Ontario's Hunter Education Manual

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Ontario

100%

of your licence sales go towards the future of fish and wildlife in Ontario.

Your licence dollars support:

- Big game wildlife population surveys to assess population densities.
- Monitoring big game populations for disease.
- Hunter education.
- A province filled with opportunities to hunt deer, moose, elk, bear, wild turkey and small game.
- Conservation Officers who protect natural resources and public safety.

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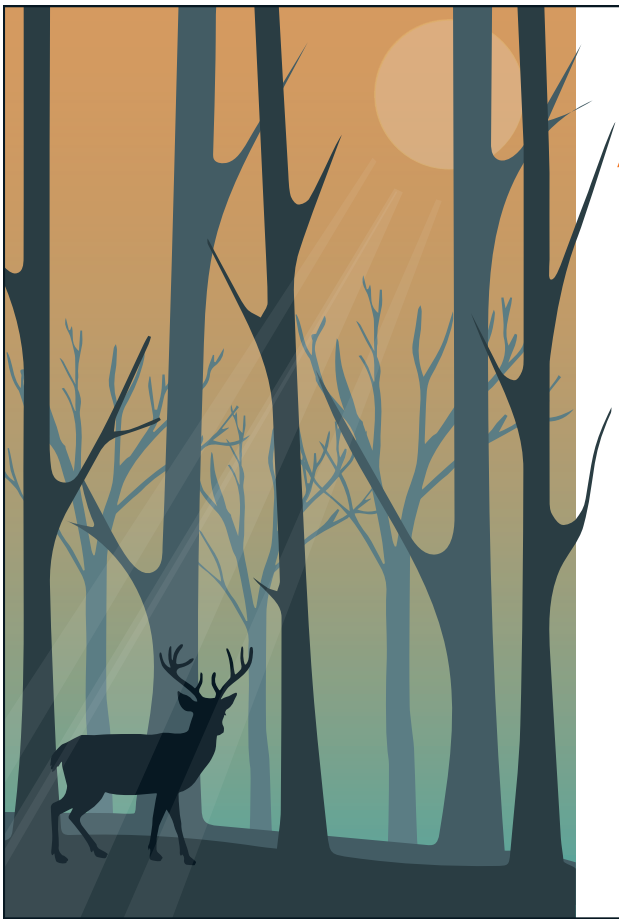
FISH and WILDLIFE

Ontario



Are you hunting big game?

Make sure you carry:

- Outdoors Card
- Licence Summary (printed or PDF saved to your charged mobile device)
- A tag for the species you are hunting, or be party hunting with a person who has a tag
- Proof of firearms accreditation if you are hunting with a gun

FISH and WILDLIFE

Ontario

Ontario's Hunter Education Manual

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Ontario is noted for the excellence of its Hunter Education Program. The Ontario Hunter Education Manual and the instructors who deliver the educational material are the fundamental components of its success.

This revised version of the manual is the direct result of the time and dedication of many individuals and groups, and the Ministry of Natural Resources and Forestry acknowledges this contribution. Grateful thanks are extended to the following who gave unstintingly of their time and expertise: Al Stewart, staff from the Ontario Federation of Anglers and Hunters, the Ontario Hunter Education Provincial Advisory Committee, the Canadian Red Cross Society, the Order of Good Cheer, Canadian Firearms Centre, Saugeen Shafts, and many Ontario hunter education instructors.

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ABOUT HUNTER EDUCATION

Hunting is an ancient tradition and an integral part of our cultural heritage. The ancestors of today's human populations ensured our survival by hunting for food and clothing.

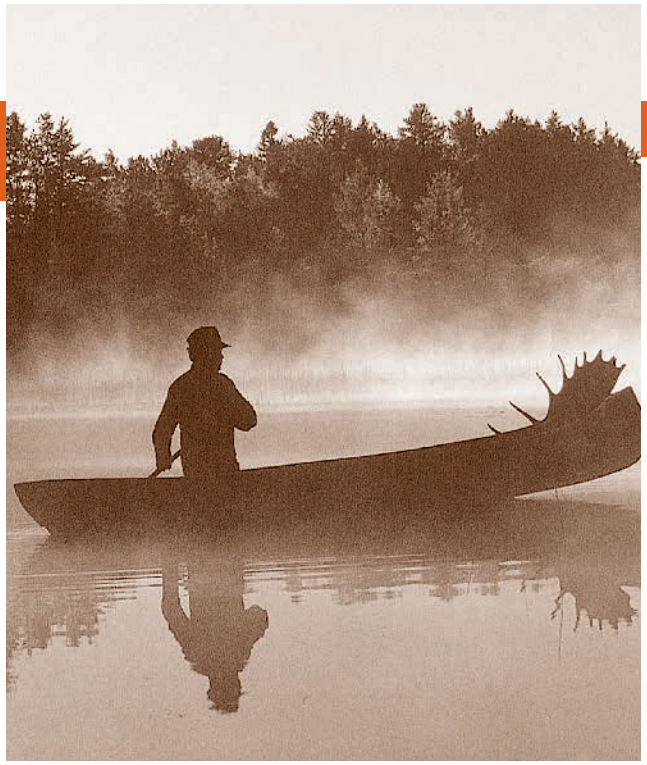
Today hunting is still an important activity for millions of people around the world. For many, it is an important method of food gathering. For others, hunting is a recreational activity that provides an opportunity to further friendships and camaraderie, to experience nature and relax in the outdoors and to make an important contribution to conservation.

Responsible hunters support the many rules that have been established to ensure that our wildlife populations are sustained and that hunting remains a safe activity.

In 1957, Ontario became the first Canadian province to establish a hunter safety training course. Over time the course has evolved into a broader Hunter Education Program.

The Ontario Hunter Education Program will assist you to understand the natural world and become a knowledgeable and responsible hunter. The program provides introductory information about:

- ecosystems and wildlife management
- hunting laws and regulations
- hunter responsibilities
- identification, biology, management of and hunting techniques for big game, small game and waterfowl
- hunting and survival equipment
- the hunter's role in society.



c. Blair Dawson

The program also reinforces the firearms safety information contained in the Canadian Firearms Safety Course.

New hunters of all ages must take hunter education training and pass an exam before they can purchase their first hunting licence.

Ontario's Hunter Education Manual provides the essential information you require. More than one million individuals have successfully completed hunter education training.

Welcome to Ontario's Hunter Education Program!

Is hunting safe?

In Ontario each gun hunter must pass the Canadian Firearms Safety Course and the Ontario Hunter Education Course exams. Strict laws regulate when, where, what and how a person can hunt. The excellent education program and the regulations and rules contribute to a recreational activity with one of the lowest incident rates.

Does legal hunting endanger wildlife populations?

Legal hunting does not endanger wildlife populations. Those species that are hunted are managed sustainably through long-term monitoring and management programs. The pressures on our wildlife populations today are varied and include habitat destruction and pollution.

How is hunting important?

Hunters contribute financially and through a variety of volunteer programs, to the maintenance and enhancement of wildlife populations and their habitat. In Ontario, the money from hunter licence fees contributes towards monitoring and protecting wildlife. The funds raised with the Waterfowl Stamp on the federal Migratory Bird Hunting Permit are used to support habitat protection programs that benefit all wildlife that live in and adjacent to wetlands.

c. OFAH

Recreational hunting supports thousands of jobs and represents an important economic contribution to Ontario's economy.

REVIEW QUESTIONS

1. What does hunting mean to you?

ECOLOGY, ECOSYSTEMS AND WILDLIFE MANAGEMENT

Why do hunters need to understand basic ecology and the natural functions of ecosystems? The reason is that humans are only one of approximately 1,300,000 types of organisms that share this planet. We are just one part of a wonderfully complex natural world.

Hunting allows active participation in the natural food chain – the most fundamental process in life. That direct participation brings with it an important responsibility for hunters to understand their role and the effects of their actions.

ECOLOGY

Ecology is the study of how the natural world works. It attempts to understand the relationships and interactions among living things and their surroundings. Knowledgeable hunters understand that they, and the animals they hunt, are only small parts of the much larger natural world. They also understand that those parts are directly or indirectly connected to all the other parts. The natural world could be described as a giant spider web; when one strand is moved, the entire structure is affected.

ECOSYSTEMS

The natural world is comprised of countless ecosystems.

Ecosystems are specific communities of living things, interacting with one another and with the environment (air, water and soil). An ecosystem can be a northern spruce forest, a marsh or a hardwood ridge. A beaver pond is a smaller ecosystem within the spruce forest. The marshy shoreline of the pond is another ecosystem. A decaying log lying on the shoreline is yet another.

c. J. D. Taylor

Hunters who understand the life history of, for example, the white-tailed deer also have an understanding of the parts of the ecosystem that support deer at different times of the year. They appreciate the importance of conifer trees for protection from deep snow in the winter, or the edges of fields and forest openings in the summer for new food growth.

Hunters must train themselves to think in terms of ecosystems. Specific ecosystems or combinations of them contain the “homes” of wild animals, including those that are hunted. Understanding the broad differences between ecosystems and the animal species that inhabit them makes you a more knowledgeable hunter. Knowledgeable hunters are more successful, and an understanding of the natural world contributes to the overall enjoyment of hunting. Good hunters are good naturalists.

HABITAT

Habitat is the "home" a species of wildlife lives in that provides everything it needs to survive – places to hide, breed, rest, eat and drink. Knowledgeable hunters understand the daily and seasonal habitat needs of the animal they are hunting. When scouting and hunting, they are constantly looking for proper habitat because that's where the animal will be found. The essential components of good habitat include the following.

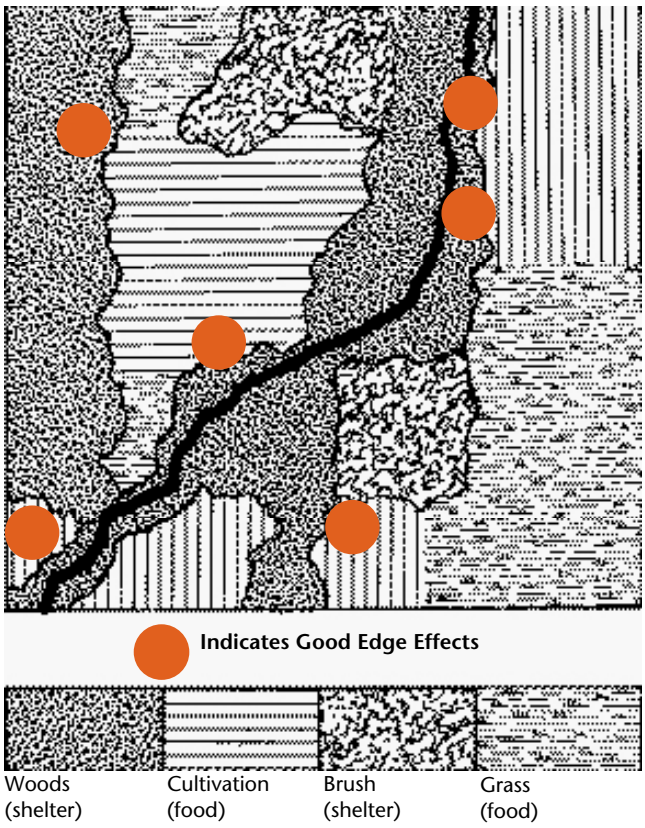
- **Cover**

  Wildlife needs cover for concealment and protection while feeding, sleeping, breeding, roosting, nesting and travelling. It provides escape and protection from predators and from the weather. Each species has its own cover preferences. For example, snowshoe hare like thick brush piles and cedar swamps; white-tailed deer like dense brush and heavily wooded areas; and groundhogs like sandy soil to construct their underground homes. Proper cover is a vital part of each animal's daily and seasonal life cycle. If there is no cover in an area then wildlife will not be abundant. A lack of cover over large areas significantly reduces the quality of habitat and is therefore a limiting factor for wildlife populations.

- **Water**

  Availability of water is another crucial habitat requirement for all living organisms. For some species, like beaver and otter, wetland habitats satisfy almost all their needs. The edges and shorelines of ponds, creeks, marshes and swamps are a magnet for most wildlife species.

  There are great varieties of plants that grow in and near water that are eaten by wildlife. Cover adjacent to water is usually very dense, and most waterways have well-used animal trails along the edge. There is also a large variety of insects, birds, fish, amphibians and small mammals living near water that provide food for larger predators. The areas where water and land habitats meet are some of the very best wildlife habitats because food, cover and water all come together in one location.



Edge Effect

- **Food**

  Food is another critical wildlife habitat requirement. No food means no wildlife. Different wildlife species seek out the food that best meets their nutritional needs. Food needs generally change with the seasons and seasonal availability. For example, white-tailed deer will feed on new grasses, emerging green plants, wildflowers and acorns in the summer to fall period, but shift entirely to woody buds and conifer, such as cedar, in the winter. They select the most nutritious, abundant and easily obtainable food.

- **Edge Effect**

  Edge effect occurs when the edges or borders of habitats overlap each other. It is here that change in vegetation is most noticeable. This zone of change creates "edge" and usually provides the greatest mixture of habitat. A large percentage of game species spend much

of their time in these edge areas. Food, water, escape shelter and resting areas all can occur within a small area. Knowledgeable hunters can find game by "hunting the edge."

- **Home Range**
  The home range is the area that an animal will occupy and travel over as it carries out its daily or yearly activities. Once a wildlife species has located the necessary habitat – the combination of cover, food and water, or place to live – it establishes its home range. Home ranges vary in size. A ruffed grouse may occupy only a few hectares; a black bear may occupy many square kilometres, and species such as waterfowl and woodcock may travel across entire continents to satisfy their habitat needs.

ECOSYSTEM AND HABITAT SUMMARY

A knowledgeable hunter understands the ecosystem preferences of the animal being hunted.

For example, an ecosystem that supports ruffed grouse has:

- forest openings and other open areas with lots of sunlight and young growth adjacent to coniferous trees for cover and roosting;
- a food source which includes aspen or poplar trees and other sources of berries, nuts, young leaves and buds; and
- a nearby water source such as a creek or pond.

The sum of the above ingredients adds up to ruffed grouse habitat.

Understanding the ecosystem, the seasonal habitat needs and the life cycle of the hunted animal makes you a knowledgeable and well-prepared hunter. You have a greater appreciation of the animal and other creatures that inhabit the same ecosystem. The entire hunting experience becomes more interesting and fulfilling.

c. J. D. Taylor

Natural predator

FACTORS THAT INFLUENCE WILDLIFE POPULATIONS

Even with good habitat, which means adequate food, cover and water, wildlife populations are still vulnerable to many different stresses. Some of these include the following:

- **Predation**
  The natural food chain consists of some animals eating plants, while others eat the animals that eat the plants. This is the natural "food chain." For example, in central Ontario, the wolf eats the raccoon, which eats the frog, which eats the insect, which eats the smaller insect that eats the plants.

  A predator is any animal that eats other animals. The animals that get eaten are called prey. Animals such as raccoons can be both predators and prey. They eat crayfish but are eaten themselves by wolves. Herbivores – animals that eat only plants – have evolved as the natural prey of meat-eating predators. Larger herbivores, such as moose, woodland caribou and white-tailed deer, are food for

large predators, such as gray wolves and black bears. Smaller herbivores like snowshoe hare and ruffed grouse are food for smaller predators such as lynx, fox and Great Horned Owl.

Predators need to kill and consume other animals in order to survive. This is their role in the food chain.

Most predators are adapted to pursue and kill specific prey species. Gray wolves have the physical size and social structure (wolf packs) which allow them to kill moose. Pine marten have the speed and agility to catch red squirrels, and lynx have the speed and large snowshoe-like paws to catch snowshoe hare.

Predator numbers are usually dependent on the abundance of their specific prey. For example, as snowshoe hare numbers decrease so does the lynx population; when hare populations increase so do lynx populations. Predators can shift to different prey species. For example, when beaver are not present in northern Ontario, wolves may shift to a diet of caribou or deer.

- **Weather**

Climate and weather are major factors that influence wildlife population health, distribution and numbers. Ontario has very dramatic seasonal changes from cool wet springs and hot, dry summers to cold winters with deep snow. Cold, wet spring weather can increase the mortality of young ruffed grouse chicks and other ground-nesting birds. Hot summers dry up beaver ponds and marshes, making waterfowl nests more susceptible to predation by skunks and foxes. Prolonged periods of deep snow and cold weather can cause winter starvation in white-tailed deer. Weather changes can increase or decrease the survival of insects, the rate of plant growth and the availability of seeds and fruits, all of which eventually influence the survival of animals that depend on them for food.

Weather during the hunting season can influence the number of animals taken by hunters. When the weather is bad, hunters tend to spend less time in the field and many game mammals alter their movement or feeding patterns, making them less vulnerable to hunting.

The resulting effects of weather can usually be related to the amount of cover and food available to wildlife. Populations with good cover and food will be less affected than those in poorer habitats.

- **Disease and Parasites**

Wild animals, like humans, are susceptible to sickness, disease and parasites. Most diseases and parasites do not cause undue stress to the host animal in normal circumstances, with tularemia and rabies being exceptions. One of the more commonly seen wildlife ailments is mange, caused by a small insect. Mange causes skunks, foxes, coyotes and wolves to lose their hair. Hair loss in moose, caused by a winter tick parasite, is also highly visible. Severe hair loss results in the animal losing portions of its warm winter coat and can lead to hypothermia and sometimes death. Other diseases and parasites are less visible but still present in wildlife populations.

Disease and parasites are part of the natural world. The severity of their impact can often be related to overpopulation, crowding and loss of suitable habitat.

c. J. D. Taylor

White-tailed deer in deep snow

- **Starvation**

In Ontario, winter is usually the time when food availability becomes a problem for wildlife. Deep snow covers plant foods and makes travel difficult. The energy spent finding food may be greater than the energy gained when the food is eaten. As winter progresses, animals become dependent on their own fat reserves built up during the summer and fall. Life can be hard. There are fewer young prey species available for predators, and they are more difficult to catch. The buds and plants that are available as food are not as nutritious as spring and summer growth. Cold weather and winter winds require animals to use more energy to generate body heat in order to stay warm.

All these factors make food a problem for most animal species during the winter and starvation may result, especially for younger animals that are not as experienced at finding food, or big enough to fight for their share of what is available.

- **Carrying Capacity**

Carrying capacity is the number of animals an area of habitat can support throughout the year. The number of animals that are born and die each year is also a direct result of an area's carrying capacity. An area of habitat has only enough food and cover to support a given number of animals. It is similar to a farmer having enough food and space in his barn for a specific number of animals. When all the food and cover is used, any additional animals must move or die.

- **Human Activities**

Habitat is the single most important element in the health and survival of wildlife populations, and humans often influence and change habitat. The cities, towns and farms where we live were once homes for wildlife. Cottages occupy shorelines that used to be wildlife habitat. If not carefully planned, golf courses, hydro-electric and highway corridors, subdivisions and industrial expansion all alter, and can destroy, wildlife habitat.

The use of herbicides, fertilizers and pesticides on farms, golf courses and our own lawns may indirectly affect wildlife populations by changing plant and insect abundance or they may directly enter the food chain and affect wildlife reproduction and health.

Some species, such as raccoons, coyotes, geese and white-tailed deer, have learned to co-exist with humans and have taken up residence in and adjacent to built up areas. Others, such as gray wolves, are less tolerant of human disturbances and have ceased to exist in areas they once occupied.

Regulated hunting can affect wildlife populations. The removal of animals in excess of the habitat carrying capacity can reduce social strife and disease, resulting in healthier populations. On the other hand, an

overharvest of females can lead to reduced birth rates and a population decrease.

Wildlife management activities can have an impact. Introductions, where new species such as pheasant are released into the wild, and reintroductions where species like the wild turkey are released, establish new populations in the ecosystem. This results in new predator-prey interactions, and new impacts on available food, cover and breeding areas.

Other management actions in the forest, such as logging, road construction and damming of rivers also have a direct effect on wildlife populations. Some populations benefit from clearing or altering the forest, such as those species that need young brush and tree growth. Others are displaced, including those requiring mature forests and those that cannot co-exist with humans. However, many types of disturbance have only temporary impacts as the forest regenerates or a clearing once again fills in with shrubs and young trees. Other disturbances, like the draining of a marsh or urban development, have more lasting effects on wildlife habitat.

SUMMARY

After the ecosystem and habitat needs of wildlife have been satisfied, wildlife still has to contend with a number of external pressures such as predation, weather, disease, parasites and human activities. These pressures can have a detrimental effect by making the animals weak or sick. It can make them more susceptible to predators or kill them. However, these are all part of natural world processes.

Excessive death due to predators and disease is usually an indication that there is a more fundamental problem associated with overcrowding or inadequate food and cover.

Human activities have an effect on natural ecosystems. As our population grows, we will continue to integrate economic, social and cultural goals with ecological goals. Our activities can be both harmful and beneficial to specific wildlife species. Our challenge is to understand the impacts of our activities on natural ecosystems and do our best to reduce those that are negative.

WILDLIFE REPRODUCTION AND MORTALITY

Apart from the external impacts of such factors as weather and human activities, the internal dynamics of birth and death in wildlife populations determine the overall size and health of the population.

The food chain that operates in most ecosystems has:

- primary producers that produce food by making plant material from soil nutrients, air, water and sunlight;
- primary consumers that eat plants (herbivores);
- secondary consumers that eat other animals (predators); and
- decomposers that turn dead material and waste products back into nutrients that once again become “food” for the chain.

One result of this complex interrelationship is that most wildlife species have high birth rates (numbers born each year) and a corresponding high death or mortality rate (numbers dying each year).

BIRTH RATE

The smaller species of wildlife generally have higher birth rates than the larger species. The most important factors that affect the birth rate are:

- age at which females begin to breed;
- numbers of breeding females in the population;
- number of times each year the female produces young;
- number of young in each litter; and
- available food and cover.

DEATH RATE

The death rate of most wildlife species is naturally high. Mortality is greatest in the young in that they are most susceptible to predators, disease, starvation and bad weather. The principal factors affecting the death rate of wildlife in Ontario are:

- availability of food and cover;
- predation;
- weather;
- disease and parasites; and
- human activities.

The long-term survival equation for any wildlife species is simple. If the birth rate is greater than the death rate, population numbers will increase. If the death rate is greater than the birth rate, population numbers will decrease. Stable populations have birth and death rates that are relatively equal.

The deaths and births of individuals can affect the social structure of a wildlife population. Stress can develop in a population if there are too many or too few animals of a given age and sex. For example, if males are in short supply females may not be able to find mates. On the other hand, too many males may result in excessive fighting over too few females. A perfect balance is never totally reached; however, major long-term disruptions or imbalance to the social structure of some populations can lead to reduced numbers and unhealthy populations. Wildlife managers need

to understand the social needs and interactions within a species when determining seasons and harvest allocations.

Wildlife population numbers change with the seasons and vary dramatically over the course of a year. The population is largest in the spring after the young are born.

The number of young normally produced each year varies widely between species. For example, a mature cow moose normally gives birth to one or sometimes two calves. On the other hand, a female ruffed grouse may hatch eight to 10 chicks.

In the spring of the year, habitat conditions are usually excellent. There is new vegetation for the herbivores, lots of insects, and of course lots of new born animals for predators to easily catch to feed their own young.

The mortality rate for wildlife populations starts even before the young see the light of day. Small predators like skunks and raccoons eat the eggs of ground-nesting birds before they hatch. Large predators find heavy pregnant females easier to catch. A white-tailed deer doe stressed during a long cold winter may not produce a fawn in the spring because she needed to use all her body nutrients for her own survival.

The death rate for newborn young starts immediately. Predators find young chicks and litters of newborn animals easy to catch. Wet and cold spring weather can kill newborn animals. Forest fires, agricultural machinery and highway traffic all take their toll.

As summer progresses, wildlife populations continue to decrease due to predation and other causes. Newborn animals and birds contribute the most to these losses because they are smaller, less experienced and less able to fend for themselves.

In the fall, hunters add to the mortality of wild populations. Human hunting is not a new form of predation. Prey species have evolved over the years to compensate and survive.

CARRYING CAPACITY

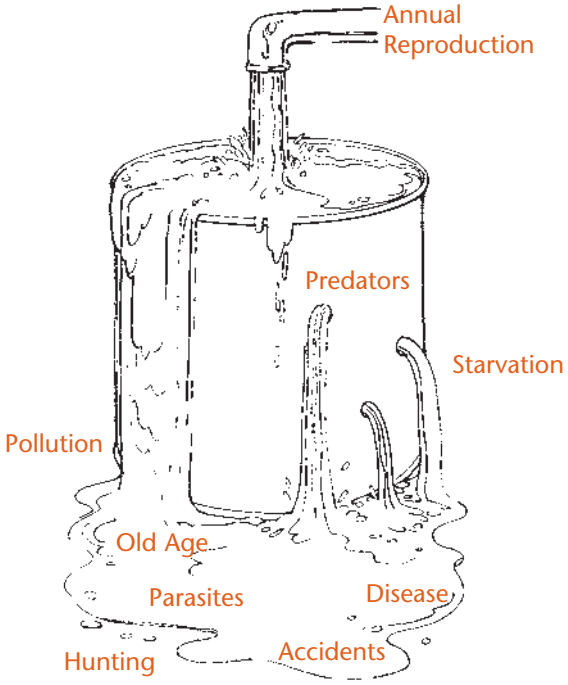
Carrying capacity has been discussed earlier and it has a direct bearing on the reproduction and mortality of animals. An area of habitat can only support a certain number of animals. The numbers of animals that are born and die each year is directly related to an area's carrying capacity.

There is no waste in nature.

Animals that die from disease, starvation, wild predators and human hunters are well utilized. For example,

- their bodies feed scavengers such as vultures;
- their skeletal bones provide nutrients for mice and squirrels;
- the mice and squirrels, in turn, feed foxes and hawks;
- the foxes and hawks, in turn, feed and raise their young; and
- humans consume the meat of the game animals they kill.

It is a wonderfully complex process and hunters have the opportunity to observe, understand and share in it because they are part of it.



Carrying capacity of habitat

All that is required is that a sufficient number of animals, or the breeding stock, survive until the spring to breed and produce new young, and the great cycle starts again.

SUMMARY

Wild animals:

- are part of complex ecosystems inhabited by numerous other species;
- occupy areas within the ecosystem that satisfy their habitat requirements of food, cover and water;
- are affected by weather, diseases and parasites, predators and the abundance of food;
- are affected by human uses and changes to the land that can have both negative and positive impacts; and
- are affected by "carrying capacity" of the habitat as there is only food and cover for a certain number of animals.

With this basic knowledge, supported by ongoing scientific studies and regular inventories, wildlife managers work to ensure the survival and sustainable use of wildlife populations.

WILDLIFE MANAGEMENT AND SUSTAINABLE USE

Introduction

Wildlife is a renewable natural resource. It naturally replenishes itself, as opposed to non-renewable resources such as petroleum products like oil, that, once used, are gone forever. Using ecological principles and scientific knowledge of how individual ecosystems function, wildlife managers protect, maintain and manage wildlife populations.

Renewable natural resources can be managed so that humans can benefit from them now and forever, if used at a level that does not jeopardize their future production and availability. This is called sustainable management and use. As long as allowable harvest levels are carefully determined and the balance between birth rate and death rate is maintained, hunters and non-hunters can enjoy Ontario's wildlife for generations into the future.

Wildlife managers must manage specific animal populations, such as moose, within the context of the entire ecosystem. For example, gray wolves are part of the ecosystem used by moose. The predators are as important as the moose and the "share" taken by wolves and black bear has to be taken into account in determining harvest levels for hunters. At one time, wolves were viewed as competitors to hunters; however, we now understand their important role in the ecosystem.

Hunters enjoy many aspects of the natural world. A moose hunting experience could include the sight of a wolf track or the sound of a howl carried on the night wind.

Hunters have traditionally been conservationists, contributing to the earliest conservation initiatives.

WHY MANAGE WILDLIFE?

Wildlife species and populations evolved and survived for thousands of years without any management. Why do we manage them now?

While humans are part of the natural world we also have a major impact upon it. Our population centres, our activities such as farming, logging, building and hunting, and our recreational, economic, social and cultural values make us a threat, but also a benefactor, to wildlife. Humans have wildlife-related interests that include economic, recreational, artistic and spiritual uses. As a result, both those who hunt and those who choose not to will continue to affect wildlife in one way or another.

Ignoring wildlife is not an option. We have a responsibility to understand and maintain natural ecosystems and wildlife populations. We also have a responsibility to ensure the use of wildlife is sustainable.

The primary goal of wildlife management is to sustain wildlife species and their ecosystems while managing their use to meet the present and future needs of our citizens.

WHO MANAGES WILDLIFE?

In Canada, migratory birds, such as ducks, geese and woodcock, are managed by the terms and conditions set out in the Migratory Birds Convention Act. Migratory birds are those that use territory in Canada, the United States and/or Mexico to meet their habitat requirements. The act is a treaty signed by Canada, the United States and Mexico to share management responsibilities for migratory birds. The federal government, through the Canadian Wildlife Service, administers the act in Canada.

Canada geese on golf course

In Ontario, the provincial government, through the Ontario Ministry of Natural Resources and Forestry, has responsibility for the management of all other wildlife except for migratory birds. The main legislation that controls the protection and management of Ontario wildlife is the Fish and Wildlife Conservation Act. The ministry also has authority to enforce the provisions of the Migratory Birds Convention Act as they apply to the province.

The Ontario Ministry of Natural Resources and Forestry and the Canadian Wildlife Service work closely together, and with others interested in wildlife management such as: other government agencies, universities, hunting organizations, other stakeholder agencies representing a wide array of wildlife and habitat interests, individual hunters, landowners and the general public.

Hunters play an important role in protecting and managing wildlife resources.

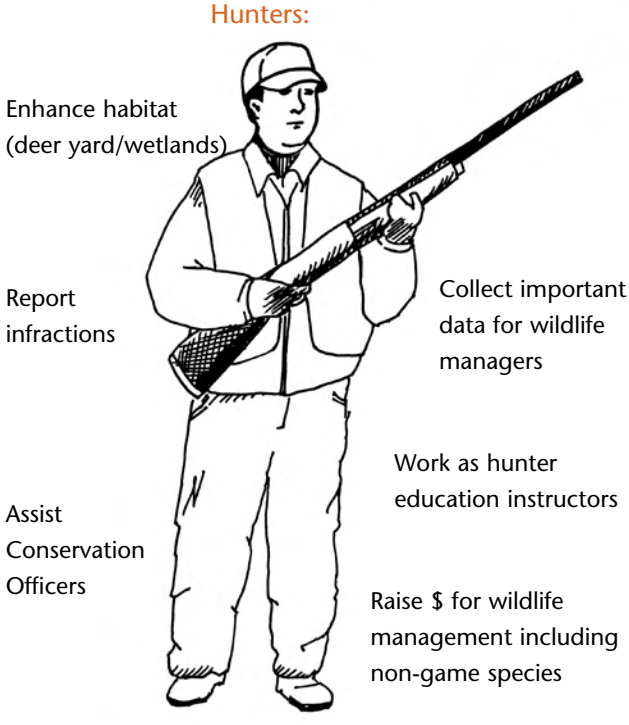
Hunters have been key players when it comes to the protection of wildlife habitat. Hunters and their organizations have raised millions of dollars to protect and manage wildlife habitats.

In addition, they support data collection and research to understand the biology and management of wildlife.

Hunters contribute information to the Ministry of Natural Resources and Forestry which is used for wildlife management and enforcement programs. Hunters are required to complete mandatory harvest reports if they purchase a licence to hunt moose, elk, deer, bear, wild turkey, and wolf/coyote (in WMU's where a tag is required). Hunters are required to complete a harvest report even if they didn't participate in the hunt or harvest an animal.

Hunters report infractions, identify threats to habitat and raise conservation concerns.

Hunters are often directly involved in wildlife management. Many maintain their own private property for the benefit of wildlife. They band waterfowl, create and maintain wetlands and other critical habitat, help with special programs such as wild turkey and elk, assist at game check stations, and work as Hunter Education instructors.



WILDLIFE MANAGEMENT TOOLS

Wildlife managers use a variety of research, inventory and legal tools to manage wildlife populations. These include:

- biological research
- inventory
- habitat analysis and management
- Wildlife Management Units
- seasons and bag limits
- species reintroduction/restoration/recovery
- hunting regulations
- public education
- social and economic research.

BIOLOGICAL RESEARCH

Wildlife managers need to understand the life history and biology of the creatures they are managing. They study: the effect of weather on birth rates and death rates; the home range required by a given species; the effect of predators; diseases; how forestry and agricultural practices affect wildlife habitat; and numerous other questions. Research programs to obtain answers for these and other questions are ongoing. Hunters are occasionally asked to provide information, fill in survey forms, or submit specimens from harvested animals to support research. Responsible hunters support research programs and also make the effort to understand the purpose and use of the research results.

Managers also need to develop the most effective techniques for surveying and inventory. Researchers study different techniques, such as aerial surveys and different survey plot sizes, to determine the most cost-effective and accurate means of collecting information.

INVENTORY

It is important for wildlife managers to have a reliable estimate of the size of a wildlife population in order to manage a given species. Knowing the exact number of individuals in a population is not necessary or practical to successfully manage the population. Finding and counting every animal in a moose population would be costly and nearly impossible. However, with a series of reliable estimates of the size of the population, managers can determine whether the population is growing, stable or decreasing. That information may be all that is needed to manage some wildlife populations.

Some species are managed using trend information gained over very long periods of time. This is a common technique used for small game. For example, managers have learned that if the habitat remains stable, hunting harvest does not have a serious impact on the sustainability of ruffed grouse or rabbit populations. Before the breeding population is seriously affected, hunting success starts to decrease. Hunting restrictions may be used to reduce harvest. This can be done by closing or shortening seasons or reducing bag limits. As success decreases, hunters stop hunting, or move to other areas. The populations then have the opportunity to rebuild themselves. Managers keep track of population trends and take additional action if the trend continues to show a decreasing population over an extended period of time. Continued declines may indicate there may be habitat, disease or other problems.

An assessment of the habitat, together with the population estimate, allows managers to determine the carrying capacity of a given area. Carrying capacity is the number of animals an area of habitat can support throughout the year.

The first step in getting an estimate for some species is to identify and inventory the specific habitat appropriate to each species. Small

representative portions of this habitat are then surveyed and animal counts are carried out. From these sample areas, estimates are made for the total number of animals across the entire habitat. For example, by counting moose seen from the air on sample plots, the average number of animals can be determined and estimated for larger areas of the same type of habitat.

Many species of wildlife occupy different habitats at different times of the year. In winter, for example, white-tailed deer move to stands of dense conifer such as hemlock, pine and balsam fir. These provide protection from winter weather. In cases such as this, both winter and summer habitat must be inventoried and assessed. The seasonal habitat with the lowest carrying capacity – usually the winter – is the most critical and will be the limiting factor on the total population. It is the "bottle-neck" that determines the population size.

Big game surveys are usually conducted during winter months when the snow on the ground helps to make animals more visible from the air. Survey personnel are trained to spot and identify animals and to accurately record sex and, for some species, age groups. This is a conservative estimate as not all animals in the survey area will be seen because of dense forest cover.

Different species of game can have different inventory techniques. For example, during the breeding season, male ruffed grouse make a drumming noise on an average of every four minutes in the early morning and late evening. If a series of four-minute stops is made on a survey line, the average number of drums per stop can be counted and then used as an index for spring breeding populations each year.

In other circumstances, animal tracks, the amount of feeding on vegetation, and counting scat or animal droppings can be used to estimate population sizes.

Helicopters can be used for wildlife surveys

Waterfowl and other migratory birds make regular annual migrations across entire continents. Some species, such as the blue-winged teal, migrate to winter habitat as far away as Central and South America, returning to Canada to nest the following spring.

In these cases, wildlife managers must identify and evaluate the two separate habitats required by the species, and the travel routes or flyways that are used. Flyways used by waterfowl during their annual migrations have been well-studied, making it possible to predict where, and to some extent when, various species of waterfowl will be found during migration. These staging areas, or stopping places, used during migration are critical habitat areas for waterfowl.

Such information is needed to establish hunting seasons and bag limits to ensure an equitable sharing of the resource with the United States and Mexico under the Migratory Birds Convention Act. This information is also used to help preserve critical habitat areas or formulate plans to rehabilitate disturbed habitat.

HABITAT ANALYSIS AND MANAGEMENT

Habitat, the place where animals live, is the key to maintaining wildlife populations. Habitat maintenance and management is a critically important tool used by wildlife managers. Cover, food and water are the three main ingredients of habitat.

Habitat cannot be "preserved" perpetually at a particular stage of growth. In natural ecosystems changes are constantly occurring. Plant cover and food used by wildlife will regenerate, grow, mature and be replaced by other plants. Each stage in the series or succession of changes creates a different kind of habitat and a change in the wildlife that use it.

Hunters understand that areas now offering good ruffed grouse or rabbit habitat will grow into mature forests, creating a different ecosystem that supports different animals. An area with many different habitat types supports many different types of wildlife.

- ### Cover

  Ontario's long, cold winters and large amounts of snow mean that wildlife cover is critically important. For example, white-tailed deer in central and northern Ontario spend the winter in traditional "deer yards." Deer yards are naturally occurring habitats that support dense stands of conifer trees, which provide deer with food, protection from winter winds, and reduced snow depth. Wildlife managers have mapped the locations of the larger Ontario deer yards. They work closely with landowners and forest logging companies to protect existing conifer trees and ensure the growth of future cover trees.

  Birds and other smaller wildlife species that benefit from forest openings created by logging also need protected cover patches and travel corridors, to meet their habitat requirements. Shoreline cottage development needs to ensure that cover trees and brush are left for wildlife. Wildlife managers and foresters participate in the planning of forest logging and shoreline development plans, to ensure these wildlife needs are met.

  In southern Ontario county forests, farm woodlots and hedgerows provide winter protection for a wide variety of large and small wildlife species. A few strips of unmowed grasses along field edges and around the base of hedgerow trees are all the assistance European hare need to survive Ontario winters. Wildlife and land use managers work closely with landowners, developers and municipalities to educate them about the importance of cover, to help protect what is there and to encourage new planting.

- ### Food

  Wildlife managers know that food requirements of different species change at different times of the year. Food for wildlife is usually abundant in Ontario, with the exception of the winter months. In central and northern Ontario, forest logging and wildfires create openings in the forest and stimulate the growth of new shrubs and trees. Animals such as white-tailed deer and moose spend the winter feeding mainly on the twigs and buds of new growth, called browse. In the confined and crowded areas of winter deer yards, there can be a shortage of browse, or the trees that provide food may have grown beyond the animals' reach. In these circumstances, wildlife managers may prescribe that new deer browse be created through specialized logging or tree

planting. In more southern areas, education programs encourage landowners and interested organizations to plant berry-producing shrubs and trees to benefit wildlife and winter birds.

- Water

  The loss of wetland habitat, such as swamps and marshland, is a major factor limiting waterfowl populations. Wildlife managers and other groups work to preserve the remaining Ontario wetlands by participating when long-term land use plans are being made, and by reviewing development proposals. Creating potholes in dense cattail marshes, and maintaining water levels by constructing dams, can result in new nesting habitat for waterfowl. Construction of small nesting islands in shallow lakes can increase reproduction success for ducks and geese.

  Many interested organizations also continue to play a lead role in purchasing, rehabilitating and protecting wetlands.

WILDLIFE MANAGEMENT UNITS (WMU)

As a tool to assist in wildlife management, the Ministry of Natural Resources and Forestry has divided Ontario into a series of Wildlife Management Units (WMUs) whose geographically-based boundaries are generally based on ecosystems, geography and human population. WMUs allow wildlife managers to develop management objectives, plans and inventories for specific areas that share similar biological and human interests. They are used as a geographic basis for creating a wide range of management options, such as determining hunting seasons and establishing bag limits. WMUs provide the geographic basis for many population surveys. When hunting, it is important to know which WMU you are in and know the rules that have been established for that unit.

Diverse habitat

SEASONS AND BAG LIMITS

Information from population surveys, hunter harvest reports, habitat analysis and other considerations are used to establish hunting seasons and bag limits. Hunting seasons traditionally occur in the fall when young of the year are no longer dependent on their mother for survival. Animals are generally in good physical condition as they get ready to enter winter. Waterfowl are migrating between their summer and winter habitat. The days are cool and the meat of harvested animals is less likely to spoil when it is being transported out of the bush.

Wild turkey release

Wild turkey is one species that has a spring season based on its unique breeding style, reproductive rates and population size. The spring season protects females by allowing only the harvest of bearded (mostly male) turkeys. One tom will breed with numerous females, and the females raise numerous young. Toms and hens look very different in the spring, so hunters are unlikely to make a mistake when hunting this species. There is also a fall season where either sex can be harvested.

Bag limits, or the number of individuals of a particular species that a hunter may take in a day or season, are based on an estimate of the population, the probable hunter success, sustainability of the species and the wildlife manager's long-term objectives for that species in that WMU. For white-tailed deer, a controlled number of antlerless tags are issued in order to maintain the desired number of breeding females in the WMU. For moose, adult bull and cow tags are controlled, and are based on the size and density of the herd and the desired population objective in the particular WMU.

Waterfowl bag limits are established based on the overall health and population size of migratory populations, and the need to share harvestable surplus among various provinces, states and countries.

As small game species have such high birth rates, similar restrictions have not been necessary. These species are managed by setting bag limits and seasons alone. Historically, hunting has had little impact on the trends of small game populations.

SPECIES REINTRODUCTION

Some wildlife species have been lost, or populations severely decreased, because of a combination of natural and human influences. Wildlife managers can develop programs to restore species that have been lost. This involves returning a species to an ecosystem it once occupied.

The ministry has special recovery programs and legislation for species that are considered vulnerable, threatened or endangered in Ontario. These programs help preserve and restore habitats and may also involve the release into the wild of some species. One example of a successful species is the restoration of wild turkey.

Wild turkeys disappeared from Ontario, around 1900 or shortly thereafter, because of habitat destruction and uncontrolled hunting. Between 1984 and 1987, two hundred and seventy-four wild turkeys were live-trapped and released in Ontario. The program has been extremely successful, and wild turkey populations are now established across southern Ontario.

HUNTING REGULATIONS

The objective of wildlife management is to protect and maintain wildlife populations, and to allow the sustainable use of wildlife. Hunting, when conducted within the law, is considered a sustainable activity that provides recreational, social, economic and cultural benefits.

Conservation Officer with youth

Hunting regulations or rules may change from year to year, so it is important to read the annual Hunting Regulations Summary. These rules are set to ensure the sustainability of wildlife as an important part of a naturally functioning ecosystem, and to provide benefits to the people of Ontario, including hunters.

PUBLIC EDUCATION

An essential part of all wildlife management programs is public education. When members of the public understand ecosystems and the basic principles of habitat, carrying capacity and population dynamics, they can make educated decisions with respect to supporting conservation initiatives and, in some cases, managing their own property.

Sometimes, hunters are not fully informed of the complexities of wildlife management and the rationale for the many decisions associated with protecting and managing wildlife. Knowledgeable hunters are better hunters; they understand and can explain the reasons why hunters must abide by the rules that are set.

SOCIAL AND ECONOMIC RESEARCH

Ontario's wildlife is a public resource. The Ministry of Natural Resources and Forestry has the responsibility to protect and manage wildlife on behalf of the people of Ontario, and must ensure there is a fair distribution of the use and the benefits from wildlife.

Surveys are conducted to determine the public's views with respect to wildlife. They also provide information on the benefits that natural resources provide to society. For example, wildlife-related activities help support numerous tourism and retail businesses associated with wildlife viewing, photography, hunting, and other activities. Wildlife managers understand and consider social and economic realities when setting wildlife management objectives.

Wildlife also has considerable social and cultural significance for many people. Wildlife viewing and photography are all major activities that continue to grow in popularity.

Hunters understand that they are a minority in society and that wildlife managers are required to balance various interests, to ensure a fair distribution of wildlife uses and benefits. While the determination of wildlife populations is based on biology, the use or non-use will be influenced by recreational, economic and social needs.

SUMMARY

Wildlife managers:

- determine an estimate of wildlife population size using inventory techniques best suited for a particular species;
- determine how many animals the habitat can support (carrying capacity) by conducting surveys of food and cover;
- develop estimates of the population and available harvest by reviewing hunter surveys to estimate past harvest levels by sex and age, and estimating death and birth rates;
- calculate estimated predator, disease and other losses;
- consider other management objectives related to the desired population size; and
- determine an estimate of the harvest available for hunters.

REVIEW QUESTIONS

1. What is the goal of wildlife management?

2. What government agencies are responsible for wildlife management?

3. List three ways hunters contribute to the protection and management of wildlife.
   1.
   2.
   3.

4. Describe "carrying capacity."

5. What are the three main components of habitat?
   1.
   2.
   3.

6. If you were a wildlife manager, what information would you need to establish a hunting season?
   1.
   2.
   3.
   4.
   5.
   6.

7. What are WMUs used for?

RESPONSIBLE HUNTING

In addition to the legal rules, when hunting, we all have a set of principles and standards that we choose to follow. They deal with what is safe, proper and fair. They are adopted and embraced, individual by individual, one at a time.

Hunting is an ancient and constantly evolving activity. Just as human societies have changed over the ages, so have hunting techniques, hunters' tools and hunting principles. In today's world, increasing development, urbanization and technology can create public perceptions and attitudes towards hunting that hunters must consider.

Surveys do indicate that the non-hunting public generally accepts hunting. However, the public does become concerned about hunting if there is a perception that a species is being overharvested or endangered. This is a biological concern, and wildlife managers can easily demonstrate that managed hunting is no threat to biologically sustainable wildlife populations.

Public concern can also be raised about hunting if it is perceived as "unfair," with the animal having no chance to escape, or if killing is inhumane, resulting in unnecessary suffering.

Public concern can develop if hunters project an image of arrogance and insensitivity to wildlife and the public, with a priority focus on killing. These are social rather than biological concerns. Hunters often dismiss these concerns as coming from people who do not support hunting, or they try to respond to them with a biological answer about the sustainability of hunting. However, this does not completely address the concerns that are raised.

c. Al Stewart

Hunters are faced with a wide variety of new technology, including scents, sounds, tools, decoys and tactics that are designed to overcome the natural senses and defences of wild animals. Hunters need to come to terms with their own hunting values and objectives when determining what they will or will not add to their hunting activities. What is appropriate for you as a hunter, and what is fair to the animal being hunted? That is the challenge all hunters face.

Personal hunter ethics are principles that can be categorized into the following:

- respect
- responsibility
- safety
- conservation
- image
- heritage.

RESPECT

Hunters need to respect wildlife. Animals are not simply targets, and the taking of their lives should not be trivialized. Respect includes consideration for habitat, for other hunters and for non-hunters, who own or use the same land.

Ontario's wildlife is managed by the ministry on behalf of Ontarians, not just those who hunt. Hunters must respect the attitudes of others who may not share their views.

You can assess your personal level of respect by asking yourself the following questions.

- Am I hunting for a worthwhile reason?
- Am I making full use of the animals I take?
- Do I hunt in a way that respects the values of others, both hunters and non-hunters?
- Have I properly educated myself about the animals I hunt?

HUNT RESPONSIBLY

Responsible hunting begins with consideration for the animal. You are obliged to gain the knowledge and skills to hunt confidently and minimize wounding. The hunter's responsibility must extend to a broader consideration of his or her effect on wildlife populations, on the environment and on landowners.

You can assess your personal level of responsibility by asking yourself the following questions:

- Do I understand the population concerns and wildlife management objectives associated with the animal I am hunting?
- Do I have the skills, knowledge and equipment to make clean kills?
- Do I have the skills, knowledge and equipment to retrieve and prevent waste of animals taken?
- Have I accounted for the concerns and sensitivities of those whose lands I use to hunt?

HUNT SAFELY

The hunter must use firearms, archery equipment and all other tools wisely, safely and legally. We should select hunting methods which consider our individual safety as well as the safety and health of others.

You can assess your personal level of hunting safety by asking yourself these questions:

- Do I know and follow the hunting laws?
- Do I follow safe procedures at all times?
- In addition to safe firearms use, have I considered the risks of other tools, such as chainsaws and knives, and techniques, such as the use of tree stands and drives, that I use when hunting?

HUNT AND LIVE WITH CONSERVATION IN MIND

Responsible hunters have long played a key role in the conservation movement. You should continue to ensure that hunting helps to sustain wildlife populations at appropriate levels. You need to understand conservation initiatives and be able to talk about them knowledgeably. In addition, as a hunter your overall lifestyle should reflect environmental and social goals, to reduce harmful environmental effects on our world. Hunters "walk the talk."

You can assess your personal conservation lifestyle by asking yourself the following questions:

- Does my hunting activity demonstrate my knowledge and concern for the long-term

sustainability of wildlife and wildlife habitat?
- Are there lifestyle choices, outside of my hunting, I can make that will benefit wildlife and the environment?

HUNT WITH AWARENESS OF THE IMAGE YOU PROJECT

As a hunter, you must constantly be aware of how the public develops perceptions about hunters and hunting. Individual hunter behaviour is at the heart of public perceptions. Non-hunters form their opinions of all hunters from their experiences with hunters they meet, observe or hear about. Although perceptions are often influenced by incomplete or inaccurate information, once opinions have been formed, changing them is very difficult.

When discussing your hunting experiences, ensure you emphasize the benefits of experiencing the outdoors, of exercise, of being with nature, of tracking and seeing wildlife, of being with family and friends, of camp life and of participating in the age-old tradition of recreational hunting. Placing an emphasis strictly on the "kill", or on how much alcohol was consumed at camp, may create the impression that hunters are irresponsible. The potential for hunter behaviour to influence public attitudes cannot be overstated and should be considered in all things hunters say and do, before, during and after hunting season.

You can assess your knowledge of image awareness by considering the following:
- Will hunters and non-hunters view the way I hunt and where I hunt as appropriate?
- Am I willing and able to modify, restrain or defend my activity in response to thoughtful criticism?
- Am I aware that things that I say and do, even when I am not hunting, can affect the image of hunters?

c. Al Stewart

HONOUR YOUR HUNTING HERITAGE

Hunting tradition is kept alive through the sharing of game with family and friends, and through stories, songs, literature and art. Relationships and bonds are formed with hunting companions and other hunters encountered, either in the forest or on journeys to and from hunting areas. Hunters have a long tradition of involvement in conservation groups and work. Hunters are proud of their heritage and their efforts to further conservation of fish and wildlife.

You can assess your knowledge of your heritage by asking yourself these questions:
- Is my hunting true to those traditions that respect the natural world and the animal being hunted?
- Since the "kill" is just a part of the overall hunting experience, am I keeping it in perspective when I talk to others? Am I describing the complete experience, including planning, scouting, friendships, non-game experiences, weather and meals?

While hunting techniques may vary across regions and countries, the principles of responsible hunting provide a common touchstone for all hunters to reflect on their attitudes and actions, and how they conform to heritage and traditions.

Hunters need to understand that other hunters often place different values and priorities on different parts of the hunting experience. Those values and priorities often change and evolve with experience and age.

They can include:

- a time when firearms (including archery equipment) and shooting skills are of primary interest;
- a time when the focus is on harvesting the legal limit of game;
- a time when the focus is on being selective by seeking trophy animals or concentrating on a particular species of waterfowl or other game;
- a time when there may be an emphasis on hunting techniques, such as using hunting dogs, decoys, alternative firearms or archery equipment, rather than on what is hunted; and
- a time when the companionship of other hunters and time spent in the outdoors is the main source of satisfaction.

The principles of responsible hunting remain the basic foundation for all hunting activities. Thoughtful, careful self-examination will ensure all hunters continue to reflect the very best of our hunting traditions. Hunters do not have to agree on the details of how or why they hunt, but they must agree on the basic principles that guide their individual actions and how others assess those actions.

Always ask for permission

When hunters share similar views of hunting values and priorities, they often form clubs or associations and expect members to act according to the group's particular code of ethics. This could include a code that may or may not be written down. Each member of the group agrees to abide by that code.

Practising responsible hunting behaviour … walking the talk!

RELATIONSHIP WITH LANDOWNERS AND OTHER USERS OF THE LAND

- Plan ahead. Obtain permission to hunt on private land before the season opens. Communication with the landowner is important. Check to see how often the landowner wants you hunting the property.
- Take extra care to avoid disturbing livestock. If hunting with a dog, make certain it does not harass farm animals.
- Leave all gates as they are found, unless directed otherwise by the landowner.

- Carefully cross all fences so as to avoid loosening the wires and posts.
- Only go on the portions of private land where the owner has granted permission.
- Never assume you are welcome on private property because other hunters have already been granted permission to hunt there. Obtain your own permission.
- Avoid littering. Pick up empty shotgun/rifle shells and plastic shotgun shell wads that you encounter.
- Never drive or walk through standing crops, and don't send your dog through them.
- Hunt private property on foot rather than by driving over it. When parking your vehicle, be careful not to block the landowner's access to buildings, equipment or roadways.
- Report anything wrong you notice on the property, such as open gates, broken fences or sick livestock, to the property owner.
- Before leaving, thank the landowner or a member of his or her family for the privilege of hunting the property and offer to share your bag if you have been successful. Offer the landowner game that has been cleaned. Some hunters return with a purchased frozen chicken, turkey or other food and drink.
- Offer to spend some time helping the landowner by assisting with the chores or working around the property.
- Invite the landowner to use your own property sometime.
- Note the name and address of the landowner and send a card expressing your appreciation for the landowner's hospitality. Other tokens of appreciation may include a gift certificate or dinner invitation.
- Never trespass. It's against the law.
- Use public lands responsibly and consider other people's feelings.
- Hunt in areas where your activities will not conflict with other people's enjoyment of the outdoors.
- Treat the land with respect by not littering the backcountry or damaging vegetation.
- Limit vehicle use to travel to and from the hunting area. Always remain on trails or developed roadways.
- Hunting and drinking alcohol do not mix. Restrict alcohol to the evening hours after the firearms have been stored.
- Make a special effort to avoid offending non-hunters. Don't parade dead animals around the streets of a community.
- Appreciate that most people do not hunt. Some are opposed to hunting for one reason or another. Accept that non-hunters are just as sincere in their beliefs as hunters are about hunting.
- Trappers, tourist operators and other hunters have cabins and equipment in backcountry areas that should be left alone.
- Most public land is licensed to one or more trappers and bait harvesters. Tampering with traps, or taking animals or fish out of traps, is against the law.

RELATIONSHIP WITH OTHER HUNTERS

- Don't set up blinds, watches or decoys too close to other hunters. It's unsafe. If you are interfering with one another, no one will have good hunting. Move somewhere else. If there is a shortage of good spots on, for example, a marsh, then avoid opening day and weekends. Hunt mid-week or later in the season. Do your homework, and you will find the hunting is as good or better later in the season.
- If disputes arise with other hunters, try to work out a compromise. A cooperative hunt, for example, may be a solution.
- Give friends a fair share of the opportunities and shots. Show special consideration for inexperienced or disabled hunters by allowing them to hunt from the most advantageous positions.

THE HUNT

- Always learn as much as possible about the animals you are hunting and their habitat.
- Keep technology in perspective. The marketplace has numerous electronics, machines and scents, all designed to overcome a wild animal's natural instincts and defenses. A successful hunter is one who is in tune with the natural world and utilizes his or her own knowledge and skills.
- Practise with your firearm or bow before the hunt. Know how far you can accurately shoot it, and how far it will effectively and quickly kill an animal.
- Never, under any circumstances, shoot uncontrollably at a flock of game birds or a group of big game animals in the hope of hitting one. It is irresponsible and often results in wounding.
- Select an individual bird, or the vital spot on an individual big game animal, and shoot at that specific target.
- If you wound an animal you must make every effort to retrieve and dispatch it. It is against the law not to do so. If possible use a trained hunting dog.
- The key to reducing wounding is practice.
- Even if you think you missed the shot, always do a complete search of the area for the animal, blood or feathers. Even animals that have been critically hit may not exhibit signs of distress, and run off to die a number of metres away.
- Never allow the meat or other usable parts of the animal to be wasted. Even though you may not want the antlers or hide, recover them to give to other people who will use them. The fur and feathers of many game birds and animals are useful, for example, in making flies used by anglers.

c. OFAH

Practise often

RESPECT FOR LAWS AND ENFORCEMENT OFFICERS

Responsible hunters are required to know and understand the reasons for laws and obey them.

Do not condone law-breaking by others by ignoring illegal acts. Insist that all members of your hunting party obey the law.

If asked to serve as a witness in a court case, accept your responsibility as a citizen and as a hunter to do so.

When you meet a Conservation Officer, wildlife biologist or technician checking hunters in the field, cooperate and provide the requested information. If you do not understand the reason for providing the information, simply ask for an explanation.

REVIEW QUESTIONS

1. What principles guide your hunting activities?

2. What are some of the principles of responsible hunting?

3. List five good practices to remember and use when hunting on private land.

1.
2.
3.
4.
5.

4. What parts of the hunting experience can you describe to friends that do not include the kill?

WILDLIFE LAWS

Wildlife laws are important management tools that support a variety of wildlife management and societal objectives.

To be effective, these laws must be enforceable and flexible enough to cope with changes in wildlife populations, habitats and the needs of people.

It is important that hunters understand the reason for the laws, and obey them. Laws that apply to hunters have different objectives and can be grouped into a number of general categories:

- Biological laws are based on the biological characteristics of wildlife, such as breeding behaviour, birth rates, death rates and population size. These laws direct or limit hunter activity in a manner that supports recruitment in the wildlife population, and reduces or increases the hunter's harvest of a particular species, sex or age group. Biological laws are based on scientific studies, population inventories, habitat inventories, and hunter harvest and effort surveys. Such laws regulate the timing and length of hunting seasons, and sex- and age-specific harvesting.
- Allocation laws (and policies) attempt to fairly distribute the available resource among hunters and others. They address such issues as the number of animals or birds each hunter is allowed to take, and the percentage of the adult moose tags in a WMU that should be assigned to tourist operators. Examples of allocation laws include daily bag and possession limits. Examples of policy include the establishment of draws for extra antlerless deer tags, and the allocation for resident and non-resident licences in some WMUs.
- Revenue-related laws ensure that fees are collected. These fees, as well as other government revenues, help pay for wildlife management activities. An example is the requirement to purchase a deer or small game licence.
- Behavioral laws deal with hunter behaviour and include provisions to prevent the wastage of game meat, the shooting of swimming big game and trespassing on private property.
- Support laws help enforcement officers to be more efficient. An example is the requirement to leave a wing on waterfowl for identification purposes.
- Laws designed to ensure a quick kill control the methods used to kill game. An example is the designation of a minimum caliber size and minimum draw lengths, and bow weights, for hunting various big game.
- Hunter management laws establish the areas where and when game may or may not be taken. Examples of these laws include: closure of game preserves and some provincial parks to hunting; alternate hunting days on some marshes; and the requirement for every new hunter to take and pass the Hunter Education course.
- Safety laws relate to the personal safety of hunters and the non-hunting public. Examples include the requirement to wear hunter orange and to not shoot across or down a roadway.

CONSERVATION OFFICERS

Conservation Officers are responsible for ensuring compliance with hunting, fishing and other natural resource laws in Ontario. They have powers of inspection, arrest, search and seizure under the various statutes they enforce, including the Fish and Wildlife Conservation Act, the Migratory Birds Convention Act and the Fisheries Act.

When carrying out their duties or investigating an offence, a Conservation Officer may:

- stop and inspect a vehicle, boat, aircraft, firearm, ammunition, game or fish;
- ask questions relevant to the inspection;
- inspect buildings or other places;
- search with a warrant;
- search without a warrant in circumstances requiring immediate action;
- seize items related to the offence; and
- arrest anyone the Conservation Officer believes has committed, is committing, or is about to commit an offence of these acts.

DEPUTY CONSERVATION OFFICERS

Deputy Conservation Officers assist Conservation Officers in carrying out enforcement activities.

A Deputy Conservation Officer has the same authority as a Conservation Officer under the Fish and Wildlife Conservation Act, and may enforce the laws under the supervision of a Conservation Officer.

Conservation Officer and hunters

WHO MAKES THE LAWS?

The federal and provincial governments create wildlife laws in Canada. A federal law that hunters must follow is the Migratory Birds Convention Act, which deals with ducks, geese and other migratory birds. This legislation is enforced by game officers, which includes Ontario Conservation Officers.

The Ministry of Natural Resources and Forestry is responsible for the Fish and Wildlife Conservation Act, which covers the management of native wildlife species, other than migratory birds, found within Ontario. This legislation is also enforced by Conservation Officers.

Municipal governments may pass by-laws, which they enforce, regarding the discharge of firearms as it pertains to public safety. When planning to hunt in an area, hunters should check if there are other municipal by-laws in place related to hunting.

THE ANNUAL HUNTING REGULATIONS SUMMARY

It is important that hunters read the annual Hunting Regulations Summary every year. The summary is a condensed version of the important provincial laws that pertain to hunting in Ontario. It shows the boundaries of WMUs and provides specific information on seasons, bag limits and other laws relating to the game species managed by Ontario. Hunters should also obtain a copy of the summarized migratory bird laws, which is provided by the federal government when a migratory bird-hunting licence is purchased.

Other important acts and regulations that hunters should be familiar with include the Endangered Species Act (Ontario), the Occupiers Liability Act (Ontario), the Trespass to Property Act (Ontario) and the Public Lands Act (Ontario).

HUNTING ON CROWN LAND

In Ontario, travel for recreational purposes on Crown lands and waters is generally free and unrestricted. However, some Crown lands may have restricted access for forest fire prevention and forest industry activity, or be posted against hunting and possession of firearms to protect forest workers or other resources users.

TRESPASS

Trespass on private property is a major concern that could have a significant impact on hunting in Ontario. Hunters must obtain permission before entering onto private land.

Read the Hunting Regulations Summary

Landowners may give notice that there is no trespassing in a number of ways. These include the following:

- verbally or in writing;
- through the use of coloured symbols on property lines, such as red circles painted on trees and fence posts;
- with graphic signs that show the hunter image covered by a circle with a diagonal line through it; and
- with signs that read, “No Trespassing” or words to that effect.

Trespassers can be arrested and charged by Conservation Officers or police officers.

It is a violation under the Fish and Wildlife Conservation Act if a hunter does not immediately leave private property after being instructed to do so by the landowner, or if signs prohibiting hunting and fishing are not obeyed.

Continued access to private land for hunting is dependent upon respect for private property and the people who own it.

VIOLATIONS OF THE LAW

Ministry of Natural Resources and Forestry records indicate that the following are the 10 most common violations committed by hunters:

1. Game Tag Violations: Hunters may fail to notch the time and date on a game tag immediately after the kill. Violations also include unlawful transfer to another hunter or deliberate misuse of game tags. Detailed tagging instructions are printed on each tag and are also outlined in the annual hunting regulations summary.

2. Illegal Transport of Harvested Wildlife: In an area where a specific sex of animal, such as adult bull or cow moose, may be harvested, the sex organs must be transported attached to the carcass. Hunters transporting harvested migratory birds must leave one fully feathered wing attached to the carcass.

3. Failure to Carry Licence on Person: Don't leave your licence at home, in the car or at the camp.

4. Shooting from a Public Road: It is illegal to shoot from, down or across a public road. It is also irresponsible and extremely dangerous.

5. Possessing a Loaded Firearm on a Roadway: In most of southern Ontario – the area south of the French and Mattawa rivers – during the deer and moose season, it is illegal to have a loaded firearm on or near a roadway. You must be across the fence line, if there is a fence, or at least eight metres (26 feet) from the traveled portion of the road where there are no fences.

6. Hunting in Wrong WMU: This happens, for example, when you are hunting in a WMU that is closed, or in an area where there is a controlled hunt, and you do not have the required validation tag.

7. Trespass: Hunters must have permission to be on private land, even if the intent is just to cross over to reach public land. Every year, trespass incidents result in more and more property being posted with "no trespassing" signs, and those lands are being lost to hunting.

8. Loaded Firearm in a Vehicle or Motorboat: A firearm may not be loaded while in or on a vehicle. This includes firearms carried in the box of a pickup or a firearm laid in or on a vehicle. A firearm is considered to be loaded if there is a cartridge in the chamber or in the magazine, if the magazine is attached to the firearm.

9. Firearms at Night: A firearm must be both unloaded and encased, from a half-hour after sunset until a half-hour before sunrise, in an area inhabited by game. Encased means totally enclosed on all six sides.

10 Failure to Wear Hunter Orange: In Ontario, hunters must visibly wear either a hunter orange vest or coat, and hat, while hunting in an area where a big game gun season is open. For more information on hunter orange, see page 37.

If in doubt, consult the Hunting Regulations Summary and/or contact your local MNRF office.

REVIEW QUESTIONS

1. What government agency has primary responsibility for the Migratory Game Birds Convention Act?

2. What type of information is contained in the annual Hunting Regulations?

3. What does a red circle painted or posted on a fenceline mean?

4. List four different types of laws dealing with wildlife.
   1.
   2.
   3.
   4.

HUNTING EQUIPMENT AND CLOTHING

This chapter highlights the importance of selecting and using proper clothing and equipment when you go into the field. This knowledge will make your outdoor experiences more comfortable and enjoyable … and could possibly save your life. There are numerous books and magazines that provide advice on equipment selection. Experienced hunters and staff of outdoor stores are always willing to provide advice based on their experiences.

Advanced planning helps to ensure comfort and safety right from the start. Remember that your equipment will be exposed to hard use and weather extremes. Take the time to determine exactly what you need.

FUNCTION OF CLOTHING

Your body heat and what happens to that heat when wearing different clothing is what makes you feel warm or cold.

Clothes that make you feel warm keep out the cold exterior air and trap your body heat inside, similar to the way that insulation between the inside and outside walls of your house keeps it warm in winter.

Hunting clothing must:

- provide insulation for warmth
- move perspiration away from your body
- stop wind and rain.

Hunting usually involves being in the rain at some point in time. Remaining dry is a major concern. Rainsuits made of plastic or rubberized fabric will shed rain but do not let your body's perspiration out. They do not "breathe." Rainsuits are appropriate if the hunter is not active and not generating perspiration. A deer stand or a waterfowl blind are examples of situations

where a standard rainsuit works fine. However, if travelling or working and therefore sweating, you need clothing that keeps the weather out and also lets your body moisture out.

Numerous "breathable" fabrics are now available in outdoors stores. Many have been developed in camouflage or hunter orange colours specifically for hunters.

Clothes should always be loose enough to easily allow body movement. To check the fit of hunting clothing, dress as you would for hunting conditions and then try walking, sitting, bending and mounting a rifle or shotgun to your shoulder. A garment that feels good with only a T-shirt on will be much tighter if you wear it over long underwear or a heavy shirt.

Experienced hunters dress in layers. Wading out to the duckblind or walking to the deer stand on an October or November morning can generate lots of sweat. After you get there and stop moving, sweaty clothing can quickly cause cold chills, which is dangerous. Knowledgeable hunters wear breathable clothing, or remove a layer of clothing when walking and add one when sitting still.

UNDERWEAR

Underwear is available in a number of quick drying, breathable fabrics. In warm weather, breathable fabrics transfer body heat away from the body. In cold weather, the fabric "wicks" body moisture away from your skin, which would otherwise lead to chills.

For cool fall days and frosty nights, various types of breathable and non-breathable thermal underwear are available. Make your choice based on your expected level of activity. Heavy quilted fabrics do provide extra insulation and absorbency, but are most appropriate for standing still, with a minimum of movement. Sweat and resulting chills set the stage for hypothermia, which is your most dangerous enemy when in the bush. Overdressing can be as dangerous as not wearing enough clothes.

Underwear is commonly available in two-piece styles with separate tops and bottoms. This two-piece system provides the most flexibility in meeting weather conditions.

BOOTS AND SOCKS

Proper-fitting boots are essential. Boots that do not fit can cause blisters, and a blister can be considered a major injury when you have a long distance to walk.

When selecting the size of your hunting boots, try them on with insoles and wear a heavy sock. Quality boots are made in leather and also in a variety of waterproof fabrics. Purchase sturdy boots 20 to 25 cm (8 to 10 in.) high. Weight is important because even a few grams of extra weight will be noticed after walking a few kilometres. For early in the season, you will want uninsulated boots; later, you will want insulated boots.

Chafing from socks and boots that rub against the skin can lead to blisters. This rubbing occurs when boots are too large, too small, incorrectly laced or if socks are lumpy or wrinkled.

Many hikers and hunters wear two pairs of socks; a light pair next to the feet that will wick sweat away and reduce any rubbing, followed by a heavier insulating pair. A quality insole also cradles the foot and provides a cushion when walking.

In wet conditions, many hunters choose to wear high-quality rubber hunting boots, with or without insulation. A quality insole is required. As rubber boots do not breathe, it is important that the hunter use a proper combination of insole and socks to keep sweat away from the foot.

Cold feet make hunting miserable. Whatever type of footwear you are using, always thoroughly dry them at the end of the day's hunt. You may not have submerged them in water but they will be damp inside from your perspiration. If left unattended, the next morning they will be cold and damp to start out and become more uncomfortable as the day progresses. Pull out the insoles and place the boots and insoles where they will be exposed to warm air circulation. It only takes a few moments to care for footwear, but it is important.

The waterfowler, wading through water to set decoys or retrieve birds, will need hip or chest waders. Quality waders are available in a number of fabrics ranging from rubber to neoprene. Insulated and uninsulated styles are available.

The foot area of the waders needs to be large enough to accommodate thick socks and felt insoles. The top should fit loosely enough to allow for extra layers of clothing. Good waders have a belt to tighten around the waist, which will reduce water intake if you should fall down. Waders are subject to rips and tears caused by

underwater branches, climbing in and out of blinds and boats, and abrasion caused by sitting on stumps and boat seats. Buy quality waders and take a repair kit on your outing, especially if you are going to be out for several days.

Boots should be thoroughly waterproofed before the hunt. There are a number of waterproofing preparations on the market. If you are on an extended hunt, it is a good practice to take extra waterproofing with you to re-treat your boots. Some of the more expensive breathable boots do not require waterproofing, just cleaning at day's end.

PANTS AND SHIRTS

Hunting pants need to be a tough fabric that will keep you warm and withstand thorns and other brush. They need lots of pockets, with at least one that can be securely closed to carry your wallet, licence and map. You will want pants with belt loops so you can carry your knife and other gear.

There are numerous pants designed specifically for hunters available in outdoors stores and catalogues. Some hunting pants have the legs and seats reinforced with canvas to provide extra protection. For some types of hunting, such as stalking, you will want pants that do not make a scratching noise when they come in contact with branches. Wool pants are a good choice for winter hunting since they are warm, silent and "breathe." Buy pants large enough to be worn over long underwear.

When choosing your shirt, you should also consider the weather and time of year. Numerous breathable and quick drying fabrics are available, with many designed exclusively for hunters, campers and hikers. These are available in both lightweight and heavyweight fabrics.

GLOVES AND MITTS

Gloves are a necessary part of a hunter's cold weather gear. They not only keep your hands warm, they also provide protection against cuts and blisters when working around the camp. Avoid high-cuff, gauntlet-style gloves because they will collect twigs, leaves and debris.

A variety of inexpensive work gloves are available from hardware and garden supply stores. Specialty gloves made with waterproof and breathable materials are available in outdoor stores.

In cold weather, many hunters wear knitted wool mitts inside tough leather mitts. This combination is warm, durable and inexpensive.

Inexpensive, disposable latex gloves are available in drug stores and are excellent for cleaning game.

HEADGEAR

No matter what the weather, a hat should be included in your gear.

You should have headgear that will not be easily knocked off or nudged over your eyes by tree branches. In bright sunlight, your hat should shade your eyes and protect your neck and ears from sunburn. In cold weather, it should keep your head warm and protect your ears from frostbite.

Body heat escapes faster through the head than from anywhere else, so it is vital to keep your head covered in extreme cold.

Your hands and feet will remain warm longer if your head is covered and warm. You should also note that hunter orange headgear is legally required to be worn during the open gun season for big game. For specific details, read the hunter orange section later in this chapter and consult the regulations.

HUNTING COATS

Outdoors stores have lightweight, sleeveless vests in hunter orange that are ideal for warm-weather hunting. They also can be worn over a jacket, depending on hunting conditions. These vests have large pockets for shells and equipment.

Full length, long-sleeved hunter orange "shells," designed to go over anything from a T-shirt to a winter parka, also are available. These are made from materials that do not make swishing or scratching sounds when walking or pushing through brush. Avoid any plastic or stiff nylon material.

Hunting coats must suit the season and range from light to heavy-weight. Coats designed especially for hunters and campers are available at outdoor stores. Many incorporate layering systems that use zip-in liners with waterproof and breathable outer shells.

Vests, with synthetic insulation or a down fill, are popular for cool weather because they retain body heat, are breathable, and allow greater freedom of movement.

Waterfowlers and archery hunters require camouflage or drab-coloured coats. Many specialty waterfowl coats are designed to be waterproof and worn with waders, and some have built in flotation capabilities.

COVERALLS

Some hunters wear hunting coveralls as their outer layer of clothing. These garments can be insulated or uninsulated and are available in camouflage colours as well as hunter orange. They are roomy enough to allow the hunter to layer clothing under them. Hunters concerned about noise can wear soft-fabric coveralls on top of rainwear in wet weather.

HUNTER ORANGE

The objective of the hunter orange regulation is to maximize hunter safety without negatively affecting hunting success. Under this regulation, all licensed hunters, including archery hunters, hunting during the gun season for deer, moose and elk are required to wear hunter orange. As well, all black bear hunters hunting during the black bear season are required to wear hunter orange, except when in a tree stand. Waterfowl hunters and archery hunters in archery-only areas are exempt from the hunter orange requirement.

A hunter orange garment and head cover must be worn. The hunter orange garment must cover a minimum of 2,580 square cm (400 square inches) above the waist and be visible from all sides. Open mesh or camouflauge hunter orange must not be part of the 400 square inches. A hunting coat or vest generally meets this requirement. The hunter orange head cover may have: open mesh; a peak or brim colour other than hunter orange; and a crest or logo which does not completely cover the hunter orange on the side where it is affixed. The head cover may not contain camouflage material.

Hunter orange colour standards are generally consistent across North America. Retailers and manufacturers can provide information regarding clothing compliance with this standard.

During the closed gun season for deer, moose and elk, hunters are not legally required to wear hunter orange. However, you are encouraged to do so. Be seen and be safe!

Camouflage can be very effective

CAMOUFLAGE

Camouflage clothing is important for waterfowl, turkey and archery hunters. There are many patterns and styles to choose from. Try to match the colours and shapes in your hunting area. Reed patterns are good in marshes, while leafy patterns are better in hardwood forest habitats.

PERSONAL FLOTATION EQUIPMENT

Hunting often involves being on or near water. Hunters are often heavily clothed with laced up boots and burdened with gun, shells, knife and survival gear. There is always the danger of drowning when travelling in canoes and boats, or even when wading out to waterfowl blinds. Always wear a lifejacket when in a boat. There are also a number of personal flotation jackets and devices on the market that do not have the size and bulk of regular lifejackets, but will still keep you afloat. Many of them are available in camouflage colours.

CHANGE OF CLOTHES

Use common sense. If you are hunting close to home, you may only need to have a change of dry socks in your vehicle, or rain gear in your packsack. If you are far from home and staying overnight, you should always pack a complete change of clothes. Chances are you will get wet or dirty.

BEDDING

Sleeping Bag

The most convenient bedding for the hunter is a quality sleeping bag.

Sleeping bags are rated according to the lowest temperature at which they will provide comfort.

A flannel inner liner, which you can purchase or make from a flannelette sheet, will add additional warmth and keep the bag clean. The liner can be removed for washing.

Be sure to try out different styles of bags. Some are in “mummy” shapes that taper down to the feet and fit close to your body. Others are the same width at the shoulders and feet. Get a bag that you feel comfortable in, and ensure it is long enough to come up to your head. Check the material inside the bag. Fabrics can range from nylon to cotton.

Pillow

A pillow can be as simple as a rolled-up shirt or you can purchase a camping pillow that is a third the size of a normal pillow. If a pillow is important for a good night’s sleep at home, it will be equally important in a camp or tent. For some, it is the difference between a good or a bad night’s sleep.

Mattress

You will need a foam pad or air mattress underneath your sleeping bag. As well as cushioning your body from the rough ground,

a mattress provides additional insulation and warmth. There are numerous sleeping pads in a variety of materials available in outdoor stores. They vary in both width and length. Avoid short mattresses designed for lightweight backpacking trips. A full length, wide and thick mattress will give you the comfortable night's rest you will need after a long day in the bush.

Tents

There are numerous tents available of every shape and description. The relative merits of different styles and materials are described in numerous books and magazines.

Tents used for hunting may be used for other camping trips, so take the time to understand what you need and want.

KNIVES

Some hunters prefer a sheath knife; others like a pocket knife. It is often wise to carry both when hunting, in case one is broken or lost.

The blade of any knife should be of good quality steel so that it will keep its edge for a reasonable time.

Always keep your knife sharp. Knife blades should not be used to pry, chop or bore holes.

Sheath Knife

To be effective for hunting, the blade of a sheath knife should be no longer than 10 cm (4 in.). Longer knives are clumsy and not as versatile as a 10-cm blade, which can be effectively used for many chores, such as butchering and skinning.

The sheath, or case, should be made of leather or a durable, synthetic material that is well-reinforced and stitched.

Pocket Knife

A pocket knife for hunting should have at least two strong blades, each between 6 to 8 cm (2 2/3 to 3 in.) long.

Sharpening a Knife

Knives must be kept sharp to perform their functions properly. There are numerous sharpening materials and systems available in outdoors and hardware stores.

The best sharpening system for a hunter is a simple and inexpensive stone or other small implement that can be carried in a pocket, on a belt, or in a pack. You will need to resharpen your knife when you are cleaning or skinning an animal.

Manufacturer instructions on how to properly use the sharpening tool usually come with the purchase.

Meat Saws

Meat saws are used for cutting bone and are essential for quartering big game. Outdoor stores carry meat saws that can be disassembled for transport to camp. The blade is as sharp and dangerous to use as any knife, so care should be taken when using a meat saw.

AXES

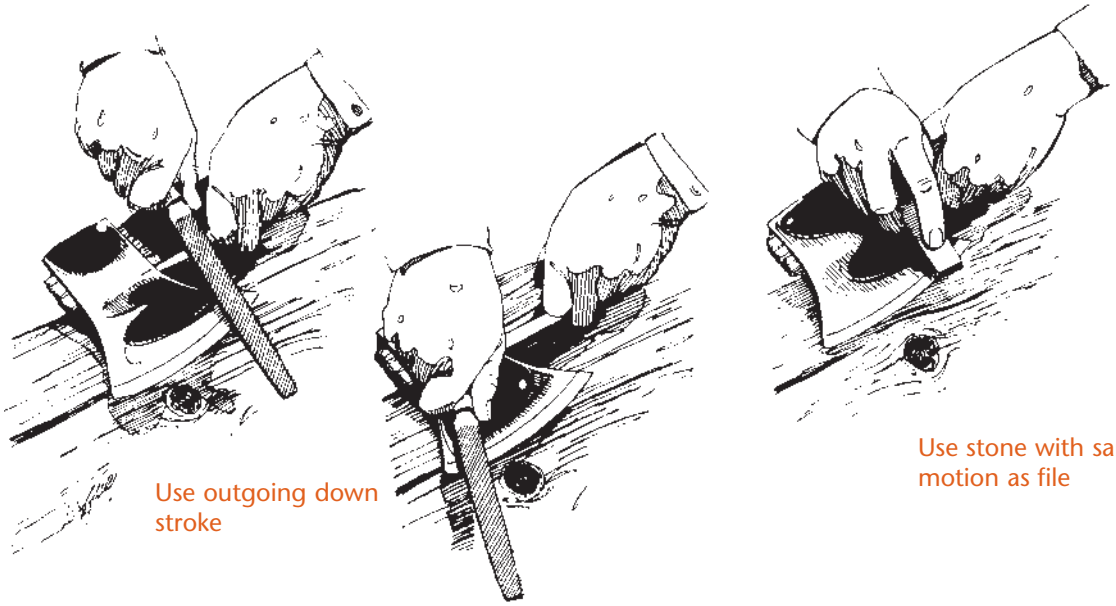
Axes are categorized as small, medium and large according to the weight of the axe-head, and the length of the handle. Each axe serves a specific purpose.

A camp axe is usually a small axe with a head weighing about 1 kg (2 1/2 lb.) and a handle between 50 to 71 cm (20 to 28 in.) long. An axe this size can cut small- and medium-size material. The edge should be kept sharp. A sharp axe is less likely to bounce off your work and cause an injury.

Care and Use of Axes

Replace a cracked or splintered axe handle. Do not attempt to patch it.

If an axe-head is loose, do not use it until it has been tightened. Driving in hardwood wedges or soaking the axe-head in water, causing the wood to swell, will tighten a loose head.



When using an axe, always work on a chopping block and make sure the area of your swing is clear of obstructions and people.

Sharpening an Axe

To sharpen an axe, you will need a file and, if available, a vise. Place the axe-head in a vise with the blade horizontal. Clamp the axe-head where the handle is inserted in the hole in the head. While holding the file flat, you should file along the entire edge. File on the outgoing stroke only, maintaining the same pressure and the same angle throughout the stroke. Turn the axe-head in the opposite direction to file the other side of the blade. Be sure to file both sides evenly.

In the field, where a vise is not available, extend the edge of the blade over a log or stump and hold the axe-head securely with your knee or foot while you file.

An axe is one of the most useful tools in the outdoors. Select a quality axe and care for it properly. Keep it sharp. Take proper care of the handle, keeping the head tight and the handle smooth.

CHAINSAWS

Improper use of a chainsaw can be dangerous. It is strongly recommended that you take a course on safe chainsaw use before you purchase or use one.

STOVES, LIGHTS AND HEATERS

Stoves, lights and heaters fueled by propane, kerosene and campfuel mixtures are often used by hunters in the camp. These can be dangerous – ensure your equipment is working properly and follow the manufacturer instructions. Every hunter should be aware of the dangers of explosions and carbon monoxide poisoning. Never use unvented heaters in confined areas, and make sure to use a carbon monoxide detector.

ROPE AND CABLE HOISTS

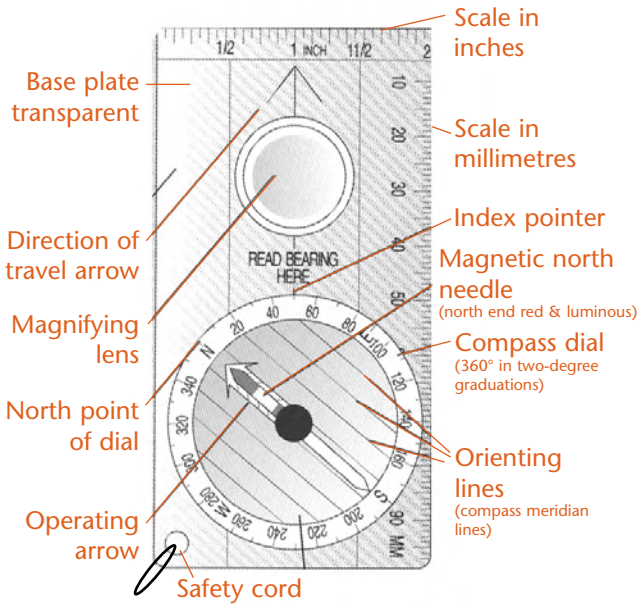
These devices provide you with the ability to lift and move heavier objects. A rope hoist can lift up to 272 kg (600 lb.) and a hand operated cable hoist can handle over 907 kg (2000 lb.).

By using trees and stumps as anchors, you can pull big game from a swamp, and a truck from a mud hole, or hang a game carcass with relative ease.

ROPE

Synthetic rope with a diameter of 0.6 to 1.5 cm (1/4 to 5/8 in.) is the most useful in the bush. With a little imagination and effort you can rig up shelters, secure game for field dressing, or ease your way down a slope. There are many other uses for rope, so carry lots. Learn to tie proper knots.

Compass



MAP AND COMPASS

Introduction

A compass is a vitally important navigational tool that could save your life. There are numerous books and manuals available that will teach you how to properly use a compass. Quality compasses come with instructions.

A compass is of value only if you have it with you and know how to use it, as well as an accompanying map. Get in the habit of putting your compass in your pocket or on your belt. Orient yourself before you go into the bush. Look at your map and determine the direction where you will be going, and the direction back. Check your compass often. It only takes a second and it will provide you with the knowledge and comfort that you know where you are, and how to get home. It will also provide you with an early warning that you have strayed from the proper direction.

There are many types of compasses available. They range from a simple pocket compass, which shows general directions, to complex models with sights and sighting lines, useful for drawing maps or navigating exactly to specific locations.

GLOBAL POSITIONING SYSTEM (GPS)

Global Positioning System (GPS) is a satellite-based radio-navigation system. There are numerous GPS units available on the market and the owner's guide provides precise information on their operation. Remember, a GPS is an electronic device and will not work without batteries. Purchase good quality batteries, and pack extras. Always carry a compass in case of GPS failure.

MAPS

Hunters can utilize many types of maps.

1. Topographic maps are prepared and published by governments or private mapping firms.

2. Information on the availability of aerial photographs is usually available at Ontario Government Information offices.

3. Hand-drawn maps are prepared by the hunter from personal observations and information received from companions, or a guide based on their knowledge of the hunting area.

Maps show you where things are in relation to your location. Identify two or more landmarks such as lakes, hills, ridges or a high peak on the map and you can then determine where you are in relation to these landmarks.

MOTORIZED EQUIPMENT

Motorized all-terrain vehicles (ATVs), trail bikes, snowmobiles, motorboats and four-wheel drive vehicles have become a part of modern hunting. The use of these machines can assist the hunter. Their misuse can harm habitat and wildlife, harm the image of hunters and lead to the closure of areas to hunting. They can be dangerous to operate. The following are some factors to consider when using motorized equipment:

1. Remember the principles of responsible hunting. Are you being a responsible hunter in the way you use your motorized equipment?

2. Don't drive through hunting areas. You could be disturbing someone who walked an hour to get into an area. Don't abuse your mechanical advantage.

3. You will see more game and be more successful if you get off your machine and walk.

4. You can travel very far from roads and assistance in a short period of time. A breakdown could result in a very long walk or a tragedy. Make others aware of your travel plans.

5. A 20-minute ride can be a four-hour walk! Carry emergency equipment.

6. Wear the appropriate safety equipment. The law requires you to wear an approved helmet on a motorcycle, snowmobile and ATV. It could save your life.

7. Do not use alcohol. Alcohol laws for a boat or any motorized vehicle are the same as when operating your car on the highway.

8. Take training. Learn how to use the equipment safely and properly, before you go into the wilderness.

9. Stay on trails but note that repeated use of trails, especially in wet conditions, causes considerable damage and encourages erosion. Hunters should avoid travel with motorized vehicles like ATVs in these circumstances.

10. It is against the law to carry a loaded firearm in any motorized vehicle.

BOATING SAFETY

A boat that meets the needs of a small group of anglers may not be adequate for the same group during the hunting season. Hunters tend to carry more, heavier, and bulkier equipment into the field.

You can obtain information on safe boating and your Safe Boaters' Operator's Card by calling 1-800-267-6687 or going online to *www.boatingsafety.ca*

REVIEW QUESTIONS

1. When are you legally required to wear hunter orange?

2. The most important aspect of keeping warm and dry while hunting is to keep _____ in and let _____ out.

3. What are the essential items you must have with you while hunting to prevent getting lost?

FIRST AID AND SURVIVAL

It is essential for hunters to know how to avoid problems, and to be able to deal with them if they occur. Hunters are in the bush, usually alone, and far from hospitals and other help. Basic first aid and survival techniques should be learned, and practised, by every hunter before going into the field.

Knowledge of basic first aid is essential. There are first aid courses available in all communities and hunters should consider attending. The knowledge will serve you well in all of life's activities, not just hunting.

The most important survival lesson is learning how to stay out of trouble in the first place. The second is knowing how to deal with a problem should it develop.

HYPOTHERMIA

Hypothermia is a major cause of death among outdoor enthusiasts. It should always be a major concern for hunters.

Hypothermia occurs when a person's core body temperature drops below normal. The body loses heat faster than it can generate it. As body temperature decreases, vital internal organs, such as the brain, liver and heart, lose their ability to function. This severely impairs a person's judgement, leading to mistakes, poor decisions and possibly death.

Cool air and water cause hypothermia. Wet clothing, wind, exhaustion, sweating and contact with cold water accelerate it.

c. Al Stewart

Always dress for conditions

Detection

Common hypothermia symptoms include the following:

- uncontrollable shivering
- drowsiness
- fumbling hands, stumbling walk
- exhaustion.

Symptoms you may not be able to detect in yourself but will be able to see in others can include:

- slurred speech
- memory lapse.

Even mild hypothermia requires immediate treatment.

What to Do?

Remember that a person with hypothermia needs an external source of heat to raise their core body temperature.

- Get to warmth and shelter as soon as possible.
- If there is no shelter, build a fire to warm the hypothermia patient.
- Remove wet clothes.
- Apply heat to the head, neck, chest and groin.
- Use heated blankets or warm, moist towels to warm the body.

- In a situation where you are not at RISK of hypothermia yourself, it may be appropriate to use your own body as a source of warmth by holding the patient, or sharing a sleeping bag.
- DO NOT give a hypothermia patient alcohol.
- DO NOT rub a hypothermia victim's skin to attempt to restore surface circulation. This can cause a further drop in core body temperature.

The best way to deal with hypothermia is to avoid it in the first place. This can only be done by having proper clothing and being aware of situations where you are exposed to a combination of cold weather and wet clothes.

PLANNING A HUNTING TRIP

Outdoor safety begins with good preparation. Keep in mind the three P's of outdoor safety.

1. Prepare yourself

   Have a realistic understanding of your own health and fitness level. If the hunt involves lots of walking and climbing, then get in shape before you leave. If you have a medical condition, such as asthma or heart problems, plan your hunt with those conditions in mind. Make sure you know basic first aid.

2. Prepare your equipment

   Make sure you can keep yourself warm and dry. All your equipment should fit and work. You need maps and a compass. You need both a basic survival kit and a first aid kit, and you need to know how to use them.

3. Practise safe behaviour

   Know where you are. Keep checking that you know the way back to camp. Hunt with a partner. Make sure someone knows where you are going and when you will return. Think and act safely at all times.

PREPARING YOURSELF

1. Mentally

   Know your capabilities. If you are not confident using a compass or GPS, acknowledge that fact and do something about it. If you are travelling in unfamiliar country, obtain and study maps. If you are nervous about getting lost, tell your companions. You may want to stay close to someone who knows the area, and postpone heading out on your own until next year.

2. Physically

   Hunting requires a lot of energy, strength, and endurance. You may be walking long distances carrying a pack and firearm, and you may have to carry heavy loads through dense bush or over hills. Bad weather is always a possibility. If you are fit, you will be able to handle these situations. Don't try to fool yourself. If you are not in shape, do something about it. If you don't think you can physically handle some aspects of the hunt, tell your companions. Hunt closer to the camp, road or vehicle.

3. Medically

   If you have a medical condition, tell your companions, and develop your hunting trip with that condition in mind. Bring your medication. Immediately treat small problems such as a cold or a blister to prevent them from developing into serious problems.

4. Safety and First Aid

   Take a first aid course. Read books and manuals. Practise making a fire, using a compass and map, first aid techniques and other safety activities. Carry a small first aid and survival kit.

   There are numerous small two-way radios on the market that may be used by hunters to keep track of one another's location. Cell phones are generally reliable in southern Ontario but are not normally effective away from the major road corridors in central and northern Ontario.

5. Know the hunting area
   Learn all you can about the area where you are going to hunt. Study and take along a good map. There are excellent, inexpensive topographic maps available for all of Ontario. Know the terrain and identifiable landmarks. Is it hilly? Are there rivers or streams? What is the vegetation like? What will the weather be like? This information will guide you in choosing your equipment and improve your chance of a successful hunt.

6. Plan with Your Hunting Companions
   Choose your hunting companions carefully. Are they skilled, safe and reliable?

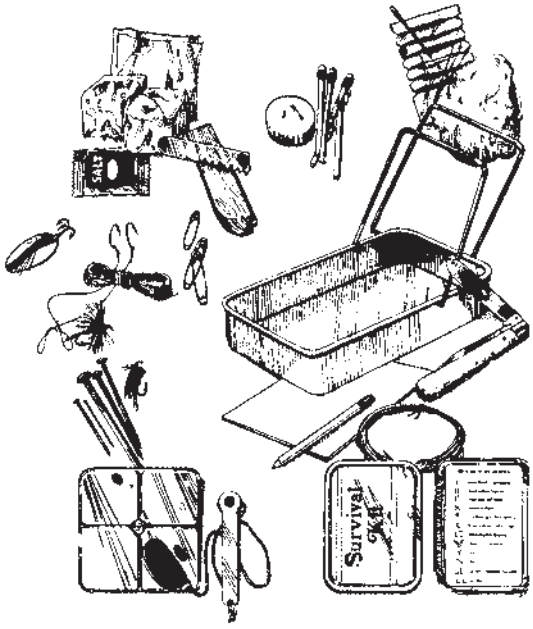
SURVIVAL KIT

A survival kit should be small enough that you actually take it with you, rather than leaving it back at the camp or in your vehicle.

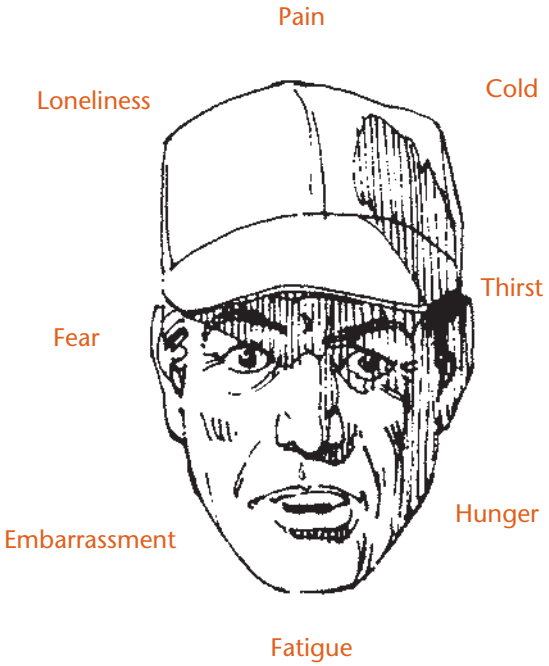
The two most essential factors affecting survival in remote and semi-remote areas where help may not be readily at hand are the ability to make fire, and the need to leave a verbal or written trip plan with a responsible person. Fire is an essential friend and hypothermia is a deadly enemy to the lost or disabled. If you fail to return when expected, the importance of having someone knowing where to look for you cannot be overstated.

A basic survival kit should include the following items.

- Container: a small tin or sealed plastic container to hold your kit. A metal container is bulky but can also be used for cooking. A plastic container will keep your items dry. Good substitutes are a sealable plastic bag to keep contents dry, and heavy-duty aluminum foil that can be used for cooking when molded over a forked stick.
- Matches: waterproof matches.
- Disposable lighter: experienced hunters usually carry two or more in separate pockets.



- Fire starter: there are numerous tablets, sticks and pastes available in outdoors stores. Distribute these in separate pockets.
- Knife: carry a small pocket knife in addition to your hunting knife.
- Flashlight: small AA light that will go on your belt.
- Insect repellant and mosquito headnet
- Fishing equipment: this is optional depending on where you are and the time of year. A small roll of line with a few hooks and a lure are sufficient.
- Safety pins: four to six in different sizes.
- Needle and thread
- Nails: four assorted sizes.
- Snare wire: three metres of copper or brass wire for snares, repairs.
- Food and drink: several packets of instant drink and soup, a granola or similar high calorie bar.
- Duct or electrical tape: one metre.
- Candle: at least two rated for six to eight hours.
- Spoon
- Heavy-duty aluminum foil: two 30-cm squares for reflectors, cups and bowls.
- Emergency space blanket: for personal shelter.
- Parachute cord or similar light thin rope: a three-metre length.
- Plastic whistle (pealess type): can be heard at greater distance, thus saving energy and voice.



- Plastic garbage bag: by making a hole in the bag and putting it on over the head, it can help in keeping you warm and dry. It will also serve as part of a shelter or as a ground sheet.
- Extra Compass or batteries for GPS
- Water purification tablets: these are small and inexpensive.
- Bandages: several of different sizes.
- Flagging Tape
- Pliers or multi-tool

If you normally carry a backpack or fanny pack, you can add additional items to your survival kit. If you do not, be sure you have lots of pant and coat pockets to distribute your survival items.

Remember, the best survival kit in the world does you no good if you do not have the items with you. If the kit is too bulky, heavy or a nuisance, you will probably leave it behind. Be realistic and develop a kit that you will keep with you.

FACTORS AFFECTING SURVIVAL

Pain

Attend to any injuries immediately, using appropriate first-aid treatment and available materials.

Cold

Cold is a serious threat to survival. When you are cold you lose the ability to function normally. Cold is the first step to hypothermia.

While hypothermia has already been discussed at the start of this chapter, it is worth emphasizing. It is a life-threatening condition that occurs when the body loses heat faster than it can produce it. Hypothermia is always a danger for hunters, even in mild temperatures. Hunters who get sweaty and then cool down quickly because of wind and cold are potential hypothermia victims. When lost, people often panic. Panic may lead to running and crashing around the bush and that leads to sweat and exhaustion. When the hunter stops due to exhaustion or nightfall, the sweat and wet clothes immediately cool the body down and set the stage for hypothermia.

Thirst

A person can survive for several days without water. Ontario has an abundance of creeks, ponds, rivers and lakes. Use your purification tablets.

Hunger

Hunger is not a serious concern in most survival situations. Your body fat will supply energy to enable you to survive two weeks or more. However, warm drink and food will help you warm up and provide psychological comfort.

Fatigue

When you are tired, you do not think clearly and can become careless. As noted, panic may lead to running around, which leads to sweat, exhaustion and possibly hypothermia.

Loneliness

Loneliness is a powerful emotion that causes lost people to keep trying to find their way out of the bush, rather than preparing for the night by collecting fuel and building a shelter. When you are lost and alone, the bush can be scary and very lonely. However, building a shelter and a fire, even

lighting a candle, will push back that loneliness. Changing wet clothes, collecting fuel, drinking something hot, and fixing your shelter will help to keep fear and loneliness under control.

Fear

Fear is a normal reaction and can become your greatest obstacle to survival. Fear of death, the unknown, darkness, being alone and ridicule can all cause a lost person to panic and do foolish things. Fear may cause lost individuals to run about the bush rather than constructing a shelter, staying warm and sitting still. Darkness, loneliness and the embarrassment of getting lost are not fatal. Panic, exhaustion, cold and wetness, on the other hand, can all lead to hypothermia, which can be fatal.

Embarrassment

Embarrassment at getting lost and the fear of ridicule from hunting friends has caused many hunters to keep trying to get back to their starting point or camp long after they should have accepted that they were lost. Rather than focusing on getting warm and dry and building a shelter for the night, they waste the last daylight hours hurrying, sweating and panicking. When it is fully dark they are exhausted, wet and not prepared for the coming cold night. An embarrassing situation and an uncomfortable night in the bush suddenly become a life and death situation.

Talk about the possibility of getting lost with companions and make sure everyone understands what they will do if night catches them still in the bush, and what the others can do to help.

THE LOST INDIVIDUAL

When a person or group of people become lost, a good word to remember is "**STOP**."

Stop as soon as it is apparent that you have become separated from your group, are lost, or are in trouble.

Think things over carefully. What happened? How did you get here? What time is it? Get out your map and compass. Can you determine where you are? Can you take a compass bearing on a large known landmark like a lake or road? Do you have time to get there before dark? Sitting down and thinking controls the panic.

Observe and assess all of your gear and clothing carefully. In a number of tragic cases, victims have been found with supplies that could have saved their lives had they had the presence of mind to use them. Do you have noise-making capability such as a whistle or rifle? Three of anything, such as three yells, whistle blasts or shots are the equivalent of "SOS." Early signaling can help a group find its missing member before a full-scale search is required.

If you have the time, and weather and terrain allow it, move to a high spot or an open area to see and be seen better. However, do not lose track of your original site.

From the point where you concluded you were lost, carefully travel out and back in four right- angle directions. Blaze trees, break branches or leave tape, tissue or paper, to ensure you can find your way back to where you started. This may lead to the discovery of a trail or road, waterbody or other feature that you recognize or can find on your map. If you do discover a trail or road, a basic rule for lost persons is not to leave either a trail or road except to follow a larger or more heavily used trail or road.

Plan and prepare a shelter. If you start to run out of daylight and are not certain of your location, accept that you are spending the night. You may also have determined where you are and discovered a way out, but concluded there is not enough time to do it. Unless you are traveling on a road, you should probably spend the night.

Walking through the bush at night is dangerous. You may break a leg or otherwise injure yourself,

and you may also get lost again if you have succeeded in determining your location.

Staying warm and dry is the key to survival. Give yourself enough time to locate a sheltered site and begin building a shelter and collecting fuel. Do it while you have time, energy and daylight in your favour.

Rescue Signals

Once your needs for first aid, fire and shelter have been dealt with, consider how to attract other people's attention to your location. Various types of signals can be used. Although the International Emergency Distress Signal is three signals of any kind, such as three shots, three whistle blasts or three fires in a triangle, a single signal is better than none at all.

Flare Signals

To attract searching aircraft, flare signals are best. Flare cartridges are available which can be fired from a rifle or shotgun. Also, small, flare-signalling devices may be purchased and included in your survival kit.

Fire Signals

The best signals are fires. A large bright fire at night or a smokey one by day can be seen easily. Be careful to keep your fire under control as an uncontrolled fire could destroy your camp and threaten your life.

Mirror Signals

The signal mirror is an excellent device for attracting attention. On a clear day, mirror signals may be seen for up to 16 km (10 miles) at ground level and at much greater distances from an aircraft.

Sound Signals

Carry a shrill whistle like that used by police forces and mountain rescue teams. It has a loud, distinctive noise. If you do not have such a whistle, improvise one by blowing across the mouth of an empty cartridge case.

Carefully consider using your firearm to attract attention. Resist the urge to fire more than one or two shots on the first day you're lost because others will likely think you're shooting at game and ignore your signal shots. However, if you're seriously injured and bleeding heavily, fire your ammunition off in groups of three shots at a time with 10 seconds between each shot. Wait 10 to 15 minutes for an answering signal shot. If nothing is heard, fire a second group of three shots. Repeat this procedure as long as your ammunition supply will allow.

If you're not seriously injured, limit your signal shots to the late evening or night of the first day you're in trouble. Fire signal shots spaced an hour or more apart through the night. Conserve enough ammunition – five or more cartridges – to shoot game for food in case you must survive for a week or more.

Sound carries best during the evening quiet, just before dark. This is the best time to use a sound signal.

Information Signals

If you decide to leave your place of shelter, be sure to leave a message indicating in which direction you're going. Make a large arrow on the ground from any available material, including stones, tree branches, brush, trampled down grass or snow or earth. This tells search aircraft passing overhead in which direction to look. Ground searchers will also be guided by such signals. If possible, leave a note explaining where you are headed and what time you left camp.

As previously indicated, your best chance of survival is to stay put at one location. Besides using a fire to signal your location to airborne searchers, you should mark a large "X" in a clearing near your survival camp. Use heaps of stones or earth, piles of brush, tree branches or trampled down grass or snow. Lay branches beside the lines of the X to create shadows and make your signal visible from the air. Such signals can be seen in the moonlight from aircraft.

Fallen Tree Shelter

1. Cut away any blocking boughs and those from the top of the tree. These can be used to thatch the roof and ends.

2. Upon completion of the shelter, locate wood and build a fire at the entrance for warmth.

SHELTERS AND FIRES

Brush Shelters

Know how to build emergency shelters in the areas you frequent. Each area lends itself to different possibilities, from pole and bark structures, or bough piles, to a host of snow shelters, such as quinzies, caves, trenches, and igloos, each suited to certain conditions. Your "personal shelter" in your survival kit can be incorporated as a floor, roof or door, or it may be used as the entire shelter.

The quickest and easiest shelter is under the uplifted roots of a partially blown down tree or under the trunk of a fallen tree. Make sure the tree is secure. Strip the branches off the underside of the trunk and use these and branches from other trees to thatch the roof. In deep snow, locate a coniferous tree and remove snow from around the base. Branches at snow level form a natural roof. These can be thatched with other branches. A lean-to can easily be made using a large branch or log as a ridgepole. Look for forks in nearby trees or place poles upright into the ground or snow to support the structure. Lean small trees or branches butt-end down against the horizontal bar. Weave branches to thatch the shelter.

Construct your shelter with the wind coming from the back and at a slight angle. This prevents smoke from blowing into the lean-to. Cover the floor with boughs to act as a mattress and as insulation against the cold ground.

If required, the garbage bag or space blanket from your survival kit can be used on the roof to make it waterproof. Snow placed on the shelter will insulate it. Build a fire between your shelter and a heat reflector made of logs or stones.

Snow Caves

If you can find a snowdrift, chances are it will make a good snow cave. Dig out a cavity and punch a hole in the roof to maintain ventilation. Use a snow block or branches to cover the entrance. Construct a sleeping ledge slightly above the floor and cover it with boughs. Arching the inside of the roof helps water run down the sides instead of dripping on you.

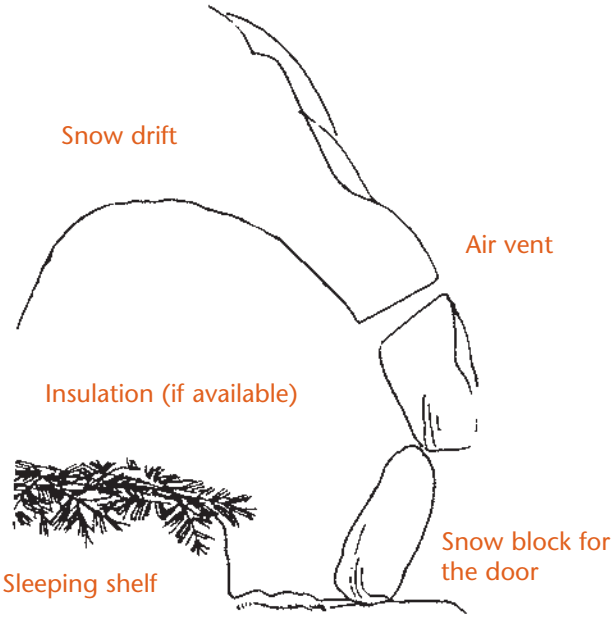
Constructing a snow cave can use a lot of energy, take a lot of time and generate a lot of sweat. It is difficult not to get wet while digging in the snow. These problems make a snow cave less desirable than other forms of shelter. If you do construct one, leave a visible mark outside the door or on top of the shelter so that a search party can find you.

Fires

In addition to warmth, a fire provides security and comfort, and helps to diminish fear and worry.

Finding a Fireplace

If building your fire on snow, put it on a platform of logs or stones. Do not build your fire under a tree. Sparks can easily set branches on fire, or heat from the fire can melt snow on overhanging



Snow cave shelter is not recommended unless no other type of shelter can be made.

branches and get everything wet. Build your fire against a rock, wall or logs that can reflect the heat into your shelter.

Tinder, Kindling and Fuel

Small twigs, wood shavings, birch bark, dry leaves, grass, tissue paper and other easily flammable materials are needed to get the fire started. A better choice is a commercial fire starter, which starts easily and burns hot. There are many commercial fire starters available and one of them should be part of your survival kit.

Stockpile fuel by gathering dry, dead branches. If there is a limited amount of fuel available, you should build a small carefully tended fire to last the night. If there is abundant large fuel, or if it is wet, you can light a larger fire to ignite large branches and dry them out as they burn.

Ignition

A butane lighter is reliable and windproof. Waterproof strike-anywhere wooden matches are also a good choice. A commercial fire starter or natural dry tinder material will give your fire a good start.

There are commercial fire-starting tools available made from flint and steel, or flint and magnesium. When struck against one another, they produce a shower of sparks that will start tinder. They are windproof and waterproof.

FOOD AND WATER

Food is not as essential to survival as shelter and warmth. People can survive for two weeks or more without food as long as they have water. Water is vital. Though finding water is not usually a problem, it should be purified. Purification methods include boiling and the use of water purification tablets. The tablets are inexpensive, easy to carry and available at any outdoor store. They are the simplest and best option for hunters.

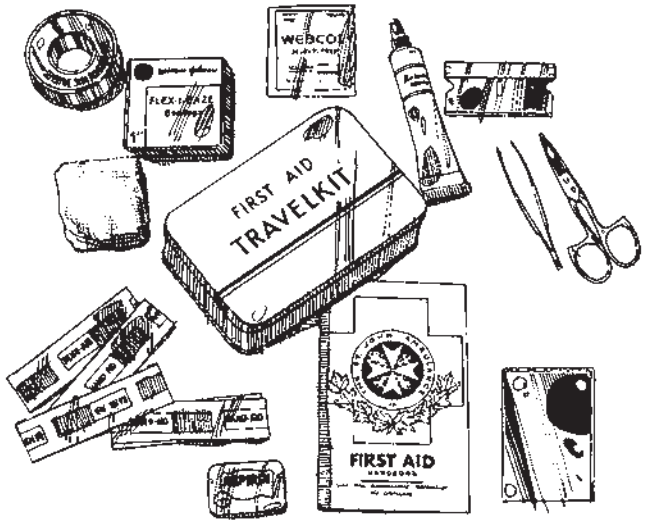
There are also a number of portable filter systems used by campers that remove bacteria, viruses and protozoa. However, they are expensive and tend to be too bulky for a survival kit.

Wild Foods

The time of year will have considerable bearing on which types of food are available in the woods. There are numerous books and manuals that describe edible wild plants. Learning about them is another interesting aspect of being a hunter, and the information can help you if you do get lost.

A lost hunter may already have game that can be cooked and eaten. Depending on the time of year, small creatures, such as fish, frogs and crayfish can be captured for food.

A cardinal rule is never to eat anything unless you are sure it is safe to do so.



Example of a simple First Aid Kit

FIRST AID

In most cases injury victims can be saved by the first person on the scene, if that person is properly trained. When considering hunter safety, this is crucial.

There are courses and books available that teach basic first aid. All hunters are encouraged to take a course. The knowledge will assist you in life, as well as in hunting.

First Aid Kit

Hunters should have a standard first aid kit in their vehicle or at their camp. In addition, you should have a small personal kit to take into the field, or make your own. As is the case with survival kits, if it is too large, bulky or a nuisance, it will be left behind. At a minimum, all hunters should carry some assorted bandages.

SUMMARY

Use common sense when developing and carrying survival and first aid kits. The size will depend on the remoteness and length of your hunting trip. If you are going to hunt a southern Ontario farmer's woodlot, surrounded by roads, and will only be gone a few hours, then a whistle, compass, Band-Aids and a candy bar may be adequate.

However, a remote northern Ontario moose hunt where you are far from civilization will require a fully stocked first aid and survival kit in the camp, and a more elaborate personal survival and first aid kit that you should carry with you.

REVIEW QUESTIONS

1. What are the three "P's" of outdoor safety?
   1. _____
   2. _____
   3. _____

2. List five items you would include in a survival kit.
   1. _____
   2. _____
   3. _____
   4. _____
   5. _____

3. What is hypothermia?

   _____

   _____

4. What are three symptoms of hypothermia?
   1. _____
   2. _____
   3. _____

5. What are two treatments for hypothermia?
   1. _____
   2. _____

HUNTING TECHNIQUES

UNDERSTANDING THE ANIMAL

Understanding the life history and habits of game animals gives the hunter clues to their distribution and probable location. Here is where your understanding of ecosystems will help. You will be more successful, and have more enjoyable hunting experiences, if you:

- know the types of habitat (food, cover and water) preferred by the animal during the hunting season;
- understand what the animal is likely to be doing, such as mating or migrating, during the time of year you are going to be hunting;
- know the time of day the animal is most active; and
- understand the animal's reaction to weather.

PRE-SEASON SCOUTING

Pre-season is the time to visit landowners and get permission to hunt their property. Don't wait until the day before the hunt.

Knowing where to look for an animal is one step in locating game. However, determining if the animal is actually in your hunting area will require some pre-season scouting. Your chances of seeing game are increased when you spend time getting to know the movements of wildlife in the area. For example, you may have to spend several evenings in a hardwood bush to locate turkey roosting trees. Several afternoons scouting the edge of fields, thickets, and oak ridges will tell you if white-tailed deer are about. Walking old logging roads near cutovers may turn up signs of black bear. Evenings spent watching a wild rice-covered wetland will tell you if ducks are feeding there and what time they are likely to arrive. Learning the patterns of animals' movements, the time of day they move, rest and feed, is all part of the hunter's skills development that really never ends. It is what makes hunting interesting and challenging.

Hunter scouting

TRACKING AND READING SIGNS

Tracking and reading signs are essential skills for all hunters. When scouting for game, a hunter looks for tracks, droppings, bedding sites and other signs. For example, a turkey hunter will look for droppings, tracks and areas scratched up by feeding turkeys. A deer hunter will look for tracks, buck scrapes and areas where antlers have been rubbed. A waterfowl hunter will look for flying birds and feathers floating on the water in feeding areas. A grouse hunter will listen for the distinctive flush of birds, look for dusting areas and droppings, and make note of wild apple trees and other wild fruit.

When hunting, deer hunters may be warned of the approach of a deer by squirrel chatter or flushing birds, and the deer may get the same signals about the hunter. Grouse hunters will often hear the "chirping" or "clucking" of a disturbed grouse just before it takes off. The position of a white-tailed deer tail indicates if it is alarmed and about to run. Learning to read all these signs will help the hunter to locate and get close to game.

For the bowhunter, the ability to read signs can mean the difference between finding or losing a hit animal. Deer hit fatally by an arrow seldom drop at the site of impact, and the hunter almost always has to track the animal to where it falls from loss of blood. The bowhunter must be able to read the signs and locate the animal that has bounded off into the bush. This is also true for the rifle hunter in the case of a poor shot.

Understanding animal signs and being able to identify tracks and calls is another exciting and interesting part of the total hunting experience. These are skills that can be used and enjoyed at all times of the year. There are many inexpensive books, manuals and magazine articles that describe the tracks and signs left by various animals. The process of learning more about animal signs is interesting and will make you a better hunter.

THE IMPORTANCE OF WIND

Hunter awareness of wind and wind direction is one of the most important factors affecting hunting success. Most game species have a sense of smell that is many times more sensitive than that of humans. Deer and bear can detect scents up to a kilometre or more away. Waterfowl react to decoys by almost always landing into the wind; geese will always try to take off into the wind. Most wild animals are more alert and cautious if there are gusting winds and changing wind directions. A good hunter understands the importance of wind and pays attention to it.

THE IMPORTANCE OF SOUND

Quiet movement is a fundamental technique to most hunting.

A hunter should try to minimize the sound he or she makes while moving through the bush. Walking on dry or frozen leaves, breaking twigs under foot, crunching through snow and scraping through branches all create sounds which warn animals of the hunter's presence.

Sometimes the hunter may want to create noise to cause game to move or flush, as is the case with ruffed grouse. Most types of hunting require stealth, however, and the hunter should make every effort to remain quiet.

THE IMPORTANCE OF MOVEMENT

The hunter's movements are also a source of alarm to wildlife. Have you ever noticed how quickly your eye picks up the movement of birds, a leaf falling or a chipmunk scurrying across the leaves? If you are still and watch and listen, you will be amazed at the sounds and movements you detect around you.

Animals depend on their senses for protection and are many times more observant than humans. By making quick movements while trying to find game, a hunter will most likely be detected before seeing the game animal. The turn of one's head as ducks fly over the blind or the careless shifting of a hunter on a stand can mean the difference between getting a shooting opportunity or not.

Move slowly and carefully. It is more difficult to see the movement of any animal when you are moving at the same time. That is why travelling in a vehicle, like an ATV, is less effective than standing still.

STALKING

Stalking involves slowly walking through the bush until an animal is sighted, and then creeping or "stalking" close enough for a clear shot and a quick kill. Stalking within shooting range of a big game animal is perhaps the ultimate test of a hunter's skill.

c. Al Stewart

Hunter stalking

Hunting into the wind so your scent does not precede you, and moving as silently as possible, is the best way to proceed. As a stalker you are competing with the highly developed vision and hearing of game animals.

Stalking is a standard hunting technique for many types of game, including rabbits, deer and moose. Some animals, like rabbits or deer, may see or hear the hunter and run off. However, they stop within a short distance, giving the hunter the opportunity to sneak closer, ready for a shot. Grouse hunters employ a stalking technique by walking carefully through good habitat hoping to get within shotgun range of the bird before it flushes.

Some waterfowl hunters use a version of stalking by quietly drifting, paddling or wading along marsh edges and creeks hoping to get close enough to ducks so they flush within range, thus offering a shot. This is called "jump shooting."

Stalkers must know the area they are hunting so they can find their way back to camp after a day of wandering.

GROUND STANDS

Stand hunting occurs when the hunter selects a place where game is known to travel or feed and waits until it comes along. It is one of the most effective of all hunting techniques and especially suited to bowhunting. The primary advantage of a stand is that the hunter avoids making sounds and movements that can trigger an animal's alarm systems.

The hunter must be able to understand animal tracks, signs and habits to ensure the stand is located in the right spot. Stand selection must take prevailing wind direction into account so animals are not warned by human scent. Runways or game trails used by animals travelling between feeding and bedding or resting areas are often used to determine the location of stands. Intersections of two or more game trails offer obvious advantages over stand locations on single trails.

Hunters may camouflage the stand with natural material or camouflage netting to hide movement, such as raising a gun or drawing a bow.

Some hunters use a combined version of stalking and stands. In an area game inhabits, they will walk carefully, always facing into the wind, for a short distance, then stop and wait for several minutes, listening and watching.

Tree stands are popular for big game

TREE STANDS

Tree stands are a popular hunting technique favoured by bowhunters. The hunter must be able to read the signs and understand the patterns of the animal in order to locate the stand in the correct area.

Tree stands offer the best concealment of motion because the hunter is above the normal line of sight of a big game animal. They offer the added advantage of keeping the hunter's scent off the ground, making it more difficult for an animal to detect.

There are numerous portable tree stands on the market that provide hunters with comfort and safety. Using tree stands can be dangerous and a safety harness must be used at all times.

For more information and a short course visit the following website www.tmastands.com

c. Al Stewart

Ground blind

BLINDS

A version of the stand used for waterfowl hunting is the duck blind. The hunter finds a location where ducks feed or fly by, and sets up a blind to intercept them. In this case, decoys and calls are used to entice the birds within shooting range. Usually the blind is located so that birds landing into the wind will pass over or by the blind on the way towards the decoys, thus offering a shot within range.

Turkey hunters use a similar technique. They sit against a tree or construct a blind and use decoys and calls to entice a bearded turkey within shotgun range. Turkeys will flee the instant they detect any unnatural sound or movement. The hunter must stay absolutely still.

Pass shooting for waterfowl involves locating an area where ducks regularly fly past within shotgun range, such as a point or break in trees between two marshes. The hunter finds concealment and stands up to shoot when the birds are within range.

DRIVING

Driving involves pushing an animal towards another hunter. Driving deer and moose are effective hunting methods. Driving is most popular with groups of deer hunters. A drive involves knowing a relatively large area, like a swamp, valley or woodlot well enough to predict where the deer will likely run when pushed by drivers. Watchers take up positions at those spots. Drives do not usually cover large areas and are usually over in less than two hours.

The drive should be conducted with the drivers, such as other hunters or dogs, where dog hunting is legal, moving with the wind at their backs. Their sound and scent "pushes" the deer towards the watchers. Watchers will not see deer if their scent is blowing towards the drivers and into the area being driven. Approaching deer will detect the scent and move around the watcher.

In some parts of Ontario it is legal to hunt deer with dogs. Be sure to check the annual Hunting Regulations Summary to see if dogs are permitted in the area where you hunt. Thorough knowledge of the area being hunted is necessary to make this technique effective.

Two or three hunters can carry out small drives. One watches a runway, such as an opening in the bush or a beaver dam, while the others circle and drive back towards the watcher.

The drive is effective but can also be dangerous, as the driver is moving ever closer to the watcher who is expecting to see game. Watchers must be cautious in identifying their target, and the area behind any game at which they might shoot. A driver could be close behind and in the line of fire.

Hunting rabbits and hares with dogs is another version of a drive. Hunters take positions near where the rabbit or hare was first encountered and at other likely travel lanes and wait for the animal to be chased past them. Rabbits tend to circle when chased, often coming back close to where they originally started from.

Dogs are valuable for retrieving game

HUNTING WITH DOGS

Some types of hunting are designed around flushing and pointing dogs. These dogs are trained to locate and flush or point pheasants, ruffed grouse, woodcock and other species. The dogs are trained to stay within shooting range of the hunter, or to "point" the bird until the hunter arrives. The hunter still has the task of locating areas where game is present.

Waterfowl hunters use trained dogs to retrieve dead and wounded birds. The thick vegetation of a marsh can make finding dead or wounded birds difficult. Trained waterfowl dogs, with their thick coats, strong swimming ability and keen sense of smell can usually locate and retrieve downed birds.

CALLING

Calling or imitating the sounds made by wildlife is a technique to attract game within shooting distance. Calling by imitating the grunts and snorts made by white-tailed deer and moose during the mating season, and at other times of the year, is an exciting and successful method of hunting. The animals are attracted to the sound. The hunter remains concealed until the animal approaches within shooting range.

Predator calls imitate the distress calls of injured mice or rabbits and attract foxes, coyotes and wolves to the hidden hunter.

Waterfowl hunters have traditionally used calls to draw birds to decoys and within shotgun range.

Calling takes practice. There are numerous audiotapes, videotapes and seminars available to assist you to learn the various sounds and techniques.

There are a number of electronic calls involving tape recorders on the market that can be used to hunt some species. Check the regulations to ensure their use is legal.

Calling is another aspect of hunting that provides enjoyment and satisfaction. It can teach you new skills and open new doors of understanding about animal communication, social structures and behaviour.

RATTLING

"Rattling" is the clashing together of real or imitation deer antlers to mimic the sound of sparring bucks. This technique is also successful for attracting bull moose during the breeding season or "rut." As moose antlers are so large and heavy, many hunters substitute the dried shoulder blades of the moose, known as the scapula, to simulate antler sounds by thrashing brush and branches while they call. The rattling and thrashing sounds, accompanied by calls, will attract curious animals to a stand. There are numerous videos, tapes and books available to assist in learning how to "rattle."

CAMOUFLAGE

All licensed hunters, including archery hunters, must wear hunter orange during the open gun season for deer and moose. Black bear hunters are also required to wear hunter orange during the black bear season, except when in a tree stand.

Waterfowl hunters are not required to wear hunter orange.

At other times, many hunters make effective use of camouflage clothing and camouflage paints for face and hands, to help compete with the keen eyesight of game animals. Camouflage lacks the safety factor of hunter orange. Hunters travelling to and from stands should wear a hunter orange jacket and hat.

Turkey hunters, who hunt in full camouflage clothing, learn to take up a position with their backs protected by a tree for safety.

SCENTS

Attraction scents come in a variety of flavours designed to appeal to specific animals. Cover scents are designed to mask the human scent with that of another animal. Some hunting clothing has a sewn-in layer of material designed to absorb human scent preventing its dispersal into the surrounding air.

Be sure to check current regulations regarding the use of scents containing body parts or fluids of a member of the deer family.

Hunters calling and looking for moose

No matter what a hunter uses to disguise human scent, game should be approached from down wind, with the wind moving from the direction of the animal towards the hunter. Any unnatural scent detected by the animal will cause it to flee, or put it on high alert making a close approach more difficult. It is a good practice not to expose your hunting clothes to heavy cigarette smoke, engine exhaust and strong food odours.

It is difficult for humans to comprehend wildlife's keen sense of smell. It is many times more sensitive than ours. Even commercially produced scents designed to mimic the odours of wild animals are likely to alert the animal that something different is in the area. They may be curious and approach, or they may be alerted and avoid the area. Either way, the best strategy is to hunt with the wind in your face so your scent is not blowing ahead of you or into the area you are watching.

HUNTING WITH A FALCONRY BIRD

Hunting with a falconry bird is a legal activity in Ontario. To participate, individuals must be at least 16 years of age. A falconry licence and small game licence are required to hunt with a falconry bird.

REVIEW QUESTIONS

1. You should always hunt with the wind _____ .

2. List three common hunting techniques.

_____

_____

_____

3. What senses does an animal rely on for its safety?

_____

_____

_____

SHOT PLACEMENT

ANIMALS

Killing an animal quickly depends on:

- knowledge of the animal's internal anatomy;
- effective shot placement; and
- appropriate equipment.

When shooting at a game animal, the hunter should always aim for the area just behind the front shoulder (see diagram). This area contains the highest concentration of blood vessels, including the heart and lungs. Hits to this area will cause heavy bleeding, and death occurs quickly.

A hit on the heart ruptures the main arteries, cutting off the blood supply to the brain. The animal becomes unconscious and incapable of travel in seconds.

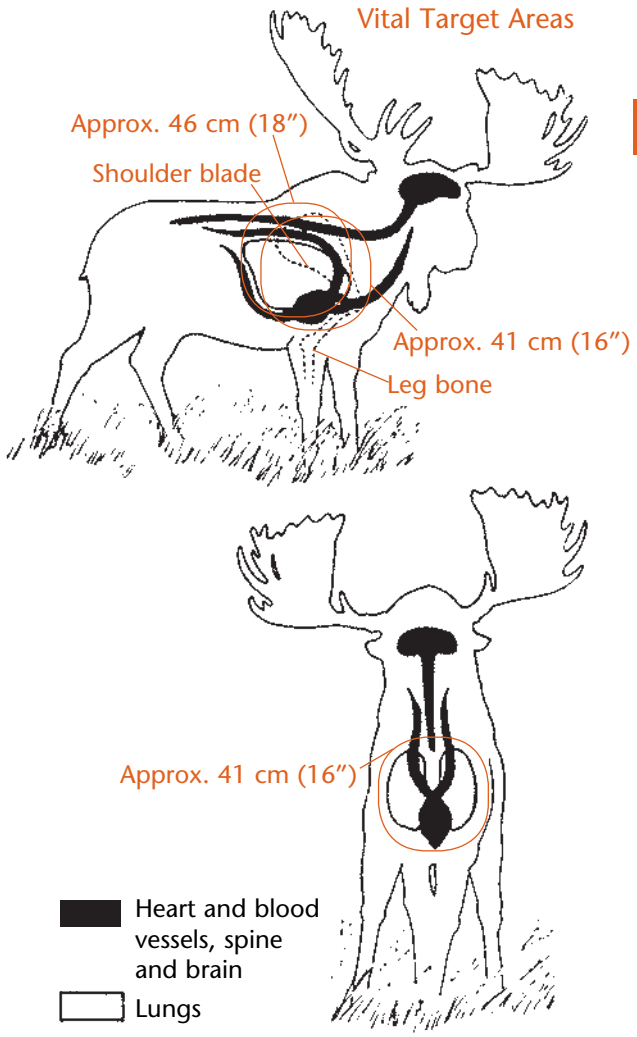
Hits above the heart in the lungs are also fatal, but the animal may travel a short distance before going down. Most of the bleeding is internal.

All hunters, especially archers, should be aware of the location of the shoulder blade, the large bone between the shoulder and the elbow. When an animal is walking or running, the shoulder blade bone partially protects the heart and lung area.

THE TARGET AREA FOR BIG GAME

Always aim just behind the front shoulder.
The degree to which the heart-lung area that is exposed changes depends on the position of the animal relative to the hunter. In some positions, none of the target area is visible and the hunter must wait until the animal moves to expose it.

For archers, the animal that is facing away at a 45-degree angle presents the best access to the animal's vital area. The shoulder bones and ribs are less likely to obstruct shot penetration.
All hunters have a responsibility to ensure their firearm is accurately sighted in and that they can shoot it accurately. Know your capabilities and be selective in the shot you make. It is important to make a quick, humane kill.



SHOTS TO BE AVOIDED

A hit a little too far behind the shoulder in the body area, where the liver and spleen are located, causes heavy bleeding and will eventually kill the animal. However, the animal may travel a longer distance before dying than if hit in the heart and lung area.

Hits far back on the body to the stomach and intestines will cause the animal's death. However, the animal may live for an extended period, and the hunter's chance of retrieving it are greatly reduced. These shots must never be taken.

Do not attempt shots to the brain and spinal cord. These areas are small and difficult to locate and hit. A miss by only a few centimetres can cause non-fatal wounding.

WOUNDED ANIMALS

In order to ensure a quick kill:

- make certain the animal is within range;
- target the area immediately behind the front shoulder in the heart-lung area; and
- make sure you can hit what you aim at.

Watch for the reaction of the animal after the shot. The animal may:

- drop immediately and die;
- run a short distance, drop and die;
- hunch over, indicating a hit to the abdomen, and run into the bush;
- run with a noticeable limp, indicating a shoulder or leg hit;
- fall completely or partially to the ground, scramble back up and run;
- show no reaction at all, and run or walk into the bush;
- move out of sight, but you may hear coughing and thrashing, indicating the animal is hit in the lungs and has gone down.

If you are sure the animal was hit, wait at least 30 minutes before you pursue it. Of course, time and circumstances will help you decide how to proceed. If it is raining and a blood trail may be washed away, or if it is getting dark, you may want to proceed sooner. Waiting is always a good strategy, however, as it allows the animal to lie down and die from blood loss.

Despite your best efforts an animal may be wounded.

If there is blood present, the colour can indicate the nature of the wound. Bright red and frothy blood often comes from hits to the heart and lung area, while darker dull-red blood usually indicates a hit to the legs or abdomen behind the diaphragm. Hits to the stomach area will produce blood that is coloured by stomach contents and appear green or brownish red.

Good trackers use pieces of flagging tape or other material, such as tissue paper, to mark the blood trail or passage of a wounded animal. This enables hunters to always return to the track if the trail is lost. Always remove tape after you are done tracking. If the trail is lost, the trackers circle outwards from the last known sign, attempting to locate the next piece of the puzzle. Tracking is most effective when done by teams of two or three hunters, with one hunter concentrating on following the trail, sign by sign, while the others scan ahead and to the sides watching for the downed animal. This can be a dangerous activity as there is much anticipation by the trackers that the next thing they see moving will be the wounded animal. Trackers must remain calm and careful to avoid making poor judgments.

If your quarry is still alive when you find it, dispatch it quickly with a carefully placed shot.

Be sure the animal is dead before getting too close to it. Avoid approaching from the head or legs side of the animal, or you could be kicked or trampled if it moves.

No responsible hunter abandons the pursuit of an injured animal as long as there is a trail that can be followed.

BIRDS

When shot, birds may:

- crumple and fall;
- set their wings in one position and glide to the ground or water;
- keep flying, while feathers may come out of the body;
- keep flying, but a leg may drop down;
- fly some distance before showing signs of being hit.

In all cases, the hunter closely watches the animal or bird to determine if it is fatally hit or wounded.

For a bird, carefully note the location where it fell into the bush or marsh. Locate a reference point like a stump or clump of weeds to guide you to where the bird went down. Send your dog, or go to the spot yourself and look for the dead bird.

WILD TURKEY

Ontario regulations specify the shot size that can be used to hunt wild turkey, as the hunter must shoot at the bird's head and neck area. It is important that hunters aim the shotgun to ensure it has sufficient pattern to hit the small head and neck area. They should also understand the effective range of the shotgun to avoid wounding.

REVIEW QUESTIONS

1. What part of a big game animal's body provides the best shot?

_____

_____

_____

2. How long should you wait before tracking a wounded animal?

_____

_____

_____

3. Bright red, frothy blood indicates a hit to the _____ ?

4. You should never attempt head or spine shots. ☐ True ☐ False

FIELD DRESSING, TRANSPORTING AND PROCESSING GAME

A responsible hunter is aware of his or her obligations to properly harvest, field dress, transport and process wild game in a manner which will ensure the final meat product is as safe as possible for consumption. How the game animals are killed and handled afterwards has a major effect on the safety of the game meat.

The first step to ensure good quality meat is to make a clean killing shot. You must know where the vital areas are on the animal and be able to hit them. A properly placed shot helps ensure a quick kill and that the animal will not travel far.

Field dressing, or gutting, is the process of removing the entrails (internal organs) from the animal or bird to promote cooling of the carcass and prevent the meat from spoiling.

The dead animal's body heat and body fluids must be allowed to escape so the carcass can cool down. The retention of heat and moisture promotes the growth of harmful decomposing bacteria that can lead to spoiled meat. Quickly cleaning the animal, propping open the body cavity; and allowing air to circulate freely are essential steps to properly cooling a carcass.

When dressing the animal or bird, the hunter must keep the meat free of dirt, leaves and water. The body cavity can be spread open to allow better air circulation. However, if you use a stick to keep the cavity open, be sure it is clean. It is better to cut a small branch off a living tree rather than using a stick found on the ground. Make sure you do not contaminate the meat with dirty hands, knife or saw. Disposable latex gloves are inexpensive and easy to carry. They will help keep blood off you and also aid in preventing contamination of the meat. To prevent the spread of bacteria, always make sure you clean your knife and saw after cleaning an animal, and certainly before cleaning a second animal.

Do not wash game in lakes or other water sources in the bush. These are prime sources of bacteria that can contaminate the meat. Instead, carry some paper towels to wipe out the carcass. They are inexpensive, light and can easily be folded to fit into a clean pocket.

Never use plastic wrap, bags or tarps to wrap freshly killed game carcasses or meat in the field. Plastic holds heat and moisture, and can cause the meat to spoil.

BIG GAME

Field dressing big game like white-tailed deer, moose and bear should occur immediately after the kill to protect the quality and safety of the meat.

EQUIPMENT

To dress a big game animal, a hunter needs the following equipment:

- a clean sharp hunting knife;
- a small sharpening stone;
- a length of rope (4 to 6 metres);
- some fluorescent orange flagging tape;
- some paper towels;
- a pair of clean disposable latex gloves; and
- a clean meat saw if quartering the game animal.

Cleaning big game

TAGGING INSTRUCTIONS

When approaching the downed animal, you need to make sure it is dead. Approach from its back or behind to avoid being within reach of its legs and head. Using a stick, poke the animal several times and watch for any reaction. If the animal's eyes are closed this is not an indication that the animal is dead. In fact, closed eyes are a good indication that it is still alive. If you intend to have the animal mounted, your finishing shot should not be in the head or neck as this will spoil the skin for taxidermy.

When you are sure the animal is dead, follow the instructions provided with your tag (e.g., immediately notch the day, month, and time the animal was killed and attach the tag if not accompanying the animal).

FIELD DRESSING

Look after your own safety first. You will be bending over a dead animal and moving its legs around while cleaning it. Tie some fluorescent tape on a nearby overhead branch to alert other hunters of your presence.

- If the animal is laying in water, mud or other debris, move it to a better location where you can keep it as clean as possible while gutting it. Roll the animal on its back or side. If possible, position it with the head higher than the rump. It is not necessary to bleed the animal, as sufficient bleeding will have occurred from the killing shot and your field dressing.

- Use clean disposable gloves and a clean knife.

- Tie the end of your rope to one of the back legs and pull it back so the animal's belly and crotch are exposed. Tie the rope to a handy bush or limb to keep the leg back, or have a hunting companion hold the legs.

- Cut a line up from the crotch to the tip of the sternum (where the rib cage ends and the belly starts). The weight of the stomach, or rumen, and intestines will pull down away from the incision, lessening the chance of puncturing them. If you cut down from the sternum, the entrails will push out around the incision, making the job more difficult. It is best to cut with the blade up and out of the cavity, which helps to prevent cutting into the rumen or intestines and also prevents dragging hair into the stomach cavity. Use your free hand to push down on the organs to prevent an accidental puncture. Cut to one side of the buck's testicles or a doe's udder.

- Move to the animal's rump and grasp the skin around the anus. Pull the skin out and cut completely around the anus, inserting the full length of the knife blade between the colon, where intestine is connected to the anus, and the bones of the pelvis, or hip bones. When the colon has been freed from its attachments in the pelvic canal, tie a string around the colon just in front of the anus to prevent feces from falling out into the body cavity. Tying off the anus may bring your hands in contact with the animal's feces. If that happens be certain to clean your hands before handling other parts of the carcass.

- With the body cavity now open, reach up into the chest and cut around the diaphragm. This is a curtain of connecting tissue that separates the stomach cavity from the heart and lungs. Reach further up to the neck and grasp the windpipe. Carefully cut the windpipe free at the throat. Hold the windpipe in one hand and pull backwards. With the other hand, free any internal organs by cutting through the tissue attaching them to the backbone area of the animal. The entrails will spill out onto the ground as you pull. The lower intestine and tied off anus may require an extra tug, but they will pull free and come out from the inside with the other intestines.

- This is messy business, and for larger animals it requires some physical effort. Some of the work inside the body cavity is "by feel" so move slowly and make sure you do not cut yourself with your own knife.

- If you are going to quarter the animal at the kill site for easier transport, it will make gutting easier if you cut the ribs from along the sternum, thus gaining full access to the heart, lungs, windpipe and esophagus. If you want a trophy mount, you must decide before quartering the animal. There will not be enough cape, or hide, on the front shoulders of a quartered animal to do a proper mount. If you do decide you want a trophy mount, the head, neck and front part of the front shoulders should be skinned out before quartering. Once the skin is cut, it cannot be put back on without a flaw in the finished mount. Always take more, not less, to the taxidermist.

- When the entrails are removed, turn the carcass on its side or belly and allow all the blood to drain out. With smaller deer or bear, you may want to use your rope to pull the animal partially up a tree to permit better drainage. Inspect inside the body cavity and make sure all the entrails are removed.

- Do not wash out the body cavity. Any water you find at the kill site will most likely be full of bacteria, which will promote spoilage. Care must be taken not to puncture intestines, stomach or bladder. However, if rumen, intestinal or bladder contents have spilled onto

the carcass, wipe off with clean paper towels. Leave any washing until you get to the camp or home where there is clean potable water. Keep the exposed surfaces of the meat as dry as possible.

- Remember the importance of cooling the meat as soon as possible. This will be discussed in more detail later on.

- In warmer weather, it is best to get the skin off the animal as soon as possible. Leaving the skin on slows the cooling process and encourages bacterial activity. Lightweight cheese cloth bags or specially designed meat bags will help keep debris and litter from getting on the meat and not interfere with cooling. Cheese cloth bags are inexpensive and you should use new ones each year. If you do reuse bags from a previous year, make sure they have been washed and are clean. In cold weather the skin can be left on the carcass until you get to camp or home. If you are leaving the carcass or quarters in the bush for transport at a later time, use your rope and a handy tree branch to pull it/them up off the ground. Another option is to place the carcass or quarters on some poles to lift the meat off the ground. This allows air to circulate and cool the meat. Left on the ground, it will not cool and may spoil, even in cold weather.

Outdoor stores and pharmacies sell inexpensive disposable latex gloves that extend the full length of your arms. They are a good choice for gutting large animals because they keep your coat and shirt sleeves clean. Take your time and think through each step of the cleaning process. Many hunters have set their knife down only to lose it in the gut pile or mistakenly grab it by the blade, causing serious injury.

TRANSPORTING

Depending on the species of game, some parts of the animal must remain attached to the animal while it is being transported. This information is contained in the annual Ontario Hunting Regulations Summary. Make sure you read the Regulations and understand what you are required to do.

You will be transporting your animal from the bush by dragging it, or by using an ATV or other vehicle. If you are dragging, pull the animal by its head, which should be off the ground. Some hunters tie a stick close to the head to make dragging easier. Some hunters use a plastic tarp or one of the various harnesses or carriers available at outdoor stores. Keep the animal clean. Do not drag it through water or mud. Avoid getting leaves and other debris inside the body cavity. It can be exhausting work, so take your time and, if possible, get help.

If possible, do not carry a big game animal on your shoulders or back. You increase your chances of physical injury from falling, or through straining muscles. It is also dangerous to have the animal high on your back where other hunters may mistake you for a live animal.

With larger animals like moose, you may have to quarter the carcass in the bush and backpack it to camp. When quartering the animal, make sure the knife, axe and/or saw you use is clean. Keep the meat free of dirt. Put fluorescent orange flagging or clothing on your packsack. If the animal has antlers, tie some fluorescent orange tape on them as well.

When transporting game by vehicle, be sure to keep the carcass away from engine heat, gasoline, sunlight, and road dust to prevent spoilage. Packing meat quarters tightly in the back of a closed trailer or truck box may cause spoilage due to residual heat. Use clean boards

or other material to raise the animal or quarters off the bed of the trailer or truck to allow air circulation on all sides. Use cheese cloth or other clean wrapping to protect the meat. Do not use plastic wraps. The ATV trailer or the bed of the truck being used to transport the animal should be thoroughly cleaned beforehand. Residual material and bacteria from previously transported items (e.g. gas cans, garbage, chemicals, etc.,) can contaminate the meat.

HANGING AND COOLING

Ideally, game carcasses should be cooled as soon as possible to a temperature not exceeding 7 degrees Celsius. Ontario's fall weather is usually cool enough to keep game from spoiling, providing it is hung in a shaded area at the camp where there is good air circulation. If the animal is hung in a shed or garage, make sure potential contaminates (e.g. stored gasoline, fertilizer, etc.,) are first removed. Always make sure there is good air circulation.

This is the time to inspect the carcass and the area of the wound. Any areas of blood clotting and tissue damage should be removed with a clean knife. If left unattended, these spots become sites of decomposition that will spread to other areas. Wear clean latex gloves when you are doing this. If you have a source of clean potable water you can use a damp clean cloth to wipe out the body cavity to remove hair or other debris. Use clean paper towels if you do not have clean potable water. If you are in camp for several days and insects are present, check often to ensure flies are not laying eggs on the carcass. If your animal is hung whole, be sure to cut up the throat and remove the entire windpipe and esophagus, as these often have body fluids and regurgitated stomach material in them. They can be prime locations for early meat spoilage.

The carcass of a big game animal and any organs being kept for consumption should be cooled and maintained at a temperature not exceeding 7 degrees Celsius. Hang the meat in a place that is cool and dry and watch the air temperature while your meat is hanging. At the hunt camp, nighttime temperatures may drop below ideal cooling temperature and daytime temperatures may rise above the ideal. If the carcass is clean and kept in a shaded area with good air circulation, you should not experience any problems. Keep a close watch on the meat. However, if temperatures rise and remain well above the ideal temperature, then the carcass should be taken to a proper refrigeration unit or butchered and the meat frozen.

Remember the principles of responsible hunting you learned in an earlier chapter. Many members of the public do not share your views about hunting, or they simply would prefer not to see a dead animal.

AGING MEAT

Aging is the process of allowing the muscle tissue to break down in controlled conditions. This process allows for the softening of connective tissue and can assist in making older animal meat more tender. Animals should be aged in a dry, clean facility at a temperature not exceeding 7 degrees Celsius. If the weather is too hot or cold and you do not have a means of maintaining the ideal aging conditions, the animal should be immediately butchered. Before you go hunting, make sure you have located a processing plant that will take your animal, or make other arrangements to have the butchering done. There are numerous books and videos that provide advice on aging and butchering a game animal.

SKINNING BIG GAME

- If possible, hang the animal off the ground with the head down. A stout stick placed through the hocks of the hind legs makes hanging easier. Attach a rope to the stick and tie it to an overhanging tree limb or garage rafter. Make sure you secure the carcass with strong rope if you suspend it. Considerable pulling will be done to get the hide off and if the carcass comes down in the process, serious injury could result. If hanging is not possible, place the carcass on level ground on a clean tarp or other clean material.

- Using a clean knife, split the skin on the chest and neck from the opened cavity up to the animal's head. When making these cuts through the skin, always cut with the blade up. This helps prevent cutting off hair and dragging it into the carcass or onto the freshly exposed meat surface. Hairs are difficult to remove, carry bacteria and are unsightly when you prepare the meat.

- Cut along the inside of each leg from above the knee joints to the belly incision. Next, cut around each leg at the knee. Then cut the skin completely around the neck.

- Using your knife, free the skin from the hind legs. Peel the hide back from the hind legs and cut through the tail.

- Continue to peel the hide down the body by pulling and cutting the connecting tissue between the hide and the body. Try to cut only the connective tissue, not the meat or the hide.

- Cut off the front legs at the knee joints using a clean meat saw or handsaw.

- Pull the hide down to the head and off the animal. Cut off the head at the back of the skull with a saw.

- Lay the hide on a flat surface with the hair side down. Using a dull knife or other scraper, remove excess fat and tissue from the hide. It is now ready to be salted for storage or transportation. The hide can be tanned to make leather for gloves and other clothing, or it can be donated to others for such use.

SKINNING TECHNIQUE FOR MOUNTING

If you decide that you would like to have your big game head mounted, you will need to keep the shoulder and neck skin attached to the head. Take some pictures of the head before you skin it. Measurements that include the circumference of the neck at the shoulder, midway up the neck and behind the ears, and the distance from the tip of the nose to midway between the antlers, will help the taxidermist make a proper form for the animal. Use a knotted piece of string if a tape measure is not available. Keep notes of the measurements for later reference.

Cut up the back of the neck from between the shoulder blades to the base of the skull behind the ears. The most difficult part of the operation is skinning around the eyes, ears, antler bases, mouth and nose. Several very sharp knives of different shape and length will aid in the process. Take your time and avoid cutting any hair off the hide. These mistakes will show on the finished mount. The antlers should be left on the skull so the taxidermist can reproduce the proper placement. If you have to remove them for transportation, take a sufficient amount of the skull to show their orientation.

The skinned head and cape should be kept cool or salted until you can deliver it to a taxidermist. Freezing is also a good way to preserve the mount.

PRESERVING THE HIDE

A hide should be salted or frozen to preserve it for future use. Use finely crushed or pickling salt in the amounts indicated in the following table:

AMOUNT OF SALT REQUIRED

Game Species	Cape Only	Whole Hide
Deer	0.9 kg (2 lb.)	0.9 to 1.4 kg (2 to 3 lb.)
Moose	2.2 kg (5 lb.)	4.5 to 5.4 kg (10 to 12 lb.)
Black Bear	0.9 kg (2 lb.)	1.4 to 1.8 kg (3 to 4 lb.)

Lay the hide flat on the ground, hair side down, and stretch it to its fullest extent. Sprinkle salt freely and evenly over the entire hide. Rub the salt vigorously into the skin with the flat of your hand. Be certain the edges of the skin are thoroughly salted.

If the head is still attached for mounting purposes, work the salt into the lips, ears, nose and other difficult areas to ensure it covers them completely.

Salt draws the moisture out of the hide. After leaving the salted hide exposed to the air for 24 hours or more, sprinkle additional salt lightly over the hide, then fold it with the hair side out. Keep it cool until it is delivered to the taxidermist. Don't place it in a plastic bag or closed container while transporting it.

The feet on a bear should be skinned out to the last joint of the toes and the bones disconnected. Cut away all fatty tissue. Use plenty of salt and rub it in well.

Some hunters may have no use for the hide, and may have no accessible location to make it available to someone else. If a hide is not going to be used, it should be disposed of in a proper landfill location or left in the bush. In the bush it will be utilized by birds, rodents and insects, and absorbed back into the ecosystem. However, do not dispose of a hide near roads or trails where it can be observed or smelled by others, or dragged out of the bush by dogs.

BUTCHERING

One option to cut up your game is to have it done commercially at a government-inspected meat-processing plant or butcher shop. You may choose to butcher your game yourself; however, it is a big job so be sure you are prepared before taking it on. Meat-cutting guides are available at many bookstores.

GAME BIRDS

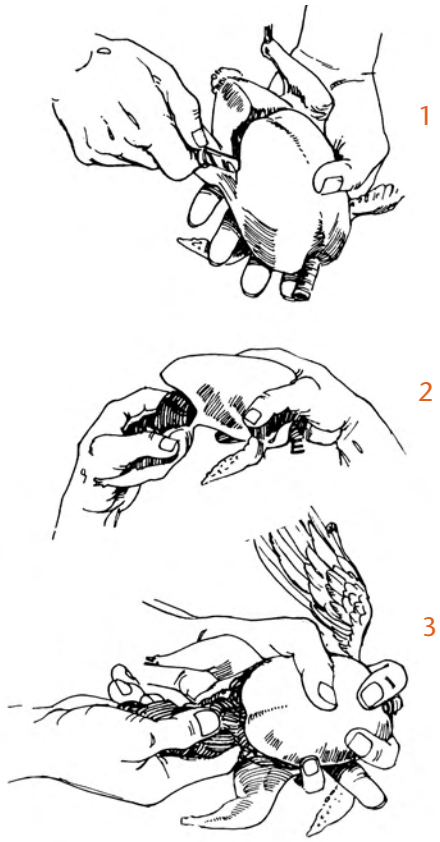
Game birds should have the entrails removed as soon as possible. Always use a clean knife and latex gloves.

A grouse is easily cleaned by cutting through the belly skin along the base of the breast and then bending the bird backwards. This maneuver opens up the incision, making the entrails visible and easy to remove.

Another method of field dressing grouse and waterfowl is to use a small clean knife to enlarge the anus hole, insert your fingers and draw out the innards.

One attached fully feathered wing must remain on migratory birds while transporting. Check the regulations with regard to wild turkey.

It is a good idea to carry disposable gloves for cleaning game birds.



Cleaning game bird

SKINNING, PLUCKING AND CLEANING

Game birds can be plucked or skinned. Plucking involves removing the feathers from the skin. It can be time consuming, but the final product resembles a bird you might purchase in a grocery store. Skinning a game bird is easier than plucking. Many hunters do not eat the skin from game birds and therefore save themselves the effort of plucking.

COOLING AND TRANSPORTATION

Birds must be cooled or the meat will spoil, and should be cooled and maintained at a temperature not exceeding 4 degrees Celsius. Do not pile birds together in a bag or box. Do not leave waterfowl in the bottom of boats where water, mud and spilled gasoline may contaminate the meat. Keep the birds on a seat or in a proper container where they are protected from dirt and where air can reach them.

Some hunters suggest hanging field dressed birds two to three days to cure them before freezing. However, modern research clearly indicates that quick cleaning and freezing reduces bacteria and preserves the quality of the meat. If birds have heavy tissue damage from shot, they can be soaked in a solution of cool saltwater to remove clotted blood before freezing them.

CARE OF TROPHY GAME BIRDS

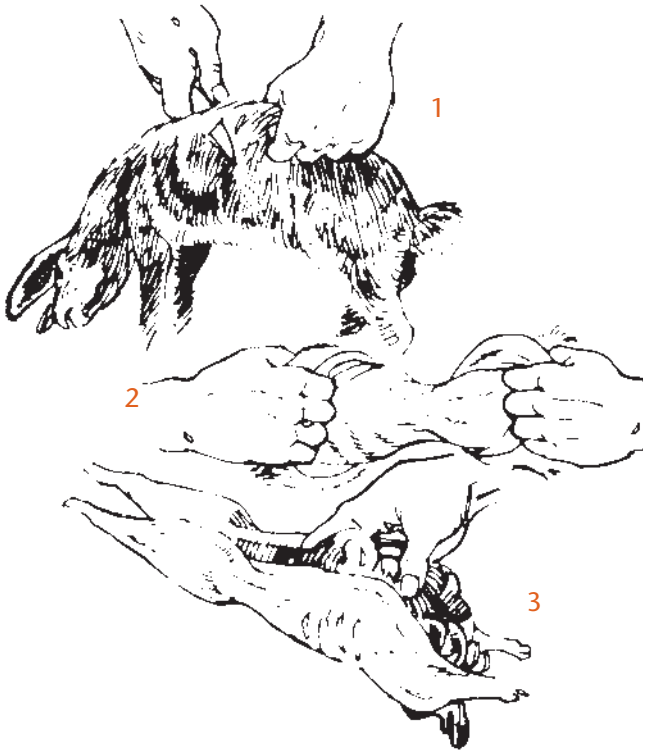
If you plan to have a taxidermist mount a bird for display, you should do the following:

- Immediately after retrieving your game bird, wipe any blood off its feathers using a clean cloth. Dab the cloth lightly in water to remove stains. Do not rough up the feathers but wipe in the direction they lie. Prevent further bleeding by stuffing tissue or cloth in the bird's mouth and nostrils.

- Place the bird in your car or boat in a clean area where it will not be disturbed. Smooth out the feathers before laying it down. If you have a distance to walk, place the bird carefully in a paper bag or pack, or carry it with the head down so blood from the mouth or nostrils does not stain the feathers.

- Do not gut any bird you intend to take to a taxidermist.

- At home, check to ensure all feathers are correctly positioned and smoothed down. Wrap the bird in paper or a plastic bag and freeze it. Keep it frozen until you deliver it to the taxidermist.



Cleaning rabbit

RABBITS AND HARES

Carry disposable gloves for cleaning rabbits and always use a clean knife.

To field dress a rabbit:

- Cut off its head and remove its feet at the ankle joint.
- Pinch the loose skin on its back between your fingers and insert your knife through the skin, cutting across the back.
- Grasp the hide on both sides of the cut and pull it away in opposite directions. Peel the hide completely off and remove the tail.
- Cut the abdomen open and remove the entrails. Trim away any shot-damaged meat.
- Keep the carcass in a cool location while transporting it home. The carcass should be cooled and maintained at a temperature not exceeding 4 degrees Celsius, as soon as possible.

PREPARING THE MEAT FOR CONSUMPTION

Unlike domestic animals that go through licensed processing plants, wild meat is not government-inspected. This places a special duty on the hunter to ensure the meat that is safe and well cared for. Always wash your hands before preparing food and keep raw meat away from other food. Thaw your meat in the refrigerator or microwave, not on the kitchen counter.

You risk your health and the health of others when you do not thoroughly cook meat. Health officials indicate that meat must be cooked to a temperature of 82 degrees Celsius or higher. Use a meat thermometer to check that it is cooked all the way through. Clean the thermometer after each use. Red meat is cooked when it is brown or grey inside and birds are cooked when the juices run clear.

For additional information on safe food handling see the Safe Food Handling Factsheet on page 189 or consult your local public health unit.

REVIEW QUESTIONS

1. How should you approach a dead animal?

2. Closed eyes on a downed animal usually indicate it is _____.

3. What connecting tissue separates the heart and lungs from the belly in an animal?

4. When should you attach your game tag to a downed animal?

5. Why should plastic never be used to wrap a freshly killed game carcass or meat?

FIREARMS

INTRODUCTION

All firearm owners are required to have a federal firearms licence. An application for a firearms licence must include documentation that the Canadian Firearms Safety course exam administered by the province has been successfully completed.

This chapter provides a general review of the history and development of firearms; identification of specific action types; and identification of major components. It will also cover the safe operation of firearms with an emphasis on hunting situations.

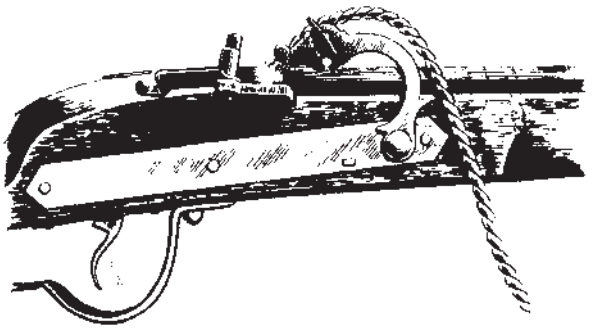
HISTORY OF FIREARMS

Matchlock

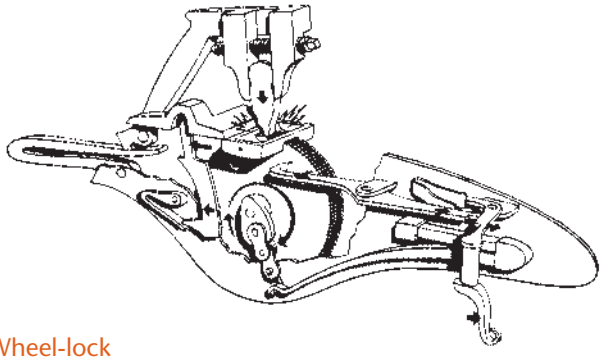
The matchlock was developed in Europe and was the first type of firearm used by early explorers in North America. It was named after the manner in which the firearm was set off – a match ignited the powder to set off the charge.

The first "match" was a twisted rope of hemp that had been soaked in a solution of saltpeter and wine. It burned slowly and steadily.

The matchlock had a simple "s"-shaped piece of metal called a "serpentine" fastened to it that held the smoldering match in one curve away from the priming powder. When ready to fire, the shooter pressed the opposite end of the serpentine. This moved the lighted end into contact with the priming powder in the pan, thus setting off the charge. When the pressure was removed, the end of the serpentine holding the match moved back to its former position.



Matchlock



Wheel-lock

This serpentine mechanism was the first trigger. With this trigger, the shooter was now able to hold the gun with both hands and aim more accurately.

These early firearms were unreliable because the black powder they used was inconsistent and, even when it did go off, gave varying degrees of pressure and performance. Also, rain and wind could put out the match or disable the priming.

Wheel-lock

The solution to some of the matchlock problems came in the form of a new kind of firearm that produced its own fire for igniting the priming powder.

This device was called a wheel-lock and it worked much like the modern cigarette lighter. The wheel-lock mechanism was wound against the tension of a strong spring. When the trigger was pulled, a serrated wheel revolved against a piece of iron pyrite. This caused sparks that would ignite priming powder and then the main powder charge in the barrel of the gun, discharging the shot or ball.

c. Mike Buss

Flintlock

c. Mike Buss

Percussion cap

Although superior to the matchlock, the wheel-lock had some serious disadvantages. It was expensive to manufacture and slow to reload. A more practical ignition mechanism was needed.

Flintlock

The answer came with the flintlock. The new lock simply produced a spark by striking flint against a piece of steel known as the frizzen. At the same time, refinements in the manufacture of black powder were being made that resulted in more reliable and predictable performance.

A flintlock action uses a flint, or other hard stone, clamped in the jaws of the cock, so-called because it resembles the head of a rooster. The steel, or frizzen, is directly opposite the cock. When the trigger is pulled, a spring snaps the cock downward, striking the flint against the frizzen. This produces sparks which fall into the flashpan below, igniting the priming charge. The flame goes through a small hole in the side of the barrel and sets off the main powder charge. These sparks are tiny white hot pieces of steel which are carved off the frizzen and drop into the priming powder. While still susceptible to wet weather, with care the shooter could be more confident in this firearm's performance.

Percussion Cap

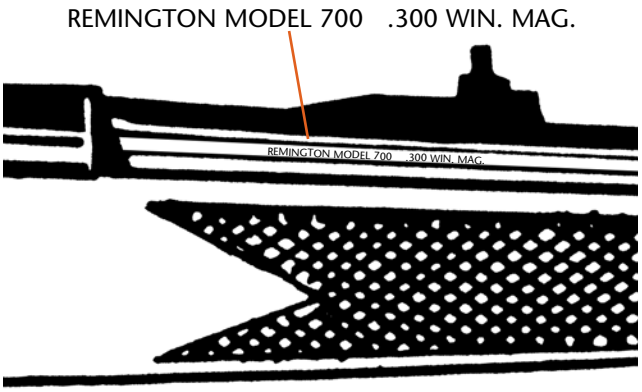
For almost 300 years, firearms ignition was based on the principle of producing a spark by striking flint against steel. Then, in the early 1800s, a powder that would explode when struck a hard blow was discovered, and a new means of ignition was invented.

The percussion cap firearm uses a separate self-contained primer called a cap. The cap, which contains the explosive powder, is placed on a small cone, or nipple. When the hammer hits the percussion cap, the powder explodes, igniting the main powder charge through the nipple and into the barrel. This type of ignition is much more reliable than the flintlock, though still somewhat susceptible to rain and damp weather. However, it did lead to the development of today's modern cartridge ammunition.

MODERN FIREARMS

Most early firearms were loaded from the end of the barrel, or muzzle. The major difference was the way the gunpowder was ignited.

The next major advance in firearm design was the development of the cartridge. A cartridge is a container or case made of metal, cardboard or plastic. It combines the ignition system, the propellant (powder) and the projectile (bullet, shot) into a single unit. With the exception of modern muzzle-loaders, all modern firearms are based on the development of the cartridge.



Data Stamp on Rifle Barrel

Today's hunter has a wide range of firearms and ammunition to choose from. Each is designed to give the required performance in specific situations. Before deciding which firearm is best for you, you should understand how each type of firearm works. In this way, you can find out which is best for the kind of game you intend to hunt, the conditions you will be hunting in, and your capabilities as a shooter.

To use a firearm safely and to ensure that it is not loaded, you must know the parts of the firearm and how they work.

Barrel

The barrel is the metal tube that the bullet or shot travels through. The front end of the barrel is called the muzzle. The end of the barrel that attaches to the action is called the breech.

Data Stamp

Typically, a description of the size and type of ammunition used in the firearm is stamped on the barrel. This is called a data stamp.

Sights

Sights are usually mounted on the top of the barrel to assist with accurate aiming. There are four major types of sights: open, aperture, telescopic and electronic. Rifles and shotguns may have any of these types of sights. The majority of shotguns have only a bead near the muzzle as a front sight.

Action

The action contains the parts that load and unload the ammunition, fire the ammunition and remove the spent casings. Triggers, safeties and magazines are found in, or attached to, the action. Every time you pick up a firearm, point the muzzle in a safe direction, then open and inspect the action and magazine to be sure they contain no ammunition.

Trigger

The trigger releases the part of the cocked action that fires the ammunition.

Safety

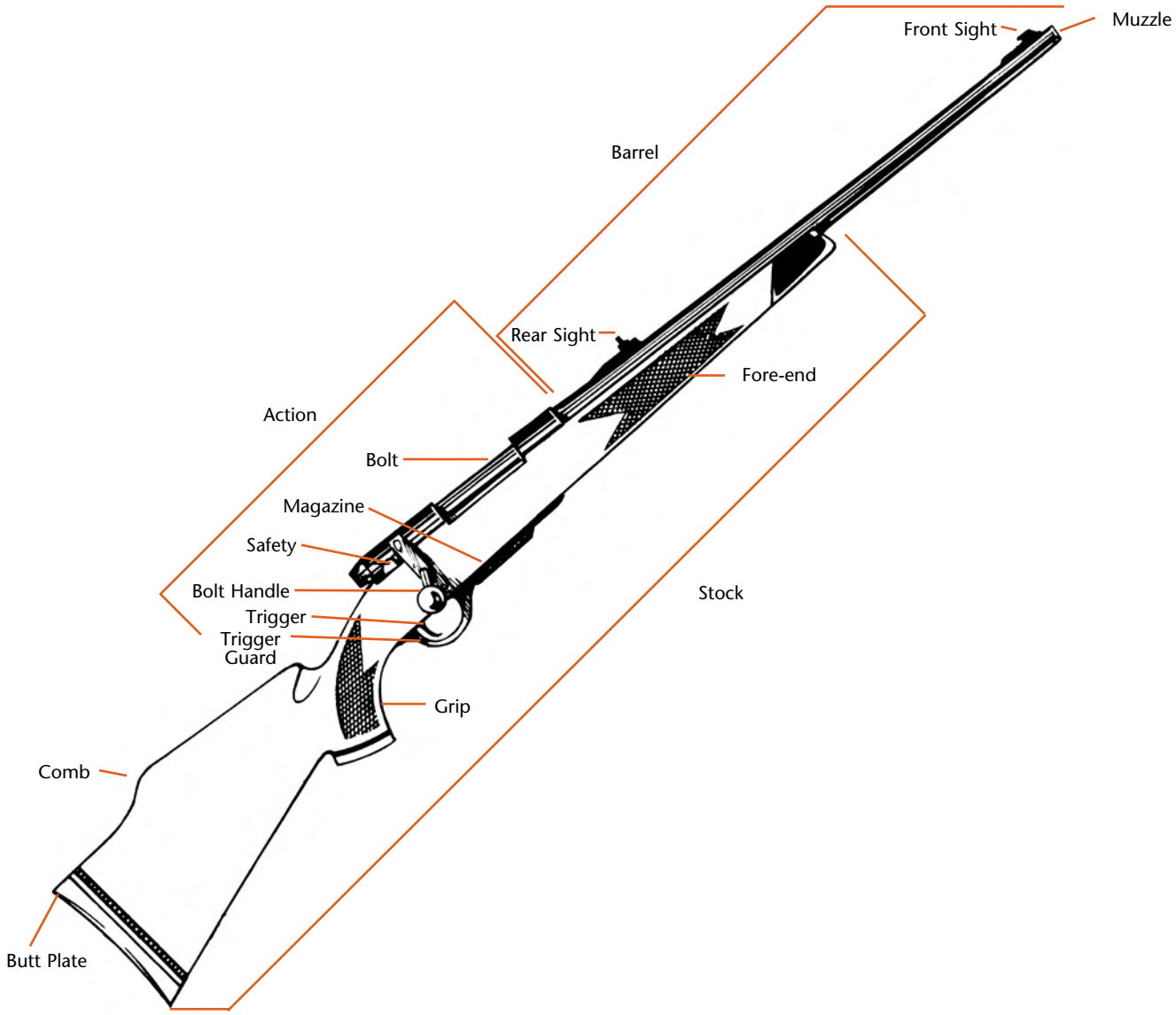
The safety usually blocks some part of the action to prevent firing. The safety should be "on" every time a firearm is loaded. It should be moved to the "off" or firing position only when a shot is to be fired. In some cases, it may be moved to "off" to permit opening the action.

Safety types include the tang, pivot, crossbolt, wing, half-cock and rebounding hammer on a single break-action single-shot shotgun.

Never depend on the safety to prevent firing. It is a mechanical device and can fail.

Magazine

The magazine is a device that stores cartridges in a repeating firearm. Several types are used. These are located in different places, depending upon the make, model and action type of the firearm. Some common types of magazines include tubular, box or rotary. When you are checking a firearm for ammunition, always check the magazine as well as the breech or action.



Stock or Grip

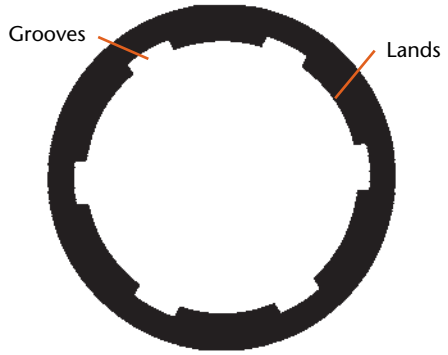
The stock acts as the handle for the firearm. It should be of a size, length and design so that your eye aligns with the sights easily when you shoulder the firearm. If you have to search for the sights you will not be confident when hurriedly sighting on a game animal. Your trigger finger should also comfortably reach the trigger. You should try out the fit of a stock with the clothes that you will be wearing while hunting. A stock that fits when you are wearing a T-shirt will not fit the same when you have on a heavy hunting coat. A gunsmith can help you fit a gun by altering the length and thickness of the stock. Be sure to keep your finger outside the trigger guard and off the trigger while practising and trying any firearm.

Rifling

Rifle barrels, and some specialized shotgun barrels, have a series of spiral grooves that twist through the barrel or bore. The ridges of metal between the grooves are called lands. The lands and grooves together make up the rifling.

Rifled shotgun barrels are designed to shoot single projectiles called “slugs” and are not suitable for shot shells. These barrels are often fitted with rifle sights.

Rifling makes the bullet or slug spin as it leaves the barrel, so it will be more stable in flight and, thus, more accurate.



Calibre

The calibre of rifles is the inside diameter of the barrel before the rifling has been cut. It is usually expressed in hundredths and thousandths of an inch or in millimetres. For example, a .22 calibre barrel measures 22/100ths of an inch from land to land. Metric measurement of firearm calibre is from groove to groove.

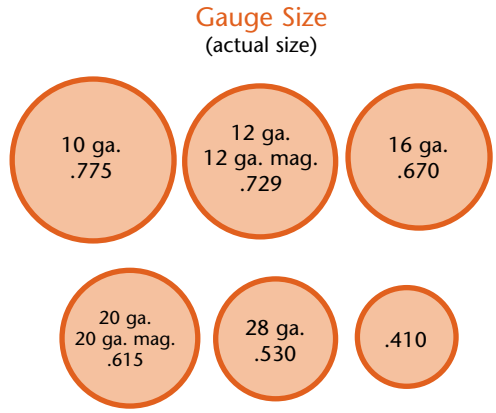
Shotgun Barrel

Except in special cases, shotgun barrels have smooth bores. They contain a chamber, a forcing cone and usually a choke. Chambers, which hold the shell to be fired, are usually 2 3/4 inches, 3 inches or 3 1/2 inches in length. The chamber length determines the length of shotshell that may be safely fired. Check the shotgun data stamp on the barrel for this information. The forcing cone is the inside part of the barrel just ahead of the chamber.

Never fire 3-inch shells in a 2 3/4-inch chamber or 3 1/2-inch shells in either 3-inch or 2 3/4-inch chambers. The crimp of the longer shells may open or only partially open into the forcing cone as the shot is fired, causing excessive pressure. This could result in a serious accident.

Shotgun Gauge

Shotgun barrels are classified by gauge instead of calibre. Gauge is determined by the number of lead balls, each having the same diameter as the bore, that weigh one pound. If you have a lead ball that is the same diameter as a 12-gauge shotgun bore, it will take 12 of the balls to make one pound. One exception to this rule is the .410 shotgun, which has a bore diameter of 410/1000ths of an inch, or .410 caliber.



Shotgun Choke

The narrowing found at the muzzle end of most shotgun barrels is called the choke. The choke controls the shot pattern by determining the density of the shot pattern at a given distance.

Just as the nozzle on a hose controls the spray of water, the choke of a shotgun barrel controls the spread, or pattern, of the shot.

From the tightest to the widest spread, chokes are referred to as full, modified and improved cylinder. There are other subdivisions or degrees of choke within that range. A gun barrel that has no choke is called a true cylinder or cylinder bore.

Early chokes were formed as the barrel was being manufactured. Only a competent gunsmith could alter them. Many modern shotgun barrels are fitted with screw-in choke tubes, which allow the shooter to quickly change the choke of the barrel.

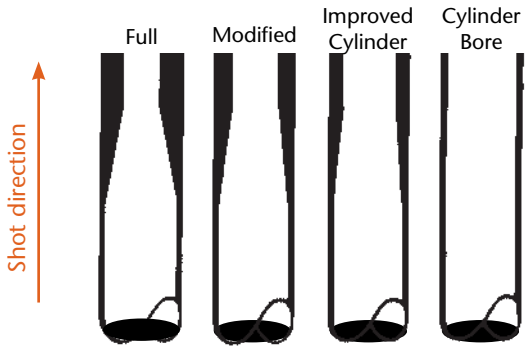
Rifled Shotgun Barrels

Although most shotgun barrels have smooth bores, some have rifling for the firing of shotgun slugs. Other barrels may be fitted with rifled choke tubes for the same purposes. To improve accuracy, many of these slug barrels are fitted with rifle sights, or telescopic sights.

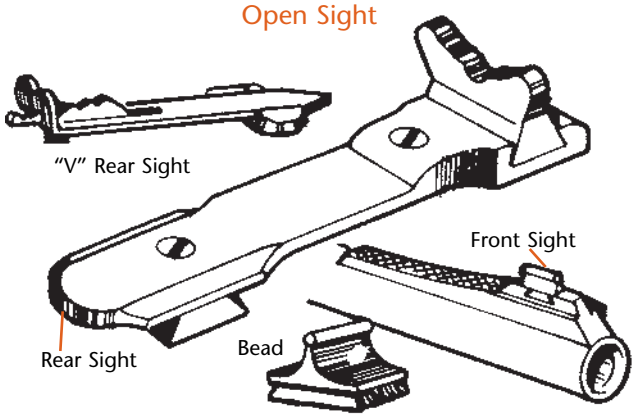
Sights

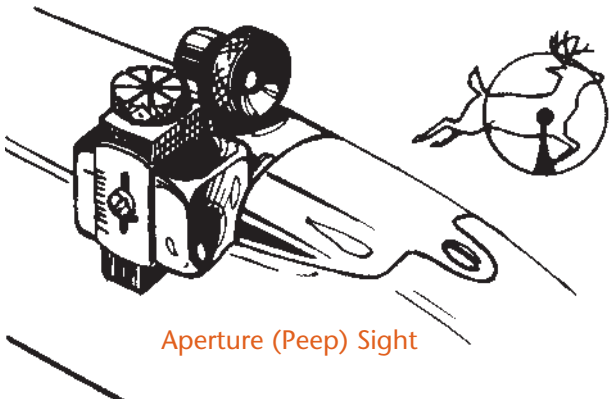
A sight is a device used to aim a firearm. There are four basic types of sights: open, aperture (peep), telescopic (scope) and electronic. Each has advantages and disadvantages depending on your eyesight, the type of game you are hunting and

Chokes



Open Sight





Aperture (Peep) Sight

the conditions and terrain in which you will be hunting.

In dense brushy woods, like much of Ontario's white-tailed deer range, there are seldom opportunities for long-distance shooting. Open and peep sights are suited for this close-range shooting. A low-powered telescopic sight will also help you to get on the target quickly. In more open woodlands, a telescopic sight helps you to acquire the target.

Electronic sights, powered by batteries, place a coloured dot on the target and can be used in both short and longer distance shooting.

With sex- and age-specific licence tags, binoculars are very helpful for determining whether an animal has antlers.

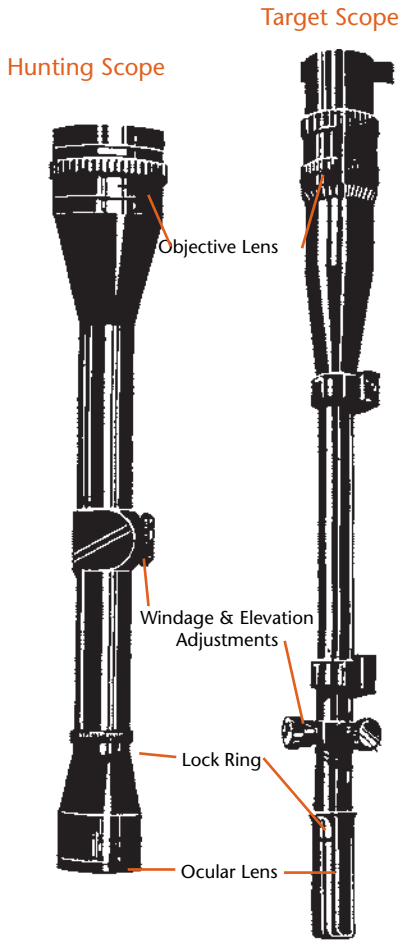
The magnification power of the scope suited for your hunting is dependent on the conditions you will most likely encounter in the field. Generally, lower power scopes (two to four power) with a wide field of view are best in heavy cover for quickly locating the target. In thick cover where a good shot may present itself for only a few moments, the hunter does not waste precious seconds trying to find the target with a high power scope. A scope should never be used as a substitute for binoculars.

The sights on a rifle barrel are usually low to the barrel to allow easy alignment when the firearm is shouldered with the cheek firmly on the stock. If you choose to mount a scope to the firearm, use as low a set of mounts as is possible. Otherwise, you will have to move your cheek around on the stock to get a full view through the scope. If the shooter has to lift his or her head off the stock to see through the scope, the hold will be unsteady and the recoil impact will be harder.

Make sure the scope is fitted to the firearm when you are wearing the clothes you intend to use while hunting.

All four types of sights are susceptible to weather conditions. If snow, rain or dirt cover or block the sights, you can miss an opportunity for a shot. While hunting, it is good practice to check your sights often to make sure they are clean and clear.

Rifles may have any of these four types of sights. Most shotguns have only a front sight called a bead, although some may have open rear sights as well.



Open Sight

Most factory-issued rifles have an open rear sight and front sight. To aim, the shooter must line up his or her eye with the front sight, the rear open sight and the target. This type of sight requires time to aim accurately but a good fitting stock and practice will improve confidence.

Aperture Sight

The aperture sight is sometimes called a peep sight because it has a small hole that you peep through to aim at the target. The shooter has to look through the peephole in the rear sight and then hold the front sight on the target.

When looking through an aperture or small opening, the human eye is naturally drawn to where the light is brightest, which is the exact centre of the peep. The peep sight is usually capable of fine adjustment and therefore potentially more accurate. It may also be more quickly aligned than an open rear sight.

Telescopic Sight

The telescopic sight is a mini-telescope mounted on the rifle that has an adjustable cross hair, or other indicator, inside the telescope. The cross hairs are held on the target at the point the shooter selects. The telescopic sight helps the hunter see the target better because it magnifies the target. It is designed to gather light so the shooter can see the target better when light conditions are poor. It is most often used for longer range shooting.

Electronic Sight

A battery powers these sights. When looking through the sight, the shooter places a coloured dot on the target.

TYPES OF FIREARMS

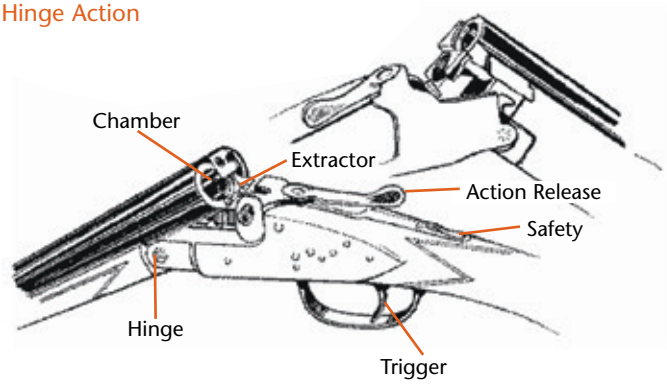
To handle firearms safely, you must learn to identify the type of action a firearm uses. You must know how that action works and how to determine when it is unloaded. Hunters often choose to use the same type of action for all their hunting firearms. For example, if they are comfortable and familiar with a pump action shotgun, they will choose a pump action rifle for big game hunting. That way the operation of the firearm becomes instinctive or automatic in the field.

FIREARM ACTION TYPES

Firearms are also classified by their action types. The five basic types are:

- bolt action;
- lever action;
- break or hinge action;
- pump or slide action; and
- semiautomatic or self-loading.

Hinge Action



OPERATING BREAK-ACTION FIREARMS and SAFETIES

The hinge, or break-action firearm opens near the breech as if on a door hinge. The two most common safeties on break-action firearms are the tang safety or the rebounding hammer safety. The safety is usually located on top of the action and is often a tang or slide type, or an exposed hammer, which must be at half-cock to be safe. The action release is usually a lever on the tang, to the rear of the receiver. It may sometimes be a push-type, located in front of the trigger guard.

To open and load a hinge or break-action firearm:

1. Point firearm in safe direction with finger off the trigger. Put safety on.

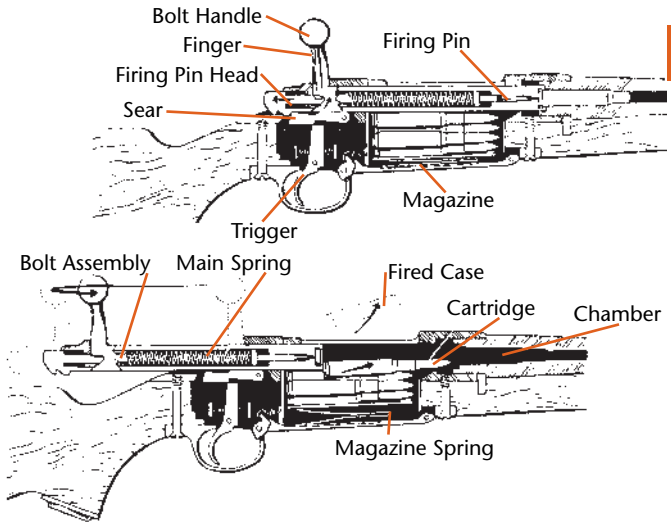
2. Move action release left or right, or push back toward trigger guard if the release is a button in front of the trigger guard. If the release will not move, the safety may have to be moved to the off position. The breech will open as the barrel drops downward on its hinge, leaving the chamber or chambers in view.

3. The barrel opening movement usually ejects or lifts any cartridges or shells in the chamber or chambers. Some firearms eject only spent cartridges.

To load a break-action:

1. Point firearm in safe direction with finger off trigger. Put safety on, if possible.

Bolt Action



2. Open action with action-release lever.

3. Check for and remove any ammunition.

4. Check barrel for obstructions.

5. Check data stamp, select correct ammunition and insert into chamber or chambers.

6. Close the action with firm movement.

7. Re-check that safety is on.

OPERATING BOLT-ACTION FIREARMS and SAFETIES

A bolt-action firearm uses an operating mechanism somewhat like the sliding bolt on a door. This is a very strong action, most often used on rifles.

The safety on a bolt-action firearm may be one of a number of types: a slide, a lever on either side of the bolt, a wing on the cocking piece of the bolt, or a part of the bolt may turn and lock into a safety notch on the receiver.

Bolt-action firearms may be single shot or manually repeating. A single-shot bolt action has no magazine. A manually repeating bolt action

may have a box magazine, a hinged-floorplate magazine, or a tubular magazine usually located under the barrel or in the stock.

Most box-type magazines are removed by pressing a button or latch, and physically removing the magazine. Some have a hinged floorplate which drops open when a button or latch is depressed, releasing the ammunition. To unload a tubular magazine, remove the inside tube – usually associated with .22 calibre rifles only – and let the cartridges drop out of the loading port, or close and open the action several times to be sure there are no cartridges in the magazine. Cartridges can sometimes hang up in tubular magazines, so be sure that you can feel or see the magazine follower to confirm that all cartridges are out.

To open a bolt-action firearm:

1. Point firearm in safe direction with finger off trigger. Put the safety on if possible.

2. Remove magazine, if present.

3. Open action by lifting the bolt handle and pulling the bolt to the rear. This should eject any cartridge from the chamber. Remove all cartridges.

4. Look into the chamber and magazine to be sure they are empty.

To load a bolt-action firearm:

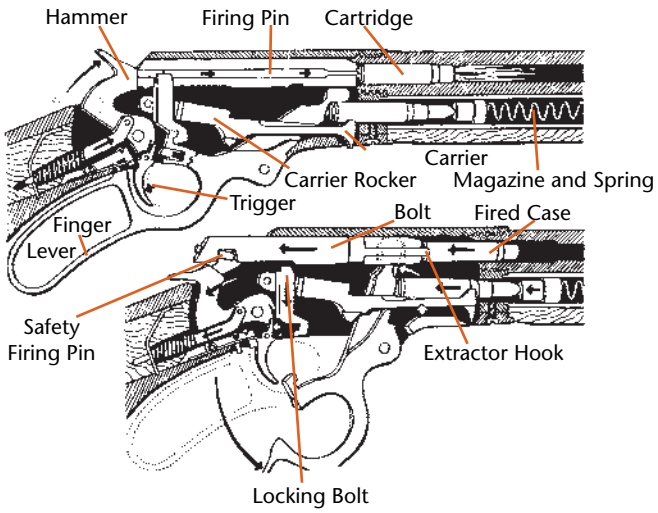
1. Point firearm in safe direction with finger off the trigger and safety on.

2. Check barrel for obstructions, preferably from the breech. Check firearm data stamp.

3. Select correct ammunition and insert into magazine, or chamber in the case of a single-shot firearm.

4. Insert magazine.

Lever Action



5. Push bolt handle forward and then down until it locks into place. This will load a live cartridge into the chamber.

6. Re-check to be sure that the safety is in the on position.

OPERATING LEVER-ACTION REPEATERS and SAFETIES

A metal lever located just behind the trigger operates a lever-action firearm. This action is most often used on rifles.

In most cases, the safety on a lever-action is a hammer at half cock. If the hammer is allowed to sit fully forward, it will rest against the firing pin and a sudden blow could discharge the firearm. Many lever actions have an additional safety feature in that they will not fire unless the lever is fully squeezed against the stock. Some modern lever actions, usually those fitted with box or floorplate-type magazines, have slide or button safeties located in the action area.

To open a lever action:

1. Point firearm in safe direction with finger off the trigger.

2. To unload tubular magazines, remove the inside tube (.22 calibres only) and let the cartridges drop out of the loading port. If magazine is not removable, operate the action by cycling the lever until all cartridges are extracted.

3. Leave the action open by leaving the lever down.

4. Look into the chamber to ensure it is empty.

Loading a lever action:

1. Point the firearm in safe direction with finger off the trigger. Remove ammunition magazine if it has a detachable magazine.

2. Check barrel for obstructions with action open.

3. Close action while watching chamber to be certain it remains empty during loading.

4. Place hammer to half-cock so the safety is on. Check firearm data stamp.

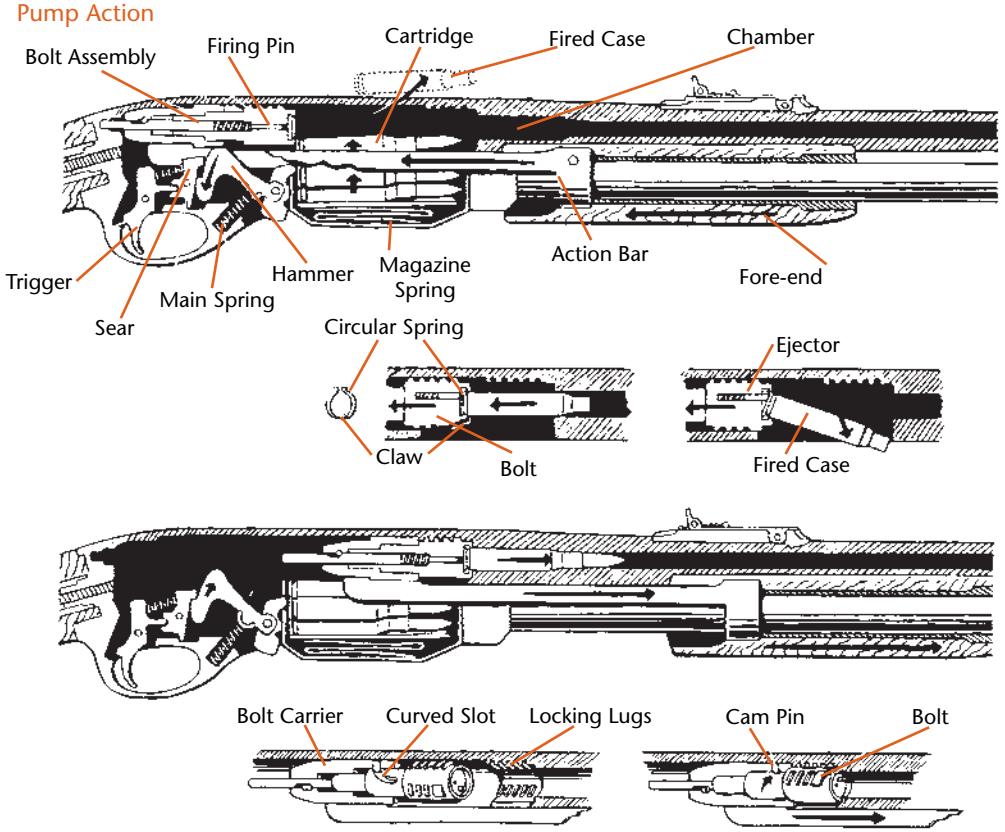
5. Select correct ammunition and insert it into the magazine.

6. Insert magazine in firearm, if not already in place.

7. Operate lever once to load a cartridge from the magazine into the chamber. The hammer will be in the full-cock position and ready to fire.

8. To engage the half cock safety from full cock position, firmly hold the hammer in position with the thumb. Squeeze trigger while holding hammer and carefully move hammer to half-cock position. Be very cautious of muzzle control and when placing your finger on trigger. If a safety, other than a hammer, is present, engage it.

Pump Action



OPERATING PUMP-ACTION FIREARMS and SAFETIES

The pump-action firearm is operated by pumping the fore-end of the stock back and forth. It is most commonly used on shotguns with a tubular magazine.

Most modern pump actions have a cross-bolt or slide/tang safety located in the area of the action. Slide safeties are usually on top of the action and cross-bolt safeties are usually to the front or rear of the trigger guard.

To open a pump-action firearm:

1. Point the firearm in a safe direction with finger off the trigger.

2. Operate action-release button to unlock the action. It is commonly located near the trigger guard.

3. Cycle the pump grip back and forth until all cartridges are extracted from chamber and magazine. Double-check to be certain all ammunition is out of tubular magazine.

When action is open:

1. Look into the chamber to be sure no shells are present.

Loading a pump-action firearm:

1. Point firearm in safe direction with finger off trigger. Put safety on if it can be left on during loading process.

2. Check barrel for obstructions.

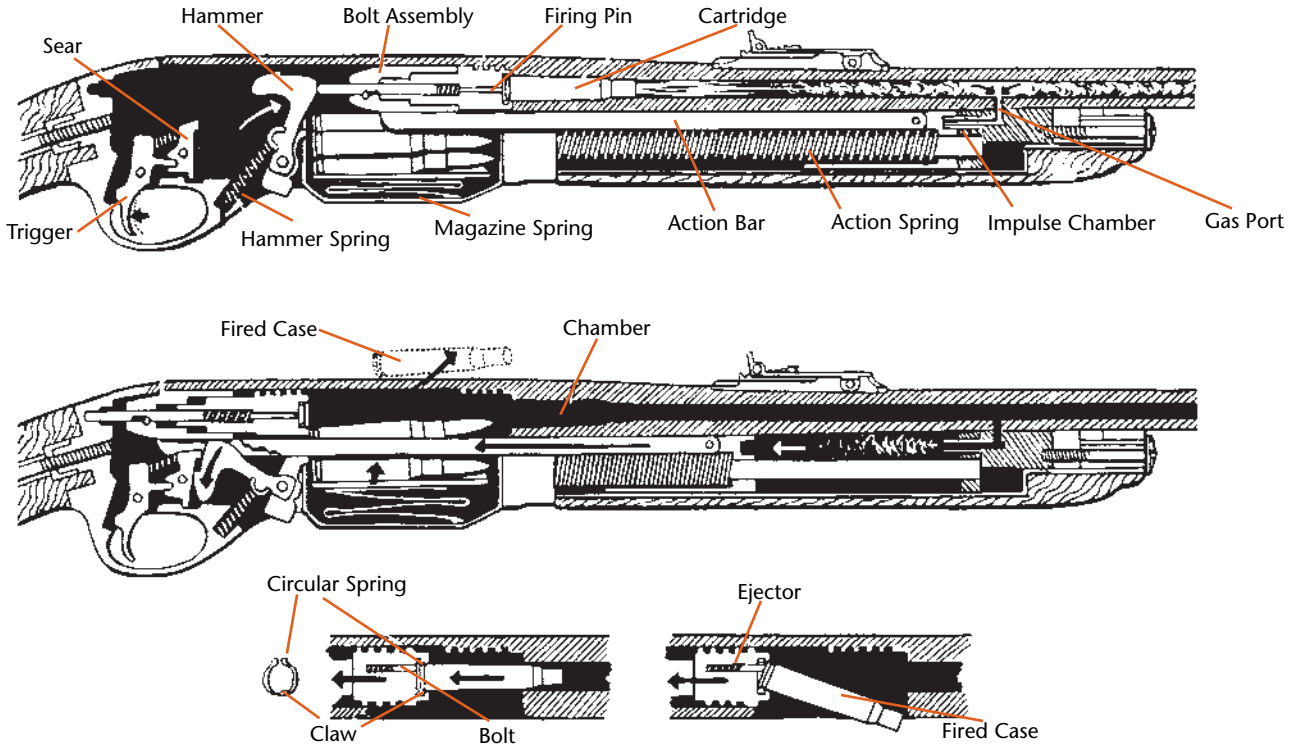
3. Check the data stamp, select correct ammunition and insert it into the magazine.

4. Insert magazine into firearm where applicable.

5. Operate pump once to load a live cartridge into chamber.

6. Place safety in on position.

Semi-Automatic



OPERATING SEMI-AUTOMATIC FIREARMS and SAFETIES

With each pull of the trigger, the semi-automatic action uses part of the energy of the fired cartridge to extract the empty case and to reload the chamber. No hand movement is needed to load a round into the firing position.

Also called self-loading or auto-loading, this action can be found on rifles and shotguns.

There is considerable variation in the type and location of safety mechanisms on semi-automatics. Commonly used are cross-bolt, slide and button types. Occasionally, internal safeties such as magazine disconnects are used. These prevent the firearm from firing when the magazine is not in place.

Opening and unloading a semi-automatic firearm:

1. Point firearm in a safe direction with finger off the trigger.

2. Release magazine and remove from firearm, where applicable.

3. Open the action by pulling back the bolt handle or slide. This should eject any cartridge that may be in the chamber. In the case of a firearm with a tubular magazine, continue cycling bolt handle until all cartridges are ejected.

4. Some semi-automatics have a slide lock, which will keep the action open. Use it, if present.

5. Look into the chamber and magazine to make sure they are empty.

Loading a semi-automatic firearm:

1. Point firearm in a safe direction with finger off trigger.

2. Engage safety if it can be left on during loading process.

3. Check barrel for obstructions.

4. Check the data stamp, select the correct ammunition and insert it into the detachable magazine, if present.

5. Insert loaded magazine into firearm until secured. In the case of a tubular magazine, insert shells or cartridges into magazine and chamber.

Muzzle-loader

For muzzle-loaders there are three basic types of actions:

- flintlock
- percussion cap lock
- inline action.

Loading and unloading muzzle-loaders is described in the muzzle-loader section (see page 102).

AMMUNITION

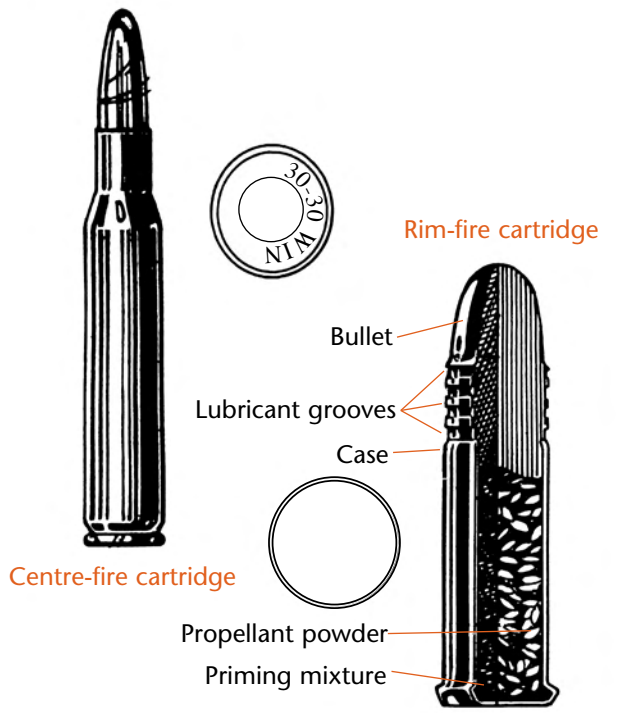
No formal, organized system exists for the naming of various cartridges. It is, therefore, very important to consult the data stamp on the barrel of your firearm to determine exactly which ammunition it will shoot safely.

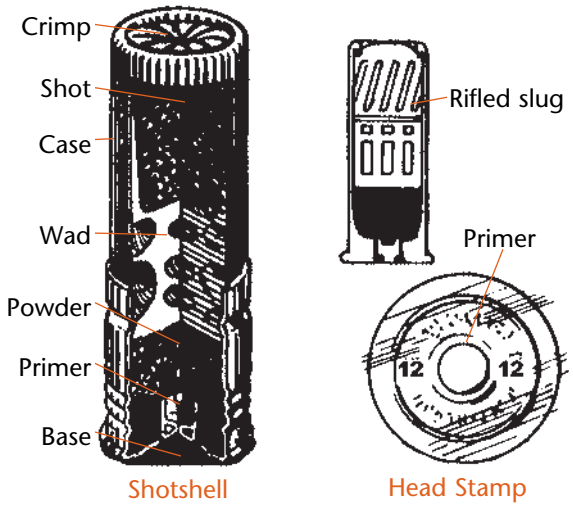
Data Stamps on Ammunition

Use only the ammunition listed on the data stamp of your firearm. This data should match the data stamped into the base of the cartridge you wish to use. Be sure that the complete name on the ammunition matches the complete name on the data stamp.

Shotgun Shells and Data Stamps

Shotguns generally have data stamps on the barrel. You should ensure that all shells match the data before using ammunition. In addition to ensuring that shotshells are of the proper gauge, you must be sure that they are of the right length for your firearm. This information is usually listed on the data stamp on the firearm. However, it is not always on individual shot shells and may only be identified on the ammunition box. This is extremely important.





Twelve gauge shotgun shells, for example, come in three common lengths: 2 3/4 inch, 3 inch and 3 1/2 inch. Some European chambers may even be designed for shorter shot shells. It can be extremely dangerous to fire a shot shell from a chamber that is shorter than that for which it was designed. This is a crucial point because longer shells will often appear to fit into a shorter chamber. Be certain that the shell length matches that for which the shotgun was chambered. When in doubt, have it checked by a gunsmith.

SHOT SIZES FOR HUNTING

The game to be hunted determines the size of shot to be used. As a general rule, the smaller the game hunted, the smaller the shot should be. Small shot allows more pellets per shell and, thus, a more shot-filled pattern. But the smaller, lighter shot delivers less energy at a given range than heavier shot and is, therefore, not suitable for larger game.

Do not be confused by the dangerous range and the effective range of shot shells. The pellets of a shot shell may travel several hundred yards but be incapable of killing a game animal. They may be dangerous if they were to strike a person in the eye but the pattern at extreme range would not inflict enough hits sufficient, for example, to kill a duck. Larger gauge shot shells have more shot in them but their effective range is not greater than smaller gauge shotguns. Longer shot shells (3 to 3 1/2 inch) contain more powder and shot. While the additional shot may increase the chances of killing game animals, the effective killing range is not increased. However, recoil is also greater and some shooters can develop poor shooting habits as a result of the "kick."

Consult the manufacturer for suggested shot sizes for game. It is advisable to shoot several different types, sizes and gauges of shotguns before you purchase one. This will help you decide which you are capable of shooting comfortably and confidently.

Shotgun shells may also be loaded with a single projectile or slug. Manufacturers' ballistics tables will allow you to determine which slugs develop sufficient energy for the game you intend to hunt.

Generally there are two types of shotgun slugs used for hunting big game. Rifled slugs are used in smooth bore shotguns and sabot slugs are designed for use in rifled barrelled shotguns. Slugs can have a dangerous range in excess of 800 yards (732m). For deer hunters using shotguns, slugs are the ammunition of choice.

RIFLE AMMUNITION FOR HUNTING

Effective and Dangerous Range

It is important that all shooters understand the ranges of the ammunition they use, both the effective range and the dangerous range.

The effective range of a particular cartridge is the range at which it can deliver enough energy to kill game animals accurately and quickly.

The dangerous range of that same ammunition is the maximum distance the bullet will travel when shot at an optimum angle. It may be capable of causing personal injury or property damage at extreme range. These ranges are often quite different and the safe shooter must understand and be aware of both.

Effective and quick killing of game animals is the concern of hunters when they choose the caliber and type of bullet they will use. Therefore, hunters must know the species of game they are going to hunt, and the likely distances over which they will be shooting. Smaller calibers are most suitable for small game and larger calibers for big game. Consult the Fish and Wildlife Conservation Act or the annual Hunting Regulations Summary for the minimum legal caliber, gauge and shot sizes for hunting game animals in Ontario.

One should also consider recoil in the selection of caliber. Heavier calibers can deliver punishing recoil that may cause the shooter to flinch and result in poor marksmanship.

Remember that you cannot make up for poor marksmanship by using a larger caliber! If you cannot hit the animal in a vital spot, it does not make much difference how large a caliber you use.

Once the energy of your ammunition has been determined, the following guidelines help in judging its killing power for various game animals:

Energy Required at Point of Impact

Target Species	Minimum	Adequate	Preferred
Deer	900 ft. lb.	1200 ft. lb.	1500 ft. lb.
Bear up to 600 lbs.	1500 ft. lb.	2000 ft. lb.	2500 ft. lb.
Large bear, moose	2100 ft. lb.	2800 ft. lb.	3500 ft. lb.

Energy Impact Table (foot pounds)

VELOCITY	BULLET WEIGHT — GRAINS																					
Ft.Sec.	40	45	50	55	60	87	100	110	120	130	140	145	150	160	170	180	200	220	235	250	275	285
1100	107	120	134	147	161	233	268	295	322	349	376	389	402	429	457	483	537	591	630	671	738	765
1200	128	144	160	176	192	277	319	351	383	415	447	463	479	512	543	575	639	703	752	799	878	912
1300	150	168	187	206	225	325	375	412	450	487	524	543	562	599	637	674	750	825	881	937	1031	1068
1400	174	195	217	239	261	377	435	478	522	565	609	630	652	696	739	783	869	956	1021	1087	1195	1938
1500	199	224	249	274	299	434	498	548	598	648	698	722	747	797	847	897	997	1096	1170	1245	1372	1420
1600	227	255	284	312	341	493	568	624	682	738	795	823	852	908	965	1021	1133	1248	1330	1418	1558	1613
1700	257	289	321	353	385	558	642	706	770	834	898	930	962	1026	1090	1154	1282	1411	1511	1602	1763	1827
1800	287	323	359	395	432	625	718	792	863	934	1005	1041	1078	1149	1222	1293	1437	1580	1689	1796	1977	2048
1900	321	361	401	442	482	696	802	882	962	1042	1122	1162	1202	1282	1362	1443	1603	1763	1882	2004	2205	2283
2000	355	409	444	488	532	770	888	976	1064	1152	1242	1286	1330	1418	1508	1597	1774	1951	2082	2218	2440	2530
2100	391	440	489	538	587	850	978	1075	1173	1271	1369	1418	1468	1564	1662	1760	1956	2151	2298	2444	2688	2786
2200	430	483	537	590	644	934	1073	1181	1288	1396	1503	1556	1610	1718	1825	1933	2145	2362	2520	2686	2948	3058
2300	470	529	587	646	704	1021	1173	1292	1409	1526	1644	1703	1762	1878	1996	2112	2346	2585	2755	2935	3225	3313
2400	512	575	638	703	767	1110	1277	1405	1532	1660	1738	1853	1916	2045	2172	2298	2552	2812	3000	3195	3510	3635
2500	555	624	694	764	833	1206	1387	1526	1665	1803	1942	2012	2081	2220	2358	2496	2773	3053	3260	3470	3818	3950
2600	599	674	749	824	899	1302	1498	1648	1798	1948	2095	2187	2248	2396	2548	2697	2997	3296	3520	3749	4122	4270
2700	647	728	808	890	970	1405	1616	1778	1940	2102	2264	2345	2428	2588	2748	2910	3232	3558	3800	4040	4450	4605
2800	696	786	870	958	1042	1511	1738	1913	2088	2262	2434	2521	2600	2784	2957	3131	3479	3829	4085	4349	4785	4958
2900	747	840	933	1028	1119	1620	1864	2052	2238	2426	2612	2702	2797	2986	3170	3358	3732	4101	4380	4665	5130	5315
3000	797	897	996	1092	1195	1730	1991	2191	2390	2590	2788	2878	2988	3188	3386	3586	3985	4380	4680	4978	5480	5680
3100	853	960	1067	1173	1280	1856	2134	2347	2561	2774	2988	3094	3202	3415	3628	3841	4268	4695	5015	5336	5869	6083
3200	909	1023	1135	1248	1362	1973	2270	2498	2728	2952	3180	3292	3410	3634	3861	4085	4545	5000	5332	5680	6250	6475
3300	965	1085	1204	1323	1446	2107	2413	2654	2893	3135	3375	3495	3616	3858	4100	4340	4820	5308	5660	6030	6635	6870
3400	1025	1153	1282	1410	1538	2224	2562	2820	3078	3332	3590	3718	3848	4105	4360	4618	5130	5642	6025	6410	7062	7304
3500	1086	1221	1357	1493	1629	2360	2716	2988	3258	3528	3800	3938	4070	4345	4618	4884	5430	5975	6380	6785	7475	7735
3600	1150	1294	1437	1583	1726	2500	2877	3164	3452	3740	4025	1165	4315	4600	4890	5178	5752	6330	6760	7190	7920	8200
3700	1214	1367	1517	1670	1821	2640	3035	3340	3644	3948	4250	4401	4555	4860	5165	5470	6074	6680	7144	7592	8350	8650
3800	1280	1440	1600	1760	1920	2782	3200	3520	3840	4160	4480	4645	4800	5120	5440	5760	6400	7040	7520	8000	8800	9120
3900	1347	1517	1684	1853	2011	2931	3372	3710	4045	4380	4720	4885	5055	5394	5730	6070	6742	7420	7925	8430	9270	9600
4000	1418	1592	1773	1950	2128	3086	3547	3900	4255	4610	4970	5150	5320	5674	6025	6380	7092	7800	8338	8870	975	10010

All chronographs read in ft. per second

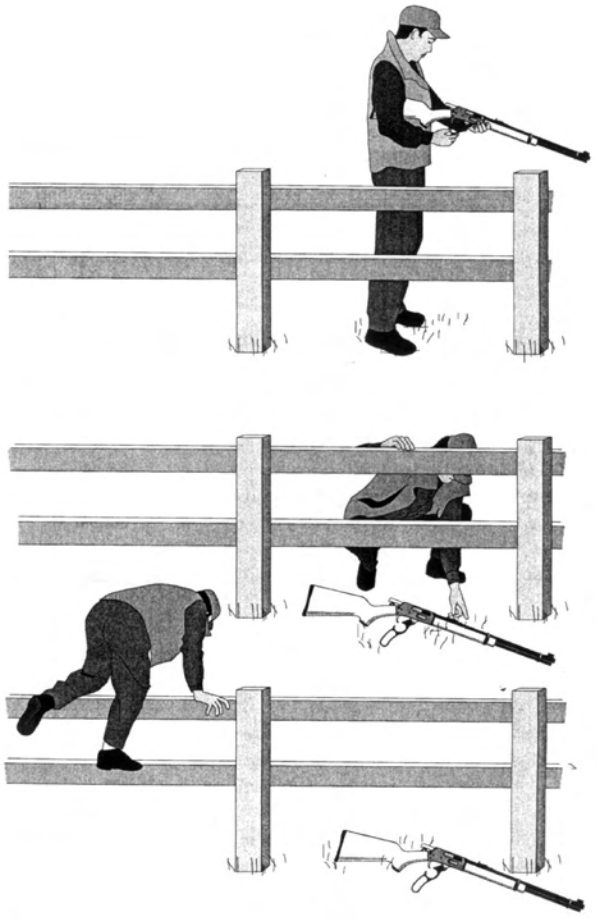
I.M.V. (Conversion to meters x .305)

SELECTION OF HUNTING BULLETS AND SHOT SHELL AMMUNITION

Attention should be given to the selection of ammunition for hunting purposes. Within any given calibre or gauge, there are a multitude of bullet weights and construction as well as shot sizes and types, to choose from. The law mandates some shot types and sizes. For example, you can only hunt migratory waterfowl using non-lead shot. There are several alternative non-toxic shot types available, and you should consult an experienced shooter to get advice. It is also advisable to try several different types in your hunting shotgun to see which performs best. Shooting at a large blank sheet of paper at 30 yards will show you how even the shot pattern is. Most shot shell manufacturers publish information about the performance of their products.

Bullet weight and construction are of concern to big game hunters. Generally, heavy-skinned animals, like moose, require bullets that penetrate well and expand in response to the impact with dense skin and large body mass. Thinner-skinned animals, like white-tailed deer, can effectively be killed by faster-expanding bullets. The performance of the bullet, speed and trajectory, are also affected by the weight of the bullet. Heavy, slower moving bullets are less likely to be affected by leaves or small brush they might hit between the muzzle and the target. Faster, lighter bullets are more likely to deflect and break up on impact. These factors should be considered when choosing ammunition. It is best to practise with the ammunition you plan to hunt with so that you know how it reacts in your firearm.

Never use full metal jacket ammunition for hunting as it does not expand effectively upon impact.



CROSSING OBSTACLES

While hunting, it is common to encounter an obstacle such as a fence or stream. The following steps should be followed when crossing a fence:

Crossing a Fence Alone

1. Unload firearm.
2. Leave action open.
3. With muzzle pointed in a safe direction, place unloaded firearm under fence.
4. Cross fence at least one sturdy post or more away from firearm.
5. Retrieve firearm ensuring safe muzzle control.

6. Check barrel for obstructions.

7. Reload firearm.

8. Resume hunting.

Crossing a Fence with Two Persons

1. Unload firearms.

2. Hunter "A" hands unloaded firearm with action open and visible to Hunter "B".

3. Hunter "A" crosses fence.

4. Hunter "B" hands Hunter "A" both unloaded firearms with actions open and visible.

5. Hunter "B" crosses fence.

6. Hunter "B" retrieves firearm and checks to ensure it is unloaded and checks for obstructions.

7. Hunter "A" checks firearm for obstructions.

8. Both reload and continue hunting.

Crossing Obstacle (small stream, fallen tree, etc.)

1. Unload firearm.

2. Firm grip on firearm.

3 Control muzzle.

4. Cross obstacle carefully, and if a fall should occur check firearm for obstructions.

5. Reload and resume hunting.

6. Two hunters may cross using the same method as crossing a fence.

PERSONAL SAFETY PROTECTION

Eye Protection

Both hunters and target shooters should consider eye protection. Hunters travelling through bush risk eye damage from branches. All shooters face risk from ejected cartridge cases, case fragments and other debris ejected during firing. This is true for muzzle-loader shooters as well.

To avoid these hazards, firearm users should wear impact-resistant glasses. There are numerous models of shooting glasses available at outdoor stores. These are usually combined safety/sunglasses made of impact-resistant glass or polycarbonate plastic. They resist scratching, screen out ultraviolet rays and protect your eyes from injury.

Hearing Protection

Loud sounds can damage your hearing. The sound of a firearm averages 140 decibels at close range, so hearing protection should be worn.

There are numerous ear protection products available ranging from inexpensive small foam devices that are inserted into the ear to electronic earmuffs. In the field, where the hunter is trying to detect the sounds and movements of game, ear protection may not be practical. However, any amount of sustained target shooting should always be done with proper ear protection.

FIREARM LOCKING DEVICE

A number of locking devices may be used to prevent a firearm from being discharged. In Canada, laws for the transportation, storage and display of firearms may require these devices. Review the storage and transportation regulations before you take your firearm out shooting or hunting.

Firearms Safety while Travelling

Whether your firearm is being carried in a car, boat, ATV, snowmobile, motorcycle or in any other motorized vehicle, the following rules of safe firearm handling must be observed:

1. Firearms must be unloaded when being transported in or on a motorized vehicle or vessel.

2. If unattended, a firearm must be secured in a locked trunk or vehicle. The firearm must be out of sight.

3. Check with the carrier before transporting a firearm on a bus, train or aircraft.

4. Firearms must be encased a half hour after sunset to a half hour before sunrise in areas inhabited by wildlife.

Two-Hand or Ready Carry

FIREARM SAFETY IN THE FIELD

There are several ways to carry a firearm safely while still having it ready for quick use in the field. Generally, you will find a number of "carries" are required throughout a hunt. Whichever carrying method you use, make sure you follow these basic rules.

1. Keep the muzzle pointed away from yourself and others.

2. Keep the safety in the "on" position when carrying a firearm.

3. Keep your finger outside the trigger guard until you are ready to shoot.

Two-Hand or Ready Carry

The two-hand, or ready carry, is the safest carry for hunters.

This carry gives you good control of the muzzle and allows you to raise your firearm quickly for a shot.

Trail Carry

Trail Carry

The trail carry is safe when several people are walking side by side. It is also safe for the leader when people are walking in single file, but others in the line should not carry their firearms this way or have their firearms loaded.

Elbow or Side Carry

Elbow or Side Carry

The elbow or side carry is safe when walking in open terrain. It should not be used when walking through bush because branches can get tangled around the firearm and push the barrel downward. Do not use the side carry when others are ahead of you.

Cradle Carry

The Cradle Carry

The cradle carry is another safe carry. The firearm may be cradled to the left or right. Because the muzzle points to one side, this method should not be used when walking between two other hunters.

Shoulder Carry

Shoulder Carry

The shoulder carry is not considered a good carry because the firearm's position can never be secure. This carry should be used only when hunting alone. Carrying a firearm over the shoulder results in poor muzzle control because the hunter has only one hand on the firearm. In case of a fall it is almost impossible to gain control of the muzzle.

Sling Carry

Hunters who must walk a long way before taking a shot often use the sling carry. The sling carry leaves both hands free. However, when walking in dense bush, it should not be used because the firearm may get caught in brush and be pulled off the hunter's shoulder. A shell should never be in the chamber when using a sling carry.

The carry you use will depend on the kind of terrain you encounter and where your companions are located. Often a variety of carries are used throughout a day of hunting.

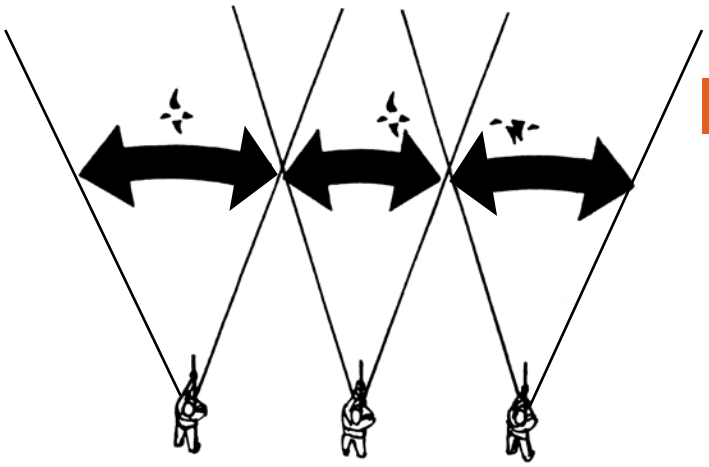
When hunters are positioned in a line side by side, the hunters at either end should use the cradle or side carry. The hunters in the middle should use either the side or trail carry.

When walking single file, only the leader may have a loaded firearm. The leader can use any of the carries with the exception of the shoulder carry. Centre of the line hunters should use the cradle carry. The last person in line may use the cradle carry.

ZONES OF FIRE

When hunting with others, you should establish zones of fire prior to the start of the hunt so each hunter will not endanger others when shooting.

If three hunters in pursuit of game birds were to walk across an open field, the middle hunter's zone of fire would be the area in front of him or her in the centre of the field. The zone of fire for the hunter on the right would be birds flying in the area to the right side. The third hunter's zone of fire would be birds flying in the area to the left. The same zones of fire apply when hunters are walking side by side in pursuit of small game.



Zones of fire

If you consider the face of a clock and assume 12:00 is directly in front of you, each hunter's zone of fire would be from 10:00 to 2:00.

After zones of fire are determined, each hunter must shoot within their specific zone. If a hunter shoots out of his or her zone of fire, someone else could be hit.

Since a flock of waterfowl usually flies in one direction, hunters shooting from a boat or duck blind must determine zones of fire for each person in the group. Each person shoots only when birds are flying within their particular zone of fire.

Big game hunters often separate while hunting and extra care should be taken. Before separating from the group, each hunter determines their planned location and the direction being traveled. This is established as the zone of fire. Every member of the hunting party must be informed of each hunter's zone of fire. Do not allow the excitement of oncoming game to provoke you to shoot outside of your established zone of fire.

FIREARM SAFETY IN BOATS, PITS AND BLINDS

When hunting from a boat, use the same process as crossing a fence with two people. One person gets in the boat and then the firearm is passed to that person. Muzzle control should always be maintained.

Before shooting, anchor the boat firmly. Hunters should sit with their firearms always pointing away from each other.

When hunting from a pit or blind, lay your unloaded firearm on the ground near the entrance to the pit. When you are in the pit, bring in the unloaded gun. Check your firearm carefully to be sure the muzzle has not become clogged with dirt or snow. Lay it on the ground outside before you come out.

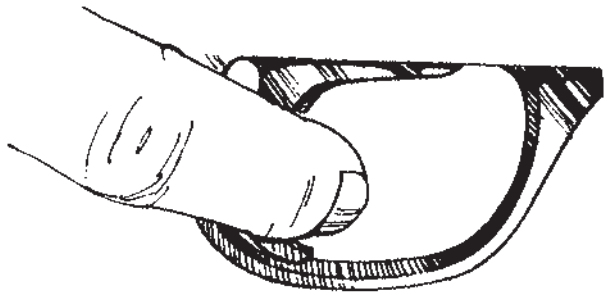
CARE AND MAINTENANCE OF FIREARMS

Regular cleaning will help keep your firearm in good working order and will prevent it from rusting. Any firearm that has been stored uncovered for a long time, or has been exposed to moisture or dirt, must be cleaned thoroughly before use. It is always a good idea to consult your owner's manual regarding cleaning and maintaining your firearms.

AIMING A FIREARM

Master Eye

The master eye, or dominant eye, is the stronger of your two eyes and is used for sighting purposes. This eye will judge speed, range and focus more accurately than your other eye. Even though you are right-handed, you may have a left master eye. To determine which is your master eye, point your finger at an object with both eyes open. Then alternately close one eye and then the other. Your finger will remain lined up with the object when your master eye is open but appear to "jump" off the object when the other eye is used.



Trigger Control

Sight Alignment and Sight Picture

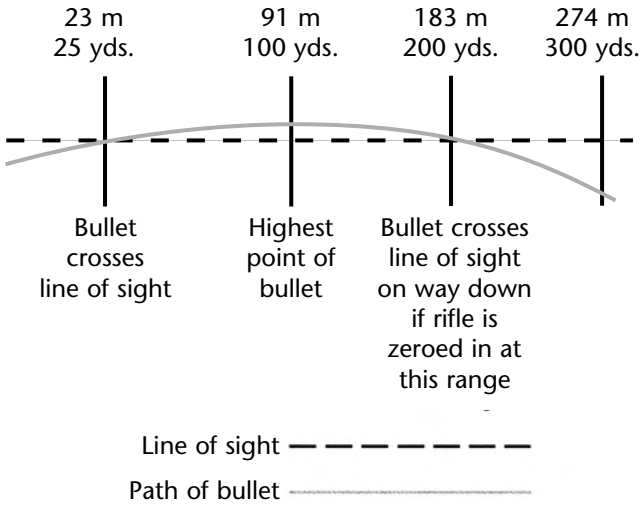
Hunters should practise picking a spot on their target where they focus their attention while aiming. It is not good enough to simply point the sights at a moose, for example. The hunter should concentrate on the exact spot on the animal he or she wants to hit. Even though a moose looks like a big target, you need to make the first shot effective and accurate. The entire animal is not a target.

Trigger Control

Correct trigger control is essential for an accurate shot. When the sights are aligned on your target, squeeze the trigger slowly and steadily. Do not yank, and do not pull. Anything other than a smooth squeeze will cause the sight picture to waver and will send the shot off target.

Breath Control

Controlled breathing is necessary to shoot accurately. As you breathe in and out, it is normal for your chest to rise and fall and your arm to waver. Your gun barrel will also waver unless you control your breathing at the exact moment you fire. This is another reason why hunters should always try to move slowly while hunting. If you have been walking fast or running, which you should never do while carrying a firearm, your breathing will be heavy, your heart rate will be increased and it will be very difficult to hold the firearm steady for accurate sight alignment.



Example of bullet trajectory

When you are in shooting position, with your cheek hard against the stock, take a deep breath, exhale a portion of it, and hold your breath while you aim and squeeze the trigger. This should allow you to hold the barrel and sights in the best alignment on the target at the final instant when the firearm fires.

If you hold your breath too long, you may lose control and your shot will be off the mark. If you run out of breath before firing, relax, take a deep breath and do it again.

Follow Through

Follow through simply means continuing to hold still until after the bullet has been fired. It is important to accurate rifle shooting. If the rifle is moved a split second too soon, your aim will be off-target. Follow through will ensure the rifle isn't moved until the bullet is well on its way to the target. This is particularly important for hunters using muzzle-loaders because ignition can often be slightly delayed.

Sight Adjustment

If, when using open sights on the practice range, your shots are consistently hitting the target in small groups but are off-centre, you must adjust the rear sight.

Move the rear sight in the direction you want your bullet to move on the target. In other words, if you want your bullet to move right, then move your rear sight right. If you want the bullet to hit higher, raise the rear sight.

Telescopic sights are adjusted by turning the adjustment screws in the direction indicated on the sight.

Sighting-in

Before hunting, it is essential to sight-in your rifle, which means the rifle's sights must be adjusted so that the bullet will hit the target at a specific range.

Set up a target with a safe backstop at 23 metres (25 yards) and fire at least three test shots in succession. It is best to use a solid rest, like sand-filled bags, when sighting in any firearm. This helps eliminate errors caused by the shooter. Once you know the firearm shoots where it is aimed while using a rest, all other variation is the result of the shooter's technique: breath control, trigger pull and other factors. To eliminate those errors you need to practise. Be sure to use the same type of ammunition you will use when hunting. Check the target. If the group of hits is not at the point of aim, correct the sight.

When sighting your high-powered rifle, a series of shots should be taken at different distances. If your shots hit the point of aim at 23 metres (25 yards), they should be on the point of aim again at approximately 183 metres (200 yards) because of the bullet's trajectory. This distance may vary depending upon the caliber of firearm and bullet weight. Try a three shot group at 91 metres (100 yards) from the rest to see how the firearm hits at that range. Ideally, it should be hitting about 2.5 to 5 cm (1 to 2 inches) above point of aim.

After the rifle is sighted-in, practise shooting under various light and weather conditions and at various distances. Also try different positions:

sitting, standing and prone. In a hunting situation, always try to gain the advantage of a rest to help steady the shot. The hunter should take advantage of every opportunity to make an effective, quick killing shot. This demonstrates respect for the animal.

If your rifle is sighted-in correctly and you squeeze the trigger with steady even pressure and remain relaxed, you will score a hit.

SHOOTING POSITIONS

Prone Position

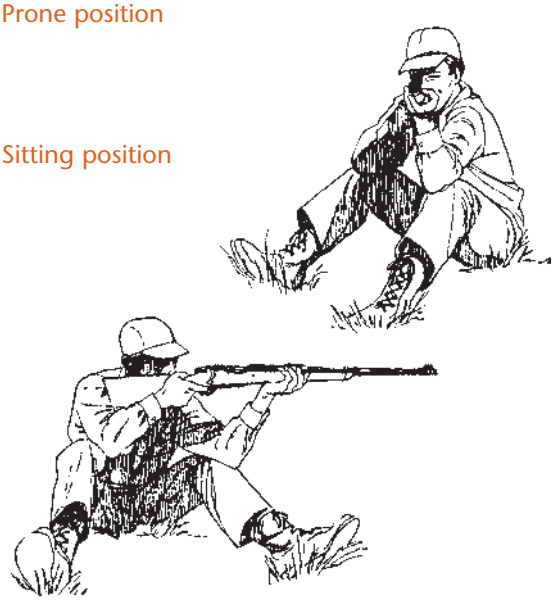
The prone position is the steadiest shooting position and the best for learning the basics of rifle shooting. It is a good position for firing accurate long-distance shots. It is usually not suitable when hunting in tall grass or dense brush, which can obscure the line of sight to the target.

If you are right-handed, lie on your stomach with your body slightly to the left of the line of aim. If you are left handed, reverse this position. Keep your back straight and legs in a relaxed position. Both elbows should be bent and your shoulders curved slightly forward to form a solid upper body position. The upper body and arms support the rifle weight.

When shooting, a sling could be used for extra support. Hold the rifle grip with the trigger hand. Place your opposite arm through the sling as far as it will go. Swing your arm in an outward circular motion, ending with your hand under the fore-end of the rifle and the sling across the back of your hand.

Prone position

Sitting position



Sitting Position

The sitting position is the next steadiest shooting position. Both short- and long-range shots can be fired accurately from this position.

Sit solidly on the ground. The legs may be crossed or open and the body should be positioned about 30 degrees to the right of the line of aim.

Place the left elbow near but not on the bony part of the left knee. As in the prone position, tuck the elbow as far under the rifle as possible. Place the right elbow on or near the right knee. You have now formed two triangles. This makes a firm support for the rifle. Reverse the procedure if you are a left-handed shooter.

Hold the rifle firmly but do not grip it tightly. Bracing your body against something stable such as a tree or rock will help steady your aim for a more accurate shot.

Kneeling position

Kneeling Position

As the shooting arm is free, this position leaves the shooting arm and elbow unsupported and is not as steady as either the prone or sitting positions. With practise, however, the shooter can maintain control and shoot accurately.

Turn so you are approximately at a 45-degree angle to the target. Lower your body so the right knee touches the ground and place your left foot forward to steady you. Sit comfortably on the heel or the side of the right foot. Place the left elbow near but not on the bony part of the left knee, as far under the rifle as you can.

If you are a left-handed shooter, kneel on the left knee with the right foot forward and the right elbow on the bent knee.

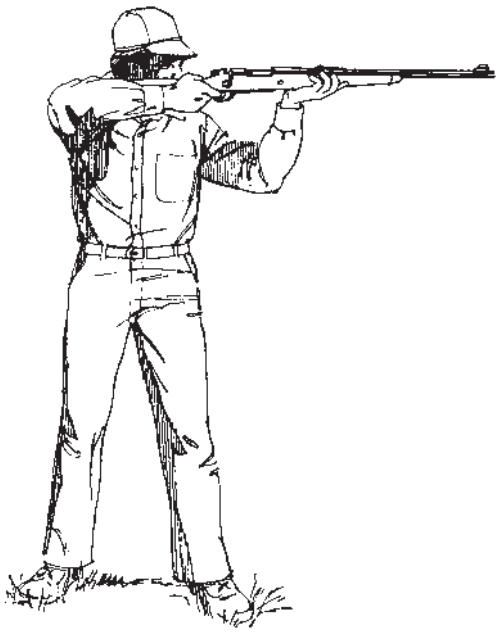
Standing Position

The standing position is an unstable shooting position and is therefore the most difficult position from which to fire an accurate shot.

It requires excellent control. The shooter must be skilled in all of the rifle shooting fundamentals, including sighting, breath control, trigger squeeze and follow through.

Turn your body approximately 90 degrees to the right of the target. Place your feet shoulder-width apart.

Support the rifle with your left arm. You can hold the left arm against your body for extra support.



Standing position

Hold the rifle firmly against your shoulder with the right hand. Do not grip the rifle tightly. Reverse the procedure if you are a left-handed shooter.

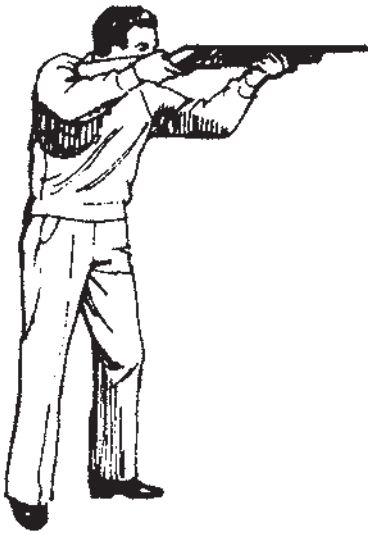
If there is too much waver, do not shoot. Resting or supporting the rifle on a stable object, cushioned by your hand, such as a tree or large rock, or using a carrying strap as a sling, will help steady your shot.

FUNDAMENTALS OF SHOTGUN SHOOTING

Shooting a shotgun is different from shooting a rifle. With the rifle you must aim precisely; with a shotgun you point at or ahead of the target. In many cases, shotguns are used on flying or fast-moving targets. As a result, the fundamentals of shotgun shooting are different.

Accurate shotgun shooting requires a fast sequence of movements involving the body, gun and eyes. These movements need to be performed in one smooth, coordinated motion for accuracy.

Some shotguns are equipped with adjustable sights, and some models fire slugs. These types use the same shooting techniques required for accurate rifle shooting.



Shotgun Shooting Stance

Shotgun Shooting Stance

The shotgun shooting position, or stance, resembles that of a boxer in the ring – feet spread apart, body well balanced, arms and trunk free to swing to the right and left of the target. This position must be comfortable and natural to allow quick movement in any direction. This is another reason to move slowly while searching for game.

When shooting, the body weight shifts to the leading leg. This is the left leg if you shoot right-handed, or the right leg if you shoot left-handed. The leading hand holds the shotgun fore-end and points naturally to the target area.

Eyes on the Target

Keep both eyes wide open and focused on the moving target, not on the gun barrel or the bead sight. While watching the target, mount the gun correctly and point it toward the target area. A shotgun has no back sight, so your eye in effect is the 'back sight'. If your face and eye do not come to the same location on the stock each time you shoot, the path of the shot will be different. The stock must fit to allow a consistent sight picture without head movements to find the front bead.

Remember that you do not aim a shotgun, you simply point it.

Leading

Leading

Leading means shooting in front of a moving target. Leading is necessary when shooting at any moving target. If you shoot directly at a moving target, by the time the shot reaches that spot, the target will have already passed by. With correct lead, the shot and the moving target will intersect at the same spot at the same time.

With practise, leading will soon become automatic, requiring no conscious thought on your part.

There are three commonly used methods of leading:

- swing through
- sustained lead
- snap shooting.

Swing-Through Lead

For the beginning shooter, the swing-through method is easiest to learn.

Swing the muzzle of the shotgun so it points at the flying bird. Follow its flight path, increasing the speed of your swing until the gun muzzle has passed through the bird to a spot in front, then fire. Continue your swing during the shot and after.

It is extremely important to continue swinging your shotgun after the shot. This is called follow through. It ensures against shooting behind your target.

Sustained Lead

A shooter using the sustained lead technique must estimate the speed, range and angle at which the quarry is flying. Having decided on the amount of lead necessary, the shooter swings the muzzle that distance ahead of the target. The shooter then maintains this distance, or lead, in front of the bird up to and after the shot is fired.

Snap Shot

Anticipating the amount of time it will take a flying bird to get to a certain spot, a hunter using the snap shot method picks a spot in front of the target and fires at that spot. The shooter estimates where the shot and the target will meet.

MUZZLE-LOADERS

Hunting with a single-shot muzzle-loading firearm offers new opportunities. It also means accepting some added challenges.

The hunter has to load each round before shooting, and most muzzle-loaders are single shot.

There is seldom a chance for a second shot at game animals. Shots at moving game are not recommended. There are added rewards for getting close to game and waiting for the best possible opportunity for the shot. In this respect, hunting with a muzzle-loader is similar to hunting with archery equipment.

Types of Muzzle-loaders

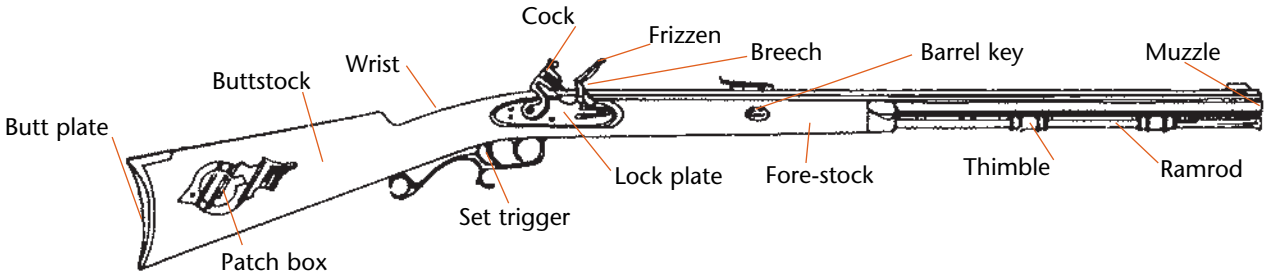
Muzzle-loading enthusiasts may choose from a wide variety of firearms. There are some antique muzzle-loaders in use today. Such firearms must be inspected by a competent gunsmith to determine if they are safe to shoot. Many original antique muzzle-loaders are too valuable or fragile to use on a regular basis.

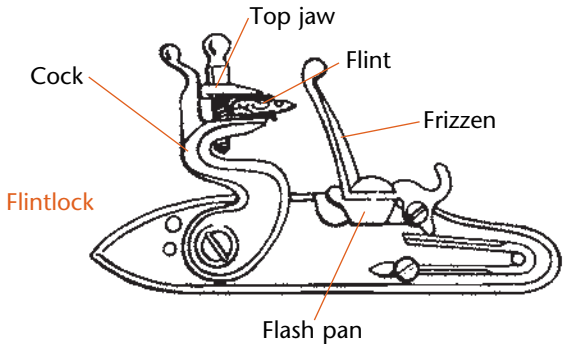
Reproductions of muzzle-loading firearms are available in a variety of styles. They are constructed from modern manufactured components. Most operate with either the flintlock or percussion ignition systems. They may be mass-produced using modern machining methods, or hand-assembled one at a time using modern manufactured parts. Others are assembled from a kit.

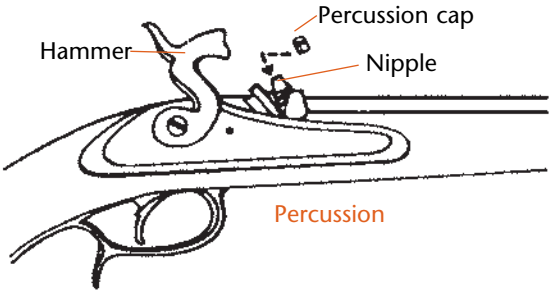
Some modern muzzle-loaders may appear exactly like historic old firearms, or they may look more like contemporary centre-fire firearms at first glance. Some may feature synthetic stocks, modern safeties, telescopic sights and an in-line ignition system, which puts the primer or cap directly behind the powder charge, similar to the arrangement in modern fixed ammunition. Whether antique, reproduction or “modern,” all muzzle-loading firearms must be loaded from the muzzle.

Before buying a muzzle-loader, the newcomer should review literature in sporting books, periodicals and on the Internet.

Experienced shooters and hunters are also a good source of information about the function and capabilities of different styles and calibers of muzzle-loaders. A firearm suited for target shooting may not necessarily be practical for hunting and vice versa. Decide what you intend to use the firearm for before purchasing one.







SELECTING POWDER, BALL AND SHOT

Be sure to carefully follow any manufacturer's recommendations regarding the grade of powder and size of powder charge that should be used in your firearm. If you are unsure, check with an expert to determine safe loads.

Black powder is an explosive. It burns at about the same rate in open air as it does contained in the barrel of a firearm. It is easily ignited by fire or any spark. Never smoke when using black powder, and never handle black powder near open fire.

There are several substitutes for black powder available, sometimes referred to as "replica" black powder. They are specifically designed for muzzle-loaders. More recently, a "smokeless powder" has been developed for use in muzzle-loaders. The safest course of action is to carefully read the container and promotional literature accompanying the powder and firearm you intend to use or consult a qualified expert or manufacturer before you load and shoot the firearm.

Always make sure the powder you intend to use in a muzzle-loader is designed specifically for use in that muzzle-loader.

Grades of Black Powder

Black powder is graded by the size of the granules. Fg is the coarsest. FFFFg is the finest. The rate of burn is affected by the size and surface area of the powder granules. Smaller granules have a greater surface area per volume. They will burn faster and develop pressure faster than larger granules.

Fg powder is very coarse and is used in large-bore muskets – generally smoothbores – over .70 caliber.

Most muzzle-loading shotguns and rifles with a bore between .45 and .69 caliber use FFg, the second coarsest powder.

Faster-burning FFFg is most often used in rifles with a bore of .40 caliber and less.

FFFFg, the finest-grade black powder, is used ***only*** to prime the pan of flintlocks. It burns extremely quickly and generates pressures dangerous in most muzzle-loaders, if used as the main powder charge.

Pre-measured powder pellets, usually in 50 grain increments, are available for use in percussion cap muzzle-loaders. Check with your retail powder supplier for details and availability. The development of new powder and technologies is a continuing process. Make sure you completely understand the safe application of any new product.

c. Mike Buss

Selecting a hunting bullet

Selecting a Hunting Bullet

Muzzle-loading firearms fire round, pure lead balls slightly smaller than bore diameter. They are held tightly in the bore by a cloth patch. Elongated or conical-shaped bullets in a variety of designs are also used. They are generally as close to bore size as can be loaded and do not require patching. Conical bullets can be more difficult to push down the barrel because of the tight fit required to engage the rifling. Muzzle-loading barrels designed to shoot conical-shaped bullets usually have shallower and faster twist rifling than those designed for round balls. Synthetic cups called sabots are also used to hold bullets in barrels designed specifically for shooting elongated bullets.

For white-tailed deer, the .45 caliber is a popular choice for hunters. For larger game like moose, caribou and elk, it is best to use .50 caliber or greater. Many experienced big game hunters choose .54 caliber because it performs well in a round ball and offers a large variety of conical bullet designs for in-line muzzle-loaders.

Practise with the same type of projectile you choose to hunt with. Try several to determine which works best in your firearm. Shot placement is very important. You cannot make up for poor accuracy or poor shot placement with larger bullets or heavier powder charges.

Selecting Shot for a Muzzle-loading Shotgun

Shot of the appropriate size for the game you intend to hunt is available in lead and non-toxic forms. Steel shot is not recommended for muzzle-loading shotguns because it will damage the barrel. Shot-cups may be used with steel shot, but they will leave plastic residue in the barrel, making loading and cleaning difficult. It is best to use alternative non-toxic shot other than steel, like bismuth, for waterfowl hunting. A safe rule of thumb for loading a shotgun is to shoot the same volume of shot as volume of powder. Always follow the manufacturer's recommendations on the amount of powder for your firearm.

Tables listing the correct bullet type and size, powder type and charge (in grains) for various firearms are listed in most black-powder shooting publications.

Muzzle-loader accessories

Accessories

The accessories necessary for the loading, shooting and maintenance of your muzzle-loader include the following:

- eye and ear protection;
- patch material – in a strip or precut, if shooting round ball;
- knife – to trim patches;
- powder horn or flask - container for powder made of material such as horn or brass that will not generate or conduct static electricity;
- powder measure – made of the same material described above and adjustable in five-grain intervals;
- bullet starter – short and long starters are usually combined in the same tool;
- bullet puller – tool that attaches to the ramrod, screws into a ball or bullet loaded in the barrel, and allows one to remove ball without firing off the load;
- ramrod – wood or synthetic with adapter to allow cleaning rag, ball puller, and worm to be attached;
- worm – used to retrieve cleaning patches that might pull off the end of the rod and lodge in the bore;
- nipple pick or vent pick – short length of wire fine enough to insert into the nipple or vent to clear fouling;
- cap holder – a leather or metal device to hold percussion caps for convenience while loading;
- nipple wrench and spare nipples – allows for the removal and replacement of damaged nipples;
- small screw driver – allows for adjusting and replacing damaged or dull flints;
- spare flints or percussion caps; and
- "possibles bag" – a shoulder bag or pouch in which the muzzle-loading accessories are carried.

Loading Procedures

The key to reliable ignition and accuracy with a muzzle-loader is consistent loading. This includes consistent type, size and weight of bullet, type and amount of powder used, consistent patch material and lubrication and consistent wiping of the bore between shots. Once you have selected a load combination that works well in your firearm, try to repeat it exactly at each loading.

First, ensure that the muzzle-loader is not loaded and is safe to handle.

You cannot see if a muzzle-loader is loaded or primed for firing at a glance. Caution must be used when handling any muzzle-loader since you cannot simply open the breech and check for a cartridge as with modern firearms.

To check for a loaded muzzle-loader:

1. Point the muzzle in a safe direction and keep your finger off the trigger.

2. Check that the hammer or cock is not in the full-cock position. If it is, release it to the half-cock position. If your firearm has an in-line action, find the safety and set it to the "on" position.

3. Check the nipple for a cap or the pan for priming powder. If the firearm has percussion ignition, remove the cap with your fingernail or other nonmetallic tool. Using the back of a knife blade or other metal tool could cause the cap to detonate. If the firearm is a flintlock,

ensure all the priming powder is removed from the pan with a small brush or feather.

4. Remove the ramrod, insert it into the barrel, and note the depth. Remove the ramrod and lay it alongside the barrel, using it as a measure from the muzzle to the breech. If it comes to the depth of the nipple or flash hole, the firearm does not have a load in the barrel. Experienced shooters mark the ramrod at the level that shows the depth of the bore when empty. When the rod is inserted into the barrel, it is easy to see if there is a load present or not.

   If you suspect that there is a charge of powder in the barrel, a "ball puller" attachment is required to remove the bullet. Make sure the cap is removed from the nipple, or the pan is empty of priming and the flint removed, before attempting to unload a muzzle-loader using this method. It is best to seek the advice of a knowledgeable shooter before attempting to unload a muzzle-loader using this technique.

5. Before loading, it is always good practice to wipe the bore with a solvent-dampened patch and a dry patch. This will remove any oil residue or fouling in the barrel.

   Clear the nipple or flash hole to ensure there is no blockage from fouling or dried grease that might prevent ignition. Place a cap on the nipple of a percussion firearm. Point it in a safe direction – towards the ground at a leaf or blade of grass and fire. If the nipple is clear, the escaping gases will cause the leaf or grass to move. To check a flintlock, prime the pan, point the firearm in a safe direction and fire. Quickly insert the ramrod with a tight fitting patch, and watch for a stream of smoke escaping from the flash hole as the rod is pushed down.

LOADING SEQUENCE

Always measure the powder in a brass or horn measuring device. Never pour directly from the powder container into the muzzle. A lingering ember could set off the powder train to the container in your hand!

For convenience while hunting, carry pre-measured powder charges in separate containers specifically designed for the purpose. These can be carried loose in the outside pocket of your hunting coat for easy access.

Measured Powder Charge

Pour the measured powder charge into the muzzle while holding the firearm upright. Pointing away from your face, slap the side of the barrel at the breech with your hand to help settle the powder. Remember that the powder goes first, then the ball.

Patching A Round Ball

If you are loading a round ball, place the lubricated patching material over the muzzle of the rifle. Set the ball on top.

The patch material should be of cotton or linen, as synthetic material will burn and foul the bore. The function of the patch is to fill the space between the ball and the bore and engage the rifling. If the material is too thick, too thin, or burns away upon ignition, it will not perform its function and accuracy will be affected. The lubrication of the patch assists in pushing the ball down the bore and helps to keep powder residue soft.

There are several commercial lubricating products available from sporting goods stores or firearms supply outlets.

Seating the Ball

With a short starter, the ball is pressed into the bore just below the surface of the muzzle. Holding up the free portion of the patch cloth, cut the material flush with the muzzle. With the longer end of the starter, push the ball and patch down the barrel 10 or 15 cm (4 to 6 in.). With the ramrod, push the ball the rest of the way down the barrel to rest firmly on the powder charge. Use short strokes, grabbing the ramrod only 15 or 20 cm (6 to 8 in.) above the muzzle for each stroke. Trying to push the ball down holding the rod at its end can cause the rod to snap and injure the shooter. Avoid repeated pounding of the bullet with the ramrod as it will deform the ball or bullet and reduce accuracy.

Always make sure the ball is resting on the powder. Listen for the air to escape while pushing the ball down the barrel. If the ball is not fully down, it will act like an obstruction in the barrel when the firearm is fired, causing bulging, rupture and possible injury to the shooter.

Seating Conical Bullets

If you are shooting conical bullets, the procedures are similar up to the loading of the projectile. Conical bullets do not use patches. The bullet is forced into the muzzle using the short starter first, followed by seating of the bullet with the ramrod as above.

It is always a good practise to swab the barrel with damp and dry patches after each shot. This will extinguish any burning embers remaining in the barrel and remove fouling, making the loading of the next shot much easier. This is especially necessary when shooting conical bullets in fast-twist barrels.

Loading A Muzzle-loading Shotgun

Loading a shotgun – sometimes referred to as a smoothbore – is accomplished using the same procedures as described above, except a card and larger cushion wad is inserted into the barrel after the powder. The shot charge is poured into the barrel and a thin overshot card is inserted to hold the shot in the barrel.

Select the size and type of shot, lead or non-toxic, which is appropriate for the game being hunted. Muzzle-loading shotguns typically are cylinder bored, meaning they have no choke. The resulting shot pattern opens quickly. The hunter must learn to compensate by choosing shots at somewhat closer ranges than would be necessary with modern shotshell ammunition and choked shotguns.

Do not prime or cap the firearm unless you are in a location where it is safe and legal to shoot and you are ready to fire or to begin hunting.

Hunting with a Muzzle-loader

When carrying a primed and loaded muzzle-loading firearm in the field, place the hammer or cock in the half-cock position. Muzzle control is always a top priority.

How to deal with wet weather

Damp, rainy or snowy weather presents an additional challenge to muzzle-loader hunters. If the priming or cap becomes wet, it will not fire. If the main powder charge gets wet, it will not fire. In this case, this requires the pulling of the load and a thorough cleaning. Special care must be taken to keep the lock area sheltered from wetness. Experienced flintlock hunters check their priming and replace it with fresh dry powder when it appears damp. Even though a percussion cap fits tightly on the nipple, water will creep into the load and can cause a misfire. Some hunters apply thick grease around the cap to help prevent moisture from getting under it.

Transportation and Storage of Muzzle-loaders

Check the provincial hunting regulations and federal storage regulations regarding the transportation and storage of muzzle-loading firearms in the jurisdiction where you are going to hunt. A percussion muzzle-loader is considered unloaded, for transportation purposes, if the cap is removed from the nipple. In the case of transporting a flintlock muzzle-loader between hunting sites, the vent must be plugged and the flint removed. All other transportation and storage regulations apply to muzzle-loaders as they apply to modern firearms.

What to Do in Case of a Misfire

Treat a misfire by maintaining muzzle control in a safe direction for at least a minute. Re-prime the pan or recap the nipple and try to fire again. If the firearm still does not discharge, wait at least a minute, point in a safe direction, and pull the load or seek the assistance of a qualified or knowledgeable expert.

Cleaning Muzzle-loading Firearms

Black powder always leaves powder residue, or fouling, in the bore after firing. Wiping the bore between shots helps reduce residue buildup and makes repeated loading easier. However, after a day of shooting, or when the firearm will be stored, it must be thoroughly cleaned and oiled to prevent damage from corrosion. Black powder is "hydroscopic," meaning it attracts moisture from the air. If the firearm is left unclean, rust and corrosion will form quickly, causing permanent damage to the bore and lock mechanism.

Numerous commercially-available solvents are designed especially for use in black powder firearms. Cold water and mild household dishwashing soap is an alternative if no cleaning solvent is available. If the firearm is going to be used the next day, lightly oil the bore and lock. Before loading, swab out the barrel to remove oily residues.

The barrel should be swabbed repeatedly until the patches come out clean. The bore should then be wiped completely dry and a good moisture-displacing lubricant applied. If the firearm is being readied for long-term storage, it should be swabbed with a solvent and re-oiled after several days. This reduces the chance of any fouling remaining in the bore, which may have drained there from the flash channel. It is always a good idea to store your muzzle-loader either standing vertically on its muzzle or, at a minimum, pointing downward, as is the case with any other firearm. This helps to keep any residue, fouling or excess oil from accumulating in the breech, nipple or flash channel.

RECREATIONAL SHOOTING ACTIVITIES

It is important that a hunter have a high level of shooting proficiency before going hunting. It is also important that the firearm is sighted in accurately and that the hunter knows how to handle and operate it safely. It is too late to find these things out when in the field hunting. The best way a hunter can achieve this is to take part in other forms of recreational shooting activity before the hunting season. These activities can be done year-round.

There are numerous shooting clubs in Ontario that you can join and participate in a full range of shooting activities.

SHOTGUN SPORTS

Trap

Trap is a shotgun shooting sport that requires the gunner to try to hit targets thrown from a machine. Each shooter fires at five targets from each of five different shooting stations. A trap-shooting round is made up of 25 birds, or 25 pairs when shooting doubles. The targets are thrown from a trap house at various angles anywhere within the 44-degree field. The shooter does not know what the target's angle of flight will be. In doubles, two birds are thrown at the same time.

Skeet

In skeet, the shooter fires at a clay target thrown from a high trap house or from the low trap house, and depending upon the station, at targets thrown at the same time from both houses.

A round of skeet consists of 25 birds. The birds always fly in the same path. The field layout consists of eight shooting stations.

This accounts for 24 shots. One other shot is a repeat of the first miss or, if no miss has occurred, the 25th shot must be made from station eight at a target from the high house.

DOS AND DON'TS OF MUZZLE-LOADING

DO

- Have older muzzle-loaders examined and declared safe by an expert before use.
- Handle a muzzle-loader with the respect due all firearms.
- Use only black powder or black powder substitutes, unless the muzzle-loader is specifically designed for smokeless powder.
- Keep black powder away from anything with an open flame or ember, and any source of sparks or heat.
- Always load with a powder measure, never from a powder horn or flask.
- Follow the firearm manufacturer's recommendations for maximum powder charge.
- Mark your ramrod to indicate when the barrel is loaded or unloaded.
- Wipe the bore clean of oil and grease before loading.
- Be sure ball, bullet or shot charge is firmly seated on the powder in the barrel.
- Treat a misfire or hangfire as if the firearm could fire at any second. Wait at least one full minute with the muzzle pointing in a safe direction before attempting to refire.
- Store gunpowder and caps separately.

DON'T

- Don't handle or carry a charged and primed muzzle-loader with the hammer at full-cock unless you are ready to fire.
- Don't lean over, or stand in front of the muzzle at any time.
- Don't use plastic or synthetic patches.
- Don't reload one barrel of a double-barreled muzzle-loader unless the percussion cap or priming powder has been removed from the other barrel.
- Don't store a muzzle-loader with powder in it.

THE TEN BASIC RULES OF HUNTER SAFETY

1. Treat every firearm as if it were a loaded firearm. This is often considered the primary and perhaps most important rule for firearm handlers to follow.
2. Be sure of your target before you squeeze the trigger. The hunter should positively identify the target as legal game and ensure that there is a safe backstop before shooting.
3. Never point a firearm at anything you do not want to shoot. Avoid all horseplay while handling firearms. Firearms are not toys and should never be pointed at yourself or others.
4. Always carry your firearm so that the muzzle is under control. With safe carrying techniques, the hunter controls the muzzle even if he stumbles or falls.
5. Firearms must always be unloaded when carried into camp or when not in use. Actions should be opened, or firearms taken down when you have completed the hunt. Re-check firearms before entering a building or a vehicle.
6. Make sure that the barrel and action are clear of obstructions. If the muzzle of a firearm touches the ground or snow, always check the barrel immediately after unloading. Remove oil and grease from the bore before firing.
7. Unattended firearms must be unloaded and stored securely. Refer to the federal legislation governing the storage and transportation of non-restricted firearms.
8. Never climb a fence or jump a ditch with a loaded firearm. Place the unloaded firearm on the other side of the fence, then climb the fence at a place well away from the muzzle. Never pull a firearm toward you by the muzzle.
9. Never shoot at flat or hard objects, or the surface of the water. No one can control the direction of a ricochet, which occurs when a projectile skips off water or other flat surface. Be sure of your backstop.
10. Avoid alcohol and drugs while hunting. Drinking or taking drugs before or during the hunt may dull vision, distort aim and impair judgment. A physician's advice should be obtained regarding the use of prescription drugs.

Sporting Clays

Sporting clays attempt to recreate an actual hunting atmosphere by simulating flights of upland game birds, waterfowl and small game such as rabbits. The targets are arranged at intervals or stations in natural surroundings. Each sporting clay range is unique and challenging for both the skilled and novice shooter. A round of sporting clays usually consists of 50 or 100 clay targets.

Recreational Shooting

Gun clubs have 25, 50 and 100 metre ranges for rifles and muzzle-loaders. They can provide valuable opportunities for you to practise your shooting.

REVIEW QUESTIONS

1. List three recreational shotgun activities that would help you become a better, more proficient wingshooter.
   1. _____
   2. _____
   3. _____

2. The three major parts of a firearm are: the stock, barrel and action.
   ☐ True ☐ False

3. The four basic types of sights found on firearms are: open, aperture, telescopic and electronic.
   ☐ True ☐ False

4. From the tightest to the widest spread, the chokes in shotgun barrels are described as "full," "modified" and "improved cylinder."
   ☐ True ☐ False

5. List the four firearm shooting positions and circle the one that is the steadiest and gives the shooter the best accuracy.
   1. _____
   2. _____
   3 _____
   4. _____

6. The flintlock, the matchlock, the percussion cap and the wheel-lock are all examples of _____ firearms. The _____ was the earliest and the _____ _____ was the last to be developed of these four.

7. Name the safest firearm "carry" you could use while hunting.

   _____

8. Name the firearm "carry" which allows the most freedom of a hunter's hands.

   _____

9. The safety on a firearm prevents the firearm from discharging. List three safeties found on modern firearms.
   1. _____
   2. _____
   3. _____

10. What is a "ricochet"? Explain why it is dangerous.

    _____

    _____

BOWHUNTING

INTRODUCTION

Humans have hunted with the bow and arrow for thousands of years.

Throughout the centuries archery has been practiced, and in recent years, hunting with a bow has become the hunting method of choice for many hunters.

A properly placed arrow is as effective as a rifle bullet. However, even the heaviest draw weight bow produces 25 per cent less power in foot-pounds of energy than a .22 caliber rifle. Since the power of a bow is related to penetration and not shocking power like a rifle, proper shot placement is critical. As long as bowhunters know and operate within the limitations of their equipment and skill, the bow and arrow is very effective at harvesting game.

Arrow placement is the most important factor in harvesting game with a bow and arrow. An arrow kills when the arrowhead penetrates vital organs such as the heart or lungs, causing blood loss and death. It is the action of the broadhead that causes the damage; the rest of the arrow is simply a delivery system to take the broadhead to the target.

GAME ANATOMY

Bowhunters must have a basic knowledge of the anatomy of the game animal being hunted. The hunter must know the location of major organs and blood vessels, as well as major bone structures that can block an arrow's penetration to vital areas. Major vital organs, such as the heart, lungs and liver, and major bone structures, such as the leg, shoulder blade, spine and pelvic bone, differ in terms of size and position on many game animals. Being able to quickly visualize

Use safety strap or harness

these features on a living animal is crucial to making the shot. Many shots suitable for a gun hunter are 'no shot' situations for the bowhunter.

THE SHORT-RANGE NATURE OF BOWHUNTING

Bowhunting is a close-range hunting activity. All bow and arrow combinations have very short effective ranges because of relatively low arrow speeds. These low arrow speeds result in very high arrow trajectories. For example, an arrow shot from a high-performance bow sighted in at 18.25 m (20 yd.) will hit about 12.7 cm (5 in.) low on a 27.4 m (30 yd.) target, and about 38.1 cm (15 in.) low on a 36.5 m (40 yd.) target. This problem is compounded by the fact that a small twig or piece of brush in the path of the arrow can easily deflect it. In low light conditions, the hunter may not be able to see small obstructions and a deflected arrow can wound an animal instead

of killing it. Therefore, it is recommended that bowhunters limit their shots to less than 36.5 m (40 yd.). Most bowhunting shots are taken within 18.25 m (20 yd.).

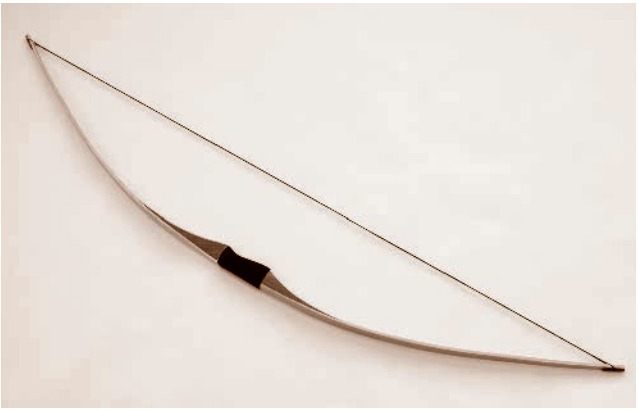
DEVELOPING SPECIALIZED HUNTING SKILLS

A bowhunter must develop the skills to get very close to the quarry before taking a shot. This requires the bowhunter to become familiar with the animal's life cycle, travel patterns and feeding habits. This is equally true for hunters using firearms, but hunters with a high-power rifle might limit their shots to 100 metres, while archery hunters typically limit their shots to 20 metres or less. That 80 metre difference requires some special attention to enable the bowhunter to make a clean kill.

DEVELOPING ARCHERY SKILLS

A great deal of practice is required to consistently hit the vital areas of animals. Factors that must be practised and learned include:

- shooting stance;
- positioning the bow hand and arm;
- nocking the arrow;
- positioning the drawing hand;
- drawing the arrow;
- developing a consistent anchor point;
- holding and aiming;
- releasing the arrow; and
- follow through.



Longbow

SELECTION OF BOWHUNTING EQUIPMENT

A bow and arrow combination for hunting must be chosen carefully. Bowhunting equipment is very specific to the size and strength of the shooter. There is no substitute for expert advice when choosing bowhunting equipment.

Bowhunters must consult the Ontario Fish and Wildlife Conservation Act or the annual Hunting Regulations Summary for the minimum legal draw weights and arrowhead design required for hunting different species of game.

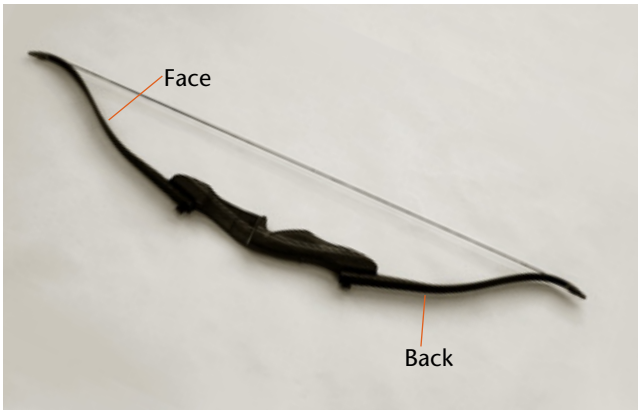
BOWS

Bows can be divided into three main categories:

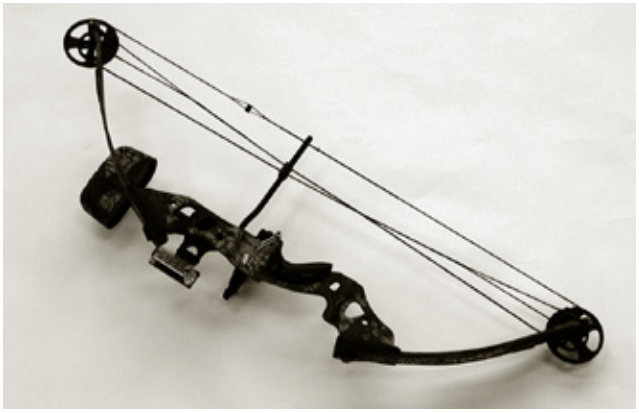
- traditional bows
- compound bows
- crossbows.

Traditional Bows

Traditional bows are relatively light in weight and have a smoothly increasing draw weight. This is a major advantage for traditional hunters who shoot quickly and instinctively. Traditional bows require the shooter to draw the bow steadily back to build up the maximum draw weight at the end of the draw stroke. The shooter must hold this peak weight until the release. The energy delivered to the arrow and resulting arrow speed will be limited by the amount of weight the shooter can pull back and hold at full draw.



Recurve bow



Compound bow

Traditional hunters accept the limitations of traditional equipment as part of the challenge of bowhunting, and must practise on a continual basis to become proficient.

Those who build bows can construct traditional bows to any personal specifications, offering a wide range of draw lengths, draw weights, handle designs and takedown features.

There are two types of traditional bows:

1. Longbows are straight-limbed bows, typically 1.7 to 1.8 m (5.5 to 6 ft.) in length. Some hunters prefer the simplicity and traditional appearance of these bows. Modern longbows almost always have an arrow shelf and are often made with laminations of various woods, fiberglass or carbon. Longbows are very stable and more forgiving to the release of the shooter. The bow is less likely to react erratically to unintentional contact with twigs or brush upon release.

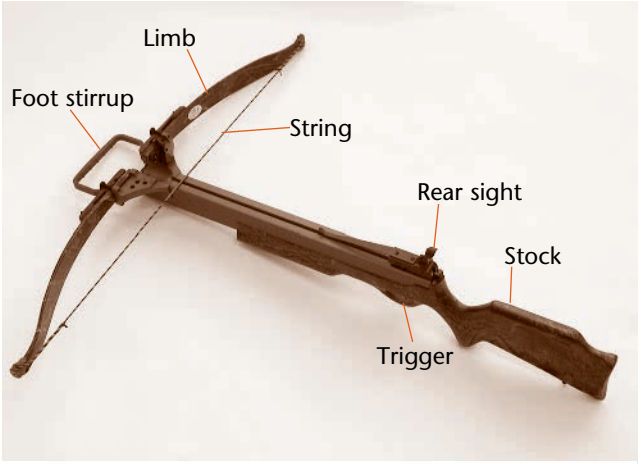
2. Recurve bows are modified longbows with the limb ends permanently bent back in a curve away from the archer. These bows are usually shorter than longbows, with longer risers – the thick centre section of the bow – that put heavier weight in that section of the bow, and also offer the shooter a much larger sight window to use in the aiming process. They will often have more comfortable contoured grips than longbows. Recurve bows are faster than longbows, and the heavier mass weight of the recurve's riser absorbs shock, making these bows smoother to shoot.

Compound Bows

The introduction of compound bows in the late 1960s contributed to the huge growth in bowhunter numbers. Using a system of wheels, cables and the leverage of cam design, compound bows allow the shooter to draw the bow back so that the peak draw weight of the bow is reached and held for only part of the draw stroke. The draw weight then drops off into a "valley" at the back of the draw stroke so that the shooter is holding only part of the peak draw weight when at full draw. This reduction of the draw weight that must be held at full draw is commonly referred to as "bow let-off." It is common for compound bows to have between 60 to 80 per cent let-off, depending on the manufacturer and model of bow. The shooter then holds only 20 to 40 per cent of the peak weight at full draw.

As compound bows are shorter than traditional bows, the string tends to pinch the fingers at full draw and many shooters use mechanical releases to alleviate this problem.

Shooters have different physical attributes or shooting abilities. All manufacturers are looking for ways to make their bows lighter and smoother to shoot. It is important to try out numerous bows before deciding on one particular model.



Crossbow

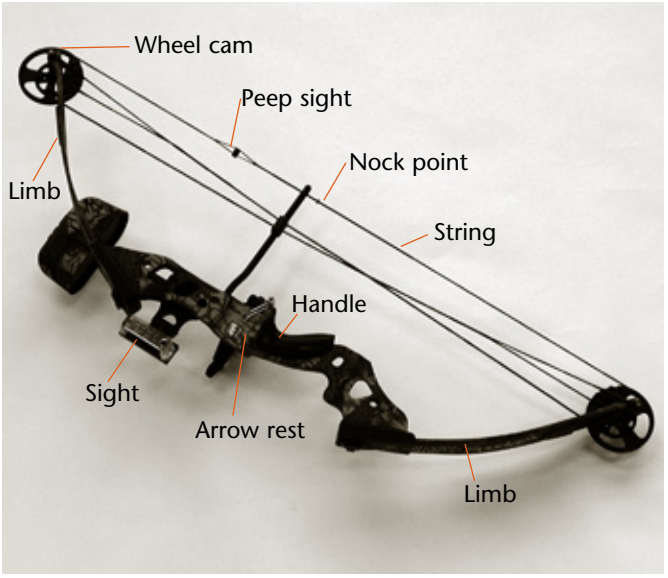
Crossbows

Crossbows are bows held horizontally on rifle-like stocks.

A crossbow stores and delivers energy in the same way as any other bow. Energy is stored by pulling the bow limbs back with the string and locking the string into position at a fixed anchor point with a trigger mechanism. The stored energy is delivered through the string to a shorter arrow known as a bolt when you squeeze the trigger and release the string. The shooter does not have to hold any draw weight after the mechanism is cocked.

The bow limbs used on modern crossbows are either solid recurve models or compound bow models. In comparison with either traditional bows or compound bows, crossbows are not as efficient in storing energy because of their short draw lengths. Therefore, they must use very heavy draw weights in order to store and deliver enough energy for hunting purposes. Average draw weights are 60.7 kg (150 lb.)

As with longbows or compound bows, practise with your crossbow is essential.



Compound bow

ARROWS

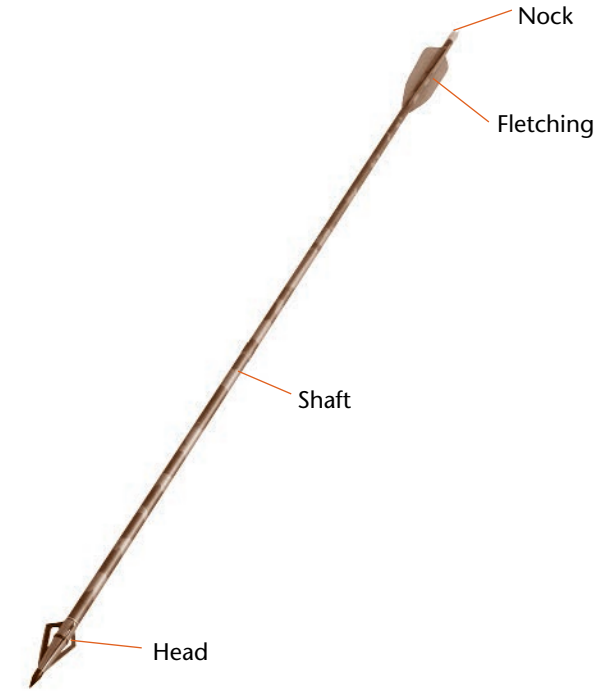
The arrow consists of four basic parts: the shaft or body, nock, fletching and arrowhead. The primary job of the first three parts is to deliver the arrowhead to its intended target. Crossbow arrows are called bolts. Bolts are normally shorter than arrows shot from either traditional or compound bows.

The arrow that hunters match to their bow is as important as the choice of bow. The hunter can shoot a variety of bows successfully, but only one or two arrow sizes are likely to give top accuracy with any given bow set at a particular draw weight. If performance and predictable shooting results are to be achieved, the arrows chosen for any bow must be absolutely straight, be of the correct stiffness, or spine, closely matched in weight to each other, and have the correct length to accommodate the draw length of the shooter.

Arrow Shafts

There are four basic arrow shaft materials:

1. Wooden shafts were used by almost all archers until the 1950s and 1960s, and are still used by some archers today, particularly traditional archers. The best wooden shafts are made of high-grade, straight-grained cedar.



Arrow

It should be noted that wood is the weakest of arrow shaft materials and is easily broken or splintered upon impact with solid objects. Wooden shafts often lack uniformity. Only higher priced, premium-grade cedar shafts are hand-spined and hand-selected for weight. Under damp conditions, wood shafts can warp. Since the internal wood-fiber structure of wooden shafts breaks down with constant shooting, they don't have the shooting life span of other shafts.

2. Fiberglass shafts are strong and not affected by moisture. However, inconsistency in weight and shape means these arrow shafts are not popular with today's bowhunter.

3. Aluminum shafts come close to meeting all the requirements for a good hunting arrow. They are durable, take considerable abuse before bending or breaking and minor bends can be straightened. They are versatile. For any given spine weight needed, there are many shaft sizes to choose from in terms of mass weight. They have uniformity in terms of straightness, spine and weight, and are also waterproof.

4. Carbon shafts are an alternative to aluminum shafts. Carbon shafts are generally stronger and lighter than an equivalently spined aluminum shaft. Another advantage of carbon shafts is that they have memory; this means they return to their original form when bent and released. Carbon shafts recover faster than aluminum shafts when shot from a bow, thus decreasing the loss of energy. Carbon also has very light weight-to-spine ratio, allowing light arrows to have sufficient strength and spine to be shot out of heavier-weight bows, resulting in faster speeds and lower trajectories.

Arrow Nocks

The nock is the primary connection between the bowstring and the arrow, and it must be the proper size and attach perfectly straight on the arrow. Nocks are made of tough plastic and are designed to snap onto the string to prevent the arrow from falling off the string.

Arrow Fletching

Arrows are fletched with feathers or vanes. Each has its advantages and disadvantages. Hunters should consider their hunting situations and choose the type of fletching that meets their needs.

1. Feathers have a natural curl and the surface area is rougher than a synthetic vane. This means feathers create more drag when moving through the air. The increased drag will stabilize an arrow faster and thus provide more control. Since feathers are much softer than vanes, their contact with any part of the bow or arrow rest does not affect the flight of an arrow as much as when a vane makes such contact. Feathers weigh less than vanes. Therefore, an arrow fletched with feathers will weigh less than an arrow fletched with the same size vanes. As a result, a feather-fletched arrow will leave the bow faster than a vane-fletched arrow.

Field Point - used for target practice

2. Vanes are more durable, less expensive and quieter than feathers, and unlike feathers, they are waterproof. Since vanes weigh more than feathers, a vane-fletched arrow starts out slower than a feather-fletched arrow. This is a minor consideration when selecting fletching, since the feather-fletched arrow has more drag and slows down faster than a vane-fletched arrow. Therefore, arrows equipped with the two types of fletching will take about the same time to reach a point 32 metres (35 yards) from the point of release. After 32 metres, the vane-fletched arrow will be slightly faster because it does not lose speed as quickly.

ARROWHEADS

Small Game Arrowheads

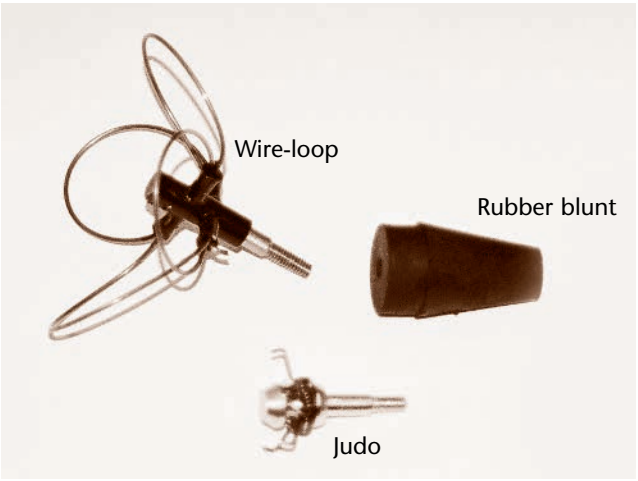
Small game heads are usually designed to kill by shock force. There are many designs, including the following:

1. Simple steel or rubber blunts of various sizes designed to kill smaller animals or birds by massive shock.

2. "Judo" (Spring-type) point with metal blunt or rounded fronts and spring-like arms that help prevent arrows from sliding under grass.

3. Wire-loop heads, which have flat heads with a series of stiff wire loops designed to cover a wider hit area when shooting at either standing or flying birds.

4. Adders consisting of different types of stoppers that are placed behind regular target or field points, designed to prevent the arrow from passing completely through the animal or bird. There are also adders designed to be placed behind broadheads, when penetration and hemorrhage are desired but not pass-through, such as when hunting wild turkey.



Small game arrowheads

BROADHEADS

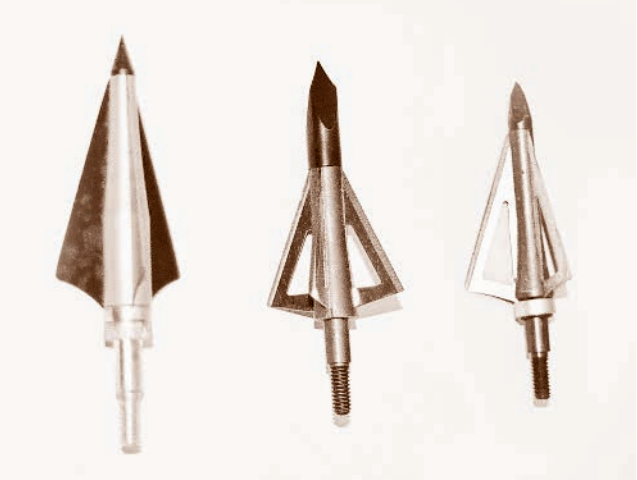
Big Game Arrowheads

An arrow dispatches a big game animal by causing massive hemorrhaging. To be effective, an arrow with a razor-sharp broadhead must fly accurately and penetrate appropriately. There are many types of broadheads available on the market today:

1. Fixed-blade, traditional broadheads were used by hunters until the development of replaceable blades in the 1970s. The fixed-blade broadheads were usually two-bladed, three-bladed or had two main blades with two much smaller 'bleeder blades.' These traditional broadheads remain popular with today's traditional bowhunters.

2. Replaceable-blade broadheads evolved in the 1970s and were the broadheads used by many bowhunters by the mid-1980s. These broadheads ensure the razor sharpness of blades needed for bowhunting and are currently the most commonly used for hunting all types of big game.

3. Mechanical broadheads evolved in the 1990s. Mechanical broadheads fly more like target or



Broadheads

field points because their blades are folded in during flight. On impact the blades open up to function like other broadhead blades.

BOWSTRINGS

A bowstring transfers a bow's energy to the arrow. How well the string does this job will depend on the length of the string relative to the bow, and the fibers used to make the string. Manufacturers specify a proper length for the string to be used on a bow.

All bowstrings will have a gradual elongation of the string. This more permanent stretch over time is called string "creep." When this happens, the shooter must bring the string back to the desired length by temporarily removing the string and adding a few twists to the string to take up the unwanted creep. A string will normally creep the most when first used, and shooters are advised to shoot 100 to 200 arrows after rough-tuning the bow, and then removing creep before fine-tuning the bow. This process is called 'seating' the string, and applies to cables as well as to strings.

Today, bowstrings are made using synthetic fibers designed to reduce string stretch and creep as much as possible. Since bow manufacturers carefully select a bowstring for a particular bow, it is unwise to substitute bowstrings unless they are designed with the same specifications.

NOCKING POINTS AND STRING-NOCK LOCATORS

The nocking point is the point at which an arrow is nocked on a bowstring. A string nock locator is a device on the string that marks the point at which the arrow must be nocked to ensure that it is in the same position for every shot. This is essential for accurate and consistent shooting. An arrow is lined up in place during the shooting sequence by only two devices: the nocking point marked by the nock locator at the back end of the arrow, and the bow's arrow rest at the front of the arrow. In tuning a bow, both must be moved to a position that allows the arrow to be released from the bow in a manner that achieves stable flight.

Once placed in the correct position on the string, it is essential that the nock locator not move. Any change in nock-point position will cause the arrow to fly differently. Nock locators must be made so that they can be securely fastened to the string.

ARROW RESTS

The arrow rest is a very important part of the bow. Since the rest is the last contact point with the arrow, it probably can affect arrow flight more than any other part of the bow.

The simplest arrow rests are those found on longbows and recurves, with the rest being a simple shelf carved out as part of the riser. Most longbow shooters and many recurve shooters shoot off the shelf, but this type of arrow rest has many limitations in terms of fine-tuning a bow. Modern recurves may have risers that are carved so that they are nearer centre-shot, and may have add-on rests of various designs. Compound bows all require add-on arrow rests, and many come initially equipped with solid rests attached. Because these rests cannot be fine-tuned, it is possible to have fletch-clearance problems with them, and most archers replace them with rests

that allow better tuning. There are many practical rest designs on the market today that assist in the tuning process. The type of rest used usually depends on whether the shooter uses fingers or a release aid.

Generally, finger shooters use "shoot-around rests," while release shooters use launcher "shoot-through" or "platform-style" rests. In either case, a bowhunter should try to choose a rest that will allow some adjustments when fine-tuning the bow.

BOWHUNTING SIGHTS

While traditional bow shooters usually shoot their bows instinctively or without the aid of sights, the majority of bowhunters use bow sights of one type or another. Instinctive shooters use their eye, the arrowhead and a memory picture of the impact area to aim their shot. Sights serve the same purpose on bows as they do on firearms and come in various designs:

1. Fixed-pin sights are attached to the riser of the bow and can consist of either a single or multiple pins, each sighted in for a particular distance.

2. One-pin moveable sights have only one pin, but it is movable so that the shooter can adjust the pin.

3. Crosshair sights have one vertical wire and several moveable horizontal wires enclosed in the housing. The housing moves to allow adjustments and the individual horizontal wires can be moved to different positions, with each wire representing a particular distance. The intersections of the vertical and horizontal wires, like crosshairs in a scope, can help the shooter achieve both vertical and horizontal alignment.

4. Tree-stand pendulum sights
   As you lower the bow to shoot from a tree stand or other elevated position, there is a natural tendency to shoot high. Pendulum sights are designed to compensate for this tendency by raising the front sight relative to the eye when lowering the bow arm to shoot, thus forcing the shooter to lower the front sight further to get on target.

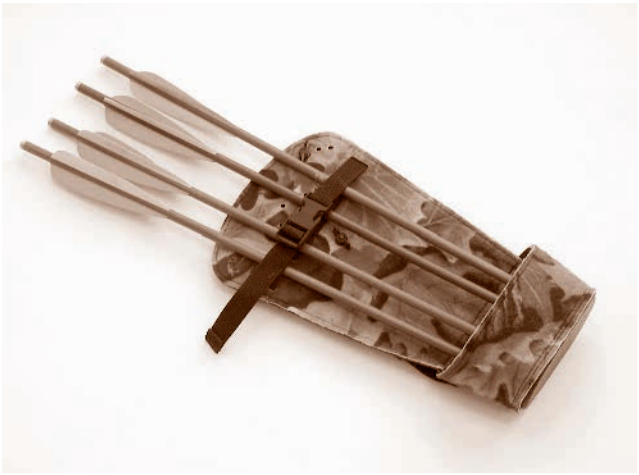
5. Two-point sighting systems are unique bow sights, not unlike open sights found on a handgun.

6. Peep sights, inserted into the bowstring, line up with the shooting eye when the bow is drawn back to full draw, and act as the back sight.

7. Kisser Button is a small button-shaped device, usually made of plastic or nylon, that is placed just above the nock locator on the bowstring. When the bow is drawn back to full draw, the button just touches the shooter's lips.

8. Telescopic Sights
   Crossbow manufacturers often put telescopic sights, or scopes, on various models of crossbows. Scopes gather light and give a better view of the target. However, they do not increase the performance of crossbows in any way.

9. Latest trends with bow sights
   New sight types are always being developed. Some recent types include holographic sights, laser sights, red dot sights, and scope sights.



Quivers

BOWHUNTING QUIVERS

A quiver is a device to hold arrows safely until they are ready to be shot. Most hunting quivers will protect the hunter by enclosing the broadhead end of the arrow.

1. Back quivers
   Traditional hunting quivers were designed to fit on the back of the hunter, hence the name 'back quiver.' The arrows are loaded into the quiver point end down, with the nock end of the arrow exposed at the open end of the quiver.

2. Side or hip quivers
   Side or hip quivers are positioned at an angle, either forward or towards the back, hanging from the hip or side. These are often used by target shooters while using target heads.

3. Bow quivers
   Bow quivers attach to the non-shooting side of the bow and hold arrows individually with the broadhead end of the arrows secured in a broadhead protector at the top end of the quiver. The arrow is also secured in a clamp or other device near the middle of the bow.

4. Cat quivers
   "Cat" quiver refers to a back quiver combined with some type of backpack that is carried on the middle of the back. These quivers hold their arrows so that the fletch end of the arrow slides up and under a protective covering at the top of the quiver. The broadhead end of the arrow is held in place with clamps on individual arrows, or through pressure with both the nock end at the top and broadhead end at the bottom sandwiched between sponge rubber or other material.

RELEASE AIDS

Finger Shooters

1. Shooting gloves are designed with individual covers for the three shooting fingers and have wrist straps to hold the glove on the shooting hand. Usually made of leather, these gloves provide protection for the shooting fingers and have the advantage of always being in place, ready for action. However, with repeated shooting the finger guards tend to crease or groove, preventing the string from always making a smooth release. Since the fingers are in separate guards, they can act independently from each other, and it can be difficult to get consistent shooting shot after shot.

2. Finger tabs are single pieces of material that are held in place on the hand by means of a ring of leather or plastic around the middle finger. A notch is cut in the tab between the index and middle fingers for the arrow nock to fit. The arrow is drawn back in the same manner as with shooting gloves - with the index finger

drawing back the string above the arrow nock. The other two shooting fingers draw back the string below the nock.

3. Mechanical release shooters
   There are dozens of mechanical-release aids on the market today. A mechanical-release aid is simply a trigger mechanism generally held in the hand that allows for a more consistent release of the bowstring. The shooter's fingers are not in contact with the string, only the release mechanism.

OTHER BOWHUNTING ACCESSORIES

Silencers

The quest for speed and flatter trajectories brings about problems related to noise. To combat noise, hunters install rubber gaskets between the bow and any accessories attached to the bow. They also attach silencers on the string. String silencers are made of rubber or other material, and are normally attached both above and below the nock point, five or six inches from the wheels or cams. They reduce noise by dampening the vibrations traveling through the string, and work in the same way when attached to cables.

Armguards

These are devices that fit over the forearm of the bow arm. They serve two purposes. First, armguards prevent the string from hurting the arm if it hits the forearm when shooting. This is a common occurrence with beginning shooters. Second, armguards hold clothing against the forearm, preventing the clothing from obstructing the string when shooting.

CHOOSING A BOW FOR HUNTERS

When considering the purchase of either a traditional or compound bow, the three most important factors the shooter must consider before purchasing are:

- right-handed or left-handed bow;
- draw length required;
- draw weight(s) required.

Once a shooter has decided on the type of bow that is suitable, it is highly recommended that he or she try out a number of bows of the desired type. Selecting an appropriate bow for the task is just one of many stages that the shooter will go through before taking the bow out on a hunting trip.

Right Hand or Left Hand – Determining the Dominant Eye

Each person has a dominant eye, and it is this eye that will have precedence when looking at any object. In most cases, a right-handed person will have a right dominant eye and a left-handed person will have a left dominant eye. However, this is not always true. A bow-shooter with a right-dominant eye should choose a right-handed bow, and a shooter with a left-dominant eye should choose a left-handed bow. This places the dominant eye directly above the arrow when shooting, which aids in the sighting/shooting process. Many refer to the dominant eye as the "shooting eye."

Determining Draw Length

No matter what type of bow is selected, it is important to know your draw length. It is best for the new shooter to have this initially measured by someone who knows how to correctly take this measurement. An individual's draw length is measured from the front of the bow to the string when the shooter is at full draw.

Determining Draw Weight

The draw weight of a hunting bow should be set at a weight that the shooter can comfortably handle while, at the same time, satisfying the game law minimum requirements. As draw weight is dependent on the shooter's strength, shooting comfort is very important when initially setting up a bow. A draw weight that is too high will cause the shooter to develop bad shooting habits and introduce shooting errors. It may also make it impossible to properly tune the bow and arrow setup, which requires smooth, consistent shooting. The muscles used to pull a bow back are not often used for other purposes, and the new shooter will find they develop quite rapidly when shooting a bow over time.

Traditional shooters may well move to a heavier draw weight bow as their muscles develop. Some take-down recurve bows have replaceable limbs, so a move to a heavier draw weight may simply involve purchasing a new set of limbs.

Most compound bows can also be adjusted over a range of draw weights, and the same bow may be purchased having different ranges of draw weight, such as 45 to 60 lb. or 55 to 70 lb. This allows a shooter to start out at a lower draw weight and then to increase the draw weight as the muscles develop through shooting.

Matching Arrows to the Bow

The chief problem in choosing arrows is choosing the right arrow spine for a particular bow. This will depend on the type of bow, bow draw weight, type of cam used where applicable, length of the arrows to be shot, and the weight of the arrowheads to be used.

Fortunately, arrow manufacturers have developed excellent 'Hunting Shaft Size Selection Charts' that allow hunters to take all of these factors into consideration when selecting appropriately spined arrows.

BOWHUNTER RESPONSIBILITIES

As with any type of hunting, bowhunters must also consider their responsibilities to other hunters, landowners, wildlife and the general public. They must also ensure their own safety. The responsible bowhunter should do the following:

1. Keep informed and follow the laws that govern bowhunting in Ontario. These laws are outlined each year in the Ontario Hunting Regulations Summary.

2. Realize that archery equipment in the wrong hands can be dangerous. Bowhunters must store and handle bowhunting equipment safely to prevent accidents.

3. Select equipment that you can control and shoot well, and which is capable of cleanly killing the animal hunted.

4. Appreciate the short-range limitations of your bowhunting equipment, and operate within those limitations.

5. Know how to set up, maintain and practise with your equipment to attain accurate and consistent performance.

6. Know your personal shooting abilities and your consistent, effective range.

7. Know where the vital areas of game animals are located for a clean kill.

8. Be prepared to increase your knowledge of the game hunted, so as to get within effective range before taking the shot.

9. Before hunting be sure to practise with your broadheads or the arrow tip you will use to hunt.

HUNTING TECHNIQUES FOR BOWHUNTERS

Introduction

The following are some of the hunting techniques most often used by bowhunters:

Stalking

Stalking involves slowly walking through the bush until an animal is sighted, and then creeping or "stalking" close enough for a clean shot. Stalking within shooting range of a big-game animal is perhaps the ultimate test of a hunter's skill. Even when hunting into the wind, as silently as possible, the stalker must overcome the acute vision and hearing of game animals. The bowhunter should restrict shots to standing animals at ranges under 36.5 m (40 yd.) or within their consistent shooting range.

Success rates for the bowhunter stalking big game are low. However, few hunting experiences can match it for excitement and satisfaction.

Ground Stands

Stand hunting is where the hunter sits quietly in a place where game is known to travel or feed. It is one of the most effective of all hunting techniques and is especially suited to bowhunting. The primary advantage is that the hunter avoids sound and movements that can trigger an animal's alarm systems.

A stand location must be determined by prevailing winds, game movement pattern, weather and time of day. When using a ground stand, the hunter uses natural cover, or constructs a ground blind. Blinds can also be constructed of camouflage netting where natural cover is scarce.

Tree Stands

Tree stands offer the best concealment of motion because the hunter is above the normal line of sight of a big-game animal. They offer the added advantage of keeping the hunter's scent off the ground, making it more difficult for an animal to detect. A safety harness must be used at all times when in a tree stand.

Self climbing tree stand

The location of tree stands is critically important. The hunter must determine an animal's normal pattern of movement before setting up a stand. Prevailing winds, game movement, weather, time of day and a suitable tree determine a tree stand location.

Runways, or game trails, used by animals travelling between feeding and bedding or resting areas are often used in positioning shooting stands. Intersections of two or more game trails offer obvious advantages over stand locations on single trails.

Tree stands placed at 3 to 6 m (3 to 6.5 yd.) elevation, or more, in suitable trees are the favoured shooting position of experienced hunters. However, they require special safety precautions on the part of the hunter. They must

Attach safety strap with no slack

Raise and lower bow with rope

be stable to be safe. Equipment should be raised into and lowered from the stand on a rope or cable to avoid the risk of injury. Steps, ladders or other devices used to enter and leave a tree stand should be stable and easy to climb in both directions.

Modern hunting tree stands are portable and designed to be placed in trees and later removed without causing any damage to the tree. Permanent stands nailed or bolted to trees should never be placed on public land, on land not owned by the hunter, or without landowner permission. Both types of stands should be carefully inspected and maintained well before the opening of the hunting season.

Tips for Tree Stand Safety

- Before buying a stand or safety gear, do your homework and shop carefully. Scour magazine articles and advertisements. Write to manufacturers. Visit archery and gun shops and test the equipment, whenever possible.
- After buying a stand or other safety equipment, read the instructions. It's natural to first experiment with something new, but don't use it in the field until you've read and fully understand the manufacturer's directions.
- Wear a safety harness every possible moment that you're off the ground, including ascending and descending. Attach the safety harness as directed by the manufacturer.
- Practise with your stand and safety gear before using them in the woods, and understand how your stand works. Almost all stands hold by leverage. The farther your weight is from the tree, the more leverage is applied. However, the farther out you go, the more torque you apply, which can cause the stand to twist. Practise will show you each stand's limitations.
- Maintain your stands and safety gear, and inspect them before each use for flaws and weaknesses. If steps or the stand get muddy or wet, clean them before using them again.

- When choosing a tree for your stand, first check it in daylight for straightness, irregular shapes, knots, and angles. Install your stand during daylight hours. Your first climb should never be made in darkness.
- Be especially careful when using portable stands on smooth-barked trees, such as aspen, beech, maple or hickory. Don't rely on branches for climbing.
- Be wary any time there is moisture, which includes rain, snow and ice. Be even more cautious in below-freezing temperatures.
- When using screw-in steps, make sure they're cranked straight into live, solid wood, all the way to the end. Do not put them in at an angle. The back of the step should rest against the tree trunk when properly seated.
- Use the manufacturer's safety pins or fastening straps when reaching your desired height in climbing stands. Don't rely on leverage alone to secure the stand.
- Never modify a commercially manufactured stand or safety device.
- Use a rope to raise and lower equipment, such as your bow or gun.
- Buy comfortable stands. If a stand isn't comfortable, you will constantly fidget and shift your weight, which can lead to trouble.
- Take your time and move slowly every moment you are off the ground. This is especially true at the end of the hunt, when you might be cramped and cold from hours of sitting.
- Use your stand for its intended purpose – hunting. It is not meant for use while cutting limbs or trimming trees with a chainsaw.
- Hunt with a partner who knows your location. If this isn't possible, leave a map and detailed directions with people you trust, and let them know when to expect your return.
- Never climb into a stand when feeling tired, or while on medication. If you feel drowsy while in your stand, it's time to quit. Falling asleep can be disastrous.
- Dress carefully. Some clothing, whether bulky, loose or tight, restricts movement.
- Always exercise caution when using a tree stand. Accidents can result in serious injury.

For more information on tree stand safety go to the following web site: www.tmastands.com

Driving

Driving, or pushing the animal you are hunting, is a technique often used by gun hunters. However, it can also be an effective way to party hunt during bow season. Drives are done by group members walking slowly through an area to push the animal hunted towards the waiting hunters. Bowhunters need to take extra care in making sure they can make a good shot when using this technique. The best bet is to shoot when the animal is broadside and standing still. Making a noise, such as a whistle or the sound of the animal (for example a deer grunt), will often make the animal stop, allowing a good clean shot. Safety is a key consideration anytime you are involved in a drive.

REVIEW QUESTIONS

1. List the four types of bows which bowhunters could use to pursue game animals in Ontario.
   1. _____
   2. _____
   3. _____
   4. _____

2. Circle the arrowhead from the following list that you would use to hunt moose or white-tailed deer.
   a) broadhead
   b) blunt head
   c) dunderhead
   d) wire-loop head

3. _____, _____, _____, and _____ are the four basic materials from which arrow shafts are made.

4. An arrow dispatches a big-game animal by causing massive blood loss or hemorrhaging.
   ☐ True ☐ False

5. Crossbow arrows that are called "bolts" are normally longer than arrows from either traditional or compound bows.
   ☐ True ☐ False

6. In most cases, a right-handed person will have a right dominant eye and a left-handed person will have a left dominant eye.
   ☐ True ☐ False

7. An arrow consists of the following four basic parts:
   1. _____
   2. _____
   3. _____
   4. _____

8. A quiver is
   a) a device to hold arrows until they are ready to be shot.
   b) a vinyl or leather pouch in which to keep hunting licences.
   c) a device that fits over the forearm of the bow arm.
   d) an uncontrollable shaking which novice hunters experience when they see their first white-tailed deer.

9. What is a "kisser button"?

_____

_____

WILDLIFE IDENTIFICATION

Hunters must be able to accurately identify wildlife species.

Some species are protected and cannot be hunted. Others are classified as game animals or game birds and can be hunted in areas that have legal seasons. The annual Ontario Hunting Regulations Summary lists open seasons and bag limits for each game species within various Wildlife Management Units (WMU).

Game species are grouped into four general categories:

1. Big Game (deer, moose, bear)
2. Small Game (hare, rabbit, squirrel, wolf)
3. Upland Game Birds (grouse, wild turkey)
4. Migratory Birds – Waterfowl (ducks, geese).

TECHNIQUES OF WILDLIFE IDENTIFICATION

It takes a good identification manual and lots of practice to identify wildlife quickly and accurately.

Some of the larger species, such as white-tailed deer and moose, are relatively easy to identify. However, hunters also need to be able to identify the different sexes and, for moose, be able to distinguish calves from adult animals.

Hunting wild turkeys requires you to be able to tell a non-bearded bird, usually a hen or female bird, from a tom or male bird. Waterfowl are a special identification challenge because they are often flying. You need to be able to identify species "on the wing" because, in some instances, different species have different bag limits. For example, you may be allowed to take five mallards per day but only one black duck. If a loon or a grebe flies over your decoys, you must be able to distinguish these species from legal waterfowl.

c. J. D. Taylor

Bull moose in the fall

The more you practise, the better you will become. The bonus is that animal and bird identification is interesting and fun. It gives you a great opportunity to visit the woods and marshes year round to practise your skills.

There are many excellent and inexpensive wildlife identification books, tapes and videos available to help you. You can find these in libraries, bookstores and on the Internet. Zoos, museums and wildlife parks are all good places to view wildlife at close range. There are also books available that will assist you to identify the tracks and signs left by animals.

A good set of binoculars is essential for animal and bird identification. It will be used in all types of weather and be carried around in packsacks, canoes and vehicles. Get a quality pair with good optics and they will last you a lifetime.

You should learn as much as possible about the wildlife species you are interested in, including the ecosystem and habitat it prefers. Waterfowl migration routes and resting areas are well known, and you can visit them in the spring to sharpen your identification skills. When you start visiting marsh and forest ecosystems, you will also observe many species of non-game animals and birds. Learn to identify them, as well. It is all part of becoming a knowledgeable hunter. It's

interesting, fun and will provide you with a better understanding of the natural world and give you a sense of deep satisfaction. Good hunters are good naturalists.

The presence, size and shape of antlers vary throughout the year, as do the size and shape of scat, or animal droppings. The colour and pattern of an animal's coat may change over the seasons as well. For example: the snowshoe, or varying hare, changes its colour from brown in summer to pure white in the winter; and fawn white-tailed deer lose their light coloured spots as they grow in their first winter's coat.

HERBIVORES

Herbivores are plant eaters.

Some are ruminants, meaning they have a large, four-chambered stomach and chew their food several times to aid in digestion. These animals quickly fill their stomachs with food so as to reduce the time they are in the open and exposed to predators. Then, when they are in cover, resting and undisturbed, they regurgitate the food, re-chew it, which is called chewing their cud, and then swallow it again.

Herbivores are called browsers if they eat mostly shrubs and woody vegetation, or grazers if they eat mainly herbs and grasses.

ANTLERS

The presence or absence of antlers, as well as their shape, are key identification features for herbivores. Antlers are bone structures that grow up from short stubs, called the "pedicles," on the top of the animal's skull. During growth, a hairy skin called "velvet" covers the antlers. The velvet is richly supplied with blood vessels and nerves.

Antler growth is closely related to the health or nutritional state of the animal, as well as the quality and amount of food available. Antlers grow during the spring and summer and are fully developed by fall. As growth ceases, the antlers become hard and bony. By rubbing its antlers against vegetation, the animal is able to remove the dead skin and polish the bony surface. Hunters know that "buck rubs," trees or shrubs where the bark has been scraped off, are a sure sign that a white-tail buck is in the area.

Antlers are used as a warning to other males as bucks compete for females. Sometimes battles occur between males.

Antlers are shed or dropped in late December or early January. Shedding is caused by an internal body change that weakens the base supporting the antlers. Shed antlers provide a source of calcium and other minerals to mice, squirrels and porcupines that find and eat them after they fall to the ground. Shed antlers can often be found early in the spring with the tooth marks of mice and other creatures visible on them.

In the deer family, it is usually the males that have antlers. Caribou are an exception, where both sexes may have antlers but adult male antlers are much larger than those of the female.

Most hunters keep the antlers from harvested bucks and bulls as a trophy that reminds them of the hunt and honours the animal. Large antlers usually indicate a large, mature and wary animal.

CARNIVORES

Carnivores are meat eating mammals which have teeth along the sides of their jaws for cutting or "shearing" their food. Examples of carnivores include the wolf, coyote and fox.

Although black bear are grouped with the carnivores, they are actually omnivorous. This means that their diet is a mixture of both meat and plant material. Similar to humans, they have both carnivore teeth to cut meat and flat-topped teeth to crush vegetation.

Carnivores such as the wolf, coyote, fox and raccoon may be hunted primarily for their fur in Ontario. Licensed trappers may trap additional carnivores, such as marten, mink or lynx. These and other species, like beaver and muskrat, are classified as furbearers and are not legal game for a hunter.

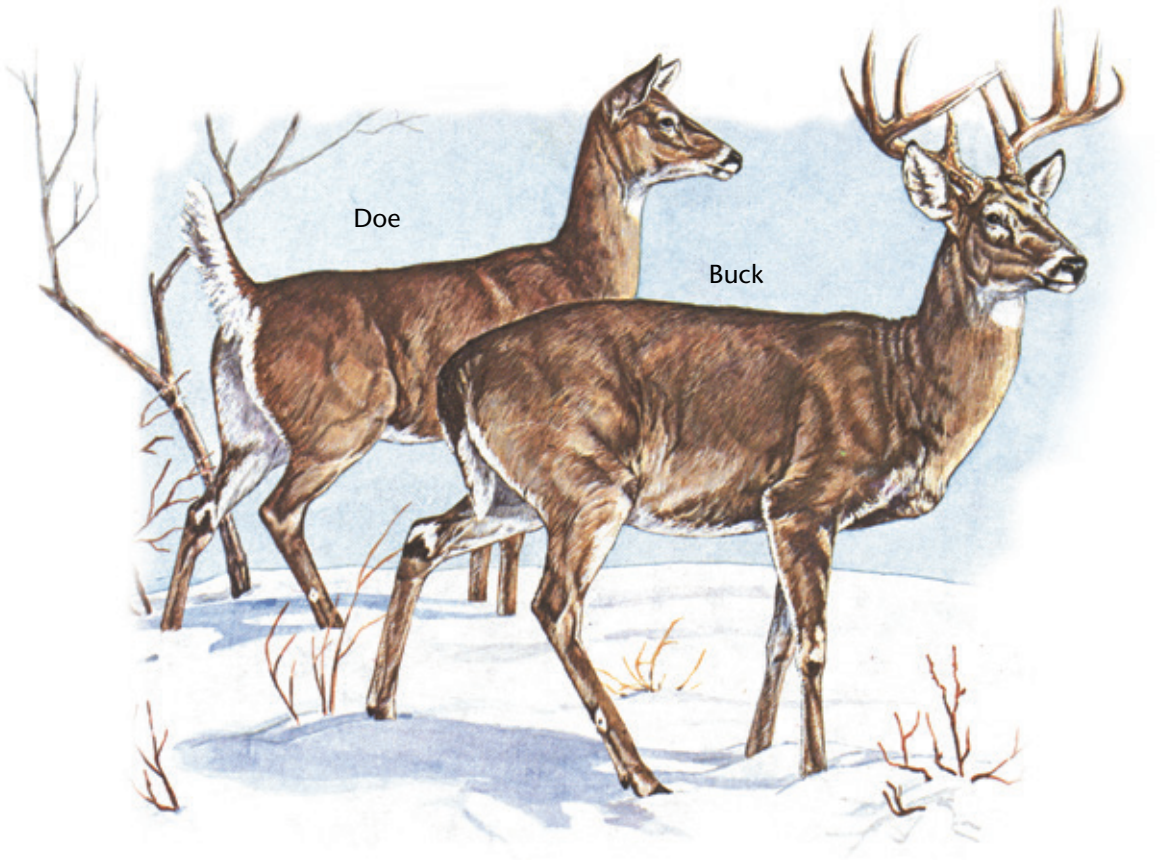
GAME IDENTIFICATION, BIOLOGY AND HABITS

The following sections introduce you to the identification, and some of the basic biology and habits, of game animals. The list is not comprehensive. It is your responsibility to know what can be legally hunted, and to be able to identify it.

The illustrations accompanying the text show the main identifying features of each animal. The animals are shown as they appear in the fall. Their appearance may differ at other times of the year, and you should review other identification manuals that show colours in the spring and summer.

Please note that as more information becomes available about the status of the various game species, management actions and hunting regulations could be modified over time. Please be sure to check the annual regulations summaries every year to ensure you are familiar with any new requirements.

WHITE-TAILED DEER



As the name indicates, the main identifying feature of the white-tailed deer is its white tail. The underside of the tail is white and highly visible. The animal raises and flashes its tail when disturbed or running.

The body colour changes with the seasons from a grayish brown in winter to a reddish brown in summer.

Antlers normally grow up and forward with spikes, or tines, projecting up from a main beam.

An adult white-tailed buck may weigh from 45 to 136 kg (100 to 300 lb.), while adult does weigh between 39 and 60 kg (85 and 130 lb.).

Habits

The diet of a white-tailed deer changes with the seasons. Grasses, wildflowers, herbs and the emerging leaves of many shrubs and trees are consumed during the spring, summer and fall. Buds and twigs of birch, maple, dogwood and aspen are browsed during the winter, as well as white cedar boughs. Acorns and various agricultural crops, including corn, apples and grains, are readily consumed when available.

Female groups consisting of mothers, daughters, sisters and fawns of the year generally remain together throughout the year. Males are usually solitary but do form groups in feeding areas.

In Ontario's snowbelt regions, deer congregate in traditional winter "deer yards" that have a preferred mixture of cover and food. Large numbers of animals in a small deer yard make it easier to keep trails open in deep snow, which is necessary for deer to reach food and escape predators. In addition, specific summer and winter ranges may be many kilometres apart.

During the winter in southern Ontario, deer congregate in woodlots, swamps and county forests.

Deer prefer areas with sunlight and new growth adjacent to thick cover. They can be found around the edges of fields, marshes and forest openings in early morning or late afternoon. At other times, they prefer the safety of thick cover.

Deer mate in the fall. Bucks set up loose territories marked by scratching up small patches of bare earth and urinating in them. These are called scrapes. Often there is a tree branch hanging over the scrape where the buck rubs a scent gland on his head. These scrapes are maintained as attractions for does that may be ready to breed, and as a warning to other bucks.

A hunter watches for active scrapes because they are a sign that bucks and does are in the area.

Females normally breed at two years of age, but, in good habitat, yearling does may also produce fawns. Does give birth to a single fawn, twins and even triplets in early June.

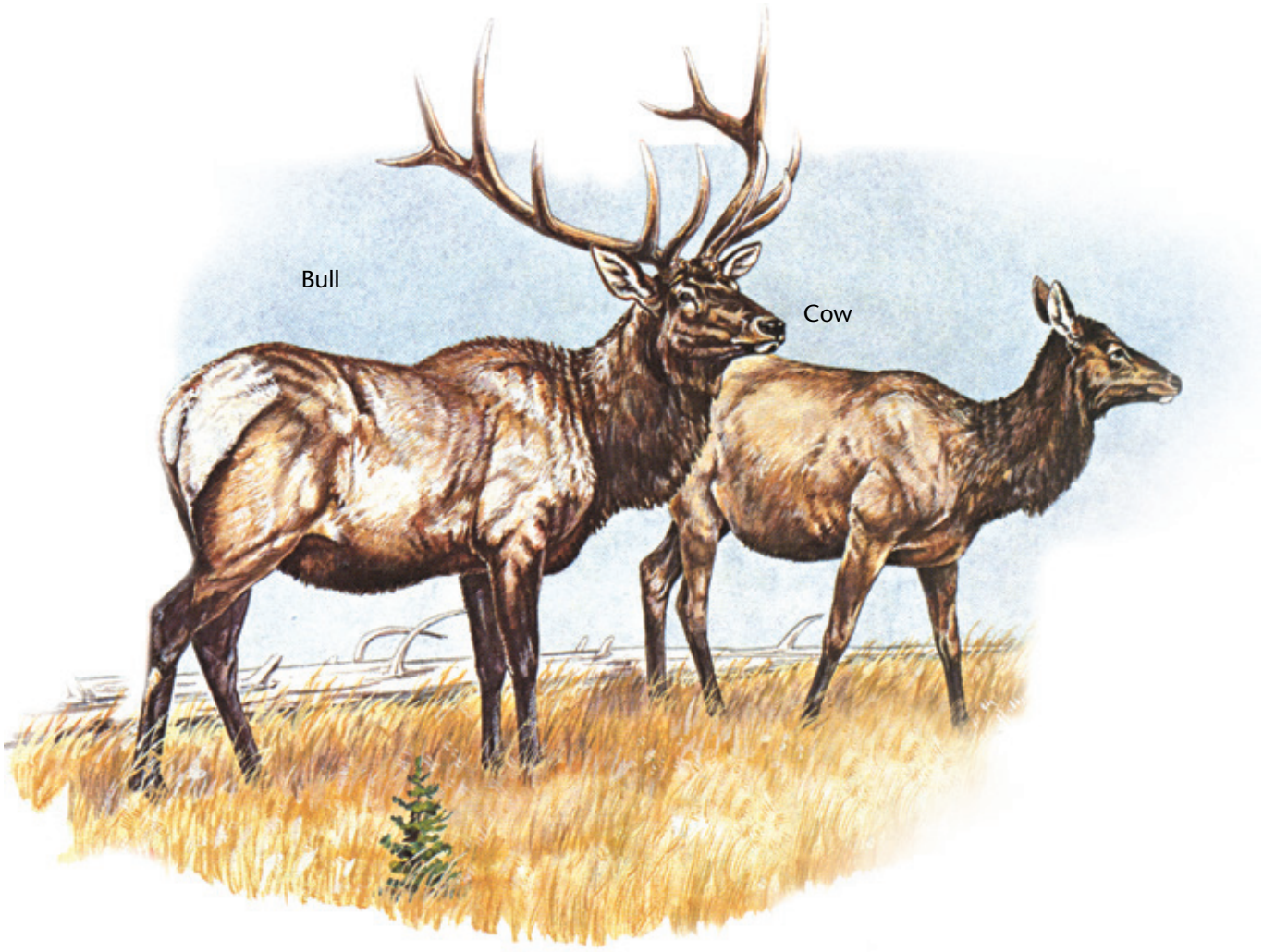
Management

The management objective is to protect enough breeding females to maintain the population. The specific system wildlife managers use to manage deer in Ontario is the selective harvest system. The number of breeding females required to maintain the population is determined for each Wildlife Management Unit, which determines the number of "antlerless tags" that will be available for hunters.

Hunters must purchase their deer licence and enter their name into a lottery for the antlerless tags. Hunters whose names are drawn to get a tag can harvest any antlerless deer, doe or fawn, but may still choose to shoot a buck. However, only one deer can be taken per licence. Those who do not get a tag can shoot only a buck. There is no restriction on harvesting bucks because one buck will breed numerous females, and the population will maintain itself even though there are fewer bucks than does.

Other management techniques include opening and closing seasons, changing the length of seasons, issuing licences for more than one deer in areas with excessive populations, and controlling the method of hunting by stipulating archery or muzzle-loaders only.

Development plans for rural areas and plans for shoreline cottage development are reviewed to ensure deer habitat needs are considered. Forest Management Plans are reviewed to ensure deer yards and other important cover areas are not damaged. Wildlife managers will work in deer yards to encourage the growth of food species favoured by deer.



Elk, or wapiti, are generally a brownish yellow colour with a distinctive light, cream-coloured rump patch. The antlers of the bull are large, sweeping back and upward. A mature bull will have five to seven tines, or points, projecting from each main branch. Bulls can weigh up to 450 kg (1000 lb.), while cows are smaller and weigh between 225 to 270 kg (500 and 600 lb.). Adult elk are more than twice the size of an adult white-tailed deer, but smaller than a moose.

Habits

Elk are primarily grazers but do well on mixed diets, which include browse. When available, they will graze on herbaceous plants, grasses and new growth. When ground vegetation is not available during winter, they browse on a wide variety of species, including willow, maple, birch, white cedar, beaked hazel and red maple.

Elk mate in early fall. After shedding their antler velvet, bull elk compete to gather together small herds or harems of adult cow elk. Bulls challenge one another with high-pitched bugling sounds, unique to the species. Cows make a low whistling or mewing sound.

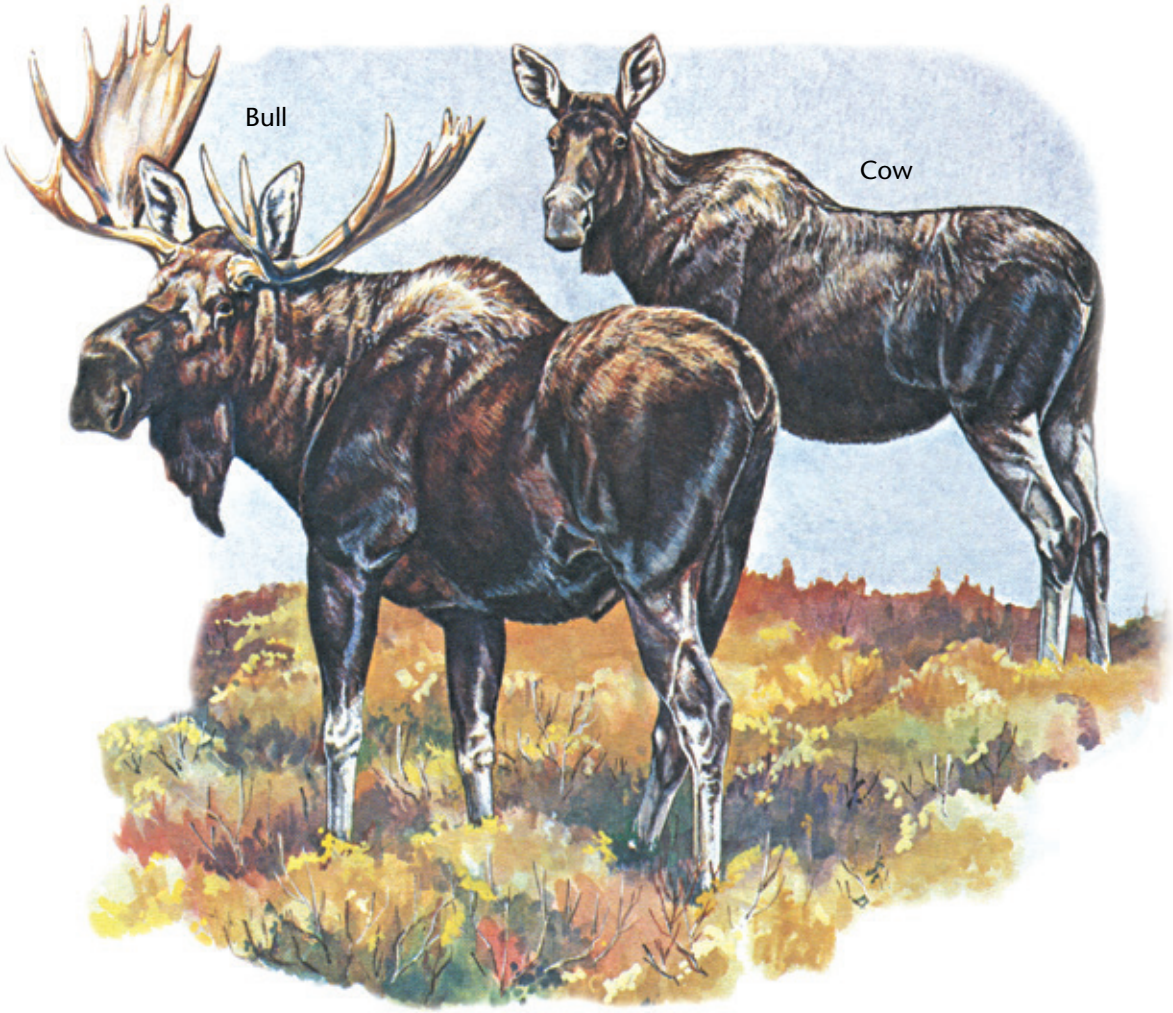
The type of habitat preferred by elk includes open fields, meadows, and forest openings that are adjacent to conifer cover.

Once native to Ontario, elk disappeared in the late 1800s as a result of uncontrolled hunting and the loss of habitat due to human activities. A restoration program was initiated in 1998 when elk from Alberta were released in a variety of suitable sites across central and northern Ontario. Restored elk populations have reached self-sustaining levels in some parts of the province.

The first modern-day elk hunt was implemented in Ontario in 2011. There is a limited open season for elk in some wildlife management units in south-central Ontario. Elk may also be encountered while hunting white-tailed deer and moose in other parts of Ontario, so hunters must be able to distinguish one from the other.

Management

In the past, Ontario's elk management program focused on restoring American elk to the province. The focus is now on maintaining healthy and strong American elk populations. One of the aims of the *Elk Management Plan* and the original elk restoration plan is to give Ontarians opportunities for recreation, such as hunting and wildlife viewing. Harvesting elk from populations that are self-sustaining can help Ontario meet other ecological, cultural, social, and economic elk management goals. The *Elk Management Plan* provides criteria to help determine when and where a selective harvest of elk may occur.



The moose is the largest member of the deer family. It is dark brown to nearly black in colour. Its large size, humped shoulders and large nose make it easy to identify. Adult bull, or male, moose have large, heavy antlers. The antlers are wide, flat and rise slightly up and backwards. Hanging under the chin of both bulls and cows, or females, is a piece of skin called a bell. Both sexes have small tails, which are difficult to see at a distance.

A mature bull may weigh 454 kg (1000 lb.) or more, and cows can average 363 to 408 kg (800 to 900 lb.). Moose are considerably larger than an elk, and adult moose are often three or more times larger than an adult white-tailed deer.

Habits

While moose are primarily browsers, their diet changes with the seasons. In the spring they consume large quantities of aquatic plants, often completely submerging their heads underwater to get at them. As summer progresses, they consume new plants and leaf growth on trees. In the fall and winter, they shift to a diet of buds and woody stems from birch, poplar, maple and various shrubs, such as dogwood, mountain and striped maple. Good moose habitat always includes lots of ponds, lakes, streams and other wetland habitat.

Moose prefer areas where sunlight stimulates new growth adjacent to cover and water. Forest openings created by wildfire and logging and adjacent to conifer cover are preferred habitat. In the summer months, moose seek deep, often wet and dark evergreen forests to escape the heat of day.

Cow moose are solitary animals during the spring when calves are being born. Bulls are growing their new antlers and tend to remain alone. As the summer progresses, cows can be seen with their calves, and often yearling animals will travel in groups. As the fall mating season progresses, the bulls and cows start calling and gather in small concentrations of animals. This could include a bull and one or more cows. During the winter months, small groups of bulls and cows, from two to five animals, may be observed feeding and traveling together.

As the breeding season approaches the bulls rub their antlers free of velvet. Normally quiet and solitary, they now become noisy and aggressive. Bulls will create "wallows," shallow pits rooted up in swampy areas where they will sprawl and urinate. Hunters finding "a wallow," often by smell, know a bull is in the area. Both bulls and cows call during this period and use short grunts and drawn out moans to actively seek one another. Moose are susceptible to hunters who can imitate these calls. Bulls will breed with several cows. Adult cows, two years and older, give birth to a single calf, twins or occasionally triplets in mid-to late-May.

Management

Moose in Ontario are managed by a selective harvest system. After population and habitat information has been collected and assessed, the harvestable population of animals is determined. Since moose are widely dispersed over their range as solitary or small groups of animals, wildlife managers plan for a close ratio of bulls to cows to ensure they are able to find each other and mate during the short breeding time.

Breeding age cows are essential to maintain and increase populations; however, there also must be enough bulls in an area to find and breed all the cows. The number of bulls and cows that can be harvested for each Wildlife Management Unit (WMU) is determined, and both adult cow and bull tags are made available for hunters.

Hunters may enter a lottery tag draw as an individual or as a member of a group. Hunters successful in the draw can harvest an adult animal of the sex for which they have a tag or they may harvest a calf, but not both. Calf moose are not usually part of tag draws and any hunter with a valid moose licence can harvest a calf. Calves are difficult to hunt, and large numbers usually are lost over the winter because of predation, starvation and other causes. While, generally, calf harvest is not restricted, there may be some WMUs where calf harvest may be restricted under certain circumstances. Be sure to check the annual Hunting Regulations Summary. Differing numbers of adult tags for each WMU reflect the management objective for that unit, which may be to increase the population, stabilize the population, or reduce it.

Critical to the success of the moose selective harvest system is the ability of hunters to distinguish an adult bull from an adult cow or calf, and accurately report what they harvest.

Wildlife managers also review Forest Management Plans to ensure that moose habitat needs are met. Important cover areas, aquatic feeding areas and travel corridors are protected.

Black bear have glossy black hair with some individuals showing a patch of white on their chest or throat. Occasionally, colour variations of cinnamon or brown are encountered. In Ontario, adult males weigh 114 to 272 kg (250 to 600 lb.) while females weigh 45 to 181 kg (100 to 400 lb.).

Bears accumulate large fat reserves in the fall in preparation for their coming winter hibernation. A bear ready for hibernation may weigh 60 per cent more than it did in the summer, and will have lost most of that weight by the time it comes out of hibernation in the spring.

Habits

Black bears are extremely adaptable and are found in most forest regions. A mixed forest with a variety of tree and shrub species of different ages provides the best habitat. Bears eat the leaves of young trees such as aspen and the new, green shoots of plants when they emerge from hibernation. Given the opportunity, they will prey on newborn deer fawns and moose calves. By mid-summer, they turn to berries, seeds, insects, and whatever dead fish and other animals they can find. During the late summer, they feed heavily on blueberries and routinely climb trees for beechnuts, acorns and black cherries. They continue feeding as fall approaches and will travel great distances to feast on acorns and beechnuts. When the first snows begin to fall, they are ready for hibernation.

Females give birth to their cubs while in the hibernation den, usually in January. Cubs stay with the mother throughout the following year and will share the den with her the following winter. Usually, females breed every second or third year. Females are not sexually mature until five or six years of age.

Black bears have a high tolerance for human activity and have established populations adjacent to farms and communities.

Black bears are opportunists and are attracted to any available food source. Rural garbage dumps, campsites and remote tourist camps with available garbage or access to stored food are quickly utilized. When there is a shortage of natural food, such as berries, bears can wander into urban areas seeking food at birdfeeders and open garbage cans.

Management

In Ontario, black bears are classified as game mammals with an open season and a bag limit.

Management programs consist of inventories, tracing the movement of tagged animals, and hunter and public observation surveys. Age and sex information on bears is obtained by studying tooth and reproductive organs collected from harvested animals.

Commercial tourist operators who market bear hunts are assigned specific geographic areas called Bear Management Areas. Each area is assigned a bear quota based on its geographic size and current biological information on the bear population.

Small game mammals include the gray (black) squirrel, fox squirrel, cottontail rabbit, snowshoe hare or varying hare, European hare or jackrabbit, raccoon, wolf, coyote, fox and woodchuck or groundhog.

GRAY (BLACK) AND FOX SQUIRRELS

Squirrels are found throughout Ontario wherever forests occur. Fox squirrels are the largest of the squirrels and are found only in southwestern Ontario. They are not present in large numbers. Gray and black coloured squirrels are colour phases of the same species. They are an abundant species and can be found throughout southern and central Ontario.

Habits

Fox squirrels are found in open, deciduous woodlands. They like open country, and spend a good deal of time foraging on the ground. Gray squirrels can be found in mixed deciduous and coniferous forests. They prefer young growth forest.

Both species live in tree cavities or leafy nests that they construct high in trees. They feed on a variety of plant materials, including nuts, acorns, seeds, fungi, bark, fruit, and buds of trees. They are opportunistic feeders and will prey on eggs in birds' nests.

Mating usually occurs in late December or January. Male black squirrels may mate with several females, while fox squirrels usually pair off with a single mate. Young are born about six weeks later in March or April. Litters range from two to six young. They leave the nest when they are about six weeks old.

Management

The protection of ecosystems and habitat for other species, such as deer and wild turkey, also protects squirrel habitat. Monitoring of populations occurs through hunter and public observation surveys.

Gray (black) and fox squirrels may be hunted with a small game licence in Ontario during the open season.

Red squirrels are classified as a furbearer and can only be taken by a licensed trapper. They may not be hunted in Ontario.

The cottontail is a small rabbit. The body coat colour is brown or gray with a cottony-white tail.

Habits

The cottontail rabbit can be found throughout southern Ontario, and its habitat includes any place with cover to hide and available food. Cottontails can be found in heavy brush, forest openings, swamp and marsh edges, ravines, overgrown fields and rocky foothills.

They are most active from early evening to late morning. They spend most of the day in hiding, underground, beneath brush piles, or among rocks.

Their main food in the spring and summer is vegetation, such as new plants, grasses, flowers, berries, seeds, acorns and agricultural crops. The most important winter foods are seeds, buds, bark and twigs.

Breeding occurs two to four times per year with four to seven young per litter. The young are born from May to September. Nests are usually depressions in the ground that the female, or doe, lines with her body fur.

Management

Cottontails are the main prey species for numerous predators, including fox, coyote, hawks and owls. They produce numerous young. Management consists of encouraging landowners to retain brushy hedgerows, fences and wooded areas. Population monitoring occurs through hunter and public observation surveys

Cottontail rabbits can be hunted in Ontario with a small game licence during the open season.

EUROPEAN HARE (JACKRABBIT)

The European hare is an introduced species to Ontario. It is more than twice the size of a cottontail rabbit with long ears, long front feet and a slender body. Its coat is gray-brown with a white belly. It sheds fur twice a year but does not turn white in the winter.

Habits

The European hare requires open fields adjacent to brushy hedgerows and fence lines, gullies, ravines and overgrown fields. It feeds on grasses, seeds, fruit, flowers and agricultural crops in the summer. In the winter, it feeds on grains left in agricultural fields, buds, twigs and bark.

European hare breed in February and March and give birth to from two to eight young in April and May.

Management

Hare populations are monitored through hunter and public observation surveys. Landowners are encouraged to retain hedgerows and wooded areas for all species of wildlife.

The European hare can be hunted in Ontario during the open season with a small game licence.

The snowshoe hare, also called the varying hare, has brown fur in the summer and white fur in the winter.

It is named for its large, heavily-furred hind feet. It is larger than the cottontail rabbit but smaller than the European hare.

Habits

The snowshoe hare is found in central and northern Ontario. It lives in thick swamps, forests, and thickets. A nocturnal animal, the snowshoe remains quiet during the day, concealed among brush and trees.

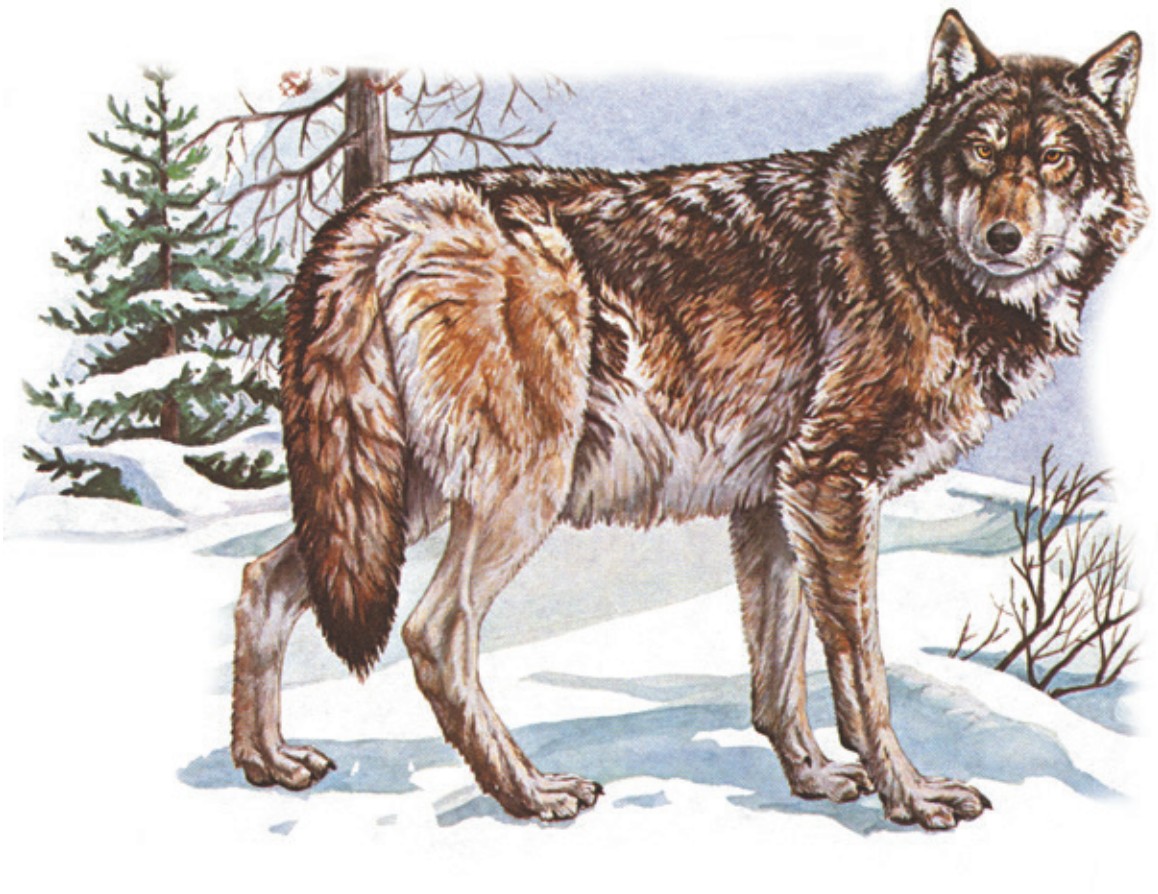
Snowshoe hare feed on green vegetation during the summer and on twigs, buds and bark during the winter months.

Females usually have two to three litters a year, with two to four young in each litter. Snowshoe hare populations have large fluctuations about every seven to 11 years.

Management

Snowshoes benefit from the efforts of wildlife managers to retain cover and travel lanes in forest management operations. Monitoring occurs through hunter and public observation surveys.

In Ontario, snowshoes can be hunted in the open season with a small game licence.



Gray wolves and eastern wolves, often called timber wolves, have long dense fur with variable colour. They are often gray or tawny with black frosting from the upper side of the neck and over the back. Gray wolves can also vary from pure black to almost white. Eastern wolves typically have reddish hair behind the ears. Gray wolves tend to be found in the northern-most reaches of the province, the tundra and boreal regions. Their distribution also extends southward, however, where it overlaps with the eastern wolf, which is found in a central latitudinal band across the province.

Gray wolves are larger than eastern wolves and have predominantly longer legs and feet. An average adult male gray wolf weighs about 35 kg (77 lb.) but may exceed 50 kg. (110 lb.), while the female gray wolf's weight averages 26 to 32 kg (55 to 70 lb.). Eastern wolves appear more coyote-like than do gray wolves, and adult males weigh an average 26 to 30 kg (57 to 66 lb.). Eastern wolves and coyotes are known to interbreed where their ranges overlap. Male and female wolves are similar in appearance, resembling a husky or German shepherd dog.

Habits

The number of wolves in an area may vary from year to year depending on the abundance of prey and the territorial needs of the pack. If prey numbers are stable, the wolf population will also likely be stable.

Being carnivores, wolves feed primarily on such prey as moose, white-tailed deer, caribou and elk in Ontario. Beaver and other small mammals may also be consumed throughout the year. Wolves usually hunt down their prey, but may also scavenge carcasses of dead prey.

Wolves are very social with close-knit family-related packs. Each pack has a social order where all members know their place. Pack size may vary from two to 10 or more wolves, depending on the availability of prey species.

Breeding takes place in late February and March. Usually only the dominant female breeds in a pack. Most pups are born in late April. Both parents, as well as other members of the pack, help to raise the pups. Pack members cooperate in hunting and bringing down the larger prey.

Management

In Ontario, wolves are classified as furbearing mammals. They can be hunted and trapped. The current Hunting Regulation Summary should be checked to confirm licensing or any additional requirements. Management activities include monitoring the wolf harvest by trappers and hunters, and the fur sales records. Wolf observations are also recorded as part of big game hunt surveys. Research studies, including tagging animals to monitor their movements, are also conducted to determine the status of wolf populations.

Wolves are intelligent and fascinating animals. They are one of the symbols of wilderness for many people. Knowledgeable hunters treat the wolf with respect.

The coyote is a smaller relative of the wolf, with a slender body and a narrow face with pointed ears and a pointed nose. Coyotes weigh about 9 to 16 kg (20 to 35 lb.).

Coyotes are generally a tawny-gray colour with lighter, yellowish legs, paws and muzzle and often reddish-brown ears.

Habits

The coyote is found throughout southern and central Ontario, and increasingly in areas of northern Ontario. It is an extremely adaptable animal and is very comfortable living adjacent to humans and human activities.

Coyotes breed in late January and March. An average of four to six pups are born in May. Coyotes may hunt alone or in family groups.

Coyotes are carnivores and their diet consists of mice, groundhogs, birds, frogs, insects, snakes, fish and anything they can scavenge, including road-killed animals. They will eat some vegetation and berries. Occasionally, they can prey on deer and on domestic stock like sheep and calves.

Management

In Ontario, coyotes are classified as furbearing mammals and they can be hunted and trapped. The current Hunting Regulations Summary should be checked to confirm licensing or any additional requirements.

Wildlife managers obtain information on coyote populations from trapper and hunter harvests, fur sales and observations recorded on big game hunter surveys. Coyotes are extremely adaptable, difficult to hunt, and their populations have continued to thrive in Ontario.

The red fox is dog-like in appearance. It has a slim body shape with a narrow face and pointed muzzle. Its coat is red, darkest on the back and blending to a light yellow or white on the belly. The large, bushy tail is red and tipped with white. The legs, feet and ears are black.

A mature red fox weighs 3.5 to 7 kg (10 to 15 lb.).

Habitat

The red fox ranges over most of Ontario. It prefers a mixture of forest, marsh and swamp edges, brushy hedgerows and open fields.

The red fox is most active during the night, early morning and late evening. Its food is made up of prey animals ranging from insects to snowshoe hares. Berries and fruits may also be part of the animal's diet.

The young are born in March or April, depending on the part of the country. Vixens, or females, have one litter per year, with four to nine pups in the litter. Dens are in rock or brush piles, or enlarged groundhog burrows.

Management

The red fox is classified as a furbearing mammal in Ontario and may be hunted under the authority of a licence to hunt small game. Fox populations are monitored through hunter and trapper surveys, and through fur sale records.

Opossums have white fur with black markings, a pointed, piggish snout, and a long hairless tail. They have long, delicate fingers, with opposable thumbs on the hind feet.

Habitat

The opossum is an omnivore, which means it eats both plants and animals. It feeds on a variety of vegetation as well as insects, small mammals, birds, eggs and carrion, or dead flesh.

Opossums are marsupials – they rear their young in a body pouch similar to a kangaroo. They bear one litter a year after only 13 days' gestation.

In Ontario, the opossum's range is determined by the climate. Mild winters allow them to move northward and severe winters reduce their range. They are most common throughout agricultural southern Ontario.

Management

Opossums benefit from efforts to convince landowners to retain hedgerows, brushy fencelines and wooded areas. Monitoring occurs through trappers, hunters and public observation surveys.

The opossum is a furbearer but may be hunted during the open season with a small game licence.

The raccoon is a medium-sized, stocky mammal with a prominent black mask around its eyes. It has a heavily furred, ringed tail about half the length of the head and body. The back of the adults is grizzled brown and black mixed with yellow. The belly is yellow brown.

Habitat

Raccoons require mixed forests adjacent to stream and lake borders. They are extremely adaptable and in southern Ontario will take up residence in abandoned buildings, ravines, and wooded areas adjacent to food sources such as agricultural crops.

Raccoons are expert climbers and swimmers.

Both plant and animal matter is eaten depending on what is available. Plant food includes grapes, plums, chokecherries and blackberries, corn, acorns and other nuts. Animal food consists of birds, bird eggs, crayfish, clams, fish and various insects.

Young are born from April through May. There is one litter a year, with two to seven young in a litter.

Management

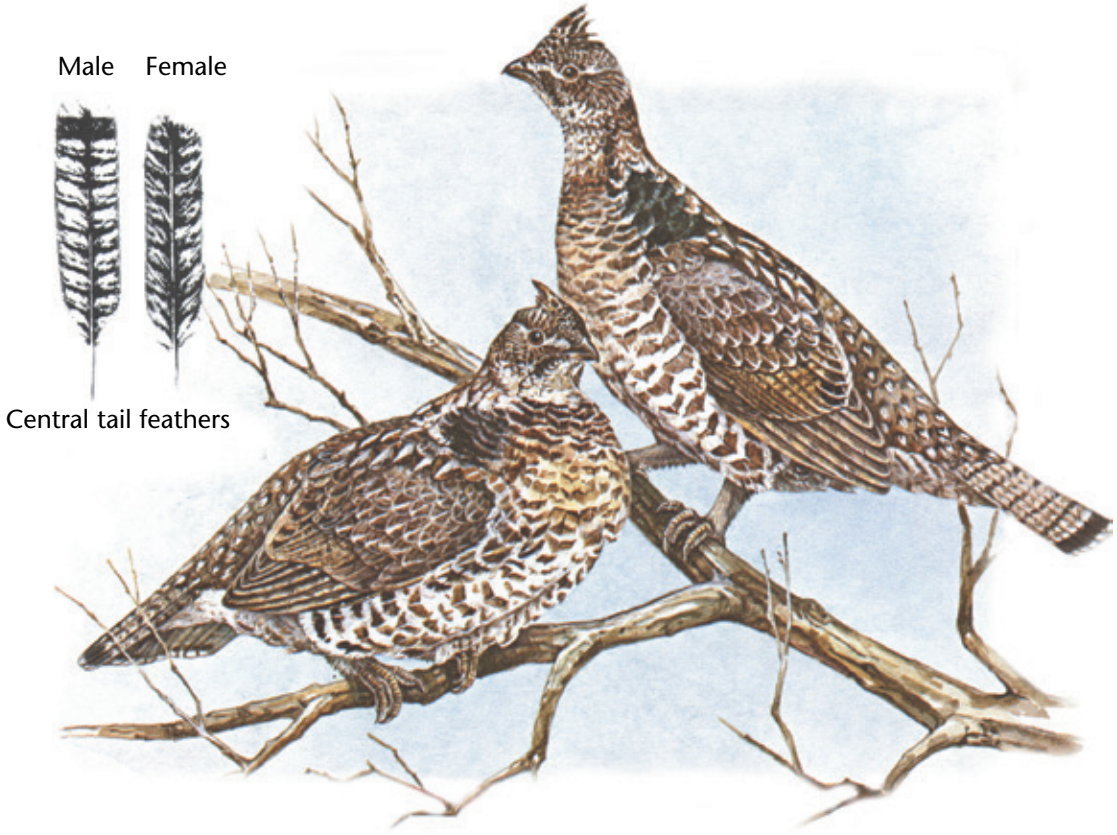
Raccoon populations are monitored primarily through trapper records, fur sales, and hunter and public observation surveys.

The raccoon is classified as a furbearing mammal in Ontario and may be hunted under the authority of a licence to hunt small game.

Ontario upland game birds include the wild turkey, ruffed grouse, spruce grouse, sharp-tailed grouse, gray (Hungarian) partridge, ring-necked pheasant, bobwhite quail and willow ptarmigan.

The woodcock and snipe are actually migratory birds but hunters normally consider them in the upland game bird category.

RUFFED GROUSE



The ruffed grouse gets its name from the umbrella-like ruff of dark feathers on each side of its neck. The ruff is more obvious on the cock, or male, than the hen, or female. The bird's colour varies from gray to reddish brown. Tail feathers range in colour from reddish brown to dark gray with a narrow black bar near the end. The tail is like a fan and, when opened, the black band near the end of the feathers is a good distinguishing feature.

A relatively accurate field method of determining the sex of a harvested bird is to "fan" the tail and look at the black band. The band on the cock's tail is usually complete and very distinct, while on hen birds the continuous black band is broken in the centre by several feathers with very indistinct bands.

Habits

Ruffed grouse are found throughout most of Ontario. They require sunlight and young forest, such as areas of forest opening or field edges, adjacent to coniferous cover and water. Common foods include the buds and small leaves of aspen and birch, most berries and seeds, fruit and a wide variety of insects.

A familiar spring sound in Ontario is the "drumming" of the ruffed grouse. As part of the mating ritual, the cock stands on a "drumming log" and beats his wings, increasing the speed to make a sound like a sputtering lawnmower that can be heard for up to half a mile. Mating occurs in late April to May. The female lays an average of two eggs every two to three days in a nest located on the ground. The total number of eggs in the nest will average 10 to 12, and the female will usually incubate them for about 24 days. The eggs hatch in early June.

Grouse chicks have a high death rate due to cold spring nights, rain and predators. At hatching, their life expectancy is only a few days. The overall life expectancy is less than a year.

The hen and chicks remain together through the summer. The family group breaks up and disperses in the fall.

Management

Grouse population numbers can fluctuate wildly because of weather and predators. Populations are also cyclic, with low and high numbers over five- to seven-year periods.

Hunting season lengths and bag limits are generous. It has been shown that hunting success is related to the ability of hunters to find and harvest grouse. Seasons and bag limits are designed so that hunting pressure drops off long before they endanger the breeding potential of the population. Management priorities are focused on retaining good habitat. Managers encourage landowners to retain hedgerows and other brushy open areas. Cover trees are retained adjacent to logging operations. In some areas, managers may plant clover or other wildlife plants to assist grouse. The population is monitored through hunter and public observation surveys and periodic "drumming" surveys in local areas.

Spruce grouse males have a black breast with white spots on the sides. The hen is a dark, rusty brown. Both sexes have black and white barring on the breast and a tail tipped with pale brown.

Habits

Spruce grouse are found throughout most of the black spruce and jack pine forests of northern Ontario. In spring and summer, they feed on the ground and eat insects, leaves and berries. In fall and winter, they feed almost exclusively on conifer needles.

When flushed, the spruce grouse will usually flutter up into a spruce tree. It relies on its colouration for camouflage and protection. Because of its apparent lack of fear, the spruce grouse is often called the "fool hen."

Spruce grouse are generally found singly or in small groups during the hunting season.

Management

Spruce grouse live across vast areas of Ontario's north with sparse human populations. Shortages of food and cover are not a concern for wildlife managers. With the exception of some local areas, there is little hunting pressure because of the strong flavour of the meat. While spruce grouse populations may fluctuate in local areas due to weather and predators, hunting seasons and bag limits remain fairly constant.

Some monitoring of the population is done through hunter field checks and other hunter and public observation surveys.

Sharp-tailed grouse are a pale-brown colour with a black back. The sides and belly are speckled with black and white. In flight, the short pointed white tail distinguishes this bird from the ruffed grouse.

The cock has a yellow comb over the eyes. Two centre tail feathers extend beyond the rest of the short tail. These tail feathers give the sharp-tailed grouse its name.

Habits

The sharp-tail is primarily a bird of the Far North in Ontario, though it is also found in the Sault Ste. Marie and Manitoulin areas. It prefers open areas associated with logging cutovers, open brush flats, muskeg and agricultural fields, grasslands and shrublands.

In early fall, the birds are found in small family groups. By late fall, they have merged into large flocks containing as many as 100 birds.

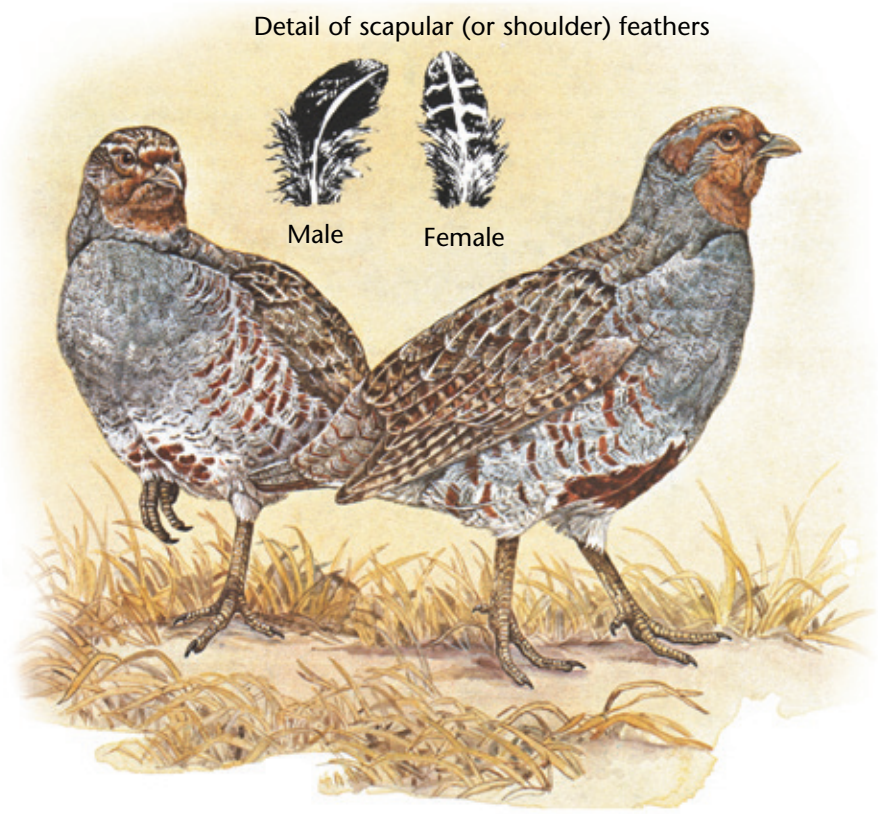
The sharp-tailed grouse may often be seen feeding in grain or stubble fields in early morning. Later in the day, they commonly roost in trees. On cold, frosty mornings, they often sit motionless in tall trees or bushes. When flushed, the birds usually make a "clucking" sound as they fly away.

Courtship and mating is an impressive activity. Traditional "dancing grounds," or display areas, are used by males to dance and preen for the females.

Sharp-tails eat seeds, berries and leaves of new plants, aspen, pin cherry, birch, dogwood, alder, raspberries and blueberries.

Management

In Ontario, human activities that could affect sharp-tailed grouse populations include the conversion of grass and shrubland to cropland and fire suppression. Carefully planned, forest harvesting and forest fires may improve or create new sharp-tailed grouse habitat.



The Hungarian partridge is often called the "hun." The bird is not native to Ontario and was released in many locations in the United States and Ontario during the early 1900s.

It is a brownish-gray colour. Male birds have a solid brown horseshoe marking on their lower breast. Females and juveniles have a similar mark but it is broken and less distinct. The tail consists of short brown tail feathers that are distinctive when viewed in flight.

Habits

Hungarian partridge became established in agricultural areas where small grains provided food and where hedgerows, gullies and low brush provide cover. They can be found in areas of southwestern and southeastern Ontario.

They feed on grain, grass seeds, young plants and berries associated with agricultural areas.

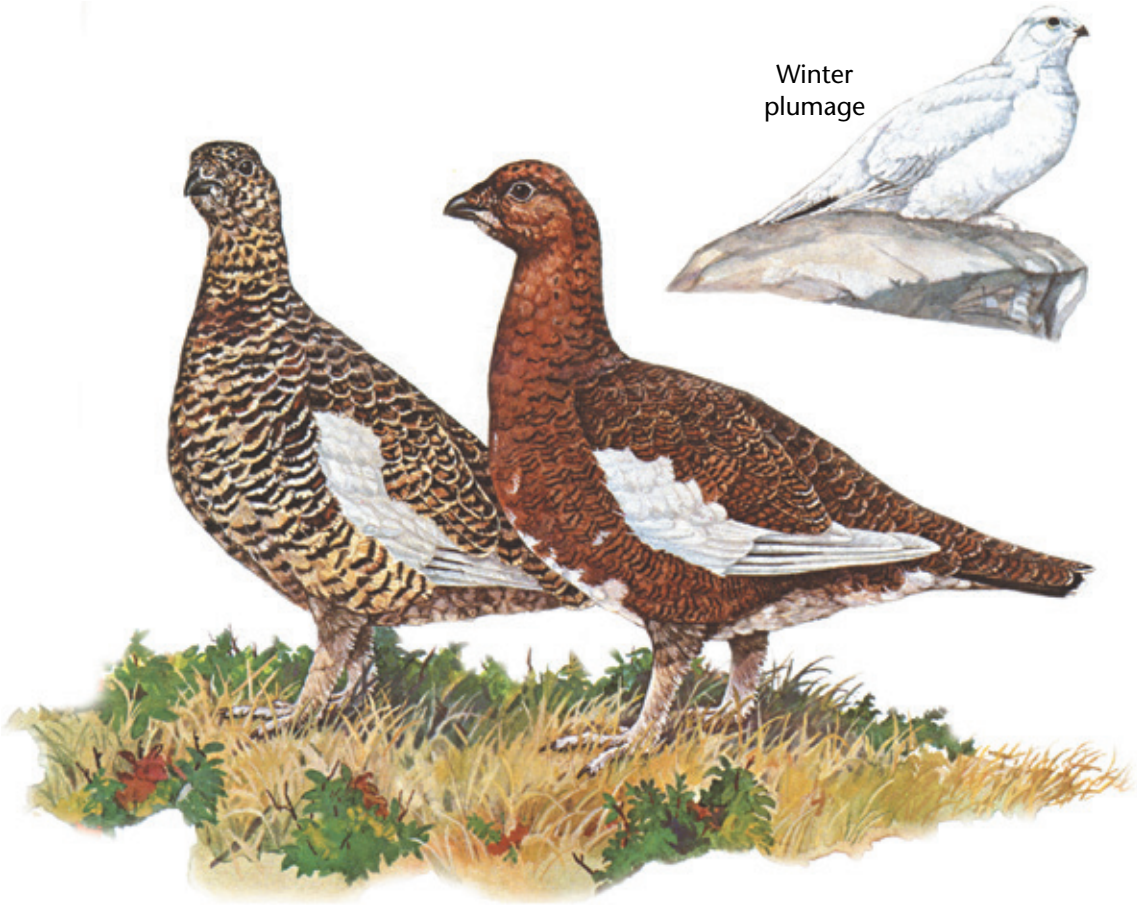
Birds are generally in coveys of six to 15 birds.

Management

Hungarian partridge are vulnerable to the cold and deep snows of Ontario's winters, which can cause severe population losses due to starvation. Changing agricultural practices that remove brush cover and replace grain crops with corn also cause reduced populations.

Wildlife managers monitor population trends through hunter and public observation surveys.

WILLOW PTARMIGAN



In winter, both male and female willow ptarmigan are totally white in colour, except for a black tail, beak and eyes. During the summer months, the male has a brown head, neck and breast with a white body, while the female's entire body is a mottled yellowish brown.

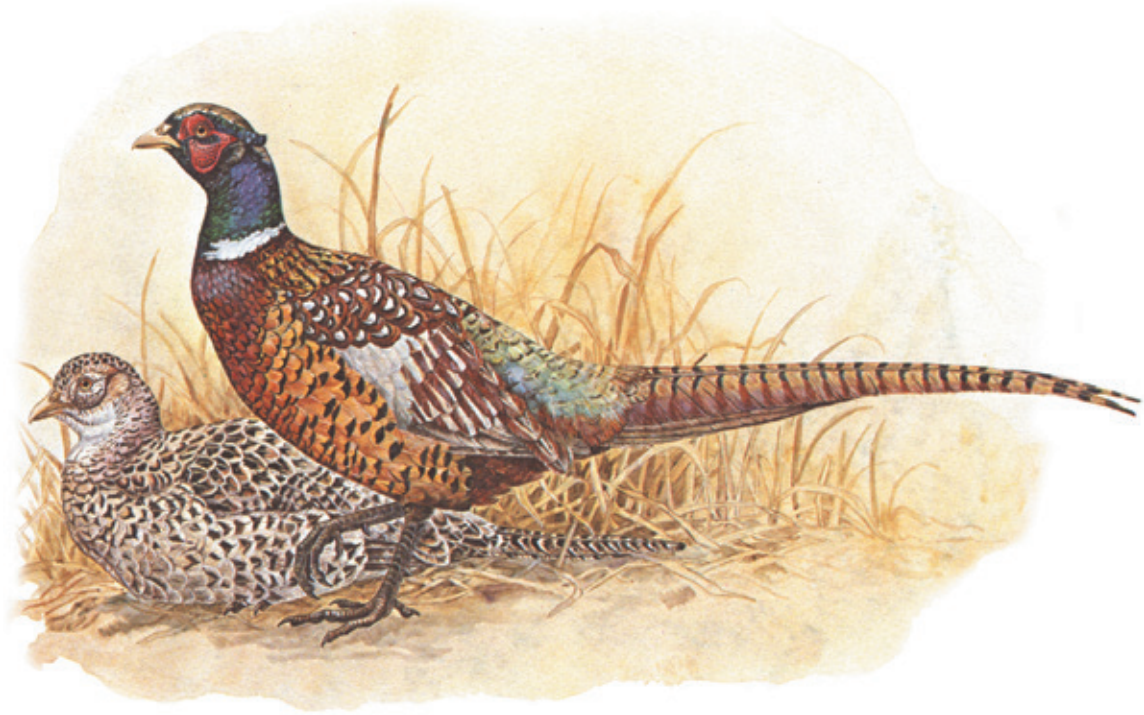
Habits

Willow ptarmigan are found in the northern parts of Canada and Alaska. In Ontario, they are found in the lowlands of James and Hudson Bay. Birds gather in large flocks in fall and winter. They feed primarily on willow buds, although they will also eat alder, birch buds and twigs, and the seeds, fruits and flowers of many other tundra plants.

Management

The ptarmigan has very little hunting pressure because of the isolated areas where it lives. It is a main prey species for fox and wolves. The management program relies on surveys completed by trappers, hunters and public observation surveys.

RING-NECKED PHEASANT



The ring-necked pheasant is not native to Ontario but was introduced in the 1800s, and has thrived in the more southern parts of the province.

The male ring-necked pheasant, known as a cock, or rooster, has a distinctive red eyepatch on an iridescent purple head and a mahogany, brown body. It has a long, tapered tail. Cocks are also distinguished by the presence of pointed spurs on the back of each leg.

The female, or hen pheasant, is a drab pale brown and gray colour.

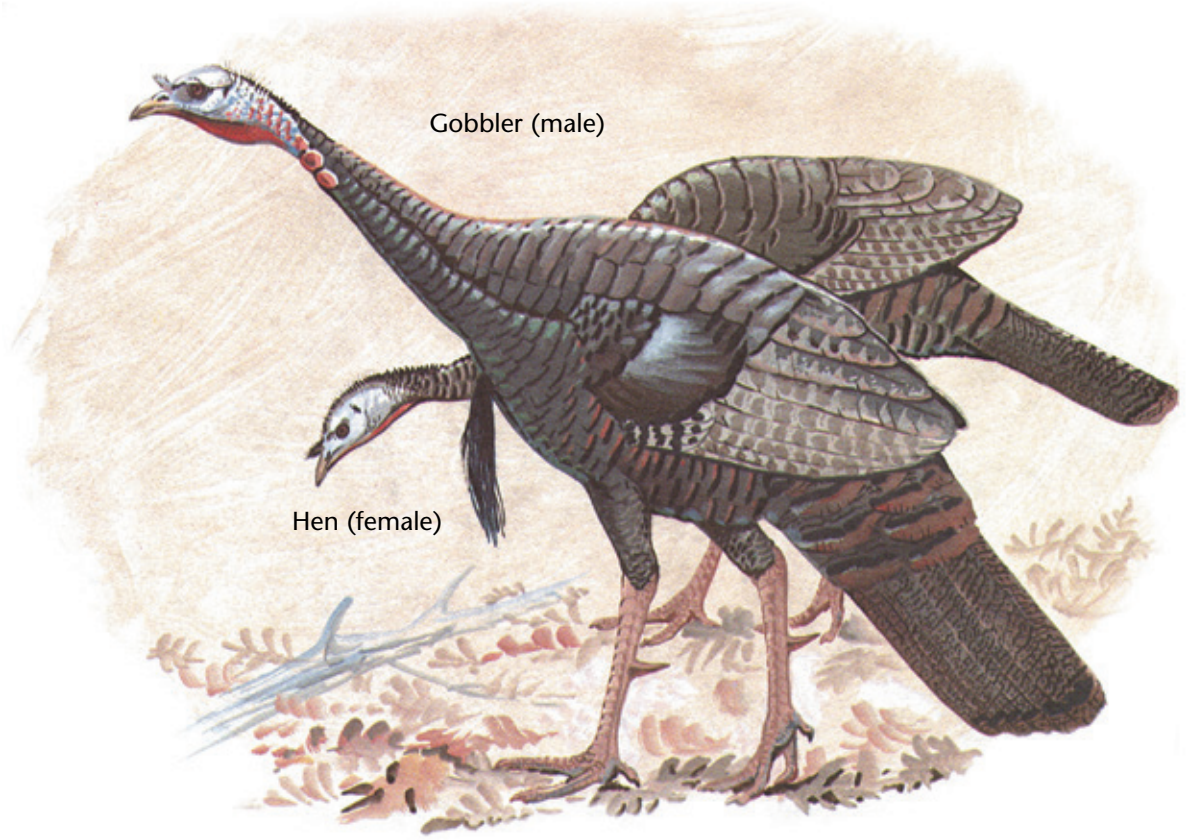
Habits

Pheasants require open brushy areas, croplands, field and marsh edges. They feed on a wide variety of seeds, buds, berries, young plant leaves and shoots and insects.

In late April and May, male birds start "crowing"– a loud repeated squawk. The crowing establishes the male's territory and entices hens. Males will mate with numerous hens. The hen's nest is a scratched-out depression in the ground. A dozen eggs will be laid and they hatch in late May or early June. The newborn chicks feed on insects, and are very vulnerable to cold wet weather and predators.

Management

The snow and cold of Ontario's winters are a major cause of mortality for pheasants. Some areas have maintained hunting opportunities by stocking pen-raised pheasants.



The eastern wild turkey is Ontario's largest game bird. An adult typically weighs between 4 to 10 kg (10 to 22 lbs.). Adult males, or toms, are roughly twice as big as an adult female, or hen. Young males, called jakes, are normally 5 to 8 kg (12 to 17 lb.). Jenny is the term used for young females.

Plumage of the wild turkey differs between the sexes of the bird. Male birds are a mix of dark brown, bronze and black with an often bright red, white and blue head. Male birds have black tipped breast feathers which add to their dark colouring. Hens are normally much lighter in colour than males. Their breast feathers are brown or buff tipped, while a hen's head is typically blueish gray with purple hues.

Male turkey usually have leg spurs. These are small nubs on jakes, while a tom's may be up to 4 cm (1.5 in.) in length. Most males have a beard, a tuft of hair-like feathers that hang from the centre of the breast. Beards range in length from 7 to 25 cm (3 to 10 in.) and are sometimes longer on older bigger toms. A small percentage of hens also have a beard.

Habits

Habitat preferred by wild turkey includes mixed hardwood forests with scattered openings, farm woodlots and wooded stream and river valleys.

The diet of the wild turkey consists mostly of nuts, berries, seeds, tubers and insects.

Males establish their dominance and territories starting in late winter. Gobbling, a loud rattling call, is used by the males to warn off other males and to attract females to them. The gobbling sound is why many hunters refer to the birds as "gobblers." A single male can breed with several females. Hens lay an average of 12 eggs, often over the course of two weeks, and they are incubated on the ground. Chicks hatch in early June.

Management

Population trends and data on age are monitored through harvest information gathered from hunters. General information is also collected from landowners.

The restoration of this magnificent bird is a tremendous success story for Ontario. Birds have been trapped and transferred to new areas, to increase the range and establish new breeding populations, since 1984. The wild turkey now ranges across most of southern Ontario. The first modern-day spring wild turkey hunt was held in 1987 and the first modern fall wild turkey hunt was implemented in 2008.

Provincial policy for turkey management is outlined in the Wild Turkey Management Plan for Ontario that was released in 2007. Ontario's turkey management plan includes criteria for considering spring and fall seasons consistent with landscape and ecologically-based population management objectives. The plan can be found on the internet at the following link www.ontario.ca/hunting and viewing the plan under the Wild Turkey heading.

Hunters play an important role in wildlife management in Ontario. The mandatory harvest information provided by hunters is vital for effective wild turkey management.

MIGRATORY GAME BIRDS

Migratory game birds migrate to northern breeding areas in the spring and southern wintering areas in the fall. They include ducks, geese, woodcock and snipe.

Hunters require both a federal Migratory Game Bird Hunting Permit and a provincial small game hunting licence in order to hunt waterfowl or other migratory birds. Hunters of migratory game birds are also required to purchase a "Wildlife Habitat Conservation Stamp" with their federal licence, and the funds raised are used in wetland and wildlife habitat conservation projects. You may buy a Migratory Game Bird Hunting Permit and Wildlife Habitat Conservation Stamp at most post offices.

This section covers the migratory birds most commonly hunted in Ontario. Information on all legal species can be obtained by reviewing the hunting summary obtained when you purchase a Migratory Game Bird Hunting Permit.

Introduction

Migratory birds are a large and important group of game birds, which include the wild ducks and geese that occur in Ontario. When hunting waterfowl, it is essential that hunters be able to accurately identify and recognize each species.

Habitat

Each species of waterfowl usually has special habitat requirements. Dabbling ducks like the mallards prefer shallow marshes and small potholes. Diving ducks, such as the canvasback, prefer larger, deeper bodies of water.

Action

Wing beat and flocking behaviour are useful identification characteristics. Flying mallards and pintails form "V's" or clusters and have a slow wing beat characteristic of pond or dabbling ducks. Canvasbacks fly in shifting, waving lines and have a fast wing beat common to diving ducks. Teal flash by in small bunches.

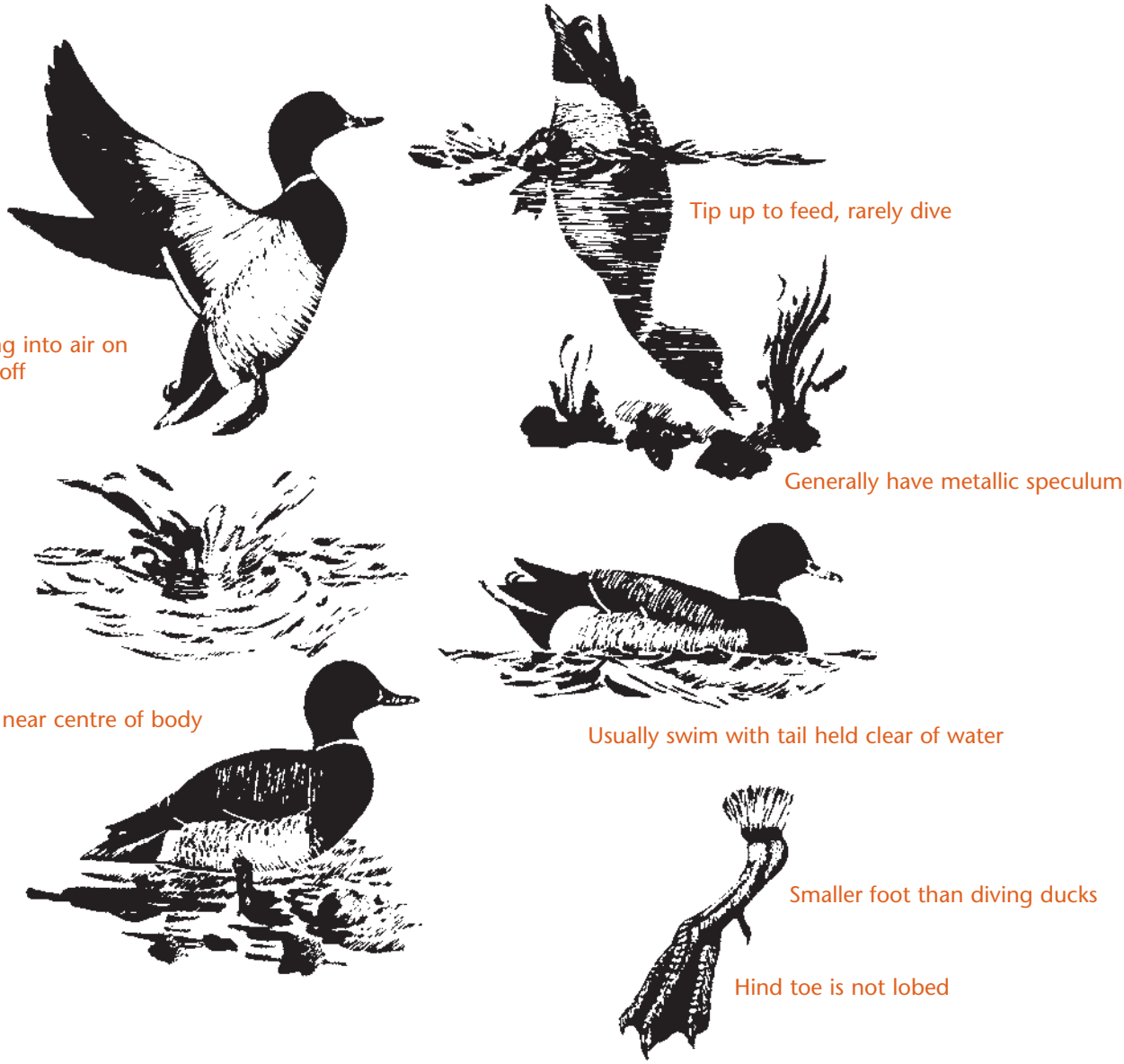
Colour and Shape

Waterfowl profiles will vary, showing large or small heads, broad or narrow bills, fat or slender bodies, long or short tails. Colours vary dramatically. Your bird identification guide will provide detailed information on silhouettes, profiles and colours.

Sound

When identifying waterfowl, the sound of their voice and the noise made by their wings can both be used as aids. Goldeneye wings make a whistling noise, while those of most other ducks do not. Not all ducks quack. Many whistle or squeal, and males may make a distinctively different sound than the hen of the same species. Experience can help you to identify waterfowl from their sounds, and audiotapes of bird calls will also help you learn the different sounds.

Puddle Duck Characteristics



Puddle Ducks and Divers

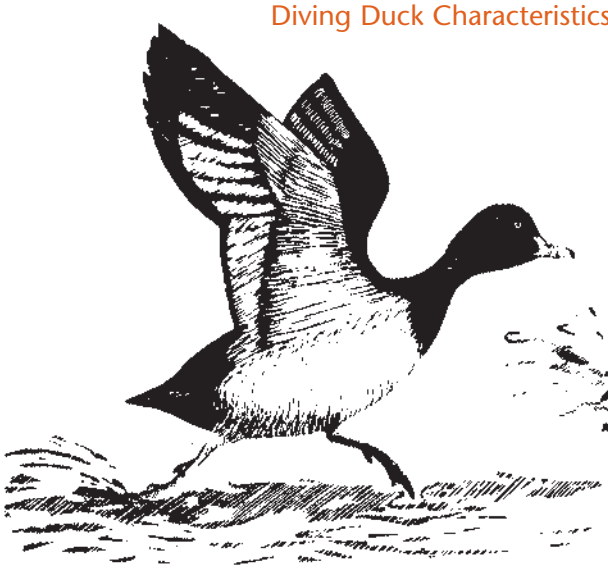
Based on their habitats, ducks are commonly separated into two broad groups: puddle ducks, sometimes referred to as "dabbling ducks," and diving ducks.

Puddle ducks generally inhabit marshes, cattail swamps, weedy bays on large waterbodies, flooded woodlands and shallow water creeks and rivers. They feed by dabbling or dunking their heads under water to reach submerged vegetation. They ride high on the water and jump directly upward when taking off.

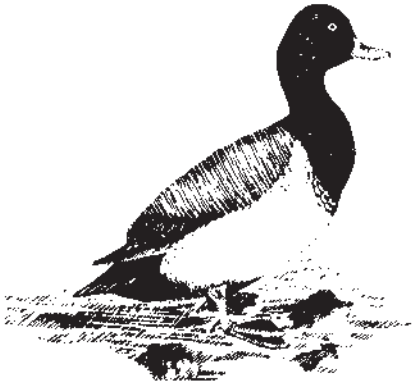
The coloured wing patch, called the speculum or wing bar, is normally iridescent and bright.

Ducks feeding on croplands are usually puddle ducks because they can walk and run on land. Their diet is primarily aquatic vegetation supplemented by agricultural grains and insects.

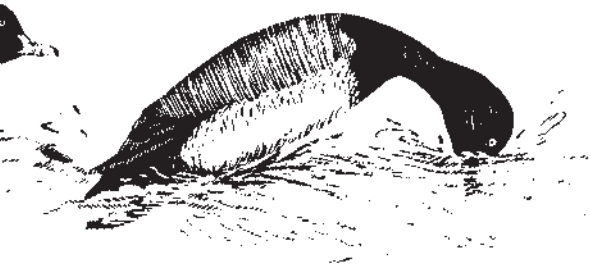
Diving Duck Characteristics



Patter along surface for some distance to take off



Legs set near rear of body



Dive completely underwater to feed

Usually swim with tail close to water

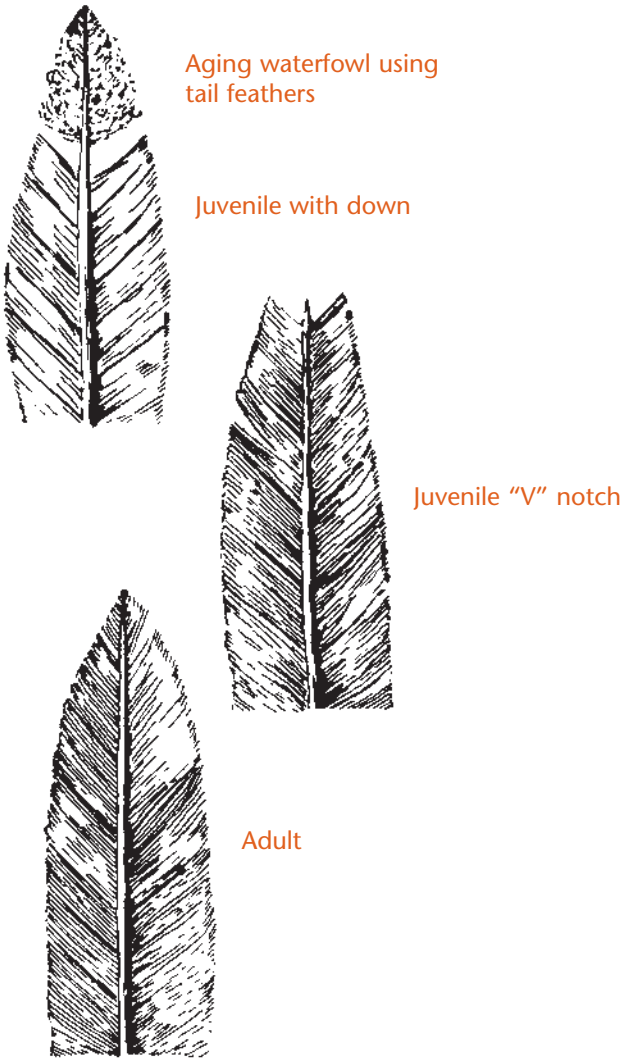
Hind toe lobed

Diving ducks generally inhabit large waterbodies with moderately deep water. They dive completely underwater, often to a depth of several metres, in order to feed. Their legs are located far back on the body, which enhances their ability to dive and swim underwater, but makes them awkward on land. On takeoff, they do not leap straight up into the air like puddle ducks but rather run and flap a short distance across the water surface before becoming airborne.

Eclipse Plumage

Most ducks shed their body feathers twice each year. Nearly all adult drakes or males lose their bright plumage after mating and for a few weeks resemble adult females. This hen-like appearance is called the eclipse plumage. Wing feathers are only shed once a year. In adults, wing colours are always the same and are the most reliable feature for identifying an adult duck in the hand.

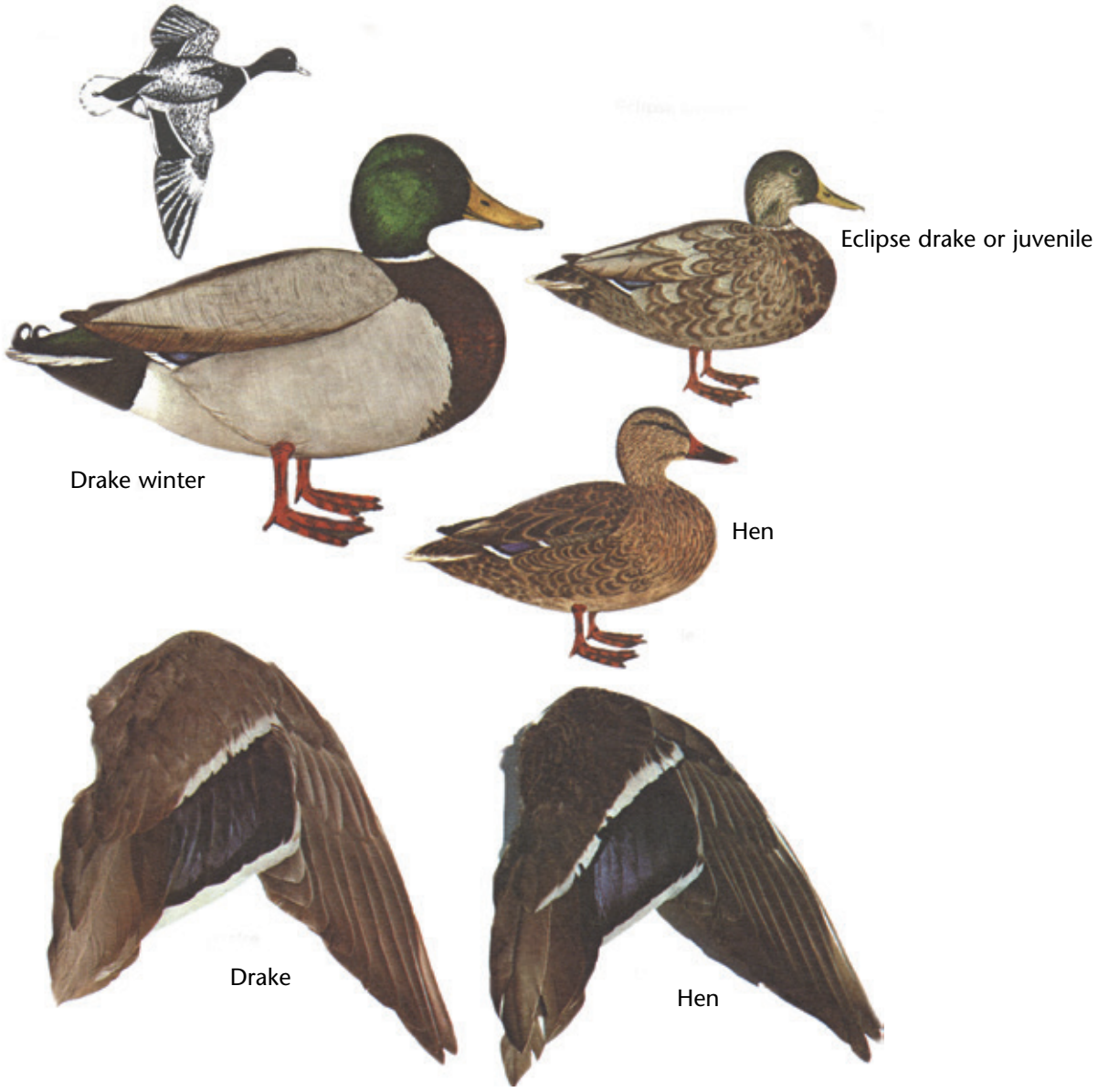
Plumage of juvenile ducks early in the fall can be very similar to that of the adult female. During the fall, juvenile males start to change to their first adult breeding plumage.



Age Determination

A simple technique for accurately identifying juvenile ducks is to examine the tips of the bird's tail feathers. If any of the feathers have notched tips, the bird is a juvenile. By late fall, however, these juvenile tail feathers will have molted and been replaced with pointed feathers.

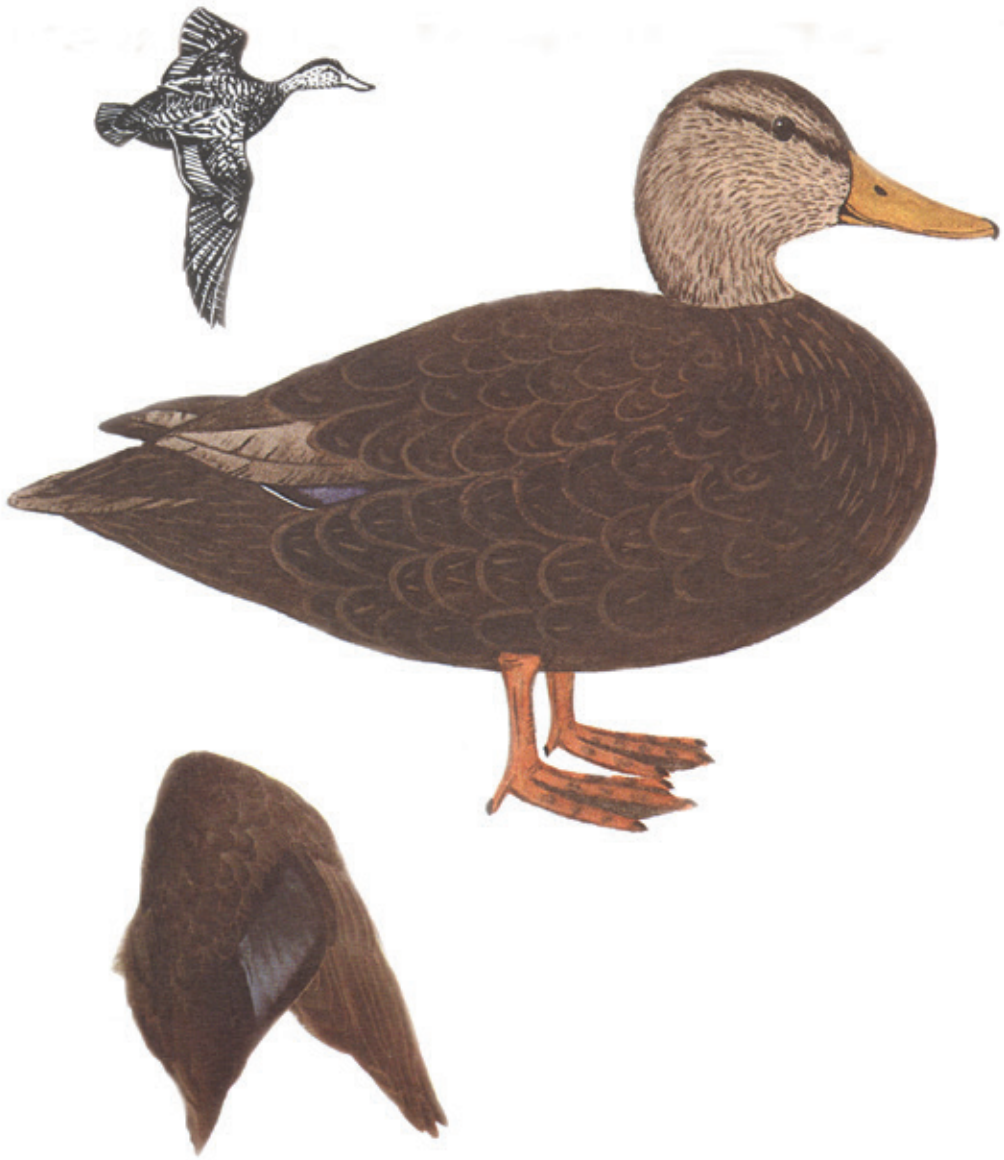
MALLARD



Mallards are among the largest puddle ducks in Ontario. They are also the most numerous. They are often called "greenheads" because of the shiny green head of the mature drake.

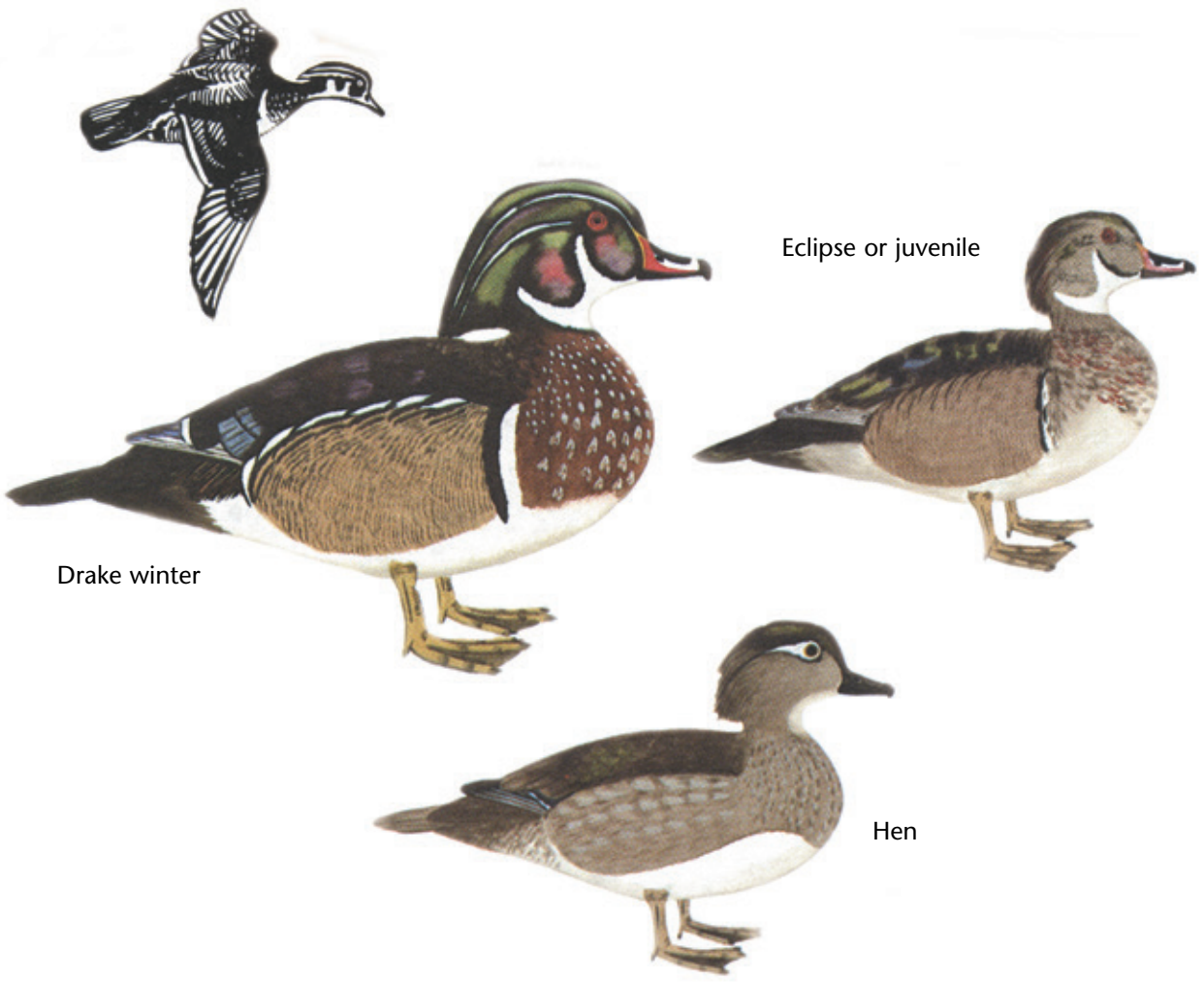
A mallard can be identified by the iridescent blue wing speculum bordered by two white horizontal bars.

Mallards are among the last ducks to migrate south in the fall.



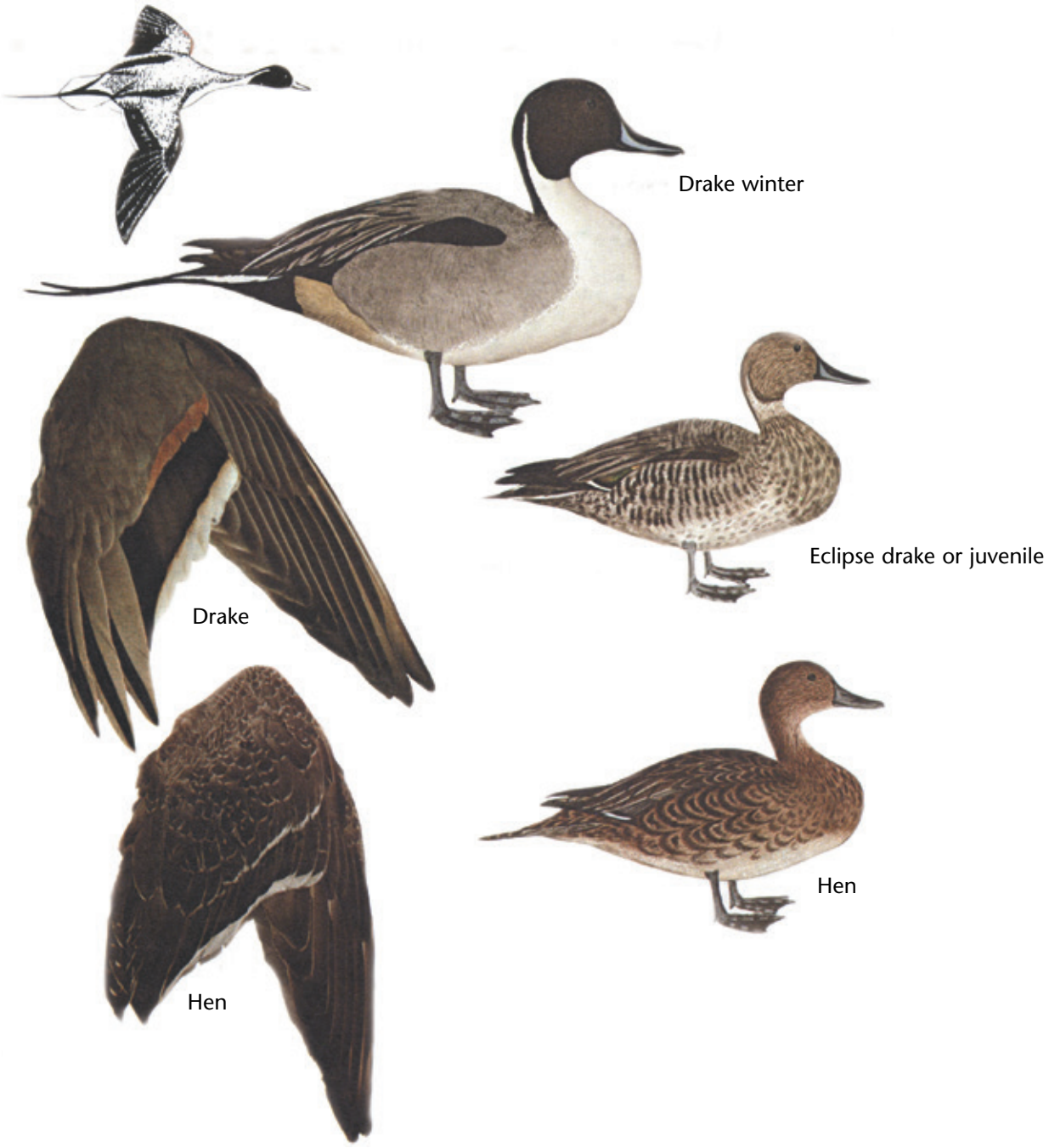
The black duck has a dark, sooty appearance with a lighter head. Its feet are an orange colour. The black duck has a purplish blue speculum. From below, the underside of the wings is white, in contrast to the very dark body plumage. It is a close relative of the mallard and often mates with mallards, producing "hybrids."

Mallards and black ducks are very similar in size and shape and often occupy the same areas. Black ducks often have different bag limits from mallards, so it is important that hunters are able to distinguish between these two species when they are flying.



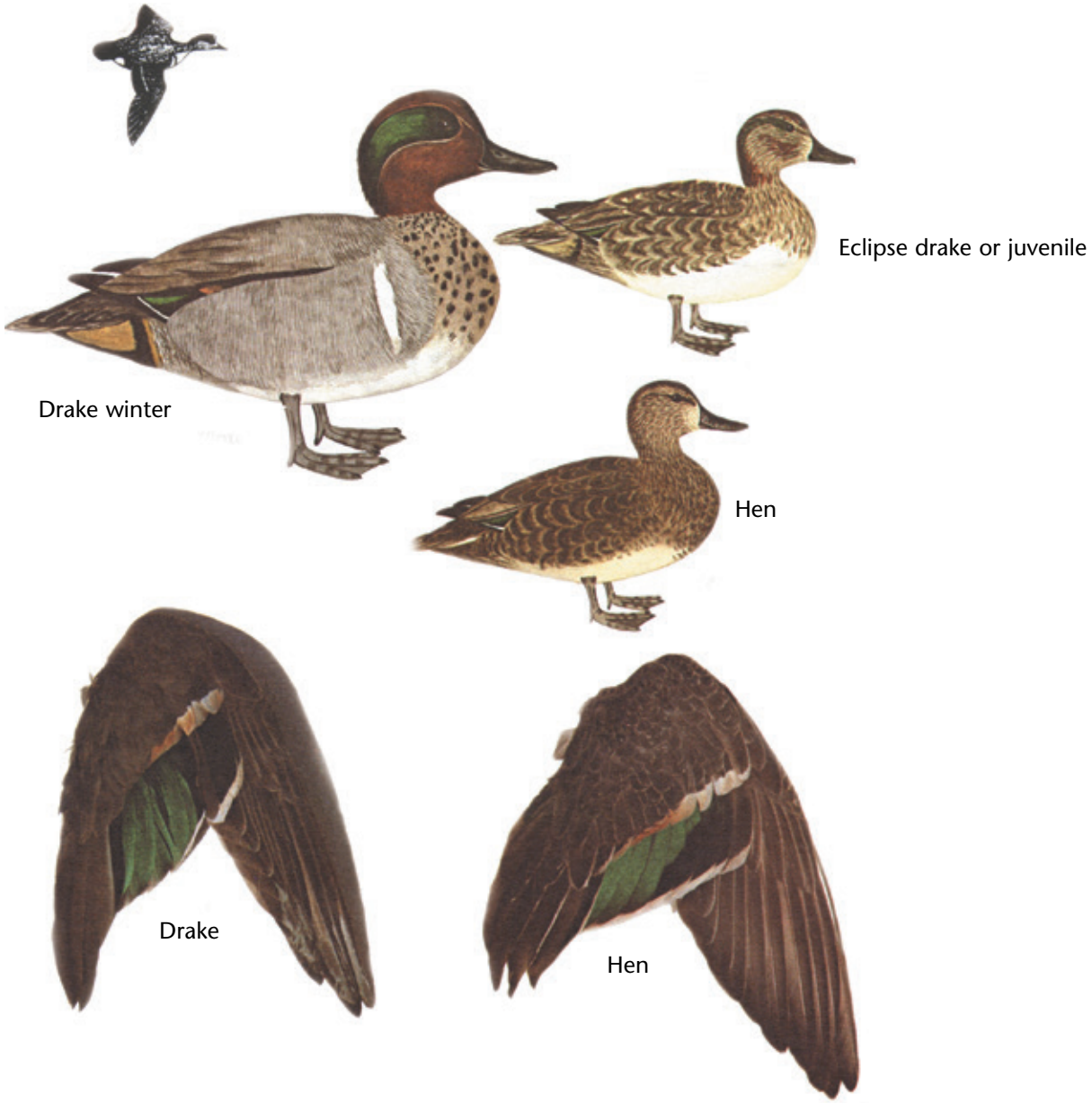
The male wood duck has dark cinnamon-coloured iridescent plumage on the chest, with white flecking. The sides are tan and the belly is white. The male has distinct white stripes on its head crest. The eyes are red, the bill is short and multicoloured, and the feet are a dull gold colour. The female is a drab gray-brown with a white teardrop around the eye. The speculum is blue with a narrow white band on the end of the feathers.

The wood duck frequents wooded streams and ponds, and nests in natural tree cavities. It can fly through thick timber with speed and ease. It feeds on acorns, berries and grapes. In flight, wood ducks make a rustling, swishing sound with their wings. The call is a high-pitched squeal.



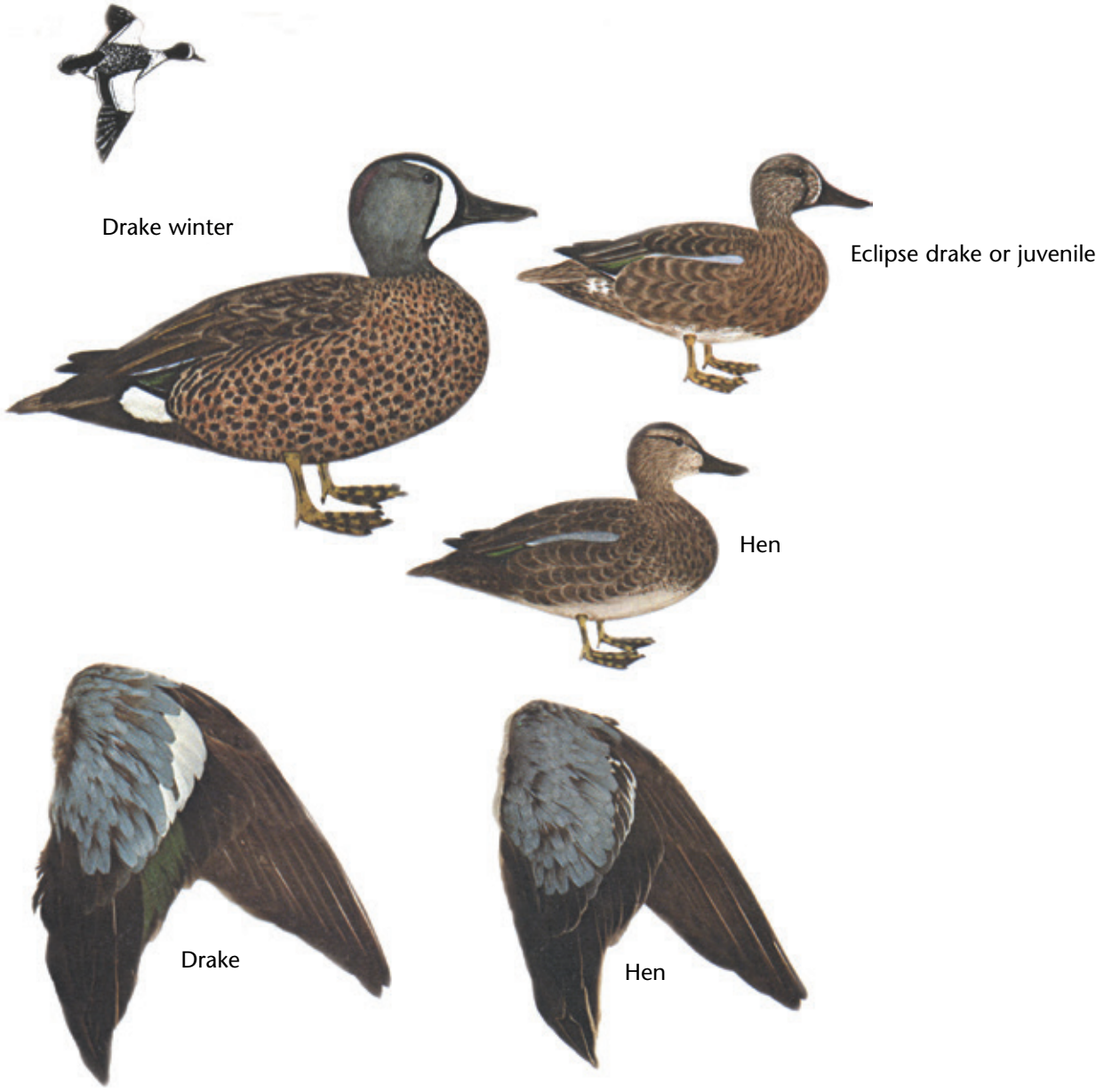
The male has a brown back, white belly, distinctive pointed tail and brown head. In breeding plumage, a line of white feathers goes up the neck to the back of the head. Females are a drab gray-brown on the back and head, with a whitish gray belly.

The speculum is dull green with a grayish-tan bar on the top and a white bar on the bottom.



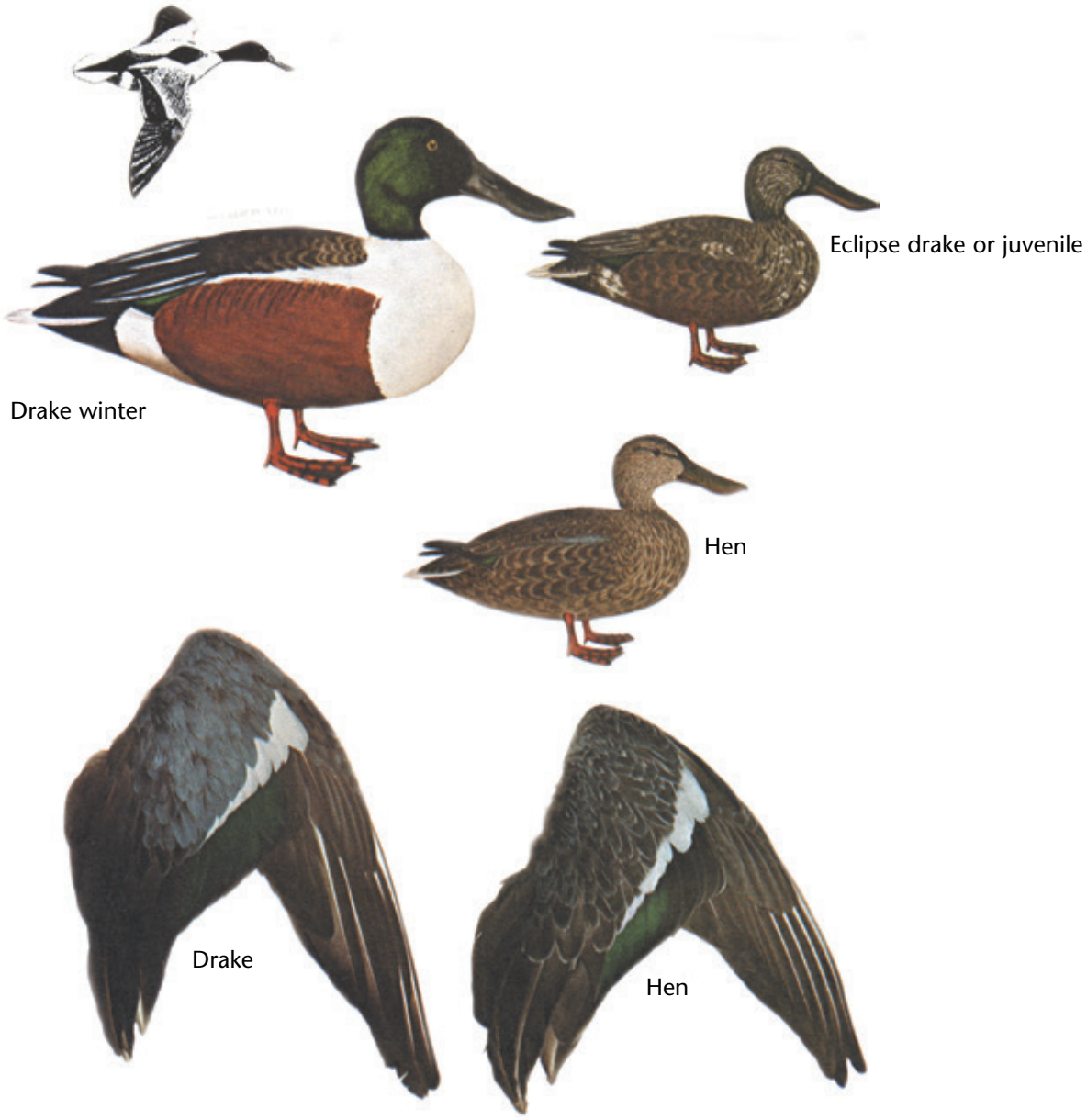
The green-winged teal is the smallest duck in Ontario. Males have a reddish head with a green mask that runs from the eyes to the back of the neck. The body is gray on the back and white on the belly, with a yellowish chest spotted with black. Females are a drab gray-brown with a white belly.

The speculum is split between green and brown feathers with a tan brown top bar and a white bar on the bottom.



The male blue-winged teal has a gray-brown body and head with a distinctive white crescent between the eye and the bill. The female has a similar coloured body but not a white face crescent.

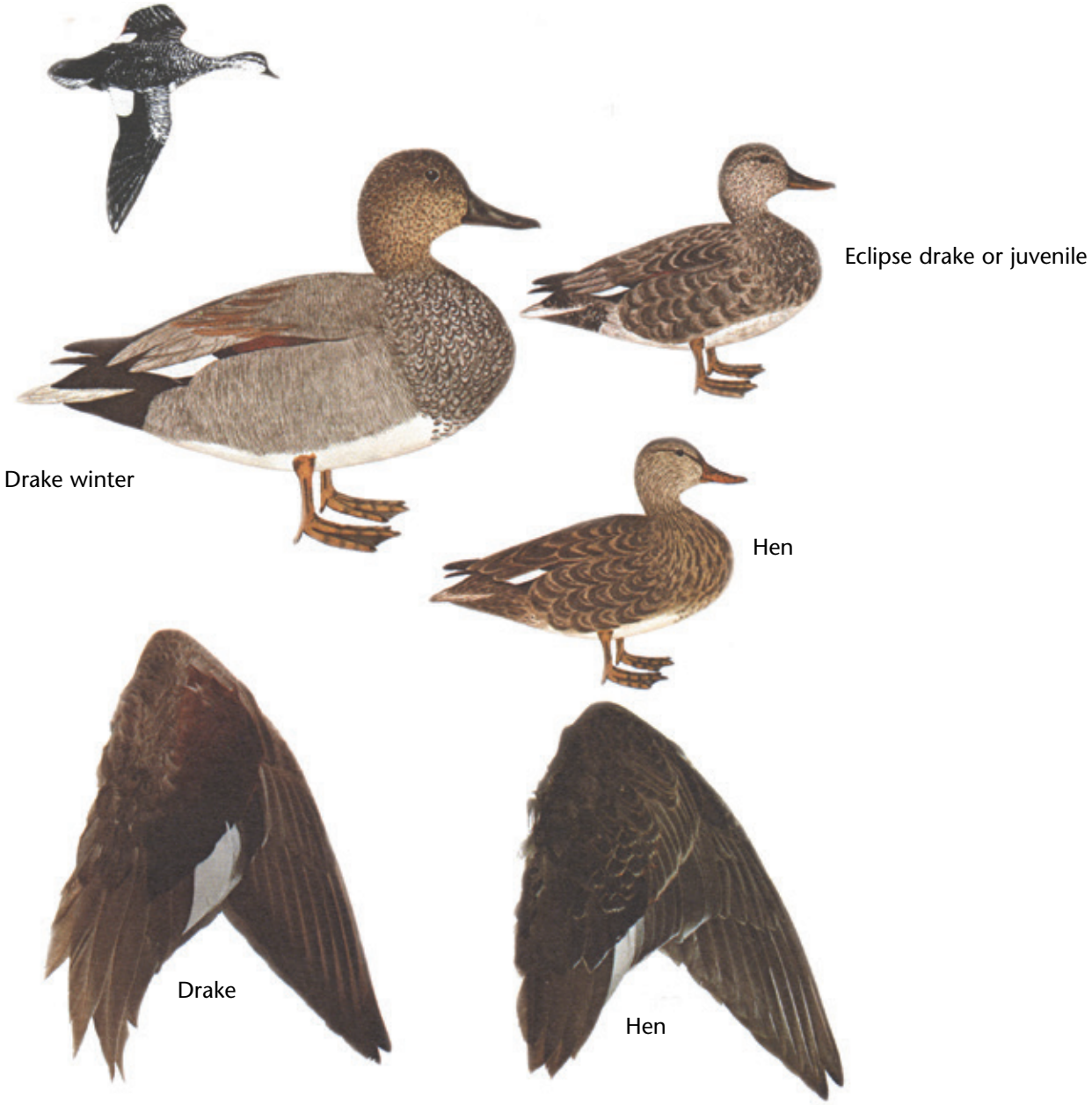
The speculum is light to dark green. The area above the speculum is blue. The male has a distinctive white band between the blue area and the green speculum. The female has a gray band between the blue area and the speculum.



The large spoon-shaped bill of the shoveler or "spoonbill" is a distinctive feature. The male has a greenish head, white neck and chest, and a mahogany brown body. The female is a drab brownish colour.

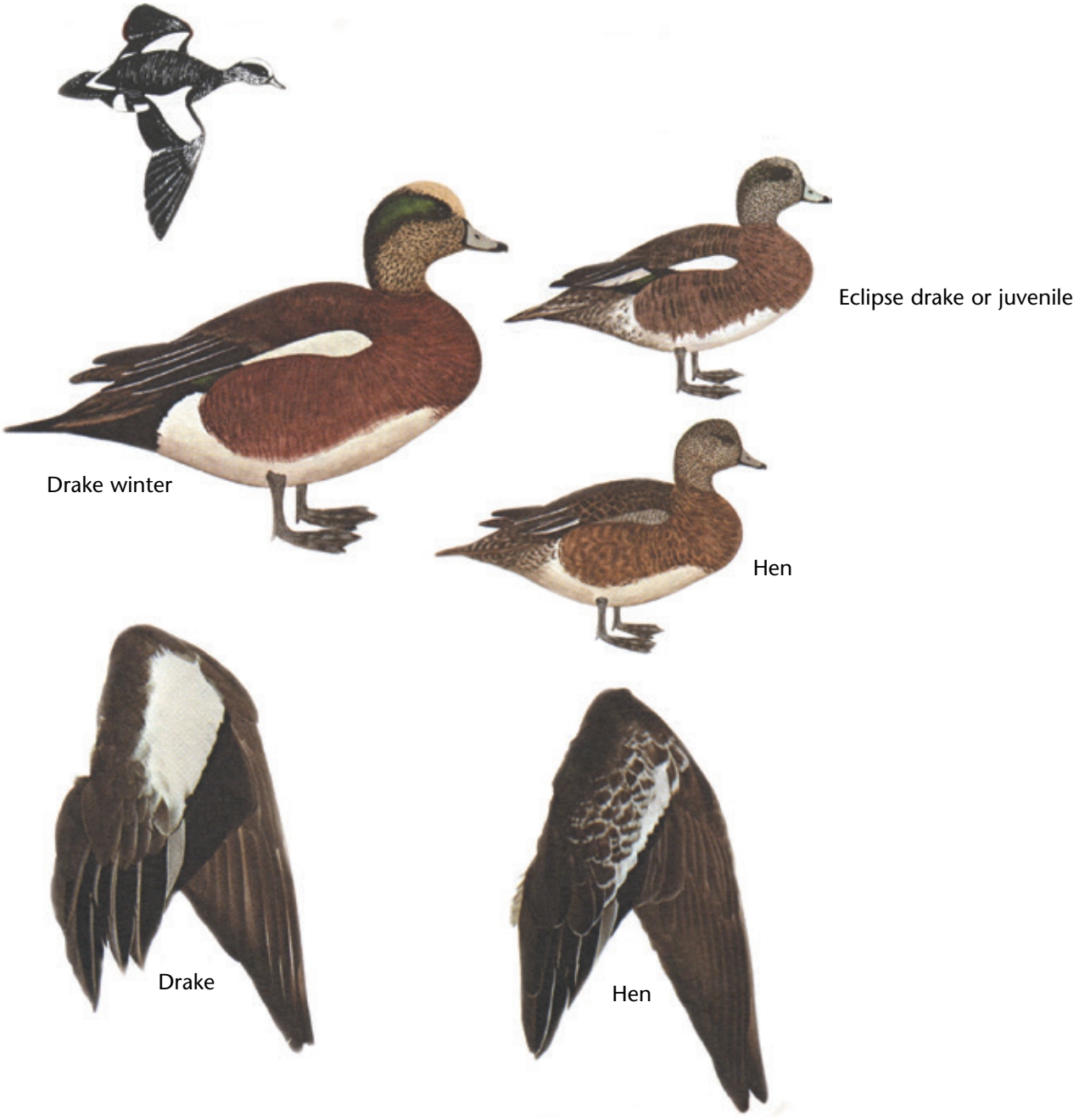
The speculum is green with a patch of blue feathers on the wing above it, very similar to the green-winged teal. The male has a white bar between the blue and green and the female has a gray bar.

However, the spoon-like bill makes it easy to distinguish the shoveler from the blue-wing teal.



The male gadwall has a grayish-brown head, a gray body and a whitish belly. The female has similar colours.

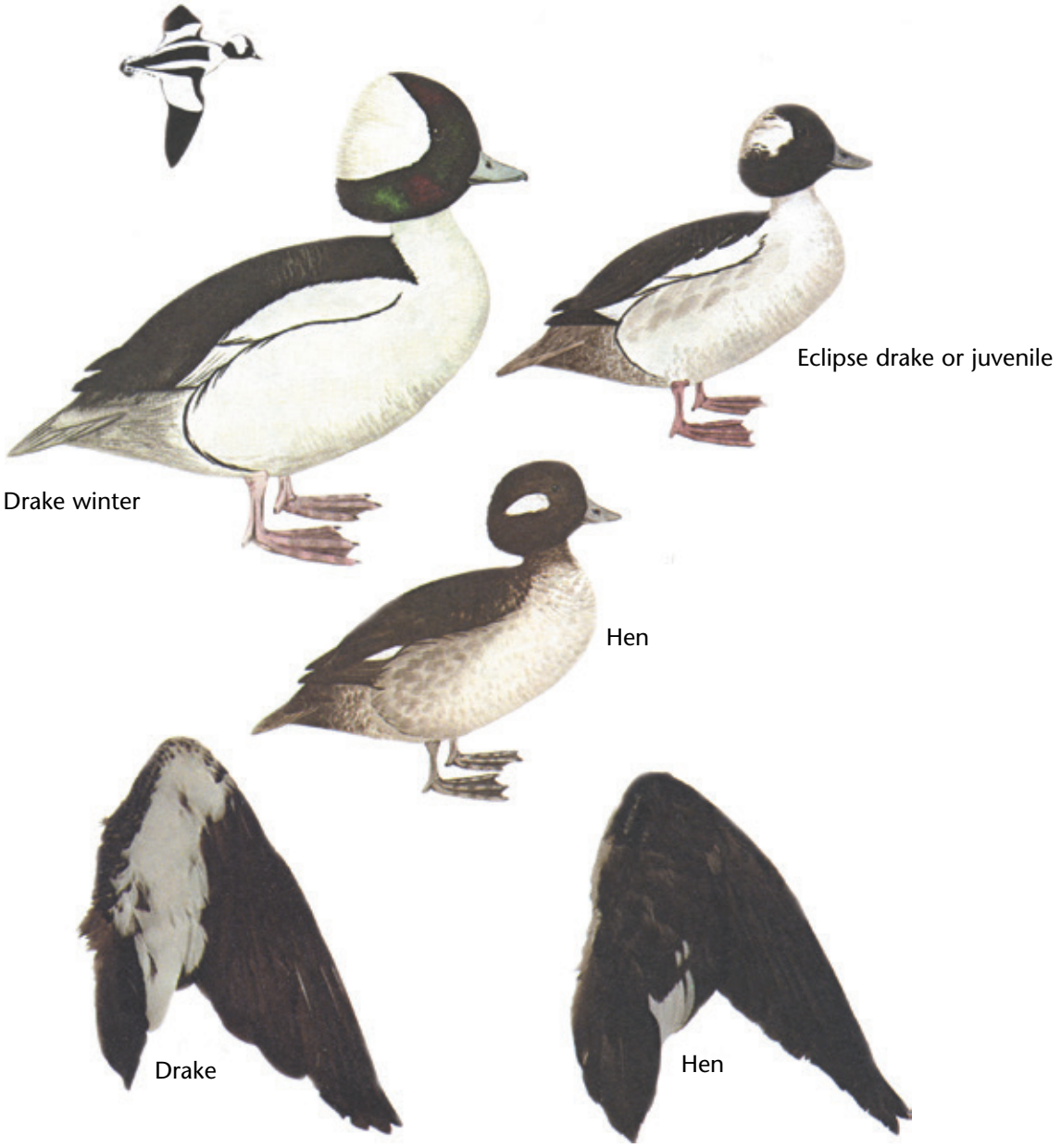
The speculum is gray with a few white feathers next to the body. The feathers above the speculum are a rusty colour on the male and gray on the female.



The widgeon is also called the "baldpate" because of the white crown on the head of the breeding male. The male has a light brown head flecked with black feathers. It has a brownish-green eye patch that curves to the back of the neck. The top of the head is white. The body is dark on the back with a reddish-brown chest and sides, and a white belly. The female has a brownish head, flecked with black. The body is brownish with a white belly.

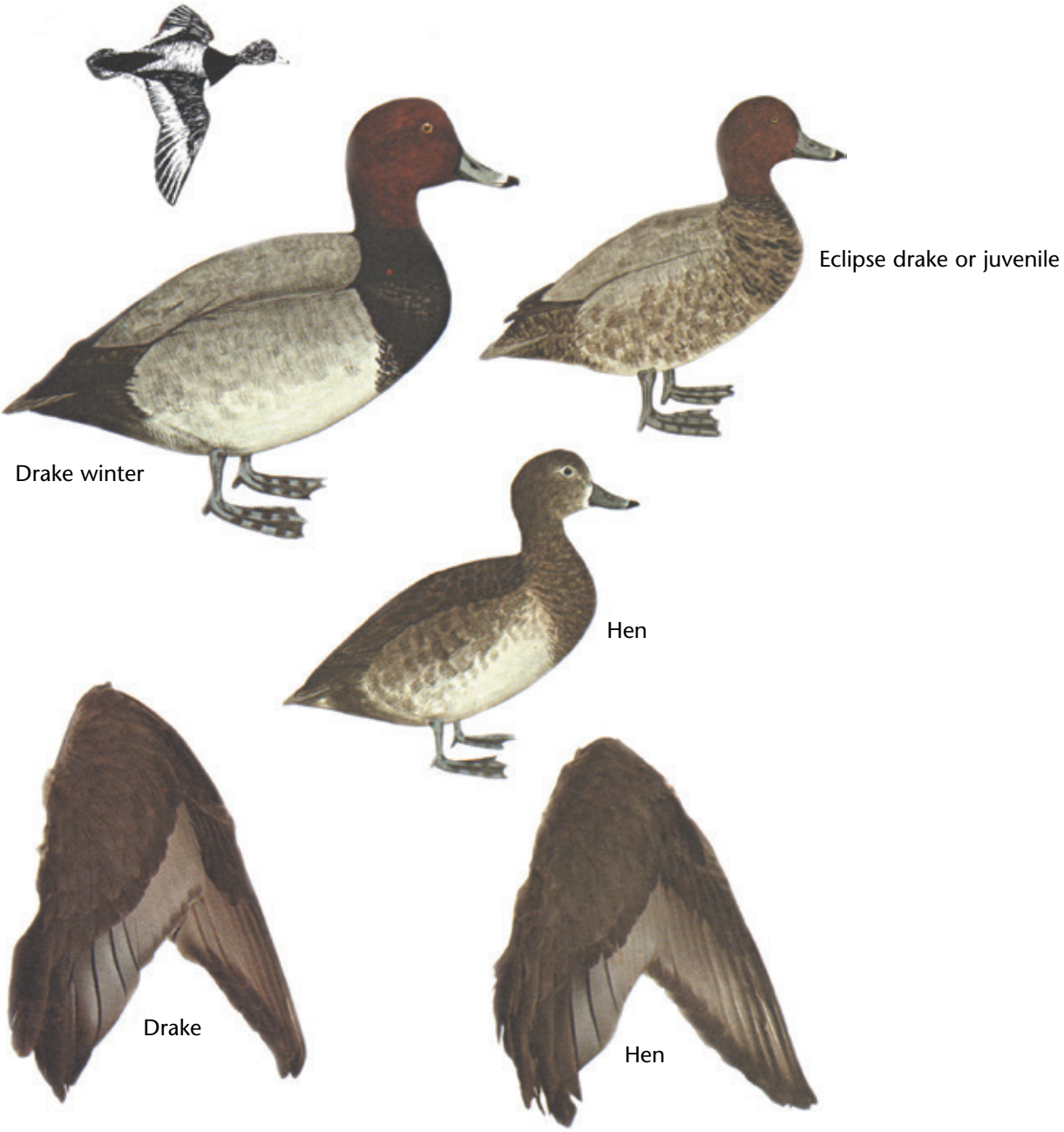
The speculum is a greenish-black colour. On the male, the feathers above the speculum are a blue-white colour. On the female, the feathers above the speculum are a gray colour.

BUFFLEHEAD



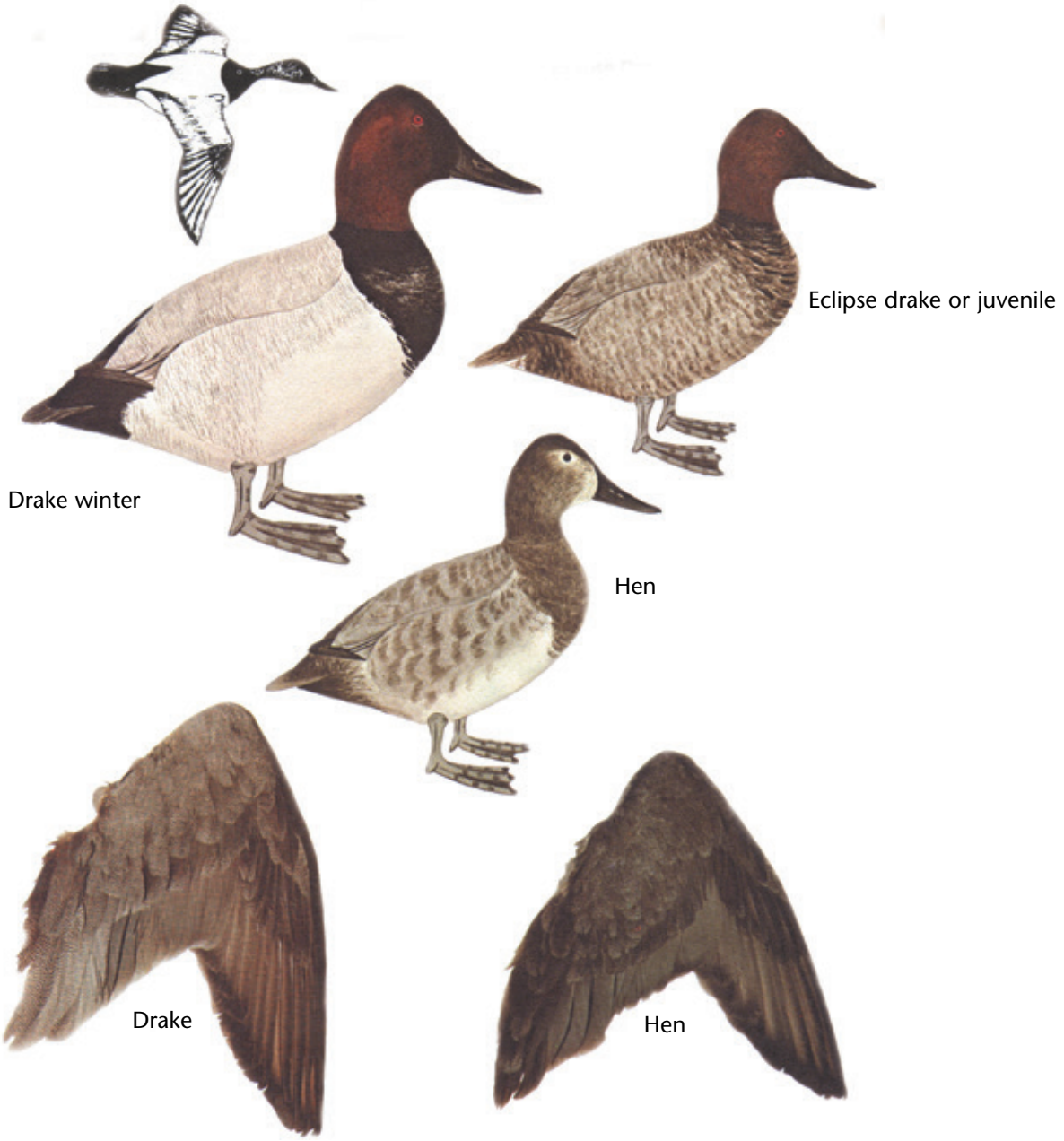
The male bufflehead has a large, fan-shaped white patch behind the eye, extending to the side and back of a black head. The female has a similar but much smaller patch.

The speculum is white. The male has white feathers above the white speculum patch, while the female has dark feathers.



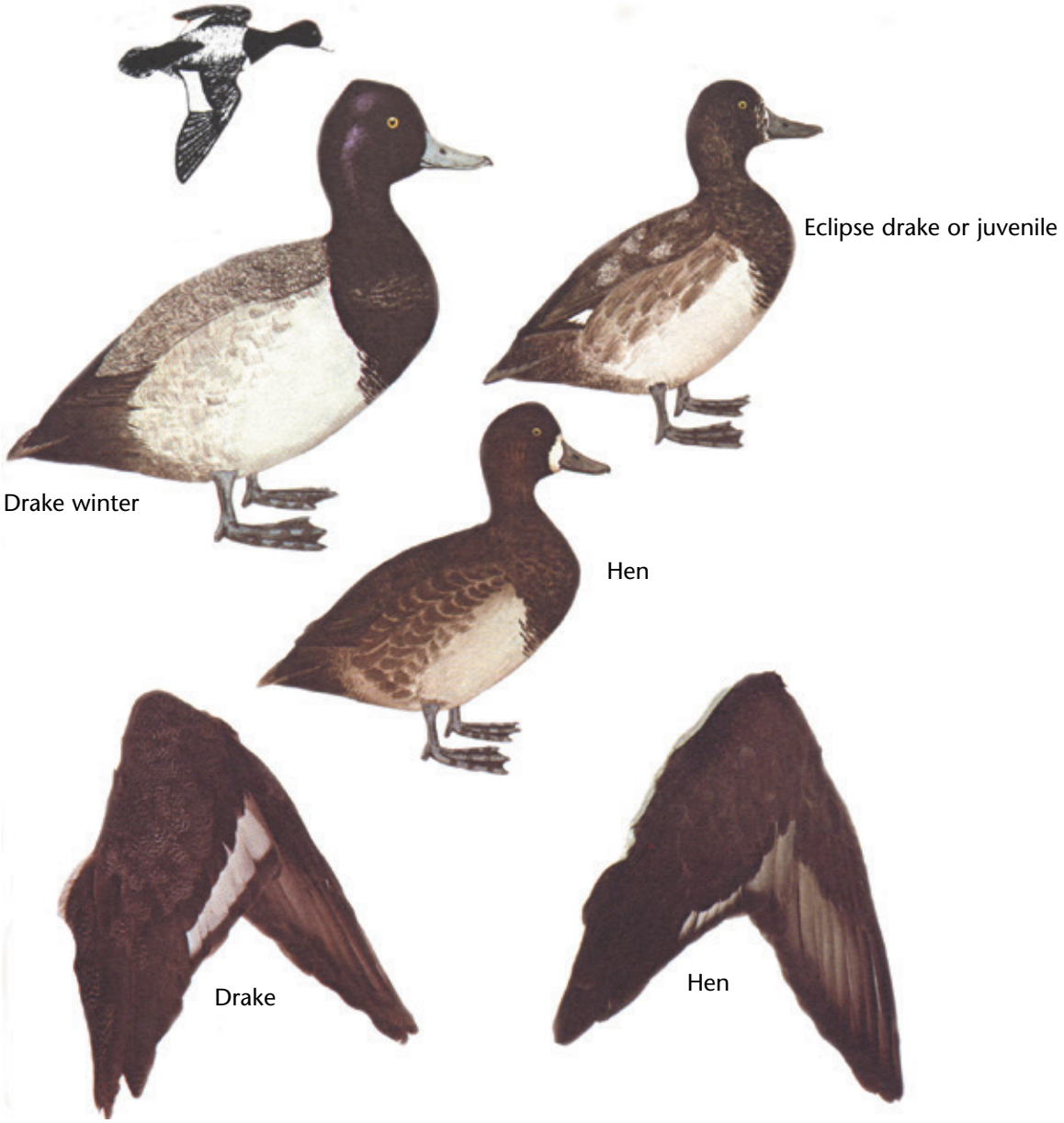
The redhead male has a reddish head, black neck and chest, and a gray body. The female is a brownish colour with a grayish white belly.

The speculum is gray with a darker gray lower bar.



The canvasback has a large head with an obvious sloped profile. The male has a dark red head, and a black neck and chest, with a light gray body. The female has a light brown head, neck and chest, with a whitish gray body.

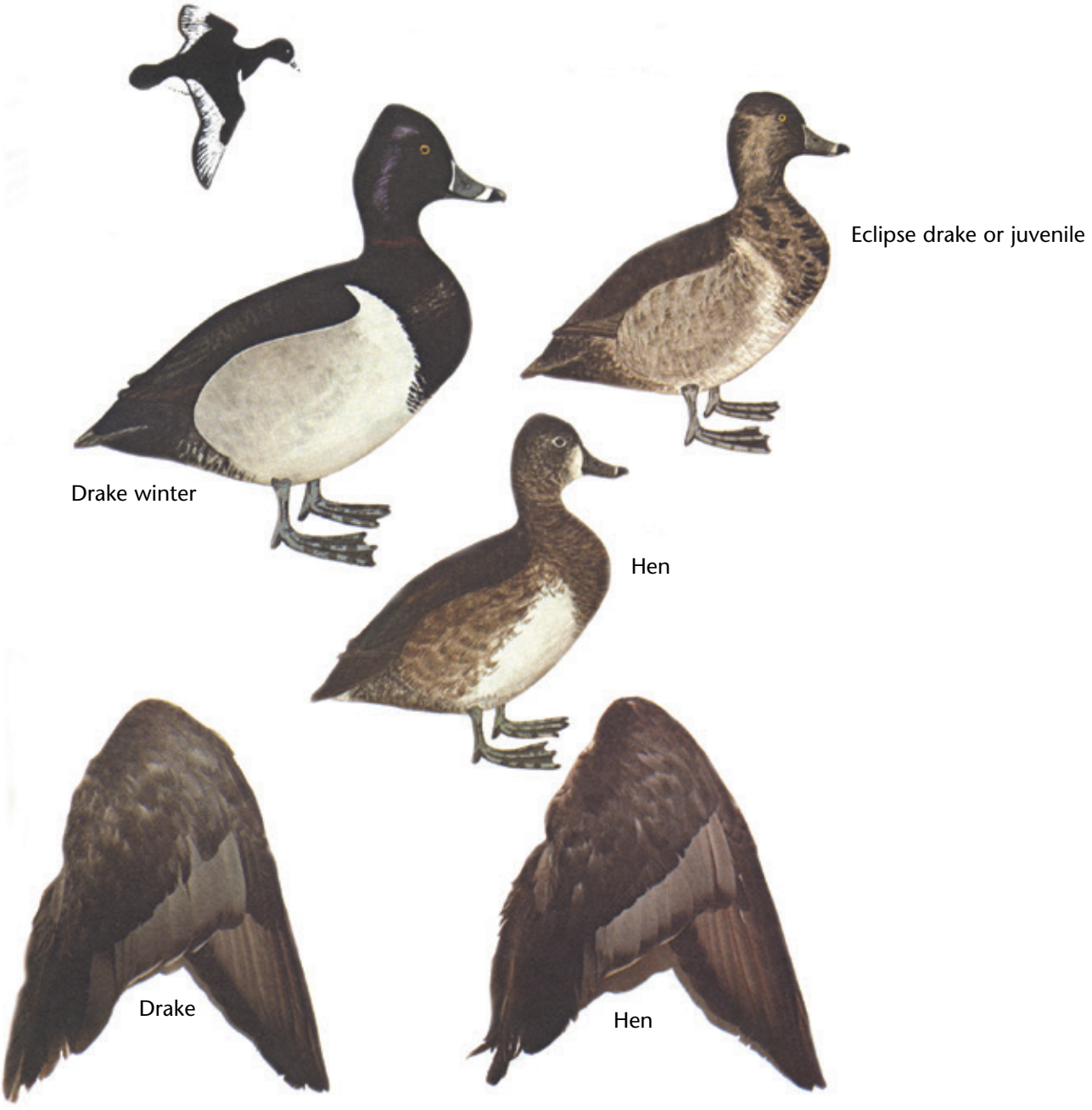
The speculum is whitish-gray in colour. The sloped bill is the main identifying feature.



These two species are very similar in appearance, with the larger size of the greater scaup being the main distinguishing feature.

Both species have a bluish-coloured bill and are often called "bluebills." The males have a purplish-green head, and dark neck and chest, with a white belly. Females have a distinctive ring of white feathers at the base of the bill.

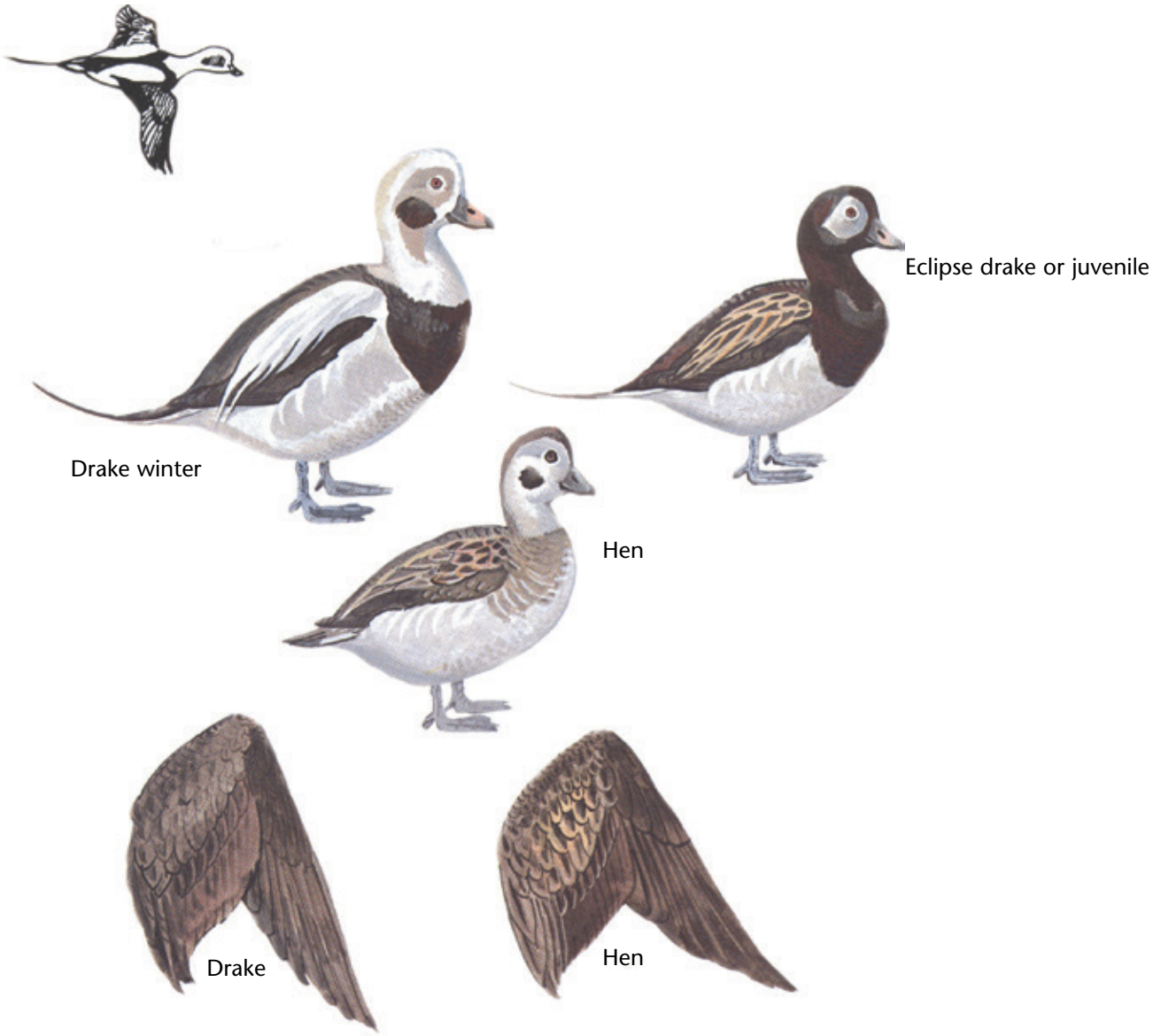
The speculum is white with a dark gray band at the bottom. On the greater scaup, the white colour of the speculum extends out into the primary feathers.



The ring-neck has a distinctive white ring near the front of the bill just behind the black tip.

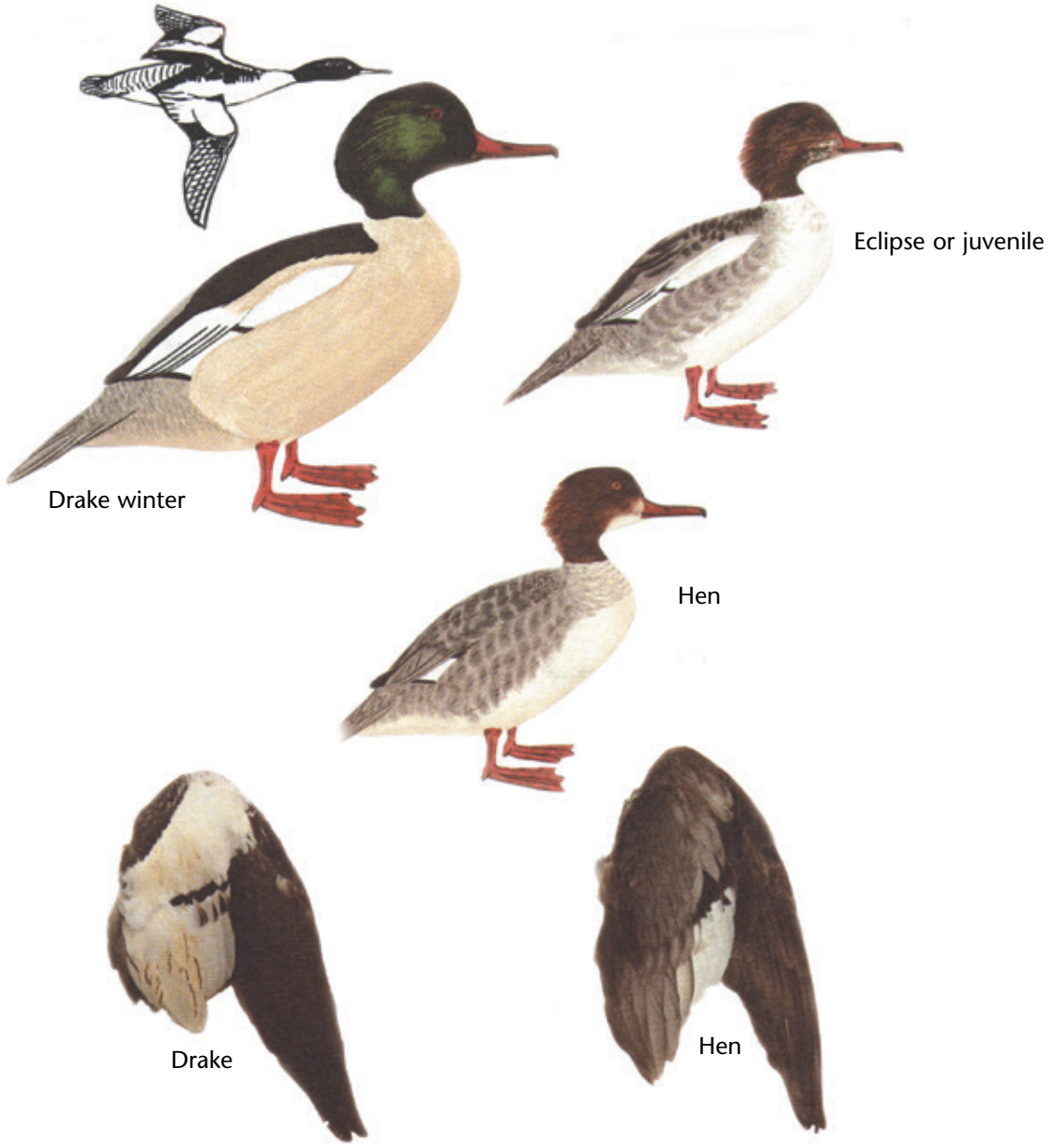
The male has a purplish-black head, neck and chest, a dark back and white belly. The female has a grayish body with white belly.

The speculum is a solid gray colour with a darker-coloured gray band on the bottom bar.



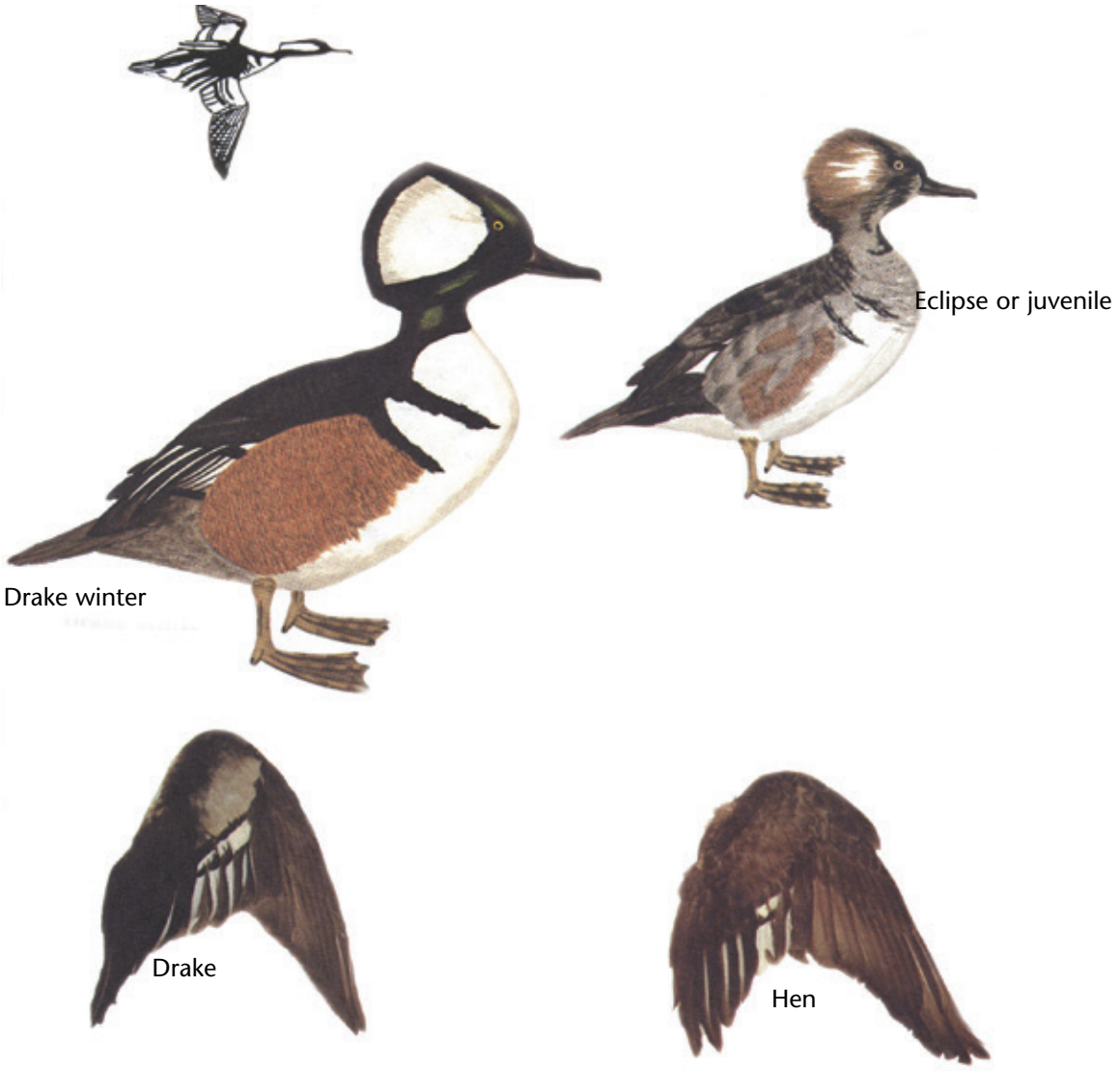
The plumage of the drake is black and white. The chest, back and wings are black, and the sides, belly and lower tail are white. The head is white with a large brownish-black patch extending from the cheek down the side of the neck. The female has a similar colour pattern, only grayer in colour.

The wings are black with no discernible speculum.



Mergansers have a distinctive narrow, reddish bill. The drake merganser has a greenish-black head, white neck, and white belly. The female has a reddish head and a light gray body.

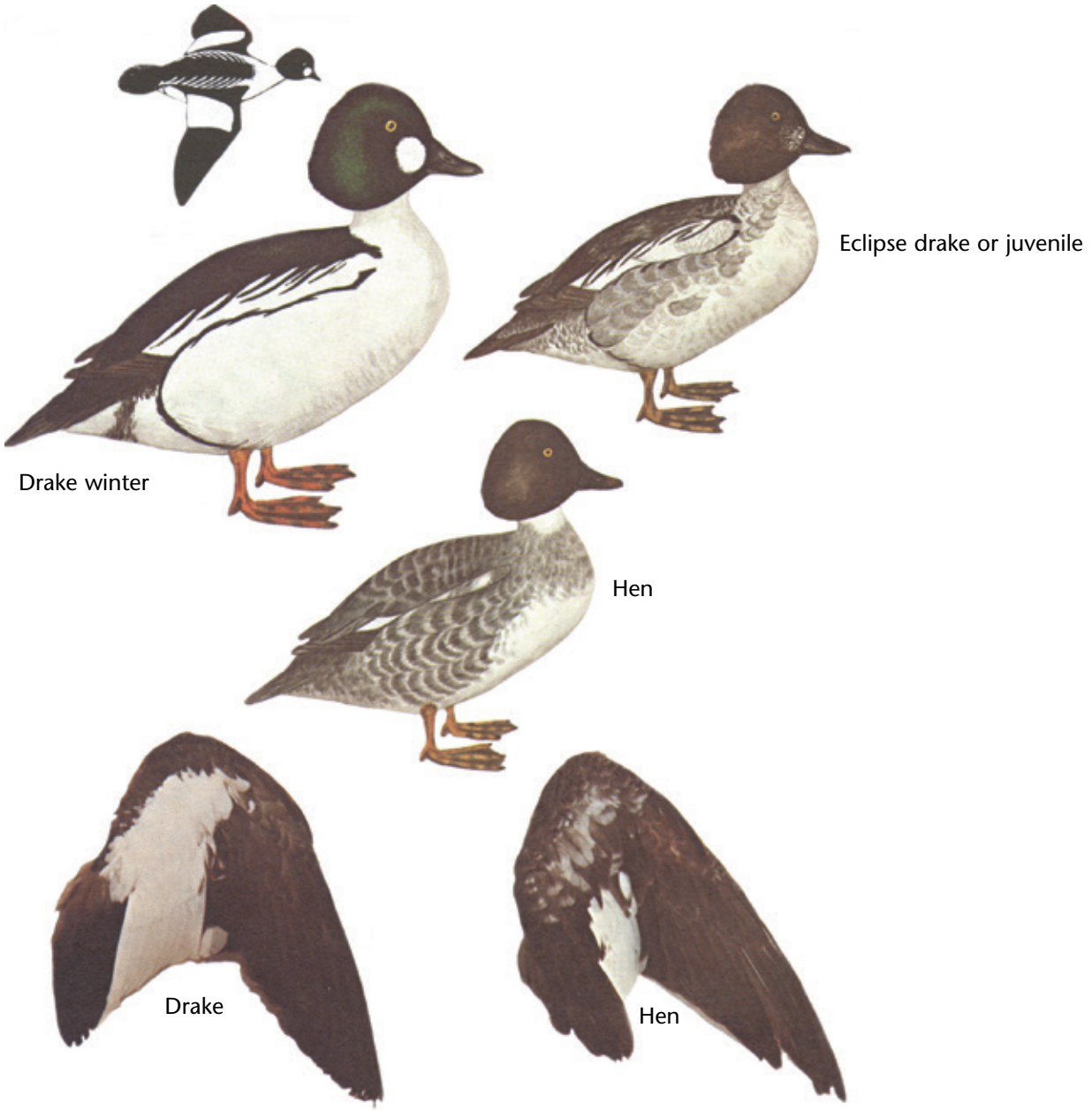
The speculum is white. The bill of the merganser distinguishes it from other waterfowl species. The large size distinguishes the common merganser from other merganser species.



The hooded merganser or "hoodie" is the smallest merganser. The male has a black back with two prominent black bars between its chest and sides. The belly plumage is white and the sides are tan. The drake also has a dark, greenish-black head with a distinct hood and fan-shaped white area. Its eyes are yellow and the bill is black, narrow and serrated, or saw-toothed.

The female has a reddish head and a drab gray body.

The speculum consists of black feathers edged in white.



Goldeneye wings make a distinctive whistling sound in flight, and many hunters refer to the species as "whistlers."

The male has a distinctive white patch between the eye and bill. The head is large and a greenish black colour. The back is black and the neck, chest and belly are white. The female has a brown head without a white patch, a brownish body and a white belly.

The speculum is white. The wing feathers above the speculum are white on the male and a mixture of white and black on the female.

CANADA GOOSE

A number of sub-species of Canada geese occur in Ontario. All are similar in appearance but vary considerably in size. The sexes look alike. They have a dark head and neck with distinctive white chin markings.

There are two colour phases in snow goose populations: a dark or blue phase and a white phase. Adults of the white phase are all-white with black wing tips. The sexes are similar in appearance, but juveniles are more gray than white. Head and neck feathers are usually stained with rusty orange.

Care must be taken not to confuse snow geese with protected species like whooping cranes, pelicans or trumpeter swans. Trumpeter swans lack the black wing tip, and cranes trail their legs and feet in flight.

AMERICAN WOODCOCK

The woodcock is a migratory bird managed under the Migratory Birds Convention Act. However, it inhabits much of the same habitat as "upland game" birds, often in association with ruffed grouse.

The woodcock, or "timber doodle," is a stocky, brown bird with short, rounded wings. It has dark bands on the top of its head, short legs, large eyes set high and far back on the side of the head, and a long slender bill. The long flexible bill is used for probing the soil for earthworms and grubs.

Habitat

The main diet of the woodcock is earthworms, supplemented with insect larvae and some plants.

The woodcock is a migratory bird, nesting in northern regions and wintering in the south. It prefers young-forested areas of alder, aspen or birch trees, in moist soils, bordering fields or recently logged areas.

In late April, male woodcock select a "singing ground," usually an open grassy area in a field or woodland clearing. Just at dark, the male starts making a nasal " peent" call while standing in the middle of the singing ground. Then he flies straight up in a spiral fashion high above the

ground. He then swoops one way and the other, flying back down to the centre of his singing ground. He keeps repeating this performance to warn off other males and attract females.

Nests are located adjacent to brushy field edges or young mixed-growth forest. The nest consists of a well-formed cup on the ground and usually contains about four eggs. Chicks are born in late May.

Management

Woodcock are managed on an international basis, and Ontario wildlife managers contribute to the international database used to establish seasons and bag limits. Information is collected from hunter field checks and survey forms mailed to hunters. Hunters are occasionally asked to assist managers by sending in woodcock tail feathers for analysis. Drainage, agricultural land development, and reforestation of abandoned cropland have reduced the habitat of woodcock in the last few decades.

Similar to woodcock, the common snipe is a migratory bird.

The snipe is a brown colour, with a streaked back and brown-white striped head. The legs and feet are greenish-gray to yellow-green.

Habits

The snipe inhabits marshes, moist meadows, bogs and the edge of swamps.

Breeding takes place in early spring. Nests are concealed on the ground in thick vegetation near water. Usually four eggs are laid. Chicks are born in late May.

The snipe's diet consists of a wide variety of insects, earthworms and some seeds and plant matter.

Management

Snipe are managed on an international basis. Ontario managers provide data as required to establish continental seasons and bag limits. Information on population trends is obtained from hunter field checks and other inventories.

The mourning dove is a handsome streamlined bird with a small head and long pointed tail. Adult birds measure about 27.9-33 cm (11-13 inches) in length. The plumage is grayish blue to grayish brown with black spots on the wing and behind the eye. The legs are reddish pink in color in adult birds. Its flight is direct and rapid and its wings produce a noticeable whistle when the bird is in flight.

Habits

The mourning dove is one of the most abundant birds in North America and is found throughout the continental United States, southern Canada, and Mexico. Some populations of mourning doves are migratory, while others remain in the same area year round. Many doves that remain in northern parts of their range through winter benefit from bird feeders. General habitat of the mourning dove consists of woodlands, farm fields and residential areas. Mourning doves feed primarily on small grains and seeds.

Nesting takes place from March or April to September. Nests are flimsily constructed and are usually located in trees and shrubs, particularly conifers, but are occasionally found on the ground. The normal clutch size is 2 eggs and incubation requires 14 days.

Management

The mourning dove is a migratory game bird and is protected under Canadian federal law by the Migratory Birds Convention Act. The Canadian Wildlife Service (CWS) manages wildlife species that are the responsibility of the federal government, including protection and management of migratory birds. The mourning dove is a popular game bird in some parts of the United States and is also hunted in Ontario and British Columbia. Harvest of mourning doves is managed through hunting seasons and bag limits.

OTHER BIRD SPECIES

A number of bird species can be legally hunted in Ontario. These include the crow, common grackle, starling, house sparrow, red-winged blackbird, brown-headed cowbird and rock dove or common pigeon. For identification features, refer to a bird identification reference book.

REVIEW QUESTIONS

1. Game species in Ontario are divided into four main categories. List two examples of each category.

i) Big Game: _____ and _____.
ii) Upland Game Birds: _____ and _____.
iii) Migratory Birds – Waterfowl:_____ and _____.
iv) Small Game: _____ and _____.

2. A number of game animals and birds are not indigenous to Ontario. That means they were "introduced" species from other areas. List three of them.

1.
2.
3.

3. Many upland game birds and waterfowl have nicknames. Match the species below with the names commonly given them.

a)	Wild Turkey (male)	Baldpate
b)	Goldeneye	Greenhead
c)	Woodcock	Spoonbill
d)	Wigeon (drake)	Bluebill
e)	Scaup (both species)	Whistler
f)	Mallard (drake)	Tom
g)	Shoveler	Timberdoodle
h)	Spruce Grouse	Fool Hen

4. Red squirrel are classed as furbearers in Ontario and may only be harvested by a licensed trapper.
☐ True ☐ False

5. Waterfowl hunters are required to purchase a migratory bird hunting permit, a provincial hunting licence and a federal "habitat stamp" before hunting ducks and geese. ☐ True ☐ False

6. Fill in the blanks.

a) The _____ _____ is the largest upland game bird in Ontario.
b) Each kind of wildlife requires a place in which to live called its _____.
c) Only turkeys with a _____ may be hunted during the spring open season.
d) Hanging under the chin of bull and cow moose is a piece of skin called a _____.
e) There is a _____ _____ season for elk in south-central Ontario.
f) _____ are the largest wild members of the dog family in Ontario.
g) The diet of the moose is made up mainly of the _____.

ACT: A law passed by a legislative body.

ALLEVIATE: To lessen, relieve.

BACTERIA: A class of microscopic organisms living in the bodies of plants and animals, organic matter, soil or water.

BAG LIMIT: The maximum number of animals or birds that a hunter may legally take.

BAND: To mark an animal or bird in some manner for future identification.

BEARING: Direction in degrees measured from north.

BIRTH RATE: The number of young born each year to each species.

BORE: The tunnel down the barrel of a firearm through which the projectiles travel.

CALIBRE: The diameter of a rifle bore, measured in thousandths of an inch or in millimetres.

CARCASS: The body of a dead animal.

CHAMBER: The enlarged portion of the barrel at the breech in which the cartridge is placed ready for firing.

COMPLIANCE: A willingness to follow rules or laws.

COVER: Any shelter capable of hiding and protecting a wildlife species (usually provided by plants and trees).

DEATH RATE: The number of individuals that die each year.

DEHYDRATED: Deprived of water, dried out.

ECOLOGY: The study of interrelationships of organisms to one another and to the environment.

ECOSYSTEM: A community of living things interacting with one another and with their physical environment (air, water, soil, wind, etc.). An ecosystem can be a plant, forest, lake or a fallen log.

ENDANGERED: Species that are in danger of extinction.

FIELD DRESSING: Removing the intestines and inner organs of a game animal to prevent the meat from spoiling.

GAME: Non-domesticated animals that may be legally hunted.

GAME TAG: The tag that must be attached to a moose, elk, deer, bear, wild turkey, and wolf/coyote (wolf or coyote only in WMU's where required) if you are not immediately accompanying the animal or immediately available to produce the tag for inspection.

GPS: Global Position System. An electronic device that uses satellites to determine your location.

HABITAT: A place where a plant or animal lives; it provides food, water, cover and space.

HEMORRHAGE: Bleeding, especially a great or continuous flow of blood. To bleed profusely.

HYPOTHERMIA: A life-threatening condition that occurs when the body loses heat faster than it can produce it.

LICENCE TAG: Means a tag which, when affixed to an outdoors card, constitutes a licence to hunt the wildlife or a class of wildlife specified on the tag or in the regulation.

MAGAZINE: The part of a repeating firearm which holds the cartridges or shells in position ready to be loaded one at a time into the chamber. The magazine may be an integral part of a firearm or a separate device attached to the action.

PERCUSSION: The striking of one thing against another (impact).

PREDATOR: Any animal that hunts, attacks, and feeds upon other animals.

POPULATION: All of the individuals of one species that inhabit a given area.

RECOIL: To spring back, or rebound (as in "the rifle recoiled when fired").

REGULATION: A rule or law.

RENEWABLE RESOURCES: Resources, usually living, that may be utilized but maintained and replaced by good management practices.

SEASONS: Periods of the year when specified game may be hunted.

SIGN: Tracks, blood, body wastes, indications of feeding, bedding, etc., left by an animal.

THREATENED WILDLIFE: A species whose numbers have been reduced to such a low extent that it is likely to become endangered.

VALIDATION CERTIFICATE: A validation certificate validates a tag so as to authorize the certificate holder to hunt and use the tag in circumstances not otherwise authorized by the tag alone. The certificate may authorize a tag holder to hunt a particular age, sex or type of the species in designated areas and/or under specified conditions.

HUNTER'S CHECK LIST (an example list of gear hunters may take)

GENERAL HUNTING GEAR

- ☐ Hunting Regulations Summary
- ☐ Outdoors Card/Hunting Licence
- ☐ Game Tag
- ☐ Scents (cover, attractor)
- ☐ Binoculars
- ☐ Compass
- ☐ Sheath Knife and Belt
- ☐ Pocket Knife
- ☐ Sharpening Stone
- ☐ Map of Hunt Area
- ☐ Block and Tackle
- ☐ Bone Saw
- ☐ Meat Sacks
- ☐ Bulk Salt
- ☐ Plastic Bags
- ☐ Rope and Wire
- ☐ Packboard
- ☐ GPS and Extra Batteries
- ☐ Back Pack
- ☐ Seat (e.g. Hot Seat)
- ☐ Snacks
- ☐ Lighter/Waterproof Matches
- ☐ Daypack
- ☐ Flashlight and Extra Batteries
- ☐ Disposable Latex Gloves
- ☐ Survival Kit
- ☐ First Aid Kit

BIG GAME HUNT

Firearm Season

- ☐ Firearm(s)
- ☐ Trigger Locks & Keys
- ☐ Gun Cases
- ☐ Ammunition
- ☐ Cleaning Kit
- ☐ Federal Firearms Licence
- ☐ Firearm Registrations

Archery Season

- ☐ Bow
- ☐ Hunting Arrows
- ☐ Spare Broadheads
- ☐ Bow Quiver
- ☐ Armguard
- ☐ Shooting Glove or Tab
- ☐ Mechanical Release
- ☐ Camouflage Bow Cover

SMALL GAME AND WATERFOWL HUNT

- ☐ Shotgun
- ☐ Firearm Case
- ☐ Shotshells or Rifle Ammo
- ☐ Cleaning Kit
- ☐ Knife, Pocket or Sheath
- ☐ Hunting Regulations Summary
- ☐ Outdoors Card/Hunting Licence
- ☐ Federal Firearms Licence
- ☐ Firearm Registrations
- ☐ Migratory Bird Licence
- ☐ Decoys
- ☐ Calls
- ☐ Waders or Hip Boots
- ☐ PFD and Boat Safety Kit

PERSONAL GEAR

Clothing*

* Camouflage or Hunter Orange as Appropriate

- ☐ Socks Appropriate to Season
- ☐ Extra Socks
- ☐ Boots Appropriate to Season
- ☐ Camp Shoes
- ☐ Long Underwear
- ☐ Wool or Heavy Shirt
- ☐ Sweater
- ☐ Trousers
- ☐ Hunting Jacket
- ☐ Cap or Touque
- ☐ Gloves or Mitts
- ☐ Rain Gear
- ☐ Silicone Boot Dressing
- ☐ Eye Glasses
- ☐ At Least One Set of Dry Clothing
- ☐ Comb or Brush
- ☐ Non-scented Hand Soap/ Shampoo
- ☐ Razor and Shaving Cream
- ☐ Toothbrush and Toothpaste
- ☐ Towel and Washcloth
- ☐ Prescribed Medication

CAMPING GEAR

- ☐ Tent
- ☐ Tarp
- ☐ Sleeping Bag
- ☐ Foam Pad or Air Mattress
- ☐ Camp Stove and Fuel
- ☐ Cooking Utensils
- ☐ Lighter/Waterproof Matches
- ☐ Cooler
- ☐ Water Containers
- ☐ Food
- ☐ Ice
- ☐ Lantern and Fuel
- ☐ Extra Mantles

Tools

- ☐ Axe/Hatchet
- ☐ Buckets
- ☐ Hammer and Nails
- ☐ Rope and Wire
- ☐ Shovel
- ☐ Tool Kit

Other Gear

- ☐ Rope
- ☐ Camera and Film
- ☐ Sunglasses (shooting glasses)
- ☐ Pencil and Notebook
- ☐ Sewing Kit
- ☐ First Aid Kit
- ☐ Survival Kit
- ☐ Wood Saw

Other Items

- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
- ☐
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Safe Food Handling

Many people in Ontario suffer from food borne illness each year. The majority of food borne illness occurs when people eat food that has been improperly handled. In most cases, food borne illness can be avoided if food is handled with care.

Sight, smell or taste can't always detect food borne hazards. Under certain conditions, food borne hazards, such as bacteria, can multiply to millions in a few hours. If the food is eaten, it can lead to illness, and in rare cases, death. Symptoms associated with food poisoning may include nausea, vomiting, diarrhea, fever or cramps.

Follow these basic food handling tips:

When you store food
Keep food safe - refrigerate:

- Check the temperature in your refrigerator with a thermometer - you can buy one at a variety or hardware store. To keep bacteria from multiplying, the refrigerator should be kept at 4°C (40°F). The freezer unit should be at -18°C (0°F). Keep your refrigerator as cold as you can without freezing your milk or lettuce.
- Freeze fresh meat, poultry or fish immediately if you cannot use it within 1-2 days.
- Store raw meat, poultry, or fish on the lowest shelf and on a plate so juices will not drip on to other food. Raw juices often contain bacteria.

When you prepare food
Keep everything clean and thaw food in the refrigerator:

- Always wash your hands in warm soapy water before preparing food.
- Bacteria can live in kitchen towels, sponges and cloths. Wash these often.
- Keep raw meat, poultry, fish and their juices away from other food. Wash your hands, cutting board and knife in hot, soapy water after cutting poultry or raw meat and before using the utensils for other food.
- Thaw food in the refrigerator, microwave or oven, not on the kitchen counter. At room temperature, bacteria can grow in the outer layers of food before the inside thaws. Marinate in the refrigerator. When thawing food in microwave ovens, be sure to use microwavable containers.
- Utensils, equipment and food contact surfaces must be cleaned and sanitized after each use. Disinfecting is especially important where hunted or wild game meat, poultry or fish is being prepared in the same kitchen as regular 'store-bought' meat, poultry or fish. Disinfection must occur between the two types of preparations.

When you're cooking
Cook thoroughly:

- Thorough cooking is required to kill harmful bacteria. You risk your health and the health of others when you eat or serve meat, poultry or fish that is not thoroughly cooked. For example, meats are considered undercooked when: ground meat is red in the centre or rare; steaks and roasts are medium rare or rare. Unless thoroughly cooked, these foods may pose a risk to health.
- Cook meat and poultry to a temperature of 82°C (180°F) or higher. Use a meat thermometer to check that they're cooked all the way through. Remember to clean the thermometer after each use.
- Red meat is cooked when it's brown or grey inside. Poultry is cooked when its juices run clear. Fish flakes with a fork when cooked thoroughly.
- When you cook ahead, divide large portions of food into small, shallow containers for refrigeration. This ensures safe, rapid cooling.

ontario.ca

FACT SHEET

Safe Food Handling

Microwave safely:
The microwave oven is a great time-saver but has one food safety disadvantage - it can leave cold spots in food. Bacteria may survive in these spots. Be sure to:

- Cover food with a lid or plastic wrap that is approved for microwave use. The steam can aid thorough cooking. Leave a small section uncovered so steam can escape, and do not let the wrap touch the food.
- Stir and rotate food for even cooking. If there is no turntable in the oven, rotate the dish by hand once or twice during cooking.
- Use a meat thermometer, inserted at several spots in the meat, to ensure food is cooked. Remember to clean the thermometer after each use.

When you serve food
Never leave it out for more than two hours:

- Use clean dishes and utensils to serve food, not those you used when preparing the raw food.
- Never leave hazardous food out of the refrigerator for more than two hours. Hazardous foods such as egg, dairy, meat or poultry products are foods that are capable of supporting the growth of bacteria or the toxins they may produce. Bacteria that can cause food borne illness grow quickly at warm temperatures.

When you handle leftovers
Use small containers for quick cooling:

- Divide large amounts of leftovers into small, shallow containers for quick cooling in the refrigerator. Do not pack the refrigerator - cool air must circulate to keep food safe.
- With stuffed poultry or meats, remove stuffing and refrigerate it in separate containers.

Re-heating food:

- Bring sauces, soups and gravy to a boil. Heat other leftovers thoroughly, to the original cooking temperature.
- Microwave leftovers with an approved lid or plastic wrap for thorough heating.

For more information on food safety please refer to the following agencies:

- The Canadian Partnership for Consumer Food Safety Education (www.canfightbac.org)
- The Ontario Ministry of Agriculture, Food and Rural Affairs (www.omafra.gov.on.ca/english/infores/foodsafe/safety.html)
- The Canadian Food Inspection Agency (www.inspection.gc.ca/english/toce.shtml)
- Your local public health unit (www.health.gov.on.ca/english/public/contact/phu/phuloc_mn.html)

Are you feeding wildlife?

A number of risks are associated with wildlife feeding at communal feeding sites.

Animals being fed can:

- become habituated to artificial food sources
- consume artificial feed mixes not healthy for them
- cause road accidents as they move to feeders
- cause conflicts with pets and humans
- have an increased risk of passing on parasites or diseases (e.g. Chronic Wasting Disease).

For these reasons, the Ontario Ministry of Natural Resources and Forestry discourages the feeding of wildlife. To learn more about the risks associated with feeding wildlife visit the Ministry of Natural Resources and Forestry website.

ontario.ca/feedingwildlife

Ontario

Are you planning to hunt outside Ontario?

The Ministry of Natural Resources and Forestry is working to prevent the spread of Chronic Wasting Disease (CWD) to Ontario. As a result, there are restrictions on the possession of certain high risk parts of deer, elk, moose and caribou that were harvested in other jurisdictions.

Ontarians wishing to hunt outside Ontario and bring back the deer, elk, moose or caribou carcass should carefully review the restrictions in order to avoid seizure of game, as well as fines and potential charges. **For more information, visit MNRF's Chronic Wasting Disease website at ontario.ca/cwd**

Ontario

Ontario

Help Protect
Ontario's Natural Heritage

Hunters show support for the TIPS violation reporting line. Thousands of calls have been made to the line since it opened on September 24, 2005 to report suspected or known resource abuse.

Have you ever witnessed someone fishing out of season, night hunting for deer or moose, illegally dumping waste or littering on public lands, but didn't know what to do about it?

The Natural Resources TIPS Reporting Line is available for you to report resource abuse when you see it. The Natural Resources TIPS Reporting Line offers all Ontarians and Ontario resource users – 24 hours a day, seven days a week – the opportunity to help protect our natural heritage.

If you see or suspect an act of resource abuse, call the Ontario Ministry of Natural Resources and Forestry toll-free TIPS Line at 1-877-847-7667. Your information will be used to help conservation officers investigate violations.

Ontario's natural resources are precious. The next time you see someone taking over-limits of fish, game wildlife or waterfowl, illegally removing firewood or trees from public land, or witness any other abuse of our natural resources, please call 1-877-847-7667.

CONSERVATION OFFICER
Ontario
AGENT DE PROTECTION DE LA NATURE