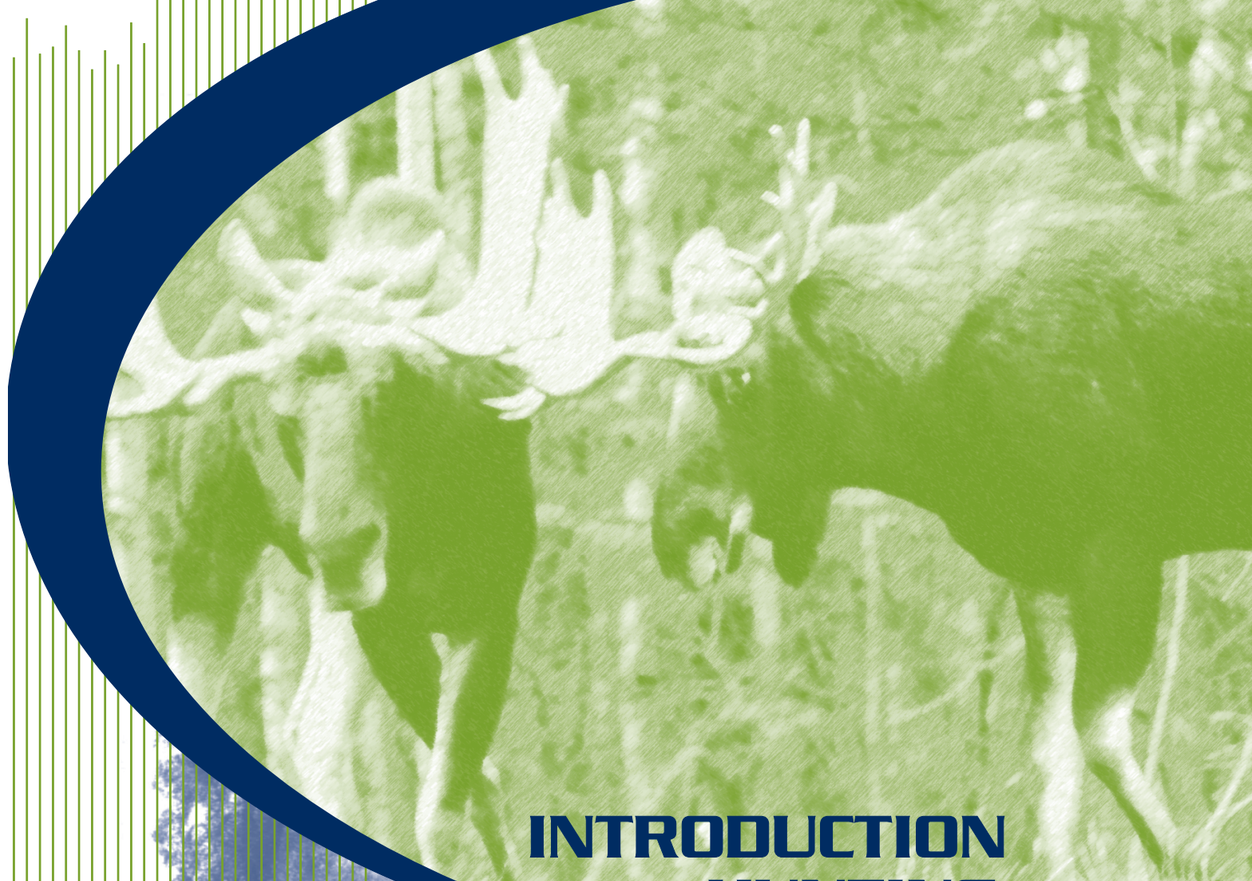
HÉRITAGE FAUNE
La fondation de la Fédération québécoise des chasseurs et pêcheurs



INTRODUCTION to HUNTING with *Bows or Crossbows*

November 2012

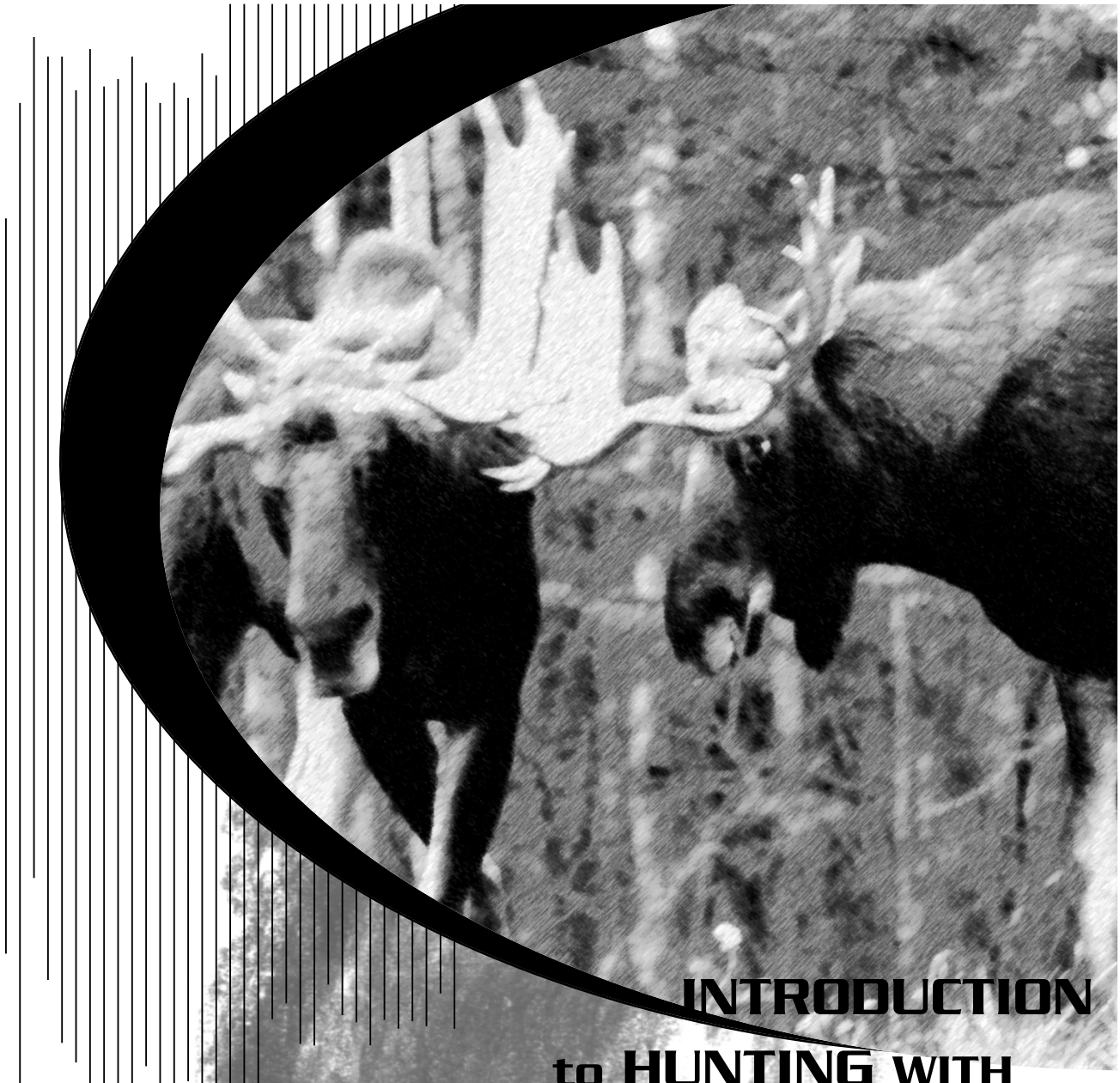
Ressources naturelles et Faune Québec

SÉCURITÉ NATURE
L'action éducative de la Fédération québécoise des chasseurs et pêcheurs

Fédération québécoise **des chasseurs et pêcheurs**

PESCOF
PROGRAMME D'ÉDUCATION EN SÉCURITÉ ET EN CONSERVATION DE LA FAUNE

Québec



INTRODUCTION to HUNTING WITH Bows or Crossbows

Approved by the Joint committee made up of representatives of the ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP) and the Fédération québécoise des chasseurs et pêcheurs (FédéCP)

November 2012

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NOTE: : In this manual, the masculine gender designates both women and men according to the context. No discrimination is intended

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FOREWORD

The PESCOF, Security, Education and Wildlife Conservation Program (Programme d'Éducation en Sécurité et en Conservation de la Faune (PESCOF) is the subject of an agreement signed between the Fédération québécoise des chasseurs et pêcheurs (FédéCP) and the Government of Québec, by way of the ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP).

PESCOF is a general program that comprises various teaching modules, some of which are obligatory (ICAF, ICA) and others voluntary. It seeks to promote a knowledge of wildlife and wildlife habitats, their protection, the controlled harvest of the wildlife resources of Québec and the active participation of all Quebecers in the conservation of this natural heritage.

The initial foundations of this general program were laid in 1968 with the adoption, on an experimental and voluntary basis, of a teaching program to promote the safe handling of firearms (SMAF). **In 1972,** the possession of a hunter's certificate became mandatory for every resident wishing to obtain a licence to hunt with a firearm in Québec. To obtain that certificate, the individual first had to successfully complete the SMAF teaching program.

In 1980, the content of this program was revised by the ministère du Loisir, de la Chasse et de la Pêche and the Fédération québécoise de la faune with a view to establishing the first module of a better program: the Programme d'éducation en sécurité et en conservation de la faune (PESCOF). The Bowhunting module was created and offered to the public on a voluntary basis beginning in 1981. Thousands of people enrolled and were able to automatically receive their bowhunter's certificate when it became mandatory, in **1987.**

In 1995, the first version of the *"Introduction to Bowhunting"* module, designed entirely in Québec, was prepared by the ministère de l'Environnement et de la Faune and the Fédération québécoise de la faune.

In 2001 and 2003, the content and the form of the manual were updated and revised with a concern for ensuring the continuous improvement of the quality of the teaching material, as much of this manual was still popular.

In 2006, the MRNF and the FQF agreed to merge the chapters dealing with bow hunting (IBH 2003) and crossbow hunting (IHC 2003) of the previous manuals.

In 2008, the FQF became the **Fédération québécoise des chasseurs et pêcheurs** (FédéCP). With this new name, the Fédération has positioned itself as a key wildlife player for the benefit of its members and the community.

This new edition is a quite important improvement over the previous edition (2012).

On June 9, 2004, the Québec National Assembly passed Bill 48 repealing the Act respecting the Société de la faune et des parcs du Québec. Basically, this bill proposes the integration of the Société de la faune et des parcs within the Ministère des Ressources naturelles as well as a new sharing of responsibilities with the Société des établissements de plein air du Québec and the Ministère de l'Environnement.

This administrative merger led in particular to the creation of Faune Québec, a full-fledged sector of the new ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP).

The general mandates of the Faune Québec sector, which used to be carried out by the Société de la faune et des parcs du Québec, basically involve: the management, protection and development of wildlife and wildlife habitats; as well as education related to the conservation of wildlife and habitats, plus that concerning wildlife users (PESCOF).

INTRODUCTION

There are many hunting enthusiasts in Québec. In recent years, close to 408,000 licences have been purchased annually by hunters. The relative complexity of sport hunting, the problems associated with this activity, the need to know wildlife, the regulations that protect wildlife as well as the hunting methods, and the adoption of a responsible behaviour have led to the creation of a general education program for hunters (PESCOF).

This module has two goals:

• of the hunter's certificate with a bow (code A) or a crossbow (code B);

• to train safe, responsible and competent bow or crossbow hunters.

The participation in and successful completion of a course of this module are a prerequisite for obtaining the hunter's certificate. To pass the course, you will have to demonstrate sufficient knowledge of the bow and its operation, of the hunter's code of ethics, of wildlife and its development, as well as the regulations concerning the conservation of wildlife and habitats along with various other topics related to hunting such as boat safety, survival in the forest and hunting methods and techniques.

The objective of this "Introduction to hunting with bows or crossbows" module is not to teach you how to use a bow. Rather, it is intended to provide those who wish to exercise their right to hunt with a bow an understanding of their duties and obligations towards wildlife, the natural habitat and their fellow citizens. The importance of knowing how to use a bow before going hunting with such a weapon cannot be said enough. There are many associations and clubs that offer this type of instruction. It should be followed by regular practice to remain proficient and demonstrate responsibility towards wildlife.

1. MODULE OBJECTIVES

Upon completion of a course of this module, participants:

1- will have acquired a greater understanding of the social responsibilities that hunters have and the code of ethics guiding their behaviour;

2- will be familiar with the regulations concerning the conservation and development of wildlife and habitats, and will understand how to obey these regulations;

3- will have a knowledge of the main types of game found in Québec: characteristics, reproduction, distribution and density, habitat, limiting factors, population growth;

4- will have an idea of wildlife management and development methods;

5- will be informed about the proper and safe use of hunting with a bow or a crossbow equipment;

6- will have learned certain safety rules applicable to this activity and will be aware of the need to put them into practice on a regular basis;

7- will be familiar with methods and techniques for hunting game and for handling freshly harvested (hunted) game;

8- will be acquainted with certain prevention measures associated with the risks linked to the practice of hunting: boat safety, first aid, survival, hypothermia, etc.;

9- will be aware of the social and economic importance of hunting in Québec, hunting accidents, and preparing the next generation of hunters.

The *""Introduction to hunting with bows or crossbows"* (IHBC) module includes several lessons and classroom activities dealing with the various notions presented in this manual. There is a written test at the end of the course. It seeks to measure the knowledge acquired during this course. The instructor may also recommend certain exercises. By carrying them out, you will increase your knowledge and achieve the objectives of the module. Finally, after the written test, a practical test (described later in the text) will measure the bowhunter's skills only.

In summary, the course aims to develop responsible attitudes among hunters and to help them regulate their conduct out of respect for others, for wildlife and the wildlife habitat. This course encourages safety, knowledge and know-how. It calls for a sense of civic responsibility and compliance with laws and regulations. By helping hunters meet their legal, social and moral responsibilities, it enables them to acquire a sense of sporting spirit, which in turn makes them responsible hunters of a renewable natural resource.

2. PARTICIPANT'S MANUAL

It contains:

- a brief history of hunting in Québec;
- a look at the concept of wildlife conservation;
- a description of the legal responsibilities of hunters;
- the hunter's code of ethics;
- an answer to controversial hunting questions;
- an introduction to the main game species of Québec;
- a summary of the principles and tools for the management and development of wildlife and wildlife habitats;
- safety rules and the description of bows and crossbows hunting equipment;
- a description of hunting methods and techniques, where to aim and how to look for wounded big game;
- the field care of game;
- survival in the forest and emergency first aid;
- an overview of boat safety rules;
- a conclusion and a glossary of the main technical terms used.

3. HUNTER'S CERTIFICATE

In Québec, a resident must hold a hunter's certificate to be able to purchase a hunting licence. When a person has successfully completed the appropriate course for the chosen weapon, the Faune Québec sector (government of Québec) will issue him an official document known as a certificate. This document allows the holder to buy the desired hunting licences.

Requirements to obtain a hunter's certificate:

- be a Québec resident;
- be at least 12 years of age;
- not have had the said certificate suspended or cancelled following a Court conviction;
- have taken the appropriate course(s) and have passed the test(s).

Validity: a valid hunter's certificate in good standing on March 31, 1994 became permanent. This status may be revoked following a major violation of the *Act respecting the conservation and development of wildlife.*

Lost, stolen or damaged certificates may be replaced. Simply fill out the form available from licence distributors and pay the certificate replacement fee.

4. REGISTERING FOR THE COURSE

The registration fee for the course of this module covers, among other things, the participant's manual, as well as the costs of giving the course and issuing the certificate. There are no other costs to the participants in order to obtain the certificate and the course manual. The only fee that may be charged is the cost of registering for the course.

5. PASSING THE IHBC COURSE

The following requirements must be met to pass the course.

5.1 Written test (bow and crossbow)

The passing grade for the written test is set at 70%. Those who fail the written test are required to register again, pay the fee and take the course over. Finally, the participant will have to redo the entire course to obtain the bow or the crossbow hunter's certificate, if he has not passed his written test.

5.2 Practical test (only bow)

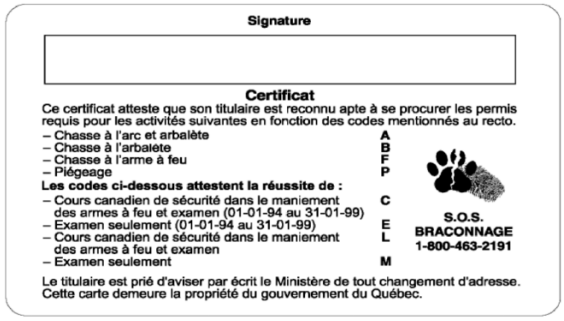
The practical test consists of shooting at five targets representing various game species and placed at the following distances:

- 10 m for female white-tailed deer;
- 15 m for black bear;
- 20 m for male white-tailed deer;
- 25 m for caribou;
- 30 m for moose.

The criteria for a passing grade are: **three targets out of five must be hit in the vital zone.** During the practical test, no practice arrows or second attempts are allowed. If the participant does not pass his practical test, he will be able to redo it. The cost of retaking the practical test is much lower than that of the full course.

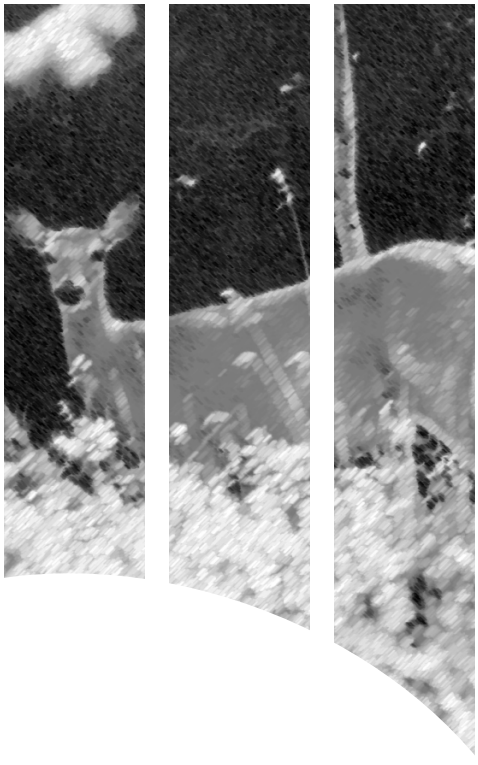
6. PROCESSING OF THE APPLICATION

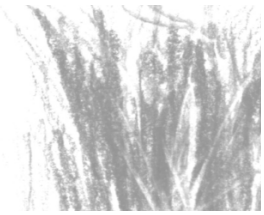
The participant will receive his hunter's certificate approximately one month after having successfully completed the requisite course of the module.



PART ONE

Before the Hunt





CHAPTER 1

Hunting in Québec

1. GENERAL HISTORY OF HUNTING

In Québec, the history of hunting can basically be summed up in three phases.

SUBSISTENCE HUNTING*, when game was an essential source of food, was followed by the development of **COMMERCIAL HUNTING**, which eventually represented a threat to the conservation of wildlife species. That is why, in the 20th century, people increasingly become aware of the need to control **HARVESTS** and to ensure the conservation of **WILDLIFE RESOURCES**. Hunting has become a sport and, above all, a management tool for maintaining a balance between **WILDLIFE** and its **LIVING ENVIRONMENT**.

Let us examine in greater detail the highlights of this history.

2. THREE PHASES OF HUNTING IN QUÉBEC

2.1 Subsistence Hunting

When the glaciers receded from Québec approximately 10,000 years ago, progressively allowing the arrival and establishment of various plant species, several animal species were able to colonize these newly available lands. Nomadic hunter societies soon settled in this new territory and succeeded in developing occupation and usage models to ensure their subsistence and their sociocultural development. For these societies, ancestors of the current Aboriginal nations, hunting was undeniably a key activity around which their social and economic organization revolved. Indeed, this activity provided, in addition to food, basic materials for getting around (snowshoes, for example), making clothing, obtaining shelter and making tools, medicines and various commonly used objects (musical instruments, jewelry, etc.). When the first European explorers landed on the shores of the St. Lawrence River, they were struck by the relative abundance of wild animals in the New World. When these Europeans decided to settle here, the Aboriginal people taught them and shared with them hunting knowledge and techniques so that the newcomers could survive and adapt to this new environment. As a result, the Europeans soon were able to meet a large part of their subsistence needs by hunting mammals and birds; the archives of this era discuss this subject at length.

When the first European explorers landed on the shores of the St. Lawrence, they were struck by the relative **ABUNDANCE** of wildlife in New France. Upon settling in this new land, they subsisted largely by hunting birds and mammals; the historical records of that period testify to this fact.

These newcomers brought with them eating habits inherited from many earlier generations. Meat was already an important part of the settlers' diet. To better withstand the rigours of the North American climate, they would have to give meat and fat an even larger place in their diet. Several decades would pass before the settlers could raise enough domestic meat

*The terms in small caps are present in the glossary.

to satisfy the needs of the colony. As a result, they would have to depend on the resources around them. Hunting was thus a necessity for the inhabitants' survival.

For many years, game was the main source of food for explorers and pioneers. Hunting was practiced for survival purposes. As the pioneers had settled in new lands, game was generally plentiful.

2.2 Commercial Hunting

As the population grew and the demand increased, hunting became a lucrative activity: commercial hunting was born. People in schools, hospitals and businesses who did not hunt resorted to professionals to hunt for them. Professional hunters hunted all types of edible game, and there were no limits on their kills.

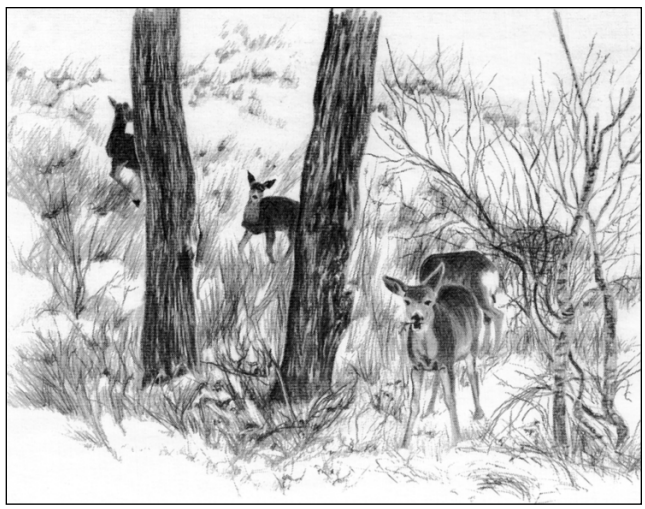
People soon became alarmed when wildlife became rare: only a few buffalo remained in the West, beaver had practically been eliminated from areas where they once were abundant, woodland caribou had disappeared from the shores of the St. Lawrence River, the flocks of snow geese declined in number with each passing year, species such as the Labrador duck and the great auk had become extinct. Commercial hunting had thus become a threat to wildlife conservation.

2.3 Sport Hunting

Around 1910, a group of sporthunters in Québec, aware of what was happening in the United States (where there was already serious talk of "conservation"), sounded the alarm with government officials and asked them to take measures to help wildlife regain its original balance. Through suitable protection practices, the government promoted the increase and, to some extent, the survival of wildlife species. In light of the new situation, laws concerning wildlife and its use were enacted to meet the biological requirements of various species and to control the yearly harvest made by sporthunters. Commercial hunting gradually became subject to regulation.

From that day on and right up to today, sporthunters have played an exemplary role in the protection and conservation of wildlife resources as well as in the establishment of laws concerning these resources.

For all of these reasons, sport hunting is much more than a recreational activity. Modern-day sporthunters are aware that it is up to them to be concerned about the current and future state of wildlife resources: the behaviour of the sporthunters of today will help guarantee the future of hunting in Québec.



3. HUNTING AS A TRADITION

3.1 Coureur Des Bois (Voyageur)

Stories of the coureurs des bois continue to fascinate us not so much for the abundance of the game they were able to harvest as for the freedom they enjoyed, in comparison with their fellow citizens. These almost legendary figures were virtually self-sufficient thanks to the techniques and skills they had acquired through close contact with Nature.

This yearning for wide open spaces, travel and new lands inspired our ancestors to explore North America. They were not stopped by the difficulties they encountered or the harsh climate. They managed to adapt their techniques and their way of life to this **ENVIRONMENT*** with its many resources and its great wealth. Hunting was an important activity among the basic occupations of these adventurers.

3.2 Modern-Day Hunters

Most hunters relive these deep-seated emotions and this feeling of belonging to the **NATURAL ENVIRONMENT** when they are in the forest, far away from the hectic pace of modern life. For the modern-day hunter, harvesting game has become a secondary objective. While a hunter still feels a great satisfaction when bringing game meat home, he no longer hunts for subsistence purposes. He understands that he plays a role that is much like that of natural **PREDATORS** by helping to ensure the balance between **WILDLIFE POPULATIONS** and their **HABITAT**: what the predatory animal does instinctively, the sporthunter does while sport hunting. Managers use their knowledge and the various measures applied to wildlife populations when determining the number of animals of each species that may be harvested in a sustainable manner each year.

A day of hunting is always a new experience, full of discoveries and the unexpected. If the hunter is fortunate enough to have a full **GAME BAG** when he returns home, it is just an added benefit.

Sporthunters take their fair share of what nature has to offer.

*The terms in small caps are present in the glossary.

WHY DO WE HUNT TODAY?

Hunters are often asked this question. The reasons most frequently given are:

1er **Hunting is a sporting activity and an enjoyable way to spend one's leisure time.**

2e **Hunting brings you into contact with wildlife and Nature, allowing you to enjoy their beauty during the many hours spent watching for quarry. Hunters are able to get away from the stressful pace of modern life, to get a welcome break from the daily routine, and to appreciate the quiet and solitude.**

3e **Hunting is a challenge that pits you against Nature's dangers, the changing weather conditions and wildlife in its natural element. Hunters have to outwit their quarry if they hope to approach, attract and lay in wait for it.**

4e **This activity takes place in a relaxed atmosphere and often with companions chosen for the pleasure of their company.**

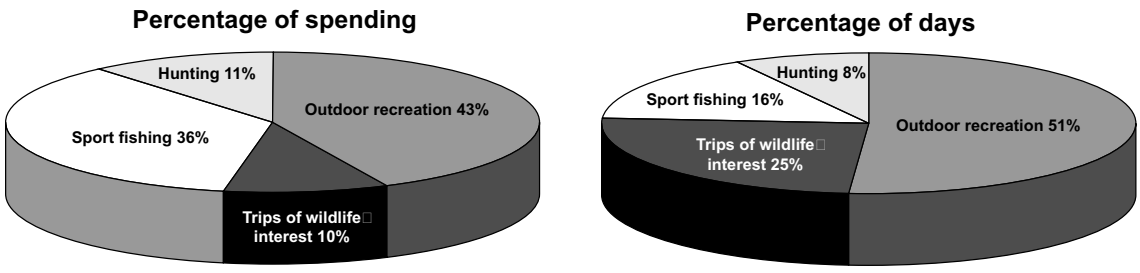
5e **You sometimes get to bring home healthy meat that is easier to digest and that contains less fat than the food you are accustomed to eating.**

4. SOCIAL AND ECONOMIC IMPORTANCE OF HUNTING

It is estimated that 408,000 Quebecers went hunting in 2000 and devoted on average 14.5 days to this activity that year, for a total of some 6 million hunting days.

Spending by Québec hunters, which totals $308.4 million, represents 11% of the total spending associated with the various wildlife-related activities. Capital expenditures (purchase of weapons and ammunition, as well as other pieces of equipment) totaled $186,876, i.e. 60% of all spending by hunters. Day-to-day expenses, which represent 40% of the total spending on hunting, are mainly associated with the purchase of food and transportation costs.

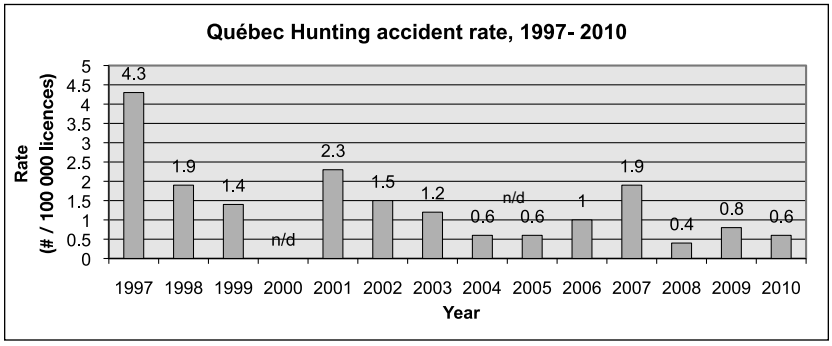
This spending supported the creation or maintaining of 3,322 person-years and contributed to the payment of $87.3 million in salaries and wages. It accounted for some 11% of the economic spin-offs ensuing from the activities related to wildlife and nature. Finally, the Québec government earned some $46 million from these total expenditures, whereas the federal government collected $37 million in tax and tax-related revenues. The practice of hunting creates important socioeconomic spin-offs for the regions.



5. HUNTING ACCIDENTS

With the exception of 2001 (N/A), the annual number of hunting accidents in Québec has been less than 2 per 100,000 licences for the last ten years.

The situation has continued to improve over the years. The quality of the training that hunters receive has definitely contributed to this decline. This reduction can also be attributed to the fact that hunters are better informed and more aware of the importance of adopting a careful and responsible behaviour towards nature, other people and their property. It is interesting to compare the risks of accidents associated with hunting with those of other sports.

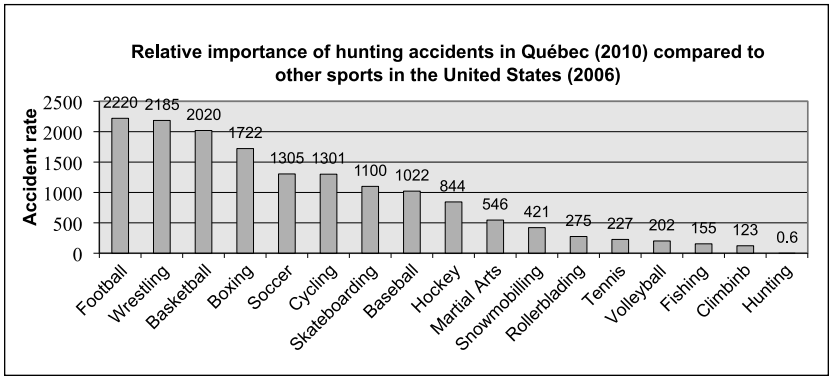


Relative importance of hunting accidents in Québec from 1997 to 2010

Only includes accidents involving a hunting weapon
The data were calculated based on the number of hunting licences sold to Québec residents
n.a.: The data for 2000 were excluded as they are not comparable with the other years

A study carried out in the United States shows that the importance of accidents associated with hunting is much lower than that associated with volleyball, fishing and even table tennis!

Nevertheless, the fact remains that the use of a weapon (including a firearm) represents a potential safety hazard for hunters and for the other users of the natural environment. That is why one cannot overemphasize the need to carefully follow the rules of safety when handling weapons, in order to help calm the growing concerns of a significant number of citizens in this regard.



Relative importance of hunting accidents in Québec (2010) compared with other sports in the United States * (Rate = accidents/100,000 participants)

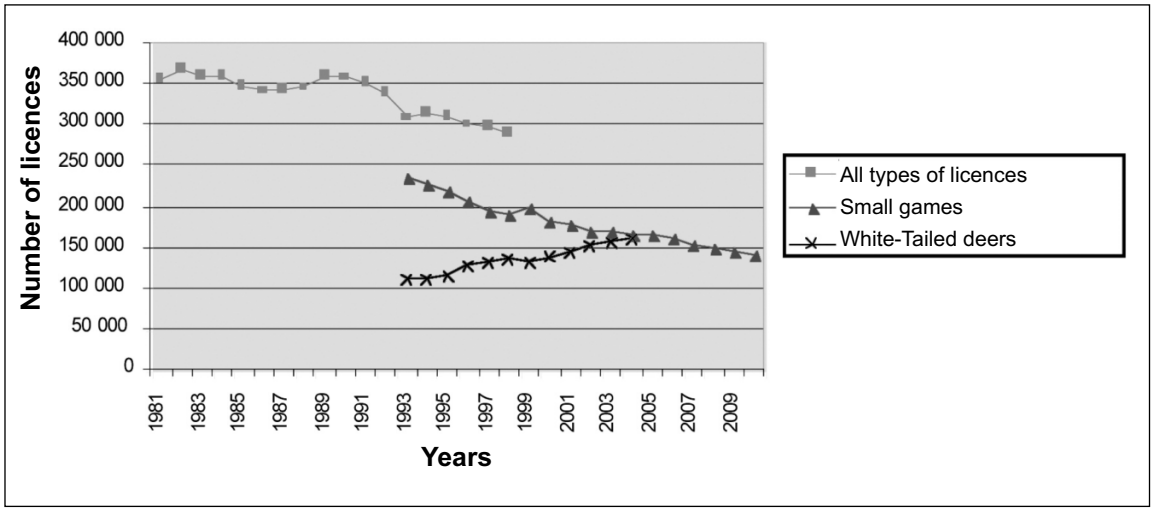
**Source: National Safety Council Accident Facts, 2006 Edition*
**The data for hunting accidents were calculated based on the number of hunting licences sold to Québec residents*

It is up to you, as future hunters, to help further reduce the risks of hunting accidents. That way, you will preserve your health and that of your friends, while enhancing the image of hun-ters and hunting in Québec society.

6. NEXT GENERATION OF HUNTERS IN QUÉBEC

6.1 General Portrait

There are ever fewer hunters in Québec. Indeed, since 1991, the socioeconomic surveys on wildlife-related activities in Canada have indicated an irrefutable decline in hunting activities.



Despite the absence of a more recent valid survey, this decline is corroborated by the drop in hunting licence sales in Québec. The loss of interest on the part of hunters has taken on several forms.

– A decline in the number of hunting licence holders, from 354,000 in 1981 to 307,000 in 1993, and to 290,000 in 1998.

– A drop in the total hunting effort, which fell by 31.7%, going from 8.3 million days in 1981 to 6.4 million in 1991, and finally to 5.7 million in 1996.

– A major decline in small-game hunters: reduction in the licences sold to residents from 308,000 in 1981 to 205,500 in 1996, and to 182,500 in 2000, i.e. a decline of more than 40%.

– However, there does not seem to be a major problem when it comes to the number of big game hunting licences.

6.2 A Substantial Drop in the Number of Hunters in 5 Regions

In the following five regions, Saguenay-Lac-Saint-Jean, Mauricie-Bois-Francs, Abitibi-Témiscamingue, Québec and Montréal, there has been:

- a decline of 23% to 43%, depending on the region, in the number of hunters;
- a decline of 25% to 38%, depending on the region, in the hunting participation rate;
- total loss of 55,000 hunters.

– Generally, there has been a decline in the hunting effort by the residents of most of these regions, but especially by those of the Montréal and Estrie regions, which posted 45% declines from 1991 to 1996.

– The relative importance of the hunters of these regions has fallen, going from 46% in 1987 to 43% in 1991, and to 35% in 1996. The loss of hunters of these five regions totals some 55,000 hunters;

– The total number of activity days attributed to the residents of these regions has followed the same downward trend; there has been a 45% reduction in the Montréal region.

6.3 The Interest in Hunting is also on the Decline

National surveys have revealed a generalized decline, on the order of 5%, in the proportion of Quebecers interested in hunting from 1991 to 1996.

In the category of people between 15 and 19 years of age, the proportion of those saying that they are interested in hunting has gone from 21.8% to 10.9%. It is in this age category that the sharpest drop in interest has been observed.

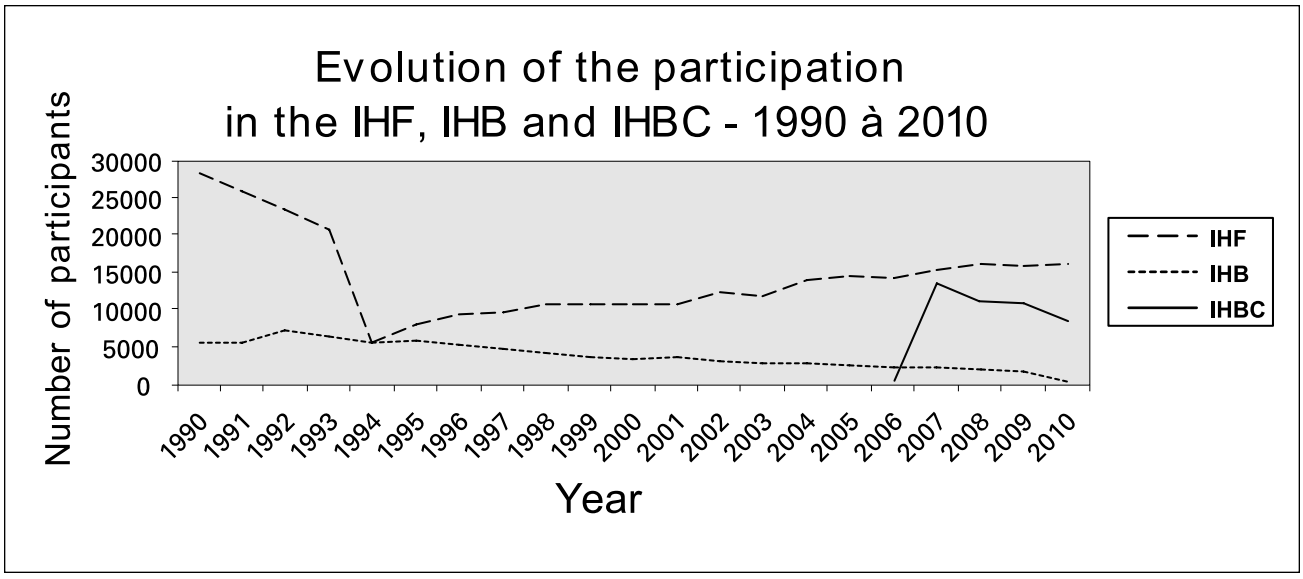
In addition to these major consequences for our community, the decline in hunting will deprive us over the medium to long term of a very effective management tool and an unparalleled contact with nature.

You are among the privileged individuals who have had the chance to discover and to appreciate hunting. Without a doubt, someone close to you took the time to introduce you to this sport. It is now up to you to share your passion with others so that this important component of our heritage continues in the future. You likely know someone, one of your children, a nephew, a niece, or a friend, who would be eager to learn the art and science of hunting. Next time, why not bring this person along when you go hunting? You will both benefit.

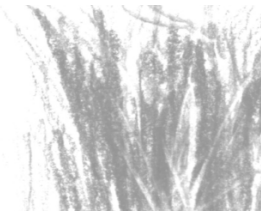
6.4 The Up-And-Coming Generation of Hunters and the Recovery Strategy

Over the last ten years, the number of apprentice bow hunters has continued to decline. However, the popularity of the crossbow has grown steadily since 2001. Out of a concern for ensuring that enthusiasts can use this new weapon safely, the parties concerned (Faune Québec and Fédécp) decided to require, beginning in 2007, obligatory training entitled "Hunting with a bow or a crossbow". Since then, some 45,000 enthusiasts have successfully taken this training and obtained a crossbow hunter’s certificate (Code B).

Finally, since the historic low of 1994, the number of new apprentice firearm hunters has continued to grow. It exceeded the 16,000 mark in 2010.



Convinced of the importance of hunting as a wildlife management control tool and of the social and economic benefits associated with this activity, the Faune Québec (government of Québec) sector and its wildlife partners, in particular the Fédération québécoise des chasseurs et pêcheurs (FédéCP), have agreed to implement a hunting recovery strategy, comprising a series of measures intended to promote the interest in this wildlife harvesting activity among the various classes of Québec society.



CHAPTER 2

Wildlife Conservation

Harvesting wildlife without guaranteeing its protection (or its maintenance) and its long-term renewal is unconceivable nowadays. That is why the general objective of this chapter is to present the concept of **WILDLIFE CONSERVATION*** as well as the various people involved in conservation, without neglecting the key role played by hunters and hunting to ensure the conservation of wildlife and habitats in Québec.

Sporthunters have contributed to the creation of positive attitudes towards wildlife conservation and respect for the environment. Through their regular presence in nature, they have witnessed first hand the transformations that natural environments have undergone. Whether it is the destruction of habitats attributable to forest fires, the indiscriminate exploitation of natural resources, soil erosion, the excessive densification of certain sectors or the discharging of large quantities of non-**BIODEGRADABLE** waste into the environment, the serious impacts on the environment have not gone unnoticed. The polluting of several lakes and rivers to the point where neither fish nor animals are able to live there has given rise to serious concerns among hunters, which explains their contributions to the creation of appropriate attitudes and actions in the wildlife conservation field.

1. HUNTING AS AN EVOLVING ACTIVITY

Hunting in North America is very different from hunting as it is practiced in European countries. In some regions of Europe, the landowner is also the owner of the game on his land and is the custodian of the right to hunt. When the colonists arrived in North America, they found wildlife species that were not protected by owners. There was no law dictating who was allowed to hunt or trap. The objective of hunting was to put food on the table. When farmers succeeded in producing enough domestic meat to satisfy needs, it was no longer necessary to hunt as much for subsistence purposes. The actions of pursuing and hunting game became a sport, as we know it today.

With the growth in the number of hunters, people soon realized that it was necessary to ensure wildlife conservation. Associations and groups of sporthunters were formed and they pressured governments to pass laws and regulations to protect wildlife. This resulted in the establishment of hunting seasons, bag limits, the prohibition on hunting certain species, the creation of wildlife reserves, etc.

Sporthunter support for the protection of wildlife helped to maintain certain species and to rebuild their populations; this is the case of the snow goose which had almost disappeared. Thanks in part to the support of sporthunters, everyone can take greater advantage of wildlife and the natural environment, which are now protected against abusive harvesting and the deterioration of wildlife habitats associated with our way of life. This is only natural as here in North America wildlife is an asset that belongs to everyone; each generation is the temporary caretaker and not the owner of wildlife, and must see to the sound management of this exceptional collective resource.

*The terms in small caps are present in the glossary.

2. CONSERVATION: UNDERSTANDING THE CONCEPT

From a modern-day perspective and in the eyes of environmental science, **wildlife conservation** is considered as being a set of management tools (research, regulations, management, **DEVELOPMENT**, education, etc.) that guarantee the long-term protection and **SUSTAINABLE USE** of the wildlife resource. In this sense, a distinction must be made between conservation and preservation, because preservation is the total protection of wildlife, a habitat or a natural environment. This is the case, in particular, of species at risk and ecological reserves (characteristic natural environments).

The **management of the wildlife resource** consists of bringing together its utilization with an extreme **PRESERVATION** measure in such a way that this resource is always able to renew its populations while allowing us to continue to meet our legitimate needs (… of an economic, social, cultural and esthetic nature).

The use of wildlife as a **RENEWABLE RESOURCE** first involves its harvest by hunting, fishing or trapping as part of recreational, subsistence or commercial activities. Wildlife may also be subject to uses other than hunting, such as photo hunting or the observation of wildlife, including bird-watching.

For wildlife conservation, it is necessary to acquire management tools that help to ensure the renewal of the wildlife resource. Through the knowledge that we acquire from appropriate studies and monitoring operations, the proper balance can be maintained between the use and the **PRODUCTIVITY** of the wildlife species in question. On this subject, special mention should be made of the importance of bag limits (or the importance of quotas), harvesting seasons, as well as the rules governing access to and the use of the territories put at the disposal of wildlife users.

One must also take into consideration the factors that modify or disturb wildlife habitats in order to manage the wildlife resource adequately and apply the appropriate protection measures. This may involve the partial limitation (limited-access hunting for example) or the total prohibition of activities, which would constitute in this case a measure to preserve a wildlife population, a wildlife habitat or a natural environment.

Under the terms of this system, we can ensure that our generation and future generations are able to enjoy wildlife in a high quality natural environment. This is accomplished by controlling and monitoring wildlife use. **Maintaining viable natural populations of wildlife always takes precedence over harvesting these animals.** By applying the *sustainable development* measures, we avoid harvesting more animals than the habitats and populations produce each year. Québec hunters are well aware of this principle expressed in the popular motto: *conserve your capital and spend only the interest.*

3. HABITAT'S CARRYING CAPACITY

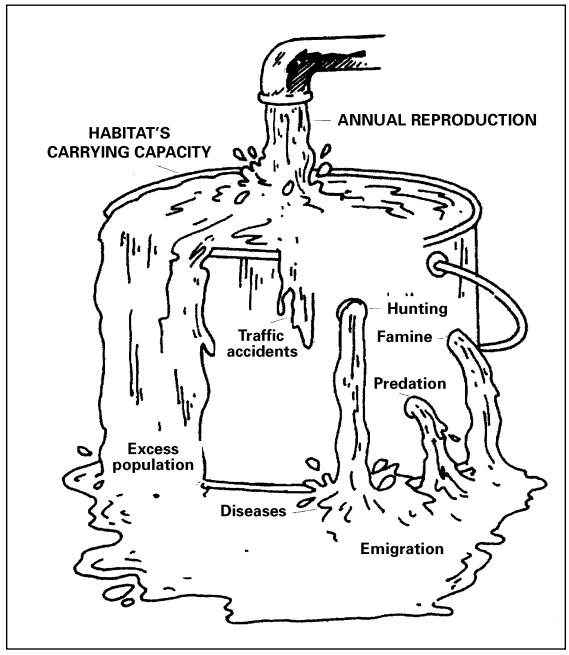
The habitat is vital for wildlife. In order for animals to be able to survive, reproduce and develop, the habitat must meet their food, water, shelter and space needs. **A habitat cannot meet the needs of an unlimited number of animals.** Indeed, the number of animals that the habitat of a given species can support is determined by the quantity and distribution of food, shelter and water, as well as the availability of space for each species' mobility needs.

A habitat's carrying capacity is defined globally as being the number of members of a species that its habitat can support in the long term. This capacity is expressed by the number of animals per surface unit of habitat (no. of deer per km^2, for example).

By comparison, a habitat's carrying capacity can be illustrated by the following diagram.

Where:

- the bucket = a habitat 's carrying capacity;
- the tap = annual reproduction;
- the water = the quantity or number of animals (or population) in the habitat;
- water leaks (losses) = the natural or involuntary control factors affecting the excess population (or animals exceeding the carrying capacity);
- hunting (harvest) = the "voluntary control factor" affecting the excess population.



In the absence of hunting, an animal population tends to increase until the habitat reaches or even exceeds its carrying capacity. In such a situation, it is the natural control factors (beyond human control) that maintain a certain balance between an animal population and its habitat. When the number of animals exceeds the habitat's capacity, the available food becomes scarce, the competition between animals increases, and the weaker animals emigrate, become even weaker or die from predation, diseases or even starvation.

In the presence of hunting, an animal population rarely exceeds the carrying capacity of its habitat. When managed in this way, the effect of hunting is to limit the importance of animal losses attributable to natural control factors. That is why hunting is not a natural control factor, but rather a wildlife management tool. It promotes the maintaining of a balance between animal populations and their habitats, in addition to being a recreational activity that has major social and economic spin-offs that contribute to the prosperity of the regions.

4. A FEW WILDLIFE REALITIES

Wildlife is a renewable resource that cannot be accumulated. If wildlife stocks become too large, the habitat cannot provide enough food for all of the animals: several animals will die from starvation. The habitat can only support a limited number of animals. Predators eliminate weak and sick animals. Parasites and epidemics develop, destroying a part of the population. Extremely harsh winter conditions can eliminate more animals than sport hunting takes.

Hunting, as it is practiced today, has no negative effect on wildlife. However, the changes to the natural environment resulting from logging, agriculture and major public works projects often cause major damage by destroying the habitats that are essential for wildlife: shelter, water, food and space are vital elements for the subsistence and development of wildlife.

Government agencies, with the help of local communities and sporthunters, have made major efforts to improve wildlife and habitats. Ecological reserves and parks have been developed. Wildlife can live and develop free from the risk of seeing its environment destroyed. Natural environment development measures have made it possible for wildlife populations to grow, and laws have been passed to protect wildlife habitats that are deemed essential.

Our current wildlife management policies seek to avoid the over-harvesting of game by hunters. The managers responsible for wildlife make an inventory of the stocks of animals that are hunted and set harvesting limits based on the habitat's carrying capacity. Thanks to the cooperation of sporthunters, wildlife resources will be protected and conserved for the benefit of present and future generations.

5. IMPORTANT WILDLIFE CONTRIBUTORS

The preservation, improvement and use of Québec's wildlife resource depend, more or less directly, on a number of stakeholders. Some are associated with the government while others are non-governmental. Wildlife is of great importance for a large number of Québec's citizens. That explains why many people have come together within associations and federations to better defend their mission, values and interests associated with this collective heritage.

In November 2007, the Government of Québec passed sections 161.1 and 161.2 of Chapter V.1, which amended the *Act respecting the conservation and development of wildlife* (ACDW) in order to provide for the setting up, by the Minister of Natural Resources and Wildlife, of a Québec-wide wildlife panel and regional wildlife panels. The mandate of these panels is to advise the Minister or his regional representatives on any question the Minister submits to them concerning the conservation and development of wildlife, especially as regards developing and promoting hunting, fishing and trapping, and the next generation of hunters, fishermen and trappers.

The organizations that make up the Québec-wide wildlife panel are all wildlife partners of the Faune Québec sector of the Ministère des ressources naturelles et de la Faune. They are: the Fédération des pourvoiries du Québec (FPQ), the Fédération des trappeurs gestionnaires du Québec (FPGQ), the Fédération québécoise des chasseurs et pêcheurs (FédéCP), the Fédération québécoise pour le saumon atlantique (FQSA), the Fondation de la faune du Québec (FFQ), the Institut de développement durable des Premières Nations

du Québec et du Labrador (IDDPNQL), the Société des établissements plein air du Québec (SÉPAQ) and Zecs Québec (FQGZ).

Before presenting in greater detail the main non-governmental organizations concerned by the wildlife that may be hunted or trapped, let's first look at the government agencies that are concerned, to various extents, by the management of the wildlife heritage.

5.1 Government Agencies (G.A.)

When it comes to hunting in Québec, there are basically three government agencies that play a fairly substantial role in wildlife management.

5.1.1 Faune Québec (MDDEFP)
www.mddefp.gouv.qc.ca/faune

The mission of the ministère du Développement durable, de l'Environnement, de la Faune et des Parcs (MDDEFP) is to ensure the conservation of natural resources and the territory while promoting wealth creation through their development in a sustainable development perspective for the benefit of citizens.

Faune Québec is a sector of the MDDEFP. It is the main manager of wildlife in Québec. Its mandate is to ensure the conservation and development of wildlife and its habitat, in a sustainable and harmonious development perspective at the cultural, social, economic and regional levels. The sustainable development concept includes the notion of development and aims to meet the needs of the present without compromising the ability of future generations to satisfy their own needs. It also ensures the conservation of threatened and vulnerable species and encourages fish breeding activities to meet the needs of wildlife managers.

At the present time it is the Direction du développement socio-économique, des partenariats et de l'éducation of the MRNF that is responsible for education for the wildlife sector. The actions in the education network and with up-and-coming hunters and trappers (PESCOF) are disseminated by wildlife protection officers and wildlife partners.

The PESCOF, Security, Education and Wildlife Conservation Program includes four obligatory training modules leading to the obtention of a hunter's or trapper's certificate. These components are: the Canadian Firearms Safety Course (CFSC), the Introduction to Hunting with Firearms (IHF), the Introduction to Hunting with Bows and Crossbows (IHBC) and the Trapping and Management of Furbearers (TMF). Participation in the modules and the successful completion of the related exams are prerequisites for obtaining a hunter's or trapper's certificate.

5.1.2 Forêt Québec (MRNF)
www.mrn.gouv.qc.ca/forets

This organization is the main manager of forests in the public domain in Québec. It actively collaborates in the study on the integrated management of resources of the forestry environment. It directs research and monitoring projects dealing with the assessment of the impact of forestry activities on the natural environment, including on wildlife habitats. Within the context of its activities, Forêt Québec is concerned about maintaining **BIOLOGICAL DIVERSITY**.

5.1.3 The ministère du Développement durable, de l'Environnement, de la Faune et des Parcs
www.mddefp.gouv.qc.ca

The mission of the *ministère du Développement durable, de l'Environnement, de la Faune et des Parcs* is to ensure the protection of the environment and natural ecosystems with a view to contributing to the well-being of current and future generations.

The Department is active in the following fields in particular: the promotion of sustainable development within the Public Administration and Québec society; the protection of ecosystems and the biodiversity of Québec's territory through the development of a network of protected areas and the safeguarding of plant species and their habitats; the observation and knowledge of ecosystems and their components, etc.

5.1.4 Canadian Wildlife Service (Environment Canada)
www.cws.scf.ec.gc.ca

The responsibilities of the CWS (a component of the Federal Department of the Environment) include the protection and management of migratory birds and important habitats. The CWS is interested in endangered species and participates in the Recovery of Nationally Endangered Wildlife (RENEW, for the peregrine falcon, piping plover, etc.). It collaborates in works on wildlife questions that are national and international in scope, in particular by way of an agreement with Scandinavian countries on the conservation of the polar bear. The CWS conducts research on animal biology (among other things, on the effects of pollutants on wildlife), as well as studies on the socioeconomic value of wildlife. Finally, this organization manages the network of national wildlife reserves, migratory bird sanctuaries and the staging areas of waterfowl.

5.2 Non-Governmental Organizations (NGOs)

There are many NGOs (associations, federations, societies, universities) that support government wildlife resource management initiatives. These organizations enable citizens to play an active role in the field of conservation, planning and education related to wildlife. With the help of NGOs, the public can make its voice heard with wildlife authorities.

5.2.1 Fédération québécoise des chasseurs et pêcheurs (FédéCP) www.fedecp.qc.ca

This non-profit organization has existed since 1946. It brings together a large number of sport hunters and fishermen of Québec, by way of associations affiliated with the federation. Its mission is to contribute to the management, the development and the perpetuation of hunting and fishing as traditional, heritage and sports activities, while respecting wildlife and its habitats.

The Federation is active in three main fields of action:

- the defence of hunters' rights which entails ensuring that all of the regulatory measures dealing with hunting and fishing respect the character of the *Act respecting the conservation and development of wildlife.*
- education in order to ensure that hunters and fishermen practice their activities in a safe and ethical manner.
- the preservation of wildlife habitats to ensure and maintain in good health game populations and wildlife populations in general.

In the application of its fields of intervention, the federation can also count on the support of its subsidiaries, Sécurité nature and its wildlife heritage foundation, especially when it comes to the development of a responsible behaviour on the part of hunters and to promoting the conservation and development of wildlife.

The educational component of the Fédération québécoise des chasseurs et pêcheurs, Sécurité nature, was created in 1995. Having as its mission the development of responsible behaviour on the part of hunters and fishermen, the organization is incorporated as a non-profit organization and is administered by a seven-member board of directors. The organization, the federation's main arm in the field of education and training for safety in nature, has some ten employees and more than 500 volunteer monitors distributed across all the regions of Québec. The main responsibility of Sécurité nature consists of:

- develop education programs in the field of nature interpretation, the protection and development of wildlife and its habitats, as well as the safety of persons practicing outdoor activities.
- publish educational material pertaining to the knowledge, conservation and development of wildlife and habitats, as well as activities related to outdoor recreation.

5.2.2 *Zecs Québec (FQGZ)*
www.reseauzec.com

It was in 1982, namely four years after the implementation of Operation wildlife management, that the Government of Québec invited controlled zones (Zecs) to adopt a Québec-wide coordination mechanism. The following year, the Fédération québécoise des gestionnaires de zecs (fQGZ) was born. It was entrusted with the mission of representing Zec manager organizations and defending their interests at the provincial level in a spirit of wildlife conservation and development. Since then, the fQGZ has been recognized by the Government of Québec as official representative of the 63 certified organizations for the management of hunting, fishing and outdoor Zecs. In 2008, the FQGZ became Zecs Québec.

Zecs Québec has a twofold mission: representing and defending its members, and providing high quality services allowing Zec managers to take up management challenges.

5.2.3 *The Fédération des pourvoiries du Québec (FPQ)*
www.pourvoiries.com

Outfitting establishments have been present in Québec for close to a century and the first known group of outfitters was the Association des Outfitters de Québec, created in December 1948. In the years that followed, the name changed several times, finally becoming the Fédération des pourvoiries du Québec inc. (FPQ) in December 2002.

Today, the FPQ, a non-profit organization recognized by the Government of Québec, brings together some 375 outfitting establishments that share a profound attachment to Québec nature and the desire to enhance it, while promoting public access.

The FPQ has adopted the following mission: to represent and to promote the collective interests of the members and the industry in a sustainable development perspective.

5.2.4 *The Fédération des trappeurs gestionnaires du Québec (FTGQ)*
www.ftgq.qc.ca

It was beginning in 1976 that the Association provinciale des trappeurs indépendants, the first provincial group of Québec trappers, appeared. Close to 25 years later, the Fédération des trappeurs gestionnaires du Québec (FTGQ) came into being following the merger of the Association provinciale des trappeurs indépendants and the current federation.

The FTGQ is a non-profit organization. Its mission is to promote trapping as an economic and professional activity and to ensure its management, development and perpetuation, while respecting wildlife and its habitats.

The federation's objectives are: to group Québec trappers in an organization dedicated solely to trapping; to inform and educate its members and the public; to defend and promote the interests of its members; to help trappers market their furs; to promote humane

trapping methods, technical and scientific research and development, as well as the protection and conservation of wildlife habitats; to participate in the management of furbearers; to represent Québec trappers as professionals; and to provide services of every kind in relation to its objectives.

5.2.5 The Fédération québécoise pour le saumon atlantique (FQSA) www.fqsa.ca

Created in 1984, the Fédération québécoise pour le saumon atlantique (FQSA) is a non-profit organization whose purpose is to unite all salmon fishermen of Québec and represent their interests. For this purpose, the FQSA has adopted the mission of promoting: the conservation and development of salmon rivers; the development of salmon sport fishing; and the defence of salmon rivers and their habitat against all threats, as well as the maintaining of access to good quality fishing at an affordable price.

5.3 Foundations

Hunters contribute to the conservation of wildlife and its habitats through voluntary or regulatory contributions to various foundations present in Québec. These foundations include the Fondation de la faune du Québec (FFQ), the Fondation Héritage-faune (FHF) and Ducks Unlimited Canada (DUC).

5.3.1 The Fondation de la faune du Québec (FFQ) www.fondationdela faune.qc.ca

Founded in 1988, the FFQ is a non-profit organization created under Chapter V of the *Act respecting the conservation and development of wildlife.* Its mission consists of promoting the conservation and development of wildlife and habitats throughout Québec.

Since its creation, the Foundation has supported more than 7,333 projects: acquisition of sites for the purpose of protecting, planning, restoring and developing habitats; wildlife research or education projects; training and awareness promotion about the importance of protecting wildlife habitats. The projects are carried out with partners from the community. These projects involve land, aquatic and wetland habitats in all regions of Québec.

In addition to the major contribution made by Québec hunters, anglers and trappers when they purchase their licence, the Foundation obtains revenues from the spin-offs of the Carte Nature Visa Desjardins, the annual sale of a conservation stamp and the sale of limited reproductions, and contributions from major financial institutions or businesses, government departments and individuals.

5.3.2 The Fondation Héritage faune (FHF) www.fedecp.qc.ca/mission-fondation

Héritage faune, the official foundation of the Fédération québécoise des chasseurs et pêcheurs, was founded in 1980. Its mission is to restore wildlife habitats.

In addition to offering various sources of funding to permit the carrying out of wildlife development projects, Héritage faune offers the necessary training to associations in the form of courses and permanent support. It is dedicated specifically to promoting, bringing about and supporting various aquatic and terrestrial wildlife development projects as well as studies, research projects and public education programs that promote wildlife and wildlife habitats.

5.3.3 Ducks Unlimited Canada (DUC)
www.canards.ca

This organization has been present in Québec since 1976. It is a private, non-profit organization dedicated to the protection and development of wetlands. Its initiatives mainly deal with aquatic birds (ducks, geese and brant) but increasingly, they are encompassing other ecosystems as well as a few other aquatic and semi-aquatic species.

Since arriving in Québec, DUC has protected, restored or developed 190 separate sites, namely more than 28,000 hectares (69,190 acres) of wetland and riparian habitats.

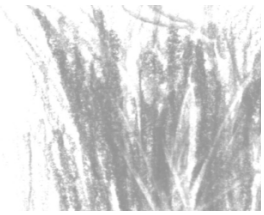
5.4 Sporthunters

Despite all the work done, the employees of the Ministère who are responsible for wildlife cannot ensure the conservation of Québec's wildlife without the help of others: that is why it is essential that each and every hunter collaborate in this mission. There are several ways of making a contribution; here are the main ones.

First, sporthunters must comply with the laws and regulations concerning hunting and adopt a responsible attitude and behaviour in a natural setting. By following the code of conduct (or code of ethics), hunters will demonstrate to everyone their willingness to protect and safeguard Québec's rich wildlife resources.

Sporthunters can also actively participate in wildlife conservation by becoming a member of a hunting and fishing association in their community; they will obtain numerous benefits and will have the opportunity to take part in various community projects carried out by their association. These projects, which are related to the conservation of wildlife resources and the natural environment, benefit sporthunters first and foremost.

Finally, with the persons in charge of delegated-management territories (outfitting establishments, Zecs, reserves or other wildlife territories), it is possible to participate directly in the protection of wildlife by assisting the **WILDLIFE PROTECTION OFFICER** as a **WILDLIFE CONSERVATION ASSISTANT**. The assistant has limited, albeit sufficient powers, to significantly increase the efficiency of the officer who cannot be everywhere all the time.



CHAPTER 3

Hunters and the Law

1. WILDLIFE LAWS AND REGULATIONS

As we will see in the chapter on understanding wildlife and wildlife management, wildlife populations and their habitat can be fragile. Implementing appropriate regulations and seeing to their application are necessary to ensure the sustainable development and use of wildlife resources.

Standards are essential management tools for they set the basic rules to which wildlife users are subject. The purpose of such standards is to provide a framework for harvesting activities and to allow a sustainable use of the resources in question. Regulations must ensure the preservation of animal populations at a desirable level and distribute the resource among users in the best manner possible. Moreover, regulations must govern harvesting in such a way as to ensure that a wildlife species can survive, reproduce and flourish.

Regulations evolve as the knowledge about the biology of the species grows. Standards are reviewed periodically to adjust the rules of use to the actual situation of the species and users.

Implementing regulations also involves establishing control structures or methods. Wildlife protection officers are the persons responsible for enforcing the acts and regulations governing the use of the wildlife resource.

In Québec, it is the *Act respecting the conservation and development of wildlife* that gives the government the power to manage wildlife resources. The spirit of this Act is to ensure the **SUSTAINABILITY** of species and habitats, while promoting the development and use of wildlife. This legislation defines the categories of territories created for these purposes, specifies the conditions and terms for carrying out various activities related to wildlife or habitats, establishes the categories of licences, and defines the ensuing regulatory framework. The Act determines the priorities in the allocation of stocks to the various wildlife users.

The main regulations governing hunting, fishing and trapping activities in Québec are: the Regulation respecting Hunting, the Regulation respecting Migratory Birds *(the federal Migratory Birds Convention Act)* and other lesser known regulations that directly affect the activities of hunters in varying degrees.

Hunters **must** make a point of familiarizing themselves and complying with the laws and regulations dealing with wildlife and habitats. No matter where they hunt, hunters will never be able to plead ignorance of the laws before the courts. This principle is very important as a number of hunters also hunt outside Québec.

1.1 Laws Protecting Wildlife

First, there is the absolute prohibition on hunting certain species, at certain places or during well defined periods of the year, i.e. the period for giving birth and raising their young. Moreover, the legal provisions indicate how to bag game in such a way as to avoid unnecessary suffering, as well as permit the use of certain devices to attract or hunt game. The purpose of these measures is to protect wildlife, while making it accessible to more people. Indeed, these limitations, which help reduce the efficiency of hunters, make it possible to increase the number of enthusiasts or the number of recreation days without jeopardizing the survival of a species.

1.2 Laws Concerning the Safety and Welfare of Individuals

These provisions prohibit transporting loaded weapons in a vehicle, shooting from a vehicle (except for certain duly authorized handicapped persons), etc.

1.3 Laws Promoting a Fairer Distribution of the Resource as well as its Sustainable Use

Several measures, including the obligation to have a hunting licence and bag limits, ensure everyone an equal chance to benefit from wildlife resources. Regulations define the categories of licences available for a given species or territory.

Each year, Faune Québec (government of Québec) makes available to the public a summary of the regulations governing hunting. It is important that each hunter obtain a copy of this summary from a licence distributor or a regional office of the Ministère and familiarize himself with its content, for this document contains the basic laws and regulations that must be complied with when hunting in Québec. As for the hunting of waterfowl, it will be in the hunter's interest to obtain the pamphlet outlining the regulation governing this hunting activity from the Canadian Wildlife Service.

Finally, each Canadian province and each American state publishes a similar document that summarizes its hunting rules. If you are planning a hunting trip outside Québec, you should request these summaries well ahead of time to be able to familiarize yourself with the local rules in effect.

2. VARIOUS LAWS GOVERNING HUNTING

Certain articles of the *Civil Code* and certain sections of the *Criminal Code* which govern the behaviour of individuals in general have a direct application with respect to hunters. Here are the main articles and sections.

2.1 Civil Law

While the hunter may claim certain rights, the **LANDOWNER** enjoys a strict indisputable right: that of the owner, whatever the extent of his private property.

2.1.1 Right of Ownership

The Civil Code is categorical on this subject. Article 947 defines ownership as follows:

"Ownership is the right to use, enjoy and dispose of property fully and freely, subject to the limits and conditions for doing so determined by law."

2.1.2 Prerogatives of the Hunter and Their Limits

As for the hunter, he has certain prerogatives (which are not rights within the legal sense of the term). While the landowner is the absolute owner of his land, the game does not belong to him. For centuries jurists have designated game as *"res nullius"*, i.e. "a thing that has no owner". Modern-day courts recognize this rule which states that the landowner cannot claim ownership of the game found on his property. However, section 2 of the *Agricultural Abuses Act* prohibits every person from entering upon or passing over a private land without permission of the owner. The hunter will therefore have to obtain the permission of the owner concerned before entering private property for hunting purposes.

Under section 412 (16) of the Cities and Towns Act, every municipal government can have by-laws amended or repealed to prevent or regulate the discharging of firearms.

It is therefore important to obtain information about the zones where such by-laws apply when you intend to go hunting in a municipality of Québec.

2.2 Penal Law

There is a complement to this aspect of civil law in penal law. According to the provisions of the Criminal Code (section 41) and the ensuing doctrine, an owner has the right to prohibit any trespassing on his property, and he may even resort to the necessary force to evict the trespasser after having given him reasonable warning.

Section 41 of the *Criminal Code* reads as follows: *"Every one who is in peaceable possession of a dwelling house or real property, and every one lawfully assisting him or acting under his authority is justified in using force to prevent any person from trespassing on the dwelling-house or real property, or to remove a trespasser therefrom, if he uses no more force than is necessary".*

On this point, to ensure the full enjoyment of the property right, section 174 al.1(d) of the Criminal Code adds that: "Is guilty of an offence upon **SUMMARY CONVICTION**, every one who… (d) disturbs the peace and quiet of the occupants of a dwelling house by discharging firearms or by other disorderly conduct in a public place…"

Moreover, section 36 of the *Act respecting the conservation and development of wildlife* stipulates that: *"No person may hunt, trap or fish on, or fish from, private land if it is owned by a party to a memorandum of agreement entered into with the Société for the purposes of wildlife management and accessibility, without having first obtained the authorization of the owner or his representative …".*

ADDITIONAL INFORMATION ON: "THE RIGHT TO HUNT, FISH AND TRAP"…

In December 2002, the Government of Québec officially recognized the right to fish, hunt and trap all across the territory of Québec and prohibited individuals from knowingly hindering the lawful carrying on of these activities.

However, the new legislative provisions stipulate that hunting, fishing and trapping are not preponderant activities in relation to other activities that may be practiced on the same territory.

3. SPECIES THAT MAY BE HUNTED IN QUÉBEC

Depending on the species hunted, the use of gear must always comply with the regulations concerning the types of firearms, the calibres, the ammunition, the tension of crossbows and bows, as well as the arrowheads or arrow used, etc. Certain species may be hunted in enclosed areas, such as white-tailed deer and certain exotic species. For the other mammals, birds, reptiles and AMPHIBIANS that may be hunted in Québec, you will find the conditions governing their harvesting listed below.

• Using a firearm, a bow or a crossbow:

Here is the list of animals that the holders of the appropriate licence may hunt in Québec according to the laws and regulations peculiar to that hunting season:

moose, white-tailed deer, caribou, black bear, wolf, coyote, woodchuck, raccoon, red fox, snowshoe hare, Arctic hare, eastern cottontail, pheasant, ruffed grouse, sharptailed grouse, European partridge, spruce grouse, willow ptarmigan, rock ptarmigan, American crow, European starling, common grackle, house sparrow, brown-headed cowbird, red-winged blackbird, rock dove, wild turkey, quail, Northern bobwhite, francolin, rock partridge, chukar partridge, red-legged partridge and guinea-fowl.

• By means of a shotgun or a bow:

Most ducks, all geese; snipe, woodcock, coot, native hen.

• Using snares:

Snowshoe hare, Arctic hare, eastern cottontail

• By other means:

clubs, gates, darts, landing-nets, pits, hooks and hands: bullfrog, green frog, leopard frog.

CHAPTER 4

Hunter's Ethics

Hunters find themselves alone in nature, free to take advantage of our immense collective resources for their own pleasure and well-being. With these privileges come a number of obligations. It is through personal discipline and proper conduct that sporthunters show respect for wildlife and its habitat, and that they ensure their own safety and that of other individuals enjoying the natural environment.

Basically, hunter's ethics is a matter of public-spiritedness, courtesy, a sense of fair play, and social conscience. Each citizen has a responsibility towards society. Indeed, the protection and wise use of the environment and renewable resources are of vital importance for society as a whole. Sporthunters have several responsibilities that form an integral part of this respect for and wise use of the natural environment.

The beauty of the land cannot be maintained by damaging the environment. It is the duty of all hunters to leave the territory in the same state as they found it or at the very least, to not contribute to its deterioration.

At all times, hunters must adopt an ethical behaviour by showing courtesy, public-spiritedness and respect for the environment. People greatly appreciate it when others behave themselves in this way. It is only natural that they should adopt a similar conduct. These attitudes contribute to the respect for and safety of hunting.

1. HUNTER'S ETHICS: A MATTER OF RESPONSIBILITY

Responsible hunters:

1- know and respect their limits. Consequently, to fully assume their role in preserving Nature's balance:

- all year round, they hone their skills and develop their abilities in the exercise of outdoor activities in order to make the most of these activities safely;
- they choose equipment that is suited for their activity and they keep this equipment in good working order;
- they know their limits, adapt to them, while making efforts to improve.

2- show respect for other hunters and individuals using the natural environment. As a result:

- they avoid acting as if they were the sole and unique owners of the environment;
- they remain aware of the dangers associated with the use of a firearm and stay alert at all times, to avoid accidents due to their negligence;
- they recognize the right of other hunters to hunt and show them the same respect that they themselves expect, thereby avoiding unnecessary confrontation that could be detrimental to the image of hunters, while promoting access to wildlife for all;
- they should never encroach on the "territory" of a fellow hunter with the excuse of making an easy kill. The other hunter should be given a fair chance. A hunter who is impatient often ends up missing the animal or causing it needless suffering, while endangering the safety of his fellow hunters. It is important to make sure that each shot fired is well aimed and fatal for the quarry they are after;
- if they are not sure that they made the kill, they leave it to their hunting companion;
- they don't act like pillagers wiping out the wildlife resources that interest them;
- they show courtesy and adopt a friendly behaviour towards campers, wildlife observers, anglers, trappers, etc., and in so doing recognize that the best way to ensure the future of hunting is to show courtesy to these groups, to ensure that the greatest number of people have access to the wildlife resource in its environment and to make sure that the conservation of the wildlife resource is not threatened by harvesting activities.

HARVESTED GAME: WHO HAS PRIORITY?

HERE IS THE "RULE OF FIRST BLOOD" that is often ignored by some hunters. The quarry belongs to the hunter who is first to hit the animal in a vital zone or to inflict a fatal wound. The animal's vital zone refers to its lungs, heart or liver. Most of the time, wounds of this type result in profuse bleeding, but the animal still may manage to travel some distance. The hunter in question has priority over every other subsequent hunter and has the right to claim his due, even if another hunter hits the animal in question. Needless to say, if the first hunter did not hit the animal's vital zone and a second hunter kills the animal by hitting its vital zone, the opposite scenario applies; the first hunter relinquishes "his rights" to the second hunter.

No self-respecting hunter would consider claiming a kill that belongs to another hunter. Respect and courtesy go hand in hand with the practice of a noble activity.

3- respect owners' rights. All land is either privately or publicly owned. Hunters must show civic responsibility and consideration regardless of who the owner is. Respecting the right of others is essential; indeed, if you do not respect the rights of other people, how can you expect them to respect your rights? Landowners allow hunters to have access to their property based on past experience with other hunters. All it takes is one or two hunters to abuse the hospitality of their host, forget to ask permission, leave garbage behind, or damage fences or wooded areas to cause the landowner to ban all hunters.

4- respect wildlife, habitats and the environment. For true hunters, wildlife is not merely potential quarry or a live target:

- they make sure that they know as much as possible about the role of wildlife in a balanced ecosystem and about what constitutes the wealth and diversity of a natural environment;
- they learn about the habits of the game they are pursuing and their hunting territory in order to observe the game's behaviour in its habitat;
- they make sure that their weapon is properly adjusted;
- they try to improve their shooting through regular practice;
- they always use biodegradable material as targets;
- they clearly distinguish between those species that may be hunted and those species that may not be hunted;
- they only shoot at well-identified targets, that are in the open, taking a clean and effective shot in the vital zone in order to avoid unnecessary suffering;
- they make sure that they recover their game and that they make use of all that the animal offers, while bearing in mind that harvesting a natural resource is only legitimate when it is used properly. Above all, they are aware of the chance they are being given to obtain healthy, nutritional meat, free in large part from cholesterol which is such a major concern for dieticians and physicians;

- they make a point of leaving their hunting territory as clean, if not cleaner, than the way they found it;
- they limit their off-trail and off-road movements when driving their all-terrain vehicle (ATV);
- they participate in hunters' associations and foundations that invest in the protection and restoration of species as well as in the conservation and development of wildlife habitats;
- they get involved in activities supporting the conservation, development and protection of the environment, taking advantage of the opportunity to work with non-hunters and to create a positive image of hunters and hunting activities;
- they cooperate with authorities by collecting and providing information that is useful for wildlife management;
- they avoid harassing animals by disturbing them in their habitat or by scaring them with a vehicle or a boat;

5- are citizens who are active in the social, cultural, education sectors, etc., and who, in so doing, show that they are capable of assuming, within their community and with competence and enthusiasm, tasks that are useful for everyone.

6- comply with the laws and regulations enacted to ensure the conservation and development of wildlife and its habitats, as well as the safety of their fellow citizens; moreover, they encourage their fellow hunters and the other users to act the same way. Consequently:

- they familiarize themselves with the hunting regulations of the region where they want to hunt;
- they make a point of reporting offenders and poachers to the competent authorities.

7- participate in the activities to recruit and educate the next generation of hunters, by transmitting their knowledge and know-how to young hunters or novice hunters, by helping them acquire the techniques and skills required, and by instilling in them the rules of safety and types of conduct that are both responsible and respectful of nature.

In short, hunters of the 21st century are careful, skilled, responsible and sociable. It is important to remember that preconceived ideas die hard. Negligent or irresponsible hunters and poachers undermine the reputation of the hundreds of thousands of sporthunters in Québec.

HUNTER'S CODE OF ETHICS

The duties of the modern-day hunter are summarized in the following code of ethics

- **Take the necessary steps to get to know wildlife and its habitats better.**
- **Do your best to acquire the necessary shooting skills and hunting techniques in order to be able to kill the quarry cleanly and always be able to recover it.**
- **When hunting, refrain from alcohol or drug use.**
- **Always consider yourself a guest of the landowner by requesting permission to enter his property and conducting yourself in such a way that you will always be welcome.**
- **Observe safety rules carefully when handling, transporting, storing and maintaining a weapon and always insist politely that others do the same.**
- **Obey the laws and regulations dealing with wildlife and encourage your fellow hunters to do likewise.**
- **Use binoculars and never the scope of a weapon to identify persons, animals or objects.**
- **Take care when handling game in order to preserve the meat.**
- **Avoid showing off bagged game so as not to offend the sensitivities of others.**
- **Support the principles and initiatives of conservation and sustainable development related to wildlife in order to ensure the future of hunting for generations to come.**
- **Share the heritage that hunting represents with young people by emphasizing respect and safety.**

2. RESPECTING PRIVATE PROPERTY AND PERI-URBAN AREAS

Peri-urban areas are often suited for hunting and from an energy consumption standpoint, they are not far from the hunter's place of residence. But it is important to bear in mind that this land is privately owned for the most part. To circulate on these properties, you must first obtain authorization, and only the owner can give you it.

After having determined the property you wish to hunt on, you need to find out the name and address of the landowner to meet with him and request permission to enter his property in order to hunt.

Today, respect for private property has become one of the major elements guaranteeing the future of hunting in Québec.

Needless to say, hunters should not wait until the last moment, i.e. just before hunting season opens, to make these arrangements. This is something that should be prepared several months ahead of time. It is important to establish courteous relations, always bearing in mind that it is the owner who is doing you a favour by allowing you to use his property for hunting purposes. Indeed, this property is the fruit of his hard work, and he is required to pay taxes on it and various fees each year.

When you request such an authorization, be sure to always indicate if you are bringing along one or more hunting companions.

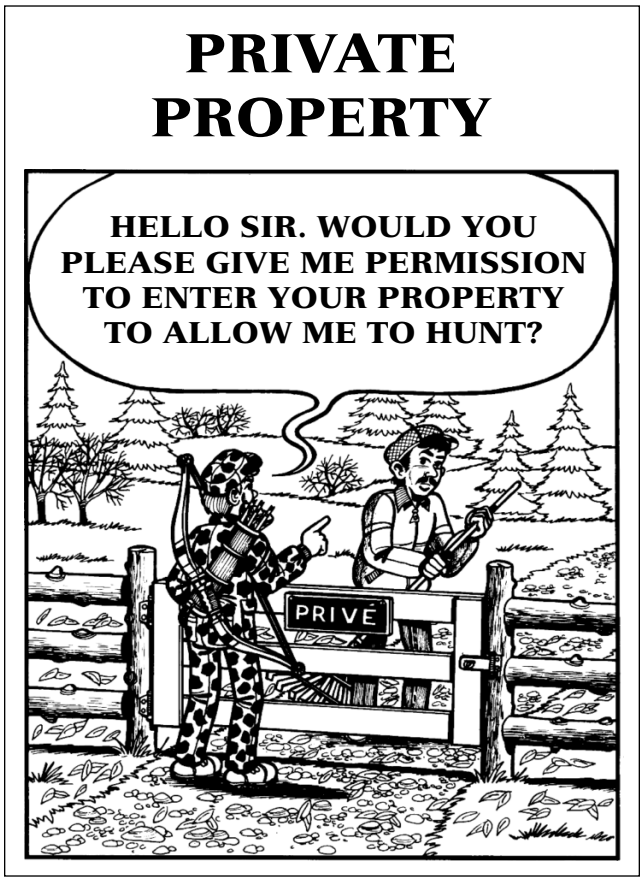
To retain these privileges, maintain good relations with the landowner and encourage other landowners to give access to their property, hunters are asked to abide by the following rules:

- Ask for (and obtain) beforehand permission to enter a private property;
- Always leave the property in the state you found it;
- Respect safety zones and the places prohibited by the owner;
- Ask him which places would be most suitable for hunting;

If you use dogs, horses or other animals, keep full control over them. An owner will surely not appreciate seeing his animals being chased by a dog!

- Never cut fences. Do not flatten them either, for they serve to control animal movements. Put gates back in their original position.
- Do not cut trees, bushes or branches without first having obtained the owner's permission.
- Do not use nails or screws, etc. to attach a platform to trees.
- Do not use any set-up that is likely to have a negative impact on a tree.
- Do not destroy or damage harvests, as they represent the landowner's livelihood! If you are not familiar with the plants that he is growing, ask him: he will be proud to show you the fruit of his labour and to explain what the plants are used for.

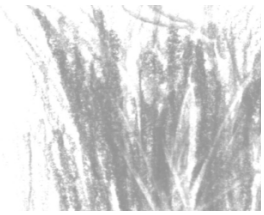
- If you plan to camp overnight, request permission and have the landowner show you the appropriate spot. Be careful when building campfires and bring back all your garbage.
- The fact that you obtained permission once to use a property does not mean that you can use it indefinitely. Each time that you use the landowner's property, go see him and request permission again. At the very least, this will allow you to inform him of your presence and to greet him.



- Before leaving, always thank the landowner and express your satisfaction. If you observed something that seemed unusual, let the landowner know. If you had a successful hunt, offer him a portion of your kill: attending to his business may prevent him from taking advantage of his territory. That way, you will increase your odds of being able to come back and, above all, you will create friendship ties that will be worth more than everything else.
- During the holidays, a telephone call or a card addressed to the landowner will remind him how much you appreciate the privilege that he is offering you; such a gesture will reflect your recognition of a person who allows you to spend enjoyable moments in Nature.

IMPORTANT NOTE…

Whether big or small, cultivated or left fallow, fenced off or open, inhabited or uninhabited, whether there is a no trespassing sign or not, whether it is far away from civilization or nearby, private property is sacred! You may never enter private property without first obtaining the owner's authorization.



CHAPTER 5

Controversial Questions about Hunting

Hunting is a sport and a self-imposed challenge; for some people, it is physically and psychologically rewarding. Once the technique has been mastered, a relaxed feeling and confidence naturally follow. Self-respecting hunters apply basic rules that will help earn the respect of their fellow citizens and minimize criticisms regarding their sport. In some circles, a lack of knowledge concerning hunting results in resentment and even antagonism towards those who practice this activity. We do not mean to raise a controversy between conscientious, serious and law-abiding hunters and those individuals who object to this activity. Instead, we are referring to the lack of knowledge, selfishness and even bad faith on the part of some people who refuse to accept or to understand this activity.

Hunters must obey the laws dealing with wildlife conservation, which center on respect for animals and the environment in which they live. Moreover, there are also a number of rules which, while less apparent, are also important. They concern the manner in which hunters conduct themselves in the presence of other users of the wildlife environment and vis-à-vis other people's property.

While hunting is the subject of numerous criticisms not only from hunting opponents but also from persons who are misinformed or who are against the use of firearms, every hunter must be able to explain his point of view and show that he is engaging in a lawful and noble activity. Indeed, hunting is a form of wildlife use that is just as acceptable as any other. Skilled and conscientious hunters have no need to feel ashamed about practicing an activity that has its own rules and gives them the opportunity to enjoy Nature, relax and hone their skills, while occasionally providing them with game meat, the consumption of which is just as acceptable as that of meat from domestic animals.

ISN'T HUNTING A FORM OF PREDATION?

Yes. Civilized man behaves like a predator by harvesting in Nature the natural resources necessary for his survival and development. However, hunting should be seen more as a wildlife management tool making it possible to maintain wildlife populations in balance with their environment (form of **CONTROL**). Indeed, the occupation of the territory by man and the control that he has exercised over large predators have considerably altered the natural order with the end result being that the self-regulatory mechanisms of Nature no longer play their usual role.

The biological studies carried out in Québec and elsewhere show that some of the consequences of these changes are detrimental to wildlife and its habitat. In some cases, there is an over-abundance of animals on a given territory, a short supply of food, the reduction or deterioration of the habitat, a deterioration in the health of individual animals, an increase in **DEPREDATION**, etc. Man must find some way of re-establishing a certain balance between human needs and the carrying capacity of the wildlife environment. Hunting helps to maintain animal populations at a level that is compatible with the carrying capacity of their habitat.

DOESN'T SPORT HUNTING THREATEN WILDLIFE?

No. Hunting, as it is practiced today in Québec, poses no threat to the survival of wildlife species. However, it is possible that poaching and commercial hunting may have had very adverse effects in the past on some species, including the buffalo. Nowadays, the biggest threat to wildlife is not sport hunting. Rather, it is the expansion of industrial activities and the problems that come with such activities: pollution, destruction of the habitat, etc. Sporthunters have contributed to the safeguarding of species (snow geese around 1900, for example) and continue to do so by way of their volunteer work and their contributions. Indeed, the investments made possible by the revenues associated with sport hunting help to protect, restore and develop the wildlife habitats of animal species, ***even those of non-hunted species.***

Hunters who are concerned about the welfare of wildlife have promoted the enactment of laws dealing with hunting, in addition to having adopted a code of conduct.

Both the development of wildlife and the funding of the research required in this field are very much indebted to hunters. ***Far from threatening wildlife, sport hunting, when practiced according to the principle of harvesting the surplus, has not endangered any species in North America.*** On the contrary, several species that were once rare have become abundant thanks to the vigorous management measures associated with hunting. Some of the most frequently hunted species are more abundant today that they were in 1900… and even since the arrival of Europeans in the Americas; this is the case of the whitetailed deer in particular.

WHY NOT BAN SPORT HUNTING?

Hunting is part of our cultural heritage and makes it possible to master certain innate human drives. A ban on hunting would lead to numerous problems, due to the fact that sporthunters play a wildlife control role, preventing the excessive development of certain populations and in so doing, they make an invaluable contribution to wildlife management.

Moreover, hunting is an important economic leverage tool for resource regions. Indeed, hunters invest tens of millions of dollars in this activity, whether it be for the purchase of weapons, ammunition, licences or the expenses and spin-offs associated with the tourism industry: fuel, food, lodging, direct and indirect jobs. Thousands of jobs are associated with the practice of this activity and would be lost.

Hunting also represents the development of a renewable natural resource (wildlife).

Banning hunting would mean renouncing the development of our natural heritage and giving up the know-how and skills acquired and handed down from generation to generation; it would deprive Quebecers of jobs and significant economic spin-offs; it would also mean giving up an activity that helps to maintain or re-establish man's ties with his natural environment.

CAN HUNTING BE DISSOCIATED FROM A DESIRE TO KILL?

Yes. Humans are part of the food chain. As both omnivorous and carnivorous creatures, we have certain needs including that of ensuring our subsistence, which explains why we exploit the plant and animal kingdom. Sporthunters do not waste the proceeds of hunting. The need to kill animals for food exists in all populations in which diets that include meat are accepted. If we were to bring up the notion of the desire to kill, we would find that such a tendency is widespread. Do the employees of slaughterhouses or butcher shops enjoy killing? Does the life of an animal in the wild have some inherent quality that differs from that of domestic animals? For emotional and spiritual reasons, some people find killing animals reprehensible; this is an attitude that sporthunters understand. In return, they would like people to understand their attitude.

Finally, the use that hunters make of game is not all that different from the use that we make of the meat from domestic animals in our daily diet.

ISN'T BOW OR CROSSBOW HUNTING OUTDATED?

No. It is true that humans have highly sophisticated weapons that offer a considerable level of efficiency. Persons may choose so-called primitive weapons to limit this efficiency, and this underscores the point made earlier that people do not hunt strictly to kill, but rather to be closer to Nature and all that is natural. In summary, a hunter who uses a primitive weapon is setting a true challenge for himself by using a weapon that offers limited possibilities to bag game.

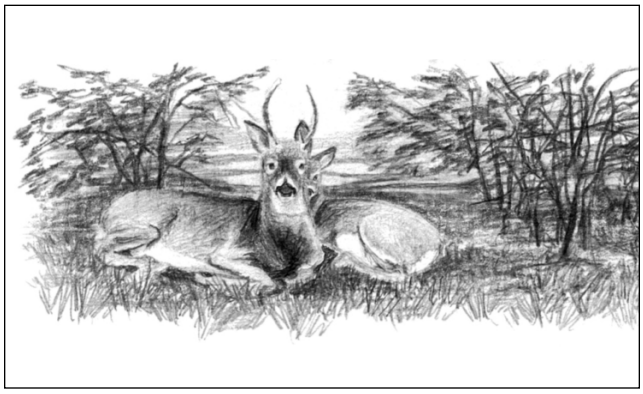
While of ancient origin, the bow and modern crossbow can be very effective weapons. A hunting arrow whose energy and tip meet the recognized requirements for hunting game will be just as lethal as a rifle bullet. The limitations of the arrow or bolt have to do with distances and their inability to shatter big bones. Experienced hunters can testify to the fact that an animal having two lungs perforated by an arrow will often collapse sooner than an animal whose lungs have been hit by a bullet from a firearm.

Despite the efficiency of this weapon at the recommended distances, bow or crossbow hunters only manage to harvest a limited number of animals. Indeed, their success rate is rather limited. When one considers various factors such as the weapon used, its limited effective range, the increase in the rate of difficulty resulting from the need to be close to the quarry to make a clean and lethal shot, the natural distrust shown by wildlife, the density of the trees and shrubs in the wooded areas frequented, etc., it is easy to understand this low success rate. These hunters must therefore have another motivation than harvesting game at all costs.

The use of so-called primitive weapons is a very appropriate management tool in certain hunting zones of Québec. For example, the state of the wildlife population may be insufficient to support hunting with modern firearms or on the contrary the objective may be to increase harvests in order to limit the problems associated with the overabundance of a wildlife population; officials may want to increase the number of hunting days available; they may want to meet the requirements of tranquility or safety for the other citizens living in a peri-urban area.

WHY IS IT NECESSARY TO HAVE AN EXCLUSIVE BOW, MUZZLE-LOADING FIREARM AND CROSSBOW HUNTING SEASON?

Bows, muzzleloading firearms and crossbows fall into the category of primitive weapons. As with the other weapons of this category, a special season makes it possible to increase the number of recreation days offered to hunting enthusiasts while controlling the harvest. Moreover, this special season ensures the safety of hunters who have to use all means at their disposal (objects and camouflage) to blend in with the environment, given the limited effective range of their weapon.



Ready for the hunt…

CHAPTER 6

Hunting with bows or crossbows

GENERAL INFORMATION

HISTORY OF BOWS AND CROSSBOWS

Bows

Bow hunting first appeared in the Paleolithic Age. This period (the prehistory of humanity) is generally considered to have begun around 2 to 5 million years ago when the first humans started making tools. Early use of the hunting bow has been traced back to several regions of the globe such as Asia, Europe and North America.

The members of the Amerindian First Nations were skilfull bow hunters. There is no way of knowing the date or the period when the bow and arrow became part of Aboriginal traditions. However, the construction of Inuit and Amerindian bows, in some areas, often look the same as the bows originally used in Asia. The technique used to make the bow is similar: use of various materials glued together and reinforced by sinew; however, there is no double curve and their so-called simple shape is ancient and traditional. Assembly techniques vary according to the living area, but the principle remains the same, except on rare occasions. The bows were much simpler in heavily wooded areas that were home to many tree species.

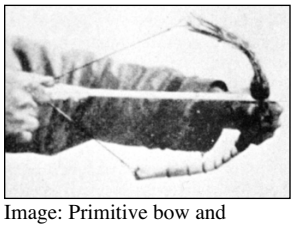


Image: Primitive bow and typical stance

The bows used by Aboriginals in North America were very different from those used in South America, with the former being much shorter. In the Amazon, bows measured on average 2.15 m (7 ft), but some models were much longer. Arrows were also very long. Bows were of very simple design, without curves, made of a single type of wood, the fibrous and elastic properties of which gave it the strength of a steel blade, or the wood of a species of palm tree.

Crossbows

Crossbows are thought to have existed for more than 2000 years. We do not know if they were created in Asia and imported to Europe by the first explorers or if they were designed simultaneously on both continents.

The crossbow, known to Roman legionaries, was not used much in Europe until the 11th century (Middle Ages), where it reappeared in rudimentary form. This model was perfected early in the 12th century, in France and Germany in particular. During the 13th Century, the reign of the crossbow gave way to the English Long Bow, because the archer could nock and shoot six arrows in the same time it take the crossbow user to arm his weapon only once. These two projectile weapons were commonly used both to hunt and in war, up to the 16th century, namely before the development of the arquebus and matchlock musket.

Nevertheless, western crossbows dating from the beginning of the 16th century were considered to be a perfect weapon and favoured by many, particularly for hunting. With the development of new techniques, firearms replaced the crossbow, which then dropped out of sight for a few more centuries.

The crossbow made a comeback in the second half of the 20th century, when it was used in target shooting competitions and for hunting

Bows and crossbows

It was beginning in the 15th century that Europeans started to use black powder firearms, and that's why crossbows and bows were gradually abandoned as military weapons

European immigrants, who settled in North America, combined the techniques and technology of European archery with those of the Amerindian First Nations.

In the United States Doctor Saxton Pope and Arthur Young undertook, in the early 20th century, to create an interest in bow hunting, a passion which they shared. Today, the finest hunting trophies are classified according to an international chart known as the "Pope and Young" chart.

Image: Ishi of an Amerindian community that once existed in California.

In the 1960s, major technological progress was achieved in the archery field with the use of fiberglass in the manufacture of bow limbs and the development of bows fitted with pulleys or cams. These inventions prompted a new interest in modern bows and crossbows and made possible the design of other archery accessories.

Nowadays, there is an outbreak of companies that manufacture bows and crossbows of different models. Enthusiasts are confronted with a multitude of crossbow and bow models that can be broken down into two main categories: compound bows and conventional bows which are of simpler design.

Outside the Amerindian tradition, bow hunting is relatively recent in Québec. Before 1975, there were few bow hunting enthusiasts and they would travel to the United States to practice their sport. Today, more than 92,000 Quebecers are recognized as bow hunters. It is estimated that women have accounted for about 10% of new bow hunting enthusiasts in recent years, while young people (from 12 to 18 years of age) have represented 12%.

In the mid-1970s, wildlife managers in Ohio and Arkansas were the first to introduce a special hunting season for crossbow hunters. Owing to the enthusiasm generated by this initiative, a number of other states and Canadian provinces, including Ontario and British Columbia, decided to follow and adopt similar measures promoting crossbow use.

In Quebec, it was not until the turn of the twenty-first century that wildlife managers decided, in collaboration with partners, to promote the use of the crossbow for sport hunting. The first measures favouring its use were introduced for the 2001 fall hunting season. Other measures will be implemented in 2007.

BENEFITS OF HUNTING WITH A BOW OR A CROSSBOW

Hunting with a bow or a crossbow is the act of pursuit or taking wildlife using these primitive weapons. This practice involves more than the poursuit or killing of game. Even though providing meat for the table is a satisfying feat, hunting with a bow or a crossbow offers many more advantages than first meet the eye. Here are just a few.

- ***Wildlife Management:*** Hunting is an effective wildlife management tool used to promote the growth of healthy animal populations and improve habitats, especially in areas overpopulated with deer and in places where modern firearms are restricted.
- ***Recreational:*** Hunting provides outdoor activities for more then 408,000 Quebecers.
- ***Economic:*** Sporthunters, including those who use bows and crossbows, help stimulate Québec's economy through the $308 million that they devote each year to their activity and to the related products and services.
- ***Esthetic:*** Hunting experiences in the outdoors can be deeply satisfying. Many hunters see hunting with a bow or a crossbow as a form of art. Indeed, the French often refer to this activity as the "art of hunting".
- ***Educational:*** Hunting with a bow or a crossbow provides a lifetime of learning experiences.
- ***Cultural:*** Hunting with a bow or a crossbow offers insights into history, cultural traditions, and the hunting heritage.
- ***Social:*** Hunting brings together people of all abilities and backgrounds.
- ***Therapeutic:*** Hunting offers the possibility of returning to one's roots by getting a much-needed break from the hectic pace and stress of modern city life.
- ***Dietary and Health:*** Wilgame meat is generally healthier than domestic meat raised for human consumption. Shooting with a bow or a crossbow is a physical activity that can be done individually, with the family or with friends all year round.

CHALLENGES OF HUNTING WITH A BOW OR A CROSSBOW

Hunting with a bow or a crossbow presents a number of challenges. There are three special challenges that set it apart from hunting with a modern firearm:

- Before attempting to hunt with a bow or a crossbow, hunters should become highly proficient shooters, which requires dedication, practice and the development of distance-judging skills;
- Hunting with a bow or a crossbow is done at a much closer range than riffle hunting, which often requires a higher degree of stealth and sheer effort to get into position to make the shot;
- Hunters with a bow or a crossbow must become adept at scouting, trcking, and recovering game, which takes perseverance and patience.

While these challenges may be too great for some hunters, others consider the integration of these requirements to be more enriching at a personal level. Bow or crossbow hunting allows enthusiasts to live a unique, high-adrenaline experience owing to the required proximity of the quarry.

Beyond the special satisfaction derived from bow or crossbow hunting, there is the responsibility of mastering the hunting techniques associated with projectile weapons and learning about the anatomy, behaviour and habits of game to ensure an effective and humane kill.

DIFFERENCES BETWEEN HUNTING WITH BOWS OR CROSSBOWS AND HUNTING WITH MODERN FIREARMS

ELEMENTS	BOWS OR CROSSBOWS	MODERN FIREARMS
Source of energy	Bent limbs	Smokeless powder
Effective range	About 30 m	100 m and over
Typical trajectory of projectile	+/- accentuated curve, short	+/- level curve, very long
Killings methods	Cutting and bleeding	Force of impact and bleeding
Projectiles	Arrow and broadhead	Cartridge and its bullet, or buckshot/birdshot
Main safety concerns	Falls from treestand, cuts from blade, and finger in string path	Falls from treestands and injuries caused by bullets

DESCRIPTION

1. BOW, CROSSBOW AND THEIR COMPONENTS

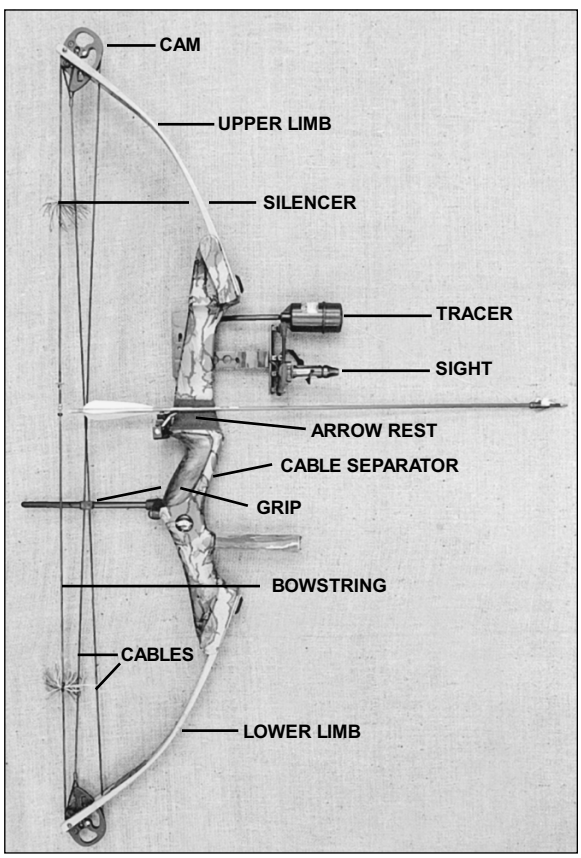
Modern bows and crossbows have the following in common: they are both types of projectile weapons composed of one or two flexible limbs (laths) whose ends are connected by a bowstring that is strongly bent to shoot arrows.

The basic differences are that the crossbows are held horizontally, since their bow is mounted on a stock. The string is cocked by hand or mechanically by using a “cocking aid”. The bow, for its part, is generally held vertically, and its string is cocked solely by hand.

When the string of a bow is released, it propels the arrow more than twice the distance of that of a crossbow. To achieve a comparable distance, a crossbow must have twice draw weight of a bow. Given that the draw length of a crossbow is shorter than that of a bow, it must have limbs with greater tension to make up for this difference in power.

1.1 Components of a bow and crossbow

1.1.1 Bow



Robert Morin

Compound bow with its components

The standard components of a compound bow are shown in the following illustration. They include the central part, the limbs, the bowstring, the nocking point, a cable separator, cams and cables.

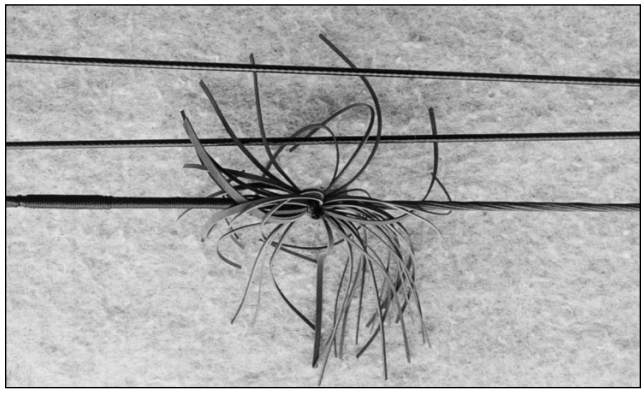
The central part of the bow is made up of the hand-grip, the arrow rest and the sight-window. The limbs are situated on both sides of the central part. They are light, flexible and resistant. The upper limb is distinguished from the lower limb according to the vertical axis of the bow.

Limbs and handgrip

Limbs (laths) are made of fiberglass, carbon or other synthetic materials. The grip of compound bows is generally made of aluminium or magnesium. A few bows have an overly short sight-window, which reduces the number of points of aim, hindering some shooters, in particular those having as their nocking point the corner of their mouth or a lower point. In addition, a large sight-window facilitates the passage of the arrow fletching

Strings and "silencers"

Remember to use "silencers" on your bowstring; ordinarily made of rubber, they greatly reduce the hissing and slapping of the string on the bow. A sufficient number of elastic bands will do the trick in the case of conventional bows. To keep branches, brush, leaves etc. from blocking bow extremities, use two rubber brush buttons. Before the bowstring is used, it should be waxed with the appropriate kind of wax. Always carry a spare string which has already been used and is equipped with the same accessories.



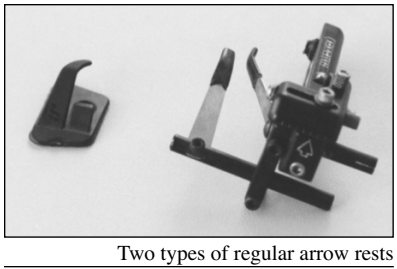
Silencer

Fast flite bowstrings made of synthetic materials offer several major advantages: they stretch less and increase arrow velocity somewhat. On steel cables, always check the tear drops. If the sheath is torn or damaged, the cables should be replaced. The nocking point is sometimes indicated by a rubber lined metal ring called a *nock finder*.

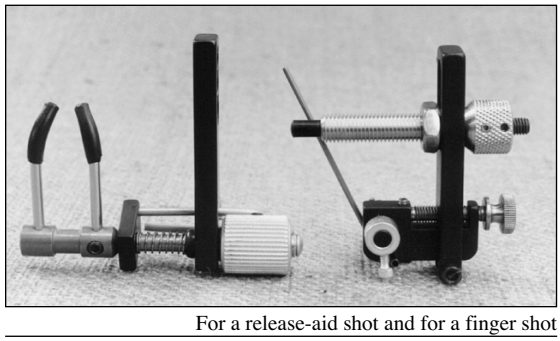
Check your bowstring often. Wax it regularly. As soon as the string begins to show signs of wear, replace it.

Arrow rest

Bows are normally sold with an arrow rest made of plastic that does not necessarily provide the best trajectory. A high quality arrow rest is a very important accessory. There are various arrow rests available on the market. They use a return spring and move out of the way of the arrow fletching. Finger shooters must add a pressure button. For release-aid shooters, the arrow rest is entirely different and operates vertically rather than horizontally.



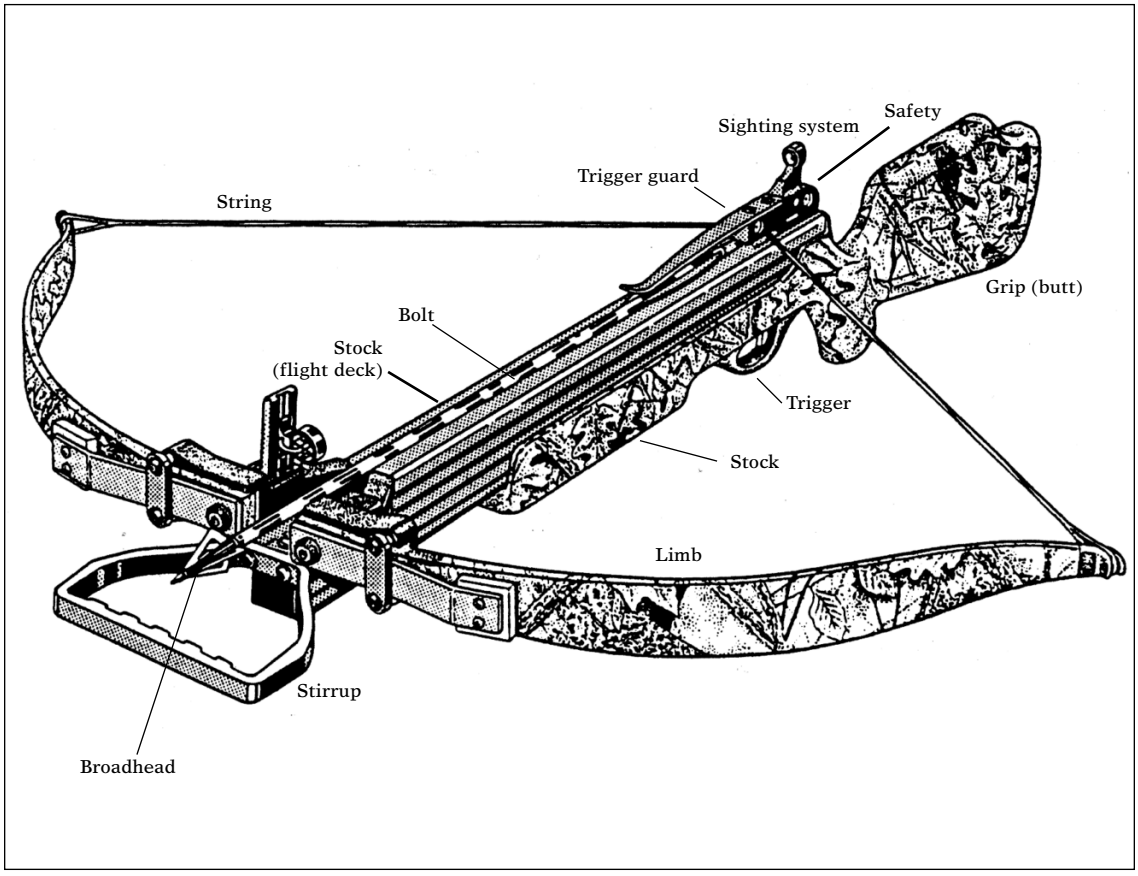
Two types of regular arrow rests



For a release-aid shot and for a finger shot

1.1.2 Crossbow

The components of the modern crossbow are: the stirrup, limbs (laths), handgrip (or butt), stock (flight deck), trigger mechanism, sighting system and, in some models, dry-fire inhibitor and safety.



Excalibur Crossbow inc.

Conventional crossbow and its components

Stirrup

The stirrup is a ring or piece of metal at the front end of the crossbow, used to hold the weapon with the feet while cocking.

Limbs

The limb is a single or double lath that is straight or curved, with or without pulleys, and made of laminated wood, fibreglass, carbon or steel, and fixed to the front end of the crossbow stock. It is the poundage of the limbs, transferred to the arrow (bolt) by the string, which propels the arrow (bolt).

Handgrip (butt)

The grip is the part of the weapon that allows it to be grasped. It includes the rearmost portion of the stock, blades, trigger mechanism and sighting system. Generally speaking, there are three styles of grip: the rifle grip (left), rifle grip with thumbhole (centre), and pistol grip (right). Grips are made of wood or composite materials. Modern crossbow grips almost all have a camouflage finish..

Jeannot Ruel

Three grip styles

Stock (Flight deck)

This is the upper part of the stock, which contains the release mechanism and cocking device. Some modern models have a grooved track or bolt channel that allows the cock feather to slide freely and the bolt to be guided along the stock's length

Sighting system (sight)

An instrument that allows the user to take aim. It is usually situated above the trigger guard and consists of a fixed sight with either a peephole (peep sight) or a slit and several adjustable beads, an electronic sight, or a telescopic sight (scope).

Trigger guard

The trigger guard is a component at the rear of the upper stock that includes the trigger mechanism or release mechanism that acts as a catch for the string when it is drawn back. Depending on the model, the trigger is activated either from above or below the trigger guard.

Safety

The safety is the part of the weapon that locks or releases the trigger mechanism. It is found in the trigger guard. Depending on the crossbow model, the safety may be manual or automatic. Automatic safety catches are definitely preferable, especially if the crossbow is not equipped with a dry-fire inhibitor. The position of the safety varies from one model to the next. The centre rear of the trigger mechanism seems to be the most practical location because it can be activated with the thumb without having to change the shooting hand's position and is suitable for left-handed and right-handed shooters alike.

Dry-fire inhibitor

The dry-fire inhibitor is a small lever located in front of the trigger guard. Not all crossbows are equipped with these anti dry-fire mechanisms. This simple, safe mechanism is designed to prevent the cocked bowstring from being released without an arrow (a bolt) if the trigger is activated accidentally. It should be pointed out that crossbows, like bows, can be seriously damaged by dry fire.

1.2 Types of bows and crossbows

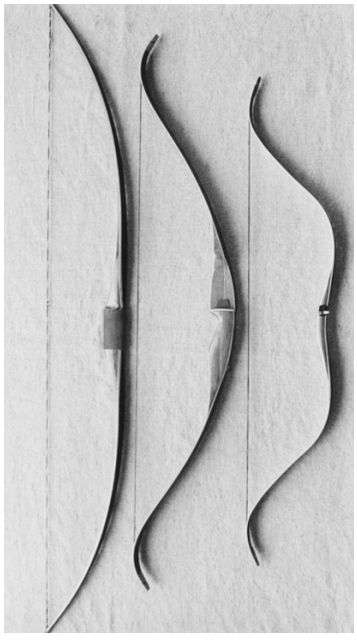
Bows and crossbows are divided into two main types: conventional and compound. The respective qualities of each type are the same for bows and crossbows.

Nowadays, most hunting bows and crossbows, arrows/bolts and even quivers are produced with a camouflage finish. To prevent visual detection by your quarry, it is in your best interest to camouflage your equipment so that it blends in with the natural environment.

1.2.1 Bows

Conventional bows include the Long bow and recurve bow (simple or double). Compound bows have wheels or cams. The choice of a particular type will depend on your preferences (esthetics, tradition, etc.) and budget.

Conventional bows

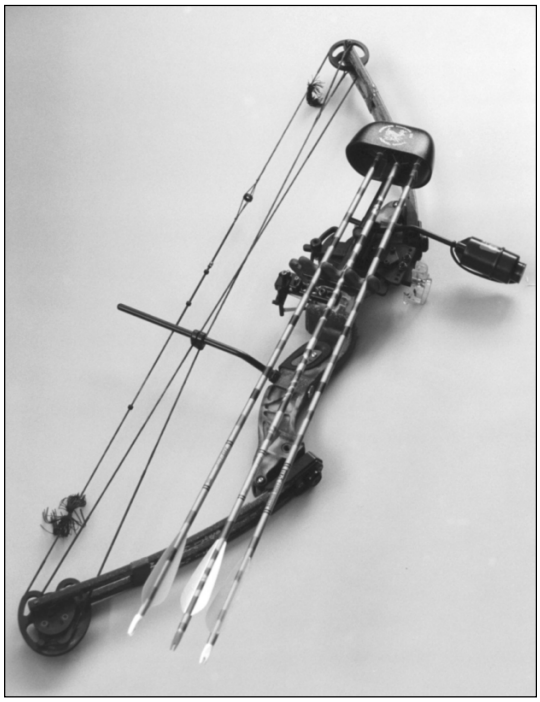


Various models of conventional bows: from left to right, Longbow, recurve bow and Mongolian bow (double recurve).

Conventional bows have their advantages. They are light, mechanically simple (few parts to break), easy to use (instinctive shooting), adjustable, and reliable. This type of bow is mainly used for spontaneous shooting. It requires a minimum number of accessories: silencer, buttons, nocking point and arrow rest. Depending on the hunter's preference, the arrow rest can be made of fur, carpeting, leather or other material.

Compound bows

Compound bows have won the favour of most bow hunters. Developed in the mid 1960s, the use of wheels radically transformed a traditional weapon and popularized bow hunting. Compound bows offer many advantages, in particular by reducing the effort required to maintain full extension, since the increased bow tension results in higher arrow speed.



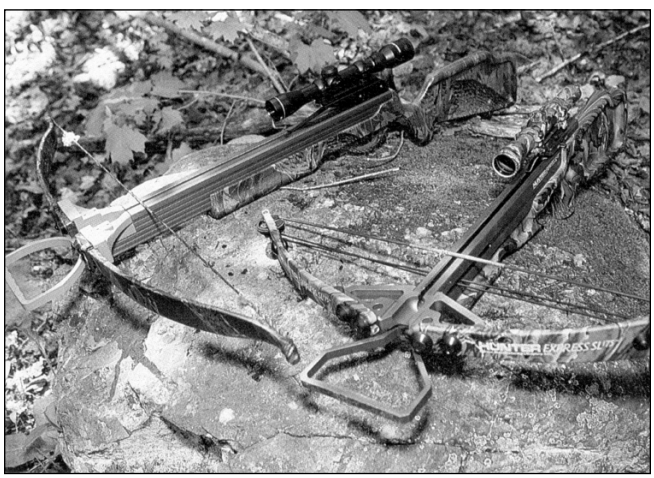
Robert Morin

A type of compound bow

Compound bows, whether with wheels, cams, semi-cams, or hard cams (known as single cams), are the result of modern technology and offer plenty of advantages. However, the numerous parts require maintenance, inspections and a much more careful adjustment. In addition to a string, there are cables and, normally at the tips of the bow's limbs, pulleys or cams. While a pleasure to use, these bows break more easily.

1.2.2 Crossbows

Conventional crossbows are composed of single, straight or curved limbs, and have the advantage of being lighter and simpler mechanically. The disadvantages are that they generally project an arrow (a bolt) with less power at a given draw weight and that their overall length and width are usually greater.



Jeannot Ruel

Two types of crossbows: conventional and compound

Compound crossbows are available in a wide range of models. Some of them are fitted with a track (bolt channel), while others are designed with a stock that does not come into contact with the bolt. This allows for a much longer bowstring life and also avoids loss of kinetic energy due to friction. Compound crossbows have the disadvantage of being heavier and more complex than conventional crossbows. On the other hand, they are usually more powerful at a given poundage. What is more, it is easier for the crossbow handler to draw back the string due to a certain amount of poundage release midway

(up to 50%) ensured by the pulleys or cams. As with bows, crossbows with radical cams afford greater arrow (bolt) speed than those with single or light pulleys.

Several manufacturers offer the options mentioned above: conventional crossbows with straight or curved limbs and compound crossbows with wheels or cams, with or without a grooved stock

1.3 Draw weight and draw length

The power of a bow or a crossbow stems from the combination of draw weight and draw length (power stroke).

The draw length and draw weight of a bow must be adapted to your physical aptitudes, in addition to respecting the minimum draw weight required by regulation for hunting big game in Québec. Given the possibility of resorting to a cocking aid to facilitate the stringing and the draw length of a crossbow, it is understandable that the physical aptitudes of an adult are less of a limiting factor in terms of the draw weight and, above all, in terms of the length of the power stroke of this projectile weapon.

1.3.1 Bows

In most cases, the draw weight of hunting bows exceeds 18 kg (40 lb), whereas the draw length is greater than 71 cm (28 in.).

1.3.2 Crossbows

More often than not, the draw weight of crossbows exceeds 54 kg (120 lb). Remember that a conventional crossbow requires greater effort at the end of the drawing exercise than a compound bow.

Greater draw length (the distance between the trigger catch and the point where the string comes to rest when it is released) contributes greatly to a crossbow's power. More kinetic energy is transferred to the crossbow arrow because it is pushed over a greater distance by the string. A longer draw, however, requires a longer stock, which makes for a longer crossbow. The draw length (draw) of most crossbows exceeds 25 cm (10 in).

1.4 Performance, precision, reliability and durability

When the string is released, it propels the arrow more than twice the distance of that of a crossbow.

Given that the draw length of a crossbow is shorter than that of a bow, it must have limbs with greater draw weight to obtain a comparable ***performance.*** In this way, arrows shot by bows and crossbows lose about the same amounts of speed and energy over the distance traveled.

As far as ***accuracy*** is concerned, it is definitely easier to be accurate with a crossbow than with a bow – and with a lot less practice – because you can count on support when you shoot, much like you do with a firearm. For most crossbows, about 10 cm (4 in) diameter accuracy was achieved at a distance of 30 metres (98 ft) – good accuracy for a projectile weapon. It is important to remember, however, that accuracy stems above all from the shooter's skill.

On the other hand, ***reliability*** and ***durability*** were far better in the case of bows than crossbows. Even though crossbow performance has increased considerably over the past few years, there are still a number of weaknesses that manufacturers need to correct. For example, special attention should be paid to the trigger mechanism: the poundage is often too great. Moreover, many crossbows are too heavy and the weight is poorly distributed. Depending on the crossbow model, certain assessments revealed other technical flaws to do with the limbs, bowstring, pulleys and sighting systems. The important thing to remember is that you need to pay close attention to each and every detail when choosing a hunting crossbow.

Before you buy a bow or a crossbow, make sure that you have a good manufacturer's warranty and that you buy the weapon from a specialized retailer in case you need after-sales service or support

1.5 Adjustment and shooting distance

The shooting technique for targets 10 to 30 metres away is as follows: choose a suitable target, judge its distance accurately, select a bead and shoot. If you consistently have problems when shooting from a considerable distance, in spite of rigorous training, set your lowest bead for a shorter distance. If your groupings are unsatisfactory at 30 metres but steady at 20 metres, obviously you need to adjust accordingly.

Handling a crossbow is much like handling a bow, in spite of the fact that a crossbow needs to be brought to the shoulder. The crossbow is a hybrid weapon – a bow that is raised and aimed like a firearm. Never overestimate its power and avoid underestimating it too!

A bow and a crossbow should merely be appreciated for what they are: silent weapons that are a pleasure to shoot and very demanding… but that give much in return! Their range is relatively short: they are not meant to break distance records. For big or small game, these are weapons that are as good as any other. They are very suitable for hunting in periurban areas because they have a short range and are relatively quiet.

The recommended distance for harvesting game effectively with a hunting bow or crossbow is under 30 metres.

1.6 Cocking and uncocking a crossbow

To draw (or cock) a crossbow, you begin by placing its nose on the ground and inserting your foot into the stirrup. Then you grasp the bowstring firmly, with one hand on each side of the stock, and draw it upward (towards you) until it is caught in the catch in the trigger mechanism; this requires considerable physical effort, which will increase with the poundage. To avoid back strain, the best thing is to use a cocking aid (as we will see in section 3 of this chapter).

You also need to make sure that you draw evenly: avoid pulling harder on one side than the other because this could make the string catch off-centre in the trigger system, causing the string to be released off-centre and the bolt to veer off to the side. When the bowstring is at rest, you can make an alignment mark on each side of the stock using a felt pen or liquid paper; these markers will allow you to check after drawing and cocking to see if the string is properly centered in the trigger mechanism. Once the crossbow is drawn with the bow string well centred, you can arm it by sliding the bolt in place. As with all weapons, when you arm a crossbow, always make sure that it is pointing towards a safe place, notably the ground.

It is generally not recommanded to leave a crossbow cocked (loaded) for over five hours. For periods of over a day or more, the same rule applies to the string attached to the limbs of a conventional crossbow at rest (not cocked), because it could stretch, weaken and lose its tension.

Unless you can shoot at a special Styrofoam target or with an old bolt with judo points, it takes a certain amount of dexterity and quite a bit of physical strength to release (uncock) a crossbow manually and avoid a dry fire, which could damage the crossbow.

To manage this, remove the bolt first, put your foot in the stirrup, grasp the bowstring firmly with one hand on each side of the stock, then release the safety in order to activate the trigger with your thumb. The best thing is to get someone else to help you uncock your crossbow.

In the case of a crossbow with a dry-fire inhibitor, first you release the string from the sear by pressing the trigger, then pull the string firmly while releasing the small lever with your thumb. WATCH OUT FOR YOUR FINGERS! It is best to wear gloves for this operation.

Finally, the easiest and most economical way to uncock a crossbow is to use a windlass. Another way to solve the problem simply is to make a removable target out of a 15-cm (6-in) plastic bag stuffed full of newspapers or use an old bolt and to shoot it into loose soil.

2. THE ARROW OF A BOW AND A CROSSBOW

The arrow is a projectile fired by a bow or a crossbow.

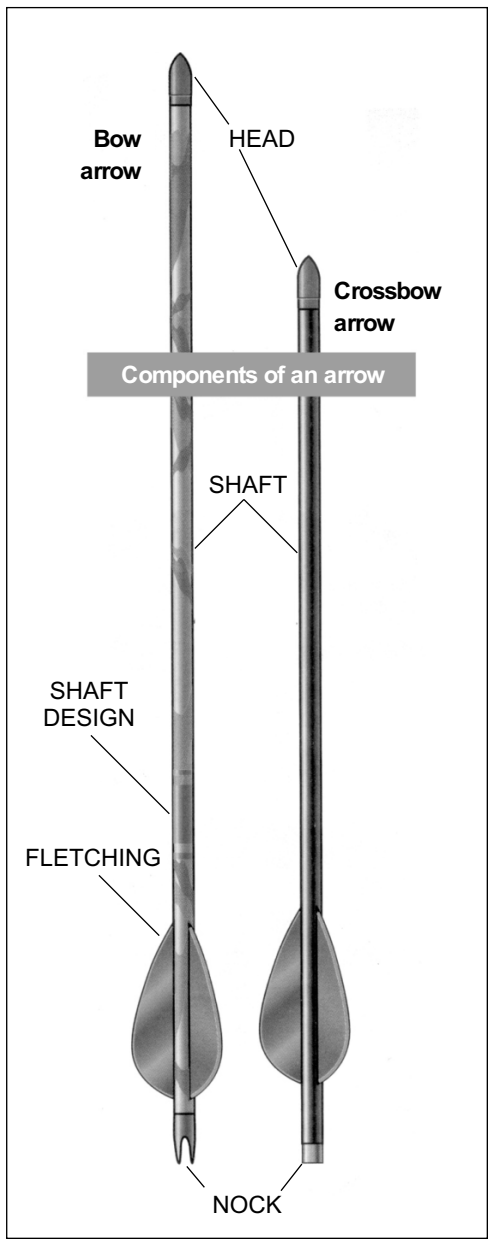
2.1 Differences between an arrow of a bow and a crossbow

The arrow of a crossbow is very similar to that of a bow. The only differences are that the arrow of a crossbow is shorter and its nock is not forked. However, the arrows of both weapons have exactly the same parts.

The arrow of a crossbow is also known as a “bolt”. Indeed, generally equipped with offset or spiral-shaped fletching, the arrow rotates as it travels through the air.

2.2 Components of an arrow

An arrow is a shaft fitted on one end with a head intended either for hunting or practice, and on the other end with the fletching. More specifically, the parts of the arrow are the head, the shaft, the fletching, the shaft design and the nock.



2.3 Variety of materials used and camouflage

Arrow shafts can be made from wood, aluminium, carbon, fiberglass or a combination of aluminium and carbon. In fact, most bow and crossbow arrows are made out of an aluminium alloy.

This is not the place for a discussion on the respective merits of these various materials. Hunters must make their own choices as they gain experience and based on their budget. Since aluminium shaft arrows are commonly used, we will refer mainly to them. However, we will also talk about the other materials, mainly the recent ones, such as carbon, which is both light and strong, but much more expensive.

An arrow that has the right amount of stiffness for your bow or crossbow will lose the least energy, i.e. fly the best and have the flattest trajectory. Stiffness depends on the material the arrow is made of and the arrow's length and weight. Shooting arrows that are lighter or shorter than those recommended by the manufacturer can be dangerous. That is why it is important to always use the arrows that are recommended for your particular weapon.

ADDITIONAL INFORMATION ON: "Bow arrows"…

Arrows must always correspond to the poundage of the bow used. Unsuitable arrows will result in erratic flight trajectory. The world's major arrow manufacturers supply a comprehensive chart of shafts adapted to the weight of the bow and the length of the arrow. In Appendix B you will find a chart provided by the Easton company.

Sharp hunting arrow tips can be dangerous: hunters using them should keep a safety margin by adding 2 to 2.5 cm to the draw in order to obtain the right arrow length (bow hand). A 75 cm draw length will call for a 77.5 cm arrow shaft. Straightening an aluminium shaft weakens it, resulting in a loss in accuracy and may cause it to break.

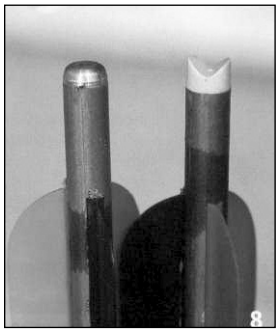
2.4 Fletching, nocks and overdraw

The purpose of fletching is to stabilize the shaft during its trajectory by causing the shaft to rotate when it leaves the bow or crossbow. This rotation allows the arrow to maintain its trajectory, speed, precision and ultimately, its power of penetration.

With the current popularity of compound bows and crossbows, the most common types of fletching are made of synthetic material. They are waterproof, stronger and less costly than conventional turkey feathers.

Humidity and rain do not affect synthetic fletching. This is not the case for non-treated natural feathers, but the solution is simple. Natural feathers need only be treated with a silicone-based water-proofing substance. Be careful of scent however! Natural feathers have the advantage of being lighter (1/3 the weight of synthetic), making them faster. Their naturally striated surface provides better trajectory correction. However, synthetic fletching is quieter.

Straight fletching is most common, but offset fletching also exists. Offset fletching has the advantage of faster trajectory correction but is more difficult to repair. At mid and long distance, it also slows down arrow velocity.



Denis Lapointe

Flat and half-moon crossbow nocks

The nock of an arrow is made of plastic and serves as an anchor point to keep the arrow in contact with the string. You should always use the same type of nock to obtain a regular trajectory with all types of shafts. Unlike in the case of bows, the nocks of a crossbow are not forked. In other words, they are flat or in the shape of a half-moon

ADDITIONAL INFORMATION ON…

Nocks of crossbow bolts:

Some crossbow manufacturers recommend bolts with flat nocks because they allow you to load the bolt without having to worry about the direction of the cock feather. With crossbows using bolts with half-moon nocks, it is very important to insert the cock feather (identified by a different colour) in the central groove of the stock because this is the only way that the string can catch properly on the nock's groove.

Overdraw for bow arrows:

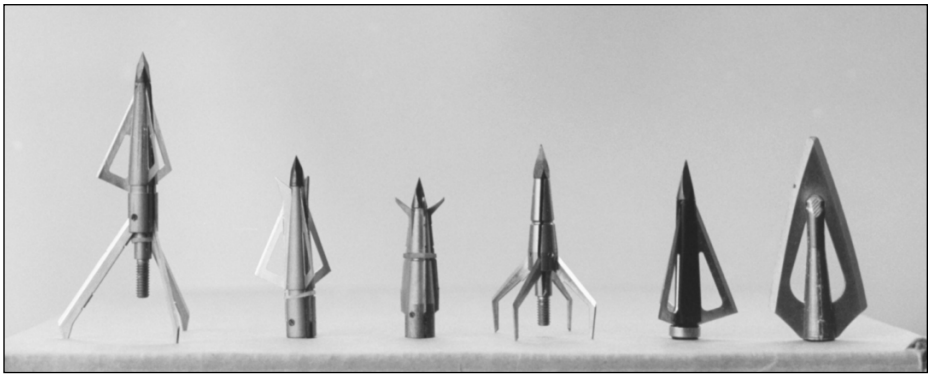
With an overdraw, you can use a shorter, lighter arrow and obtain an increase in speed of about 10%. You must be careful however since the arrow tip reaches behind the bow hand when this device is used. Hence, there is a danger of an arrow getting away when the bow is being strung and the resulting risk of serious cuts. The arrow could also break away at the time of its release and cause serious injury to the forearm, wrist or hand. Some more recent models of overdraw are safe to use. Be sure to make inquiries before buying one. Caution is in order as use of this device may pose a risk to your safety! Ask for an overdraw with a protective edge to prevent injuries. New bows are designed to shoot with an overdraw. Use of this device requires better control of the bow hand and the release hand. It presupposes a release aid.

2.5 Broadheads

The point of an arrow defines its function. In the case at hand, we will focus mainly on broadheads. There is a large variety of broadheads. They differ according to their style, shape and weight.

This subject has given rise to interminable discussions based on arguments that are more or less technical in nature. However, there is consensus on the qualities and composition of broadheads.

Many of these broadheads, designed by specialists and engineers, are very effective. Their contribution cannot be called into question. Most of these broadheads consist of a breakdown assembly made up of a very hard steel pyramidal shaped point and stainless steel blades featuring a high carbon content. The ideal arrow has a point that favours the best possible trajectory when it is combined with an appropriate arrow.



Robert Morin

Different broadheads for big game

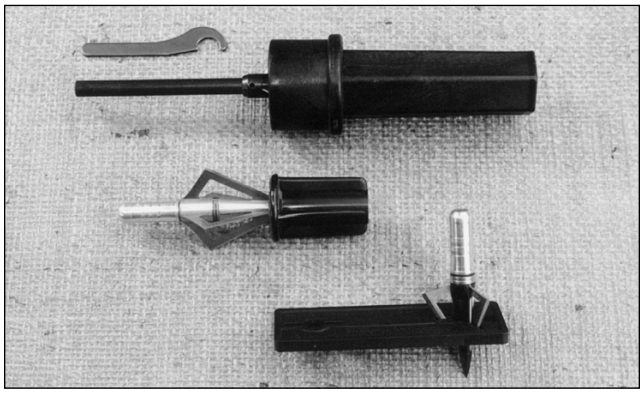
IMPORTANT NOTE…

The broader the broadhead, the greater the lift, and the wider and longer the fletching needs to be. If you use a lighter broadhead, the fletching should be shorter.

- **Broadheads: use the same mass (weight) for practice and hunting.**
- **Factors that influence bolt penetration:**
  - **the amount of energy transferred from the weapon to the arrow;**
  - **the arrow (capable of receiving the energy transferred by the weapon);**
  - **the sharpness of the broadhead;**
  - **correct arrow trajectory.**

To sum up, there are three kinds of broadheads: those with fixed non-interchangeable blades, those with interchangeable blades, and those with retractable blades. The latter type of broadhead is interchangeable, and usually called a retractable broadhead.

The important thing with hunting – and this needs to be stressed – is to make sure that your broadhead blades are razor-sharp and impact resistant. A small kit to sharpen blades is indispensable during your outing.



Robert Morin

For handling broadheads safely

Robert Morin

Blunt, judo and cloverleaf point

ADDITIONAL INFORMATION ON : "bow and crossbow broadheads"…

1- Hard stainless steel blades kept very sharp are recommended.

2- A triple-bladed, ventilated, stainless steel broadhead with a beveled high-carbon content point is an excellent arrangement.

3- Broadhead weight should correspond to the relative stiffness of a given arrow. A broadhead that has the same weight as a field point will not necessarily travel the same trajectory. Since broadheads are longer, their centre of gravity is different. Hunting points require practice shooting.

4- Retractable broadheads generally have a more regular flight trajectory. However, the penetration of these broadheads may leave somewhat to be desired, depending on the shooting angle.

5- Bullet points have been gradually replaced by beveled points, which have much better penetration.

6- Points, or tips, recommended for small game:
   - Blunt points: basic point used for small game;
   - Judo points: appropriate for hunting in high grass and weeds because they are less slippery;
   - Cloverleaf points: for grouse and hare, on the edge of fields and roads.

2.6 Arrow effectiveness and principles of operation

Bow hunters have an effective weapon which must be used responsibly and with care. It is not a toy. A bow and arrow is a powerful weapon and is dangerous, even for the person using it.

It is important to understand how the arrow affects the animal and to respect the hunter's code of conduct. Finally, the rules of safety dealing with this type of hunting should always be observed.

In contrast to a bullet, a big game hunting tip should not crush the flesh. It should not have a round and soft tip. On the contrary, arrow tips should be razor-sharp. Death comes not from the shock of the impact but rather from the bleeding. The sharp edge causes death by loss of blood provided that the vital zone has been hit (lungs, heart and liver).

According to several veterinarians and in light of current knowledge, we should not imagine that animals feel things the same way humans do. Unlike human beings, animals do not know death and therefore do not fear it. Wariness and the instinct for survival cause the animal to flee, not the pain, even if the animal does feel it. Many hunters have experienced this first hand. Getting cut with a sharp hunting tip causes profuse bleeding, but does not hurt much. It is a bit like a shaving cut. While the sight of blood can cause an emotional shock from a reaction of fear, it looks worse than it actually is.

In order to understand why it is necessary to have a sharp blade, let us examine how a blade works.

The ideal cutting edge for hunting is one similar to a surgeon's scalpel. It should be able to shave the hair off your arm.

Even if a sharp cutting arrow tip misses the heart or lungs, it may cause rapid death if it cuts several arteries or veins or if it hits an organ through which a large amount of blood flows (such as the liver). For a good penetration, a well-sharpened straight edge will be far superior to a blunt edge that slows arrow penetration due to friction. As for the ability to cut, a blunt edge will tend to push flesh to either side, especially hard artery walls. As a result, it may slide past arteries without cutting them. A blunter edge may create what looks to be a larger wound, but this is not synonymous with a quick kill. It is more important to cause rapid death through a quick loss of blood. Blood loss can be slowed by coagulation.

ADDITIONAL INFORMATION ON: "coagulation"…

A brief explanation of this phenomenon makes the importance of a sharp cutting edge very clear. Coagulation is the result of various biochemical reactions. Blood is composed of four basic substances: white corpuscles, red corpuscles, platelets and plasma. Living cells contain thromboplastin which is released when the cell is torn or damaged by a wound, etc. Thromboplastin mixes with a substance of the plasma and produces fibrin which clots the blood and turns it into a gelatinous form.

If a vital zone was not hit, the animal can recover more easily if a sharp cutting edge was used. Because a sharp cutting edge damages fewer cells, fewer tissues need to heal. Moreover, since the blood flows more freely, the wound is better irrigated and cleaned of bacteria that cause infection. A sharp cutting edge introduces few bits of hide into the wound making healing easier.

A final point in favour of a sharp cutting edge involves a subjective notion, how much pain an animal feels. White-tailed deer with an arrow buried in their flesh have been observed grazing as if nothing had happened. The nerves surrounding a wound send electrical impulses to the brain which are interpreted as pain. If few nerve cells are destroyed, the chances are good that the impulses will be weak.

N.B.: Arrow tips coated with poison are strictly prohibited by law.

3. ACCESSORIES

3.1 Sighting systems

Sighting systems – from the most simple to the most sophisticated or complex and from the most economical to the most expensive – determine shooting accuracy. Unlike in the case of the bow, most crossbow manufacturers include a sighting system with their product. With the exception of new highly sophisticated and expensive sighting systems, all systems intended for bows and crossbows require the ability to judge distance with a certain accuracy.

3.1.1 Learning to judge distances

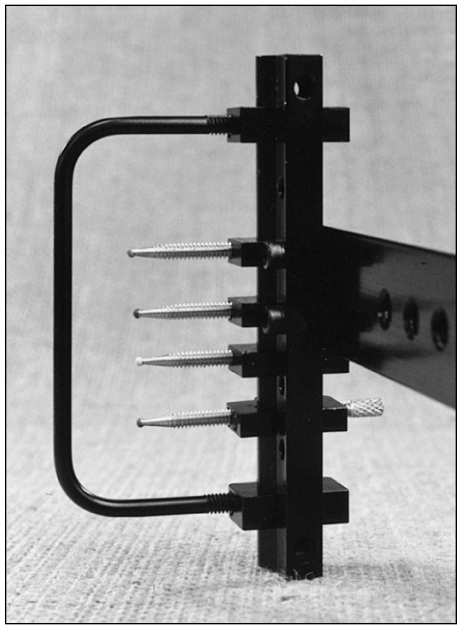
Judging distances is a skill which is learned but which must be practiced regularly. Optical illusions, perceptional expectations, buck fever and weather conditions can all affect your ability to judge distances correctly.

Judging distances without resorting to aids, such as a range finder, depends on the quality of your eyesight, your experience and your practice. A study has revealed that a large proportion of hunters suffered from vision problems ranging from colour blindness to visual acuity problems. It is important for a bow or crossbow hunter to get an eye examination and, if necessary, to correct their vision to avoid the associated drawbacks during hunting.

Learning to judge distances is essential to shoot a bow or a crossbow with accuracy given that these weapons have a short range and a curved trajectory.

3.1.2 Bows

The sighting systems (sights or sight bars) available on the market today are generally of good to excellent quality. They are easy to use, improve shooting accuracy greatly, and in so doing, boost hunter confidence, especially in the presence of quarry. A peep sight or a kisser are basic sight bars that can be attached to the string to increase shooting accuracy during hunting.



Regular type sight bar

ADDITIONAL INFORMATION ON: "bow sighting systems"…

a) regular;

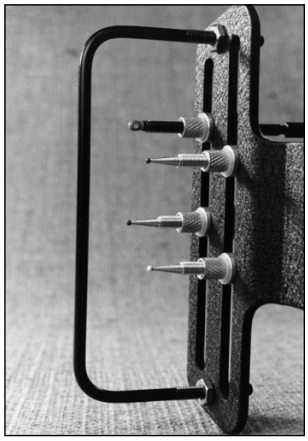
b) luminous type makes it possible to better locate the aiming point when hunting in the undergrowth or shady areas and to take advantage of the first or last few minutes of legal hunting. There are various types:

- ***laser –*** – can be used when lighting conditions are poor; allows for better control of position and follow through after the shot;
- ***regular, with fiber optics –*** – makes better use of light; the finer the point, the greater the accuracy, etc.

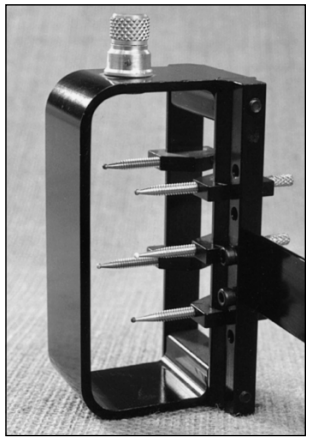
An ordinary sighting pin can now be replaced with a fibre optic or similar pin operating on an electric battery. One of the most sophisticated pins on the market is a tritium pin, running 24 hours a day with an average life of12 to 26 years.

The qualities of a good sighting system are: visibility, reliability, simplicity and sturdiness.

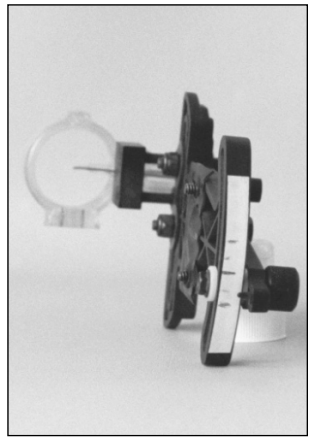
Robert Morin



Regular type with tritium



Luminous type



Fixed sight with several beads

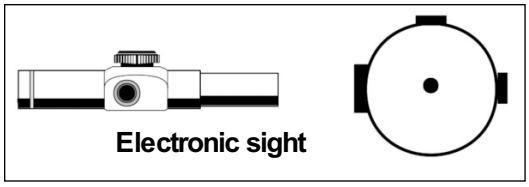
3.1.3 Crossbow

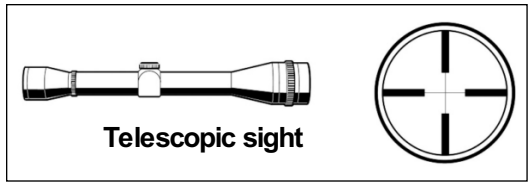
Nowadays, the three most common sighting systems for crossbows are: the fixed sight with several beads, the electronic sight and the telescopic sight.

The standard sighting system consists of a fixed rear sight with either a peephole or a slit, and several beads, which can be adjusted laterally and vertically. While this sighting system is perfect for a predetermined distance, it requires a great deal of skill and experience to judge distances with perfect accuracy. The hunter could wound the quarry in the wrong spot or miss it altogether due to an error of only a few metres.

The use of a telescopic sight at such short distances may be tricky. Indeed, it may give the hunter the illusion that the animal is closer than it actually is especially if it is a telescopic sight with multiple lines.

Given the great interest on the part of crossbow enthusiasts in the new more sophisticated sighting systems, most manufacturers now offer mounts adapted to their different crossbow models to install electronic sight and telescopic sight systems. They also sell telescopic sights specially designed and adapted to the ballistics and vibrations of the modern hunting crossbow.





3.2 Quivers

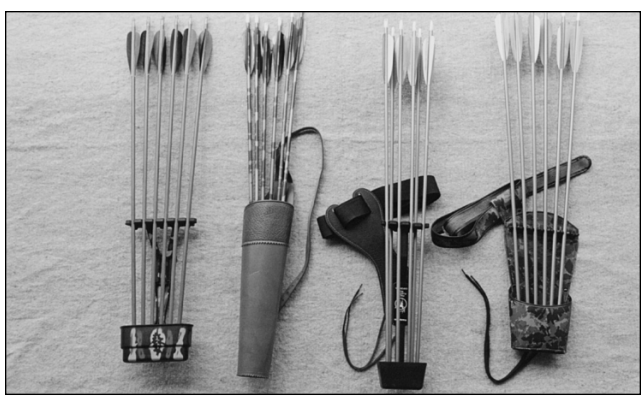
Quivers are containers for carrying bow and crossbow arrows safely. The various models, which are very similar, are made specifically for these two kinds of projectile weapons.

The characteristics of a good quiver are the presence of a broadhead protector, mainly for your safety, and arrow separators to eliminate noise caused by friction while walking

3.2.1 Bow

While there was only one kind of quiver in the past, the so-called back quiver, three different models are now available. The most modern and fashionable is the bow quiver, which is in wide use today. It is greatly appreciated for the safe transportation of arrows. Next comes the belt quiver which is popular among professional archers. However, this type of quiver poses a safety risk, particularly in the forest, due to the presence of branches. For those who yearn for the good old days, there is always the back quiver. Hunters have plenty of arguments in support of their favourite quiver, while manufacturers reap the benefits of the controversies. Whatever the type, it is important that the quiver be equipped with a broadhead protector for the hunter's safety, and with arrow separators to eliminate noise caused by friction while walking.

Practiced hunters who are excellent shots are happy to use one of the three types of quiver: the back quiver, slightly modified to accommodate each arrow in a tube rather than loose in the quiver. Other hunters prefer the belt type, adapted from a rigid, strong bow quiver mounted top to bottom on leather or strong canvas attached to the belt. Finally, the great majority of bow hunters choose the easy way and buy quivers adapted to their bow.



Various quiver models, according to your tastes and your experience!

3.2.2 Crossbow

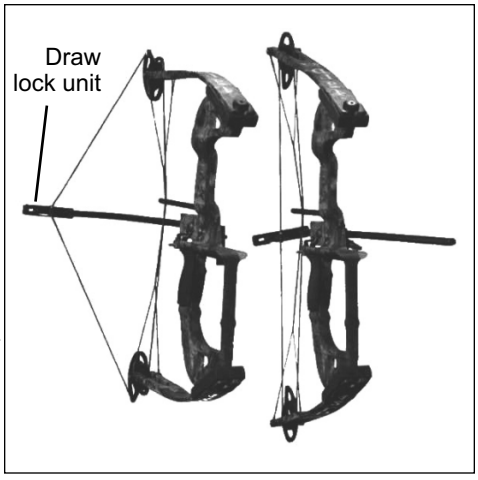
All crossbow manufacturers offer quivers that contain several bolts (usually four) and that can be mounted directly on the crossbow. There are both fixed and detachable quivers.

Quivers are almost always mounted crosswise on the crossbow but a few models are mounted lengthwise along the stock. Lastly, some hunters prefer to wear theirs in a hip quiver holster.

Regardless of the style of quiver chosen, it is absolutely essential that the quiver be designed so as to completely cover broadhead points or blades when the bolts are in it.

3.3 Draw lock unit (bow)

The draw lock unit is a device used to keep a bow permanently drawn, ready to shoot an arrow. It uses a trigger system and in order to be safe, it must be equipped with a safety latch that prevents accidental or unintentional shots.



Source : Hickory Creek inc.

The draw lock unit allows a person to make precise shots with a minimum amount of physical effort, as the bow hunter no longer has to hold the string. He simply activates the trigger system to shoot the arrow.

If you decide to use this type of device, make sure it meets the resistance and safety requirements associated with the power of your bow. There are several makes and models on the market: foldable, telescopic, removable, stationary, etc... Get in touch with a knowledgeable archery supply store to find out the one that is best suited to your needs.

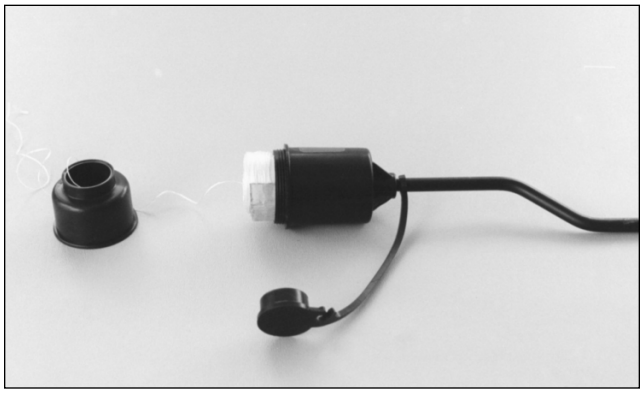
In Québec, as in several North American jurisdictions, this device is authorized for hunting.

3.4 Game Tracker (bow)

A game traker is simply a solid brightly coloured string (white or orange) held in a cylindrical container attached to the bow. One end of the string is attached to the arrow. When the arrow is loosed, the string feeds out of the reel and follows the arrow's trajectory. As its name indicates, this accessory, even when broken, will help you find the fleeing game. This simple device, which is very inexpensive, is highly useful and not just another gadget. Tracers are useful at short distances; a tracer must be properly installed above the arrow and hunters should practice with it before hunting. Recover the tracer string every time you use it.

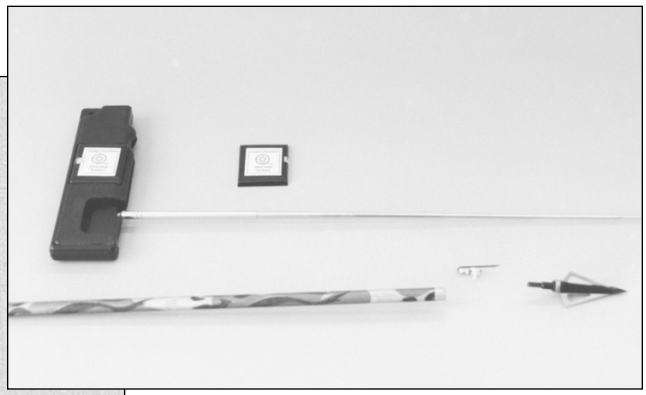
In recent years, an electronic-type tracer has been available on the archery market. It includes a radio-wave transmitter that is attached to the base of the broadhead and a wave receiver equipped with an antenna. This device can be effective over a good distance, but does not fit everyone's budget.

This piece of gear is very useful for locating wounded quarry quickly, especially in the case of bear in spring, as thick bear fur absorbs blood. The use of this gear does not affect arrow flights over a short distance. This gear is even more effective, if you take the time to attach the barb to the end of the string. This barb hooks on to the animal's hide, making it easier to find. A reel installed in this manner does not affect the trajectory at distances of under 20 metres. It is advisable to remove a few metres of string from a new tracer reel.



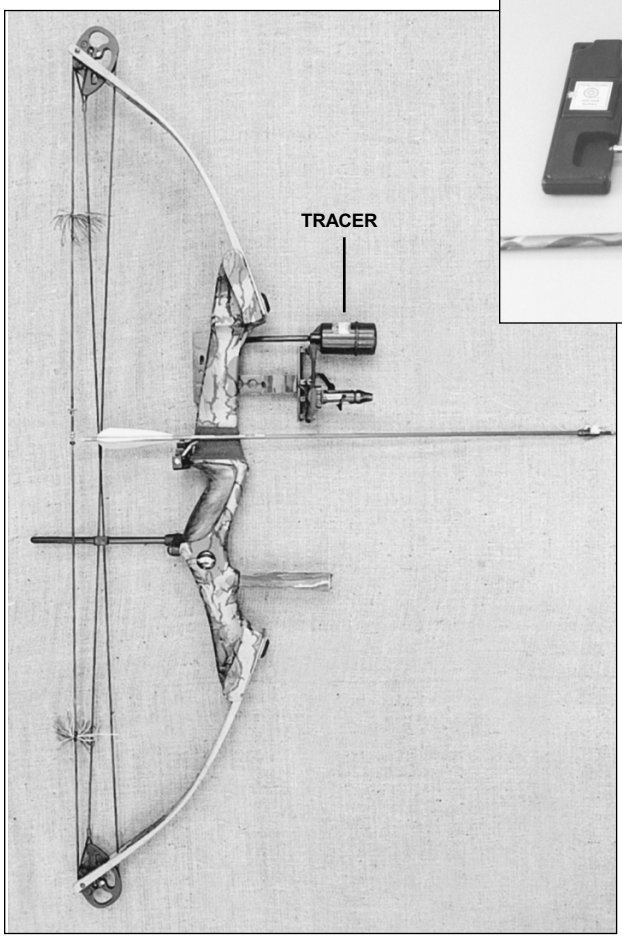
Robert Morin

Conventional tracker



Robert Morin

Electronic tracker



Robert Morin

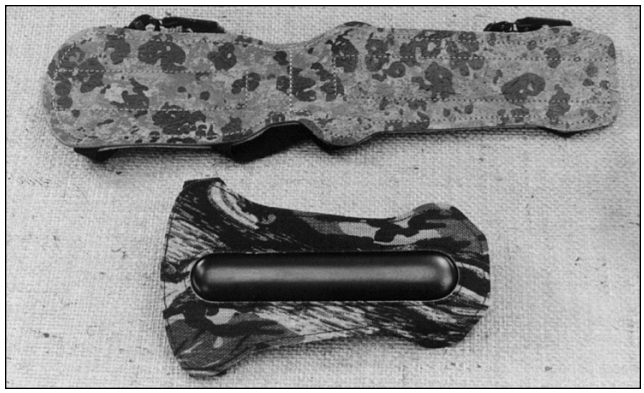
Compound bow fitted with a conventional tracer

3.5 Finger gloves and arm guard (bow)

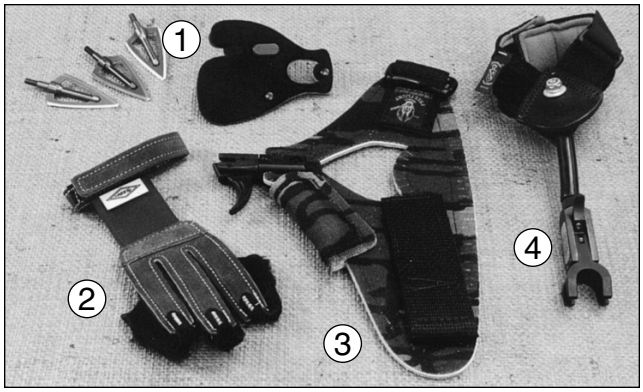
These are two essential accessories for bow hunter safety.

The ***arm guard*** makes it possible to keep the sleeve of the hunting jacket out of the path of the bowstring, in addition to protecting the forearm which supports the bow in the shooting position.

As for the ***finger gloves,*** whether or not fitted with a release aid, they allow the hunter to shoot, hold and release the bow string without injuring his fingers.



Full and partial arm guards



1 and 2: finger gloves; 3 and 4: release aids

IMPORTANT NOTE…

If the bowstring regularly strikes your forearm when you release an arrow, check the position of your wrist and your elbow in relation to the string path. Also check the bend of your bow. *It should be recalled that the bend of a bow is the distance between the elbow and the centre of the bow (hollow part of the grip).* Finally, the draw length of the bow may perhaps be too great for you or you may be holding your bow incorrectly.

3.6 Cocking aids (crossbow)

The poundage of modern crossbows has grown considerably in recent years, given the demand for greater bolt velocity. As a result, the need to resort to a cocking system has grown, with this accessory almost becoming a must. With these systems, the large majority of users can cock the most powerful crossbows.

To help people draw their crossbow strings, manufacturers offer a cord and pulley mechanism with a handle at each end and two small hooks with sliding pulleys.

With this pulley system, the cord reduces the strength required to cock the crossbow by almost 50% and the bowstring is centered automatically. It should be pointed out, however, that this manual cocking system is not advantageous for people under 1.70 metres (5 ft 7 in) in height.

Most crossbows can be cocked with a windlass that uses a hand crank or is battery-operated. The disadvantage with this system is that it takes longer and is noisier. For these reasons, the windlass is mostly used by people who lack physical strength or are disabled. Some recent crossbow models are equipped with a fixed or removable windlass that either has a hand crank or is battery-operated.

In conclusion, you must never uncock a crossbow using a cocking aid.

Jeannot Ruel

Using a crossbow cord and pulley mechanism

3.7 Other accessories

A bow or crossbow hunter's equipment would not be complete without the following: a spare bowstring, the appropriate kind of wax, adjustment tools, string and cable silencers, and an appropriate case to carry all of the equipment.

Two models of string silencers

Case and main accessories

Adjustment tools

4. BOWS, CROSSBOWS AND THE LAW

Generally, there are two laws that govern crossbow use in Québec at the present time: the *Firearms Act* and the *Act respecting the conservation and development of wildlife,* whereas bows are only governed by this latter statute.

Firearms Act – This statute is managed by the Department of Justice Canada and enforced by the RCMP and the Sûreté du Québec. Under this Act, possession of a crossbow designed or made to be fired with one hand or a crossbow that is under 500 mm long is prohibited. In other words, crossbows such as these are considered to be prohibited weapons.

Act respecting the conservation and development of wildlife – This law is managed by the Ministère des Ressources naturelles et de la Faune, on behalf of the Québec government. Wildlife protection officers see to its enforcement. Under this Act, in order to hunt with a bow or a crossbow in Québec, a resident must have a hunter's certificate appropriate to this weapon, namely a certificate bearing Code A for bows and crossbows or B for crossbows only.

To obtain this certificate, a person must have successfully completed the Introduction to bow or crossbow hunting course. The provisions related to the possession of these weapons at night or in a vehicle also stem from this law. The Hunting Regulation, made under this Act, sets out the rules for sport hunting with bows or crossbows.

Obligations with regard to wearing a safety vest when hunting with a crossbow are the same as for hunting with a bow. In seasons, places or areas reserved exclusively for bow or crossbow use, wearing a safety vest is not mandatory. In all other cases, bow and crossbow hunters must wear a safety vest, unless they are hunting crows, rock doves and, during the winter season, wolves, coyote or red fox. The wearing of a safety vest is never required when hunting waterfowl.

It should be noted that hunting migratory birds with a crossbow is prohibited.

5. MAINTAINING EQUIPMENT

Like all weapons, bows and crossbows require regular tuning and maintenance. They should always be checked carefully before and after they are used. Briefly, the various sensitive components of bows and crossbows require the following maintenance.

5.1 Arrows of bows and crossbows

Arrows that have already been used for practice shooting (especially in sand) must not be used for hunting if they have been straightened (aluminium) or damaged. Traditional cedar arrows should not be used with compound bows, but rather reserved for conventional bows (recurve and Long bow). This type of projectile requires careful inspection to avoid the extremely serious injuries that may be suffered by the persons handling them. Any damaged arrow must be disposed of immediately. Otherwise, you risk seeing this arrow break under the tension of a bow or crossbow and sustaining injuries.

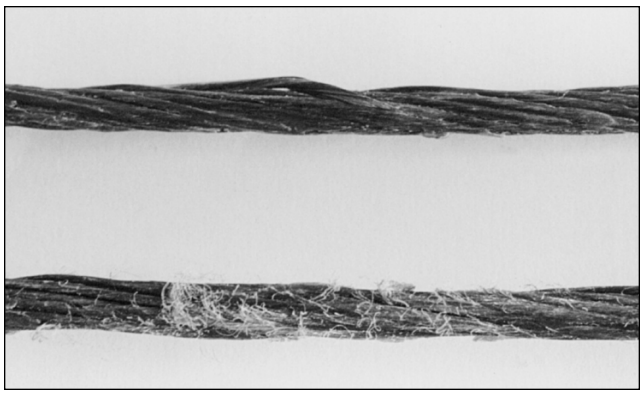
5.2 Bows

5.2.1 Strings and cables

The string must be in perfect condition, well waxed. Do not wait until some of the strands show signs of wear or the string is frayed. A spare bowstring that has already been used and maintained is a must.

Why should you carry a spare string that has already been used? The answer is very simple: a string stretches about half an inch (1.25 cm) with use; the spare string must be of the same length as the one to be replaced. Otherwise, the tension of your bow will not be the same, the nock points will be in the wrong place. As a result, your shot will lack precision and the flight of your arrow will be erratic.

In the case of compound bows, whether equipped with wheels or cams, check the condition of the cables and maintain them if necessary. As a general rule, all these inspections must be performed before going hunting.



It can make all the difference for your safety!

5.2.2 Limbs (laths)

Another check is important for your safety: the laths of your bow must be in perfect condition; check the condition and the fibreglass coating. Any defect (ungluing, abnormal appearance, cracks, etc.) must be looked into immediately and repaired by an expert. Above all, do not try to do it yourself.

5.3 Crossbow

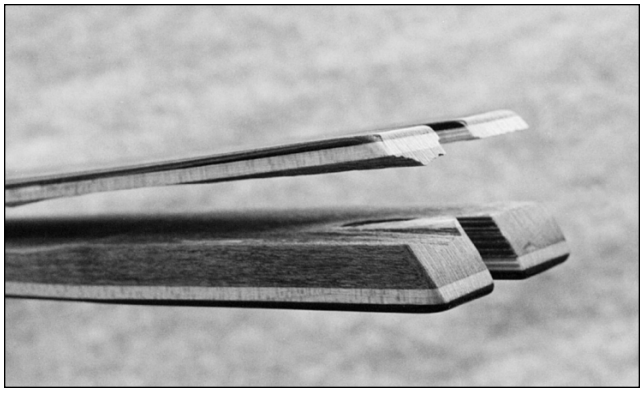
5.3.1 Bowstring and cables

First of all, before it is installed, the string (loops included) must be carefully impregnated with hard bowstring wax, then twisted lightly and rubbed with the fingers or a piece of leather until it is "warm." This allows the wax to thoroughly penetrate in and between the strands. In the case of a crossbow with a grooved stock used as support and guide, the section where the string rubs must be lubricated after every ten shots or so. A stick of silicon grease will do the job nicely. Before each outing or shooting session, check the bowstring and wax it if necessary. You can easily triple its life this way.

In the case of compound bows, whether they are with cams or pulleys, check the condition of the cables and see to it that they are maintained properly. Generally, a complete inspection is performed some time before going hunting.

5.3.2 Bow (Limbs)

Made of fibreglass (with or without carbon fibres) or steel, the limb, which is very short and extremely powerful, requires very special care. At the least sign of weakness – warping, fibre problems (paling or delamination) on a bow that is generally black, a change of colour or a hairline crack on a steel bow –consider replacing the bow to avoid a serious accident. In all cases, seek an expert's advice.



Typical example of delimination

5.3.3 Adjustment

The use of a square is indispensable, even before shooting your first bolt. The bowstring must be at a right angle on both sides of the stock, and the distance between the stock and the ends of the bow must be the same on either side. These precautions are to ensure that both limbs (or both sides of the same limb) are equally resistant and powerful, for greater accuracy.

5.3.4 Stock

Made of hardwood (often laminated) or an alloy casting (generally aluminium-magnesium), the stock contains the release mechanism and supports the bow (in a single prod or two halves) and, often, the mounting system used to cock the weapon (stirrup). All the screws holding the parts mentioned should be checked frequently and tightened if necessary. If the stock has a groove, after about every ten shots you should coat the sides of the groove that the bowstring rubs against with a special wax lubricant in order to preserve the string by reducing wear.

5.3.5 General information

Most crossbows are fitted with an automatic safety system: once it is cocked or drawn, the weapon cannot be released accidentally, not even by pulling hard on the trigger. On other crossbows, the safety has to be manually engaged.

All the nuts, bolts and screws on a crossbow should be checked regularly and tightened if necessary. Vibration occurs with every shot, so it is important to keep an eye on these "strategic" spots.

6. SELECTION CRITERIA

The general purpose of a bow and a crossbow is to store the energy in the limb or limbs of the weapon and then transfer this energy to an arrow when the string is released. While these projectile weapons can propel an arrow at more than 200 km/hr over a distance of over 300 m, they are nevertheless hunting weapons that are effective at short range. Indeed, depending on the hunting conditions, shots are generally made at a distance of between 15 and 30 m.

6.1 Comparison between a bow and a crossbow

When a bowstring is released, it propels the arrow more than twice the distance of that of a crossbow. To obtain a comparable performance, a crossbow must have a draw weight that is more than twice that of a bow.

Given that the draw length of a crossbow is shorter than that of a bow, it must have limbs with greater poundage to make up for this difference in power. The powerful limbs are deployed over a short distance and stop suddenly when an arrow is shot. As a result, the crossbow must be much heavier than a bow in order to absorb the shock, which otherwise would be supported by the crossbow user. The short draw length combined with the great poundage of a crossbow create more vibrations and noise at the time of firing than in the case of a bow.

6.2 Bow selection criteria

For maximum accuracy and performance when bow hunting, it is important to choose a weapon that is adapted to your physical characteristics.

When purchasing a hunting bow, it is strongly advised that you consult retailers specializing in the archery field.

The first criterion for selecting a bow is knowing whether you should choose a left-hand or right-hand bow. This decision is essentially based on ***eye dominance.*** For example, if your right eye is dominant, you will be better off choosing a right-hand bow, which allows you to draw the string with your right hand. It is preferable to test your equipment before purchasing it and to experiment with various models of bows and other accessories.

The second selection criterion is your ***draw length,*** the length to which an archer can pull the string of a bow. For an optimal performance, the bow should be adapted to your own draw length, namely the length of your arms.

The third criterion for selecting a bow is the ***draw weight,*** namely the traction that the archer provides when he draws the bowstring. The bow should be adapted to your strength.

You should avoid choosing a bow, whose draw weight is too great. You should be able to comfortably draw the bow back without straining or lifting the bow up over your head to draw it back. If you cannot, choose a bow with a lower draw weight.

Generally, a person should choose the bow having the greatest draw weight that he is capable of drawing back comfortably, whatever the weather conditions, the shooting position or the hunting situation (hunting from a blind, whether on the ground or in the air, still hunting).

Before purchasing your first hunting bow, be sure to measure your draw length and determine the bow weight that your arms can support. The staff of a retailer specializing in archery can help you take these measurements.

IMPORTANT NOTE…

There are rules concerning the required minimum draw weight of a bow or crossbow used to hunt big game. Consult the summary of the Québec hunting regulation on this subject.

6.3 Crossbow selection criteria

For maximum accuracy and performance when crossbow hunting, it is important to choose a weapon that is adapted to your physical characteristics.

When purchasing a hunting crossbow, it is strongly advised that you consult retailers specializing in this field.

The only true criterion for selecting a crossbow is to know if you need a right-hand or left-hand crossbow. This decision is essentially based on ***eye dominance.*** This criterion is important if you do not plan to use a telescopic sight; otherwise, it is superfluous.

While the draw weight of a crossbow is generally twice that of a bow (150 to 180 lb), the availability of various cocking aids suiting individuals whatever their physical condition makes the application of this selection criterion pointless. However, the total weight of some crossbows may be a limiting factor for people with a weaker constitution or those who intend to practice stealth hunting or still hunting.

6.4 Determining your dominant eye

Just as you have a dominant hand, you also have a dominant eye. You should take aim with your dominant eye in order to make accurate shots. Generally, your dominant eye corresponds to your dominant hand.

To determine your dominant eye, you should

- form an open triangle with your thumbs and index fingers;
- stretch your arms outward and in front of you;
- target an object at a distance by looking through the triangle formed by your hands;
- close one eye at a time; your non-dominant eye will cause you to see the back of your hands; your dominant eye will continue to focus on the object through the triangle formed by your hands.

7. DEER RECOVERY RATE AND BOW HUNTERS

According to the only study considered complete and valid on the subject, it seems that the number of wounded deer not recovered by hunters is considerably lower than what was suggested by past studies and notably by anti-hunting groups. Indeed, based on this study, which cost $250,000 U.S. and which was carried out over three years beginning in 1992 at Camp Ripley in central Minnesota (United States), it was determined that 87% of the wounded deer were recovered during the hunting season on the same territory. In other words, a maximum of 13% of the deer hit by a hunting arrow are lost or not recovered. According to the study's author, this non-recovery rate is the maximum rate since it includes those deer presumably hit by the arrow of more than one hunter and non-recovered deer that were not fatally wounded.

Unlike other similar studies in which hunters responded to mail or telephone surveys several days or weeks after their hunting trip, each day, the researchers of the "Camp Ripley" study interviewed all hunters coming out of the forest, namely 6,000 hunters over the course of two hunting seasons (1992 & 1993).

One of the study's surprising discoveries is that 50% of the deer wounded by a hunter were subsequently killed or recovered by another hunter on the same territory. According to the author, most of the previous studies had not revealed this phenomenon which would explain the bias and consequently, the overestimate of the rate of non-recovery of deer wounded by a hunting arrow.

One of the innovative, albeit costly, aspects of the study involved flying over the territory systematically after each hunting expedition, using a helicopter fitted with an infrared heat detection system. All of the observations of interest were subsequently validated by a team of researchers on the ground.

Given the carefully controlled management of the restricted access territory under study (Camp Ripley) and the high level of skill of the hunters-archers frequenting this wildlife territory, the study concludes that these results should be validated in bow hunting situations other than those that prevailed in this study.

There do not seem to have been any other similar studies carried out to date.

Bibliographic reference:

Kruger, Wendy J. 1995

"Aspects of Wounding of White-Tailed Deer by Bowhunter".
MS Thesis, School of Agriculture and Forestry,
West Virginia University, Morgantown, W.V.

8. SAFETY AND HUNTING WITH A BOW OR A CROSSBOW

Hunting involves the use of a weapon, so SAFETY SHOULD COME FIRST. That means the safety of the hunters themselves as well as others – fellow hunters, outdoor photography buffs, hikers, etc. Although a crossbow's range is more limited than that of a firearm, it can propel its bolt 200 to 300 metres when shot in the air – so be careful! Never shoot off into the distance or up into the air "just to see." In hilly or heavily wooded areas, be extra careful and make sure that there is no one in your crossbow's path. Safety rules are the same as for bows. Let us specifically mention the safety rules applicable to hunting with these projectile weapons:

- **Hunt and shoot while respecting your physical limits.**
- **Make sure that your equipment is in good condition.** *Keep your crossbow and accessories tuned and maintained, and think ahead: virtually all hunting accidents occur when hunters injure themselves – sometimes very seriously – through negligence and poor maintenance.*
- **Choose a safe quiver.** *No matter what model you choose, it should always protect you from broadheads. The solution is a rigid synthetic quiver that allows you to keep broadheads separate and covered. Avoid old quivers at all costs: they do not provide this protection and they leave broadheads exposed.*
- **Always point your weapon towards a safe place. NEVER arm your bow or crossbow if there is anyone right in front of you or off to the right or left. As with all other weapons, NEVER POINT A CROSSBOW AT ANYONE.** *This rule applies both to bows and crossbows, for an arrow in flight can be just as dangerous, even lethal, as the bullet of a firearm.*

Beware of danger!

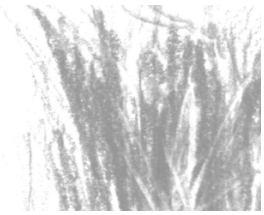
- **Practice shooting regularly.**
- **Use hanging Styrofoam blocks to stop your arrows and broadheads when practicing.** *This will allow you to check your accuracy and to see if your bolts are flying right.*
- **Wear your hunting clothing during practice shooting so that you can make sure that none of it gets in the way when you shoot.**
- **Use an extractor if a broadhead gets stuck in a tree.** *Think of others: Make sure that you find any bolts that you have lost in fields – otherwise, they may be eaten up by farm machinery or livestock – mixed in with their feed.*

A broadhead extractor

- **Before you go hunting, let a responsible person (spouse, relative or friend) know where exactly you are going and when you will be returning.** *This will make it easier to find you if you are unexpectedly late.*
- **Transport your bow or your crossbow and accessories in a safe case.** *Ideally, you should put all the equipment you need into a rigid box. If you can't, then a padded case will do. Your bolts should either be put in a box or the quiver. Extra broadheads should be kept in their original rigid packaging – or stored in film roll containers, for instance.*
- **When you come upon an obstacle or obstruction (hedge, ditch, fence, etc.), remove the arrow and put it back in your quiver.** *Move your weapon to the other side of the obstacle, then you can go there yourself – but make sure that you don't step on your equipment.*
- **Bring along hunting clothing for all weather conditions, even extreme conditions, that you are likely to encounter during your trip.**
- **When you go into the forest, bring along a topographic map, a compass (or GPS), as well as a survival and first-aid kit, even for short hunting trips.**
- **Make sure that you agree with your fellow hunters on where and when you will meet.**
- **Bring along a flashlight with spare batteries. Light up the path leading to your blind, both when you go to it and when you return, when lighting conditions in the forest are poor.**
- **Always make sure that there are no tree branches or other objects (wall of a blind) in the way.** *If you don't, your crossbow limbs could strike this natural obstacle, resulting in a spoiled shot at the very least, a broken bow or crossbow most of the time or – in the worst case scenario – being hit in the face with a piece of your weapon.*

Beware of obstacles!

- **Identify your game carefully and wait until it is in the right position before releasing your arrow.**
- **Avoid shooting at a game that is standing at the top of a slope, if you cannot be sure of a safe arrow trajectory and destination.**
- **Before eviscerating an animal, always remove the bolt shaft – and especially the broadhead – first.** *The broadhead will not forgive you if you forget the blades and you will run the risk of cutting yourself and ending up with an infection..*
- **When shooting a CROSSBOW, it is vital to KEEP YOUR FINGERS INCLUDING THE THUMB OF YOUR BOW HAND BELOW THE TRAJECTORY OF THE BOWSTRING.**



CHAPTER 7

Understanding Wildlife and Wildlife Management

UNDERSTANDING WILDLIFE

In Québec, there are three categories of hunted animals: big game, small game and wild turkey and small game. The first category comprises ungulates (hoofed animals) and a large omnivore, the black bear.

The small game category, includes mammals such as hares and rabbits, as well as game birds such as ruffed grouse, spruce grouse, American woodcock, waterfowl, etc.

The wild turkey is a new category of game in Québec. Regular hunting of this large game bird was instituted in 2008. In order to obtain a permit to hunt wild turkey, the hunter will need to take mandatory training course specific to this type of game (biology, hunting and management of wild turkey in Québec). The Fédération québécoise des chasseurs et pêcheurs has the exclusive right to provide this training in the Québec. Consequently, developments relating to this class of game will be considered only briefly in this chapter.

It is important to have a good understanding of the habits and characteristics of the game you are interested in. Regardless of the type of hunting practiced, it is very important that hunters understand the animal, its habits, its habitat, and the management methods associated with the species.

Hunters must understand their role in the management of game. Their participation in public consultations will help to better understand the state of populations and to choose the management methods that are best adapted to the situation of animal populations, while ensuring the protection and development of wildlife resources. By registering the big game animals killed and by providing the body parts required (when requested, such as incisors in cervids and premolars in bears), hunters provide key information that contributes to the sound management of animal populations. In return, hunters can expect better management and hence better quality hunting.

WILDLIFE MANAGEMENT TOOLS

To manage wildlife adequately, it is important to not only have a good knowledge of wildlife, but also to have a variety of information on the habitats in which wildlife lives. With this objective in mind, managers can use one or more tools put at their disposal. The most commonly used tools are: scientific research, population monitoring systems (registration of kills, analysis of carcasses or body parts of an animal, information obtained from users, **INVENTORIES** and other elements), the control of populations, and surveys and polls among users.

The first of these tools, scientific knowledge, permits the acquisition of basic knowledge on the species of interest. Population monitoring systems provide information on species or populations that are subject to harvesting or whose numbers are not known well enough. Indeed, these systems allow officials to observe population growth or decline trends and to monitor the evolution of the

harvest. One of these systems, the registration of kills, provides information on the animals caught or killed, such as the size, sex, age and number of animals harvested.

The analysis of carcasses or body parts of an animal provides other types of data, such as the birth rate, the proportion of males and females, of juveniles and adults within a population. As for inventories, they mainly allow officials to evaluate the relative **DENSITY** of a species, i.e. the number of animals on a given territory. They are also useful for determining the percentage of young animals or the proportion of males and females in a population. Occasionally, when a species becomes too abundant in a region and has an adverse effect on man or another species, it becomes necessary to control its population. This takes the form of intimidation, transfer and even the elimination of harmful animals. Other tools, policies and management plans are geared to the use of a species or a group of species and establish the management objectives for this resource, as well as the means implemented to achieve these objectives. Finally, the surveys and polls conducted among users inform managers about the harvest, the socioeconomic profiles, the needs and habits of wildlife users. These tools are also used to evaluate the economic role of an activity.

BIG GAME SPECIES OF QUÉBEC

The big game species of Québec include three species of cervidae as well as the black bear. The following cervidae are found in Québec: moose *(Alces alces)*, white-tailed deer *(Odocoileus virginianus)* and caribou *(Rangifer tarandus)*. Like most representatives of this group of ungulates, they are ruminants. However, their most obvious characteristic is the presence of antlers in males (except in the case of caribou, where both males and females have antlers) which grow and fall out during the year.

Among cervidae, antlers are solid horns that grow out of frontal bones and grow very quickly. Generally, they only occur in male animals, with the exception of the caribou where both male and female animals have antlers.

Antlers are useful during the mating period. Males use them to establish their dominance over other males and to attract one or more females.

When growing, antlers are covered with a fine velvety skin, rich in blood vessels. With time, antlers calcify, blood circulation diminishes and stops. The skin covering the antlers, which is known as velvet, dries and peels off, showing the hardened antlers. Growing antlers requires good reserves of calcium since antlers are grown, lost and regrown over a period of a few months.

Fallen antlers are rarely found in the wild, as they are quickly eaten by rodents (often porcupine, but occasionally squirrels and lemmings) as well as hares.

Resting...

BIG GAME SPECIES OF QUÉBEC				
	MOOSE	**CARIBOU**	**WHITE-TAILED DEER**	**BLACK BEAR**
Length	200 to 290 cm	173 to 247 cm	160 to 215 cm	137 to 188 cm
Height (at shoulder level)	169 to 192 cm	104 to 140 cm	90 to 120 cm	66 to 91 cm
Poids **Mâle** **Femelle** **Nouveau-né**	 450 to 500 kg 360 to 385 kg 11 to 16 kg	 121 to 250 kg 90 to 158 kg 4,5 to 7,8 kg	 55 to 100 kg 47 to 65 kg 1,5 to 6,7 kg	 36 to 108 kg 29 to 63 kg 170 to 280 g
Habitat	Mature mixed forestand regenerating forest	Coniferous forest open, taiga, tundra	Hardwood forest and regenerating forests, agro-forestry setting	Hardwood forest, mixed and regenerating forests, burns, taiga
Longevity **in the wild** **in captivity**	 20 years 27 years	 15 years 20 years	 15 years 20 years	 25 years 30 years
Predator **Adult** **Young**	 Wolf Black bear	 Wolf, black bear Black bear, lynx and golden eagle	 Wolf, coyote, stray dog Black bear, wolf, stray dog and coyote	 Polar bear Adult male bear
Sexual maturity **Male** **Female**	 5-6 years 2 years	 1 - 2 years 1 - 2 years	 1 year 1 year	 3-5 years 3-4 years
Rut period	mid-sept. to beginning of oct.	mid-october to the end october	mid-november to the end november	mid-June to mid-July
Calving period	end of May to mid-June	June to mid-July	June	mid-January to mid-February
Number of young	1-2 (rarely 3)	1 (rarely 2)	1-3 (rarely 4)	1-4 (rarely 5)

THE ANTLERS OF CERVIDAE

	MOOSE	CARIBOU	WHITE-TAILED DEER
1. Start of growth	May (when vegetation begins to grow)	During the first 4 weeks following calving (which takes place from the end of May to June 10), the buds appear on the young born the previous year. At first just a spike, at 2 or 3 years antlers branch. Adult males: budding from the end of March to early April. Females: 15 days after calving.	April
2. Loss of velvet	End of September	End of September, early October	September
3. Loss of antlers	January	Males, from November to March. Mature animals in November-December. Younger animals (2 to 3 years) in April Females in gestation : 3-4 days after calving. Females not in gestation: before the calving period (end of May – June 10)	Mid-December to mid-January
4. Uses	Reproductive period (hierarchy is established based on antler size).Ritual combat between similar sized males.	48 hours after calving; allows females to take precedence at feeding sites since males have lost their antlers. Establishes a hierarchy during reproductive period; establishes a priority of access to food.	Reproductive period (hierarchy is established based on antler size).Ritual combat between similar sized males.
5. Sex	Male: 100% Female: very rare	Male: 100% Female: 95% (antlers are smaller than in males)	Male: 100% Female: rare

1. MOOSE *(Alces alces)*

1.1 Characteristics

King of the Forest

Québec's forests are home to the world's largest member of the cervidae family: the moose. A Québec moose (adult male) may stand as high as two metres at the **WITHERS** and weighs up to 500 kg. The weight of an adult female varies between 360 and 385 kg. A moose may reach 20 years of age in the wild and 27 years in captivity.

Known as an elk in Europe, its French name comes from the Basque word "oregnac".

Spreading palmate antlers are exclusive to this species of cervid. As in the case of other cervidae, the antlers are shed in the winter and grow again in the spring, with a velvety coating that peels off at the end of the summer.

Except in winter and during the mating season, adult moose, especially males, are usually solitary. Calves remain under their mother's care for a year. She chases them away before giving birth again.

Moose have a keen sense of hearing and smell; they constantly sniff the air and listen for the slightest noises. However, moose have poor eyesight. Although moose are good at detecting movement, they will not detect an immobile object that they are unable to hear or smell.

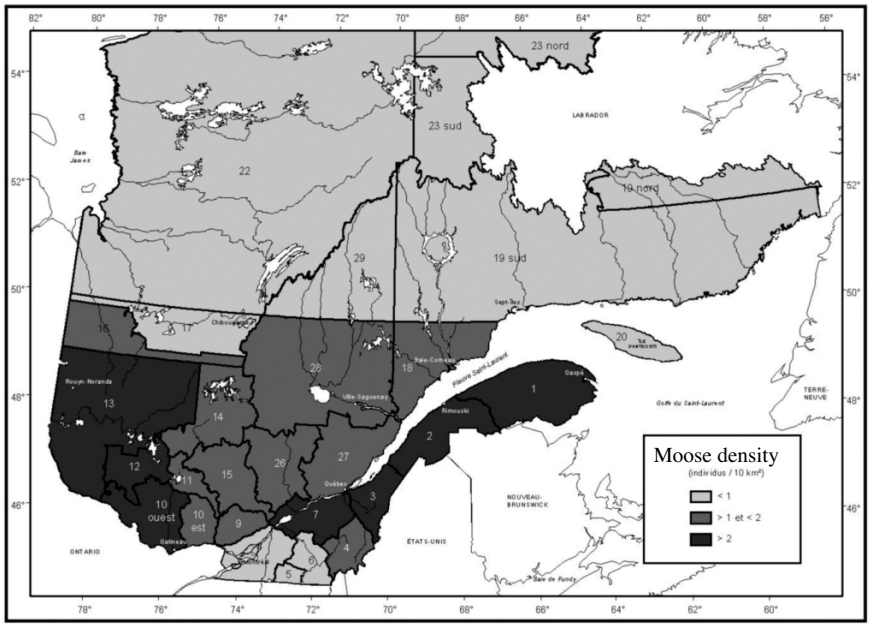
1.2 Reproduction

The rut period lasts a few weeks, from mid-September to early October. It is now recognized that males (which reach sexual maturity at 5 or 6 years of age) can court and mate with several females. That way, even in a population with a higher proportion of females, all females are able to mate.

In late May or early June, females that are 2 years of age or older give birth to one calf, often two and some times three. The likelihood of having twins or triplets is greater among females over 4 years of age. The quantity and quality of available food may also influence the productivity of females.

1.3 Distribution, Habitats and Density

The moose is well established in Québec, everywhere there are large forests. The post-hunting population is estimated at close to 116,000 animals and densities of 2 moose per 10 km^2 are considered good.



Moose density in Québec (2005)

Habitat and Diet

Summer

During this season, moose mainly frequent mature mixed forests and regenerating forests. They also like to stay close to bodies of water. Moose feed mainly on **TWIGS** (or annual shoots) of trees and bushes, leaves and roots of aquatic plants. As the mineral salt concentration of aquatic vegetation is anywhere from 50 to 500 times greater than dry land vegetation, these plants help meet this animal's salt requirements for antler growth (bulls) or when nursing calves (cows).

Winter

When the snow reaches a depth of about 75 cm, moose gather in small groups of 2 to 8 animals The best congregation sites (or **YARDS**) are made up of the following two types of stands:

- stands containing hemlock, fir and white spruce that are at least 30 years old, offering good cover;
- regenerating hardwood or mixed stands, the age of which varies between 5 and 20 years, where moose browse on tender boughs.

The moose's winter quarters or "yards" are more temporary in nature than those of the white-tailed deer. Moose make intensive use of a site for several days or weeks, and then change locations. The extent of their movements varies according to the quality of the habitat, the thickness of

the snow, the presence of a crust (or snow that is hardened, even icy on the surface) and human disturbances.

1.4 Main Mortality Factors

In those territories to which hunters have access, hunting is the leading mortality factor.

In past years, from 12,000 to 18,000 moose were harvested each year through sport hunting. Henceforth, the number of moose that hunters harvest should vary between 18,000 and 26,000 animals per year, given the current regulations and management measures which favour an increase in moose populations. The management plan aims for a better structured harvest that will spare reproductive females. In short, **at the present time, more moose are being harvested in Québec, while population growth is holding steady.**

The abundance of moose is also limited, but much less markedly, by diseases, parasites (the meningeal worm in zones where there are contacts with white-tailed deer), predation, traffic accidents and poaching. The main predator is the wolf, but moose are also occasionally preyed upon by black bear. However, black bear only attack calves.

1.5 Inventory, Monitoring of Harvesting

Inventory

An aerial inventory of populations is made every 7 years. This inventory is done in two stages. When the snow reaches a thickness of about 75 cm, a team uses a plane or helicopter to fly over a sample of the territory and makes note of all the tracks and moose spotted. Based on this information, the limits of the winter quarters of each group of moose are drawn.

The second stage involves using a helicopter to fly over only a few of the same winter quarters and to collect the following information:

- number of animals per yard;
- count by age class (young or adults);
- count by sex (sex ratio).

Taken together, these data make it possible to determine:

- the population density for an entire hunting zone;
- the **SEX RATIO** (number of males in relation to the number of females);
- productivity (number of young per female);
- the **STRUCTURE OF THE POPULATION** (number of young in relation to the number of adults).

Annual monitoring of harvesting

The annual monitoring of harvesting data and the occasional surveys conducted among hunters are invaluable management tools that allow managers to monitor the evolution of moose hunting in Québec. In both cases, the participation of hunters is essential and makes it possible to collect the following data:

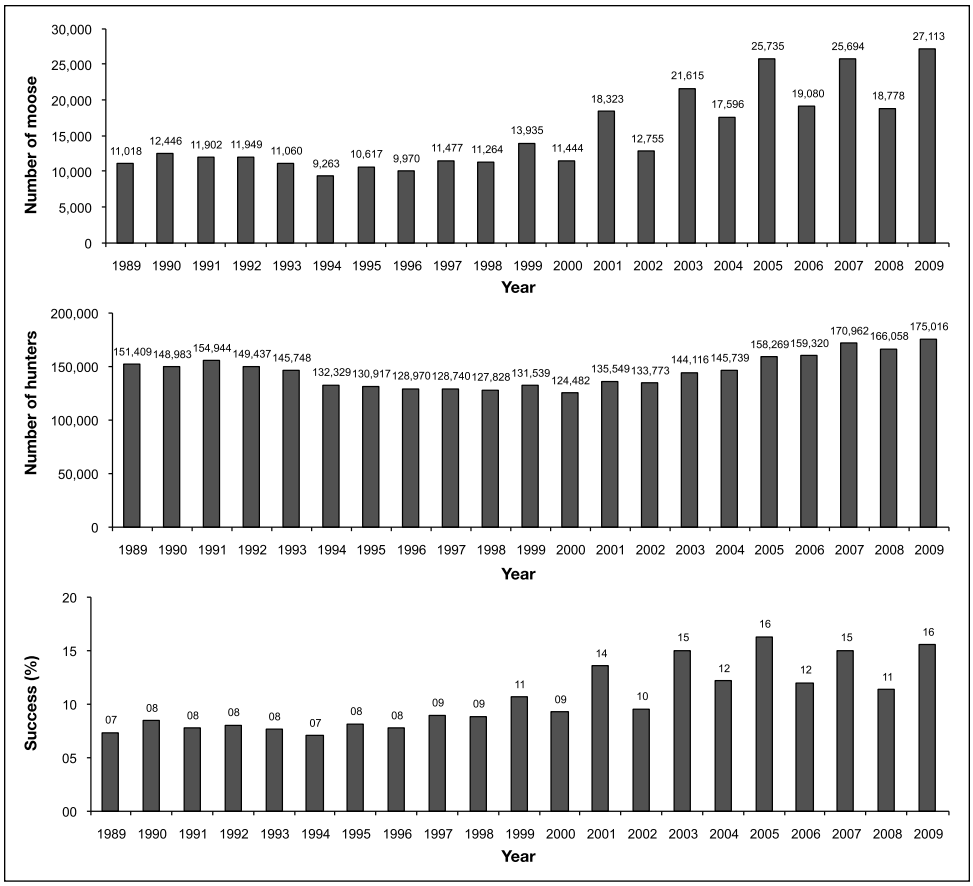
- number of hunters;
- number of hunting days;
- the harvest (number of kills, age, sex, origin).

Based on these data, it is possible to determine:

- the harvest per 10 km^2;
- the hunting success;
- the hunting pressure, i.e. the number of hunting days per 10 km^2;
- the hunting effort, i.e. the number of hunting days necessary to bag a moose;
- the average age of the animals harvested.

The age and sex of the animals taken gives an indication of the aging or rejuvenating trend of the moose population and the sex ratio of the animals bagged.

Other elements may also indicate the state of the **HERB**. For example, the number of females nursing or females accompanied by young can be used to calculate the percentage of females that gave birth.



Number of moose harvested, number of moose hunters and moose hunting success in Québec, with the exception of Ile d'Anticosti, from 1989 to 2009.

1.6 2012-2019 Moose management plan

In 2011 there were substantial populations of moose in most hunting areas in Québec. The areas located primarily in the eastern part of the province support particularly large populations whereas in the northern and western areas of Québec, moose must face the presence of wolves and a habitat of lesser quality, which prevents this species from flourishing as it does elsewhere. In 1994, the moose population totalled barely 55,000 whereas today it has climbed to about 125,000.

Like the previous plans, the new management plan is designed primarily to keep moose populations healthy and to maximize the economic spin-offs for the different parts of Québec. Overall, four objectives were set for the period 2012 2019 and a series of measures were implemented on both a provincial and a regional level. In 2012, moose were managed on the basis of 25 hunting areas so that the decisions made reflected as closely as possible the status of the resource in a particular region. Conditions governing harvesting of the resource will thus be adjusted more accurately to the situation in each area and better reflect developments there.

Objective 1: To attain the optimum population densities for moose defined for each hunting area and to maintain these population densities;

Objective 2: To maintain interest in hunting;

Objective 3: To optimize the economic spin-offs derived from moose hunting;

Objective 4: To promote better sharing of the territory among hunters.

Over the next few years, it is expected that efforts to restore populations may be necessary in some hunting areas. The management plans are prepared to cover an eight-year period and are reviewed at the half-way point. This approach allows managers and hunters to plan measures for the medium term and to determine over the years whether the expected results have been achieved. Some of the measures in this management plan will be taken immediately while others are scheduled for the mid-part of the plan and the overall objectives are to be attained by the conclusion of the plan in 2019.

2. CARIBOU *(Rangifer tarandus)*

2.1 Characteristics

The caribou is a cervid of average size, measuring between 1.7 and 2.5 m in length and between 1.0 and 1.4 m in height at the withers. Adult males usually weigh between 121 and 250 kg, whereas adult females, which are smaller, weigh between 90 and 158 kg. In the wild, caribou can live from 12 to 15 years; they can reach the age of 20 in captivity.

This animal is particularly well adapted to the northern climate: its ears and tail are short and hairy, its fur is thick, its muzzle is hairy, and its wide hoofs are adapted to walking in the snow.

Since the caribou is not concerned with noise and is short-sighted, it must rely on its sense of smell to detect danger. If you approach a caribou against the wind, you can get very close. Curious by nature, it may run a short distance if disturbed, after which it will turn around and look back.

What truly distinguishes caribou from other cervidae is the presence of antlers in 95% of females. However, unlike the antlers found in males, those of females are not very developed.

2.2 Reproduction

Mating takes place in October and **GESTATION** extends over a period of about eight months, after which the female (which is sexually mature between 1 and 2 years of age) gives birth to one or, more rarely, two calves. They are ready to follow their mother one hour after they are born (in May or June). Calving areas remain the same, year after year.

2.3 Distribution, Habitats and Density

These are several different caribou populations in Québec. Three of these populations occupy the **TAIGA** and the **TUNDRA** of northern Québec (the George River herd, the Aux Feuilles River herd and the small herd of the Torngat Mountains). The George River herd and the Aux Feuilles River herd are migratory, and they travel large distances each year to reach their calving grounds.

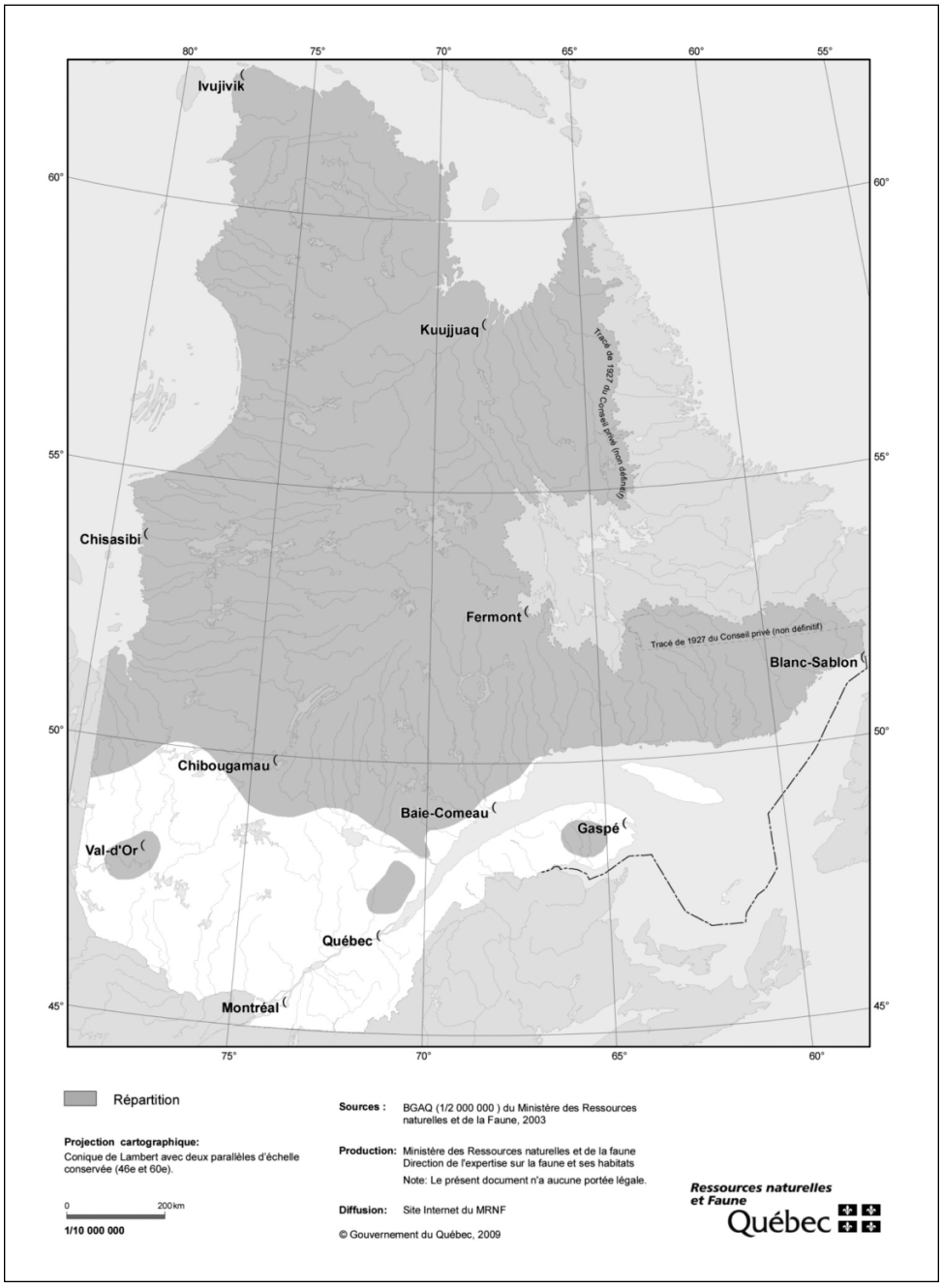
There are over 500,000 caribous in Québec. Two major herds account for the majority of caribou. The George River herd numbers 75,000 (2010) whereas the Aux Feuilles River has 430,000 (2011). These herds are subject to major fluctuations in density; at the present time, they are in their high density phase. This situation could potentially be linked to the quality of the habitat, in particular for reproduction.

In the portion of the boreal forest located north of the 50th parallel, there are sedentary populations (i.e. non-migratory populations) of woodland caribou. Further south, three isolated herds, those of Val d'Or, Parc des Grands-Jardins and the Gaspésie, occupy small surface areas. The total number of woodland caribou is about 3,000.

Habitat and Diet

In the north, lichen is the primary element in this species' winter diet, but the latter may also be composed of other plants, in particular their stems.

The deterioration of the reproductive habitat of the migratory caribou, caused by excessive grazing, appears to be the main factor limiting the size of populations. Among woodland caribou, the loss of habitats caused by deforestation and the intensive use of the territory by man seem to have resulted in fairly substantial population declines.



2.4 Main Mortality Factors

The main mortality factor of barren-ground caribou is the deteriorating reproductive habitat. Predation and hunting represent an insignificant harvest in comparison with the size of the migratory herds. The situation is however different for woodland caribou, for which the size of populations is much smaller and for which it is hard to determine the real harvest, in particular that associated with poaching.

Like other animal species, the caribou may also be affected by diseases. Moreover, the wolf, the main natural enemy of the caribou, is constantly following its movements. The black bear preys on both adult and young caribou, but much more occasionally than does the wolf. The other predators of young caribou are the lynx and the golden eagle.

2.5 Inventory, Monitoring and Harvesting

Inventory

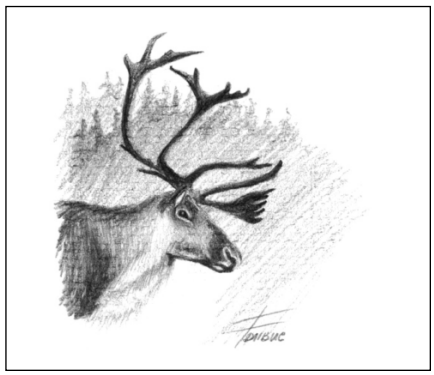
In winter, a team uses a plane to fly over sample plots and to locate herds in sparsely populated areas; a second team then uses a helicopter to count the animals present in each herd.

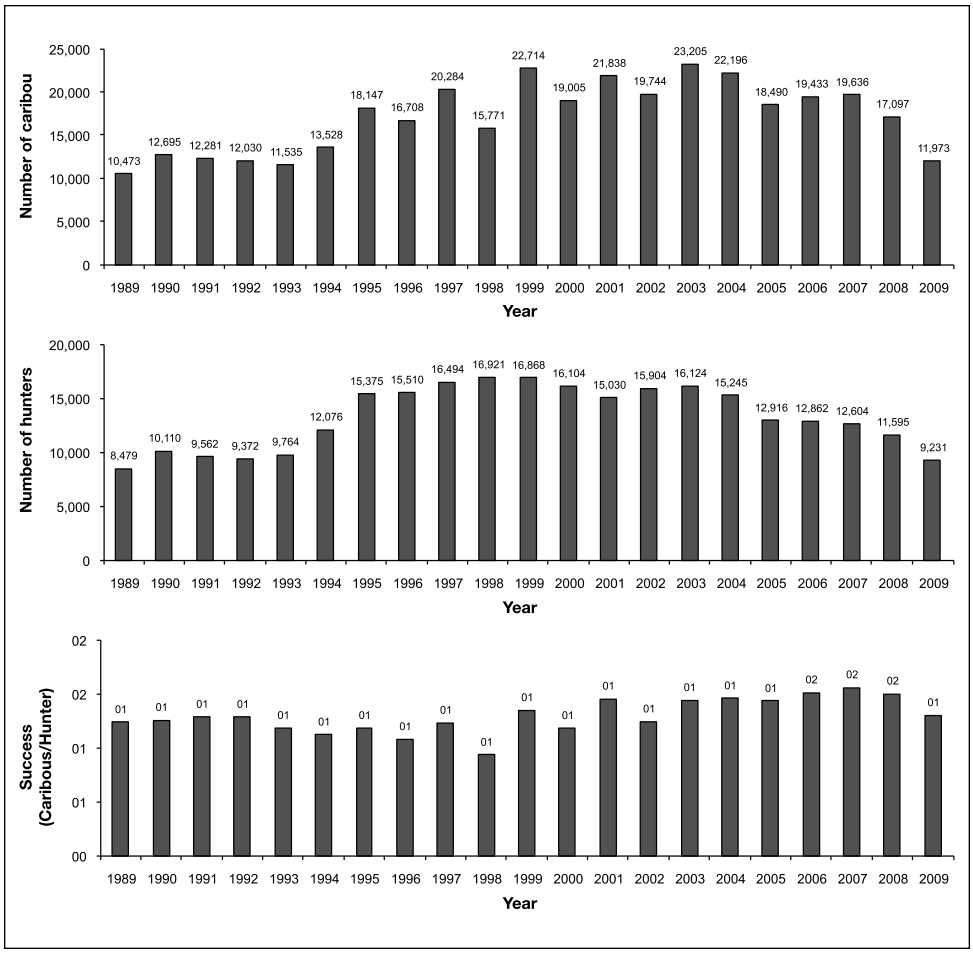
Inventories involving the two big herds, the George River and Aux Feuilles River herd, are conducted periodically using aerial photographs of the calving grounds, on which the number of females is counted. The result obtained is adjusted according to the percentage of males present in the herd in the fall, when the caribou cross the rivers.

Annual Follow-Up on the Harvest

The data from the annual follow-up on the sport harvest must be interpreted carefully as indices of the evolution of caribou populations, since this harvest represents less than 2% of the total population of this species. A portion of the harvest is made by the Aboriginal people, who are not required to register their kills. Nevertheless, the concentration of the harvest in certain sectors, combined with the harvest in the Province of Newfoundland, requires that an annual follow-up on hunting be done.

The annual sport harvest is estimated at about 20,000 animals (2004). Most of this harvest comes from the two big migratory herds and is obtained in the northern zones. There are two hunting seasons, one in winter and the other in fall. In the past, the fall harvest was greater than the winter harvest. However, this situation reversed itself in 1997–1998; as a result, more caribou are now harvested in winter.





Number of caribou harvested, number of caribou hunters and caribou hunting success in Québec, from 1989 to 2009.

2.6 2004-2010 Caribou Management Plan

The first management plan for this species has been adopted. The basic principles of the management plan center on a sustainable development strategy. The steps taken today should ensure the protection of the various caribou populations (George River herd, Aux Feuilles River herd, Torngat Mountains herd and the various woodland caribou herds) allowing future generations to also benefit from this resource. The principles will also aim for an optimum development of this resource for the enjoyment of all citizens. This first plan will not address all of the questions and meet all of the expectations raised by the various stakeholders. However, it will allow the various groups of our society to collaborate in the achievement of common conservation and development objectives for this invaluable resource.

Moreover, a woodland caribou restoration plan needs to be prepared Woodland caribou are on the decline due to the high demands placed on their habitat.

3. WHITE-TAILED DEER *(Odocoileus virginianus)*

3.1 Characteristics

The white-tailed deer is the most widespread and, in the opinion of many hunters, the most elegant member of the cervidae family in North America Commonly known as *chevreuil* in French, the white-tailed deer is, without a doubt, the most frequently observed cervid in Québec.

Antlers are grown by male deer and exceptionally by female deer. In September, after approximately twenty weeks of growth, the antlers lose their velvet. They fall as winter sets in.

The white-tailed dear measures between 1.6 and 2.2 m in length, and its height at the shoulders (or at the withers) varies between 0.9 and 1.2 m. The average weight of the adult male is about 80 kg and that of an adult female, about 55 kg. The white-tailed deer can live from 15 years in the wild and up to 20 years in captivity.

3.2 Reproduction

The peak of the rut period in the white-tailed deer is towards the end of November. Males are polygamous and court the greatest possible number of females. As a result, the white-tailed deer population may have a greater number of females than males, but this does not mean that fewer fawns are born. In late May or early June, the doe (at least 1 1/2 years of age) gives birth to 1 to 3 and rarely 4 fawns (average: 1.4).

3.3 Distribution, Habitats and Density

Due to the modification of the natural environment by man (agriculture, logging), the white-tailed deer has extended its distribution to the entire southern part of Québec, from Témiscamingue to Ile d'Anticosti. This species is limited to the north by the **BOREAL FOREST**.

Québec's deer population, after hunting and excluding Ile d'Anticosti, is estimated at close to 372,000 animals. The density of populations reaches 10 deer/km^2 in the southwestern part of Québec, but is highly variable from one zone to the next. The deer density is much lower on the Gaspé Peninsula and on the north shore of the St. Lawrence River because snowfall is much more abundant there.

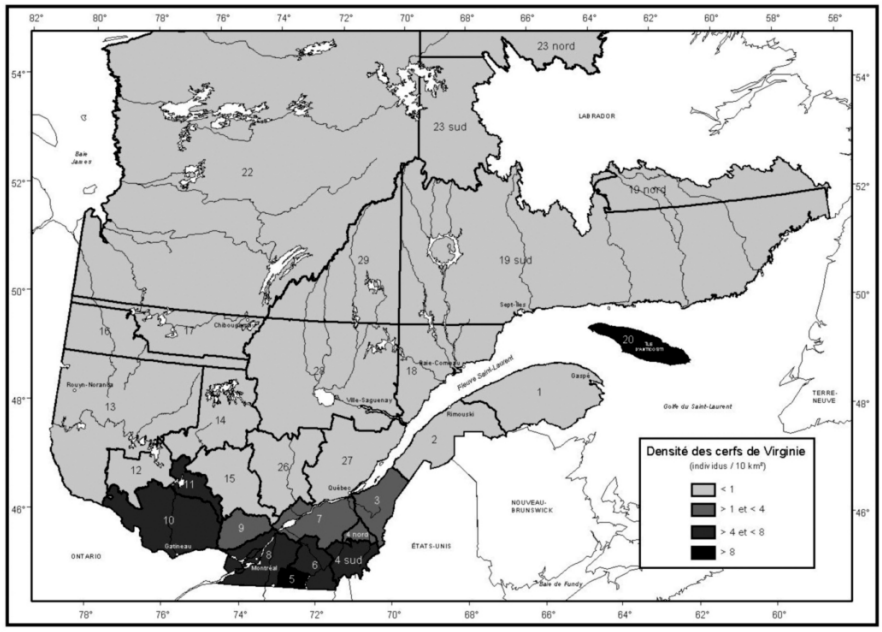
Overly high deer densities can damage crops or result in traffic accidents, both at the local and regional levels.

Summer

In summer, the deer occupies almost every type of terrestrial habitat available within its range: hardwood forests, coniferous forests, maple groves and areas alongside fields. Like moose, deer look for food that is rich in mineral salts, which they can find along roads on which salt is spread in winter.

Winter

As winter sets in, white-tailed deer congregate in yards. While some groups may be made up of only 2 or 3 animals, others can have more than 1,000 deer. Yards are made up of forests containing:



White-tailed deer density in Québec (2005)

- conifers (cedar, spruce and fir), 30 years or older, mixed with other trees of all sizes, which provide good protection against wind and snow;
- regenerating sectors where the trees and shrubs, less than 20 years old, serve as food.

Deer yards tend to be permanent in nature, although their surface area and number can increase or decrease significantly, according to the snow conditions and the abundance of deer populations.

3.4 Main Mortality Factors

After hunting, harsh winters seem to be the main factor that limits the expansion of deer populations in Québec. A series of mild winters can promote the growth of the populations, while a particularly snowy and cold winter can decimate them. For example, during the winter of 2007-2008, the cold and the abundance of snow contributed to a 25 to 35% decline in the deer harvest in most hunting zones of Québec. However, the presence of yards with good quality food and well distributed softwood cover can reduce winter deer deaths. Given our northern climate, the protection of deer yards is the key of the conservation of the deer population's in Québec.

Predation by the wolf is more or less intense according to the location and may be a major **LIMITING FACTOR** in some sectors. South of the St. Lawrence, stray dogs and coyote are the main predators of white-tailed deer. The black bear will occasionally attack young deer.

The coyote's efficiency in killing deer depends on the thickness of the snow. When the accumulation of snow on the ground is considerable, deer predation by this animal may be significant.

Harvesting a portion of the females and calves is an excellent way of regulating the density of deer populations. Hunting is an effective management tool, as are the protection of habitats and predator control.

As for poaching, little is known about its impact, but there is some indication that this activity may occasionally be a significant problem locally.

3.5 Inventory, Monitoring and Harvesting

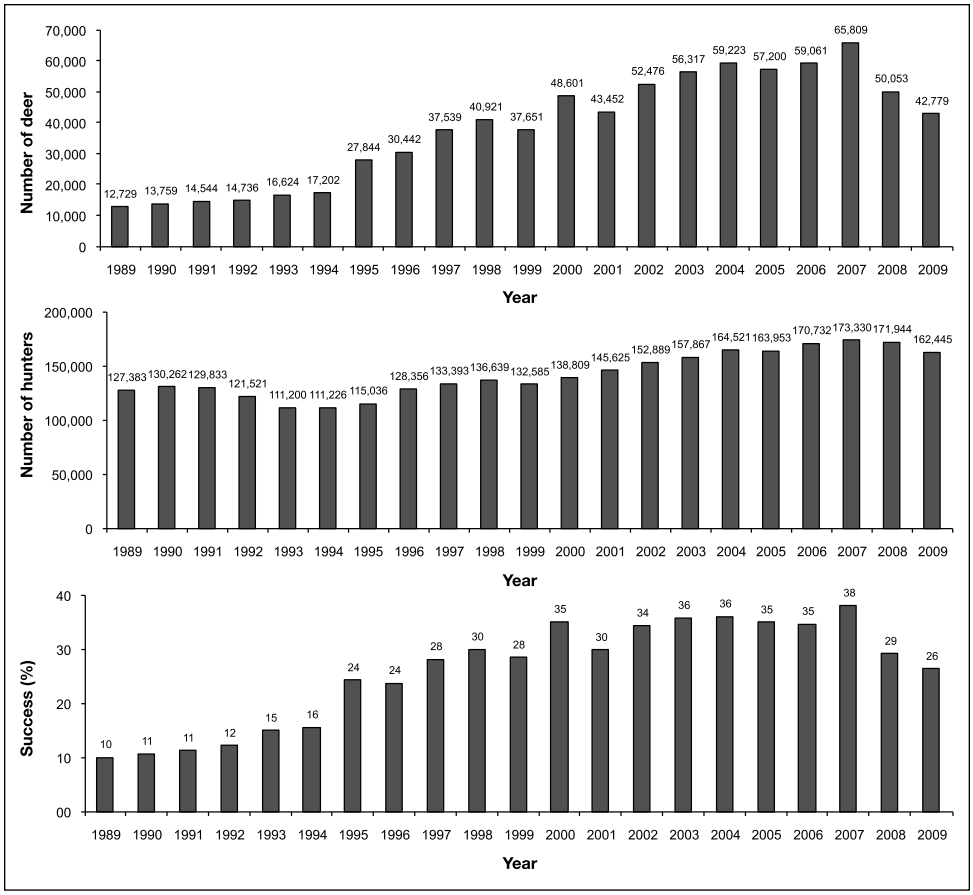
Inventory

The deer inventory is conducted periodically and involves the following measures:

- an aerial inventory of populations at the start of the winter in the yards;
- an inventory of the number and location of yards;
- a study of food use in the yards.

Annual Monitoring of Harvesting

The annual monitoring of deer harvesting is similar to that of moose. The same types of data and results are obtained to monitor the evolution of white-tailed deer hunting in Québec. Occasionally, mail surveys involving hunters are used to obtain data on the quality of hunting (hunting effort, hunting success per zone, etc.).



Number of white-tailed deer harvested, number of deer hunters and deer hunting success in Québec, from 1989 to 2009.

3.6 2010-2017 White-tailed deer management plan

The white-tailed deer management plan for Québec, 2010-2017 is the successor to the first two plans covering the years from 1995 to 2008. In 1995, populations of this species were at a low level; barely 155,000 of them inhabited the forests of Québec (excluding the Island of Anticosti). Since that time, the situation of white-tailed deer has improved substantially.

Flourishing deer populations

In 2008, there were substantial deer populations in all the hunting areas in Québec. Hunting areas in the southern and western parts of the province support large populations whereas in the northern and eastern parts of Québec, the white-tailed deer faces harsh winter conditions that prevent it from occupying all the space that is accessible to it. In the winter of 2008, the number of deer in the forests of Québec was estimated at 418,000. Of this total approximately 166,000 occupied the Island of Anticosti while the remaining 252,000 inhabited territory on the mainland of Québec. However, the harsh winters of 2008 and 2009, which were marked by long periods and record accumulations of snow, subsequently led to large numbers of deer deaths and this reduced population densities in most parts of Québec.

Because of the abundance of deer, kills by hunters increased substantially, namely by 32%, between 2002 and 2007. A historic record for kills was achieved in 2007 with more than 75,000 recorded. The increase in deer populations, the number of hunters and a greater openness to hunting antlerless deer (AD), namely females and fawns, accounted for this record harvest. Between 2002 and 2007, the number of hunters increased by close to 18% to more than 178,000 hunters. They achieved remarkable success in the hunt since close to 42% of them killed a deer in 2007. Despite the declines in harvests in the fall of 2008, their success was still impressive with a rate of 35%.

Like the previous plans, this management plan is designed to keep deer populations healthy and to maintain high-quality habitats, maximize the economic spin-offs for the different parts of Québec and adopt approaches and measures for the medium term.

Overall, six objectives were set for the period 2010-2017:

- To attain a population of 252,000 white-tailed deer in mainland Québec and of 166,000 on the Island of Anticosti, and to maintain these population levels;
- To reduce the risk of chronic wasting disease (CWD) of cervids spreading to Québec;
- To maintain the area of deer yards and to improve their quality;
- To maintain interest in hunting;
- To exploit the white-tailed deer “resource”.

Finally, this plan favours management geared primarily to the harvest of males and adults with a possibility of hunting antlerless deer. The over-riding goal is an optimal use of deer populations in Québec.

3.7 White-Tailed Deer on Île d'Anticosti

Île d'Anticosti offers a good example of the habitat's influence on the **POPULATION DYNAMICS** and, conversely, the influence of populations on the habitat. Neither the wolf nor the coyote is found here, and the black bear has not been observed on the island for some twenty years. The temperature is relatively mild, due to the buffer effect of the waters of the gulf. Finally, there is a boreal forest, made up mainly of spruce and fir trees, with a major herbaceous layer: this layer is found under the cover of big trees (in the under-storey).

Île d'Anticosti alone is home to some 166,000 deers, i.e. more than one third of the total deer population of Québec.

In summer and fall, the white-tailed deer feeds mainly on **GRASSES**, i.e. various species of annual plants having a cylindrical stem. In winter, as the white-tailed deer does not normally eat white spruce, it feeds mainly on fir twigs. Due to the low nutritional value of this food source, deer must use up a large portion of their fat reserves during the winter, something they would not normally do.

The high deer density, the absence of predators and the marginal habitat (boreal forest) have resulted in major changes in this deer population in relation to the rest of Québec, i.e.:

- sexual maturity occurs late (50% of does give birth for the first time at 36 months);
- the number of young per litter is low (0.9 young per doe 3 years of age and over);
- the size of deer is smaller than that of deer found elsewhere in Québec;
- the population's age structure is different (they live to an older age);
- the habitat has deteriorated; deer eat all the new plants that grow and fir forests have great difficulty regenerating.

3.8 Deer and Moose Deaths Caused by Traffic Accidents

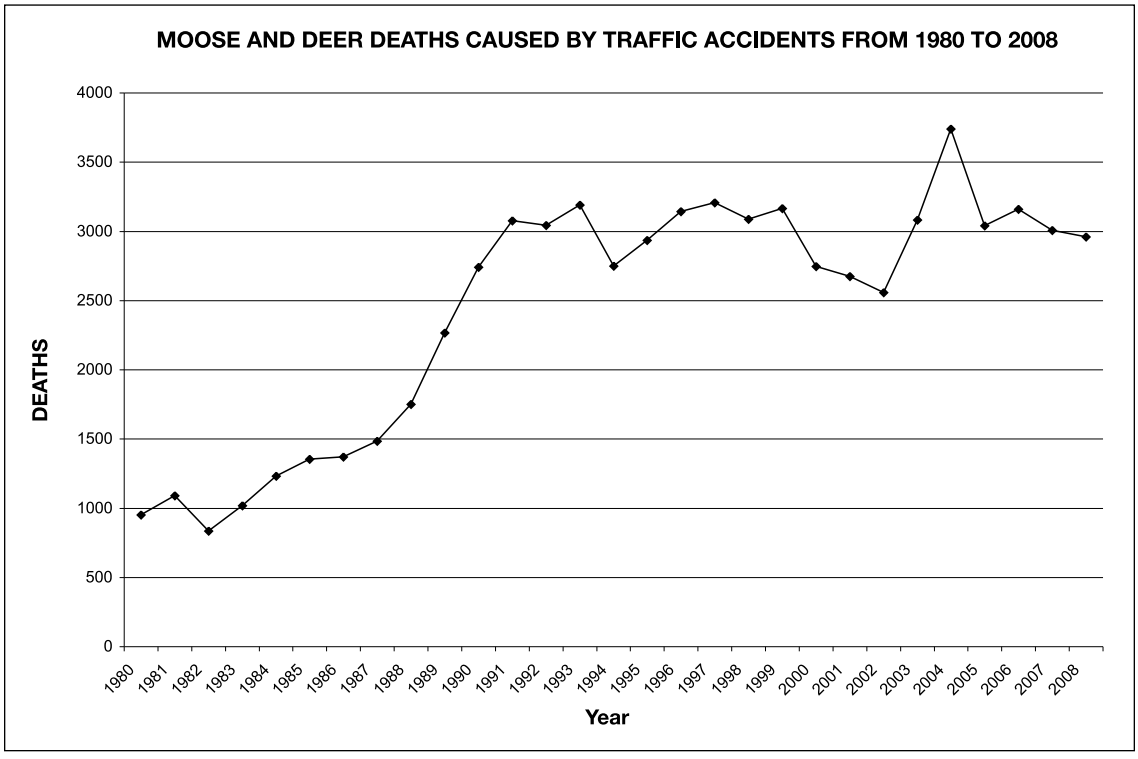
Due to the fact that the counting of dead animals is not systematic throughout the territory, only the animal deaths reported by way of the big game information system of Faune Québec (government of Québec) are compiled.

Traffic accidents rank first among the other causes of white-tailed deer and moose deaths in Québec. As the figure below illustrates, this number has hovered around the 3,000 animals mark each year for more than fifteen years.

More specifically, the greatest number of traffic accidents involving moose was recorded in zones 1 (33), 13 (34), 15 (59) and 18 (28). As for deer, the greatest number of cases of traffic accidents (54% of the total) is found mainly south of the St. Lawrence River, in zones 8 (633 deaths), 6 (402 deaths), and 4 (195 deaths). However, zones 9 (235 deaths) and 10 (371 deaths), located north of the St. Lawrence River, also have high death rates attributable to traffic accidents.

Populations are now considered to be at an optimal level in most zones. However, in southern Québec, the deer's food supply has deteriorated, indicating that populations have exceeded their habitat's carrying capacity. Moreover, at some places, deer have become a source of depredation on agriculture and forestry. In addition, they have been involved in an overly large number of traffic accidents. The social carrying capacity has taken on greater importance in our perception of deer management.

It is for this reason that the deer and moose management plans present management tools adapted to these population levels. By allowing a greater harvest of deer in the zones of southern Québec, officials expect that this will slow down the deterioration of deer habitats, reduce the cases of depredation and accidents with vehicles, while promoting the practice of hunting, which generates socioeconomic spin-offs for the prosperity of the regions.



4. BLACK BEAR *(Ursus americanus)*

4.1 Characteristics

The black bear is the smallest representative of the Ursidae family in North America. It measures from 1.4 to 1.9 m in length. The weight of an adult male usually varies between 36 and 108 kg, whereas that of an adult female ranges between 29 and 63 kg. The black bear can live from 25 years in the wild, and 30 years in captivity. Despite its name, this animal's pelt can be of various colours. The range of colours can include cinnamon, honey and even white and blue. In Québec, these bears are generally black, but occasionally they can be brown or cinnamon in colour.

In spring, as Nature comes to life again, a large number of animals awake from their winter slumber. This is the case of the black bear which takes up active life, after five months of **TORPOR**.

The black bear, which is truly omnivorous, can eat practically anything. Known to love honey, tender leaves, berries, insects and fresh meat, the black bear will not turn its nose up to dead meat. That is why this species occasionally visits dumps, where food is readily available. It is worthwhile noting that this species' exceptional sense of smell (which compensates for its limited eye-sight) allows it to detect a potential food source that is far away. The black bear is also an excellent climber and has a keen sense of hearing.

The bear **OVERWINTERS** and spends the entire winter without eating (it does not **HIBERNATE**, contrary to popular belief). The bear is said to overwinter, because its body temperature does not descend to the ambient temperature – as is the case for the woodchuck, bats or frogs – and also because the bear may wake up at any time during its winter slumber. This species must build up its fat reserves during the summer and fall before entering its den. It is for this reason that following dry summers, when the fruit production has been low, the bear increases its movements in search of food. It is then easier to spot bears in the woods, open areas and occasionally even in towns and cities. It is important to remember that this greater visibility is not synonymous with an abundant bear population but simply reflects a more demanding search for food.

The black bear grows fairly accustomed to the presence of man, from whom it knows how to benefit. Occasionally, the black bear can become troublesome and even represent a danger when it loses all fear of humans and gets too close to homes or pets. A number of bear have had to be killed owing to this type of behaviour.

4.2 Reproduction

This species is considered to have a low reproductive potential. The female bear becomes fertile at around age 3 to 4, and it has a litter of 1 to 4 cubs (average of 1.6 to 2.6) every 2 years. The black bear is usually solitary, only forming couples during the rut period in the middle of summer

(late July). The embryo is only implanted in the uterus at the end of the fall and only if the female has stored up enough fat to spend the winter without eating. Birth takes place in the middle of the winter (in January or February) and the cub weighs between 170 and 280 grams at birth. Cubs follow their mother for the first two years of their life.

4.3 Distribution, Habitats and Density

The black bear is encountered throughout Québec. The limit of its range is located at the northwestern tip of Québec; however, rarely is the black bear found north of the 57th parallel.

Desired as game meat, but also for its fur, this animal has been subject to considerable harvesting in recent decades. Nowadays, it is estimated after hunting that the bear population numbers 70,000 for all of Québec. In sectors of southern Québec where there is no hunting and that offer a favourable habitat, densities of up to 4 bears/10 km^2 are found. Elsewhere, the density may fall to less than one bear per 10 km^2.

Habitat and Diet

The black bear mainly frequents forest habitats (hardwood forests, mixed forests or taiga), burns and young forests where wild fruit abounds. The availability of the habitat may become a factor that limits the expansion of bear populations. Females occupy a **VITAL DOMAIN** alone, although they do occasionally share their territory with their offspring. The quantity of available food risks influencing the female's tolerance of her offspring's presence on her territory. Young males are forced to leave the maternal territory to settle elsewhere once they reach two years of age.

4.4 Main Mortality Factors

With the exception of humans, the black bear has very few enemies, aside from the adult male for cubs and the polar bear in northern Québec. Hunting and trapping are the main mortality factors for bears.

The total number of animals harvested each year fluctuates based on hunting and trapping conditions and according to regulations. Since 1996, the harvest associated with hunting and trapping has fallen sharply as a result of the implementation of the bear management plan (1998). The average harvest has dropped under 3,000. Since then, the harvest has quickly returned on high levels; maybe between 4,000 and 5,000 bears per year.

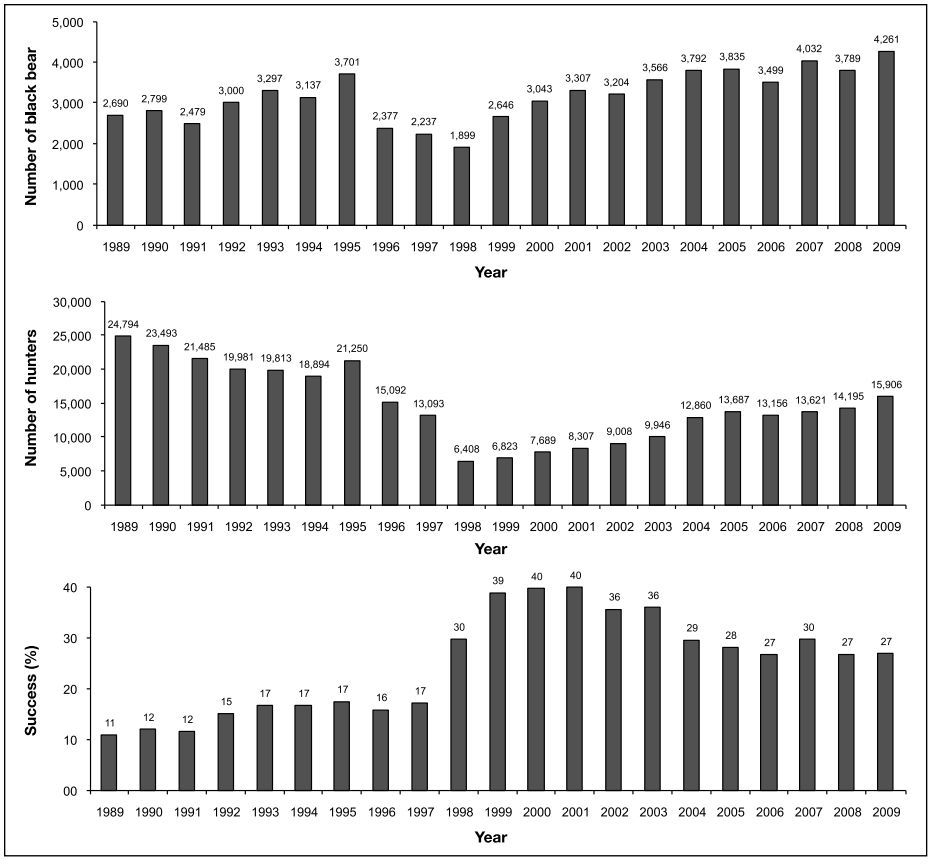
4.5 Inventory, Monitoring and Harvesting

Inventory

It is impossible to make an aerial winter inventory of black bear, because they spend the winter in their dens. It is therefore necessary to resort to methods that require more time, energy and money. That is why the capture, mark and recapture method is generally used to evaluate the abundance of populations. The principle behind this method is as follows: first, animals are caught, marked and released. The proportion of marked animals that are re-caught by hunters, trappers or scientists makes it possible to estimate the relative abundance of the population of a given territory.

Annual Follow-Up on the Harvest

The annual follow-up on the black bear harvest is similar to that of the moose. Occasionally, mail surveys involving hunters provide data on the quality of hunting (hunting effort, hunting success by zone, etc.). Since 1980, hunters have been required to register their bear kills. Officials consider that the follow-up on the harvest has provided valid data since that year.



Number of black bear harvested, number of bear hunters and bear hunting success rate in Québec, from 1989 to 2009.

4.6 Black bear management plan (2006-2013)

In 2006, Faune Québec (Government of Québec) adopted the second black bear management plan. The 2006-2013 plan follows in line with the previous efforts to develop the black bear as a renewable resource. The plan basically aims to manage Québec's black bear populations in an optimal manner in each hunting zone and for ensuring the conservation and development of this species. Here are the main objectives of this plan:

- **support the twofold status of big game and furbearer;**
- **maintain black bear populations at a level that is biologically and socially acceptable;**
- **optimize the economic spin-offs related to the development of the black bear as a resource;**

- **minimize the drawbacks related to the presence of bears (the practice of using bait, which is now widely employed for hunting and trapping purposes, is prohibited during the summer);**
- **maintain and support Québec's reputation in the field of the quality of wildlife management.**

SMALL GAME, WATERFOWL AND WILD TURKEY

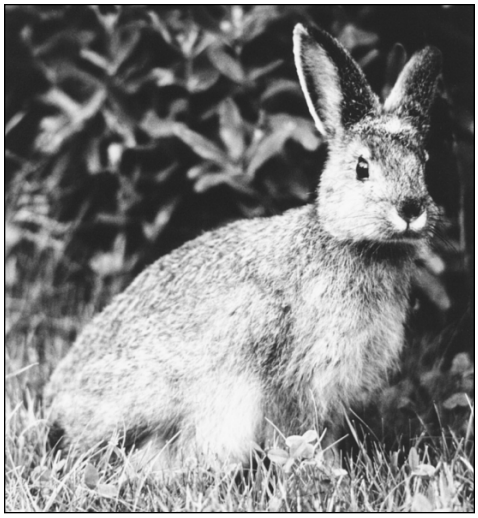
Small game includes game birds, lagomorpha (hares and rabbits) and other small animals. With the exception of waterfowl, the most commonly hunted small game species in Québec are:

- snowshoe hare;
- ruffed grouse;
- spruce grouse;
- willow Ptarmigan
- American woodcock.

SMALL GAME IN QUÉBEC					
	SNOWSHOE HARE	**RUFFED GROUSE**	**SPRUCE GROUSE**	**WILLOW PTARMIGAN**	**AMERICAN WOODCOCK**
Length	38 to 47 cm	35 to 48 cm	38 to 43 cm	36 to 43 cm	25 to 31 cm
Average weight **Male** **Female** **New-born**	 1,40 to 1,80 kg 1,50 to 1,90 kg 0,057 kg	 0,50 kg 0,40 kg 0,011 to 0,013 kg	 0,492 kg 0,456 kg n/d	 0,601 0,516 n/d	 0,12 to 0,22 kg 0,15 to 0,28 kg 0,010 to 0,013 kg
Habitat :	coniferous forest, farm and forest land, mixed forest being regenerated	mixed forest, deciduous forest	dense coniferous forest at all stages of growth	dense bush consisting of willow, alder or birch	fields, mature maple groves, deciduous forest being regenerated
Predators **Adult** **Young**	Canada lynx, wolf, coyote, red fox, fisher, weasel, horned owl, northern goshawk same predators as adults	northern goshawk, horned owl, red fox, Canada lynx same predators as adults	northern goshawk, red fox, Canada lynx, black bear, coyote same predators as adults	small mammals and birds of prey same predators as adults	small mammals and birds of prey same predators as adults
Sexual maturity **Male** **Female**	 1 year 1 year	 1 year 1 year	 1 year 1 year	 1 year 1 year	 1 year 1 year
Matting	April to September (3 to 4 litters/ year)	May to July (1 hatch / year)	May to June (1 hatch / year)	unknown (1 hatch / year)	April to May (1 hatch / year)
Birthing (or hatching)	early May to late August	early June to mid-July	early May to mid-July	late May to late July	late April to late May
Number of young	8 to 18	9 to 14	6 to 8	4 to 14	4 (rarely 5 to 12)

1. SNOWSHOE HARE *(Lepus americanus)*

1.1 Characteristics



The snowshoe hare is an animal whose coat is grayish brown in summer and white in winter. The adult hare measures between 38 and 51 cm in length and weighs from 1.3 to 2.3 kg. It is an animal that has a nocturnal and crepuscular behaviour, i.e. it is more active early in the morning (at dawn) and late in the day (dusk). This species is also well adapted to the winter; indeed, its hind legs are covered with fur and have wide, spread apart toes, allowing it to move easily on snow. Moreover, its winter coat (white) provides excellent camouflage in the snow.

Several of the snowshoe hare's senses are very keen, helping it to detect predators or intruders on its territory. Its field of vision is very wide allowing it to spot predators that are approaching, even from behind. Moreover, its big, mobile ears give the snowshoe hare a particularly well-developed sense of hearing.

1.2 Reproduction

The snowshoe hare is a very prolific species. Beginning at one year of age, a female can produce 2 to 3 litters per year and give birth to an average of 3 young per litter, occasionally up to six. In the Canadian Shield, hare populations follow 9-10 year abundance cycles. These fluctuations in abundance may be very pronounced and are more evident in central-eastern Québec: in Mauricie, Saguenay-Lac-Saint-Jean, Chaudière-Appalaches and on the North Shore. They are not synchronized throughout Québec.

1.3 Distribution, Habitats and Density

This species is found throughout Québec, except in the far northern part of the province where trees are absent.

Habitat and Diet

The hare looks for forest with a dense shrub cover. This cover allows the hare to escape predators such as the lynx, the fox and hawks.

Summer

During this season, the snowshoe hare frequents the edges of fields, roads and forest trails, as well as glades; however, it never moves too far from areas where the shrub cover is dense. It feeds mainly on leaves (poplar, willow, birch, among others), grasses, clovers, dandelions and horsetail.

Winter

In winter, the absence of leaves forces the snowshoe hare to seek refuge in a conifer cover where low branches provide shelter. This species is more abundant on the edge of forests than inside large forests, for it finds more food (twigs and other plants) near shelters.

1.4 Main Mortality Factors

The annual mortality rate is very high, varying between 66 and 81% in the adult snowshoe hare population and is due to various factors. One of the most important factors is predation. Indeed, the snowshoe hare is a basic element in the diet of numerous predatory species, including the lynx, wolf, coyote, fox, fisher, weasel, the great horned owl and goshawk. Another significant mortality factor is infectious or parasitic diseases, which are occasionally transmissible to humans (tularemia for example). It is worthwhile noting that hare mortality increases significantly where the weather conditions are unfavourable and when food resources become scarce.

1.5 Inventory, Monitoring and Harvesting

Inventory

It is very difficult and costly to do systematic inventories of hare populations. Indeed, this species' small size and colour (which is easily confused with that of snow) prevent officials from using aerial inventories, and most of the other available methods (for example, scat surveys) are only applicable at the local level and only make it possible to calculate the relative abundance of hare in a given sector. Despite these difficulties, a campaign to monitor the abundance of the snowshoe hare was undertaken at the end of the last decade and it relied on two different methods. The first is based on the harvest data of structured territories (wildlife reserves and Zecs). When these data are insufficient, a second method, mainly based on scat counts in sampling stations spread out across Québec, is used. The objective of this approach, which is carried out as part of the monitoring of the harvest of lynx populations, is to situate the hare in relation to its abundance cycle (on the rise or the decline).

Annual Follow-Up on the Harvest

The follow-up on the harvest of this species is usually based on harvesting data, such as hunting success and the harvest in structured territories. However, in those regions where these data are insufficient, indices based on surveys conducted among hunters, scat count grids or population dynamics are used.

2. RUFFED GROUSE *(Bonasa umbellus)*

2.1 Characteristics

This species is the size of a “small chicken”. It can weigh some 500 g (in the case of a male) and measure 35 cm in length. It has a plumage that is spotted, striped and whose colour may vary from plain grey to red to mahogany. The colours and the patterns of the plumage vary according to its habitat, allowing this species to hide from predators more easily. The ruffed grouse has a little crest and a long, flat tail, which fans out. The ruffed grouse is a diurnal species that is active from dawn to dusk.

This bird makes short and quick flights, accompanied with rapid turns, allowing it to penetrate dense thickets easily. It has little trouble grabbing on to tree branches.

2.2 Reproduction

The ruffed grouse is also a very **PROLIFIC** species. As with the hare, ruffed grouse populations appear to follow abundance **CYCLE**, the causes of which remain unexplained. From late April to early May, you can hear the drumming of males trying to attract females for mating. This behaviour is also used to tell other males that the territory is occupied. The female builds its nest on the ground in a hollow and lays from 8 to 12 eggs. One clutch is produced each year, except if the female loses her brood at the start of the reproductive period. The offspring leave the nest on the very day on which they hatch and begin to fly 10 days after birth.

2.3 Distribution, Habitats and Density

The ruffed grouse is found in all regions of Québec, south of a line extending from the southern tip of James Bay to Labrador City. It is a species that does not migrate and hence is sedentary.

Habitat and Diet

The ruffed grouse is associated with mixed forests dominated by poplar and birch, which this species inhabits virtually year-round.

Summer

It often frequents the edge of glades, fallow fields, cut areas and logging roads. In these settings, the spruce grouse digs up seeds, leaves (poplar, plum-tree or willow, among others), mushrooms, small fruit, ferns and club moss, which are the main elements of its summer diet. It also eats insects, which account for only 5% of its diet.

Winter

During this season, the ruffed grouse seeks out pockets of coniferous trees which provide shelter from the harsh winter climate. This allows the ruffed grouse to find tree buds and pussy-willows on which it feeds: its favourite species are trembling aspen, paper birch, yellow birch and beaked hazelnut.

Spring

Male grouse remain close to **their drumming sites** in spring and occupy the neighbouring habitat, within a 400 m radius, the rest of the year, and occasionally the rest of their life. More often than not, these sites consist of an average-size tree lying on the ground, in a forest characterized by moderate cover. A boulder or a mound of earth may also serve as a drumming site.

2.4 Main Mortality Factors

Predation is the main cause of death in this species. Indeed, between 60 and 70% of adult ruffed grouse fall prey to the goshawk, horned owl, fox or lynx each year. Males become even more vulnerable to predation during the drumming period (**COURTSHIP BEHAVIOUR**). All of the other causes of death, aside from hunting (more than one million three hundred thousand ruffed grouse are harvested each year in Québec), play a much less important role in the control of this species' populations.

2.5 Inventory, Monitoring and Harvesting

Inventory

There is no reliable and economic method for evaluating the total number of birds making up Québec's ruffed grouse population. Measurements of relative abundance, such as the counting of drumming males on a given territory, may however be used for more limited studies.

Annual Follow-Up on the Harvest

The follow-up on the harvest of this species is usually based on harvesting data, such as hunting success and the harvest in structured territories. However, in regions where such data are insufficient, indices based on surveys conducted among hunters

3. SPRUCE GROUSE *(Dendragapus canadensis)*

3.1 Characteristics

The spruce grouse is a stocky, brown-coloured bird that measures from 38 to 48 cm in length. The average weight of a male grouse is 492 g, as compared to 456 g for a female. It is a species that is vulnerable to hunting, due to its escape behaviour, which consists of perching rather than flying away.

3.2 Reproduction

The male spruce grouse is polygamous and defends only a portion of its vital domain during the mating period. As for the female, which reaches sexual majority at 1 year of age, she generally lays 4 to 7 eggs per year, grouped in a single clutch.

3.3 Distribution, Habitats and Density

This bird is found almost everywhere in Québec, from the southern edge of the province up to the tree line. It is more common north of the 48th parallel and in the mountains of the central Gaspé Peninsula and in Réserve faunique des Laurentides.

Habitat and Diet

Summer

During this season, the spruce grouse frequents mature coniferous forests (mainly those made up of black spruce and balsam fir), as well as peatlands, edges of burns, clearings and blueberry fields. It feeds on fruit, mushrooms, insects and green plants.

Winter

In winter, the spruce grouse mainly lives in coniferous forests (fir forests and black spruce forests for the most part), where it feeds on end buds and needles.

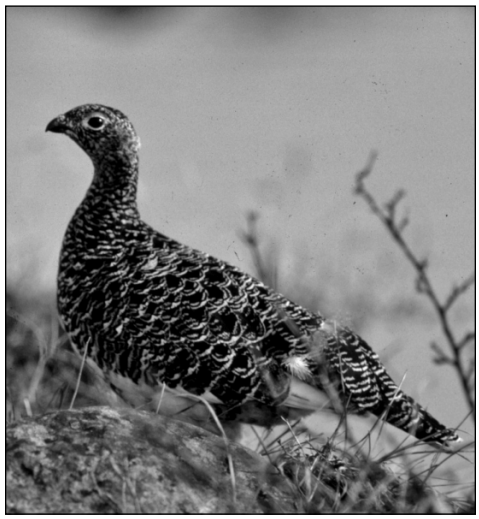
3.4 Main Mortality Factors

Predation is likely the main cause of death of this species. The northern goshawk, the coyote, the red fox and the black bear are the main predators of this species.

4. WILLOW PTARMIGAN *(Lagopus lagopus)*

4.1 Characteristics

The plumage of the willow ptarmigan is completely white in winter. On average it measures between 36 and 43 cm and the average weight of males is 601 g and of females 516 g. Because it is a gregarious species in winter, forming groups of as many as 200 individuals, the willow ptarmigan is relatively easy to hunt.



Pierre Pouliot / NWTF

4.2 Reproduction

While the species is primarily monogamous, between 5 and 20 % of males are polygamous and defend their territory against their peers of the same sex during the mating season. The male courts the female by flying or walking toward her and uttering a cry that is characteristic of the species. The female builds her nest on the ground among the bushes located on the tundra. She lays between 4 and 14 eggs each year in a single brood. She may lay a second brood if the first is destroyed by a predator. Reproductive success varies by year and by population.

4.3 Distribution, Habitats and Density

The willow ptarmigan lives on the Arctic tundra. In winter, it may also use the lowlands in sheltered valleys south of the tree line, bushes near lakes and rivers and forest clearings. Sometimes it migrates long distances as far as Abitibi in the northern Laurentians, the northern part of Lac-St-Jean and the North Shore. Population density varies greatly from year to year and may reach 200 individuals / km^2.

Habitat and diet

Summer

The willow ptarmigan seeks out areas of dense thickets of bush consisting of willow, alder or birch between 0.3 and 2.0 m in height. They may also be found near marshes and roads, at the edges of forests or in the open tundra. It prefers lowlands with damp soil and avoids areas that have been cleared. It lives mainly on leaves, flowers, buds and fruits of the plants present in its habitat as well as insects.

Winter

In winter the willow ptarmigan usually prefers habitat in which there is a substantial presence of shrub-like vegetation to provide shelter from the wind and to prevent the snow from becoming too hard. Indeed, the willow ptarmigan may dig holes in the snow for protection against the cold. Some individuals migrate further south, where they use the edges of highways, rivers, lakes or marshes. They eat primarily leaves, buds or willow or birch catkins.

4.4 Main mortality factors

Predation, both by birds of prey and by mammals, is the main cause of mortality. Mortality resulting from bad weather conditions (winter storms) or lack of food is marginal. Subsistence or sports hunting is the second cause of death, primarily around human communities in the north. Finally, collisions with vehicles or standing structures (high-voltage lines) are another cause of death but the figure for this is negligible for populations of willow ptarmigans.

ROCK PTARMIGAN *(Lagopus mutus)*

The bio-ecology of this species is very similar to that of the willow ptarmigan. The differences relate essentially to its range and preferred habitat. Thus, the rock ptarmigan lives in Arctic and mountain areas in the Northern Hemisphere. Its habitat is located above the tree line, in the mountains (in the valleys during summer), as well as in dry coastal tundra areas where there is no vegetation.

5. SMALL GAME MANAGEMENT PLAN (2009-2016)

It should be pointed out that when this manual was being revised the management plan was still in the project stage. It is therefore possible that the plan may be the subject of possible changes. Nevertheless, here is a summary of the main orientations.

Small game is present in large numbers throughout our forests. Hare and grouse are the most abundant and most common species. The small game harvest in Québec is dominated by four species: the ruffed grouse, the snowshoe hare, the spruce grouse and the grey partridge. The characteristics of small game explain why the management of these species generally takes place on a large scale. In fact, there is only one regulation for all of Québec at the present time. Generally, this management approach has yielded acceptable results to date.

Upon analyzing the small game situation in Québec, one is struck by the little attention that managers and representatives of hunters have paid to the hunting of these species over the last few decades. The management of small game hunting has been limited to its simplest expression and no substantial change has been made with a view to improving it for too long now. A review of this management is therefore called for.

A study of the available species and their harvest has revealed that several problems are encountered in the management of this type of hunting. These problems may be grouped according to five main themes or general observations: 1) a drastic drop in the clientele, 2) more limited accessibility to the resource in terms of both time and space, 3) the little value placed on the activity by stakeholders, 4) the presence of an intensive use sector where resource, habitat and hunting quality problems are suspected and, finally, 5) the very limited monitoring system when it comes to the state of the populations, the harvest data and the knowledge related to users.

The general objectives of this management plan are to ensure the sustainability of small game and its habitat in Québec and to optimize their development for the benefit of Quebecers.

The establishment of these five findings has led to the proposal of means to rectify the situation or at least to improve it over the next few years. These means, which have been arranged hierarchically in objectives, targets and actions, are based on two main thrusts:

1) restore the popularity of small game hunting with users;

2) make sure that we have an accurate knowledge of the small game populations and the harvesting to which they are subject in order to adequately meet the management and harvesting needs associated with this resource. The carrying out of numerous actions and, as a result, the attainment of the set objectives are based on the involvement of wildlife partners, members of the Québec-wide Wildlife Panel and the regional wildlife panels.

Over the next few years, the promotion of small game hunting must be a priority. This is a major stake. Indeed, at the present time, it is not the resource that is the problem but rather the interest in hunting. Small game hunting represents the greatest development potential for the wildlife sector and one of the main possibilities for promoting the next generation of hunters.

6. AMERICAN WOODCOCK *(Scolopax minor)*

6.1 Characteristics

The woodcock is a stocky bird, which has a long bill, a head with wide black stripes and large eyes that are set far back. Its plumage consists of a mottled pattern of brown, black, buff, and gray, which represents an almost perfect camouflage in the undergrowth that it frequents.

The adult woodcock measures about 20 cm in length. The weight of females reaches 180 g, whereas that of males is 142 g.

In addition to its exceptional camouflage, the woodcock possesses a well-developed binocular vision; its field of vision is widened by the position of its eyes set far back on its head.

6.2 Reproduction

The American woodcock has a remarkable reproductive behaviour. Males engage in aerial courtship at sunset and sunrise in glades or abandoned fields. Females build their nests in wooded areas near the courtship sites. They generally lay 4 eggs, in a nest that consists of a small depression covered with a few leaves. Young woodcock begin to fly at the age of two weeks and have a full plumage at four weeks. Only one brood is produced per year.

6.3 Distribution, Habitats and Density

The range of the woodcock in Québec extends from the Upper North Shore to Abitibi-Témiscamingue, and everywhere south of these two regions. This species is fairly abundant in most regions of southern Québec, but fairly rare in the Montréal region, the Lower St. Lawrence and on the Gaspé Peninsula. It is a migratory species that leaves Québec for the southeastern United States (in a region between Texas and the eastern seaboard of the United States) in early fall. The woodcock returns at the end of March or the beginning of April to begin the reproductive period.

Habitat and Diet

Summer

The woodcock mainly feeds on earthworms and various invertebrates (ants, centipedes, spiders) found in the ground. During the day, it also frequents young hardwood stands measuring 1.5 to 7 m in height and alder groves where earthworms abound. At night the woodcock is found in open areas, like glades, abandoned fields and forest roads. It appears that these nocturnal sites serve mainly as refuge against predators.

Fall

During this season, this species is mainly found in alder groves, but also in poplar stands from 10 to 25 years in age and in settings where there are several species of hardwood and softwood species.

Spring

The main sites serving as a **COURTSHIP AREA** are openings in wild lands, the glades of young forests, softwood plantations, or recently cut areas with hardwood stands. These sites include several shrubs grouped in patches and are surrounded by trees, the height of which varies between 1.5 and 10 m. Their surface area varies between 50 and 56,000 m^2 depending on the status of the males (dominant or not) that use them. The courtship areas are usually located less than 200 m from nests.

6.4 Main Mortality Factors

The woodcock is subject to a moderate hunting pressure annually; there are no precise data on the other causes of death of this species.

6.5 Inventory, Monitoring and Harvesting

Inventory

Since1970, the Canadian Wildlife Service (CWS) has coordinated the routes for listening for woodcock calls. Some one hundred volunteers participate in the carrying out of this inventory.

Annual Follow-up on the Harvest

Each year, the Canadian Wildlife Service does a survey among migratory bird hunters, including those who hunt the woodcock. This survey makes it possible to estimate the harvest rate for this species. In addition to this survey, the CWS collects woodcock wings from Québec hunters. This body part is used to determine the proportion of males, females and young in the population.

7. WATERFOWL

Waterfowl comprises a set of aquatic birds of the Anatidae family. This group includes puddle, diver and marine ducks as well as geese. The general name may be attributed to the fact that the meat of these wild aquatic birds has a wildfowl taste (some would say a strong taste!). The characteristics that are common to this group of birds are the **aquatic** way of life and **migration.** In fall, as winter approaches, these birds progressively leave the northern regions to migrate to the more temperate and tropical regions of the continent. In spring, they migrate in the opposite directly; i.e. they leave the southern regions for the northern ones. It is during the short but productive summer season of the latter regions that the vast majority of migratory birds reproduce and raise their young by feeding very actively; this prepares them for their long migration southward.

8. WILD TURKEY

Wild turkey is one of the Gallinae that include the ruffed and spruce grouse in North America. This group of birds stands out by their legs and feet that are well adapted for scratching the ground, short and round wings that facilitate short and fast flights, a well developed tail which they use as a steering mechanism, a short solid beak that is useful for pecking, and sexual dimorphism (the appearance and size of the male differ from those of the female).

As mentioned above, the presentation of this new game species is very succinct in this manual. The reason for this is that hunters must take a training session entitled "Biology, hunting and development of the wild turkey" offered exclusively by the Sécurité nature subsidiary (Fédécp) to obtain the attestation required for the purchase of a licence to hunt wild turkey in Québec.

Malowski / NWTF

Eastern wild turkey

WILD TURKEY	
Length	76 to 102 cm
AVERAGE WEIGHT: **Male** **Female** **Newborn**	 7,7 to 9,5 kg 3,6 to 5 kg 45 g
Habitat	mixture of mature forests (hardwood and pine) and open areas that are rich in food
Predators **Adult** **Young**	coyote, lynx, fox, fisher and great horned owl same predators as adults
SEXUAL MATURITY: **Male** **Female**	 2 years 2 years
Mating period	April to May
Incubation period	26 to 28 days
Number of newborn	10 to 12

*WILDLIFE MANAGEMENT **

Québec is a land of many faces. Bathed by the sea on three sides, divided between near-polar regions and tundra, boreal forest and deciduous forest, the landscape offers a diversity of plant life zones providing a variety of life sustaining environments known as wildlife habitats.

Québec is also a land of 8 million inhabitants whose needs and concerns often conflict with wildlife and its habitat.

For example, logging is necessary for our socioeconomic development However, the cutting of trees over a large area alters the ability of that area to sustain life and changes the composition of the wildlife found there. Certain species can take advantage of this change, while others may find it to their disadvantage.

To reconcile the needs of man with those of wildlife, it has been necessary to resort to knowledge, skills and the ability to adapt. First and foremost, man has had to rely to a large extent on the relative capacity of wildlife to adjust to new situations. This knowledge and this experience have given rise to the science, art and technique of wildlife management. The concerns of management specialists include conservation, the development of wildlife and its habitats, their restoration, the safeguarding of heritage and the maintaining of the quality of life of human populations.

As the manager and steward of natural resources, humans must understand the needs of wildlife if they want to properly manage their own environment and the environment of wildlife.

The primary needs of wildlife include food, water, shelter and space. An animal needs to eat to obtain nourishment and to survive. The abundance and health of a species are affected by both the quality and the quantity of food. The diet of animals varies from one species to the next, ranging from plants to a mixed diet for a large number of species. Herbivores eat plants, carnivores eat meat, while omnivores eat a combination of plants and meat. Moreover, there are some species whose diet is principally composed of dead animals (**NECROPHAGOUS**).

Animals also need water. They obtain this element either from their food or by drinking. Some animals, such as fish, are born, live and die in water, with their entire life cycle being spent in this environment. Other species, known as amphibians, spend a portion of their life cycle in water.

Animals need shelter to protect themselves from weather conditions or predators and to raise their young. A tree, a bush, a burrow, a rock, low vegetation, a stand of coniferous trees are all types of shelter that can accommodate the various species.

Finally, animals need space to live and develop. A given surface unit with a limited quantity of food can only accommodate a limited number of animals The number of animals cannot grow indefinitely in a limited area with limited resources. Overpopulation leads to competition for food and shelter, and gives rise to epidemics.

(*) Much of this text is taken from a documentary video on wildlife management.

Of course, in order for these essential components of the habitat to be of benefit to the animal, they must be readily available in relation to one another for the animal in question; otherwise, if the animal spends too much energy trying to acquire these resources in a given habitat, this habitat will have only very limited wildlife.

How many healthy individuals can a given habitat support? That depends on the animals' needs. Overpopulation can result in habitat deterioration. This may be the case for caribou which live in big herds in a region that recovers slowly due to the climate characteristics of the tundra. It may also be the case of the muskrat, a prolific species that is capable of devastating all the plant life in a marsh. Under certain conditions, other species can also contribute to the deterioration of their habitat, for example white-tailed deer and their yards.

To illustrate the carrying capacity, wildlife management officials frequently use the image of a barrel being filled with water. The water that supplies the barrel represents the increase attributable to annual reproduction. As the barrel fills up, certain factors (leaks in the barrel) can prevent it from overflowing: lack of food, overpopulation, hunting, death due to age, predation, diseases, accidents, parasites, etc. If these leaks are small, the barrel will continue to fill until it overflows. The overflow represents the excess animals in the environment.

In summary, a 500-litre barrel cannot receive more than 500 litres of water without problems occurring. Similarly, a habitat cannot accommodate more animals than its resources will allow without resulting in deterioration.

The global carrying capacity of an environment is generally calculated on the basis of the resources available for the animal populations during the hardest part of the year, i.e. winter. This explains why the relative carrying capacity of an environment may vary according to the seasons, as this environment is in a state of perpetual change. As a result, although winter in Québec is not very inviting to migratory birds, many will find Québec a suitable environment outside that season. Basic wildlife management tools include: understanding the phenomena accompanying changes, adequately evaluating the carrying capacity and the factors limiting the resources of the environment and, on the basis of this knowledge, controlling the quantity of wildlife that can develop here.

Decades of commercial hunting, the ever-increasing use of the territory and lax or non-existent hunting regulations resulted in a substantial loss of wildlife. At the start of the 20th century, for example, the snow goose numbered only a few thousand. Shorter hunting seasons, the implementation of bag limits, public and hunter awareness, as well as the protection of the habitat have resulted in a major recovery of the snow goose population which is now estimated at half a million. The Canada goose followed a similar pattern. Without ever having fallen as low as the snow goose population, the Canada goose population has been growing since the middle of the 20th century and is now more abundant than ever before.

Hunters have played an important role in this steady rise, not only by respecting the regulations and accepting the restrictions, but also by contributing, through the purchase of licences and through the support for research and foundations, to special funds that have been used for initiatives that are beneficial to wildlife.

Another noteworthy case is that of the common eider. Its population had also fallen sharply. The prohibition on spring hunting and collecting eggs, the control over the picking of down, the creation of refuges and the purchase of islands by conservation societies have improved the conditions of this species' development.

The white-tailed deer conservation policy is just one more example. Its main elements include limited hunting seasons, the buck law, the application of a forestry policy protecting yards, the prohibition on circulating in yards, predator control and the adoption of hunting methods that give the animal better chances of survival.

10% of wildlife development goes into the habitat and wildlife species. The remaining 90% goes into human behaviour!

A decisive factor in any effective development policy is the volunteer participation of many citizens in groups or organizations dedicated to the protection of wildlife and habitats. For example, while hunters, anglers and trappers carry out certain harvesting and control activities, they are also the first persons to contribute to the sustainable conservation of wildlife resources and the restoration of suitable habitats. This participation, much more than just a financial contribution, demonstrates and reinforces a responsible behaviour and a respectful attitude towards wildlife and its habitat.

Good developments coupled with good management measures (banding of birds, release of peregrine falcons, inventories and monitoring populations, etc.) ensure the welfare and conservation of wildlife and represent complementary measures. For example, a suitable territory may be reserved for black ducks and Canada geese, but if there are no studies to monitor these populations and ultimately to set harvest quotas for the next season, the population of this territory may be depleted through over-harvesting or the territory may suffer damage owing to a major increase in the population.

Hunting and trapping are very effective management tools. They help maintain balanced populations by authorizing the harvest of the excess animals. They also provide financial support for development programs that are beneficial to wildlife in general and not only to desired game species.

The aim of the regulations concerning hunting, fishing and trapping is to ensure the sustainable renewal of the resource so that future generations can also take advantage of it. These regulations also contribute to a fair sharing of this collective resource. Finally, they promote the safety of users and of the public in general. The majority of hunters return home without bringing back game. But for most hunters, this situation does not prevent them from considering the activity a success. Indeed, they have taken advantage of close contact with Nature, have not taken unnecessary risks, have demonstrated that they are responsible and have acted in accordance with the hunter's code of conduct.

Hunters are aware that responsible behaviour, voluntary compliance with regulations and self-discipline are the best guarantee of maintaining their activity.

Management is necessary for wildlife conservation and development. Without an enlightened and responsible approach, the habitat and wildlife populations, which have taken so long to develop, can quickly become endangered. **The future of wildlife depends on the responsible decisions made today by wildlife managers and the users of the natural environment.**

A FEW QUESTIONS ABOUT WILDLIFE

SHOULD PREDATORS BE ELIMINATED?

No. Predators are animals that have to feed on other animals for their own survival. They are a natural link in the food chain and are themselves the prey of other predators. For example, the fox feeds on hare and can become the prey of the coyote (in certain settings, the coyote can play the role of super-predator, if it does not encounter other predators like bears or cougars).

Coyotes

Generally, predators go after the most readily available and weakest animals: animals that are young, sick or old. The number of predators is linked to the abundance of available prey. Their action makes it possible, among other things, to limit the proliferation of certain species and to contain the expansion of diseases. In a way, their action ensures that certain populations adjust to the carrying capacity of an environment.

If in a specific environment, a species plays the role of super-predator (not being the prey of any other species) and if taking into account various factors (climate, changes to the habitat, etc.), this species represents a source of excessive harvesting for other wildlife, it may be necessary to apply control measures to this predator; this is done, for example, with bears, foxes and coyotes in certain environments. But the management objective is to never totally do away with a species. Managers who resorted to such extremes soon realized that the best way of increasing a wildlife species is always to improve its habitat or control harvesting by humans.

WHAT IS WILDLIFE CONSERVATION?

Conservation is all of the management tools (or measures) guaranteeing the long-term protection and sustainable use of the wildlife resource. Conservation does not involve preserving a resource so that it remains untouched, as this would be preservation. Rather it consists of finding a balance between the needs of humans and the needs of other species living in our world as human intervention is a major cause of changes to the natural environment.

The variety of species and the quantity of animals likely to live in an environment depend on the quantity and quality of food, water, cover and space that the habitat is able to provide. That is what is known as the **carrying capacity of an environment.**

The main factors limiting Québec wildlife are: the harsh winters, diseases, an insufficient amount of food, pollution, predation, floods, accidents, age.

WHY HUNT MAINLY IN THE FALL?


Crossbow hunter

In Québec, animals generally give birth in late winter and early summer. In the fall, which is the season of fruits and the harvest, the habitat is at its maximum carrying capacity. Many young animals have survived and are in good health. The winter is a hard season during which the dwindling food supply and harsh weather conditions result in a large number of deaths.

Wildlife management specialists have opted for the harvest of surplus animals to protect the populations and the habitat, for if a large number of animals live in a habitat whose potential is dwindling, the result will be damages to both the habitat and animal populations.

When a population is on the rise, it is controlled by increasing the number of licences; if the population is on the decline, the season is shortened, the number of licences is reduced or hunting is closed.

Quand une population augmente, on la contrôle en augmentant le nombre de permis; si elle décroît, on raccourcit la saison, réduit le nombre de permis ou ferme la chasse.

SHOULD WILDLIFE BE MOVED?

It is sometimes suggested that wildlife should be taken from overpopulated habitats and released in sparsely populated areas. Whether this practice would be effective is uncertain.

First, there are the costs that such an operation would entail. Moreover, one must take into account the stress for the population and for those animals being captured and moved in particular. Finally, if the habitat selected is in good condition and accessible, it will already be home to a wildlife population that is adapted in quantity and quality to the habitat's capacity and the diversity of the resources available. If the area selected is of poor quality, how could moving more animals there improve the situation?

LIVING IN HARMONY WITH WILDLIFE?

To meet their many needs, humans have created installations and businesses which often encroach on the territory occupied by wildlife. Meanwhile, wildlife sometimes encroaches on our surroundings. Indeed, some species have adapted to our presence and have learned to take advantage of it. Pigeons, gulls and certain small mammal species (rats, squirrels, skunks, raccoons, etc.) are neighbours that often profit from our presence.

In built-up areas, these animals mainly live off our garbage. When they find their way into buildings and roofs, damage or deface buildings and monuments with their excrement or present a public health hazard, we take steps to chase them away, control them and even eliminate them. In rural areas, the damages caused by wildlife are even more apparent. Several species of birds (common grackle, red-winged blackbird, brown-headed cowbird, European starling, American crow, etc.) cause major damage to cereal crops or small fruits. Mammals such as the raccoon (corn fields), the white-tailed deer (young plantations, orchards) cause major damages to crops; groundhogs cause damages to herds and farm machinery with their burrowing, while beaver are a threat to shoreline properties and roads with their dams. Finally, other species, such as the coyote, can attack herds or, like the fox, can be carriers of dangerous diseases such as rabies.

These few examples show that the mutual use of the same territory is not without its problems. Should we expect the 'victims' to tolerate the situation and accept the, at times, considerable losses? Obviously, few people in the city would be willing to share their apartment with rats. Steps are taken to avoid attracting these undesirable animals and to eliminate those that become too enterprising.

In rural areas, the size of the territory, the extent of crops as well as the multitude of species present are such that one cannot expect to control certain species simply by ensuring the proper disposal of animal droppings Crops are a food supply that is much harder to protect than a simple larder.

When city dwellers go to vacation sites, they like to keep a certain distance between themselves and the local wildlife. They take precautions to keep certain 'invaders' out of the cottage and defend their property. They protect their trees and shrubs, use insecticides, deprive swallows of their cornices, dormers and window edges with elaborate brickwork, block off eaves to bats, etc. For these vacationers, wildlife is often nice and interesting when admired from a distance or when on their neighbour's property. They will have a good laugh if a porcupine eats a hole in the bottom of the neighbour's boat, but will consider it a crime if they fall victim to the same event.

At times bothersome neighbours

Of course, we do not want country dwellers firing or trapping everything that flies, runs or crawls. However, it is only normal to accept a degree of control of **PESTS** to protect crops and property, to ensure the peaceful enjoyment of property and to prevent losses of income and increased maintenance costs associated with depredation.

An owl hooting and a bear raiding a beehive are problems of two different orders. While the first is part of living in the country, the second represents a serious threat to a citizen's livelihood. The presence of diversified, healthy and abundant wildlife is an indication of the quality of the environment. We can make do, compromise, endure a situation up to a point. However, the time comes when the tolerance threshold has been reached and other measures must be envisaged. Among these measures, selective harvesting is preferable.

The increase in the number of wild animals killed by automobiles reveals another problem of harmonious co-existence. Our roads and highways are responsible for the death of animals of all kinds. This form of culling is a waste of resources, to say nothing of the inconvenience and the at times lethal consequences for motorists.

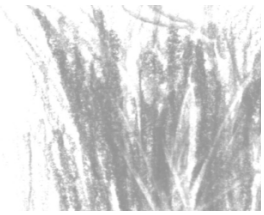
THE USE OF ANIMALS BY HUMANS *

Hunters are not the only persons to use animals. Even in our so-called evolved societies, we still depend, in large part, on animals for our food (meat, eggs, cheese, etc.) as well as in a host of other fields. Many everyday consumer products contain animal substances: medication, soaps and beauty products, camera film, plastic, paint, clothing, galvanized steel for automobile vehicle bodywork, leather for belts, joints and tires, brake oil, asphalt, etc. For example, did you know that fruit is sprayed with animal fat to delay ripening, or did you know that this same fat is used to eliminate static electricity in synthetic fibres used for clothing. Animals are useful to us and we make use of them. Are we in any position to refuse hunters the right to eat the game meat they harvest?

*** Excerpt from: "Je suis chasseur…" FQF/régionale 02**

PART TWO

During the hunt



CHAPTER 8

Hunting Methods and Techniques. Where to Shot?

To be successful, sporthunters must know how to outwit the three senses that game use to detect the presence of others: sense of smell, hearing and sight.

Sporthunters must therefore learn how to control a series of elements. This will involve choosing **LURES** and the appropriate hunting clothing, the visual and olfactory camouflage of which will allow hunters to blend into the natural landscape surrounding their hunting site. Hunters must also know how to understand the clues indicating the presence and activities of the game sought, in addition to choosing a hunting technique that is adapted to the game, the gear and the hunting conditions.

Finally, hunters need to know their skill level and the limits of the weapon used in order to be able to make a lethal shot at the game they will have succeeded in outwitting by taking into account and applying wisely the knowledge and techniques presented in this chapter.

1. HUNTING CLOTHING AND CAMOUFLAGE

1.1 Hunting Clothing

To be successful when hunting big game, and in the harsh and changing climate of Québec, hunters must wear clothing suited to the type of hunting, the season, the weather conditions and the decor of the natural environment where the activity will be practiced. Small game hunters will have an entirely different concept of their clothing needs than will a caribou hunter. A bear hunter in spring and a white-tailed deer hunter in fall will also choose different clothing. However, certain clothing principles apply to all types of hunting and conditions. First, your clothes must be comfortable, light, noiseless, and warm without being bulky. It is important to remember the importance of an adapted choice of hats, gloves and shoes for your physical comfort.

It is preferable to wear several layers of clothing instead of a warm, but heavy coat. The principle of several layers, or onion skins, is both practical and effective. A clothing article can be removed if it gets too hot or another article added if the temperature drops suddenly. In the event of rain, it is also more efficient to dry several light clothes than one thick and heavy piece of clothing. Several hunting apparel companies have understood this principle and offer so-called “3 in 1” or “4 in 1” combinations. They generally include overalls, two light coats that can be attached together to form a single warmer and heavier coat, as well as a sleeveless vest. These coats are often reversible. In general, one side is camouflaged and the other is fluorescent orange in colour; there are also other coats that present two different camouflage patterns. The outer coat is often waterproof. While relatively expensive to buy, these specialized outfits are very comfortable, versatile and adapted to the various hunting conditions encountered in Québec.

The first layer of clothing that should be considered is underwear. It should mainly be made of polypropylene, silk or a wool-polyester blend. Generally, the following characteristics are sought:: comfortable contact with the skin, the property of keeping the hunter warm and dry while allowing transpiration to be channeled away from the body. Wool-polyester blends continue to be very popular and their price suits most hunters' budget.

Hunting clothes have evolved a great deal and today, the modern hunter can choose from a large variety of specialized fabrics and camouflage patterns for almost every hunting condition. This clothing is available for both men and women. You should choose your hunting clothes according to the conditions and the type of hunting you practice most often. For example, it is in the interest of waterfowl hunters who may hunt late in the season to choose clothing that is light, waterproof, very warm and that will protect them from the cold wind and rain. In this case, clothing made of "Gore Tex" is recommended. Hunters who hunt early in the season should choose light and noiseless clothing, such as "Polar Fleece".

You can also choose between fully lined clothing or light outerwear that may be worn over other clothing. For some hunters, this latter option seems to offer greater flexibility and to be less expensive if they practice several types of hunting. It is important to bear in mind that your clothes must never get in the way of your movements or the movement of your hunting weapon.

The most popular, the most comfortable and the most versatile fabrics are: cotton, wool, flannelette ("Polar Fleece"), "Gore Tex", "Thinsulate" and synthetic chamois known as "Saddle Cloth". Finally, the most often neglected component of your clothing is your footwear. Boots that are warm, light, comfortable and waterproof will keep you in shape and active much longer. Rubber boots with a felt lining are a very good choice, as they hold in body odours for a very long time. However, one of their drawbacks is that they tend to be somewhat heavy. Leather boots lined with "Gore Tex" are light, warm and very comfortable, but they are generally expensive.

In summary, well-informed hunters are meticulous when it comes to their clothing and their camouflage. Good hunting clothing:

- is odourless;
- is noise-free when it rubs against branches (wool, flannelette or cotton wool);
- blinds with the landscape;
- will not interfere with shooting;
- is appropriate in relation to the weather conditions.

1.2 Camouflage

Camouflage involves harmonizing your appearance to blend in with the natural landscape. Hunters must bear in mind that animals generally have much keener senses than humans do. That is why hunters must try to hide their presence from the sight, hearing or smell of the quarry sought.

To be efficient, the camouflage pattern of your clothing must be chosen according to the natural landscape of your hunting site, even the place where you will be on the look-out for quarry. It is important to camouflage your entire body, from head to toe. Even if you are lying in wait on the ground or in a tree stand, big game animals detect movements very easily and while the best tactic is to remain motionless, if you have to move, your camouflage must allow you to conceal your movements. This camouflage must blend in with the colours and patterns of your immediate environment. For example, tree-bark patterns can be very effective in a fir forest but if you are hunting from a tree stand in a maple forest, it is important to keep in mind that from the game's perspective (looking up); the background may be the sky or the leaves of a maple tree. As a result, your tree-bark pattern may no longer be as well suited.

Remember to camouflage your head, face and hands with a hat, a mask (or make-up) and gloves. You can even add natural foliage to your clothing for greater realism. The general principle is to conceal your figure to blend in with the natural environment.

Your camouflage clothing must also be noise-free. Each of your movements must be as faint as possible. That is why preference should be given to fabrics that are roomy and soft, such as flannelette ("Polar fleece"), wool and chamois.

Finally, camouflage is incomplete if you fail to conceal ultraviolet reflections and human body odours. That is why it is highly recommended that you wash your entire body with odour-preventing soap each morning and that you wash your clothing with the same type of detergent soap, which also must prevent ultraviolet reflections (anti-UV), which can make even the best camouflage detectable by game. Odours can also be concealed by specialized products that are pine-scented, apple-scented or that include another scent of plant origin. It is also strongly recommended that you keep this hunting apparel in an air-tight container to keep undesirable odours away. For this purpose you can put fir or cedar branches in the container where your clothing is stored. That way, this clothing will be impregnated with the odours associated with your hunting environment. Finally, anti-odour hunting clothing is now available. It is made with a thin layer of activated charcoal to absorb body odours.

Pay as much attention to the purchase of your hunting clothing as you do to that of your weapon and arrows. Do not hesitate to request the advice of a knowledgeable merchant and to consult clothing labels: they will inform you about the fabric composition, the size of the clothing and cleaning instructions.

In conclusion, if you want to optimize your hunting success and to appreciate this sport, it is essential that you opt for comfortable and functional clothing. It is important to bear in mind that the wearing of camouflage does not relieve a firearm hunter of the obligation of wearing a safety vest. It is only waterfowl, crow, as well as wolf, coyote and red fox during the winter season may be hunted without a safety vest.

Sportchief

2. UNDERSTANDING CLUES

Detecting the quarry requires a period of observation in the hunting area. This preliminary task is similar to the work of an investigator. It consists of looking for signs of the animal's presence on the selected territory. Big game animals tend to remain in the same, fairly circumscribed territory, where adequate food and cover are available except at mating times or under special circumstances (chased out, natural accident, etc.).

The objective is to find the spots usually frequented by the quarry and to note the time of its passage. Shrewd hunters will take advantage of such signs as places where the animal browses, evidence of its night shelter and fresh droppings. Other revealing signs include broken branches, marks indicating browsing, hairs sticking to branches, claw marks or antler scratches on tree trunks.

The visibility of tracks will depend on the nature of the soil. However, near watering holes or forest roads tracks are easier to spot. Experienced hunters will find tracks on a bed of moss or dead leaves.

3. HUNTING METHODS AND TECHNIQUES

There are various hunting methods and techniques in Québec. Hunting success will vary according to the game sought and the hunter's knowledge and skill.

DIFFERENT HUNTING METHODS AND TECHNIQUES USED IN QUÉBEC ACCORDING TO THE GAME SOUGHT

	Caribou	**Deer**	**Moose**	**Bear**	**Small game** (hare, various species of grouse)	**Waterfowl** (ducks and various species of goose)
Ground blind	+	+	+	+/-	-	+
Tree blind	+/-	+	+	+	-	-
Stalking	+	+	+/-	-	+	+
Drive Hunting	-	+	+/-	-	+	+
Bait	-	+	+	+	-	**Prohibited**
Olfactory lures	+/-	+	+	+/-	n/a	n/a
Visual lures (decoys)	-	+/-	+/-	+/-	-	+
Calls (callers)	+/-	+	+	+/-	-	+
Rattling	+/-	+	+/-	n/a	n/a	n/a
Dog	**Prohibited**	**Prohibited**	**Prohibited**	**Prohibited**	+	+

Key: method applicable and used (+) does not apply or is not used (-); not applicable (n/a)

These methods and techniques may be grouped together as follows: **STALKING** (or still hunting), **HUNTING FROM A BLIND** on the ground or from a tree stand (or stand hunting), **DRIVING**, call-hunting (**CALLS**), hunting with visual lures (**DECOYS**) or scents, hunting with bait and hunting with hunting dogs.

Very often a hunter may resort to a combination of hunting methods or techniques to increase his chances of success of harvesting game. It is fairly common to hunt from a blind, whether on the ground or a tree stand, near a site baited with food to attract big game (bear, deer and moose), or to be waiting near a “scrape” of a buck made more attractive by a scent that could be that of a female in heat. Another example: a large number of hunters hunt from a blind (often known as hunting as they pass) by using visual lures known as decoys and who hunt using a call to attract game. Ultimately, the hunting methods revolve around three main lines of action seeking **to approach, to attract** or **to intercept** the quarry as it passes by. Let us now look at some of these methods in greater detail.

3.1 Stalking (or Still Hunting)

Stalking is not used much in the case of bear. Frequently used for white-tailed deer and caribou hunting, it is only occasionally used by moose hunters. Still hunting is also used for grouse, partridge, rabbit, hare, waterfowl, and so on.

In Québec, the method used for waterfowl is commonly known as flushing. The birds literally rise up in front of hunters. This type of hunting may be practiced by all hunters who frequent the banks of the St. Lawrence River, the bays, estuaries, watercourses or marshes and bogs. You will need a good pair of hip or chest waders, have to be a good walker, have a good knowledge of the game’s habits and ideally have a good dog. Along the shores, there is often a large quantity of snipes, puddle ducks and even occasionally geese. Each species has its own periods when it passes and re-passes. Generally, this passage begins in late August and picks up in September and October. It is by observation that the hunter will determine the favourite spots of waterfowl. If possible, it is recommended that you use raised or hidden trails that will allow you to approach the good locations quietly, that you walk behind a stretch of reeds or tall vegetation in order to arrive without being noticed. If you see a few waterfowls feeding along the shore in the distance, the best approach consists of carefully identifying the place where they are located, then sneaking up on them by circling around. You should bend down or even crawl as soon as you are nearby, i.e. within shooting distance. You then get up suddenly and take advantage of the waterfowl’s surprise to fire off a good shot.

Generally, in the case of big game, still hunting requires slow, supple and silent movements. Stalkers stop often (about every 10 steps), observe the environment and listen for a few seconds. The objective is to see the game **before it sees, smells or hears you.** Walk with the wind in your face wherever possible. Never walk with the wind to your back. If the ground is dry, walk very, very slowly (two or three steps at a time). Avoid setting your heel down heavily on the ground. Do not make any noise that is not usually heard in the forest. Move slowly. If the quarry spots you, stay motionless and be more patient than it is. An animal that detects something unusual will turn its ears in the direction of the sound, sniff the air (its nostrils will move). If the animal does not discover what caused the disturbance, the animal will often take steps to flush it out (by provoking it).

Pay special attention to your clothing: clothing that is noise-free and odorless, as well as light and flexible shoes or boots. Needless to say, you have to be on the watch for a change in the direction of the wind.

While very demanding, stalking is very stimulating and enjoyable to practice; if you come home empty-handed, you will probably have spent an enjoyable day exploring your hunting territory and will have acquired new experiences related to the habits of the quarry sought.

3.2 Ground Blinds and Tree Stands

The most popular big game hunting method is hunting using blinds, even among hunters who use a firearm. The blind may be set up at ground level or in the air, generally in a tree; in such cases it is referred to as a "tree stand".

3.2.1 Blinds on the Ground (Ground Blinds)

When choosing a ground blind or elevated stand (tree stand), it is essential that you take into account in both cases the prevailing winds, which are westerly in Québec. In the specific case of interest to us (that of a blind on the ground), it will be placed east of the trail used by the quarry. Always set up a short distance from the trail where the animal usually passes, the blind may be made of brush-wood, uprooted trees, stumps or boulders; you can improve the items at hand with branches and a camouflage net. In all cases, the blind must be camouflaged in such a way as to blend in with the surrounding landscape. Avoid cutting trees or bushes on public lands. On private property, the hunters should request permission to cut branches, **if necessary,** well before the start of the hunting season. The blind should be set up between the feeding and resting areas of the quarry. When walking, be sure not to cross animal paths. If your blind has been set up on the edge of a field, make sure that it is positioned in such a way that you will not scare the quarry when you come and go in the morning and the evening. Otherwise, you will force the animal to come out later. Check with the property owner to make sure that no seasonal work is planned in his fields (ploughing, fences, spreading, etc.) while you will be hunting there.

Inside your ground blind, make sure that the ground is clear of all dead branches, twigs and dry leaves. In the specific case of caribou hunting, which takes place on open ground, take maximum advantage of the available cover such as mounds, boulders, etc. Your blind should be set up to provide maximum concealment while giving you full freedom to maneuver your weapon without being hampered by any natural obstacle.

3.2.2 Tree Stands

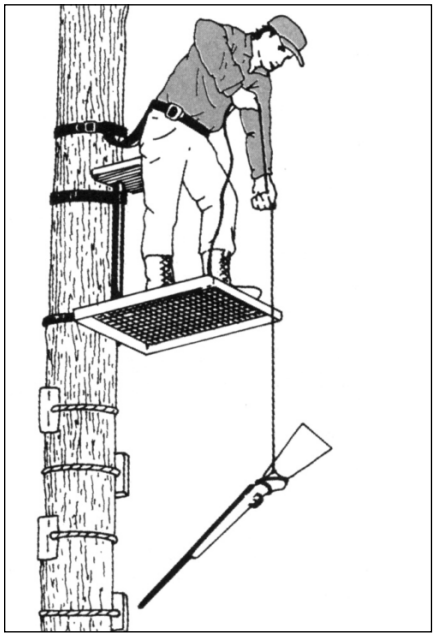
This is a very commonly used hunting method in Québec, due to the forest cover (wooded areas are much more numerous than open areas), especially for hunting moose, white-tailed deer and bear. This hunting method is mainly appreciated for its effectiveness. Perched at a height of 4 to 6 m (13 to 20 feet), hunters positioned in a stand are better able to outsmart the animal they are hunting, and the hunter's scent is far less perceptible. Moreover, his field of vision is greatly improved. A stand installed too high reduces the arrow's angle of penetration and makes the vital zone harder to hit.

The tree stand (elevated stand) must be positioned in such a way that the prevailing winds blow odours far away from the animal's trail. Do not use a permanent stand in a tree, unless of course you own the hunting grounds. It is possible to build a stand that is not attached to a tree.

When you have permission from the owner to hunt on private property, never use nails to build a stand. This would show a lack of respect for the person who trusts you (damage caused to private property and potential hazard for whoever might cut down the tree later) and a lack of respect for the tree that is supporting you. The most widely used method is the portable stand. Several types are available on the market. They are designed to satisfy the customer's tastes and budget, while showing respect for nature. These portable stands must be strong, yet light and not have metal parts that could damage the tree. Some are fitted with rubber blocks to limit possible damage to the tree.

Always make sure that the nuts and bolts do not make grating noises and that they are always kept tight for your safety. Ideally, the underside of your stand should be camouflaged, while the upper part should be covered with a material that is silent and that you are not likely to slip on, even when there is frost. Some types of portable stands are quite practical when climbing a tree, provided that the tree branches are near the top and the trunk is bare (dead branches that hamper the climb may be cut). Otherwise, you will need "steps ": steel rods screwed into the tree trunk should never be used; wood blocks or metal hooks held in place with a rope can be purchased, or you can make your own. Be sure to stain or camouflage the blocks and ropes well prior to the start of the hunting season. Make sure that the hole through which the rope passes is near the top, to ensure that the block does not turn under your weight. The ideal distance between the wood blocks is from 30 to 38 cm (12 to 15 inches), i.e. the distance between the foot and the knee.

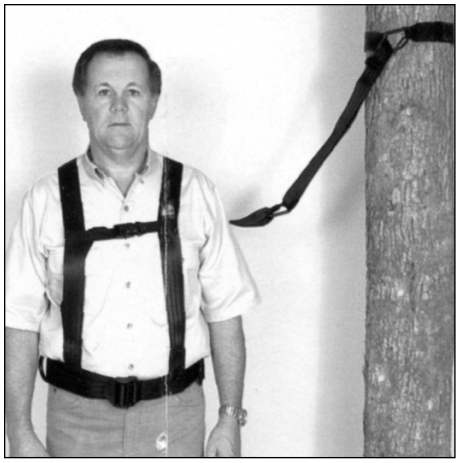
When it comes to safety, two points are particularly important. First, when using a portable stand, you must attach one end of the safety harness around your chest and the other end around the tree trunk to avoid accidental falls. The harness model that integrates the shoulder and the torso is the one that is recommended most. Secondly, when climbing into your stand, **never carry a weapon.** Be careful to place your hunting equipment at a respectable distance from the tree to avoid potential hazards in the event that you should fall.



Pulling up a weapon to a tree stand

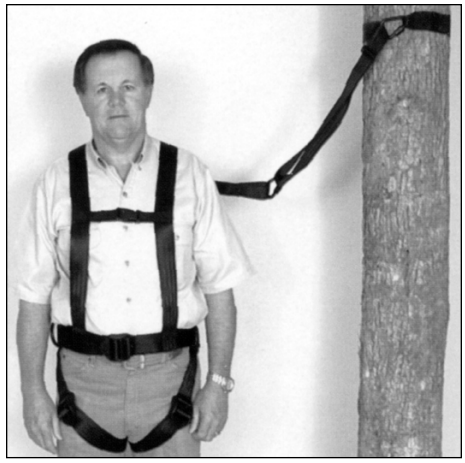
The most common way of getting your equipment up into the stand is to haul it up, once you are in the stand, using a rope attached to a hook on your belt.

Some portable stand models have a fixed seat. Others have a separate seat that can also be used as an anchor support when climbing the tree. As with blinds, make sure that you have a clear view on all sides and that no branches can interfere with handling your bow or crossbow whatever the shooting position. When shooting, a general rule applies: the distance must be calculated beforehand by making a few trial shots at an optimal range. **Owing to the angled path, the true distance is that calculated from the base of the tree to the target.**



IHEA

1- Chest Harness



IHEA

2- Full Body Harness

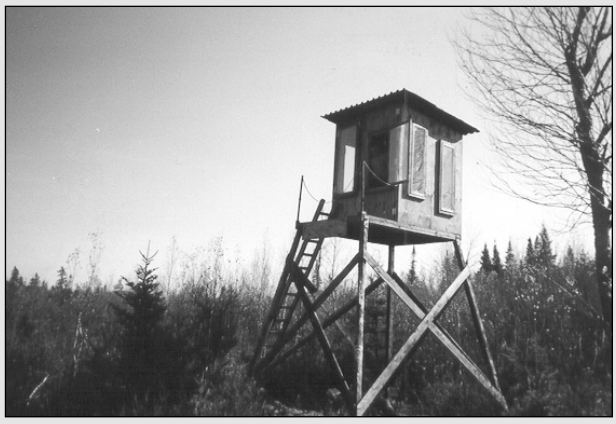
TREE STAND SAFETY

A tree stand is a very popular hunting tool. Hunters like it for various reasons: it provides a better view of the quarry, the hunter is outside the normal field of vision of the quarry, etc. Unfortunately, several accidents have resulted from the improper use of tree stands; indeed, this is the most common cause of major hunting accidents. Before setting up a tree stand, it is important to bear in mind the following considerations: whether on public land or on a private property, a stand cannot be permanent, unless you have the express permission of the landowner. Without counting the esthetical and other drawbacks, a permanent tree stand damages trees. It is important to obtain the owner's permission before setting up a tree stand (even portable). Refrain from using nails, screws or metal parts that can damage tools or injure the person who will eventually cut down or saw the tree.

- **Choose a healthy tree that is suitable;**
- **Set up your tree stand about 2-4 m (7-13 feet) from the ground;**
- **Tie it securely to the tree;**
- **Use a harness to attach yourself to the tree when you get on the stand;**
- **When climbing up to or down from the tree stand, make sure that you have stable footing and hand support (3 of your 4 limbs must be in contact with the tree at all times);**
- **Take off the harness only when you have climbed down from the stand and after having lowered your equipment by rope.**

Before hauling up your weapon to the tree stand or lowering it, be sure to unload it; throw a rope over the ladder and pull the rope tied to the equipment towards you. When lowering the equipment, lower the rope slowly until the equipment reaches the ground. Never climb a tree with your weapon in your hands. Check your stand regularly and make sure that all of its parts are in good condition. If you use a permanent structure, bear in mind that from one season to the next tree growth or wood rot can affect the stand. Always use a harness when climbing up or down to a tree stand. Refrain from using alcohol, medication or drugs. Clear the ground around the stand of brush to reduce the risks of injury in the event that you should fall.

Most accidents involving tree stands happen when climbing into or out of them, when putting them up or taking them down. If the wait for quarry is long, you may become sleepy; if you are unable to stay awake, climb down to the ground.



Pierre Milhomme

Stand on stilts. A comfortable set-up for those who are afraid of heights.

3.3 Lures, Calls and Hunting Dogs

3.3.1 Lures

There are even more “guaranteed effective” lures than there are decoys… but don’t be lured. Once again, hunters should use a little common sense. Soaking your pant legs with a magic concoction containing skunk spray is sure to produce undeniable results. First, your fellow hunters will keep their distance, you will be plagued by the odour while you wait for your quarry, and when you return home, don’t expect a warm welcome from your better half. What is more, your quarry is likely to show little interest in anyone giving off such a foul smell. Special pads that are fitted to the shoe can be bought or made. Depending on the location and the animal sought, moisten the pads (do not soak them) with a few drops of the appropriate lure: natural mare’s urine, natural apple juice, or all kinds of more or less natural extracts.

Baited site

In summary, it is all a matter of common sense. If you are hunting in **APPLE-GROWING** areas, natural apple juice will do. If your hunting grounds (you will have explored them a few months ahead of time) are in a rural area, particularly one where corn is grown, another type of lure should be used. If you are hunting or waiting for a bear (**PLANTIGRADE**), you can choose from brown sugar, corn syrup, honey or even spoiled meat.

Ian McMurchy

Deer busy marking its territory

3.3.2 Decoys (Call-Hunting)

Decoys are instruments making it possible to emit calls that are similar to the ones emitted by the game sought.

Take your pick between the shrill cries (if you can call them that), the rattling of deer antlers, the scraping of branches along the ground, the different sounds produced by various devices by blowing into them, the dry corn rattlers and so on. Before using the call-hunting technique, you should consult specialized books or magazines, as well as audio or video materials. The best approach is to accompany an experienced hunter who will show you how to avoid making common mistakes, particularly that of driving game away from the territory with strange noises.

Finally, in the right season, the moose, the king of the forest, will answer the well modulated call of a horn made out of birch bark.

3.3.3 Hunting with Dogs (Hunting Dogs)

Certain breeds of dogs are well suited to hunting. This type of hunting involves four techniques that depend on the breed of hunting dog.

In the case of the **pointer technique,** the dog indicates to its master that the game has just been discovered. The dog's position is immobile, often standing and tense, with its nose to the wind, a raised forepaw and a motionless tail.

The German shorthaired pointer belongs to this family of dogs. It follows the game that it detects with its keen sense of smell. This dog searches slowly, is a good retriever and is particularly appreciated for hunting woodcock.

The most popular breeds of pointers are: setters, griffons, pointers and spaniels.

In the case of the **setter technique,** the dog is slightly ahead of the hunter to "draw out" the game. For example, the English springer spaniel is used to hunt woodcock and grouse.

With the **retriever technique,** the dog brings back the killed game. The Labrador is the dog favoured by a large majority of waterfowl hunters using a retriever. The golden retriever and Chesapeake bay are also excellent retrievers.

Finally, with the **hound technique,** the dog is used to look for and track game by barking (e.g. when hunting for coyote). The hound is strong, has a keen sense of smell and enjoys pursuing game.

The main breeds of dogs used in Québec are the: beagle, bluetick, redbone, fox hound, plott hound and walker.

While the beagle is often used to track down hare, the other breeds are used to pursue raccoons, foxes, and so on.

The beagle, given its small size which is well adapted to the territory of the hare, is the dog that is most widely used to hunt this small mammal. When on the fresh scent of a hare, the beagle barks ever more frequently. As the hare generally returns to its point of departure, the hunter remains at the place where the hare's scent was first picked up, keeping in mind that the hare is always in front of the beagle.

Hunters who use hounds generally frequent wooded areas near roads that allow them to move about easily to follow the dogs and recover them.

When the hunt begins, the dog picks up the scent of the game. The dog's barking guides the hunter in the pursuit of the game. The pursuit ends when one of the following situations occurs: the dog loses the scent; the dog becomes exhausted and stops the chase; the quarry is killed.

P. Blanchette

BRITTANY SPANIEL

Incidentally, the **pointer technique** and the **setter technique** are used for small game, whereas the **retriever technique** is more associated with hunting for waterfowl.

In conclusion, it is important to point out that it is against the law to use dogs to hunt big game in Québec.

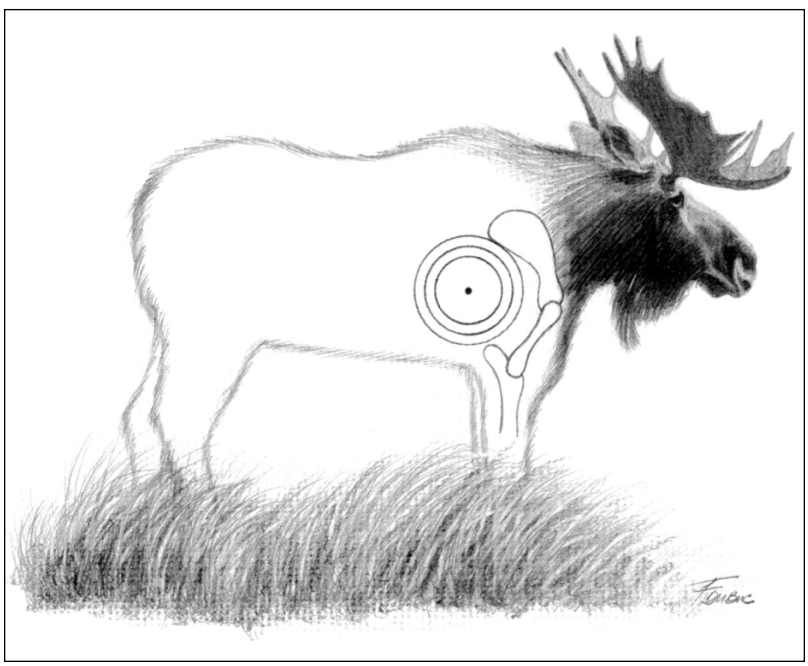
4. HUNTING GAME IN QUÉBEC

4.1 Moose

This is an animal with a well developed sense of hearing and smell. Calling, a technique well known to all moose hunters, is a popular technique for hunting this big game species and is generally used in the vicinity of water where hunters have an unimpeded view. However, hunting moose by imitating the call of the female is not without its requirements. It will be in the hunter's best interest to choose a place where the animal can be approached within shooting distance. In a large clearing or near a good-sized lake, the animal may be more reluctant to approach the area from where the call is coming.

In addition to calling from a blind, experienced and courageous hunters may choose stalking or still hunting. Taking advantage of a fine drizzle, you can set out in search of your quarry. It may take you hours, even days to find the lair of the king of the forest. Moose, which are generally found ruminating or browsing on a hill top where they have access to food and shelter, are not easy to approach. By taking the direction of the wind into account, by watching where you put your feet, by advancing very slowly and by carefully scanning your surroundings, you may catch a glimpse of your quarry before it becomes aware of your presence.

Finally, should you be among the lucky few to have discovered a spot that is frequently used by a moose, such as a watering hole or a path visited regularly, **your best bet is to remain still, hidden in a ground blind or on a tree stand set up near that spot.**



4.2 White-Tailed Deer

Curious by nature but also nervous and suspicious, the white-tailed deer will show cunning and guile. A hunter wishing to bag a deer will have to take advantage of its weaknesses.

The deer has a well developed sense of smell and a keen sense of hearing. Its vision, which is very sensitive to movement, covers all 360° allowing it to detect the approach of predators from every direction. Biologists have yet to clearly show that deer are able to distinguish colours. Active mainly at dawn, at dusk and at night, this species is very much a creature of habit, unless it is disturbed. For example, it will eat in the same orchard day after day, stop by the same scrapes, one after another, etc. However, in fall this animal breaks with its usual routine when the male and female move about both during the day and at night. Moreover, the deer is in a hurry to build up its body fat in preparation for winter. Its comings and goings become more variable; it can be lured away from its habits with a few of its favourite foods such as cereals, vegetables, acorns, apples, carrots, and so on.

The hunter's success will depend on a preliminary reconnaissance of the hunting area and the observation of the surroundings with a view to detecting signs of the white-tailed deer's presence and its activities. He will be able to determine the presence of deer in a given sector by the following signs: trails, grazed areas, trampled ground, the scraping of antlers against trees and shrubs, droppings, etc. It is important to be very quiet when familiarizing yourself with the area and looking for evidence, as unusual noises and movements will disturb deer. If you walk on its trails, the deer will change route and become wary. Watch out for the wind which can carry strange smells that can be picked up by this animal's keen sense of smell. Carefully discovering the quarry's habits without disturbing it is the secret of a successful hunter.

ADDITIONAL INFORMATION ON: "SCRAPES"...

During the rut period, bull moose and bucks mark certain spots with their saliva, secretions and urine. They visit these scrapes regularly. Such areas may be prepared by the hunter and made more attractive through the use of artificial and natural scents.

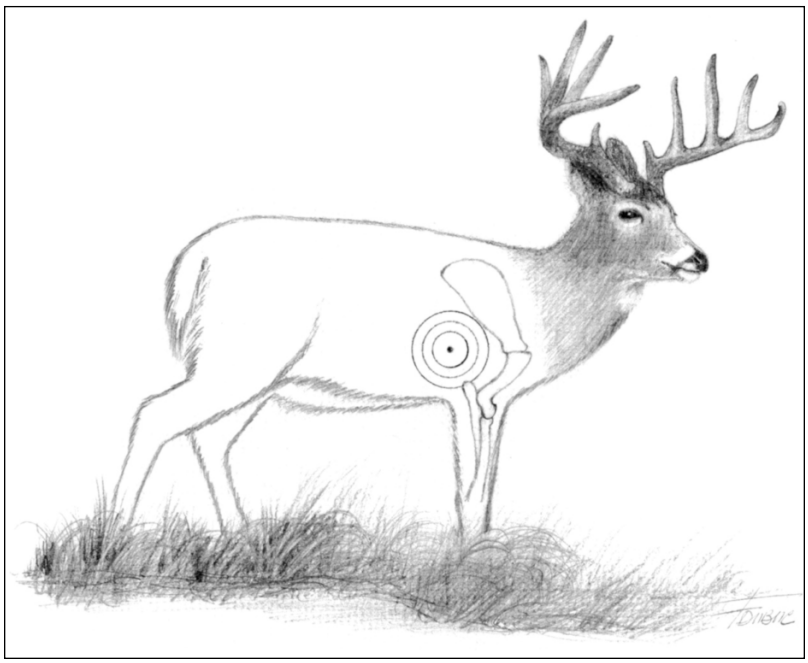
Based on our knowledge of deer, it is only logical to expect that hunting from a tree stand will produce excellent results. However, you will have to be patient and be ready to wait long hours for the quarry to appear. There is some consolation however: the monotony will often be broken by a chipmunk gathering food for the winter, a squirrel which, sensing your presence, will do everything possible to make you move, and even a hare or a grouse that would make a nice addition to your game bag. But do not let yourself be taken in, as it is the deer that would benefit.

The time may come when without hearing the slightest noise, you may turn around and find yourself in the presence of a deer. Your quarry, suspicious, yet unaware that it is being observed, may move step by step towards the bait placed in an appropriate spot. You let it come near you and as soon as it is in range, you take advantage of when it looks in the opposite direction and follow the sequence described in the next section: **Shot placement, where? how?**

Some hunters will call deer with a whistle, dry sticks or deer antlers. These methods require practice and are mainly effective during the rut, i.e. towards late November in Québec. For example, the sound of antlers being struck together to simulate contact can attract males, but there are limits as to how far you can go with this technique. Others, taking advantage of favourable weather conditions and years of experience, prefer stalking, which involves slow careful tracking over the quarry's territory. This method requires time, silence (clothing, shoes camouflage), patience and endurance. Finally, other hunters will resort to feeding sites that they will replenish regularly or will use specific odours (natural or artificial), that are likely to arouse the interest of the quarry and encourage it to come to the site.

Some groups of hunters prefer the driving method. While this type of hunting produces results, it chases deer from the territory for awhile and requires that hunters be extra careful. It should also be pointed out that a driven animal is very nervous and rarely stands still; as a result, it is very hard to shoot at.

Whatever the method or the technique you use, you will experience plenty of thrills hunting white-tailed deer; while you may not return with **VENISON**, you are sure to come back with unforgettable memories and plenty of stories to tell.



4.3 Caribou

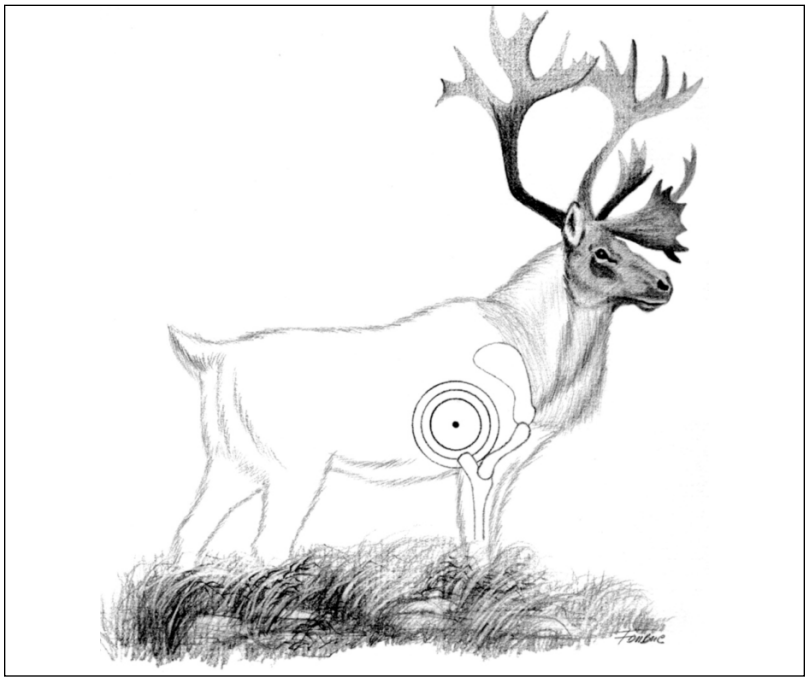
You may have a hard time choosing your quarry when hunting this species on the tundra or the taiga. Indeed, during migration, it is not unusual to see several hundred and even thousands of caribou.

Hunters strategically positioned near the path of the herd simply choose their quarry. If you are not fortunate enough to be at the right place, at the right time, i.e. during the migration period, you will have to invest more efforts to be successful. Patience and endurance are required to walk through the hills. Be sure to keep your eyes peeled as, although vegetation is scarce, the “master of Ungava” is not readily seen; when standing still, the caribou may look like a boulder to beginners. A good pair of binoculars will come in handy!

If you come across a small herd of caribou browsing on the crest of a hill, be sure to approach it from downwind. If you crawl quietly towards the herd, you have excellent chances of closing within range. Strangely enough, in spite of its keen eyesight and sense of smell, the caribou does not seem to detect stationary objectives, even close up.

Here again, an accurate aim is of paramount importance since the caribou is **GREGARIOUS** by nature. It instinctively follows its kind and when wounded, will tend to follow the herd. The projectile must find its mark and kill the quarry quickly. It is easier to retrieve the game on open ground.

Finally, Québec hunters do not resort to calling very much. However, this method can produce interesting results when used appropriately.



4.4 Black Bear

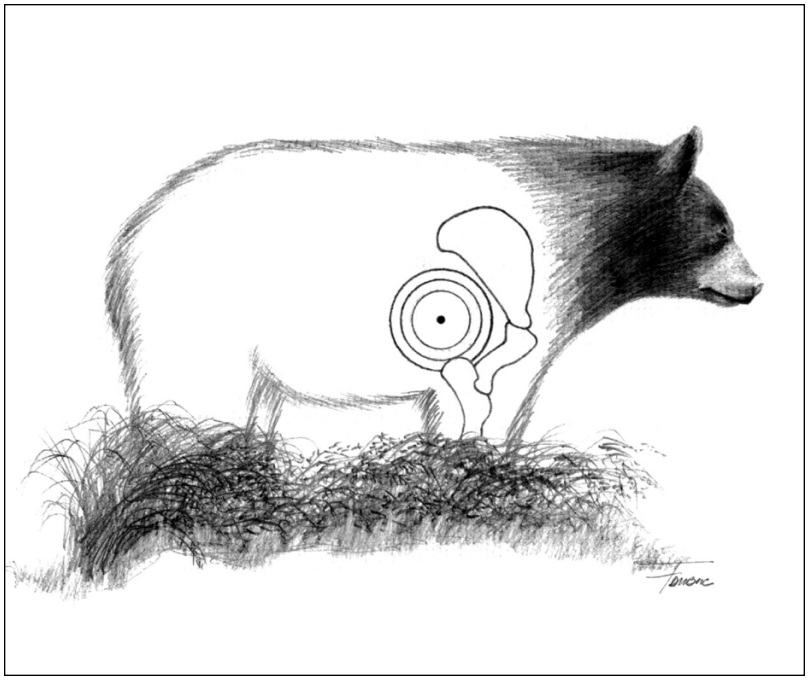
In Québec, black bear hunting is practiced in spring and early summer in most zones. This type of hunting, more than any other, requires a prior knowledge of the territory and adequate preparation. Unlike with other big game species, stalking and calls are not used much to hunt bear.

The best and perhaps the only way to have a truly successful hunt is to use some kind of bait or to hide in a stand near the place where the bear usually eats, such as an orchard or a grain field. Preferably, the bait must be placed ahead of time and renewed as necessary to get the animal accustomed to frequenting the chosen site. Taking into account the direction of the prevailing winds, you can place your bait within firing range and in such a way as to ensure that you have the best possible shot.

A wide variety of bait may be used. In spring, the black bear is attracted by gamy meat or fish, or even rotting meat. A black bear may show carelessness to get at a meal that is easy and nutritious.

The lucky hunter will have to pay particular attention when approaching a fallen bear. Like any wounded animal, it can be dangerous and may attack.

Some bear hunting enthusiasts refer to the 3/20 rule when setting up a stand: the stand is placed 3 metres off the ground and the bait 20 metres away.



4.5 Small Game

Small game refers to all land species available to hunters and that are not among the four species of big game found in Québec or waterfowl. The two most popular species of small game in Québec are the spruce grouse and the snowshoe hare. Plenty of happy moments await you as you look for our small game species. For example, the hare may be hunted individually or in drives.

Throughout the summer, while enjoying pleasant hunting outings in search of woodchuck (the meat is delicious), grackles, starlings or crows, you will be helping to control certain species, whose proliferation may be detrimental to other species and crops. **Bear in mind however that an animal must be considered edible quarry and not as a living target.**

Flushing, as the expression indicates, involves walking through the territory to flush out the game. This method includes drives where a few hunters move side-by-side, at a safe distance apart, in order to flush out small game, whether it be grouse, hare or waterfowl.

The use of dogs (hound, pointer, setter or retriever) will add to your please when hunting small game.

4.6 Waterfowl

There are various methods and techniques for hunting waterfowl. Depending on the species hunted and the hunting situations, waterfowl may be hunted effectively from a blind along their migration route (…which you have to learn to identify!), stalking, commonly known as “flushing”, call-hunting (with calls) as well as visual lures, i.e. decoys. Aquatic birds are generally hunted in or near aquatic or wetland areas. Increasingly, hunters have been meeting with success hunting a number of these species in fields, from blinds, using visual lures (decoys). This practice is mainly used to hunt geese and above all Canada geese. Many waterfowl hunters also resort to calling ducks, geese and brant using a variety of calls, without necessarily mastering this art.

5. HOW TO FIRE AT BIG GAME

5.1 From a Reasonable Distance

One of the first principles you should follow is to never give into false pride or misplaced confidence. In other words, since you practice regularly, you must know your abilities, in particular the maximum distance from which you can shoot with accuracy. For example, you may have found while practicing that your shot placement is true up to 20 metres; at 25 metres your shots are already less effective. You should stick to a 20-metre range. If you truly feel that your shot is perfectly accurate at 30 metres, you can shoot accordingly, provided that your bow has the required "power" and your arrows are strong enough. Bear in mind that we are not talking about Olympian or competition shooting. The same applies to hunting with a firearm: when the effective range of your shot is 200 metres, there is no use trying to shoot from 400 metres. While you may hit your target, the results will be poor. The consequences of false pride may be an animal well hit with a projective having lost its killing power.

In summary, limit yourself to an effective range. A maximum distance of 30 metres is reasonable in our woodlands. **Never shoot at the animal,** but always ***focus on an aiming spot*** that you can visualize: **in the vital area.**

If you are using a modern bow with wheels and cams and fitted with adjustable sights, the task is much easier. Watch the quarry's behaviour; certain signs will reveal its intentions: ears pricking up, tail flicking, nervous tremors, etc. Be patient. It is curious and will come back.

5.2 Preconditions for safe firing

For your safety and that of other people, it is essential that all firearms be handled safely. The following conditions governing the use of guns apply to a hunting situation:

- Handle any gun as though it were loaded;
- Always keep it pointed in a safe direction, either to the ground or generally toward the sky;
- Use a pair of binoculars to clearly identify your target and everything in front of, around and behind it;
- Wait until your game is clearly identified, motionless and well situated and that the vital zone is very clear before you point your gun and aim it.

5.3 At a clearly identified point

Ensure that you do not allow an animal to suffer unnecessarily. To this end, in addition to an unerring aim, a good knowledge of morphology is also required. It is essential to be able to locate the lungs, kidneys, main arteries, heart, liver, intestines and stomach. It is also essential to know the location of the principal bones: the large ones and those in the animal's chest cavity.

The lungs are the main target to aim for. In any large game species (not only those in Québec), the ideal point at which to aim is located immediately behind the front leg or the hollow below the shoulder*, in the first

third of the chest cavity (measured from the bottom). This is naturally not the case for a bear that is standing. The heart is not necessarily the best impact point for various reasons: size, protected by large mobile bones, etc.

Firing at the head is not advisable. Finally, and especially when you are exhausted and your heart is in your mouth, avoid at all costs shooting blindly at the game; focus on a very specific point located at the centre of the vital zone. It often happens that a wounded lost animal is the result of a very broad aim at the animal and not at the point indicated above. In short, a good target must be clearly identified that is perfectly clear and well placed.

* See attached silhouettes on next page.

IMPORTANT NOTE …

Remember that even if your quarry is of respectable size, you should target a much smaller area and shoot *on an aiming spot that is located at the centre of the big game's vital area.* Otherwise, you risk missing your quarry or wounding this animal needlessly. Be sure to focus on an aiming spot restricted to the lower one-third of the rib cage, at the centre of the vital area.

Before releasing your arrow, wait until the animal is standing in profile, away from any object that could deflect the arrow.

The head and the neck are not suitable targets. These areas should be avoided due to the thickness of the skull and the difficulty of hitting an artery in the neck.

When you shoot from the front or the back of the animal, the arrow has little penetrating power, especially if the broadhead hits a bone. Front shot and shots in a 3/4 front or back position should be avoided. Indeed, the chest seen from the front is narrow and the ribs are on an angle; it is a bit like the front of a boat. The effect of this is often to deflect the arrow, which could penetrate deeply but superficially, namely between the hide and the bones. The same is true for shots in a 3/4 position. An additional drawback to shots in the 3/4 front position is the position of the shoulder bones which block the arrow from reaching the vital area (heart, liver and lungs).

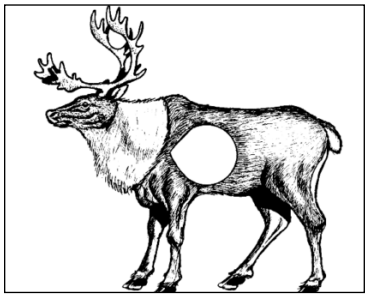
Avoid any shot that would only wound an animal that you would have difficulty tracking, especially when it is raining and blood signs disappear quickly.

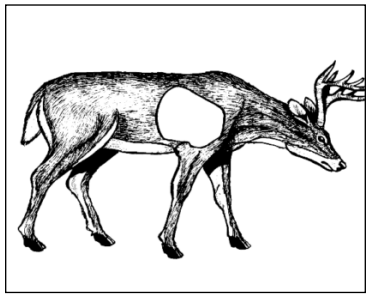
Make sure that there is no obstacle in the way of your arrow. It only takes a small branch to deflect your arrow and spoil your shot.

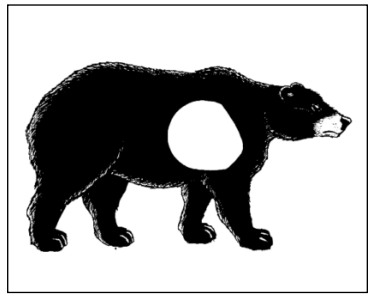
As in the case of a crossbow, a *bow is not a long distance weapon;* the fastest arrow is slower than the slowest bullet. In our wooded areas, a bow or a cross-bow hunter can bring down big game at about 20 m; the best shots are at under 12 m. Most deer are killed at under 10 m. Avoid long distance shots.

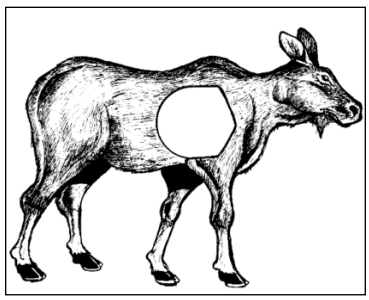
Avoid shooting an animal in the hindquarters, a sure sign of an incompetent hunter out to make a kill at all costs.

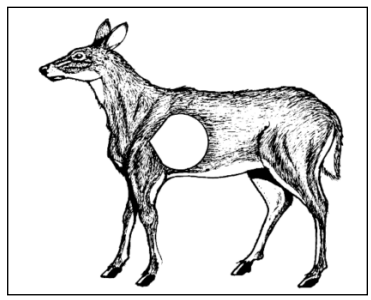
Your heartbeat may increase. But don't worry, your quarry cannot hear it…











Five drawings showing models of targets. (The blank areas have been added to show the vital zone of large game species.)

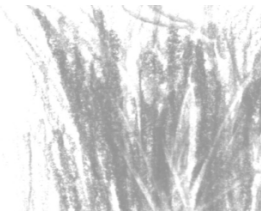
5.4 Action plans to be observed when firing

When the desired game appears:

1. stay calm; wait until it is in a good position for you to fire;
2. avoid making any noise or sudden movements;
3. ensure that you can fire safely and that there are no obstacles between you and the game;
4. identify the precise target in the centre of the vital zone;
5. slowly raise your firearm and concentrate on:
   • the precise point at the centre of the vital zone,
   • the appropriate target and the distance between you and the game;
6. align this target with the specific point;
7. count up to three and ensure that the gun is well aligned;
8. fire while focusing on the specific target for the shot;
9. maintain the image of the target to see how the animal reacts to the shot;
10. memorize the place where the game was located when you fired and the direction it took to escape (which tree, which bush, etc.);
11. remain silent and listen carefully; you may hear in which direction it has escaped or its breathing (rattling);
12. wait at least 30 minutes before going to the location where the game was located when you fired (unless you saw it fall or in the event of rain or snow).

5.5 After firing?

After you have fired, it is necessary to calm down again. You must first secure your gun. Then, snack on a biscuit, chew some gum, have a sip of tea or coffee and, in short, relax for as long as it takes. The steps to be taken to locate an injured game animal are explained in the following chapter.



CHAPTER 9

Searching for Wounded Game

No sporthunter can rest until the quarry that he wounded has been found and put out of its misery. To find the quarry, it is essential to know how to discover and use the clues left behind by the quarry. Hunters who acquire this know-how will be able to determine the point of impact of the projectile and, in so doing, find the wounded big game animal.

1. CLUES TO LOOK FOR

1.1 The Quarry's Reaction to the Shot and its Behaviour When Fleeing

All **UNGULATES** (including deer, moose and caribou) react in roughly the same way to the firing of a projectile. In Québec, the black bear is the only species of big game that does not belong to this group. As a result, a bear's reaction to the shot is likely to differ from that of an ungulate. **To anticipate the big game's reaction, you must be able to "see the shot through".** Not all hunters are capable of doing this, as it requires experience and a great deal of self-control when shooting.

Depending on the part of the body hit, the big game will react one way or another, but very often in a manner that is characteristic to each of the specific parts of the animal. As this is just an *Introduction to Hunting course,* we will not elaborate on this subject. Interested hunters can consult specialized books on the topic. However, we will address the extreme cases, i.e. **a lethal shot and a missed shot.**

A typical lethal shot is a shot in the thorax. It is the most sporting shot, namely if you miss the shoulder, heart, lungs (i.e. the vital zone). These thorax shots (always lethal) are characterized by the fact that the animal gives the impression of wanting to avoid the shot by moving upward (jumping) if the projectile is low or downward (drooping and kicking) if the projectile is high. In addition, the quarry almost always flees with its head low, straight ahead, and usually ends up collapsing not far away.

Unlike in the case **of a lethal shot, a quarry that was missed usually does not react to the shot.** Often, if the animal has not caught scent of or heard the shooter, it will remain for a few seconds before fleeing. In its flight, the quarry will generally stop to observe its surroundings or to indicate its fear or anger by making noises or exhibiting nervousness or impatience. Moreover, certain reactions to the shot observed in the case of missed quarry may be due to the fear caused by a sudden and strange noise or the pieces of dirt and stone raised in the air by the projectile.

These different reactions on the part of big game to the shot and during flight are subject to variation factors. These factors include the species, the age, the hunting method practiced, the time of the shot, the type of projectile used, and the topography of the hunting site. All these possibilities of variations in the behaviour of the quarry during and after the shot often make it difficult to determine precisely the projectile's point of impact. That is why **it is always necessary to compare the quarry's reaction to the shot with the other clues left behind by the wounded quarry.** To discover these clues, the hunter will make a thorough examination of the place where the quarry was standing at the time of the shot (or the place of impact). Pinpointing this location and examining it meticulously are an essential prerequisite for an effective and almost certain recovery of the wounded big game animal.

1.2 State of the arrow shot at the quarry

In the case of projectile weapons, a category which includes bows and crossbows, the second chronological indicator available to the hunter is the state of the arrow shot at the quarry. It is obvious that if the projectile is found covered with blood, this is proof that the quarry was indeed hit by your shot.

The proper interpretation of the fresh blood should indicate what part of the animal may have been hit.

1.3 The Tracks Left on the Ground by the Foot of the Wounded Quarry

An animal hit by a projectile is violently seized with fright and pain, which triggers a very energetic flight reaction (flexion or extension). As a result, the animal's "toes" or claws, in the case of a bear, dig deep into the ground and tear up fragments of grass, leaves, stones, earth, etc. These tracks in the soil and these particles can be clearly distinguished from those left behind by a healthy animal that is fleeing.

1.4 Hair Fragments

Of all of the clues, hair fragments should be considered the most important. Hair fragments are pieces of hair cut by the projectile as it pierces the animal's coat. A normal hair is intact and always has three parts: the root, the shaft and the tip. Hair fragments are never intact; they are missing one of these parts. That is why it can be said with certainty **that if there is a hair fragment at the place where the animal was standing at the time of the shot or nearby, the quarry was hit by the projectile. It does not matter whether or not blood is found. That explains the importance of this clue.**

But hunters immediately realize how difficult it is to discover these hair fragments. Indeed, hair fragments in grass, leaves or among branches are not exactly clues that stand out. That is why the hunter should kneel down and carefully examine the place where the animal was standing at the time of the shot, even if this means spending half an hour looking.

Occasionally, whole hairs are found mixed with hair fragments: they are often ripped out at the projectile's exit point. But be careful: **finding only whole hairs does not prove that the animal was hit.** There are always dead hairs in the animal's coat that will fall when the quarry is scared by the shot.

As the nature of the coat (colour, thickness, length, etc.) varies according to the parts of the animal's body, the hunter must accurately determine the projectile's point of impact by referring to the hair fragments that he finds. Admittedly, acquiring this knowledge is no easy task. That is why this "hair science" will not be elaborated upon here, and the presence or absence of hair fragments is only considered in conjunction with the other clues seen or still to be discovered, including blood.

1.5 Blood

Contrary to what one might believe, blood is not the most important clue among all of the clues discovered **at the exact place where the animal was standing at the time the projectile hit it** (place of impact).

But **blood becomes important as the search continues. It plays a prime role here.** Indeed, there is generally very little blood at the precise place of impact. The more precise the shot, the smaller the amount of blood. It is the bad shots (such as shots that hit muscles or the flesh) that leave the most blood at the site of impact, but whose traces end very quickly due to the cicatrisation phenomenon. In the case of a good shot (a lethal shot!), the quantity of blood found during the search tends to increase rather than decrease.

Of course, the quantity of blood lost depends on the type and characteristics of the projectile used, but also on the part of the body hit (upper or lower body). When the upper body is hit, there is often only a small amount of blood on the trail of the wounded animal: the blood flows into the thoracic or abdominal cavities and is absorbed by the skin. If, however, the projectile hits the lower part of the body, the blood loss is naturally greater.

It is important to know that the blood can take on different aspects according to the background; in fact, the aspect of the blood may change according to the weather conditions.

Whatever the case may be, the appearance of fresh blood will be different depending on what part of the animal was hit by the projectile. The following description provides general information about this clue:

- ***the heart:*** bright red blood, occasionally with big bubbles. If the shot was low, the blood may be found at the place of impact; if not, a few metres away;
- ***the lungs:*** clear blood, orangey-red, foamy (damp, red coloured foam), often accompanied with pieces of lung of varying size. If the shot was low, the blood will be found not more than ten metres away; if the shot was high, the blood will only be seen at a certain distance;
- ***the liver:*** reddish-brown blood, in large blots, often accompanied by fine particles of liver (lumpy to touch);

- ***the belly, the stomach:*** clear and thin blood, small quantity of blood; after 20 or 30 metres, this blood is mixed with clearly visible stomach contents (undigested pieces of food) and may be dirtier in colour;
- ***the intestines:*** small quantity of blood, more greenish than red, in small droplets, mixed with a brownish-green material better digested than that of the belly; very characteristic odour.

1.6 Pieces of Bone, Flesh, Bone Marrow, etc.

The discovery of such clues may be of great importance when the blood, due to weather conditions, is frequently hard to find or analyze. As in the case of hairs, it may be hard for a hunter who is not an expert to correctly associate these clues with the body parts of the animal. That is why we will stick to a general description here. ***Bone fragments*** are fairly sure clues, by their form and their composition, of the part of the animal hit by a projectile. Indeed, those that come from the hollow bones of the feet are hard and sharp (sharp and pointed). ***Fragments of the sternum*** (bone that protects the rib cage) are spongy, less hard and less sharp than hollow bones. Another clue, generally ignored by hunters, is the ***bone marrow.*** It always comes from the hollow bones of the foot. It is frequently confused with fat, and it is often dissolved in a pool of blood. Finally, it is not unusual to find pieces of venison (or muscle) or fat, strips of skin or hoof fragments at the place of impact. These clues are always relatively sure, provided that the hunter is able to situate them in the anatomy of the quarry at which he has just shot.

In conclusion, we wish to insist on the fact that a clue related to a wounded big game animal only becomes truly meaningful when compared with the other clues.

IMPORTANT NOTE…

To detect blood droplets that are invisible to the naked eye, there are a few **luminol**-based products available on the market. These products give off a blue light when they come into contact with hemoglobin, under low light conditions. Regardless of the amount of dilution attributable to rain, snow or the nature of the ground, this chemical reaction will occur in the presence of the blood left behind by a wounded animal.

Blood droplets will also react to **hydrogen peroxide** (oxygenated water: H_2O_2). Indeed, when in contact with blood peroxide creates a white foam (through the release of oxygen). The addition of a few droplets of colorant (methylene blue or malachite green) can facilitate the visibility of blood droplets.

Hunters! To increase your chances of finding wounded game, bring along a spray bottle, a luminol-based product or hydrogen peroxide with or without colorant.

2. HUNTER'S PLAN OF ACTION IN SEARCH OF A WOUNDED BIG GAME

Here is the sequence of the steps that should be taken to recover a wounded big game animal.

1 - The first thing you should do when making the shot is to **"see the shot through",** to mentally film the quarry's reaction to the shot and after the shot until the time the quarry disappears from sight and you can no longer hear it. Once the excitement is passed, you should know how the quarry reacted, where it was standing precisely at the time of the shot and where it disappeared from your view. *In order to not forget these places, we recommend that you memorize a precise clue at these locations (a specific tree or bush, a tree stump, an uprooted tree, a given structure, etc.).*

2 - You should wait at least **30 minutes** before leaving your hiding spot and heading towards the place where the animal was standing at the time of the shot, unless, of course you saw it go down. *The reasons justifying the waiting time are: to give you time to calm down, to mentally review the scene that you have just witnessed, to think about the actions that you will have to take in accordance with good hunting practices, but also to give the quarry the time to stop and lie down so that it can grow weak enough to die.*

It is recommended that you make note of the precise time at which the event occurred; ***depending on the part of the body where the quarry was hit, the time that the animal will take to die can vary from a few minutes to a few hours.***

If based on your observations, you think that the shot hit the animal in the vital zone (lungs or heart), your quarry could not have gotten far. In general, it should be within 100 or 200 metres of the place where it was standing at the time of the shot. **The first important decision you must make is how long to wait** before going in search of the wounded quarry.

3 - Use a compass to determine the direction in which the quarry fled. **It is important to remain as silent as possible;** first, to allow you to hear the direction in which the animal is fleeing and that you have lost sight of, and secondly, to avoid having the animal flee even further.

4 - Generally, a 30-minute waiting period is sufficient for a lethal shot (heart or lungs). However, an animal hit in the belly will likely run between 100 and 300 metres before lying down. It will progressively grow weaker before lying down for the last time. **If you think that you hit the animal <u>in a non-vital zone,</u> you must plan to wait several hours and even a full night if you shot your quarry in the late afternoon.** One cannot overemphasize the importance of waiting a sufficient number of hours before beginning to pursue an animal that has been wounded, but not mortally. **When determining the necessary waiting time before pursuing the wounded quarry, it is, of course, important to take into account weather conditions.** In the event of precipitation (rain or snow), you will have no other choice but to limit the waiting time. Indeed, the clues that will help you recover your game will soon disappear when there is precipitation. The same is true when the weather is hot, as the venison can spoil just a few hours after the death of the quarry, if it is not found.

5 - After a minimum 30-minute waiting period, you will mark the place where you were at the time of the shot and you will walk calmly to the place where the quarry was standing. Once you have reached that place, you will also mark this reference point with fluorescent coloured tape or a piece of paper or a freshly broken branch. Also mark the place where you saw the quarry disappear after your shot; **you must walk very carefully to avoid mixing up the clues at the place where the quarry was standing at the time of the shot.**

6 - After having marked these crucial spots, you will silently look on a priority basis, for the arrow (or bolt) and its condition. If the arrow found is not covered with blood, fat, digestive matter or hairs, this is a proof that the quarry was not hit by your shot. You may then stop searching for the quarry. If the arrow is found covered with blood, fat, digestive matter or hairs, this is a proof that the quarry was hit. You will then silently look for the others clues of the wound that your shot may have inflicted on the quarry, i.e. hair fragments, blood, footprints as well as pieces of bone, flesh, bone marrow, etc. **Invest the time it takes to carefully examine all the clues present at the place where the quarry was standing at the time of the shot and in the immediate vicinity.** *We advise you to make note of the shape and size of the print left by the quarry, as well as the length of its stride, as this information may be essential if you come across traces of the same species or if you lose sight of other clues.*

7 - Before going any further in your search for the quarry: **make an assessment of the clues found** at this stage of your systematic approach. After analyzing these clues, you should have a good idea whether or not your quarry is wounded and, if so, what part of the body was hit, or at the very least if the shot hit the vital zone or not. With this information, you will be able to determine if you should immediately go in search of the quarry or if you should wait longer. If you decide to go look for the wounded quarry with a hunting weapon at night (namely half hour after sunset), **notify a wildlife protection officer of your region "that you plan to recover a wounded big game animal during the night".**

8 - After having collected all of the clues from the place of the shot up to the place where the animal disappeared, you are now ready to silently pursue the quarry by tracking all of the clues, in particular footprints and blood droppings, by heading in the direction noted earlier with your compass. Mark your path with tape from the place where you saw the animal disappear. *Important! Do not mark all of the clues found, but make sure that you always have in sight the last mark left behind you.*

9 - As you undertake the search, it is recommended that you make note of the animal's behaviour (interpreted based on the clues), for this can tell you a great deal about the state of the quarry. **While there are no sure-fire rules concerning animal behaviour,** it is good to remember that generally a seriously wounded quarry is less likely to take the most difficult path. The quarry is more likely to go down a slope than to go up it and to make a minimum effort to find a safe place to hide.

10 - During your search, if you find one or more track layers of the quarry sought, it is strongly recommended that you wait at least another hour, for the animal is not weak enough to be recovered.

11 - If the blood marks increase and/or darken as you progress on the trail of the wounded animal, you can continue for this is a good sign.

12 - As you progress in your search, it is important to not just look for the clues on the ground; stop regularly and look for the animal itself. *Binoculars are useful to examine small details at a distance.*

13 - Even the nicest traces of blood can disappear all of a sudden. When such a situation occurs, we advise you to mark the last location of the trace of blood and to identify a circle about 20 metres in diameter, inside of which you will look for other clues or for the actual animal. If you do not find anything, expand your search area.

14 - In the meticulous search area, **feel free to get down on all fours to turn over leaves, twigs and branches to find the slightest indication of blood** (be sure to not get your clues mixed up).

15 - If your search is fruitless, you should stop, examine the terrain and ask yourself where the quarry may have hidden or fled to, always bearing in mind the definite clues that you had at the outset. You must then go back following the quarry's footprints. Keep your eyes peeled all the same, should traces of blood reappear.

16 - If you lose track of the quarry, return to the site of the last clear clues and look for the quarry. Look around each boulder, overturned tree, stump, bush, two or three times if necessary. **You must not give up until you are firmly convinced that you have exhausted all possibilities of finding the wounded big game.**

17 - If despite all of the precautions and attention paid during the previous steps, you still have not found the wounded game, you will have to request the assistance of other persons to comb, using a grid pattern, the sector around the site of the last clues.

Finally, a dog specially trained to look for wounded big game can be an invaluable asset under these circumstances. **However, it is important to point out that under the *Act respecting the conservation and development of wildlife,* you cannot be in the possession of a weapon when you use a dog to look for a wounded big game animal.** In several countries of Europe, where this dog is known as a bloodhound, hunters often turn to a specialized service calling on these dogs and their master to recover the wounded quarry. In Québec, people are starting to show an interest in this effective method in some areas. Its development is promising. This method needs to be further encouraged and publicized, for there is nothing more discouraging for a hunter and more detrimental for the hunter's image, than having someone come across game that has been killed and abandoned in the forest. **Knowing how "to follow the shot through", to look for and to retrieve wounded big game: this is a point of honour for every sporthunter.**

It is your responsibility!

ADDITIONAL INFORMATION: "ELECTRONIC QUARRY TRACER"

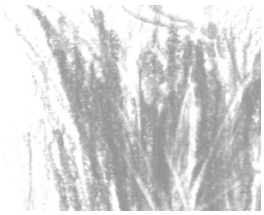
A new device has appeared on the market. It is an electronic guidance system incorporated in the arrow or the bolt which, by emitting radio waves, allows the hunter equipped with a receiver to capture the source of the signal and to be led directly to the quarry. This device, which is very easy to operate, contributes to a rapid and effective recovery of the quarry. If the price of this tracer is beyond your budget (about $500 in 2000), you can make the purchase with a few fellow hunters.

Edith Rosa

A smile of satisfaction

PART THREE

After the hunt



CHAPTER 10

Field Care of Game

Except for the broadhead which you must remove from the animal's carcass as soon as possible, care of game meat is the same regardless of the hunting weapon used.

There are several books on the care of venison. Here are some **basic notions.**

1. CARING FOR GAME

Caring for game meat begins before you even shoot at the animal. A hunter who wants to harvest an animal should focus on an aiming spot in the vital area to ensure a quick and clean kill. Depending on the position of the quarry in relation to the shooter, the ideal point of impact is always the rib cage; it contains the main vital organs (lungs, heart and liver). Shots to the abdomen and haunches should be avoided at all costs. In addition to causing a slow death to the wounded animal, they damage the meat, resulting in major losses, should you succeed in recovering your quarry.

The techniques proposed here to preserve your game after harvesting may help in extreme situations but don't expect them to work miracles. It is important to keep in mind that when you are on a hunting trip, you are at the mercy of Nature and you do not have access to modern conveniences such as a freezer, refrigerator, etc. You need to show some initiative, and putting into practice the techniques taught in this course can only contribute to the success of your hunting trip.

2. A FEW GENERAL RULES

- make sure that the quarry is dead;
- attach the transportation tag(s) from the appropriate licences;
- eviscerate the animal cleanly and as soon as possible, to avoid contamination;
- hang the animal carcass or let it cool off on logs or using a hoist ("winch"). **Never leave the carcass lying directly on the ground** (unless it is frozen) as this could spoil a good part of the venison (or wild meat), not to mention the skin, should you decide to keep it;
- once the carcass is hung, your task is made easier; place a stick inside the rib cage to keep the sides apart and in so doing, to aerate and cool the meat;
- always have plenty of cheesecloth on hand to wrap the quarters, pieces and variety meats. This will ensure clean and well-aerated packages, and will prevent flies and insects from laying their eggs or landing on the venison;
- **garbage bags are not recommended,** as they create an airtight environment that promotes the proliferation of bacteria;

- knives used for **EVISCERATION**, skinning and cutting must be sharpened regularly (butcher's steel) and be of reasonable size. Small knives are better than big ones: a blade measuring a maximum of 8 to 10 centimetres is recommended; fix or lock blade;
- **if necessary,** use a slightly damp cloth to wash any part that comes into contact with the contents of the stomach or the intestines, or urine. Wipe it dry with cheesecloth, a paper towel or a clean, dry rag;
- a hatchet and a butcher's saw will round off your equipment and can be used to cut the carcass into quarters;
- **do not waste meat.** This is part of showing respect for wildlife conservation;
- avoid "showing off" your quarry (or exhibiting it unnecessarily), to avoid offending some people's sensibilities, in particular in urban areas.

3. PREPARATION OF BIG GAME ANIMALS

You have crowned off your hunting trip by harvesting a big game animal, a feat that may have required several years of effort. Now is when the fun begins. You have to manage to carry all this meat out of the forest in good condition. There is nothing that prevents you from removing the animal from the forest immediately after harvesting. However, you have to allow it to cool once you arrive at the camp.

The work that you will have to do to carry your game depends on the size of the quarry (deer, bear or caribou, young or adult), the distance that must be covered, the ground relief, the density of the vegetation, and the number of healthy persons carrying the game. Here once again, a good knowledge of your topographical map and a compass will prove useful, as the route that is shortest in distance may be the hardest and may take the longest time. You should be in good physical shape. Do not overload yourself. Take into account your health and your physical condition.

Imagine that you have bagged a moose near a small lake located about 2 km from the camp through the forest. First attach the transportation tag(s) to the animal. Once eviscerated and quartered, the animal is hung to allow faster cooling for the venison and the variety meats. The moose must then be taken out of the woods. If there is no clear path at this location, you will have to clear one and choose the most practical direction among the boulders, fallen trunks, stumps and brush.

Once you have cleared a path, this will make it easier to transport your load. Now comes the major physical exertion.

You can carry the quarters on your back by making support straps from the animal's skin. The straps should fit over your shoulders and your head, as with a backpack. WARNING! This method may involve certain risks: if you do not want to be mistaken for game, put a **SAFETY VEST** over the carcass.

Depending on the distance to be covered, evaluate your ability in terms of the weight that you are able to carry to destination; it is better to make several small trips than to get a sore back from trying to transport too heavy a load for your physical condition.

You can also use large back packs; make sure, however, that you have allowed the meat to cool off sufficiently, to avoid having it overheat. To lighten

the load, some experts skin and bone the quarters. But bear in mind that you do not have the amenities of a butcher shop and it will be difficult for you to do this work without compromising the quality of your meat. It will then be necessary to wrap your meat in cheesecloth. Jute fiber will also do the trick.

Ontario Federation of Anglers and Hunters (1982)

EVISCERATION OF A DEER

IMPORTANT NOTE…

To extract the maximum amount of blood from muscles (flesh) of a big game animal, keep the carcass lying on its back and "pump" each of the legs; namely create a repetitive movement by going from full extension to full flexion. That way, you will improve the quality of your venison.

ADDITIONAL INFORMATION ON: "VARIETY MEATS"...

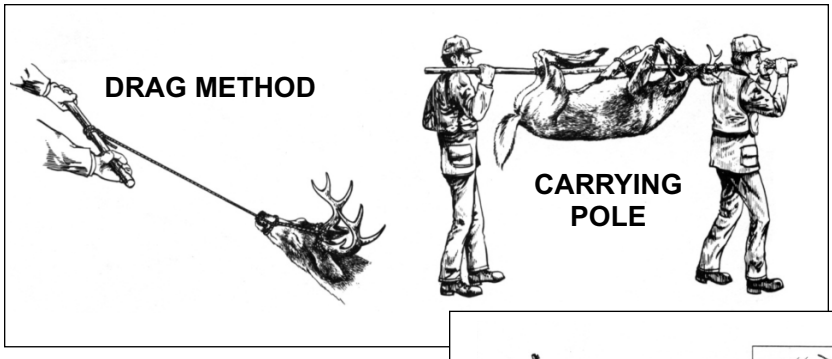
All too often hunters neglect or even waste the variety meats of their quarry. You should know that the brain, the tongue, the snout and, of course, the heart, the liver and the kidneys are choice meats for many food lovers.

Given the risks of contamination of the kidneys and the liver of big game, these parts should not be eaten by people who are sick, by children or pregnant women.

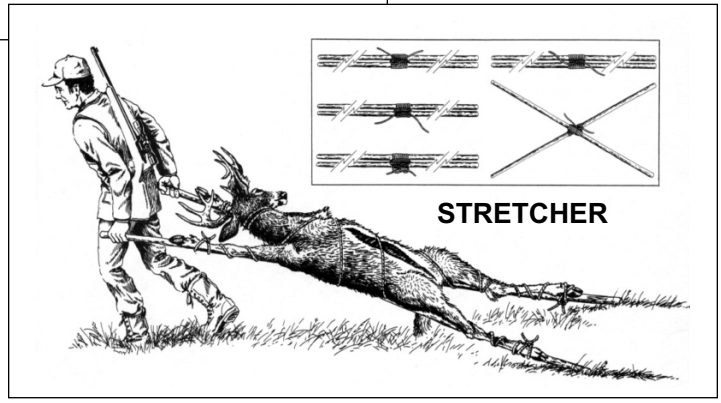
A back board is also very useful. It is a light board fitted with a base (to hold the quarters), to which you will have attached straps to be able to carry the meat on your back; the quarters lie on the bases and are attached to the board. This method will enable you to keep your back straight. A tubular mounting is also very practical for transporting the quarters of your quarry.

You may also consider using a stretcher made in the form of a ladder using small tree trunks. That way you can share your load with two, three or four people. If there are two of you, each takes one end of the stretcher. A rope of the appropriate length is attached to each end and passed around the bearer's neck and shoulder. That way you can transport large pieces while saving your strength and your energy.

The stretcher can also be made out of two long poles running through three or four gunny sacks (similar to the ones used for carrying potatoes). When this method is employed, it is important that the person at the front warn the person at the back of any rough ground that he encounters along the way to avoid sprained ankles or other similar accidents.



Some hunters attach the quarters (occasionally the entire animal in the case of white-tailed deer) to a long pole. It is very important that the load be well attached to the pole to avoid a pendulum movement. Otherwise, the task will be much harder, even risky, and could result in accidents.



Magazine Sentier chasse et pêche (modified)

If you have the materials and you are the do-it-yourself type, you can always build a small cart (ideally you should use one or two big bicycle wheels) to transport your kill. According to some hunters, this is a very effective method…but surely not when there is a lot of undergrowth.

For greater safety when carrying the meat, **be sure to attach a brightly coloured piece of material (such as a safety vest) to the quarry, and of course always wear your own safety vest.**

IN ADDITION TO: "Chronic wasting disease of cervids"

Chronic wasting disease (CWD) is a fatal degenerative disease that affects cervids (white-tailed deer, moose, etc.). While this disease has never been detected in Québec, it is expanding throughout North America. If it does spread to Québec, CWD could have a major impact on hunting activities as well as having a negative impact on the health of wild cervids.

In order to prevent the disease from spreading, if you hunt outside Québec, avoid bringing back whole cervid carcasses and in particular the following body parts: brain, spinal column (and the spinal cord), lymph nodes, eyes, tonsils, testicles and internal organs (spleen, liver, heart, kidneys, etc.); the infectious agent responsible for causing CWD in infected cervids is concentrated in these organs. However, the following body parts may be brought back to Québec: deboned meat, quarters with no part of the spinal column or head attached, degreased or tanned skin and leather, antlers without velvet, disinfected brain pan with no flesh or tissue attached and any piece mounted by a taxidermist.

Further information on CWD may be found at:
http://www.mddefp.gouv.qc.ca/faune/sante-maladies/mdc.htm

4. PREPARATION OF SMALL GAME ANIMALS

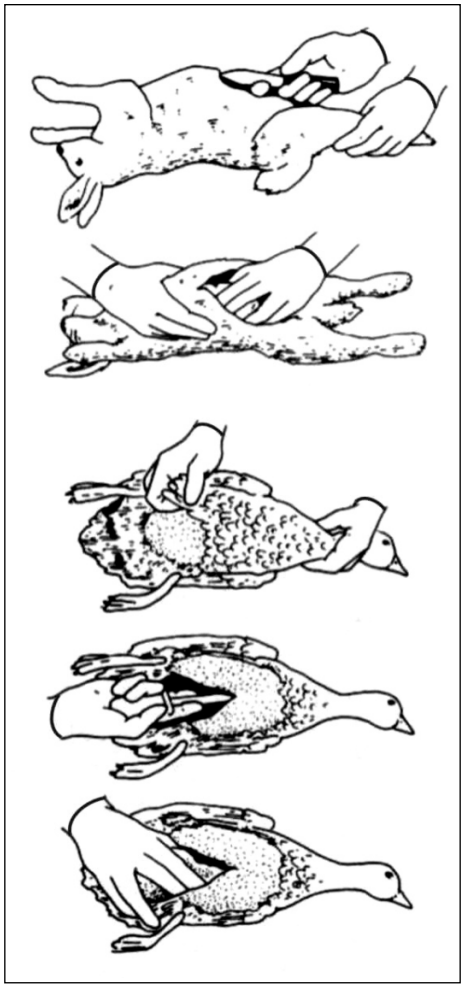
The small game animals hunted in Québec mainly include the snowshoe hare and the eastern cottontail. These two animals are probably the most hunted species in Québec, being both the first trophies of many beginners and a popular kill for short hunting expeditions.

Hare are hunted in many ways: shotgun, rifle, bow, crossbow, with the help of dogs, flushing, stalking and even snaring. While some people turn their nose up to it, hare meat is delicate and is very pleasing to the palate for food lovers who know how to prepare it.

However, aside from using a good recipe, it is how the hunter will have preserved the meat after harvesting that will determine its quality.

Here are some tips on preserving the meat of small game animals:

- Animals harvested and recovered should be handled carefully to avoid altering the taste of the meat. If you use a game bag, avoid piling carcasses one on top of the other. The air must be allowed to circulate freely to ensure that the carcasses cool down normally;
- As jute permits good air circulation, it is an excellent material that can be used to make a game bag;
- Preferably, small game must be frozen rapidly, namely within 24 hours of its death. Skinning and gutting should be done as soon as possible after returning home;
- To do so, hang the rabbit by its hind legs at shoulder height. Using your fingers, pull the skin off by starting with the hind legs and ending at the head. Cut off the head, which you may keep if you like;
- Once skinned, the rabbit must be eviscerated properly. Be careful not to perforate the intestines. Slide the knife from the lower tip of the sternum to the anus, being careful to leave a small space between the intestines and the knife. When the stomach has been cut along its length, break the pubic bone to disengage the anus and the rectum, and then pull out the intestines, stomach, liver and kidneys (put both these organs aside if you want to keep them);
- Then cut and remove the diaphragm to empty the contents of the chest cavity, namely the heart and lungs. Keep the heart if you like;
- If you intend to eat the meat right away, clean it with a dry or damp cloth and let it cool, if you have not already done so. If you wish to freeze your meat to enjoy it later, do not wash the meat. Clean off the excess blood or other unwanted substances using a dry cloth; **washing the meat will alter its flavour);**
- Containers used for freezing must be sealed air-tight to avoid dehydrating (or drying out) the meat. If you use a polyethylene bag, use a straw to remove the air from the bag before closing it.



Hunter's Handbook of the maritime provinces

ADDITIONAL INFORMATION ON: "TULAREMIA"…

This bacterial disease infects the viscera (white dots) and can be transmitted to humans.

To prevent the transmission of certain diseases found in wildlife such as tularemia, we recommend that you: moisten the animal's pelt before skinning it, wear a rubber mask and gloves whenever you skin and eviscerate game, in particular hare; afterwards, wash your hands and your arms with a good disinfectant soap, then wash all the tools, materials and surfaces that you used; finally, avoid handling game when you have cuts on your hands.

Finally, if you are a hare hunter and if during the hunting season you fall sick with high fever, be sure to tell your physician that you were in contact with wildlife that may be the carrier of diseases such as tularemia.

5. PREPARATION OF GAME BIRDS

What hunter has not gone after game birds, whether for a fine plate of grouse or to take advantage of hunting for migratory birds?

The rules for preserving game birds are similar to those for small game animals. However, some hunters recommend eviscerating the first birds killed in the morning as soon as possible if the weather is hot. That way, the meat will cool faster. Once back at the camp or at home, it is time to prepare the bird for cooking or freezing.


A skinned grouse

Before eviscerating a bird, it is *preferable* to remove the feathers to avoid soiling the inside of the carcass. There are two ways of removing the bird's feathers, either by plucking the feathers or skinning the bird.

Gourmets agree that leaving the skin on the bird (by plucking the feathers) seals in the natural flavour and enhances the taste by preventing the meat from drying out during cooking.

Depending on the size of the bird, you can cut its wings near the body (shoulder) or at the first joint (elbow). The bird is easier to pluck immediately after the kill when it is still warm; when cooled, plucking is a more difficult task. If the bird has cooled, dip the carcass in boiling water. A mild detergent in the water will help it reach the skin and make your job easier.

Once the large feathers have been removed, you will have to tackle the down feathers. They are hard to pull out. You can remove these feathers with tweezers, but this job requires patience. Afterwards, burn the duvet using a candle. Do not use newspaper, as the skin will likely smell of burnt ink.

Another way of removing the down hair is to plunge the carcass of the plucked bird into scalding hot water into which paraffin has been melted (3 pieces for 6 quarts of water) and to remove the carcass immediately. The melted wax then sticks to the bird's body. Once hardened, the paraffin can be pealed off, taking the duvet hair with it. Of course, this operation must be carried out prior to eviscerating the bird.

IMPORTANT NOTE…

Certain regulations prohibit transporting fully plucked birds: check with a wildlife protection office

A good way of removing feathers is simply to skin the bird. This method is much faster and easier than plucking. Simply remove enough feathers from the breast in order to cut the skin along the sternum with the tip of the knife. Use your fingers to pull the skin off the bird. Some birds (such as grouse) have such sensitive a skin that you don't have to use a knife for skinning, the skin comes off with the feathers.

Cut the feet near the body, at the first joint

Once the feathers have been removed, cut off the head and feet, remove the crop by making an incision at the base of the neck. Eviscerate the bird after cutting near the anus. When removing the entrails, be careful to detach the lungs and kidneys that are attached to the back on each side of the backbone. If you want to freeze the meat and eat it later, do not wash the meat; remove excess blood and other unwanted materials using a dry cloth. Afterwards, place the carcass in an airtight bag to avoid dehydration and place it in a freezer.

IMPORTANT NOTE…

Remove the UROPYGIAL glands located above the tail on each side of the rump, as they may spoil the taste during cooking.

6. PREPARATION OF OTHER EDIBLE GAME

- **Bear:** the preparation recommended for big game is ideal for bear meat. It is the care given to this meat that guarantees its quality. To start, remove the fat before cooking. The cooking time should be as long as for pork since the bear is also afflicted with the trichinosis parasite that can be transmitted to humans who eat insufficiently cooked bear or pork meat. You can take an additional precaution by first freezing the bear meat for 10 days at -25 °C. However, you still have to cook the meat thoroughly. When there is a trichinosis epidemic, be extra careful and refrain from eating meat from a freshly killed bear. Better yet, take a sample from the animal and send it to a specialized laboratory for analysis. Bear meat can be salted and marinated like pork.
- **Woodchuck and raccoon:** the meat of these animals is very edible. Simply take the fat off before cooking and boil the animal between one and two hours with a little table salt. Then remove the surplus fat. After this preparation, the meat is ready for use in the recipe of your choice, as long as you cook it again for about the same amount of time.

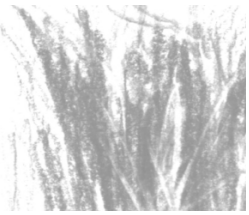
7. FROM THE FOREST TO YOUR HOME

The regulatory provisions concerning the transportation of game were presented in the chapter dealing with hunting regulations. You can find them in the brochure entitled *Hunting, Main Regulations.* As for ethics, avoid traveling around with the big game carcass on the roof of your vehicle. This type of parade is not appreciated or tolerated by many people. **A sporthunter is concerned about the image of his activity, and he will avoid exhibiting an animal carcass when traveling around.**

8. NUTRITIONAL VALUE OF VENISON

By comparing the nutritional value of several hunted species with that of domesticated species, we realize that game meat (venison) is significantly lower in fat and energy, whereas its protein value is slightly lower than that of domestic meat, except for bear.

FOOD (/ 100 g)	ENERGY (Kcal)	PROTEIN (g)	FAT (g)
Caribou	127	22,6	3,36
White-tailed deer	120	23	2,42
Moose	102	22,2	0,74
Bear	161	20,1	8,3
Wild duck	123	19,9	4,2
Beef (side)	202	29,5	8,4
Beef (sirloin)	213	27,3	10,7
Horse	175	28,1	6,0
Pork (fillet)	162	30	3,6
Chicken (breast)	222	31,8	8,9



CHAPTER 11

Forest Survival and First Aid

People who visit natural settings, be it hunters, trappers or hikers, often lack sufficient knowledge when it comes to forest survival techniques and first aid. The reason for this is quite simple: all of us think that emergency situations only happen to others. Yet every year, statistics in this field prove the contrary.

In addition to not being prepared, a number of people venture into the forest without bringing along ***survival and first aid gear that is essential*** to ensure their safety. When an unforeseen situation arises, they are completely unprotected, and an otherwise minor incident risks turning into a catastrophe.

To ensure that your outings in the forest end well, we will examine the basic notions that will enable you to react appropriately in an emergency situation. However, these notions are no substitute for the training given by a forest survival and first aid specialist even if such training lasts just a few hours. A conscientious hunter should make a point of taking such a course, especially since the notions acquired, in particular in the case of first aid, may also prove useful in non-hunting situations.

1. SURVIVAL IN THE FOREST

In the case of hunters, in addition to the aforementioned general reasons, the fact of being alone in a remote territory justifies having a good knowledge of orientation (map and compass) and forest survival techniques. Indeed, a transportation problem or an injury may force a hunter to spend the night in the forest. Hunters must be able to “resist the natural elements” for a given time period which is often determined by their physical capacities, their survival gear, the weather conditions, and the search initiated by rescue teams. It is therefore important to be well prepared, and this preparation begins before you leave.

1.1 Preparation before leaving

In order for your failure to return on time or your disappearance to be brought to the attention of the authorities, an ***“outing plan”*** must be prepared. This step is essential to reduce the time it will take search teams to come looking for you. For example, if you were to break your leg, this would greatly limit your autonomy and it is in such instances that support from the outside would be essential. If no one is notified, no one will come looking for you … This plan should include your itinerary, when you plan to leave and when you plan to return, how to recognize you, and what survival gear you have in your possession. This plan will then be given to a person of trust who will notify the authorities if necessary. Remember to inform this person that you have returned safely to avoid having search parties sent out needlessly.

The essential survival gear will be your only available physical means to resist the natural elements. The most ferocious natural element is without a doubt the cold. Dress appropriately and bring along an extra set of warm

clothing in your backpack. Get in the habit of having **ON YOU** a minimum number of ***objects that are essential for survival;*** that way, you will never be caught off-guard. A multipurpose pocketknife (Swiss knife), an emergency thermal blanket, two reliable sources of fire, a whistle (ball-less), brass wire, a stretch of string, a can of sardines, a few adhesive bandages, a big plastic garbage bag (orange, if possible), a map of the territory and a compass take very little place and are easy to store in the many pockets of your hunting clothing. With this minimum gear, you can resist the natural elements in the forest for several hours.

Another important aspect that will enable you to be self-reliant in a situation involving potential danger is ***a positive and realistic mental attitude.*** It is important to anticipate the possibility of finding yourself in a survival situation. The first minutes after a person becomes aware of a danger are crucial. A person who gives into panic and who runs every which way, risks getting even more lost or injuring himself. Moreover, he is likely to waste energy and find himself bathed in sweat. You will make the most of a stressful situation by *recognizing* that you cannot return home immediately and by *accepting* that you have to resort to another alternative than the one desired, in order to preserve your energy.

Obviously, you cannot rely on search teams arriving soon or finding your own way back without aggravating your situation. You must organize to *SURVIVE.* Having a good survival kit with you can help you get through this unexpected misfortune. Combined with a good attitude and carefully thought out behaviour, your chances of survival will increase significantly.

1.2 Elements of a survival kit

The elements of the kit proposed here should only be used in an emergency. As a result, certain objects that are commonly used in the forest will be among the hunter's basic equipment or will be in both the kit and in another location (matches for example). That way, when it comes time to use the kit in an emergency situation, it will be complete and functional.

Incidentally, the following objects are not part of the kit, but should always accompany a person who ventures into the forest: first-aid kit, map and compass, raincoat, ax or folding saw, knife, insect repellant (in spring and summer), water bottle, extra piece of warm clothing (polar fleece sweater for example), flashlight, line tape (to mark your way, to attach objects).

As for the survival kit, ***it is essential that you get into the habit of carrying with you the minimum elements of essential survival gear*** and have a kit with more elaborate objects. Remember that a kit (a bag that we transport) is usually never there when you need it … When you always have essen-tial survival gear on hand you are never caught off-guard. You can buy all these accessories at the store. Be sure to check their condition and try using them before leaving. Let us now look at the essential elements that you should always have on hand, as well as those that should be part of a survival kit that you carry along in your backpack.

Essential survival gear that you should carry with you at all times (in your pockets):

1. map and compass;
2. can of sardines in oil;
3. reliable pocketknife with multiple tools;
4. brass wire (to make snares, to build a shelter);
5. a stretch of cord or string;
6. a few bandages to deal with minor cuts;
7. emergency thermal blanket and orange plastic bag (that can serve as a raincoat or a sleeping bag, if necessary);
8. 2 sources of fire (lighter or matches, flint stone, etc.);
9. plastic whistle (preferable over a metal one when it is cold);
10. a good quality hatchet (optional).

In a survival kit that you take with you in your backpack:

- ua foldable saw or a hatchet;
- various sized hooks, a fishing lure and weights;
- nylon line (10 lb test, 30 metres);
- needles and thread (or a mini sewing kit);
- signal mirror (5 to 8 cm wide);
- candle;
- good quality leather gloves;
- ’ aluminium foil (to make a pot or to wrap food);
- water purification tablets;
- hard candies (6);
- chicken or beef bouillon concentrate (6);
- extra batteries for the flashlight;
- a small metal container to boil water;
- energy bars (2) or survival ration.

Other elements can be added to this list, bearing in mind that the kit must be light and compact. Otherwise, there is a good chance that you won’t bring it along.

1.3 Move or stay put?

Whatever incident occurs (injury, becoming lost, impassable route, etc.), the first question you should ask yourself is the following: is it wiser to stay put or should I try to find my last known path? The answer to this question *is not always straightforward,* since our fears lead us to avoid the unknown, to look for the safety of a shelter. In all cases, you should ***stop, calm down, take the time to think,*** and analyze the situation from every angle.

If you think that you are lost, you must avoid picking up your pace or, worse yet, running in the direction that you think is the right one. Sit down, have a sip of water and calm down. If you have not already used it and if you had *the good idea* of bringing along the map of your territory and a compass, you can use them. After having determined your rough location on the map, follow a direction that will allow you to reach an easily identifiable place that you cannot miss: a road, a power transmission line, a lake, a river, a village, a trail that you know, etc. If you have sufficient time before nightfall, set out at a good pace, but without running: ***the compass will prevent you from walking around in circles if you take the time to use it properly.***

If, on the contrary, you have neither map nor compass (which is unwise) and after having calmly observed your surroundings, you are able to recognize some landmarks and are confident that you are able to find your way back, you can start walking. However, make sure regularly that you have sufficient visibility, water and that you stay in good physical condition. Check regularly that you are going in the right direction and mark your trail using line tape.

However, if you are truly lost or injured or if it is nightfall, it is preferable to stay put and to wait for help by spending the night in the forest. That way, you will stabilize your situation and not make it worse. You will feel some reassurance knowing that you had the ***good idea of telling your friends or family where you were going (outing plan).*** It has been shown that this decision is often the best under such circumstances.

Remember that it is not necessary for you to be lost to find yourself in a survival situation (vehicle out of gas or stuck, for example). Modern means of transportation such as ATVs or snowmobiles can cover considerable distances in a natural setting. Imagine running out of gas after a few hours of snowmobiling …and if you forgot to bring along your snowshoes!

ADDITIONAL INFORMATION ON: "geographical positioning devices"…

The technological progress of recent years has led to the appearance of devices making it possible to facilitate the trips of those who frequent the natural environment. These devices include global positioning systems and cell phones. WARNING! These devices run on batteries that can go dead. Moreover, they are sensitive to water and can even freeze. It is important to always have an alternative solution: a compass! However, you have to know how to use a compass properly in relation to ferrous masses (belt buckle, rifle, etc.) and the problem of areas where there is a high magnetic field due to iron deposits (North Shore and Abitibi for example). If you are unfamiliar with the use of a compass or a GPS, it is time to take suitable training.

1.4 Adopting the right behaviour

In a forest survival situation, it is very possible that feelings of weakness, ridicule, embarrassment, pride, frustration and guilt arise. For some, the fear of darkness and forest noises only make matters worse.

In addition, aches, cold, hunger and thirst may sap your energy. However, if you know how to react and you have all the essential survival gear, you will be able to overcome these difficulties.

1.4.1 Overcoming the cold

Apart from injuries, the GREATEST DANGER that you face in a survival situation is **hypothermia.** It occurs when the body loses its heat faster than it can produce it. A generalized drop in body temperature can occur almost any time of the year. To prevent hypothermia from occurring, you should ***protect yourself against the cold and wind, but above all against moisture*** (drizzle, rain and snow). The heat loss associated with water occurs 25 times faster than that associated with air. The best method of preventing hypothermia is good dry clothing and the ability to light a fire whatever the circumstance.

Learn how to recognize the signs of hypothermia to prevent it; this could save your life! First, it is important to know that hypothermia progresses and that the body signs change as the person's condition worsens. First, the person's limbs will feel cold. This will

be followed by shivering. Next, the skin whitens, dexterity declines, numbness increases and the level of consciousness declines, which affects your ability to think. Consequently, ***it is important to know how to recognize the signs of hypothermia and to act quickly before your situation deteriorates irremediably.***

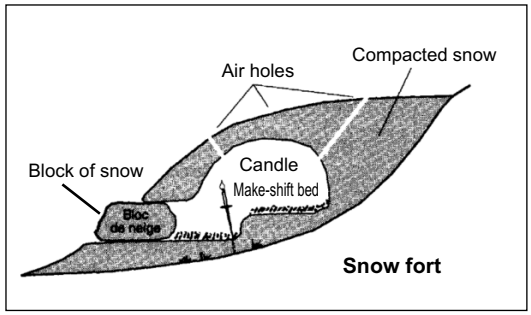
The appropriate actions for treating hypothermia are:

- **Stop heat losses:** by sheltering yourself from the rain, the wind, and by providing insulation between you and the ground;
- **Retain your body heat:** by putting on dry clothing, by covering your head and your feet;
- **Warm yourself up with an external heat source:** by drinking a hot sweet liquid, by making a fire, by doing light exercises, and by eating.

Bear in mind that hypothermia is easier to prevent than to treat!

To combat the threat of hypothermia, you must stop body heat losses, retain your own heat, and produce heat using an external source. Indeed, the cool temperatures at night can lead to hypothermia in just a few short hours. A comfortable shelter, heated by a good size campfire, can keep you warm. The emergency thermal blanket will also prove very useful. In winter, snow is an excellent insulator in which you can easily dig a comfortable shelter. It will then be important that you insulate yourself from the ground and that the entrance, which should be very small, be located as low as possible to limit heat losses. Whatever solution you choose, you should make sure that you stay dry while avoiding, among other things, perspiring.

If you are injured and unable to build a shelter, use a natural shelter (base of a fir tree, for example) and make a fire, roll up in your emergency thermal blanket, insulate yourself from the ground and set up camp near a place that is easy to find for the rescue party.



CQFA Réjean Côté

A few examples of make-shift shelters

1.4.2 Overcoming fear and solitude

When you are alone in the forest, fear is a natural reaction. However, there is a way of overcoming fear; it is by making it a controlled experiment. To prepare yourself to spend a night in the forest alone, rehearse the situation under conditions that are similar to a survival situation, but near a dwelling to which you have access. During this same experience, practice lighting fires under every condition.

Once you are in a real survival situation, you have to begin by recognizing and accepting the situation. Remain convinced that the rescue party will find you; this is the reality. If you prepared an "outing plan", the rescue team should find you within 48 hours. If you did not, you may have to spend a day or two more in the forest, but you may rest assured that people will come looking for you. Moreover, do not let your imagination run wild about the dangers that animals pose: wolves and bears have an innate fear of humans and do not constitute a real danger under normal circumstances.

When you are alone in a survival situation, it is best to avoid dwelling on your misfortune and instead set about preparing your shelter for the night. Finally, set aside your wounded pride and the fear of ridicule, and focus instead on the perspective of being found by your friends or the rescue party. Another way of calming your fears is to plan to carry out tasks over time. By setting small realistic challenges for yourself, your situation will appear much easier to support. ***And to ensure that all the chances are on your side in an emergency situation, it is essential that you adopt a positive, even proactive mental attitude.***

1.4.3 Overcoming hunger and thirst

Dehydration is a problem that you must avoid. Our body is made up approximately of 80% water and it is vital to maintain a minimum quantity to ensure that our internal systems function properly. While procuring water may be difficult in a survival situation, it is important to invest the necessary time in this task. Tea, alcohol and chocolate are not recommended because they are all diuretics and contribute to dehydration. As eating snow also results in a loss of body heat, it is preferable to melt it with an external heat source, before consuming it. At least one litre or more of water is necessary to spend a night in the forest.

You should find a watering point near your make-shift shelter. This water should preferably be purified before drinking it. Indeed, all untreated water contains bacteria that can make you sick within 24 hours. You should boil this water (in a pot made out of aluminium foil for example), or treat it with water purification tablets.

The lack of food and water weakens your body, making it much more vulnerable to hypothermia and certain feelings of discomfort (headaches, generalized feeling of weakness, etc.). Moreover, being deprived of water easily undermines your morale. While hunger and thirst are unpleasant sensations, they are not a question of life or death over the short term. ***You can live about thirty days without eating!***

When it comes to food, begin by making a list of what you have. Determine what will be consumed gradually during a period of about 72 hours. Do not try berries, plants or mushrooms that you have never eaten before. In so doing, you risk becoming sick for a few meager calories.

1.5 Priorities

First, you have to set your action priorities according to the circumstances confronting you. Indeed, if you are injured, see to your injury! If it is cold or you feel cold, begin by lighting a campfire! If it is raining, build a make-shift shelter to protect yourself from the rain. ***Once these tasks have been accomplished in the order that the conditions will have dictated,*** you will need to gather enough wood to keep the fire going all night. It will be important to choose a place where there is plenty of deadwood available.

Moreover, ***it is by far preferable to begin setting up camp before night-fall.*** You will only truly understand the importance of this advice after having tried to build a shelter in the dark. Depending on your condition, your skills, the survival gear that you have, as well as the generosity of the natural setting in which you find yourself, you will undoubtedly have a few hours of work ahead of you before settling down comfortably in your shelter.

If you are damp, dry off your underwear first, then your clothing next to the campfire. Next, build a lean-to (or make-shift shelter), laid out in such a way that the wind blows three-quarters from behind. That way, the smoke from the campfire will not be blown inside the shelter. Set up the campfire just in front of the shelter so that you can tend the fire without being exposed to the elements.

If it is raining, the construction of a lean-to becomes a priority. The orange coloured plastic bag, used for the roof (highly visible), will make it possible to improve the con¬struction. If by some misfortune you do not have a raincoat, wear the plastic bag (making openings for your head and arms) during the construc¬tion of the lean-to and place it on the roof when the lean-to is in place. Once you have finished building the lean-to, you can light a campfire under the overhang, sheltered from the rain.

You should also be sure to indicate your presence at regular intervals to the persons looking for you. The whistle that you included in your kit will prove very useful for this purpose, especially if there are other hunters in your sector. Depending on the density of the forest cover, a shrill and unusual noise in the forest can be heard more than half of a kilometre away. Similarly, a fire made with fir branches and green leaves, in addition to keeping you busy, will produce thick smoke that can be seen several kilometres away. Remember that sooner or later, planes will be used to search for you. As a result, you must have prepared this strategy (fir branches and leaves). When you hear an aircraft or a vehicle, it is time to make smoke by adding green leaves or fir branches to your fire.

In conclusion, it is important to first take into account the priorities dictated by the current circumstances. You must stabilize your situation while increasing your level of comfort, namely: be protected from sources of cold and precipitation, be in a dry location, retain your body heat and drink enough liquid to quench your thirst while making sure that you give signs of your presence at regular intervals so that the rescue team can find you as quickly as possible and in good health.

2. FIRST AID

First aid requires adequate preparation, just like survival in the forest. To be effective, the interventions in this field require appropriate material as well as a certain know-how. Indeed, the best first aid kit will be of no use if you do not know how to use it. We cannot overemphasize the importance of taking a first aid course. The old saying of “an ounce of prevention is worth a pound of cure” applies here.

2.1 Preparations before Leaving

When it comes to preparations, the rule for survival in the forest, **depend on no one but yourself,** is just as valid in the case of first aid. You must make sure that you have adequate material and that you prepare yourself mentally to care for an injured person. This latter aspect is particularly important as this injured party may be one of your friends or even you, yourself.

You need to master each step of the first aid process, from the assessment of the situation to the evacuation of the injured person. That way, you will know what actions to take when the time comes. Indeed, in this field more than in any other, it is easy to give into panic.

Before leaving, be sure to inform your hunting companions of your diseases, allergies or health problems. If you take medication, tell them where it is located. This will allow them to act faster and more effectively should an emergency situation occur.

2.2 What a First Aid Kit Should Contain

You can make this kit yourself, by purchasing the elements individually and by placing them in a water-tight container, or buy one of the many models sold in drugstores or sporting supply stores. The models offered are varied but are generally expensive. In all cases, you will need to **know the purpose of each of the articles that make up the kit** and, if you want to avoid unpleasant surprises, replace them after use, when you return home.

A first aid kit, the size of which varies between that of a videocassette and a dictionary, must be kept dry and clean. An individual kit should contain the elements listed in the following table.

This kit may be completed according to your specific needs or those of your companions, i.e. depending on current ailments or known diseases (allergies, lung or heart problems, etc.). In the case of a group, everyone must inform the others about their general state of health, before leaving. In addition, it is important to make sure that the medication or ointments found in the kit pose no danger to the people accompanying us.

First aid kit

FIRST AID KIT		
ITEM	**QUANTITY**	**UTILITY**
Latex gloves	1 pair	Avoid contamination
Small adhesive dressings	10 (varied sizes)	Small cuts
Large adhesive dressings	2 (about 8 cm x 8 cm)	Large cuts
Large adhesive compresses	2 (about 10 cm x 10 cm)	Large wounds
Sterile dressings	4 (10 cm x 10 cm)	Clean and dress wounds
Gauze	1 roll (5 cm wide)	Dress wounds to the head or to a limb, hold dressing in place
Adhesive bandage	1 roll (1 cm wide)	Hold dressings in place
Triangular bandages	3	Slings, attaching splints
Elastic bandage	1 (7.5 cm in width)	Stabilize a sprain
Safety pins	4	Hold triangular bandages in place
Scissors	1 pair	Cut dressings, cut clothing
Antiseptic (Proviodine, Betadine, Hibitane, etc.)	Pads	Disinfect wounds, the hands of the person giving first aid
Alcohol coated pads	10	Disinfect small cuts, epilating forceps, etc.
Antiseptic ointment	1 small tube (15 to 25 g)	Prevent infection
Itch-relieving ointment (Caladryl, Benadryl, etc.)	1 small tube (15 to 25 g)	Calm itching (do not use on wounds)
Eye protector	1	Hold dressing on eye (with an elastic band)
Tweezers	1	Remove splinters, foreign bodies
Pencil and paper		Record the details of the accident
First aid summary		For reference during treatment

2.3 What Does First Aid Consist Of?

First aid does not consist solely of caring for the patient. In fact, this stage is the third of four stages that the first-aid provider should follow. These stages are the following, in sequential order:

- **protect the victim** against any additional injury, without putting yourself in danger;
- **organize the rescue** (designate someone to go get help, assign tasks, evaluate the state of the injured person(s) or decide who will receive care first);
- **provide emergency first aid;**
- **transport the injured person** to the hospital (choose the method of evacuation according to the location, the patient's weight, the number of rescue personnel available, and the seriousness of the injuries).

As for the actual care given, **you must always intervene according to the following steps, whatever the injury:**

- evaluate the state of consciousness of the injured person (Does he react when spoken to? Can he speak? Does he react to pain? Are his pupils dilated abnormally?)

THE INJURED PERSON IS CONSCIOUS …

introduce yourself, reassure the injured person;

- obtain as much information as possible about the accident (question the injured person and the witnesses);
- while asking questions, make a full examination of the injured person, without moving him (possibility of a fractured spinal column);
- control bleeding;
- take care of fractures;
- treat other injuries and beware of those that are not apparent;
- place the patient on his side (except where not recommended, for example: spinal column fracture), keep him warm and comfort him;
- monitor the person's state of consciousness.

THE INJURED PERSON IS UNCONSCIOUS …

- check if the person is breathing; if he is, proceed in the same manner as for a person who is conscious;
- if he is not breathing*, place the injured person on his back (take into account the possibility of a spinal column fracture) and begin artificial respiration (if necessary, clear breathing passageways);
- check the person's pulse;

- if there is no pulse, begin cardiac resuscitation (if possible, be assisted by a person who masters resuscitation techniques); if this is not possible, apply 5 cardiac compressions with your hands joined together, followed by mouth-to-mouth resuscitation; check the person's pulse again. If there is still no pulse, repeat the same technique.
- when the victim is resuscitated, proceed in the same manner as for a person who is conscious.

* A cardiopulmonary resuscitation course (CPR) will enable you to intervene effectively in this situation.

Administering first aid consists of making sure that, wherever possible, the injured person's condition does not get worse, stabilizing the person and transporting him as quickly as possible to a place where he can receive more comprehensive care.

2.4 Main Injuries Encountered

To be able to intervene effectively in most situations, **in addition to following the aforementioned steps, you must master the various techniques employed to deal with the most common injuries.** You can only master these techniques through practice. It is vital that you practice by simulating cases that call on these techniques, either on your own or, better yet, within the context of a first aid course.

2.4.1 Bleeding

Following a deep cut, there may be major blood loss which must be stopped in the following manner:

- stop the bleeding as quickly as possible by holding the two edges of the wound together and by applying pressure to the wound with your finger or your hand;
- replace your fingers with clean dressing soaked with antiseptic;
- add other gauze and maintain pressure on the wound; do not remove the dressing even if it is soaked with blood as you will only delay coagulation, which is essential to stop the bleeding;
- attach the compresses with adhesive bandages;
- raise the injured limb so that the blood returns to the heart;
- keep a watch on the wound to make sure that bleeding stops.

You can also use a large-dimension adhesive compress dressing. If you do not have bandages or dressing, use whatever you have that is cleanest. If time permits, disinfect your hands before touching the wound.

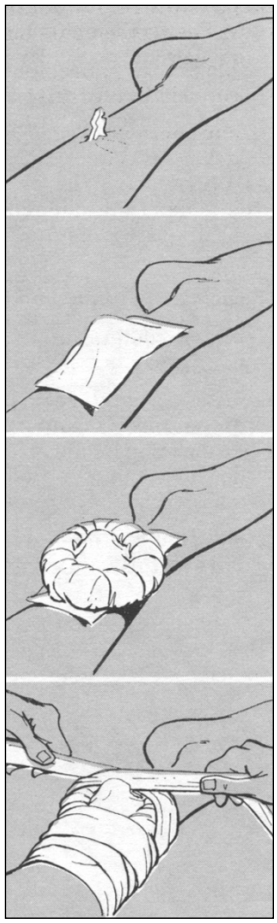
ADDITIONAL INFORMATION ON: "BLEEDING"...

Bleeding always appears serious and excessive. Do not panic. The most serious cases (severing of an artery) are recognized by spurts of blood with each heartbeat. You have to act quickly in such cases, by applying pressure directly to the artery or the wound. *A tourniquet must only be used in extreme situations,* when a serious injury (severed artery, mutilated limb) requires the application of constant pressure and the person giving first aid must take other action (cardio-pulmonary resuscitation for example) at the same time. A tourniquet must always be applied as close as possible to the wound, between the wound and the heart. It must be removed as soon as another solution is available.

2.4.2 Object Imbedded in the Wound

When a good sized object (bottle shard, metal object, etc.) penetrates a portion of the body, there is a risk of rupturing an artery and bleeding. To avoid such a situation, you should proceed as follows:

- never remove the object from the wound;
- using gauze rolled up like a donut, place it around the wound to prevent any pressure on the foreign object;
- attach this 'donut' with a roll of gauze, applying a slight pressure to stop the effusion of blood;
- when transporting the injured person, make sure that any bumps do not lead to further bleeding. Where such is the case, apply manual pressure around the wound and tighten the bandage.



Ambulance Saint-Jean

2.4.3 Internal Bleeding

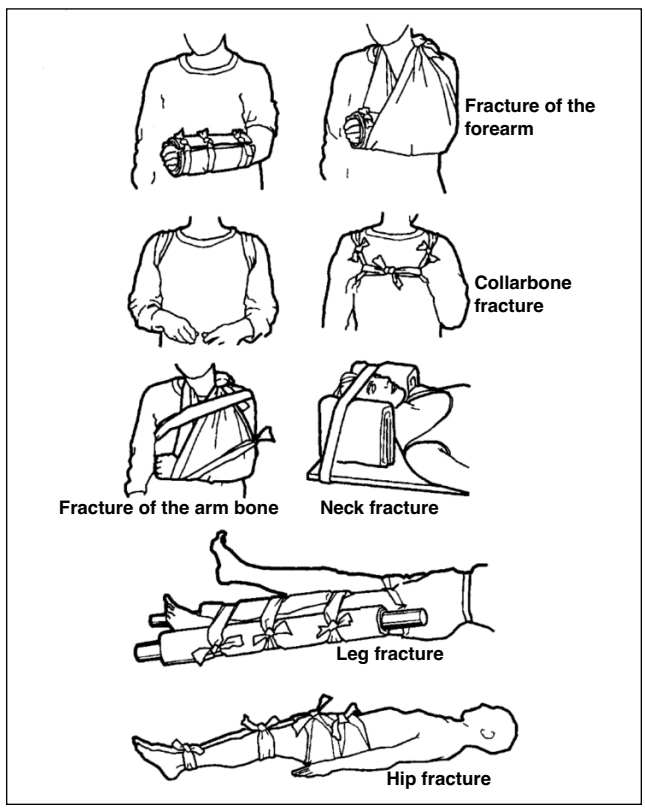
When there is a fall, a blow or a puncture, internal bleeding can be recognized by unusual contraction (hardening) of the part of the body affected. Blood flowing from the ears, nose or mouth, a part of the body that is sensitive to touch or bluish or pink coloured skin are also signs of internal bleeding. This is an emergency situation requiring a short-term hospitalization. In the meantime, you should take the following action:

- keep the injured person conscious and warm;
- do not give him anything to eat or drink;
- move him carefully being sure to monitor his vital signs (pulse, breathing);
- help him remain calm through a reassuring and constant presence;
- place him in a comfortable position.

2.4.4 Injuries to Joints and Bones

Hunters can suffer fractures, dislocations and sprains when climbing up or down tree stands, walking up hillsides, stepping in holes in the ground and falling. If such injuries occur, apply the following principles:

- locate the injury without moving the patient;
- immobilize the joint or limb with a splint covering the joints below and above the injury;
- if the injury is to the ankle or foot, do not remove the shoe (it would be painful and you could make the injury worse);
- **in the event of a spinal column fracture, do not move the injured party** and wait for help to arrive (unless you are familiar with the applicable immobilization techniques);
- attach the splint firmly, without restricting blood flow, and add padding to avoid pressure points;
- apply cold compresses;
- raise the limb if possible;
- check on a regular basis that blood is flowing properly.



Réjean Côté

Applying bandages to fractures

ADDITIONAL INFORMATION ON: "OPEN FRACTURES" …

When there is an open fracture of a limb (bone sticking out of the skin with or without bleeding), apply a light compress to avoid infection. Do not exert traction on the end of the limb, or try to reset the visible end of the bone. As with every fracture, use splints to support the broken limb. At the location of the open fracture, it is suggested that you use a "cloth rolled in the shape of a donut" to prevent the bone from moving during transportation to the hospital. As a last resort, use the healthy leg to immobilize the one affected. In case of a dislocation, never try to reset the bone. Leave this up to a specialist.

2.5 Burns

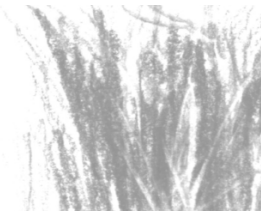
This type of injury requires a very quick response if you want to limit damages. Take the following action:

- neutralize or eliminate the source of the burn;
- immerse the affected area in cold water immediately, with the clothing if necessary (for several minutes);
- wash the burn with water and soap or an antiseptic solution;
- do not apply fat (especially butter);
- apply a damp sterile bandage to the wound;
- apply a large sterile bandage over the first bandage;
- do not lance blisters;
- keep moist during transportation;
- check for signs of infection

2.5.1 During Transportation

Time is of the utmost importance when the injury is serious. You must get to the hospital as quickly as possible, while making sure that the injury does not get worse. While on the way to the hospital, check if the injured person has medication to take or if he suffers from allergies or diseases preventing him from receiving certain treatments. Check if he is wearing a Medic Alert type bracelet or neck chain.

In conclusion, hunting is an enriching activity from several standpoints, provided that you know how to prepare yourself accordingly. The knowledge and the possession of the equipment needed to survive in the forest and first aid are vital for responsible hunters.



CHAPTER 12

Boat Safety

1. EQUIPMENT REQUIRED

All pleasure boats, motor boats, sailboats, canoes, kayaks and rowboats must contain certain equipment which must be in good operating condition AT ALL TIMES. Moreover, all hunters who use such boats must be in good physical condition.

There must be a life vest or personal floatation device (PFD) of the right size for each person on board.

Most motor boats must be equipped with one or more extinguishers. There are three categories of extinguishers (A, B, and C). The choice, the number and location of these extinguishers vary according to the size of your boat.

Navigation lights and audible signaling devices must meet Canadian regulatory requirements to prevent collisions.

Personal floatation devices, life jackets, life buoys and life buoy lights must **all be certified in Canada.**

Make sure that this equipment, which will vary according to the length of your boat, is on board.

Please note that the Coast Guard can make a free inspection upon request.

2. SPECIAL SAFETY RULES RELATED TO HUNTING

2.1 Do's:

- Wear a life jacket of the appropriate size or any other floatation device on small boats;
- Obey water safety rules;
- Head for the nearest shelter or shore in the event of bad weather. **Don't try to ride out the weather;**
- Slow down in the vicinity of other boats, in particular rowboats and canoes, but also near docks, facilities, swimmers, swimming and recreation areas as well as wildlife habitats, in particular narrow passages;
- Slow down in sharp turns or during rough weather;
- Leave a copy of your intended route before boarding;

- Lend assistance to any boat in distress, provided that this does not put you or your passengers in danger. Be on the look out for distress signals (flag or brightly coloured pieces of cloth waved in a vertical or circular manner) or at night, for light signals. Know how to interpret arm signals;
- Slow down in the vicinity of barges and divers;
- Keep the hold clean, free of oil, gas and rags. Ventilate all enclosed spaces;
- Check the battery and its ventilation;
- Know your boat and its limitations;
- When you set out, always have on hand the most recent documents as well as a compass, hydrographic map, bathymetric map or nautical charts;
- A radio-transmitter, although not obligatory, is highly recommended;
- Follow fire prevention and extinction rules;
- Have on board an anchor with a reasonable length of cable, rope or chain attached (at least five times the average anchoring depth). Make sure that this line is firmly attached to the boat;
- If possible, join a nautical club and keep abreast of rules and other important information;
- While hunting, only one person at a time, preferably the person sitting in front, should shoot;
- There should be a maximum of two migratory bird hunters per boat when hunting. That way it is easier to agree with your hunting partner on the firing zone covered;
- **If you shoot** from your boat, beware of the ice that can form on the bottom of the boat, especially late in the fall;
- If you must shoot, make sure you do so safely as, beyond the intended target, there may be cottages, a campsite or someone walking along the shore. The risks of ricochet represent an added danger;
- Make sure that you recover the animal that you shoot in the water or on the other side of a body of water;
- Make sure that you keep your weapons dry inside the boat;
- Secure your weapon and equipment to the boat; this will facilitate their recovery in the event your boat capsizes;
- Dress appropriately and be sure to have a change of clothing in water-proof bags (should you fall into the water);
- If your boat capsizes, don't worry about the material; **HANG ON TO THE BOAT;**
- If you absolutely must move about in a small boat, do so crouched down and by keeping your weight at the centre of the boat while holding on to the two edges;
- Keep a first aid kit, a knife and a whistle on board.

2.2 Don’ts:

- Carry your bow slung over your shoulder in the boat. Imagine what would happen if you capsized;
- Get up to shoot, unless the boat is designed specifically for hunting;
- Stand up to start the outboard motor;
- Circulate near swimmers;
- ***Consume alcoholic beverages or drugs while navigating;***
- Leave live ammunition in the chamber;
- Navigate in the dark, unless you have the appropriate equipment.

Do not exceed your boat’s capacity

3. HOW TO GET INTO A BOAT

3.1 From a Dock

- the person who will sit in the front (prow) will get in first while the person who will sit in the back holds the canoe steady;
- the person seated in the front steadies the boat against the dock while the second person gets in taking care to step in the middle of the boat to keep the balance;
- both kneeling, they push away from the dock and set off.

3.2 From the Shore

- the person who will sit at the stern gets in first while the other person holds the canoe between his legs;
- he goes to his place, turns around and kneels;
- the person on land pushes the canoe and gets in while the person who was first to get in the canoe keeps the balance.

IMPORTANT NOTE…

Before leaving, make a complete inspection of your boat and make the necessary repairs.

4. REPAIR KIT

The repair kit should be prepared according to the boat and the equipment that you use. Let your needs and your imagination guide you.

In general, it should contain various tools and items such as:

• hammer	• small saw	• pliers
• screwdriver	• nails	• rope/wire
• knife	• pocket knife	• adhesive tape

- screws of various lengths and sizes

...as well as spare parts, for example sparkplugs. In addition, if you have a fiberglass boat, you should include a fiberglass repair kit.

5. CLOTHING

Wear several layers of clothing under an anorak, rather than one thick coat. Wool retains heat better than synthetic fibres, especially when it is wet. Apply a layer of silicon protector to your leather boots.

Hip or chest waders will help you stay afloat, feet up, if they are fastened tightly at the waist. If you are fishing on the shore, dressed in this attire, and you fall into the water, let your feet rise to the surface and use your arms to push slowly to the shore. Even if your clothing is wet, it will cause you to float, at least until you can reach the shore. Make **SLOW MOVEMENTS!** The air trapped in your clothing will keep you at the surface for awhile. **You should never wear hip or chest waders in a boat.**

A person wearing a pair of hip or chest waders should carry a knife. It can be used to cut the suspenders if water gets in the waders and causes you to sink.

Keep a change of clothing in a waterproof bag.

If you are wearing heavy boots in the boat, at least be sure to untie the laces before you venture out on to the water; that way you can remove them in case of an accident.

Make sure that you have a hood, a cap or a hat to protect your neck and head: it is always windier on the water than in the woods. Should you fall into or spend a prolonged period of time in the water, a hood or a hat, even when wet, will help to limit heat loss.

Here is a suggestion for non-skid shoes: glue a piece of rubber under-carpet on the soles of a pair of old shoes.

6. PLANNING AN EXPEDITION

6.1 Where

Start by choosing your route according to your abilities. While a certain amount of challenge can be fun, too great a challenge can lead to a catastrophe.

6.1.1 Topographic Maps and Bathymetric Charts

Obtain the topographic maps and bathymetric charts of the area that interests you. Draw your route making note of any dan-gers such as shallows and rapids and taking into account seasonal variations.

6.1.2 Knowledge of the Area and Description of the Route

Check with people from the area. Read the travel notes of persons who have already been through the same area. Make note of the time required to go from one place to another. Indicate interesting places on the map as well as the dangers that have been mentioned.

6.1.3 Weather Conditions

A good knowledge of weather conditions is an important aspect of boat safety. You need to know how to obtain up-to-date and relevant information before setting out. When you decide to go out on the water, make sure that the conditions that you see correspond to the weather forecast. **Once on your way, remember to look at the sky from time to time to avoid unpleasant surprises.**

6.1.4 Plan

Set a flexible daily schedule that leaves you some time to explore and that takes into account the possibility of bad weather. Take your maps, charts, itinerary and travel books with you. You can also take advantage of your personal observations, newspapers, the radio, television and even consult Environment Canada's web site. Consult these resources frequently: You can obtain invaluable information that may serve you well in a storm, the dark or foggy weather.

6.2 Preparation

An expedition is something that needs to be prepared. The boat should be in perfect order, and the participants in good physical condition.

6.2.1 Physical Condition

In comparison with our ancestors, we are generally sedentary. Nowadays, we rarely have to chop wood, much less walk to the village.

When hunting or fishing season arrives, we tend to forget our physical condition and push our body beyond its limits.

For some, the result may be sore muscles for a week, not to mention the silent strain on the heart.

Needless to say, it is better to prevent these ailments rather than to have to live with them. By applying a well organized physical activity program, you will return from your expedition in good shape and brimming with energy.

Before setting off on an expedition that will require considerable effort, check with your physician, especially if you suffer from high blood pressure, obesity, chest pains or have difficulty breathing. He will help you determine the reasonable limits for your physical condition.

That way, your expedition will be less strenuous and you will reduce the risks of injuries or accidents.

6.2.2 Techniques

Practice useful maneuvers and make sure that all passengers know how to react to emergencies such as capsizing or falling overboard.

6.2.3 Upkeep

Examine your boat: make the necessary repairs and tighten all parts.

6.2.4 Collaboration

For certain expeditions, each crew member must be familiar with nautical terms to play his role properly. Good team work is often what helps to make an experience unforgettable, regardless of the type of boat. Distribute the tasks fairly, taking into account the skills and physical condition of each participant.

6.3 Equipment

Before embarking upon a hunting trip, you need to be equipped for all contingencies. Bring along multi-purpose accessories (Swiss knife, pliers, metal wire, etc.). Avoid excess baggage, but plan for emergencies.

6.3.1 Comfort

Bring along the appropriate clothing and accessories to protect you from heat, cold and rain. Keep a change of clothing in a water-proof bag.

6.3.2 Repairs

Make sure you have tools, spare parts and the material necessary to replace a shear pin, mend a tear or fill a crack.

6.3.3 First Aid Kit

Have a first aid kit on hand to care for cuts and burns immediately.

6.3.4 Survival

Bring along one or two days of extra food, in case you need it. Your safety and rescue equipment must suit the type of boat and the waters on which you will be navigating. Choose your personal floatation device (PFD) or life jacket according to the season and the activities planned during your excursion, and **wear it at all times.**

6.4 Itinerary

The Department of Transportation (Canada), in collaboration with the Coast Guard, offers examples of itinerary maps upon request. Remember to leave your **itinerary with a responsible person;** in case of accident, it will be your rescue map.

7. SAFETY STANDARDS

Before getting under way, determine the number of people according to the load capacity that your boat can safely carry. The load includes the weight of the occupants, the equipment, the motor and the fuel.

It is dangerous to overload a boat. The number of people that a boat can transport safely depends, among other things, on its length, the type of boat, the distribution of the occupied places and the material on board. You should know the limitations of your boat. **All boats less than 6 m in length must include a plaque indicating the maximum load.**

For more information concerning the new water safety rules, call the "Water information hotline" at 1-800-267-6687.

8. RESTRICTIONS CONCERNING THE AGE OF PLEASURE CRAFT OPERATORS AND ENGINE HORSEPOWER – IN FORCE UNTIL APRIL 1, 1999

UNDER 12	If operator is not accompanied and not directly supervised by a person 16 or older	Maximum horsepower: 7.5 kw (10 HP)
AT LEAST 12 BUT UNDER 16	If operator is not accompanied and not directly supervised by a person 16 or older	Maximum horsepower: 30 kw (40 HP)
UNDER 16	Prohibition on operating a personal watercraft	

• These restrictions apply when operating a pleasure craft fitted with a motor and used for recreational purposes.

9. REQUIREMENT CONCERNING THE SKILLS OF PLEASURE CRAFT OPERATORS

SINCE SEPTEMBER 15, 2009	**All operators** will have to have in their possession on the boat or watercraft they are operating proof of competency.

- These restrictions apply to the operation of a pleasure craft fitted with a motor, used for recreational purposes.
- They also apply to non-residents operating a pleasure craft in Canadian waters for a period in excess of 45 consecutive days. The operator's card or an equivalent document issued to a non-resident by his State or his country will be considered proof of competency.

Proof of competency can take one of the following three forms:

1) ***proof*** that the operator successfully completed a boating safety course before **April 1, 1999;**

2) a ***pleasure craft operator card issued following the successful completion of a Canadian Coast Guard accredited test;***

3) a ***duly completed rental-boat safety checklist*** (for power-driven rental boats).

The operator card is valid for the holder's entire life. It is issued to watercraft operators who obtained at least 75% on a test accredited by the Canadian Coast Guard. Boaters can write the test without having taken the course.

CONCLUSION

In conclusion, this introductory hunting course has allowed you to acquire certain basic notions that a responsible hunter needs to know. You have learned how to practice hunting safely. You have been made aware of the importance of ethics and of always adopting a responsible conduct, whether it be for you, others or the environment.

Moreover, you have acquired an understanding of the ecology of certain game species, wildlife hunting, conservation and management methods, as well as of the importance of complying with laws and regulations respecting wildlife conservation. You have learned certain hunting techniques and the care that should be given to harvested game. Practice and experience will allow you to develop your own techniques and to master the methods learned.

We have also addressed several prevention and safety rules associated with hunting, watercraft and survival in the forest.

We suggest that you continue your training by hunting with an experienced hunter and by consulting your introduction to hunting manual. Feel free to seek advice and to become a member of a shooting club to discuss with other hunters and improve your techniques and your shot.

You are now better equipped to practice a marvelous sport: **hunting.**

ENJOY YOUR HUNTING!

GLOSSARY

ABORIGINAL:
Designates the people born in the land they inhabit or the first occupants of the land. In Québec, this term refers to Amerindians, persons of Amerindian ancestry as well as the Inuit.

ABUNDANCE OF A SPECIES:
The number of individuals of the same species present in a specific area.

ACTION:
The working heart of an airgun; generally all of the working parts other than the stock, barrel and sights (may or may not include the air compression or gas/air storage system).

AIRGUN:
A gun that utilizes compressed air or gas to launch the projectile.

AMPHIBIAN:
Vertebrates with aquatic larvae (tadpoles) that have gills. Amphibians have a hairless skin and a variable temperature .

ANATIDAE:
Family of webbed-foot birds, of which the duck is typical.

ANIMAL HIERARCHY:
Order and subordination of the individuals within a population or a group of animals.

AR:
Abbreviations for Air Rifle.

BALLISTICS:
Science that studies the movement of a projectile in the barrel (internal ballistics) and in flight (external ballistics) and upon hitting the target (terminal ballistics). The conditions influencing its movement (trajectory, kinetic energy, potential energy and penetration) and the factors that have an impact on its movement.

BALL STARTER:
Block or ball with two rods, one short (short starter) to insert the ball in the barrel and the other longer (the long starter10 to 15 cm in length) to push the ball further into the barrel and engage the riflings.

BARREL:
The steel tube (may be a sleeve wrapped in a synthetic material) that a projectile travels through.

BARREL COCKING:
Also known as «break barrel» the action of pivoting the barrel downward or upward compresses the mainspring of a spring or gas piston action into firing position.

BIOCENOSIS:
An association of plants and animals living in equilibrium in a given biological environment on a cyclical or permanent basis, and whose population does not seem to be changing quickly.

BIODEGRADABLE:
Product that can be broken down biologically (or destroyed by bacteria or other biological agents (food waste for example).

BIODIVERSITY or BIOLOGICAL DIVERSITY:
Variability of living organisms of all origins. This includes the diversity within species (variability of genes), and between species, as well as that of ecosystems.

BIOSPHERE:
Portion of the Earth in which ecosystems, living organisms and a non-living environment can function, namely the ground, the air and water which are home to life.

BIOTOPE:
A specific milieu offering an animal and plant population specific habitat conditions permitting its reproduction and development (ponds, marshes, etc.).

BLACK POWDER:
Mixture of finely ground powder consisting of three essential ingredients: saltpeter (potassium nitrate), charcoal (carbon) and sulfur. Primarily used in muzzleloading firearms and in some cartridges for historic firearms.

BLIND (Hunting game from a):
Method that consists of hiding in a place to watch for game that passes by.

BOLT OR ARROW:
Small arrow shot by hand, using a bow or a crossbow.

BORE:
Internal dimensions of a barrel (smooth or rifled) that can be measured using the Metric system (i.e. Millimeters) or English system (i.e. Inches). On a rifled barrel the bore is measured across the lands.

BOREAL FOREST:
Northern forest made up mainly of coniferous trees and certain hardwood trees such as poplars and birch. The boreal forest is home to characteristic wildlife, such as moose, spruce grouse, wolf, red collared sparrowhawk, white throated sparrow and the American marten.

BREECH:
The opening to the rear chamber portion of the barrel.

BREECH BLOCK:
Locking mechanism that supports the base of the cartridge. Also called a breech mechanism. In a muzzleloader it is known as a breech plug and seals the rear end of the barrel.

BREECH SEAL:
A seal which is designed to prevent propulsive gases from leaking out from behind the projectile. Usually an o-ring or circle of leather or synthetic material.

BREECH SLEEVE:
Piece of shaped metal covering the rear part of the barrel.

BULLET:
Originally a round projectile made of lead used in smooth-bore firearms or black-powder firearms. In modern cartridge firearms, a projectile fired from a rifled barrel. May be located at the front of a cartridge.

BULLET PULLER:
Screw (wood screw) firmly attached to a rod used to extract balls caught in the barrel.

CALIBER:
The diameter of the bore (measured from land to land). It does not designate bullet diameter.

CALL:
Instrument used to emit sounds similar to those made by the game sought.

CALVING:
Action of giving birth, namely when a female delivers its offspring at the end of gestation.

CAP:
Small metal cup containing explosive material that, when struck explodes and ignites the main powder charge. In a muzzleloader it is known as a percussion cap. In a modern cartridge it is known as a primer.

CARNIVORE:
Animal that eats the flesh of other animals.

CARRYING CAPACITY:
Maximum number of living organisms of the same species that an ecosystem or more specifically a habitat can support.

CERVIDAE:
Family of animals that includes deer, moose and caribou and that have antlers.

CFSC:
Canadian Firearms Safety Course. Course required to obtain a firearms licence (FL) and a certificate for hunters using a firearm.

CHAMBER:
The central area of an airgun's mechanism which serves to house or connect some or all of these parts: trigger mechanism, power mechanism, barrel, stock. A round airgun chamber generally is referred to as the body tube where the air is compressed by the piston in a spring or a gas-piston airgun.

CHARGE:
Weight of the main charge of powder in a muzzle loader or in a cartridge. Also refers to the whole of a charge: powder and projectile(s).

CLEANING KIT:
Set of tools used to clean and maintain a firearm. Some of these tools may occasionally be stored in the butt of some traditional muzzle loaders.

CLEANING PATCH:
Piece of fabric (usually cotton) used to clean the inside of the barrel.

COCKED:
Position of the hammer or firing pin when the firearm is ready to be fired.

COMMERCIAL HUNTING:
Harvesting of wildlife in order to sell the proceeds either for consumption or other purposes.

COMPOSITE:
Bow made of different materials molded and glued together.

COMPOUND:
Bow made of various elements combined to reduce the user's tension effort, while maintaining or improving the power of the bow.

COMPRESSED AIR:
Air at greater than atmospheric pressure. Guns which use compressed air include hose fed airguns, spring-piston airguns, pump pneumatics, and pre-charged pneumatics.

CONTROL (of an animal population):
Mechanisms whereby the number of individuals of an animal population is naturally controlled (by physical and biological factors) such that they cannot exceed the milieu's carrying capacity.

COURTSHIP BEHAVIOUR:
Behaviour specific to several groups of animals, which characterizes and promotes closer relations between sexes during the mating period (the male spruce grouse drums in spring.).

CYCLE:
Period of time showing an increase in the number of individual members of a species followed by a decrease and then another increase (cycle of hare, for example).

CYLINDER:
Other word used to name the chamber of a spring or gas piston airgun.

DECOY:
Visual object which, by its shape and aspect, is intended to attract game, in particular game birds.

DEPRADATION:
Activity of a wild animal that causes damages to property (infrastructures, animal or plant productions, etc.) or that represents a danger for man.

DIABOLO:
A term used when referring to the style of pellets with a constricted waist.

DOUBLE-BARRELLED:
Firearm with two barrels. Either side by side or over and under.

DRAW LOCK UNIT:
A mechanical device that is used to keep a bow under tension at all times, ready to release an arrow.

DRIVING:
The pratice of purposely walking through a hunting area in order to move game toward the hunters.

ECOLOGICAL NICHE:
It corresponds to the place (physical place) and to the specialization (its role) of a species within an ecosystem. The niche represents the species' function in an ecosystem, its "occupation" in a way. For example, the lynx usually plays the role of hare predator in the boreal forest.

ECOLOGY:
Specialized part of biology. It is a science that studies the interrelationships of animals and plants to one another and to their environment.

ECOSYSTEM:
All of the interactions among living organisms and the environment in which they live. An ecosystem may be described by the milieu in which it is located (the Lac Saint- Pierre wetlands, for example).

ECOTONE:
Transition zone between two biological communities (flood plain situated between an aquatic and terrestrial environment, for example.).

ENDANGERED SPECIES:
Animal or plant species on the decline or in danger of extinction (or disappearance) in a large portion or all of its distribution area in Québec.

ENVIRONMENT:
The organized, dynamic and evolving combination of elements likely to have a direct or indirect effect on living organisms.

EVISCERATION (gutting):
Action of extracting the entrails of an animal, namely the digestive system and the organs found in its abdomen.

EXPLOSIVE CHARGE:
Volume or weight of the main powder charge contained in the prepared charge or in the chamber of a muzzle-loading firearm.

FL:
Firearms licence.

FLETCH:
Each element of the fletching, either made of feathers or flexible plastic compound, designed to direct the flight of the arrow.

FLETCHING:
The arrow stabilizing system generally including three and sometimes four fletches mounted on the heel of the arrow.

FLINTLOCK:
Mechanism in old firearms in which sparks are produced by the striking of a flint against a piece of steel (the frizzen) that ignites the priming powder in the pan that in turn ignite the main powder charge.

FOREARM:
Usually a separate piece of wood in front of the receiver and under the barrel used for hand placement when shooting. Also used as a lever on a pump-up airgun.

FOREND:
Usually the forward portion of a one-piece rifle or stock, but can also refer to a separate piece of wood.

FPAL:
Firearm possession and acquisition licence.

FPL:
Firearm possession licence.

GAME BAG:
Bag (or container) that hunters use to transport small game, and generally slung across the shoulder or attached to the belt.

GAS-SPRING SYSTEM (nitro-piston system):
The type of operating system in which the main spring is replaced by (and uses) a nitro-gas filled cylinder with a piston to generate the energy to move a projectile through the barrel.

GESTATION:
Period during which a female, of the mammal class, carries its young from fertilization to calving (in the case of the white-tailed deer gestation last 201 days on average).

GRAIN:
Weighting measure of a projectile.

GRASS:
All of the plant species of the grass family, which are annual plants having a cylindrical stem (hay, wheat, oats, etc.).

GREGARIOUS:
Relating to an animal species that lives in a group, such as a wolf, caribou, bison, etc.

GROOVE:
The spiral cuts in the bore of a rifle or handgun barrel that give the bullet its spin or rotation as it moves down the barrel.

HABITAT:
All of the milieus used by an animal to meet its needs, to reproduce, to feed, to find shelter, all year round.

HALF-COCKED:
Position of hammer used as a safety device on some firearms. The hammer is moved to the halfway point in its travel where it locks so as to ensure that the gun cannot fire when the trigger is pressed.

HANGFIRE:
Abnormally long time that elapses between the time when the hammer strikes the cap and when the shot is fired.

HANGING:
Action of giving game meat a particular flavour by allowing it to ripen. This ripening is brought about by bacteria that initiate the meat digestion process.

HERD:
Term used as a synonym of animal population.

HIBERNATION and OVERWINTERING:
Lethargic state in which certain mammals live out winter (woodchuck, chipmunk, etc.). This lethargy is attributable to a major lowering of the body temperature. Since bears do not undergo lowered body temperature, the proper term would be overwintering.

HUNTER'S CERTIFICATE:
Document attesting that a citizen has successfully completed the required training and is authorized to hold one or more hunting licences in Québec

HUNTING :
Relating to hunting. The art of hunting (hunting activities, e.g.).

HYPOTHERMIA:
Below normal drop in body temperature (under 35° C). Prolonged hypothermia can lead to a loss of consciousness and even death.

IBH:
Introduction to Bowhunting. Teaching module of PESCOF which must be successfully completed to obtain the bow hunter's certificate.

IHF:
Introduction to Hunting with a Firearm. Teaching module of PESCOF which must be completed, as must the CFSC, to obtain the certificate of a hunter using a firearm.

KINETIC (ENERGY…):
Momentum of a body (or a point mass) in movement.

LANDS:
Portions of the bore left between the grooves of the rifling in the bore of a firearm or an airgun. Land diameter is measured across the bore, from land to land.

LATCH:
Safety device that blocks the firing mechanism of a firearm. There are several kinds, including the transverse latch, the sliding latch, the carcass-tail latch and the flag latch.

LIMITING FACTOR:
Ecological element limiting the development of an organism or a group of organisms in a given milieu (the harsh winters for the deer populations of Québec for example).

LOAD, FEED, SUPPLY:
To prepare a firearm to be fired by inserting ammunition into it.

LURE:
A lure may be visual or olfactory. It may be artificial or natural. It seeks to attract game or hide human body odors.

MAGAZINE (mag.):
The container which holds projectiles to be fed into the gun's pellet chamber (breech).

MAINSPRING:
The spring that when compressed and then released, generates the energy to move a projectile through the barrel.

MANAGEMENT:
Application of scientific notions or principles to wildlife populations and their habitat to ensure their growth and survival.

MANAGEMENT PLAN:
Set of measures taken to plan wildlife management and geared to the utilization of this renewable resource.

MATCH:
Long cord impregnated with saltpeter that burns slowly and, in the earliest firearms, was used to ignite the priming charge (powder).

MATCHLOCK MECHANISM (for musket and harquebus):
Mechanism of a firearm that uses a worm or an S-shaped metal part to hold a burning match that ignites an explosive charge on contact with the priming powder.

MECHANISM:
All the parts of a firearm used to load, fire, extract and eject ammunition.

MILIEU:
All of the elements and factors that govern the existence of living organisms.

MINIE BALL:
Conical bullet used in muzzle-loading firearms and equipped with a pointed tip and hollow base that expands its skirt upon firing in order to seal the propulsive gases behind the bullet.

MISFIRE:
An attempt to ignite the main powder charge that fails. A shot that does not leave the rifle.

MUSKET:
One of the first smooth-bore shoulder arms.

MUZZLE:
The forward end of the barrel where the projectile exits.

MUZZLE-LOADING FIREARM:
Means a firearm that is loaded through the muzzle of the barrel.

NATURAL ENVIRONMENT:
Term designating geographical entities having common ecological characteristics. Generally, it is the equivalent of a microhabitat, namely a habitat covering a vast surface.

NECROPHAGOUS:
Animal that eats the flesh of dead animals, such as crows, bears, etc.

NIPPLE:
Part on which the percussion cap is placed.

NITRO:
Abbreviation for nitrogen.

NITROGEN:
Inert gas used in the nitro-piston system.

NITRO-PISTON SYSTEM:
See gas-spring system.

NORTHERN TUNDRA:
It corresponds to the biome that occupies the area north of the tree line (58th degree North).

OMNIVORE:
Animal that eats different types of food (meat, plants, fruits, etc.) e.g. the black bear, the red fox, etc.

OVERPOPULATION (or overabundance, over-densification):
Imbalance between an animal population and its living environment (habitat), which is characterized by an overabundance of animals of a given species, in relation to the carrying capacity of its environment. Eventually, this situation can lead to a large number of deaths caused by famine and epidemics (the deer population of Île d'Anticosti for example).

PAN:
Small bowl placed at the side of a matchlock, wheel lock or flintlock rifle that contains priming powder.

PATCH:
Small piece of fabric soaked in lubricant placed around a round ball before it is forced into the barrel of a muzzle-loading firearm. The patch acts as a gas seal around the ball.

PATCH BOX:
A small compartment hollowed out of the side of the butt of a muzzle-loading firearm used to store patches or other small accessories.

PATCH WORM:
Tool consisting of a corkscrew attached to a rod and used to remove a patch or cleaning cloth stuck in the barrel.

PELLET:
An airgun projectile that is not a ball. Available in many styles, including Wadcutter (target and high impact), Pointed (high penetration), Round Nose (general use), and Hollow Point (expands on impact).

PESCOF:
Programme d'éducation en sécurité et en conservation de la faune. Program created in 1980 and run by the Québec government, in cooperation with various partners, in particular the FQF and the FTGQ.

PEST:
Animal causing material damage (to infrastructures, animal and farm productions, etc.) or representing a danger for man.

PLANTIGRADE:
Animal that walks mainly on the sole of its feet, like the black bear, wolverine, etc.

PLANT LAYERS:
The notion of superimposed plant layers applies to all environments receiving sunlight.

PNEUMATIC:
A term referring to the use of air/gas pressure as an energy source, in airguns it propels the pellet out the barrel.

POMOCULTURE:
Cultivation of trees that produce seed-bearing fruit such as the cultivation of apple trees.

POPULATION DENSITY:
Measurement applied to the population of a given species. It represents the average number of individuals by surface unit (8 deer per square kilometre for example.).

POPULATION DYNAMICS:
Long-term variations in the number of individuals of a species in a given geographical area.

POPULATION STRUCTURE:
Number of young per adult

POUNDING (heart):
A heart whose rhythm speeds up under the influence of strong emotion.

POWDER FLASK:
A container made of horn, plastic or non-ferrous metal such as brass used to transport black powder.

POWDER MEASURING DEVICE:
Small adjustable accessory used to provide an accurate measurement of powder.

PRE-CHARGED PNEUMATIC SYSTEM:
The type of operating system that uses an externally charged chamber (either integral or removable) of compressed (air or gas) to generate the energy to move a projectile through the barrel.

PREDATOR:
Animal that feeds on living prey that it captures, like the wolf, the bear, the lynx, etc.

PRESERVATION:
Human intervention seeking to ensure the full protection of a habitat or a natural milieu or the survival of a wildlife population or species by protecting it in various ways.

PRIME:
To prepare a muzzle-loading firearm to be fired by adding as the final stage the percussion cap for cap locks muzzle loaders, or the priming powder in the frizzen of flintlock muzzle loaders.

PRIMING POWDER:
Very fine black powder used solely as priming powder in the pan of flintlock rifles. Also known as ffffg powder.

PRODUCTIVITY:
Number of individuals of a population or a species living in a geographical area or a specific habitat

PROJECTILE:
Generic expression used to describe the ball or shot fired from a firearm.

PROLIFIC:
Able to reproduce quickly.

PROPERTY OWNER:
Person who owns a piece of land, who is responsible for it, and who is required to pay taxes on this property.

PYRITES:
Mineral (iron bisulfate) used in the ignition system of wheel lock firearms.

RAMROD:
A rod of wood, fiberglass or metal used either to push the patch (wadding) and ball into the barrel of a muzzle-loading firearm or to check for obstructions before the firearm is loaded.

RECOILLESS:
A mechanical design that allows an airgun to be shot with little or no felt recoil.

RECURVE:
Bow stave curved two ways: concave and convex. This compensates for the lack of sufficiently long material and increases the strength of the shorter bow.

RENEWABLE RESOURCE:
Resource with the ability to reproduce and ensure its sustainability or long term subsistence.

REPEATER / REPEATING:
A term used when referring to an airgun being capable of firing more than one shot without having to manually reload.

RESERVOIR:
The removable or stationary refillable air tank, usually located under the barrel of an airgun.

RESTORATION:
Restoring of a deteriorated natural environment or habitat of wildlife or plant life.

RETAINER:
A mechanical device used to keep a bow permanently taut in readiness to fire an arrow.

RIFLING:
The spirally cut grooves in the bore of a rifle. The rifling stabilizes the bullet in flight. Rifling may rotate to the left or the right, the higher parts of the bore being called lands, the cuts or lower parts being called the grooves. Most U.S.-made barrels have a right-hand twist, while British gun makers prefer a left-hand twist. In practice, there seems to be little difference in accuracy or barrel longevity.

ROCK PAINTINGS:
Painting done by humans on a rock face.

SEX RATIO:
Number of males in relation to females within an animal group or population.

SHOT:
Small round projectiles used in muzzle loading shotguns or contained in shotgun cartridges; also refers to lead projectiles used in some air guns.

SIDE-LEVER:
The lever located on the side of an airgun used for cocking the mainspring into firing position.

SIDE-LEVER COCKING:
The action of pivoting the side-lever compresses the mainspring of a spring-piston action into firing position.

SKIRT:
The flaring, thin area of diabolo style pellets that engages the rifling in a barrel and acts as an air seal.

SPRING-PISTON SYSTEM:
Airgun operating system that uses a metal or gas mainspring to push a piston which in turn uses a cushion of air to push the projectile through the barrel.

STALKING:
Method that consists of approaching the game, by following its trail, making slow and silent movements.

STEEL:
In a flintlock mechanism, it is the pan cover made of steel which the flint strikes to produce sparks that fall into the pan and there ignite the primer charge. It is also known as the frizzen.

SUBSISTENCE HUNTING:
Hunting aimed at harvesting game in order to meet the food requirements of the hunter and his family.

SUMMARY CONVICTION:
Legal procedure that applies to offences under a law or regulation, including those respecting wildlife, by opposition to proceedings for criminal offences.

SUSTAINABILITY:
Characteristic of something that lasts forever or for a very long time.

SUSTAINABLE DEVELOPMENT:
An increase in satisfying the vital needs of a human population while remaining within the limits of an ecosystem's carrying capacity. This concept implies both development and conservation.

SUSTAINABLE USE:
The utilization of the components of biological diversity in a matter and at a rhythm that does not entail their long-term decline, by safeguarding their potential to meet present and future needs and aspirations.

SUSTAINED YIELD:
This refers to the regular production of wildlife over the years in terms of harvestable wildlife. It is from this concept that the image of wildlife representing the “capital” and the harvest the “interest” on the capital is derived.

TAIGA:
It corresponds to the biome (or natural milieu) that occupies the area comprised between the tundra and boreal forest. This area is situated between the 52nd and 58th degrees North in Québec.

TANK (see reservoir)

TORPOR:
Physiological state characterized by a deep and prolonged sleep during which the vital functions seem suspended.

TREE STAND:
A platform attached to a tree, used by big game hunters who practice hunting from a blind.

TWIG:
Found on small branches, it is generally appreciated and browsed by herbivores (including members of the cervidae family).

UNDER-LEVER:
The lever located under an airgun used for cocking the mainspring into firing position.

UNDER-LEVER COCKING:
The action of pivoting the under-lever downward compresses the mainspring of

UNGULATES:
Hoofed mammals, such as cervidae and other species such as elephants, horses, rhinoceroses, ruminants, camels and swine.

UROPYGIAL (Glands…):
Sebaceous glands located in the rump of birds. The oily secretion of these glands is used to anoint (or waterproof) their feathers.

VENISON:
Meat of big game such as moose, caribou, deer and bear.

VEST:
Fluorescent orange coloured article of clothing worn by hunters, any person accompanying hunters and guides. The vest must measure at least 2 580 cm^2 (400 square inches), cover the back, shoulders, torso and be visible at any angle. Wearing a vest is not required in the following cases: when hunting crow or migratory birds; when hunting moose or white-tailed deer during the bow hunting season only, when hunting frogs, when hunting hare or eastern cottontail using a snare; when hunting coyote, wolf or red fox from December 1 to March 31.

VITAL DOMAIN:
The aerial, aquatic or terrestrial environment absolutely essential to a species, an animal population and the individuals that make up the species (the moose occupies a domain of 5 to 10 km2).

WATERFOWL:
All of the migratory bird species considered game birds, living near an aquatic or wetland environment. Refers to ducks, geese, etc.

WETLAND:
Transition area between aquatic and terrestrial environments.

WHEELLOCK:
Old firing mechanism on muzzle-loading firearms in which a steel cog wheel is rubbed against a piece of iron pyrites to produce sparks intended to light the charge contained in the pan.

WILDLIFE:
All of the wildlife species present in a specific biotope (or habitat).

WILDLIFE CONSERVATION:
Series of management measures (research, regulations, protection, management, development, education, enhancement, etc.) and procedures implemented to ensure the long-term survival of wildlife resources as well as their sustainable use.

WILDLIFE CONSERVATION ASSISTANT:
Person appointed under section 8 of the Act respecting the conservation and development of wildlife to support WPFs in the performance of their duties. His main duty is to ensure a dissuasive presence on the territory, to provide information to the public, and to ensure compliance with certain sections of the laws and regulations. He also performs duties related to the control of the territories for which he was appointed.

WILDLIFE HARVESTING:
Harvesting of wildlife by hunting, fishing or trapping.

WILDLIFE INVENTORY:
Planned action that consists of identifying, locating and counting a give animal species of a specific territory (moose inventory of zone 18 for example).

WILDLIFE POPULATION:
All of the individuals of the same species inhabiting a specific territory.

WILDLIFE PROTECTION OFFICER (W.P.O.):
Provincial public servant having the status of a peace officer and in charge of enforcing laws and regulations intended to protect wildlife and habitats as well as the application of certain aspects of the Environment Quality Act.

WILDLIFE RESOURCES:
All of the animal species living in a geographical area or a specific habitat at a given time.

WITHERS:
In large game species in Quebec, the highest part of the body after the head located above the shoulder that extends the neck area (neck) (height of moose at the withers, e.g.).

YARD:
Forest area where cervidae take refuge in winter.

APPENDIX A

QUICK CHECK LIST – EQUIPMENT
HUNTING OR FISHING EXPEDITION

FISHING ACCESSORIES	HUNTING ACCESSORIES	MISCELLANEOUS EQUIPMENT
Fishing rods	Rifle or shotgun + case	GPS and compass
Reels	Bullets	Topographical maps
Fishing licence and rules	Hunting licence and rules	Rope and string
Tackle boxes	Knives	Flashlight and batteries
Bait/worms, flies	Cleaning kit	Garbage bags
Dip nets	Binoculars	Survival kit
Basket	Hunting vest	First aid kit
Life jacket	Life jacket	Honing stone
Insecticide	Calls and decoys	Axes
Polarized sunglasses	Meat saw	Saw
Sonar	Cheesecloth	Scissors
Gloves for evisceration	Took kit	
CLOTHING AND PERSONAL EFFECTS	**EQUIPMENT FOR GROUP**	**FOOD**
Wool or down jacket	Alarm clock	Cardboard plates/cups
Wool shirts	Toilet paper	Toothpicks
Regular shirts	Kleenex/handkerchiefs	Coffee/tea
T-shirts	Paper towels	Sugar
Wool pants	Rags	Milk/powdered milk
Regular pants	Baggies/garbage bags	Butter/margarine
Underwear	Dishwashing soap	Vegetable oil/fat
Long underweaar	Dish towels	Marmalade
Wool socks	Steel wool	Honey
Regular socks	Aluminium foil	Jam
Gloves/mitts	Dishpan and dishcloth	Peanut butter
Boots/waders and soles	Utensils	Juice/water/pop/mineral water
Socks and slippers	Can opener and corkscrew	Cheese
Raincoat and pants	Tarp	Eggs and bacon
Sunglasses	Radio and batteries	Cretons and lard
Belt and suspenders	Water tank	Pork and beans/ham
Inflatable mattress	Ice box and ice	Bread/hot dog/hamburger buns
Sleeping bag	Pots and saucepan	Wieners
Pillow	Camera and film	Hamburg
Watch	Video-camera	Ketchup, mustard and relish
Lighter and matches	Tent	Mayonnaise
Soap, towels and face cloths	Hammer and nails	Flour
Toothbrush and paste	Interchangeable head screwdriver	Salt and pepper
Shampoo (unscented)	Wire	Packaged and canned soup
Razor and mirror	Tie wraps	Sandwich meat
Backpack	Winch or hoist	Stew
Thermos	Chainsaw	Chicken and steaks
Special medication	Jumper cables	Spaghetti sauce
Candles	Chain and padlock	Pasta and noodles
Adhesive tape	Stove/heater	Chips, chocolate, cookies, candies
Needles and thread	Lantern/lamp	BBQ sauce
Paper and pencil	Fuel	Various vegetables
Deck of cards	Boat and anchors	Various fruits
Books and magazines	Oars or paddles	Beer
Money and credit card	Motor and accessories	Liquor
Cigarettes or cigars	Gasoline and oil	Wine/ liqueurs

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Hunting Shaft Specifications and Sizes

Carbon Core		Materials/Construction		Inserts	Points
C	AXIS FULL METAL JACKET	Precision 7075 alloy jacket bonded to a carbon core		HIT Insert	RPS Point
Alloy/Carbon		**Materials/Construction**		**Inserts**	**Points**
A/C	Super Slim	Slim Design High-strength carbon fiber bonded to a precision 7075 alloy core tube		HIT Insert	RPS Point
	A/C/C	High-strength carbon fiber bonded to a precision 7075 alloy core tube		RPS Insert	One-piece Parabolic, NIBB, or RPS Point
Carbon		**Materials/Construction**		**Inserts**	**Points**
ST	MOSSY OAK Obsession AXIS	High-strength ST carbon-composite fibers		HIT Insert	RPS Point
	AXIS	High-strength ST carbon-composite fibers		HIT Insert	RPS Point
	ST Epic REALTREE	High-strength ST carbon-composite fibers		HP Insert	RPS Point
	ST Epic	High-strength ST carbon-composite fibers		HP Insert	HP or RPS Point
	Lightspeed	RC Carbon multi-layer wrapped fibers		CB Insert	CB or RPS Point
	CARBON EXCEL	RC Carbon multi-layer wrapped fibers		CB Insert	CB or RPS Point
Alloy		**Alloy**	**Strength[2] (psi)**	**Inserts**	**Points**
XX78	SUPER SLAM!	7178-T9	100,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
XX75	NEXX75	7075-T9	100,000	HIT Insert	RPS Point
	REALTREE hardwoods green HD	7075-T9	95,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
	BREAK-UP by MOSSY OAK	7075-T9	95,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
	CAMO HUNTER	7075-T9	96,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
	EASTON Legacy	7075-T9	95,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
	GAMEGETTER II	7075-T9	96,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
5086 Alloy	Stalker	5086	58,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
	Fall Stalker	5086	58,000	RPS Insert	One-piece Bullet, NIBB, or Field Point
	Gold Stalker	5086	58,000	RPS Insert	One-piece Bullet, NIBB, or Field Point

1 Easton straightness measurements comply with the ATA/ASTM industry standard. However, our shafts also meet a far more stringent straightness measurement of full length minus 2 inches (i.e. 34 inch shafts are measured at 32 inches).

Nock System	Nock Type	Weight Tolerance[3]	Guaranteed Straightness[1]	Color/Finish	Sizes[4]
Internal-fit	"X" Nock	±2.0 grains	±.003" max.	Black, Diamond Pattern	500, 400, 340, 300

Nock System	Nock Type	Weight Tolerance[3]	Guaranteed Straightness[1]	Color/Finish	Sizes
Internal-fit	"X" Nock	±0.5 grains	±.002" max.	Black, Micro-smooth Finish	500, 400, 340, 300
UNI System	"G" Nock	±0.5 grains	±.002" max.	Black, Micro-smooth Finish	3L-18, 3-18, 3-28, 3-39, 3-49, 3-60, 3-71 See page 29 for target sizes.

Nock System	Nock Type	Weight Tolerance[3]	Guaranteed Straightness[1]	Color/Finish	Sizes
Internal-fit	"X" Nock	±2.0 grains	±.005" max.	Mossy Oak Obsession, PhotoFusion	500, 400, 340, 300
Internal-fit	"X" Nock	±2.0 grains	±.005" max.	Black, Micro-smooth Finish	500, 400, 340, 300
Internal-fit	"H" Nock	±2.0 grains	±.005" max.	Realtree Hardwoods HD Green, PhotoFusion	500, 400, 340, 300
Internal-fit	"H" Nock	±2.0 grains	±.005" max.	Black, Smooth Matte Finish	500, 400, 340, 300
Internal-fit	Super Nock or 3D Super Nock (optional UNI & "G" Nock)	±2.0 grains	±.005" max.	Black, Smooth Matte Finish	500, 400, 340
Internal-fit	Super Nock or 3D Super Nock (optional UNI & "G" Nock)	±5.0 grains	±.005" max.	Black, Smooth Matte Finish	500, 400, 340

Nock System	Nock Type	Weight Tolerance	Guaranteed Straightness[1]	Color/Hard-Anodized Finish	Sizes
Super UNI System	Super Nock or 3D Super Nock	±1%	±.0015" max.	3-Tone Super Slam PermaGraphic Camo	2114, 2117, 2212, 2213, 2215, 2216, 2219, 2312, 2314, 2315, 2317, 2413, 2512, 2514, 2613
Super UNI System	Super Nock or 3D Super Nock	±1%	±.002" max.	Realtree Hardwoods HD Green PermaGraphic Camo	2117, 2213, 2314, 2315, 2413
Super UNI System	Super Nock or 3D Super Nock	±1%	±.002" max.	Realtree Hardwoods HD Green PermaGraphic Camo	2013, 2114, 2117, 2213, 2216, 2314, 2315, 2413, 2514
Super UNI System	Super Nock or 3D Super Nock	±1%	±.002" max.	Mossy Oak PermaGraphic Camo	2114, 2117, 2213, 2216, 2314, 2315, 2413, 2514
Super UNI System or "X" UNI System	Super Nock, 3D Super Nock or "X" Nock	±1%	±.002" max.	4-Tone Black, Brown, Dark Green & Light Green Dye Camo	1816, 1913, 1916, 2013, 2016, 2018, 2113, 2114, 2115, 2117, 2213, 2215, 2216, 2219, 2314, 2315, 2317, 2413, 2419, 2514
Full-diameter Taper Swage	Conventional	±1%	±.002" max.	Cedar-Grain, PermaGraphic	1916, 2016, 2018, 2020, 2117, 2216, 2219, 2315
Full-diameter Taper Swage	Conventional	±1¼%	±.003" max.	3-Tone Black, Tan & Brown Camo	1716, 1816, 1916, 2016, 2018, 2115, 2117, 2215, 2216, 2219, 2315
Full-diameter Taper Swage	Conventional	±5%	±.006" max.	Stalker Black	1916, 2117, 2216, 2219
Full-diameter Taper Swage	Conventional	±5%	±.006" max.	Fall Stalker 2-Tone Black & Brown Camo	1816, 1916, 2117, 2216, 2219
Full-diameter Taper Swage	Conventional	±5%	±.006" max.	Gold	1816, 1916, 2117, 2216, 2219

2 Tensile strength value may vary ±3%.
3 Grains per shafts in a dozen bundle.
4 New sizes and models are shown in red.

®/™ Registered Trademark/Trademark of Easton.
® Super Slam is a Registered Trademark of Chuck Adams.
® Hardwoods HD Green is a Registered Trademark of Jordan outdoor enterprises.

® Mossy Oak is a Registered Trademark of Haas Outdoors, Inc.
™ NEW Break-Up is a Trademark of Haas Outdoors, Inc.
™ Obsession is a trademark of Haas Outdoors, Inc.

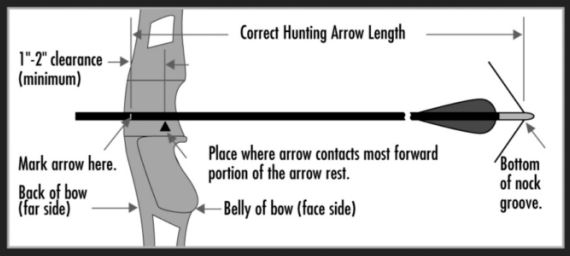
Hunting Shaft Selection Chart

SELECTING THE CORRECT HUNTING SHAFT

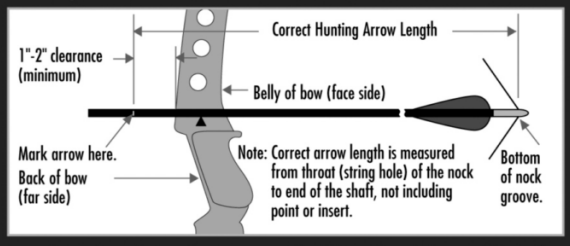
Our Hunting Shaft Selection Chart will help you, quickly and easily, find the perfect shaft match for your bow. Advanced, interactive Spine Weight Comparison and Hunting Shaft Selection Charts—now available online at www.easton.com.

1. Determining Correct Hunting Arrow Length

Bows with cut-out window. The Correct Hunting Arrow Length for bows with a broadhead cut-out sight window (including bows with overdraws) is determined by drawing back an extra-long arrow to full draw and having someone mark the arrow one to two inches in front of where the arrow contacts the most forward portion of the arrow rest.



Bows without cut-out window (which will not allow a fixed blade broadhead to be drawn past the back of the bow). The Correct Hunting Arrow Length for bows without a cut-out sight window is determined by drawing back an extra-long arrow to full draw, and having someone mark the arrow one to two inches in front of the handle.



Bow Draw Length. Draw length is measured at full draw from the bottom of the nock groove to the back (far side) of the bow. Actual arrow length and draw length are only the same if the end of the arrow shaft is even with the back of the bow (far side) at full draw.

2. Determining Actual Peak Bow Weight—Compound Bows

Compound bows must be measured at the peak bow weight as the bow is being drawn and not while letting the bow down.

The suggested shaft sizes in the charts were determined using a **"Standard" Setup** which includes:

- Use of a release aid.
- Compound bow with brace height greater than 6½".

If your setup differs from the **"Standard" Setup**, use the **Variables** (following) to make adjustments to determine the Calculated Peak Bow Weight so the correct arrow size can be selected on the Chart.

Variables to the "Standard" Setup for Compound Bows:

- Point weight over 100 grains – Add 3 lbs. for each 25 grains heavier than 100 grains.
- Bows with brace heights less than 6½" – Add 5 lbs.

Overdraw Compound Bows

If you are using an overdraw, make the variable calculations (if any), and then modify the Calculated Peak Bow Weight of your bow using the chart below.

	Length of Overdraw				
Bow Weight	**1"**	**2"**	**3"**	**4"**	**5"**
For 50#-70# Actual/Calculated Peak Bow Weight, add to bow weight—	1#	3#	6#	9#	12#

3. Determining Actual Peak Bow Weight—Recurve and Modern Longbows

Your local archery pro shop is the best place to determine the actual draw weight of your bow. Actual Peak Bow Weight for recurve bows should be measured at your draw length.

COMPOUND BOW - Release Aid
CALCULATED PEAK BOW WEIGHT - Lbs.

Medium Cam				Single or Hard Cam			
Point Weight				Point Weight			
75 (grains) 65-85	100 (grains) 90-110	125 (grains) 115-135	150 (grains) 140-160	75 (grains) 65-85	100 (grains) 90-110	125 (grains) 115-135	150 (grains) 140-160
40-44	37-41	34-38	31-35	35-39	32-36	29-33	26-30
45-49	42-46	39-43	36-40	40-44	37-41	34-38	31-35
50-54	47-51	44-48	41-45	45-49	42-46	39-43	36-40
55-59	52-56	49-53	46-50	50-54	47-51	44-48	41-45
60-64	57-61	54-58	51-55	55-59	52-56	49-53	46-50
65-69	62-66	59-63	56-60	60-64	57-61	54-58	51-55
70-75	67-72	64-69	61-66	65-69	62-66	59-63	56-60
76-81	73-78	70-75	67-72	70-75	67-72	64-69	61-66
82-87	79-84	76-81	73-78	76-81	73-78	70-75	67-72
88-93	85-90	82-87	79-84	82-87	79-84	76-81	73-78
94-99	91-96	88-93	85-90	88-93	85-90	82-87	79-84

Size	Spine @ 28" Span	Model	Weight Grs/Inch	Weight @29"	Size	Spine @ 28"	Model	Weight Grs/Inch	Weight @29"
Group A					**Group B**				
1813	0.874	75	7.9	229	1913	0.733	75	8.3	241
1716	0.880	75	9.0	261	1816	0.756	75	9.3	270
780	0.780	Rdln	6.3	183	690	0.690	Rdln	6.3	183
Group G					**Group H**				
2312	0.423	SS	9.5	276	2215	0.420	SS, 75	10.7	310
2215	0.420	SS, 75	10.7	310	2314	0.390	SS, 75	10.7	310
2117	0.400	SS, 75	12.0	348	2117	0.400	SS, 75	12.0	348
2020	0.426	75	13.5	392	2216	0.375	SS, 75	12.0	348
400	0.400	AFMJ	9.9	287	400	0.400	AFMJ	9.9	287
400	0.400	AC Slim	9.7	281	400	0.400	AC Slim	9.7	281
3-39	0.440	A/C/C	8.6	249	3-49	0.390	A/C/C	8.8	255
400	0.400	Crbn	CAWT	CAWT	400	0.400	Crbn	CAWT	CAWT
460	0.460	Rdln	7.3	212	410	0.410	Rdln	7.6	220

Carbon Shaft Weights (CAWT)

Size	Spine	ST Axis		ST Axis Obsession		ST Epic Realtree HD		ST Epic		LightSpeed		Excel	
		Grs/In	@29"	Grs/In	@29"	Grs/In	@29"	Grs/In	@29"	Grs/In	@29"	Grs/In	@29"
500	0.500	8.1	235	8.9	258	8.0	232	7.3	212	6.5	189	7.1	206
400	0.400	9.0	261	9.8	284	9.3	270	8.6	249	7.4	215	8.1	235
340	0.340	9.5	276	10.3	299	10.2	296	9.5	276	8.2	238	8.8	255
300	0.300	10.7	310	11.5	334	10.7	310	10.0	290				

USING THE HUNTING ARROW SELECTION CHART

1. Once you have determined your Correct Hunting Arrow Length and Calculated or Actual Peak Bow Weight, you are ready to select your correct shaft size:

1.A Compound bows. In the "Calculated Peak Bow Weight" column (left-hand side of the CHART), select the column with the type cam on your bow, then the column with the point weight you use. Then locate your Calculated Peak Bow Weight in that column.

For expert bow weight, arrow selection, and bow analysis visit an Easton dealer equipped with the Bow Force Mapping System. See page 39 for more information.

Correct Hunting Arrow Length

22½ 23" 23½	23½ 24" 24½	24½ 25" 25½	25½ 26" 26½	26½ 27" 27½	27½ 28" 28½	28½ 29" 29½	29½ 30" 30½	30½ 31" 31½	31½ 32" 32½	32½ 33" 33½	RECURVE BOW Finger Release ACTUAL PEAK BOW WEIGHT - Lbs. Point Weight 75 (grains) 65-85	100 (grains) 90-110	125 (grains) 115-135	150 (grains) 140-160	MODERN LONGBOW Finger Release ACTUAL PEAK BOW WEIGHT - Lbs. Point Weight 75 (grains) 65-85	100 (grains) 90-110	125 (grains) 115-135	150 (grains) 140-160
			A	B	B	C	C	D	E						41-46	38-43	35-40	32-37
		A	B	B	C	C	D	E	F						47-52	44-49	41-46	38-43
	A	B	B	C	C	D	E	F	G	H	35-39	32-36	29-33	26-30	53-58	50-55	47-52	44-49
A	B	B	C	C	D	E	F	G	H	I	40-44	37-41	34-38	31-35	59-64	56-61	53-58	50-55
B	B	C	C	D	E	F	G	H	I	J	45-49	42-46	39-43	36-40	65-70	62-67	59-64	56-61
B	C	C	D	E	F	G	H	I	J	J	50-54	47-51	44-48	41-45	71-76	68-73	65-70	62-67
C	C	D	E	F	G	H	I	J	J	K	55-59	52-56	49-53	46-50	77-82	74-79	71-76	68-73
C	D	E	F	G	H	I	J	J	K	L	60-64	57-61	54-58	51-55	83-88	80-85	77-82	74-79
D	E	F	G	H	I	J	J	K	L	L	65-69	62-66	59-63	56-60	89-94	86-91	83-88	80-85
E	F	G	H	I	J	J	K	L	L	L	70-75	67-72	64-69	61-66	95-100	92-97	89-94	86-91
F	G	H	I	J	J	K	L	L	L		76-81	73-78	70-75	67-72	101-106	98-103	95-100	92-97
G	H	I	J	J	K	L	L	L			82-87	79-84	76-81	73-78	107-112	104-109	101-106	98-103
H	I	J	J	K	L	L	L				88-93	85-90	82-87	79-84	113-118	110-115	107-112	104-109

Size	Spine @ 28" Span	Model	Weight Grs/Inch	Weight @29"
Group C				
2013	0.610	75	9.0	261
1916	0.623	75	10.0	290
3L-18	0.620	A/C/C	7.5	218
600	0.600	Rdln	6.9	200
Group D				
2113	0.540	75	9.3	270
2016	0.531	75	10.6	307
500	0.500	AFMJ	8.9	258
500	0.500	AC Slim	8.5	247
3-18	0.560	A/C/C	7.8	226
500	0.500	Crbn	CAWT	CAWT
520	0.520	Rdln	7.1	206
Group E				
2212	0.505	SS	8.8	255
2114	0.510	SS, 75	9.9	287
2115	0.461	75	10.8	313
2018	0.464	75	12.3	357
500	0.500	AFMJ	8.9	258
500	0.500	AC Slim	8.5	247
3-28	0.500	A/C/C	8.1	235
500	0.500	Crbn	CAWT	CAWT
520	0.520	Rdln	7.1	206
Group F				
2212	0.505	SS	8.8	255
2213	0.460	SS, 75	9.8	284
2115	0.461	75	10.8	313
2018	0.464	75	12.3	357
500	0.500	AFMJ	8.9	258
500	0.500	AC Slim	8.5	247
3-28	0.500	A/C/C	8.1	235
500	0.500	Crbn	CAWT	CAWT
520	0.520	Rdln	7.1	206
Group I				
2413	0.365	SS, 75	10.4	302
2314	0.390	SS, 75	10.7	310
2315	0.340	SS, 75	11.7	339
2216	0.375	SS, 75	12.0	348
400	0.400	AFMJ	9.9	287
400	0.400	AC Slim	9.7	281
3-49	0.390	A/C/C	8.8	255
400	0.400	Crbn	CAWT	CAWT
410	0.410	Rdln	7.6	220
Group J				
2512	0.321	SS	10.3	299
2413	0.365	SS, 75	10.4	302
2315	0.340	SS, 75	11.7	339
2219	0.337	SS, 75	13.8	400
340	0.340	AFMJ	11.1	322
340	0.340	AC Slim	10.7	310
3-60	0.340	A/C/C	9.5	276
340	0.340	Crbn	CAWT	CAWT
360	0.360	Rdln	8.3	241
Group K				
2512	0.321	SS	10.3	299
2514	0.305	SS, 75	11.3	328
2317	0.297	SS, 75	13.3	386
300	0.300	AFMJ	11.6	336
300	0.300	AC Slim	11.5	334
3-71	0.300	A/C/C	9.9	287
300	0.300	Crbn	CAWT	CAWT
Group L				
2514	0.305	SS, 75	11.3	328
2613	0.265	SS	11.5	334
2317	0.297	SS, 75	13.3	386
2419	0.268	75	14.6	423
300	0.300	AFMJ	11.6	336
300	0.300	AC Slim	11.5	334
3-71	0.300	A/C/C	9.9	287
300	0.300	Crbn	CAWT	CAWT

Size – indicates suggested arrow size
Spine – spine of shaft size shown (static)
CAWT – refer to Carbon box (left) for specific model and weight

Color Designation for Aluminum Arrows – Within each box the aluminum arrows are color coded.

- = lightest and fastest
- = medium weight offering good speed and durability
- = heavier weights for excellent durability and penetration
- = aluminum/carbon and carbon

Note: Shaft Weight at 29" is shown on our Arrow Selection Charts. To determine weight at your shaft length, multiply your actual shaft length by the grains-per-inch (gpi), not including point, insert, or UNI Bushing.

AFMJ	Axis Full Metal Jacket
SS	Super Slam (7178-T9 alloy)
75	XX75: NexX75, Platinum Plus, Legacy, Camo Hunter, GameGetter II (7075-T9 alloy)
AC Slim	Aluminum/Carbon Super Slim
A/C/C	Aluminum/Carbon/Composite
Rdln	Redline
Crbn	ST Axis, ST Axis Obsession, ST Epic Realtree HD Green, Excel, ST Epic, LightSpeed

Suggested shaft sizes were determined using 100-grain points. See "Variables" on left side of page.

1. B Recurve bows and Modern Longbows. In the "Actual Peak Bow Weight" column (right-hand side of the CHART), select the column with the bow type and then the point weight you use. Next, locate your Actual Peak Bow Weight in that column.
2. Move across that bow weight row horizontally to the column indicating your Correct Arrow Length. Note the letter in the box where your Calculated or Actual Peak Bow Weight row and Correct Hunting Arrow Length column intersect. The "Shaft Size" box below the CHART with the same letter contains your recommended shaft sizes. Select a shaft from the CHART depending on the shaft material, shaft weight and type of shooting you will be doing.
For larger game, you should use heavier shafts.