

GUIDE TO MOOSE HUNTING IN WELLS GRAY PARK
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MOOSE HUNTERS' MAP OF WELLS GRAY PARK

I. INTRODUCTION

This booklet has two purposes. It is designed to help people to be better moose-hunters in Wells Gray Park. As a result, it is hoped there will be increased public benefits from the land in this Park.

Wells Gray Park is yours to use. To hunters and others, it is a wild area without fences and "No Trespass" signs. Here is your place to wander at will over wild lands among mountains, lakes, and rivers abundant with game and fish.

Here the hunter will find moose, deer, caribou, black bear, grizzly bear, mountain goat, and four kinds of grouse. He may also see coyote, wolf, wolverine, and a host of protected fur-bearers. Kamloops trout inhabit most waters, and lake char are found in one large lake.

Some people may disagree with parts of this books. A lot of ground has been covered and there will be some errors. Constructive comments will be welcomed and, in the meantime, it has been the aim to provide information that is factually correct.

This book is about moose and moose-hunting in Wells Gray Park. It is hoped, however, that it will have some value in other areas where moose occur in sufficient numbers to attract hunters.

The sections on rifles, back-packing, and food were compiled by L.E. Cook and C.W. Shook.

II. PLANNING THE HUNT

A. Equipment and Supplies

Successful hunts begin with proper planning at home. This should include the selection of equipment. Hunting, killing, dressing, and packing out a moose add up to a big job. To do it properly requires proper equipment. Moose have been killed with .22-calibre rifles, using rim-fire ammunition, dressed out with pocket-knives, and the carcasses packed out without benefit of pack-boards, but this is not the easiest and most convenient way. There are many people who go hunting improperly equipped. They hunt under a handicap and sometimes spoil their hunt as a result.

The following list is a guide to equipment needed. In subsequent pages the types of equipment which seem superior under hunting conditions in Wells Gray Park are discussed.

Minimum Equipment for Hunt

- rifle and ammunition
- compass
- hunting knife
- axe
- whetstone
- pack-board or pack-sack
- matches in waterproof container
- shelter (tent, tarpaulin, etc.)
- food
- cooking and eating utensils
- adequate clothing
- wool blankets or down sleeping-bag
- ground sheet
- air mattress
- flashlight
- First Aid kit

Optional Equipment

- binoculars
- meat-saw
- meat-sacks
- fly-proof tent for meat
- .22 rifle or shotgun for grouse
- fishing tackle
- stove
- snowshoes

B. Rifles and Ammunition

An extract from the Game Regulations should be noted here:

“In the hunting of big game the use of any rifle loaded with rim-fire shells, the use of full steel (hard point) metal-cased bullets, and the use of any firearm that can be or is classed as a machine gun or sub-machine gun is prohibited.” (Section 7)

Game Regulations can be obtained from local Game Wardens or by writing direct to the Game Commission, 567 Burrard Street, Vancouver 1, BC.

Some hunters visiting the Park have carried and used weapons which proved unsatisfactory, both as to killing power and type for use in brushy country. It is not the intention to restrict the use of any legal rifle, but rather to point out mistakes others have made so that hunters may know the limitations of their rifles and so be better equipped to hunt.

The average shooting range for moose in the Park is between 100 and 300 yards. Most moose are found on brush-covered ridges, so it is necessary to use cartridges suitable for this kind of shooting. Light, high-speed bullets differ from heavier types driven at lower velocities in tending to deflect upon touching small obstructions.

A list of rifles, with the ammunition recommended, follows, divided into three groups, each with brief comments following.

Group 1

Rifle	Common Weight of Bullet (grains)
.270 Winchester	150 or 160
7x57 mm. Mauser	139 or 175
.30-40 Krag	180 or 220
.30-06 Springfield	180 or 220
.300 H & M Magnum	180 or 220
.308 Winchester	180
.303 British	180 or 215
.348 Winchester	200

Each of the above rifles is adequate if the cartridges are of proper weight. Most cartridges are good at ranges up to 400 yards. These rifles should be sighted in at 200 yards, which eliminates the need to allow for bullet-drop at ranges to about 300 yards.

Group 2

Rifle	Common Weight of Bullet (grains)
6.5 Mannlicher	160
.30-30 Winchester	170
.300 Savage	180
8 mm. Mauser	170
.303 Savage	190
.33 Winchester	200
.32 Special	170
.35 Remington	200

These are suitable at moderate ranges up to 200 yards. At greater distances their effectiveness is reduced sharply and chances of crippling a moose are increased. Most of these are excellent “bush” guns and their popularity is well founded, but common sense must be incorporated into their use. Long shots should be avoided.

Group 3

Rifle

.22 H.P. Savage
.250 Savage
.257 Roberts
.220 Swift
.222 Remington
.25-35 Winchester
.32-20 Winchester
-25.20 Winchester

These rifles are designed for small game. It is foolish to use them as moose guns, even though a few hunters might have occasional success with them.

C. Sights and Sighting

Effective shooting takes practice. Do some shooting before starting your hunt. Target practice on the hunting grounds is a mark of inexperience.

Regardless of the type, weight, or value of your rifle, it is no better than the sighting device that it carries. Care should be taken to ensure that sights are of suitable type and are rugged enough to withstand rough treatment in the field. Expensive sights are not needed, but those suited to the hunter's experience and eyesight are essential.

Open or V-type rear sights with bead front sights are the combinations issued with most rifles. These are fast and reasonably accurate.

Peep sights consist of a small disc with a hole in the centre, through which the front sight and target are lined up. This sight requires considerable practice for accurate use, is fairly fast, and can be very accurate.

Telescopic sights (2 1/2 and 4-power) are give fast, accurate sighting. Their accurate use requires much practice but, once mastered, they are superior to all other types of sporting sights. For inexperienced hunters, these sights may black out at close ranges. 'Scopes with limited field should be avoided. Good ones have adequate field, even at only 10 feet from the target. Rubber caps should protect the lenses in wet weather. It is not advisable to mount 'scopes on rifles in Group 2 (above) for the effective range of these arms is short enough to make magnifying sites unnecessary. Exceptions are hunters with poor or failing eyesight. A 'scope may give years of enjoyable and successful hunting otherwise impossible. Some 'scopes will fog inside with sudden temperature changes. Those with sealed lenses will not give this trouble.

Range Table for Some Cartridges (Winchester) All Soft Points

Cartridge	Weight of Bullet (grains)	Path of Bullet Above or Below Line of Sight (inches)				
		50 yards	100 yards	200 yards	300 yards	400 yards

.270 Winchester	150	+0.7	*	-6.2	-19.8	-43.4
			+3.0	*	-10.5	-31.0
7x57 mm. Mauser	175	+0.8	*	-7.3	-24.2	
.30-06 Springfield	180	+0.7	*	-6.5	-21.0	-47.0
			+3.1	*	-11.3	-34.0
	220	+0.8	*	-7.6	-25.4	-54.7
			+3.9	*	-14.0	-39.5
.303 British	215	+1.1	*	-10.0	-32.0	
.348 Winchester	200	+0.8	*	-8.0	-25.5	
			+3.8	*	-13.5	
.30-30 Winchester	170	+1.2	*	-9.1	-31.4	
.300 Savage	180	+0.9	*	-8.4	-27.1	-60.3
			+4.1	*	-14.5	-43.5
.303 Savage	190	+1.3	*	-12.0	-40.5	

* indicates distance at which gun is sighted in

D. Estimating Distances

This is difficult yet essential for accurate shooting. A good way to practice in the field is to estimate distances to objects, then check your estimates by pacing off the distances. On rainy days, you will find your estimates differ from those on clear days. The time of day may also affect accuracy.

Another method used by some hunters is to set up an object 6 feet high and broad enough to be seen at 500 yards. A moose stands about 6 feet high at the hump. Check the apparent height of your "moose" at measured distances of 100-yard intervals up to 500 yards, noting the heights of the object on your front sight.

E. Hunting Knives and Axes

Knives should be of good steel, sturdy, and a good shape for skinning. Butchering a moose is a big job and the most work is in removing the hide, hence the need of a well-curved cutting edge. the handle should be well-shaped to fit the hand and there should be a good guard between blade and handle. This last is especially important because blood and fat make the handle slippery. The blade should be 4 to 6 inches long to reach through thick meat.

A light axe is useful for splitting the pelvis and brisket for easier removal of the entrails. Do not attempt to cut leg bones with an axe, as it will dull the edge. A sharp blow with the back of the axe will break these bones and save the edge. An axe weighing only a pound or two is adequate. You axe will also serve to make blazes, so your kill can easily be found on your return.

F. Matches

At least a dozen matches should be carried by every hunter. Dry matches can mean the difference between life and death. Several waterproof match-cases of good design are sold. Matches embedded in paraffin wax are also suitable, and not likely to be used for smoking.

G. Compasses

Constant use of a compass is necessary in brush and timber country. The numerous streams, meadows, and ridges can become confusing even to the experienced. Carry and use a reliable compass. The needle will not point true north in this region, but 24.5 degrees east of true north.

Study a map of the Park before you hunt. Note the position of rivers, roads, etc., from where you will hunt. No matter how badly you are turned around, a compass can get you out, but only if you know which way is out. With a good compass, a sketch-map, and some thought once in a while about where you are on the map, you can't get lost, only temporarily confused.

H. Food and Cooking Utensils

Food cannot be bought in the Park, and the only meals obtainable are those served by some lodges and guides' headquarters near the Park. The closest stores are at Clearwater on the North Thompson River. Hunters will be surprised at the speed at which food supplies disappear because of outdoor appetites. The following list is a general guide for a party of four out for a week:

- 15 loaves of bread
- 4 boxes biscuit-mix
- 5 lb. flour
- 4 boxes dried cereal
- 3 lb. dried fruit or 12 can fruit or juices
- 15 lb. potatoes
- 3 lb. onions
- 2 lb. rice
- 2 boxes spaghetti or dry spaghetti dinners
- 2 bottles catsup
- 2 lb. soda crackers
- 12 OXO cubes
- 6 packs powdered gravy
- 2 - 4 lb. cheese
- 1 tin syrup
- 2 lb. coffee
- 6 lemons
- 1 box tea bags (1/2 lb tea)
- 5 lb. sugar
- 2 bars semi-sweet chocolate (large)
- 1 tin peanut butter
- 1 pkg. salt
- 1 tin pepper
- 1 pkts. prepared pancake flour
- 8 lb. bacon

4 lb. butter
6 doz. eggs
12 pkts. dried, or 12 cans, soup
fresh meats, depending on keeping qualities, or
12 cans meat
8 cans (tall) milk. Powdered milk may be better in freezing weather.
1 lb. lard
Other items can be added according to taste.

Food preferences differ, so this list must be regarded only as the choice of one group of hunters. Vary the list to suit your own tastes, but take comparable quantities. Plastic bags are excellent for lunches, leftovers, and keeping items, such as salt, dry. Bring enough cooking utensils to prepare and eat a complete meal, rather than doing it in piecemeal style.

I. Camping

Camp-sites are available in the Park, near the road. They consist of a space for your car, a fireplace for cooking and warmth, a supply of wood, table and benches, tent poles, and a place to pitch your tent. Use garbage cans provided for tin cans and other items that will not burn.

Camping by the road is convenient, but you are then some miles from the best hunting country. You will have better hunting by camping well off the road, or by using a smaller camp, perhaps 5 miles from a base camp at the road. A lightweight camping outfit save much hard work in setting up a camp away from the road.

J. Clothing

Fall weather in the Park can be cold. Outfit for zero temperature to be sure of comfort but, at the same time, have a lighter outfit suitable for warm weather. Woollen underclothing with woollen shirt and pants are best in cold weather and will keep you warm even when wet. A complete change of clothes is a "must". Waterproof jacket or coat are necessary and gloves are useful. Canvas and denim clothing are noisy in the brush. These should be avoided if possible. To test your clothing, try walking through brushy vegetation with a companion close by to tell you which articles make the most noise. You will be surprised how far waterproofed "tin pants" and jackets can be heard.

Cleat-soled rubbers are good in all weather, because meadows and streams will be crossed often. Heavy boots, logger style with caulks, are good but noisy. If other clothing is quiet, heavy caulked boots will often give you away. Rubbers should be close fitting. A sloppy pair makes a thumping sound as you walk and will also raise blisters.

It is a good idea to wear some bright red clothing. An intense yellow is even better. Red and black checks are poor, and may look brown at a distance.

K. Binoculars

Buy your glasses at a good sporting-goods or optical store. You should have the following points in mind: (1) the glass must be light and sturdy; (2) it must have a wide field with good magnification; (3) it should not be so powerful that it cannot be held steady in the hands. Perhaps the best binoculars for moose-hunting are the 6 x 30 (six power, 30 mm. objective lenses). This type gives an adequate field, good magnification, and is compact. Look through binoculars *the*

wrong way to detect flaws in optics. Compare methods of holding lenses and prisms in place, at a good store, before buying.

L. Allow Enough Time

Failure to allow sufficient time for hunting causes some moose-hunters to leave the Park disappointed. Hunters from the Coast should allow about thirteen hours of steady driving to travel the 380 miles to the Park. In other words, two days of travelling are needed to make the round trip. There are 275 miles of paved road to Kamloops, 83 miles of improved gravel road from Kamloops to Clearwater, and 23 miles of dirt road from Clearwater to the Park. The last road requires slow and careful driving, especially with modern, low-slung vehicles. Two hours is average for this 23 miles. The full trip from Kamloops take about five hours.

Add to the travelling time a half day for making and breaking camp.

If the hunt is successful, about one full day will be spent butchering and packing in your moose. This leaves three days for hunting if you drive from the Coast, camp, have a successful hunt, and have only a week to spend away from home. In addition, hunters will need at least a day to locate a good hunting area with fresh moose sign.

Hunters from the Coast would do well to look for a hunting area closer to home if they have less than a week at their disposal.

M. Services Available

Many hunters require the services of a guide, or want to rent cabins which are available near the Park. Arrangements for these should be made in advance to avoid disappointment.

Those who wish to have kills packed out by horse should contact packers in advance to be sure that packing service is available in the area to be hunted. Rates will probably be reasonable if your kill is near the guide's headquarters, but may be more than you wish to pay if it is some distance away. Transporting a dead moose is a big job. Consider this before shooting an animal far from a trail where no horses or other transportation are available.

Before bringing your own horse into the Park, make sure you have adequate feed for it. Natural pastures are scarce and feed is not available in the Park in late fall. (Note: Permit to transport horses by motor-vehicle is required, obtainable from the Royal Canadian Mounted Police or a Brand Inspector.)

Many hunting areas are difficult to reach by horse. Hunters should not bring pack or saddle animals unless familiar with the Park. Some hunters have been disappointed by bringing horses and then finding little opportunity to use them.

In some years, snow is rather deep by the end of the hunt. To date, the road has always been kept open except for short periods. Obtain a road report from a Forest Service office if in doubt.

N. Registration and Information

Visitors are asked to register at the Ranger Station both upon entering and leaving the Park. The person on duty will be able to direct you to the better hunting regions and to answer most of your

questions. (You must find your moose yourself, but tips from the Ranger Station often result in a successful hunt.)

Regulations, seasons, and tagging requirements are to be found in your Game Department Hunting Regulations booklet. If in doubt, ask any Park Officer. Please note that most game taken from the Park must have a special tag attached by the Forest Service.

O. Roadside Camp-Sites

Several camping-spots are located by the road in the Park. (See "Camping" for facilities provided.) Elsewhere are cleared areas along the road where one may turn off and pitch a tent. Wherever you camp, please do not destroy green trees, and leave a clean camp-site for the next fellow.

P. Camping Tips

The experienced hunter makes a comfortable camp. Have lots of dry wood. If the weather is wet, cover your wood supply to keep it dry. Keep some drying near the fire for quick heat and an early start in the morning. Drying racks for clothes will ensure a dry outfit to start the day. A neat tent with a comfortable bed contributes toward the pleasure of the trip. The hunter with an efficient camp will be able to hunt long days afield knowing he will find comfort at night when he returns. Time spent on making a good camp is never wasted.

Q. Hunting Safety

Don't let your hunt be marred by an accident. Safety should begin with choosing your hunting companions. If they do not practice common-sense safety, don't risk your life by hunting with them.

From the start of the hunt to the finish, every hunter has the responsibility to himself and to his fellow hunters to be careful. A big-game rifle is an efficient killer. Treat your firearm at all times with the respect that you would give a loaded rifle. It is a good habit to leave the chamber empty when travelling with companions. It takes only a second to slip in a shell when game is sighted. In thick cover and when alone, you may want a shell in the chamber for a quick shot, but be sure that your safety catch is really safe.

R. Overnight Trips

Before leaving on an overnight trip, or if you think there is a possibility that you may be out overnight, let your companions know your intentions. If you are hunting alone and plan to be out overnight or away from your camping-spot for some time, tell someone at the Ranger Station about it. A prompt search is made if anyone is overdue, but unnecessary searches waste the time of your fellow hunters and of Park personnel.

If you happen to find yourself far from camp in late afternoon, start to make yourself comfortable well before dark. A night out isn't too tough if you are ready for it. There are many pitch-laden fir stumps in the burns which can be found by looking for their yellow stains. One large stump may give warmth all night. Look for fir or cedar bark and make a shelter with it, if the night is rainy or snow is falling. Check in at your camp in the morning and let your companions know that you are safe.

III. HUNTING MOOSE

A. Migration

In Wells Gray Park, moose move slowly down to lower elevation in the fall, from ranges where they summer. Fall migration is a gradual drift of animals to better feeding-grounds, and it follows a similar pattern every year with the exception that the time of migration is earlier if the weather is cold and stormy. It is important that hunters be familiar with this pattern and plan their hunt accordingly. A balmy autumn means fewer moose at low elevations. The later you hunt, the better the hunting, but the more uncomfortable the weather.

B. Abundance

By the late summer, moose are scattered over most the Park except for steep, rocky regions above timber-line. It is estimated that over 1,500 moose inhabit the Park in a summering range of 500 square miles or more. This represents a moose density of less than three animals per square mile. By late winter, moose are concentrated in a much smaller area. In the spring of 1952, 2,000 moose were confined to 60 square miles of the Clearwater Valley, giving an average density of thirty moose per square mile. In parts of the winter range, densities are even greater, with up to fifty moose in a square mile of range. Fall densities are between these two figures. There are lots of moose to be had, if you can find them and can get them out, once you shoot them.

The remark is often heard "all the moose have been driven out of the country". This is seldom true even in the most heavily hunted parts of the Park. When moose have been disturbed by continuous hunting, they are less easy to find than when not pursued. However, the chief effect of hunting is to change the *local* distribution of moose. They are found in denser cover, but are in the same general area as before. A moose runs faster than a deer when startled, but seldom travels for more than a mile. The next time it is disturbed, it may run in the direction from which it originally came. If disturbances continue, local areas with little cover may have few moose, but the good hunter will find his moose, or at least fresh sign, no matter how much previous hunting has been done.

C. Moose Sign

It is best to devote a good deal of time to locating sign. By doing so, you will find the exact localities where moose are feeding, travelling, bedding-down, etc., and a lot of time can be saved by avoiding places where sign is scarce or absent. During this initial scouting, note also the signs of your fellow hunters. Get off the beaten track even if it does mean a little tougher travelling. You will have better luck if you avoid the tracks of others and stick to game trails as much as possible.

While you scout, constantly shift your attention between the search for moose and the search for sign. The most obvious and abundant evidence of moose presence is tracks. Other sign includes: droppings, beds, browsing-sign, rutting-pits, and rubbed trees. Each of these is dealt with separately below.

Tracks: Tracks of an adult moose are roughly 5 1/2 inches long and the distance between tracks in a walking-stride is from 2 1/2 to 3 1/2 feet. Distance between tracks of a running moose is from 4 to 5 feet. Deer tracks are much smaller than moose. Even a large buck deer's track will be considerably smaller than that of a calf moose in the fall. Despite popular belief, it is virtually impossible to distinguish between the track of a bull and that of a cow with any degree of accuracy.

Determining the age of tracks is of utmost importance and is, in some cases, relatively simple. Remember carefully the weather of the preceding days or hours. How long since the last rain? Have the mud chunks thrown up from that stream been frozen yet? Look at your own tracks in various types of soil and note how they have aged the next time you see them. These tips will help you to know approximately how old tracks are.

Pellets: The most abundant moose dropping are groups of pellets, oblong to round in shape, varying from light brown to almost black in colour. Oblong ones somewhat resemble pecans, while the round ones are slightly smaller than a walnut. These hard droppings of well-defined shape are formed during late fall and winter when moose are on a diet of browse with little leafy vegetation. When moose are on a "soft" diet, the dung is soft and shapeless, and resembles that of a domestic cow. There are degrees of intergradation between these soft and hard pellets, and sometimes they may be in a string, joined by a sausage-like casing.

When most fresh dropping seen are of the soft type, look for moose near the edges of swamps and in other places where leafy vegetation is abundant. If the well-formed type is common, moose will be found browsing on willows in the burns, on dogwood along streams, and on false box on the hillsides.

Beds: Moose beds are conspicuous if in swamps or meadows. The flattened grasses or sedges in patches about 6 feet by 4 feet are easily recognized. Beds are found in damp places and even in water-covered ground if the weather is warm. Open ridge-tops may also be used on occasion. Moose often bed down in the same locality for weeks if undisturbed. If several beds are found in a region, hunt the area carefully; it will pay off. When moose bed down, they face downwind, ears and nose being relied upon to detect danger from behind. For this reason, they are most difficult to stalk successfully when bedded down.

Rutting pits: Moose rutting pits are made by the bulls before and during the rutting season. These pits are shallow excavations, usually a few inches deep, and may be circular or oblong with an area about 6 square feet. They are found in the damp earth of meadows, sloughs, and other low ground. Pits found in September may indicate a bull in the vicinity, but through October and November they are not necessarily an indication of good country to hunt unless there are fresh tracks also.

Rubbing trees: Rubbed trees are another indication of moose activity. Alder and lodgepole pine are favourite for rubbing. The bark is often shredded by repeated rubbing of the antlers and by biting and stripping away of bark with the teeth. Rubbing continues through the fall and into winter, and is by no means confined to the rutting period.

D. Browse Sign

Food preferences change through the year, but in most seasons all moose in the same general area are eating the same foods. Look closely for signs of browsing, which are usually found from about 6 inches above the ground to a height of 9 feet. You will soon learn to recognize the plants on which moose are feeding and will be able to recognize good feeding-places once you know the favourite foods.

E. Reading Sign

Try to work out the meaning of moose sign. Many tracks of different ages going in the same direction indicate migration is underway. You may find tracks of several moose that went in one direction about a week or more ago. Something may have caused them to move to a new area. Tracks going back and forth indicate a travel route for local moose; you may want to stay and watch this route.

The best way to find the "why of sign" is to follow it and keep your eyes open. Your hunt will be much more interesting if you snoop about and do a bit of detective work. By so doing, you can keep in good hunting country instead of ranging far through much territory which has no moose at the time.

F. Moose Senses

Moose are equipped to detect danger by hearing, sight, and smell. Perhaps a combination of smell and sound most frequently alarm moose.

Smell: Their sense of smell is very keen. Under proper conditions, it is not uncommon for a moose to smell man a quarter to half a mile away, but in most parts of the Park where there is brush and broken topography, the effective smelling range is usually not more than a few hundred yards.

Hearing: A moose's hearing is acute. In crusted snow, moose may hear a man on snowshoes half a mile or more away. Although no comparative measurements have been made, it is safe to say that a moose's hearing is far better than a man's.

Sight: Moose have good vision, but it is not considered exceptional. Their eyes, like those of most hoofed animals, cover a wide field. Each eye commands a separate field of vision, making judgment of distance and the seeing of stationary objects difficult. Moose depend on their eyes mainly to detect moving objects. A hunter remaining stationary is not likely to be seen by moose even at close range, while a moving hunter maybe seen half a mile to a mile away. Polished metallic surfaces, like gun barrels, butt plates, and cap badges, should be covered or darkened. Glittering objects may attract attention at long distances.

G. Use the Wind

Hunt into the wind whenever possible, as moose are readily able to detect scent. Plan your hunt according to wind direction when you leave camp. If the wind is at your back at the outset of the hunt, travel rapidly to your hunting territory, skirting those areas which you suspect to contain moose. Hunt these places slowly and carefully on the way back.

You may find that wind direction changes fairly often. Check constantly for these changes. Bits of grass, crushed leaves, etc., can be tossed in the air to check on wind drift when currents are light.

On windy days, game tends to be more wary than at other times, so one must hunt carefully, even though sound is deadened by the noise of the wind. Running shots are frequent at such times and one should be prepared for them. Lead running moose even when using high velocity rifles and ammunition. With bullets travelling about 3,000 feet per second, a lead of about 6 feet is necessary to hit a moose 200 yards away and running at right angles to the path of your bullet. A lead of 9 feet is necessary with slower bullets movin about 2,000 feet per second. At shorter ranges the lead must be proportionately less. Only in most exceptional circumstances should one try to shoot a running moose at distances greater than 200 yards.

H. Hours to Hunt

Nearly all game animals are most active just after dawn and just before darkness. Moose are no exception. Hunters should use these times of day, even if it means extra work. In suitable weather, a sleeping-bag and some food may be packed to a good hunting area and you will then be able to hunt during the best times of day. If the weather is poor, get up well before daylight and walk to the hunting grounds. If this routine sounds hard on the sleeping-schedule, remember that the animals having a siesta in midday. You can do the same.

In early autumn, moose are more active in cool or cloudy weather than on hot, sunny days. They are also more active just before and just after storms than in stormy weather itself.

I. Hunting in Rutting Season

Mating activity for moose in the Park is greatest from mid-September to early October. Most cows are bred during this period, although some breeding takes place in October and November. Bulls move about considerably, seeking cows at the height of the rut. Travelling bulls may be found almost anywhere during the rut, and are often unwary at this time.

Both bulls and cows make a variety of sounds throughout the year, but are most vociferous during the rutting season. The calling of moose has had varying success in the Park. It is difficult to describe the proper sounds used in calling, but any series of low grunts repeated at intervals seems to attract bulls. Birch-bark horns and even bottles are used to give the call proper resonance. One should be alert for sounds in the rutting season, and try to imitate them when possible. Patience and selection of a good stand are important in calling moose. Remember that the most seductive noises are of no use if there are no moose within hearing. Rubbing old antlers together or shaking bushes are often enough to attract a bull. Some care is necessary when calling moose, for bulls coming to a call are often belligerent and spoiling for a fight.

The wind is important in moose-calling, as in other forms of hunting. Moose will usually approach from the downwind side. The hunting-stand should give a clear view because, if an approaching moose gets close enough to wind you, he may leave at once.

J. Using Drives

The method of driving is simple. While some hunters stand with open views of places where the moose are likely to emerge from cover, others go into the cover and proceed to drive the moose out. Two or more hunters can use this method. The best stands overlook used trails leading out of the cover to be driven. The drivers should walk slowly through the thickets in an nearly parallel courses as possible. No unnecessary noise should be made and the moose should be allowed to emerge unhurriedly, so lookouts will have an opportunity for standing or walking shots. Sometimes drivers are able to shoot moose, but in most cases the shooting is done by men on stands. These should be prepared to shoot once the animal is seen, for often the moose is running, but at the same time there must be extreme caution, for fellow hunters are down there too.

The following points should be remembered in making a drive:

- (1) Moose tend to run up-wind when possible;
- (2) If not pressed, moose will stop to look about to see if they are being followed;

- (3) Moose follow the easiest route when not pressed, and travel in the direction of thick cover when possible;
- (4) Moose are less prone to double back than are deer;
- (5) Short drives are more successful than long one.

Driving has been a popular method of hunting in some parts of eastern America and in Europe, but has not found widespread favour in the west. However, good results have been obtained using this method in this Park. If you are in a party, it may be worthwhile to try this method if other methods have failed.

K. Spotting Your Moose

Though moose are large and conspicuous animals when standing in the open, many are overlooked by hunters even when in plain view. This results from moose often remaining motionless for long periods. Intervals between feeding periods are long, and even when feeding, their movements are usually quite slow.

As the dominant colour of moose is black, they are often overlooked as burnt stumps or windfalls. On the other hand, much time can be wasted looking at stumps, etc., which you hope will turn out to be a moose. Many such objects can be eliminated by comparing their size with some object of known size nearby. A moose lying down will be about 6 feet in length, a standing moose 8 feet. While hunting open burns, one should constantly mentally map the positions of objects which may be moose. Periodically checking for changes in these positions, one can search other areas where moose may be.

Binoculars should be used to supplement searching with the naked eye. But no matter how wide the field offered by binoculars, it is small compared to the field of unaided eyes. For this reason, movements may be missed if binoculars are used for long periods.

Scanning with binoculars involves covering the visible country with horizontal sweeps. Each sweep should slightly overlap the one previous. Sweeps should be made slowly and deliberately, with special care given to ridge tops, edges of meadows, and fringes of timber. Binoculars should always be used immediately to examine distant objects which may be moose.

The focus of binoculars should be checked constantly, because eyes tire quickly when improperly focused glasses are used. If your glasses become knocked out of alignment during the hunt, they should be used sparingly until repaired.

After a moose is sighted, always look carefully around it for moose often travel in pairs or small groups. The trophy bull you want may be standing only a few yards from the 2- or 3-year-old which you first sighted. There may be a nice young cow near that tough old bull which you don't especially want.

L. What Kind Of Moose Is It?

It is often difficult to determine whether an animal is an adult if there is only a single moose in sight. The following points may be useful in this determination:

- (1) Calves vary from adults in having shorter, blunter heads. An adult's ears appear roughly one-third as long as the head, while a calf's ears are a little less than half as long as its head.

- (2) A calf has an upright mane which extends just back of the shoulders. In older animals, the hair lies more or less flat over the entire back.
- (3) Calves in the fall stand about 5 feet at the shoulder, which adults are about a foot taller. Calves at this time weigh only about 200 pounds, live weight, although long hair and rangy build may make them appear deceptively large.

Although some bulls do not shed their antlers until after December, some may lose them during the hunting season. It is rather difficult to tell antlerless bulls from cows. Whitened areas just behind and slightly above the ears will identify antlerless bulls, but if this is not visible, the colour of the top of the snout is another good sex indicator. Cows tend to be greyish-tan to the end of the snout, bulls usually have a darkened band across the lower half.

M. What Moose Do You Want?

When picking an animal for good eating the following is the order of preference:

- (1) yearlings of either sex
- (2) young cows
- (3) young bulls
- (4) old cows
- (5) old bulls

Cows without calves at heel tend to be somewhat fatter than those with calf, but the difference is usually not great. Do not pass up a cow because she has a calf with her. As a general rule, the darker-pelaged animals are younger than greyish moose, but this is not always so.

Trophy hunters will have to settle for a medium-sized head when hunting in the Park. A spread of 45 inches is considered well above average and one should take any animal which appears to have a spread of this size or greater. Some heads with over 50-inch spread are taken yearly, but these are not common.

IV. SHOOTING MOOSE

A. Target

Pick a target on your animal and shoot for this spot. Figure 1 shows the vital areas. The body area is the preferred target for most hunters. It is large, no large bones interfere, and there will be little damaged meat. A hit in this region will almost certainly kill a moose, but it will seldom drop in its tracks even when hit by the most powerful rifle. If an on-the-spot kill is required, a head, neck, or spine shot should be attempted. This should be tried only by good marksmen.

Figure 1: Two areas to aim for

B. Aim

With modern rifles and ammunition, no adjustment of sights is necessary when shooting at ranges up to 300 yards with a rifle sighted in for 200 yards. Two hundred yards is the maximum distance that the average hunter should attempt with iron sights. With a 'scope sight and high-powered rifle, moose at ranges up to 400 yards will be fair game. Correct estimation of distance is important in long-range shooting for the flight of a bullet follows a curve. Study of ballistics tables and trajectory charts will show how curved this flight is. But remember, a knowledge of trajectories is of little value if the hunter judges distances incorrectly.

C. Buck Fever

Most hunters occasionally experience "buck fever". If possible, wait until you are relaxed before shooting. If the moose has not seen you, or it is in the open and in no apparent hurry to leave, try a couple of "dry shots". When you have relaxed, slip in a shell and fire. Use a rest whenever possible.

V. AFTER YOU SHOOT

When a shot is fired and the moose is not brought down, the hunter is morally obliged to examine the spot where the moose was standing and to examine his tracks for 50 yards or so for blood sign. Moose often give a characteristic humping of the shoulders and arching of the back when hit. This flinch may be difficult to detect and it is quite possible for a mortally wounded moose to appear as though it was not hit at all. A running moose may not even break stride when solidly hit with heavy calibre bullets. Your moose may be dead within 100 yards, but if care is not taken to look for sign of blood, it may lie in an alder thicket to fatten a bear or attract ravens and jays.

When searching for blood sign, look on bushes, windfalls, etc., as well as on the ground. If you find blood, it is then useful to know where your animal was hit. If the blood is frothy, the lungs have been hit; if it is a purplish colour, it has come from the liver; if greenish fluids are present, the digestive tract has been hit. Height of blood on bushes and its distribution on either side of the trail will help indicate where the wound is.

It is a good plan to wait about twenty minutes before following a wounded animal. If mortally wounded, it will lie down before going far, unless it is disturbed. If followed, it may go a mile or more before dropping. Even slightly wounded moose may not go far if not chased at once. If left too long, however, the animal may die and decomposition will set in rapidly, especially in warm weather.

When possible, two or more hunters should follow a wounded animal, one staying on the track, the other circling to cut off the animal. Tracking should be done as slowly and as quietly as possible, to ensure a shot at the wounded animal if it is encountered again.

VI. DRESSING THE KILL

Moose should be dressed immediately after they are killed. Digestive juices in the stomach and intestines can spoil meat rapidly, even in the coldest weather. The insulating qualities of the hide keeps heat in the body cavity and brings about rapid decomposition if the entrails are not removed.

The animal should be bled, unless a bullet has severed a large artery in the neck or near the heart. Cut deeply into the neck to ensure that main blood vessels have been severed.

The animal should then be moved into position for skinning and cleaning. The usual procedure is to raise the head and front quarters on windfalls or sloping ground so the entrails can be drawn out over the hind legs with the help of gravity. If you are alone and the animal cannot be moved into proper position, it may be simpler to remove the viscera from the side or through the chest cavity and over the neck.

Skinning may be done before or after the animal has been cleaned. It is better to dress the animal first, if you are not experienced at skinning.

The opening cut for dressing is usually made between the hind legs and continued forward along the mid-line on the underside of the body. As you cut forward, the hide is lifted from the entrails between the index and second fingers of one hand while the free hand wields the knife, which cuts *up*. By doing this you will not slash into the intestines or paunch, allowing digestive juices to spoil good meat. The chest cavity is opened by cutting the mid-line of the "rib-basket" with an axe or meat-saw. The windpipe and oesophagus (food line) are cut away from the underside of the jaw and hauled backwards. The oesophagus should be knotted as soon as cut, to prevent juices from flowing out. Below the lungs, the chest cavity is separated from the intestinal cavity by a partition (diaphragm). This must be cut away carefully, making sure that the knife does not puncture the paunch (stomach). The danger of cutting into the paunch will be less if the hind end of the animal is well below the front quarters. With the diaphragm completely removed, the entrails will come out readily over the hind end of the animal when a steady pull is given on the windpipe. The anus should be cut out from the outside after it has been loosened from the inside as much as possible. Be careful not to puncture the bladder while freeing the lower end of the intestine.

Edible parts of the viscera (insides) should now be removed and placed carefully aside. These may be cooked and eaten immediately and need no ageing, like other meat. The kidneys and liver are usually sliced and fried, the heart is delicious, baked or fried, and the tongue, boiled for several hours, may be eaten hot or cold. For those not too squeamish, the testicles are reputed to have fine flavour when sliced and fried. The pancreas is used by some as sweetbread.

A. Help Us To Help You

Hunters are requested to save the lower jaw of all moose killed. The uterus (womb) and ovaries of female moose should also be saved. Give these to a Park employee. Jaws are used in ageing your moose. By determining ages of moose in the population, it is possible to learn much of the productivity of the herd. A large percentage of old animals indicates that few offspring are surviving to hunting age. The uteri tell how many calves are being produced and the jaws tell how many are surviving. When there is a small percentage of yearlings in one year and a large percentage the next, our wildlife officers try to determine the cause. Is the winter weather, the previous fall's hunting, or some other factor influencing our calf crop? These are the questions which you help to answer when you bring in jawbones and reproductive tracts. You help us to give you good hunting.

The lower jaw may be removed with a knife by severing all cheek muscles and all muscles at the back of the jaw, then pressing down on the front of the jaw with a hold just behind the front teeth. If meat-saw or axe is handy, the jaw may be cut off well behind the last teeth. Care should be taken that the jaw is not split. The operation will be easier if the jaw is skinned first.

The uterus is a Y-shaped organ lying next to the back and just ahead of the bladder. Remove it by cutting off the tube a couple of inches above the bladder, just below the constriction in the tube. At each upper end of the Y there is a small oval structure looking like a bit of fat. These are the ovaries and should be left attached to the uterus, for from these can be determined whether the cow was fertile.

Some game in the Park has been ear-tagged with numbered tags. Please look for such tags on your kill, and hand in any found.

B. Skinning

The skinning operation comes next. With a sharp blade of curved shape, this should not be difficult. Immediate skinning allows the meat to cool quickly, but also exposes the meat to dirt, fly-blow, etc. In warm weather, moose should always be skinned as soon as possible. In cool or cold weather, it is better to leave the hide on, if meat-sacks are not available to protect the meat.

C. The Trophy Head

The following is a recommended procedure for skinning out the head of an animal for mounting: Make opening cuts as show in Figure 2, leaving the underside of the neck skin intact and taking the whole hide off over the snout and lower jaw. Care must be taken when skinning around (1) the base of the antlers, (2) ears, (3) eyelids, and (4) lips. The ears should be skinned so they are turned inside out, then salted. Be sure to leave the inside of the lips attached to the hide. All cartilage from the lips and snout should be removed. The inside of the hide should be salted and the cape rolled up, flesh side in. Part of the cranium (skull) should be removed with the antlers, but it is not necessary to save the entire skull. Do not separate the antlers, unless for good reason. Measure the distance between the corner of the eye and the tip of the snout; some taxidermists use this measurement. If these precautions are taken, your taxidermist can make a good job of mounting your trophy.

Figure 2: Cuts for skinning cape of a head for trophy

D. Butchering

If the body cavity has become filled with juices from a gut-shot, the meat should be wiped clean before cutting. Clean water may be used where the meat still has its membranous covering intact.

As the meat is cut up, lift pieces clear of the ground, keeping them as clean as possible. Careful butchering and handling of the carcass will result in good-quality meat on the table.

Clean 100-pound flour sacks are ideal for wrapping moose meat. Washed burlap grain sacks, the ones used for crushed or ground feed, are fine, but some lint does stick to the meat. It takes 30 yards of cheesecloth to wrap properly all the meat from one animal. Cheesecloth combined with burlap sacks is good.

Figures 3 and 4 show the proper cuts for horse and back-packing. In warm weather it is imperative that the shoulders be removed and that the pelvis be split to allow heat to escape from these large meat masses.

Figure 3: A good way to cut up a moose to be back-packed.

Butchering for Back Packing: In this description of the various cuts made in dividing the carcass of a moose, it is presumed that the skin and entrails are removed and the animal is lying on its back.

Piece 1: Cut through round steak at an angle so as to emerge at crotch on the inside of the hind leg. Cut bone below the joining of the leg and pelvis. Cut leg again, just above the knees. Weight: 60 to 70 pounds. This section may be cut again if too heavy.

Piece 2: Repeat above on the other hind leg.

Piece 3: Cut through backbone and loin just in front of pelvis (hip bones). Seek a joint if cutting with a knife. Weight: 50 to 60 pounds.

Piece 4: Cut all ribs on both sides off, and about 6 inches from, centre of backbone, then cut through backbone just back of the hump. Weight: 30 to 35 pounds. May be left till Pieces 5 and 6 are removed.

Piece 5: Cut between front leg and chest cavity, leaving the shoulder blade intact. This cut is very easy and pulling the front leg away from the body helps a lot. Weight: 40 to 45 pounds.

Piece 6: Repeat on other side.

Pieces 7 and 8: Cut through brisket bone each side. Meat can be removed from ribs and rolled. Weight: 25 to 30 pounds on each side.

Piece 9: Cut through neck from front of hump to front of brisket.

Piece 10: Cut through back of ears to throat. These last two cuts will average around 50 pounds and, of course, can be recut to suit.

Figure 4: Cuts for butchering a moose to be horse-packed

Butchering for horse-packing: Most packers with horses prefer to cut up the moose themselves. They have the experience and it is part of their business. In many cases, it is better to let the one doing the packing do the cutting and wrapping of your meat to assure that it will transport in good condition.

Piece 1: Cut whole hams from pelvis at the knee joint. This joint comes apart quite easily. Cut below (knee) joint. On a young animal, the backbone can be cut at a point between the second and third rib (from rear) and the backbone split down the centre with your axe or meat-saw.

Piece 2: Same as above.

Piece 3: Cut backbone between second and third rib. This is already done if the animal is small.

Piece 4: After Pieces 5 to 8 are removed, this section can be removed by cutting through meat and bone at a point just in front of the hump.

Pieces 5 and 6: Remove front legs from body by cutting connecting muscles on inside of legs.

Pieces 7 and 7: Cut ribs about 6 inches from centre of backbone, both sides, then from front rib to bottom of brisket bone.

Piece 9: Cut through neck.

VII. PACKING OUT MEAT

A. Packboards

It is best to use a packboard when it is necessary to transport your kill on your back.

The usual packboard is a rectangular wood or aluminum frame with three curved cross-members connecting the side pieces. Canvas is laced tightly around the frame so one side resembles a canvas cot. The canvas is laced on the opposite side. It is on this laced side that the load is placed. Hooks enable the load to be secured with light rope.

Be sure that the shoulder-straps are properly adjusted. Try on the board and see that it rides quite high on your back and does not dig against your hips or kidneys. Do not let the board ride too high or the straps will cut off the circulation in your arms. Do not be afraid to stop on the trail to re-adjust the pack, it pays. With proper adjustments, even a person not used to packing will make out fairly well.

Figure 5: Steps in tying a load on a packboard

One of the commoner methods used to secure the load to the board is by the following steps: (1) Lay the board on the ground, laced side up, bottom toward you. (2) Take 20 to 22 feet of 1/4 inch rope, parachute cord, or light sash cord. Attach the centre of the rope to the middle of the bottom cross-piece on the laced side of the board, putting the bight of the rope around the cross-piece and the two free ends of the rope through the bight (see Figure 5, Step 1). (3) Pull both free ends over the load and under the top cross-piece and, holding the two free ends, twist one rope over the other (see Figure 5, Step 2). (4) Take each free end out and over the top of the side-pieces and through the top hook carrying the ends down and through the middle hook (see Figure 5, Step 3). (5) Pass each free end through the centre of the twisted rope and pull up snug. Take the ends down to the bottom hook and tie at this point (see Step 3).

Some minor adjustments may have to be made so that parts of the load will not interfere with proper tightening of the rope.

A person who is not used to packing should not expect to carry more than 40 to 50 pounds at the most, and the best rate will be about 1 1/2 miles per hour. Remember to step over logs or rocks, not on them.

The method of packing may be varied and only practice and experience are the real instructors.

B. Skidding Meat

Under certain snow conditions in fairly open country or along a trail, it may be possible to haul out meat on the snow. Skid on the attached hide, and use rope to haul. Toboggans have also been used successfully.

C. Care of Meat

Once the kill has been packed into camp, it should be hung clear of the ground in a sheltered spot. The meat should be covered with sacks during the day, when flies are active. Coverings should be removed to let air circulate around the meat in the evening, after the danger from flies is past. Each portion of meat should then be examined carefully for eggs of blow-flies in all places where membranes have been broken. These eggs may develop rapidly in warm weather, causing much spoilage.

Some hunters take the precaution of making a fly-proof tent of cheesecloth or mosquito netting. This is a good investment. Such material costs only a few dollars and will protect much valuable meat. Meat will remain cooler and drier in such a shelter than when closely wrapped in meat-sacks.

A liberal sprinkling of pepper will discourage blow-flies, if netting or sacks are not available.

Meat which is thoroughly chilled at night and protected from flies by day will keep for several days without refrigeration in the early part of the season. If the nights are warm, plan on having the moose at the locker or home for refrigeration within three or four days. From mid-October onward do not worry about staying a week or more after the moose has been killed, provided the carcass has been cared for properly.

Various carnivores abound in the Park and are willing to take a free meal from your kill. The carcass is usually safe if left overnight, although bears sometimes will disturb a freshly killed animal. Carcasses should be moved as soon as possible, and a rifle carried when going out to bring in a load of meat. On more than one occasion a grizzly has disputed possession of moose killed in the Park. One has also to contend with wolves, coyotes, wolverine, bob-cat, lynx, marten, mink, fisher, weasel, and squirrels, besides marauding bears. The first three are classed as predatory animals and may be shot legally. The others, with the exception of bears, are fur-bearers and must not be harmed.

VIII. HOMEWARD BOUND

Do not forget to check out at the Park checking-station as you leave the Park. The record of your hunt is important to the proper management of the Park's wildlife.

Cool your meat thoroughly before loading it in your vehicle. Give it lots of ventilation on the trip home. The most efficient way to care for meat, if you live in a town or city, is to take it to a reputable frozen-foods locker and have them prepare it for storage. You will have meat you can enjoy if you have treated it properly in the field.

