while not essential, help the job go more smoothly and provide greater safety. The second section of this guide describes such procedures.

Necessary equipment is explained in the third section.

The fourth section explains step by step what to do from the time your moose drops until you register it at a Department of Natural Resources check station and head home.

## ESSENTIAL REQUIREMENTS

### (1) Cool meat quickly and age properly.

Temperatures during the moose season have a direct bearing on what must be done to preserve the meat. In late September to mid-October the **average minimum** temperatures are 32-40°F and the **average maximum** temperatures are 56-64°F across the Minnesota moose range. These averages indicate that cooling moose meat is likely to be a major consideration. Hunters should carry a thermometer to make decisions and a radio so that temperatures likely to be encountered on the way home can be determined.

To begin let's look at what is ideal for producing tender, tasty meat. First, the meat should be cooled to under 40°F as soon as possible after the animal is killed. In a commercial cooling room at 38°F it will take at least 24 hours for a freshly killed and skinned quarter of moose to reach the room's temperature. Any situation with higher temperatures will approach this cooling rate only by reducing the size of the individual meat masses. Second, unless it is a calf moose, aging of the meat is necessary to make it tender. Normally, an older animal should be aged from 7 to 14 days at 36-38°F in a cooling room. The aging process begins as soon as an animal is killed. At temperatures higher than 36-38°F meat will age faster. Above 40°F it can be expected to age as much in 2-3 days as it would in a week in a commercial cooling room.

The hunter's problem is to duplicate the ideal conditions as nearly as possible. Because of the speed at which spoilage can take place at body temperature, a moose should be dressed out immediately after it is killed — even in winter

temperatures. Once that has been done and you are within an hour or two of a commercial meat processor you might do no more than haul your moose in one piece to that establishment. However, most moose hunters will not be able to get their moose into a cooling room in much less than 36 hours after killing the animal. Moose taken in the canoe country can easily be 72 hours away from refrigeration.

Given the normal daytime temperatures of 56-64°F in the moose range, and warmer as hunters travel homeward, it is absolutely essential to skin the moose the same day it is killed. Moose hide and hair are excellent insulators that will prevent proper cooling. Therefore, any moose that cannot be placed in a commercial cool room the same day it is killed should be skinned within a few hours. Skinning will also reduce the weight to be transported by 60 to 90 pounds, unless you wish to save the hide. Adequate cooling under our normal temperatures also requires that shoulders and hams be separated from their respective quarters. Any moose that cannot be refrigerated the same day it is killed should be divided into pieces as described later.

The skinned and divided pieces of meat need protection from dirt and flies. However, cooling should be accomplished before the meat is closely wrapped or confined in a boat, plane, or vehicle. It should be hung in the shade with good air circulation. It would be best for a moose shot and cut up one day to be cooled overnight before transportation to the registration station begins. Cloth meat sacks (see equipment section) are recommended for covering the meat unless many thickness of cheesecloth are used (30 yds. of cheesecloth required for good coverage). Never stack pieces of meat prior to complete chilling to below 40°F. Never use plastic for covering meat except when

placing in a freezer or as a very loose, ventilated cover for rain protection.

Plan to have your moose meat in refrigeration within 3-4 days if nights are above 45°F. If daytime temperatures are in the 60-70°F range the moose should be fully butchered and frozen within three days.

To avoid last minute problems, it would be best to make arrangements with a meat processor before you leave home for your moose hunt.

## **(2) Prevent dampness — keep meat dry.**

Meat will sour more quickly if it gets wet and is allowed to remain wet. The following suggestions are given to help you avoid that problem.

If you have the good fortune to be able to dress out and cut up your moose without getting the meat wet there are still some precautions to be observed. The meat and the bags that contain it must be kept off damp ground. Cut brush to lay meat on while butchering and cooling (do not cut brush or trees near campsites in the Superior National Forest). When meat bags must be transferred during transportation, place them only on dry surfaces such as rocks, logs, or your other equipment. Air circulation all around each piece of meat must be maintained throughout the transportation to refrigeration.

Sometimes getting the meat wet is unavoidable, as when contamination must be washed off, when it is raining while you cut up the carcass, or if your moose falls in water from which it cannot be removed whole. Whenever meat gets wet, dry it off as soon as possible. If it is raining get it under cover such as a tent or a tarp to keep it dry. Plan to have material of some sort along for wiping the meat dry.

Do not attempt to keep meat dry by wrapping with plastic or other waterproof material. Moisture from within the meat itself will collect under the plastic. Any waterproof covering must allow full air circulation.

If you are traveling by canoe you will need some means of keeping your meat sacks off the bottom and some kind of canoe cover in case of rain.

## **(3) Keep the meat clean and untainted.**

Moose meat, as any other, can acquire undesirable flavors. A description of some sources of contamination and suggestions for avoiding them follow.

The moose hunting season coincides fairly well with the moose breeding season. During this period a bull moose digs wallows in which he urinates and sprawls. The odor of an active wallow can be detected from as far as several hundred feet. Therefore, if you do not skin your moose immediately you should be careful that hairy surfaces are not placed in contact with meat surfaces. Also, do not use cloth that has covered unskinned parts of a moose to cover skinned meat.

When dressing out your moose separate the windpipe and esophagus by running a knife between them and then tie a knot in the esophagus just in case some stomach juices might flow out.

Take care not to puncture the stomach or intestines but if you do or if the moose has been gut-shot, wash out the body cavity after dressing and wipe it dry.

The anus should be cut free from the body and tied to prevent intestinal contents from spilling out. Search for the bladder and tie it off with a string to prevent spilling urine. If these precautions fail, clean soiled areas immediately.

Blood clots and damaged meat should be removed right after quartering to prevent premature spoilage of the good meat.

Keeping your meat clean and uncontaminated during transportation should take precedence over any anxiousness to get your trophy home. Take care to cover the meat or place it in a vehicle so that dirt and exhaust fumes are excluded while providing plenty of ventilation. Never stack pieces of meat prior to complete chilling below 40°F.

#### **(4) Keep flies off meat.**

Flies are active during the day throughout autumn. Fly eggs can develop rapidly and cause spoilage. The process of dressing out, skinning and quartering or further division for backpacking or canoe portages can take many hours and on a mild, sunny day, flies will soon arrive.

At this stage of handling, covering the meat with cheesecloth or meat sacks is not too handy. A liberal sprinkling of black pepper will discourage flies but may also cover up hair and damaged meat. A white vinegar wash will also discourage flies and will not hide undesirable materials. A disadvantage of vinegar is that a gallon weighs 8<sup>1</sup>/<sub>2</sub> pounds whereas a generous quantity of pepper weighs one pound. In Minnesota hunts, with four hunters on one license, one hunter can be applying pepper or vinegar after another has cleaned meat of debris while the two other hunters are skinning and cutting.

While meat is hung or transported during the day it should be covered to keep flies off. Cheesecloth (about 30 yds. per moose), old sheets, or special meat sacks are all suitable for this. This covering around the meat should be closed to keep flies from crawling in but it should be as

loose as possible to allow air circulation for cooling and drying (a fly-proof tent is best).

During the night when flies are inactive the cloth covering should be removed to allow better air circulation and chilling. This applies primarily when you are several days from refrigeration and daytime temperatures are above 50°F. Do not reuse any cloth for covering meat if it has covered hair. Flies will deposit eggs where blood soaks through a covering so beware of reusing such cloth with the outside in. Cheesecloth is too fragile for re-use to be practical — if you use it, leave it on.

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### **HELPFUL PROCEDURES**

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A moose is huge so plan to handle an animal equal to a medium size horse.

It is common knowledge that a deer, except when shot in the head or high in the neck, will be adequately bled out by the effects of the shot itself. Not so with a moose: most butchers stress the need to make a special effort to drain the blood. Those who might argue this should at least consider the large quantity of blood that is likely to collect in the chest cavity and complicate the cutting of connective tissue during the gutting process. Cutting off the head and neck or cutting deeply at the point where the neck joins the chest so that large blood vessels are severed and the chest cavity is punctured should do the best possible job of draining the blood. If you plan a full head and neck mount consult with your taxidermist beforehand on where to make a cut.

Despite precautions you may take about when to shoot, your moose may drop in open water, marshland, or a dense

brush swamp rather than on dry, open ground. You must be prepared for the struggle to maneuver the carcass to solid ground and then prop it into a good working position. Placing a moose on its back with its head and shoulders higher than the hind quarters has several advantages. The paunch and intestines will settle away from the chest and make it easier to cut the diaphragm free. This position also facilitates pulling out the viscera with the least effort — over the non-bony flank just in front of the hind legs.

At this point you have a choice between doing the skinning or the gutting first. Skinning first has some advantages if you can skin fast. However, most moose hunters can't so it is best in the interest of cooling the carcass quickly to gut the animal first. Skinning first has the advantage of making it easier to remove the entire brisket plate and the entire abdominal wall from ribs to pelvis. When that is done the inside of the moose becomes more accessible and accidental cutting of viscera or your hands is reduced. Because of the larger size of moose, this diversion from deer dressing procedure is very useful. The step-by-step instructions given later describe an intermediate procedure that provides the advantages of both methods.

You must be prepared to move your moose from where it is killed to your vehicle. This requires planning. Consider that unless your moose falls within a quarter mile of vehicle access you cannot just quarter the animal with its hide on and drag it out like four deer. Also, if you shoot a moose after noon you probably will not get it to your vehicle before dark. Unless the weather is cooler than normal, special steps to assure proper cooling of the meat must also be taken at this time. Proper equipment will help you solve these problems. However, before you leave your vehicle to

hunt you must also decide whether you want to walk back to get the equipment necessary to handle your moose properly or whether you wish to carry that equipment with you while you hunt. Your moose may fall a mile away across rough country. Going back to retrieve gear could take several hours at a time when getting the moose cooled quickly is of utmost importance.

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## EQUIPMENT NEEDS

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A moose hunt requires much thought regarding equipment. However, this booklet deals only with what is likely to be needed for producing good meat after your moose is down. Minnesota moose are bagged in situations ranging from farm fields to the most remote swamps, but no matter how easy your moose hunt may seem beforehand it can end up as demanding as a hunt planned for wilderness. Therefore, the recommendations here are for essentially the same equipment regardless of where you plan to hunt. It is far better to have some equipment you do not need under the best circumstances than to lack that equipment when it is badly needed.

Minnesota moose hunting regulations allow one moose for a party of four hunters. The work required to get a moose from where it falls to where it can be butchered and frozen can be divided well among four people. The equipment needed in the field for skinning, cutting, and carrying the meat can also be divided quite equally into almost identical packs for each hunter.

**The more-or-less identical items for each hunter are as follows:**

- A pack frame, preferably the "freighter" type

with a load shelf. Soft packs are unsuitable for carrying large chunks of moose because the load will not balance well, will not be comfortable, and will not be very stable. Pack frames are the best means of moving 500 lbs. of moose meat to your vehicle. They will serve in portaging other gear as well if you are traveling by canoe. A tubular frame of this type weighs about 3½ lbs.

- A 15-20 ft. piece of 1/4-inch nylon rope. Use this only for lashing meat or gear to the pack frame. **Provide other ropes for camp or boat use.** Weight about 1/4 lb.
- A package of reusable wiping cloths such as "handi-wipes". Eight per 1/4 lb. package.
- Meat bags, two per hunter. Make them 30" wide by about 40" tall of unbleached muslin, after washing. Weight of the two bags will be about one pound.
- Plastic bags, four per hunter, heavy duty, 39 gallon size. Four will weigh about one pound.
- Can of black pepper as fly repellent. Weight 1/4 lb.
- A small backpack of 1800-2000 cubic inches capacity to carry gear listed here plus lunch, drinking water, spare socks, and rain gear. Strap this to packframe while hunting, hang on chest when packing moose. Weight about 2 lbs.

**Additional items needed in two's but not in four's are as follows:**

- Lightweight coated nylon tarps, 10 x 10 size, to be used as rain shelter for hunter or meat. Two of these recommended, adding about 2¼ lbs. for each of two hunters.

- Lightweight coveralls, to protect good wool clothing while dressing out moose. Two pairs recommended, adding about 2¼ lbs. for each of the other two hunters.
  - Block and tackle sets for moving moose carcass into better working position. Two lightweight rigs have advantages over one heavy set. These add one lb. for each of two hunters.
  - Bone saws, bow and sabre type. One of each type recommended. Wyoming brand makes a one lb. bow type. Knapp's Sport Saw is a one lb. double edge type.
  - Heavy butcher knives with 5-6" blade, for separating joints. Two needed to cover possible loss, breakage, or use of one while other is sharpened. Weight about 1/4 lb. each.
  - Skinning knives. Have two to permit continuous work while one is sharpened. Hair and hide dull edges fast. About 1/4 lb. each.
  - Knife sharpeners, at least two. The diamond surfaced models sharpen faster and work with water rather than oil. Little extra weight. Because of the size and heavy hide of a moose your knives can become very dull, much more so than when handling a deer.
- This meat processing pack totals 12 pounds of weight for each hunter. It does not include items such as sheath knife, gun, and compass, etc., that a big game hunter normally carries. Food, water, extra socks and rain gear will add 5-6 pounds more. For deer hunters accustomed to carrying little but a gun, knife and rope this may seem excessive. However,

not having such items at hand when they are needed can greatly increase the difficulty of getting your moose out in good condition. Also, carrying some extra weight while hunting will prepare you better for packing the heavy loads of moose later.

If you wish to preserve the moose head for mounting or the hide for leather and you are more than 24 hours from cold storage you should have salt to preserve them. You will need about 6 lbs. to salt down the moose head and cape. To do the whole hide you will need an additional 12-15 lbs. The salt supply can remain with your vehicle.

#### **More about that equipment list.**

**Pack frames** — If you have no other use for pack frames you may not wish to spend \$50 that each will cost. You might borrow some but the risk of damage or soiling of fabric parts is fairly high. If you obtain pack frames without the load shelf you will need additional rope (about 25' per pack) and tying the load securely will be more critical. Army Surplus frames may be available but weigh about 6 lbs. If you cannot get pack frames, plan to carry the moose meat (when weight and distance is too great for dragging) on poles, stretcher fashion. You can cut the poles in the woods (usually) but you will need to bring along some means, such as heavy netting or Army surplus cot covers, to support the meat between the poles. Use of a single pole is not recommended because the load will swing too much.

**Rope** — Essential item. Provide at least 50 feet of  $\frac{1}{4}$  or  $\frac{3}{8}$  inch nylon rope per hunter.

**Wiping cloths** — You will need some material for wiping off water, blood, and debris from the moose meat, yourself, and your equipment. The material should be sturdy, porous, rinseable, and wringable. The commercial products such as Handi-wipes meet these specifications with the least weight and bulk.

**Meat sacks** — Make your own meat sacks. The full-body size sacks for deer or elk aren't quite the right size and shape. You want your sacks just big enough to take a front quarter of a large moose so buy two yards of unbleached muslin for each sack. Muslin comes in widths from 45 to 50 inches. It will shrink about ten percent so wash it before you sew your sacks. Muslin costs about \$2 per yard. Cheesecloth is much cheaper but you will need about 30 yards to provide enough layers over the meat. Old sheets and pillow cases are sometimes suggested but they are usually too thin and weak to provide dependable coverage. Sew a two foot nylon cord near top for tying closed.

**Plastic trash bags** — The large plastic bags on the list should be used only to tie loosely over packs of moose meat being carried from one shelter to another in a rain. A good supply is necessary because even the heaviest ones will tear. Using several layers, they can also carry bloody meat like liver, heart and kidneys.

**Day-pack** — A small pack (1800-2000 cu. in.) has many uses for any outdoors person. A good one will cost between \$30 and \$50. Beware of cheap ones! The sewing may not hold up under heavy use.

**Lightweight waterproof tarps** — These are not cheap at \$40-\$50 but they will be handy on many oc-

casions. Get another bigger tarp for use back at camp or you won't have these with you when you need them. You may have to spend the night with your moose away from camp in a cold rain.

**Coveralls** — Is this going too far? Maybe, but dry cleaning your wool clothes will cost more than a pair of coveralls. At least, make or buy some plastic arm (wrist to shoulder) covers.

**Lightweight block and tackle** — Invaluable for pulling that moose out of the muck. Use it every year to hang your deer. Prices range \$15-\$25.

**Bone saws** — Take two, it's good to have a backup for so little extra weight. Two different models are suggested because, depending upon where you are trying to work, one may work better than the other.

**Heavy butcher knives** — This type of knife works best for cutting through large masses of meat and for cutting through tendons and ligaments to separate a joint. If your moose falls in dense brush these knives will work better than saws or axes to clear a working space. Wide price range. Need not be stainless steel. Cheaper, softer steel is easier to sharpen. Cover blades with light cardboard, wrapped with tape.

**Skinning knives** — A knife designed to make skinning easier. Not expensive since it is a working knife.

**Ice chests** — If you must transport your meat several hundred miles or will be staying overnight on the way, packing it in large ice chests will keep it cool if you once get it cooled down to 40°F or lower. This can only be done, of course, if you completely bone out your moose. An entire boned out moose will require 4-6 ice chests.

**Flashlights** — Be sure to include one headlamp to allow both hands to be free. Be sure you have new batteries in each. Be sure that at least two flashlights are carried along as the party hunts.

## — STEP BY STEP THROUGH THE MOOSE —

Step #1 Approach the downed moose carefully; walk around it and be ready to shoot. If it is lying completely still, stand clear of any kicks and prod it. If the moose does not respond, move around to where you can see the eyes. If the eyes are not open, or open but not glazed, the animal may still be alive. If the eyes do not glaze in a minute or two shoot the animal again either in the head or the heart depending upon which you wish to save.

Step #2 Meat tastes best when all the blood is drained from it. Also, it will be easier to work inside the moose if blood in the body cavity is released. So, cut off the head and neck where it joins the body, make sure the blood vessels and cavity are open and allow it to bleed out. If it is a bull, leaving the head and antlers on can provide some stability for later work. In that case insert a knife 4-5 inches deep along the side of the windpipe where the base of the neck joins the chest. Then cut sideways for several inches to sever the large arteries at the base of the neck. If you want a head mount consult your taxidermist beforehand about this.

Step #3 After the blood has drained, roll the moose onto its back. Try to get the front quarters higher than the rest of the carcass, if possible.

Step #4 To facilitate gutting we recommend skinning the chest and abdominal area first. Beginning at the neck cut described in Step #2 remove the hide from between the front legs, across the entire abdomen, and down between the hind legs. Working from the underside of the hide pull the penis and scrotum back until you can follow the tubes through the pelvic arch. Those tubes should be freed from connecting tissue but first it is best to complete skinning around the outside of the anus (and vaginal opening if it is a female) so the hide from the entire underside of the moose, chest to tail, remains fastened to the carcass only by the rectal and genital tubes. Do not sever the tubes yet, but, using your fingers free them from the body. Pull them out a bit and tie them off close to the body with a string. Still working from the underside of the hide cut off the penis and/or other external orifices at a point between the tie and the hide. This piece of hide with genitals and vents attached is now free to be tossed aside. Exception — save testicles when requested by DNR biologists.

Step #5 This procedure provides a wider opening into the body of the moose and makes it easier to remove the viscera without puncturing the digestive tract or cutting yourself. Instead of making

a single cut down the midline of the moose, do as follows: By looking carefully, and perhaps peeling away some muscle, you will find that the ribs of a moose do not connect directly to the breastbone (sternum). There are short ribs that extend several inches from the sternum to cartilaginous joints with the ribs. The sternum and these short ribs make up a structure called the plate. It is not much wider than the breastbone at the front of the moose but widens progressively toward the rear of the rib cage. Starting at the neck cut made in Step #2 use your heavy knife or a saw to cut through these joints along each side of the chest (an axe is too likely to make a messy cut and leave bone splinters in the meat). One of the hunters can lift this plate as it is cut free so the cutting can be continued carefully (with a smaller knife, edge up, guided by fingers under the wall) to remove the abdominal muscle wall at the ends of the ribs, along the flanks, and around the pelvic area. When this entire piece is removed you have clear access to the moose's innards.

Step #6 Sever the windpipe as far forward as possible if it has not been cut already. Now, unless someone is available to hold the cut end up it would not be a bad idea to tie off the esophagus as insurance against digestive juices flowing out. Then grasp the windpipe and pull up and back. Since the windpipe is slippery, it will be easier to hold if you cut a finger hole in it. The heart and

lungs can be pulled out as far as the diaphragm (partition) that separates the chest and abdomen. Cut this thin layer of muscle away from its attachment to the ribs all the way down to the backbone on both sides. Continue to pull and the entrails will come out readily over the flank of the moose. Now, before you can get everything free of the body cavity you may have to reach (carefully to avoid puncturing the bladder) into the pelvic area to free the rectal and genital tubes. The tubes are tough and you can pull hard on them while tearing with fingers at surrounding tissue to free the tubes from the pelvic arch. At this point you can separate the edible parts of the viscera: heart, liver, and kidneys and place them aside. See our comments regarding edibility in a later section of this guide.

**Step #7** This is a decision-making step. At this point you need to decide whether to —

- (1) haul your moose out intact as it is, or
- (2) quarter the moose without skinning, or
- (3) skin the moose and then quarter it, or
- (4) skin the moose and cut it into pieces smaller than quarters, before moving it.

Your decision here can be the wrong one unless you consider carefully all that is involved in moving the meat without undue strain on the hunters and without risking spoilage. The following criteria should be of some help in deciding.

**Option 1.** Haul your moose out whole only if you can get to a commercial cool room on the same day that the moose is killed and if a vehicle for transportation and some mechanical loader can be driven right to the moose.

**Option 2.** Quarter your moose without skinning only if there is time to get the moose quarters to a cool room the same day but there is no mechanical loader and it is feasible to drag the quarters to a vehicle, that is, relatively easy dragging for one-half mile or less.

**Option 3.** Skinning and quartering your moose is the way to go if temperatures do not fall below freezing at night and it will be the day after the kill before you can get it into a cool room. Or, if you wish to have your moose hide in one piece.

**Option 4.** This is the necessary choice whenever temperatures are not dropping below 40°F at night and are likely to be above 55°F in the daytime, or whenever it will be the second day after the kill, or later, before you get the meat into a cool room, or whenever the meat has to be backpacked any distance.

**Step #8** This is the time to remove those parts of the moose, such as legs and head, that you may prefer not to carry out. If you wish to make either a head or an antler mount please refer to a later section on trophies before proceeding.

Whether you want a head mount, an antler mount, or to discard the head, a good procedure is to separate the head and neck from the body next to the shoulders.

After cutting through the hide, muscles, etc., to the spine all around, the neck can be disjointed by twisting it. Now cut through the hide up the back of the neck to a point between the antlers — or where they would be just in front of the ears. From this cut continue skinning out the neck piece. Next cut through the muscles where the skull and vertebrae join (atlas joint) and twist the head and neck part. The neck section of a moose averages about 40 pounds in weight and will provide a lot of hamburger or stew meat. If you do not wish to save the head and if you will be dragging out the quarters hide — on you might wish to cut off the neck without skinning it.

The lower legs can be removed with just your heavy knife if you locate the joints properly. Look for them low on the knee bend and just below the hock joint. Do not cut the hock tendon — it is handy for hanging the quarter and it is the legal location to attach the tag. After you have cut through the hide and ligaments at the joint, it will separate if you exert enough pressure.

**Step #9** Skinning before quartering is the preferred procedure because the usual temperatures and the time of transporting make it better to have the hide off. Also, skinning is easier when the ani-

mal is still warm and fresh. If it is cool enough and dragging the quarters is not too big a job you might skip this skinning procedure and go to Step #10 which describes quartering. Otherwise, skin as follows: From where you have cut off each leg, start your knife under the hide with the cutting edge up and cut through the hide down the inside of each leg to the cut made when gutting the moose. Your knife will stay sharper and the meat cleaner if the knife cuts from the inside rather than the hair side. Much of the hide can be pulled loose. Use a curved-blade skinning knife carefully to free the hide where it sticks tightly. Skin out the legs and both sides of the moose as far as possible. Then pull the hide out flat on the ground and roll the animal onto one side and skin on down and along the back. Roll the moose back the other way to finish whatever skinning is left to be done. You now have the carcass loose on the spread-out hide. This allows you to move it around while working on it and still keep the meat clean. Caution: On a hillside the carcass may slide off the hide.

**Step #10** Here we describe quartering the moose carcass. The procedure is the same whether the hide is on or off. However, cutting will be more difficult and messy with the hide on because hair will interfere and get on the meat. Yet, if you are close to your vehicle and a cooling room, keeping the hide on will allow you to drag the quarters out.

Judging the effort required in the latter case can be based on knowing that adult moose quarters weigh well over 100 pounds each. If you cut slits in the hide to form loop handles, dragging or other handling will be easier.

If you decide to cut the moose into smaller pieces, either to obtain better cooling or to make it easier to carry, skip this step (the cuts are different) and proceed to Step #11.

To begin quartering, cut the moose in half just behind the last rib. Separate the front quarters by pulling the front half into a sitting position on the last rib and sawing down the center of the backbone. An axe or hatchet can be used but the result will be a rough cut and possibly bone splinters in the meat. Separate the hind quarters by sawing through the front of the pelvis first. Then pull this back half of your moose up on its rump and saw down the center of the backbone. You now have four separate quarters and the neck piece (either skinned or unskinned).

**Step #11** This is the procedure to follow if cooling the meat must be facilitated and/or if the moose must be backpacked or portaged. So you have skipped Step #10 and are about to start where we left off with Step #9: the moose is gutted and fully skinned, laying on the stretched-out hide. The average moose at this stage will weigh 400-450 pounds but can be moved quite easily on the hide if the ground underneath is not too uneven.

Pull the carcass over to one side of the hide so everyone doesn't have to stand on the hide during the course of work — or wipe your feet well. With two hunters holding the moose steady, a third should grab a front leg and pull it away from the body so the fourth hunter can cut between the front leg and the chest. Continue cutting to remove the leg with the shoulder blade intact. There is no bone joint between the front leg and the body. Follow the same procedure with the other front leg. Each of these front legs will usually weigh 40-50 pounds.

Now to the back legs. To cut the hams free of the pelvis most effectively, locate the ball and socket joint by moving the leg. This joint separates quite easily once the muscles are cut. The ham pieces will generally be somewhat lighter than the shoulder pieces but it depends some on just where you have cut in either case.

Next the rib cage. This represents a lot of bone for the amount of meat. If you are in a situation where you need to cut the moose into the pieces we describe in this step, it is advisable to bone-out the ribs. First, work the flesh away from the rib bones all the way down to the backbone on both sides. Some of this will have to be done from inside the ribs. Do not cut the meat off in small pieces but, rather, try to keep it all in one piece. Then score the joints between ribs and backbone with your heavy knife and bend the ribs outward. By doing this repeatedly you will be able to break the ribs free. An alternative

is to saw off the ribs about six inches from the backbone once you have boned the meat to that point.

The back of the moose, neck to tail, with the meat you have cut from the ribs more-or-less attached to it, remains. With a large moose you will want to section this into three pieces of about equal weight. With a smaller moose two pieces may each be of packable size. You can either saw through the backbone to make these pieces or find vertebral joints that can be separated with a heavy knife and some sideways pressure at the spot to be severed.

You now have the body of the moose in about eight pieces. The weight of the pieces will range from 40 to 70 pounds and in total represent about 60 percent of the weight of the moose on the hoof.

If you have a considerable distance to pack your meat, or many portages, you might consider further reduction of weight — especially if you would like to bring out the headskin and/or antlers. Further boning of the meat can save carrying 50-75 pounds of bone and make up for the weight of the trophy. Since the boning-out work is going to take some time and you want to keep the meat out of the sun, especially on a warm day, it would be best if before starting a tarp could be rigged to provide shade.

**Step #12 Inspection and use of internal organs** — As with deer, the heart and liver should certainly be con-

sidered for eating. Other edible parts not so commonly consumed are the muzzle, tongue, kidneys, and testicles. Of this latter group you might try the tongue if nothing else because boiled moose tongue is delicious. Unfortunately, some of the parasites of the dog family find a temporary home in the edible parts of a moose. Therefore, before taking the heart and liver home for the good food they can provide it is advisable to check for parasite damage and pare away any undesirable parts.

**Tongue** — The tongue can be removed most easily from the underside of the jaw. If you are going to have the head mounted for a trophy remove the tongue after skinning the head. Otherwise merely cut open the underside of the jaw and proceed to cut the tongue from its connections. Prepare as beef tongue.

**Heart** — About 2 percent of the moose taken in northwestern Minnesota and about 17 percent of those from the northeast carry the cysts of a tapeworm (*Taenia Krabbei*) found in the intestines of canids (dogs, coyotes, wolves). No stage of this parasite is infective to man but the heart of a moose may be unpalatable because of a heavy infection of the cysts. These will appear as small whitish balls the size of a pea. They may be filled with a clear fluid or they may be calcified and have a yellow color. If there are just a few cysts visible on the heart, or when you slice it, just cut them out and take the rest for eating.

**Liver** — About 51 percent of moose livers from northwestern Minnesota and 15 percent of those from the northeast are infected with the giant liver fluke (*Fascioloides magna*). These leech-like parasites can cause extensive liver damage. In slicing through the liver you may find live flukes and/or pockets of blackish detritus within light-colored pockets of tissue. Do not discard a liver because of color alone. The color of a wholesome liver can vary from sandy to blackish red. Make several cuts through the liver and you may find it unaffected, especially in northeastern Minnesota.

Moose livers sometimes carry the larval stage of a parasitic worm (*Taenia hydatigena*) found in both the dog and cat family. This has occurred in 24 percent of the samples of moose from northwestern Minnesota and in 38 percent of those from the northeast. These globulous cysts are usually less than ½ inch in diameter. They contain a clear fluid surrounding the worm larva. If there are not many of these they can be cut out and the liver can be eaten.

**Precaution** — Do not feed any raw, wild animal organs to your pets. Any parasites are as infectious to dogs as to wild carnivores (their usual hosts). Further, the eggs of a lung parasite of deer and moose (*Echinococcus granulosus*) passed through a dog can infect man just as well as a moose.

**Note** — Normal cooking procedures will kill any parasites. This means that if you trim to re-

move any unappetizing appearance you needn't worry about things unseen.

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### A Few Words on Trophies

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If you wish to have your moose head mounted or the hide tanned you should discuss the project with a taxidermist **before** you go hunting. It is much better to get instructions on how to handle your trophy in the field from the person who will be responsible for the finished product than from anyone else. Doing that will also make you aware of the cost of various trophy preparations beforehand.

You might forego seeing a taxidermist first if you would like the European-type mount of antlers on a bare skull. That or the antlers alone with a cloth covering over the skull cap is the extent of what the average moose hunter should attempt without the assistance of a taxidermist. That may also be about all you can do when you are several days away from refrigeration and/or you have to backpack everything out of your hunting area.

The best procedure to follow to prepare for a skull and antler mount depends upon your means of transporting the head. Antlers alone can be quite heavy, and a large neck and head together may be a considerable load. With adequate transportation you can bring out the unskinned head with the antlers intact. If the weather turns cold enough or if you can get the head into refrigeration, you can process the skull as soon as you have the time. However, if there are transportation problems involving time or temperature and you wish to preserve the whole skull as well as the antlers you will have to remove the hide and as much flesh as possible as best you can. Later the head can be boiled in a

large container until the remaining non-bony material falls off. A few months in a dry place, out of the sun, should complete the preparation necessary before hanging your trophy.

Probably the most practical and economical way to keep a trophy of your hunt is to make a mount of just the antlers attached to a piece of the skull. To preserve this trophy without having the antlers break apart it is best to saw off the top of the skull along a line just above the eyes.

### **Your Cooperation Requested**

In some moose seasons the Department of Natural Resources requests moose hunters to collect biological specimens that will aid biologists in assessing the status of the herd. If such a request has been made, please review the details before you begin to dress out your moose so that you do not inadvertently overlook something that is asked for.

### **In Conclusion**

This booklet is one of the longer treatises on the care of moose meat. However, we believe that it says no more than is necessary. We also believe, because hunting moose in Minnesota is such a unique and desirable experience, that each lucky participant will recognize and appreciate the need for thorough studying and planning in all aspects.