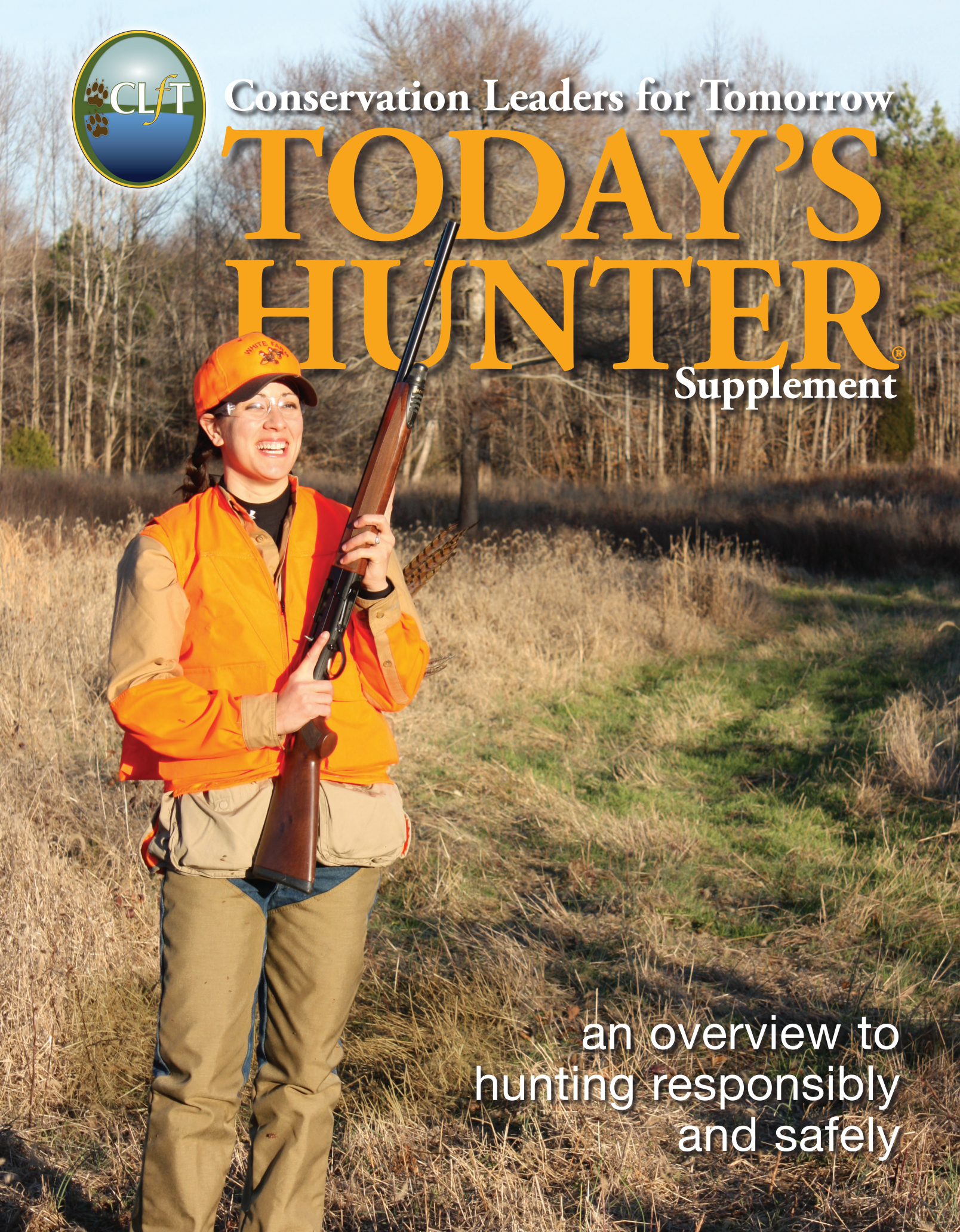
CLfT
Conservation Leaders for Tomorrow
TODAY'S HUNTER®
Supplement
an overview to hunting responsibly and safely

Learn outdoor safety and skills that will help you succeed in your career.

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Conservation Leaders for Tomorrow

TODAY'S HUNTER®

Supplement

The purpose of this document is to provide Conservation Leaders for Tomorrow (CLfT) participants with information and terminology that they may not already know prior to their arrival at a CLfT workshop. This document contains select pages from *Today's Hunter*®, an internationally recognized hunter education manual used by several state natural resource agencies in their hunter education courses. (Upon arrival at your workshop, you will be provided a complete copy of *Today's Hunter*®.)

The educational goal of CLfT is "to identify future and current leaders of the natural resource profession who do not hunt and provide them with an understanding of the diverse values and important roles of hunting and its impact on conservation."

State-sponsored hunter safety programs began in 1945 in Michigan, and the first mandatory hunter safety program was created in New York in 1949. By the mid-1970s, every state had an approved hunter education program. Each state with its varied requirements and mandates joined together in 1972 to create the International Hunter Education Association (IHEA). With the creation of IHEA came a set of national standards that set out the course content for state-sponsored hunter education programs. National hunter education standards provided reciprocity among states that allowed hunters from one state to hunt in another state without having to take another hunter education program.

With the implementation of hunter education and the use of hunter or blaze orange, hunting-related injuries and fatalities had a dramatic decline across the United States. Hunters were becoming more aware of safety issues, as well as firearms, basic wildlife management, first aid, survival, and hunting rules and regulations.

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Responsibility, Safety Skills, Knowledge, and Involvement

Hunter education strives to instill responsibility, improve skills and knowledge, and encourage the involvement of beginner and veteran hunters. Responsible, ethical behavior and personal involvement are both essential to the survival of hunting.

- **Responsibility**
  A knowledgeable and skillful student of hunting will never be a true hunter unless he or she also behaves responsibly. Responsible behavior includes courtesy, respect of others and of wildlife, and involvement. Responsible hunters do not poach or act carelessly. Responsible hunters obey hunting laws, hunt fairly, practice safety rules, and wait for a clean kill before shooting. How you behave and how other people see you will determine hunting's future.
- **Safety Skills**
  Hunting-related safety skills are gained through hands-on training and practice. It is most valuable to learn these skills from an experienced hunter.
- **Knowledge**
  Knowledge is learning and understanding the basics of safe gun handling and hunting. Before being trained in the skill of firearm shooting, you should know how the firearm operates and how to handle it safely.
- **Involvement**
  Part of the process of becoming a true, responsible sportsman is becoming involved in efforts to keep hunting a respected sport. That includes teaching others, working with landowners, and cooperating with game wardens. It also includes joining conservation organizations, which will help preserve habitat and promote wildlife management.

HUNTER EDUCATION FUNDING SOURCES

- The U.S. Fish & Wildlife Service provides federal aid to state wildlife agencies to support a variety of hunting-related projects, including hunter education, land acquisition, and improvement of wildlife habitat. The Federal Aid in Wildlife Restoration funding was established in 1937 by the Pittman-Robertson Act.
- State wildlife agencies sponsor the hunter education programs that are found in each state or province.
- Non-governmental organizations (Ducks Unlimited, National Rifle Association, International Hunter Education Association, etc.) offer hunter education and firearm safety education materials and training.
- Many firearm and archery manufacturers provide training materials to teach hunters how to use their products safely.
- Local hunting clubs, civic clubs, and businesses often provide the facilities and equipment for hunter education courses.

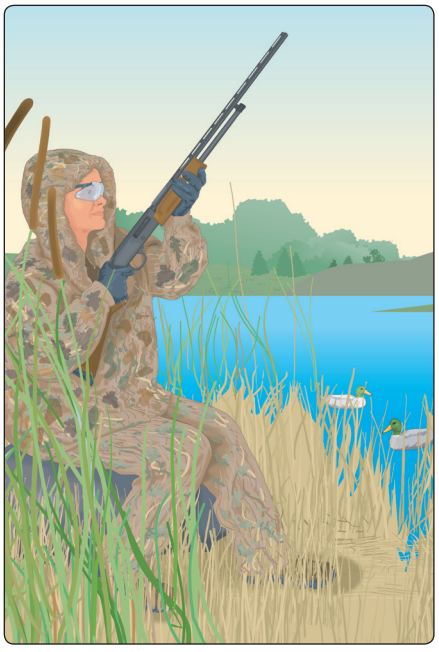
Pittman-Robertson Act

- *The Federal Aid in Wildlife Restoration Act, popularly known as the Pittman-Robertson Act, was approved by Congress in 1937. The Act provides funding for the selection, restoration, and improvement of wildlife habitat, and for wildlife management research. The Act was amended in 1970 to include funding for hunter education programs and for the development and operation of public target ranges.*
- *Funds for the Act come from an 11% federal excise tax on sporting arms, ammunition, and archery equipment, and a 10% tax on handguns. One-half of the excise tax on handguns and archery equipment is used for hunter education and target ranges. These funds are collected from the manufacturers and are distributed each year to the states and territorial areas by the Department of the Interior.*
- *Each state's proportion of the federal funds is based on the area of the state and the number of licensed hunters in the state. The state covers the full amount of an approved project and then applies for reimbursement through federal aid for up to 75% of the project's expenses; the state is responsible for the other 25% of the project's cost.*

Know Your Firearm Equipment

Objectives
You should be able to...

- Define "firearm."
- Identify the basic parts of a rifle, shotgun, and handgun.
- Identify the basic components of rifle and shotgun ammunition.
- Explain how ammunition is fired from a firearm.
- Identify six types of firearm actions.
- Demonstrate proper loading and unloading of firearms with two different types of actions.
- Identify the location(s) of safeties on firearms and explain how they are used.
- Name five types of sights found on firearms.
- Describe how a rifle is different from other firearms.
- Identify and explain a rifle's caliber and a shotgun's gauge.
- Name the four common shotgun chokes, and explain how they differ.
- Explain the difference between lead shot and steel shot.
- Correctly match ammunition with firearms.
- Explain the danger of mixing different gauges of shotshells.
- Explain why it is important to know your firearm's range.
- Demonstrate cleaning procedures for a firearm.
- Demonstrate how to make a firearm safe for storage.



The first step to becoming a responsible hunter is knowing your equipment and how to use it safely.

WHAT IS A FIREARM?

A firearm is a mechanical device that uses pressure from a burning powder to force a projectile through and out of a metal tube. To appreciate fully the importance of firearm safety, you first must understand how firearms work. This includes knowing the parts of the firearm, the types of ammunition, how ammunition is fired, and the ranges of the various firearms used for hunting.

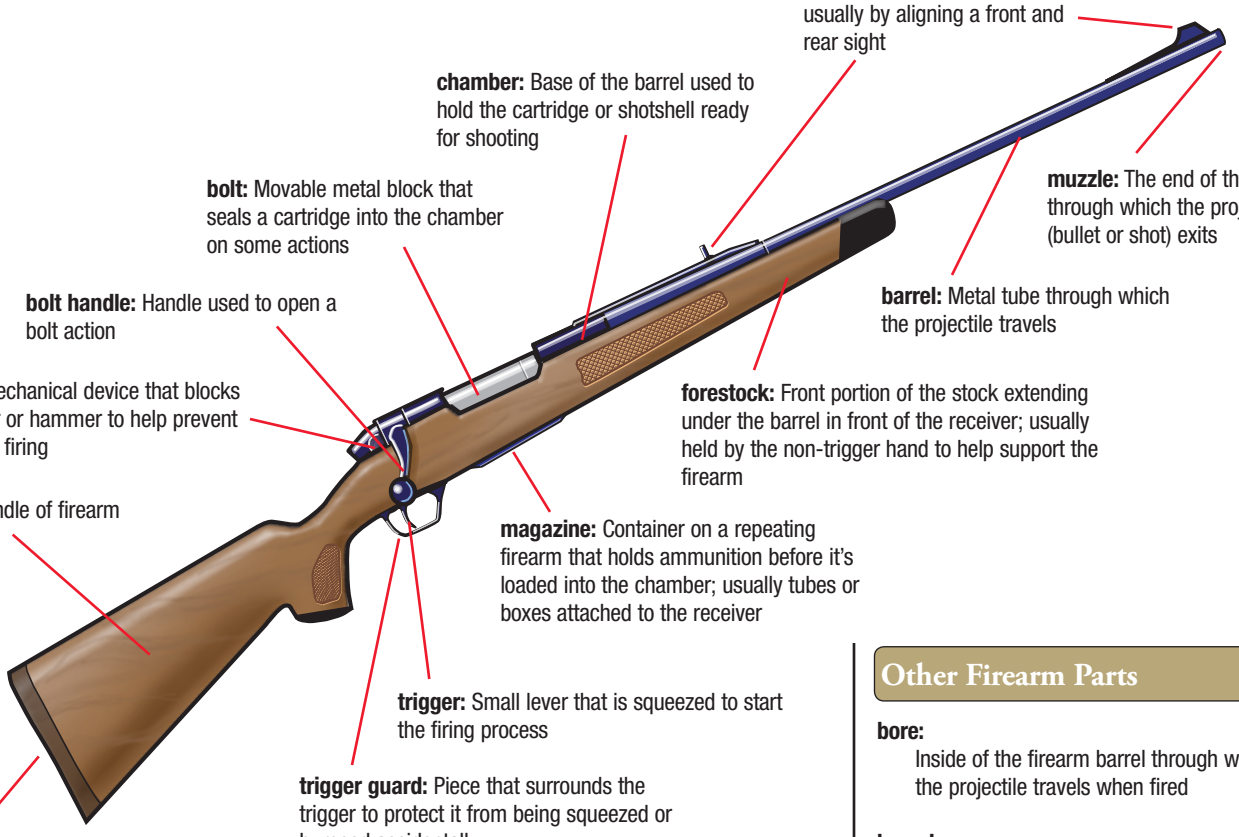
Basic Parts of a Firearm

Although firearms have changed a great deal since they were first invented, the terms used for their parts have changed very little. All modern firearms have three basic groups of parts.

- **Action:** The action is the heart of the firearm—the moving parts that load, fire, and eject the shells or cartridges. Several types of actions are used in modern firearms. Muzzleloaders have locks instead of actions.
- **Stock:** The stock serves as the handle of the firearm. It can be composed of one or two pieces and is usually made of wood or a synthetic material.
- **Barrel:** The barrel is the metal tube that the projectile travels through (bullets travel through the barrels of rifles and handguns; shot travels through the barrel of shotguns).

Parts of a Bolt-Action Rifle

Rifles, shotguns, and handguns have many similar parts. Shown here are the parts of a commonly used rifle—the bolt-action rifle.



sight: Device used for aiming, usually by aligning a front and rear sight

chamber: Base of the barrel used to hold the cartridge or shotshell ready for shooting

bolt: Movable metal block that seals a cartridge into the chamber on some actions

muzzle: The end of the barrel through which the projectile (bullet or shot) exits

bolt handle: Handle used to open a bolt action

barrel: Metal tube through which the projectile travels

safety: Mechanical device that blocks the trigger or hammer to help prevent accidental firing

forestock: Front portion of the stock extending under the barrel in front of the receiver; usually held by the non-trigger hand to help support the firearm

stock: Handle of firearm

magazine: Container on a repeating firearm that holds ammunition before it's loaded into the chamber; usually tubes or boxes attached to the receiver

trigger: Small lever that is squeezed to start the firing process

trigger guard: Piece that surrounds the trigger to protect it from being squeezed or bumped accidentally

butt: The part of the stock that you hold against your shoulder when shooting

Other Firearm Parts

bore:
Inside of the firearm barrel through which the projectile travels when fired

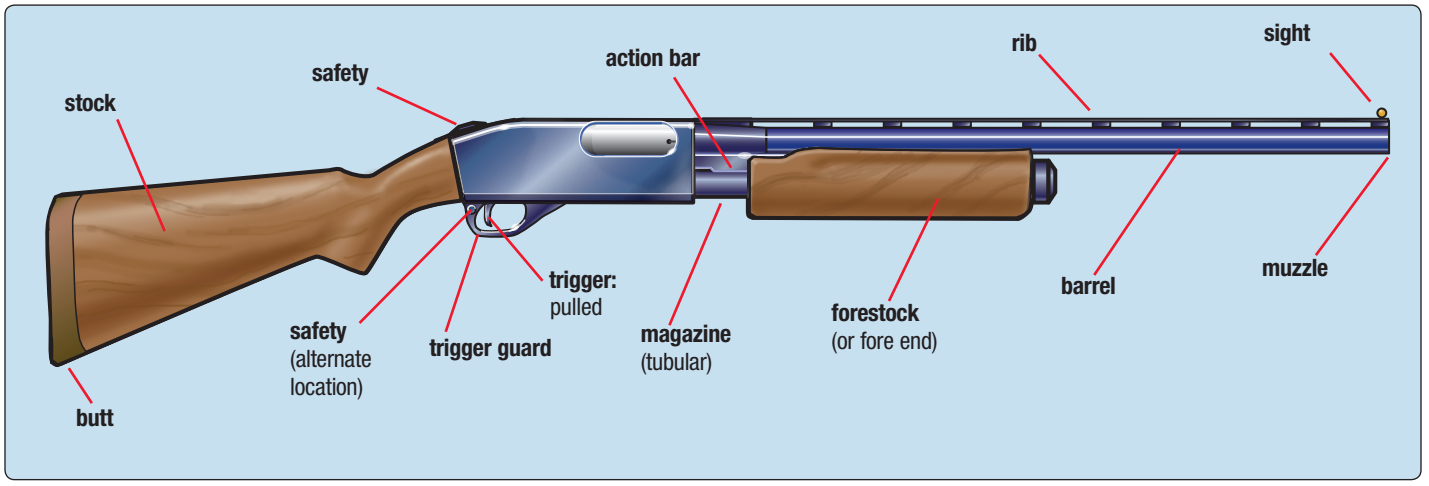
breech:
Rear end of the barrel

firing pin:
A pin that strikes the primer of the cartridge, causing ignition

receiver:
Metal housing for the working parts of the action

Parts of a Pump-Action Shotgun

Shotguns are another long-barreled firearm used by hunters. Below are the parts of a commonly used shotgun—the pump-action shotgun.



The Airgun

The airgun is often used by beginning hunters to learn shooting and safety skills. Modern airguns have designs, parts, and sights similar to sporting firearms.

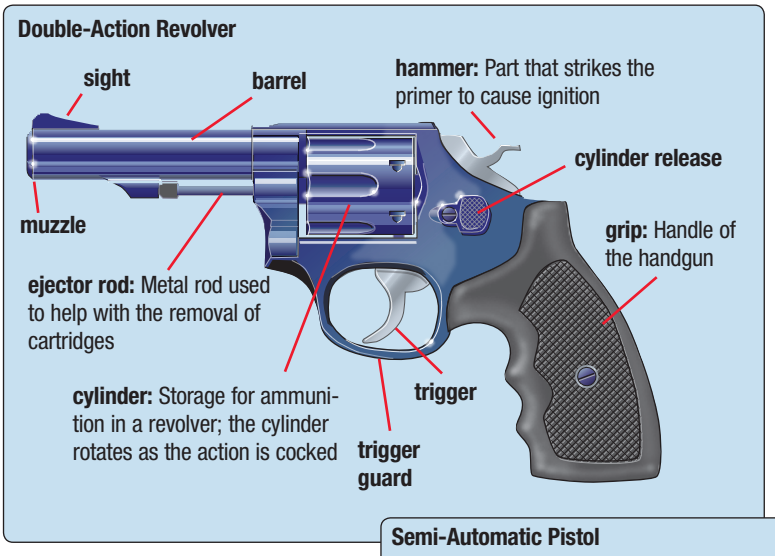
Airguns can be just as dangerous as larger firearms. Youngsters should always be supervised when using airguns.

There are three types of airguns.

- ***Pneumatic airguns*** *use a pump system that forces air into an enclosed chamber. The air is retained in the chamber by a valve that allows air to enter but not escape. When the trigger is released, the compressed air drives the pellet or BB out of the barrel.*
- ***CO_2-powered or gas-powered airguns*** *use compressed CO_2 contained in a cylinder. The cylinder attaches to a chamber inside the air rifle or pistol. When the trigger is squeezed, a valve releases a quantity of CO_2 that propels the pellet or BB out of the barrel.*
- ***Spring-piston airguns*** *use a spring that is compressed by a lever. When you squeeze the trigger, the spring is released and thrusts a plunger forward. The plunger pushes a compressed column of air through the barrel, driving out the pellet or BB.*

Parts of a Handgun

Handguns (revolvers and pistols) are short-barreled firearms sometimes used for hunting. Below are the parts of a double-action revolver and a semi-automatic pistol.



WHAT IS AMMUNITION?

Modern ammunition varies depending on the type of firearm. Rifles and handguns use a **cartridge** containing a single projectile (bullet). Shotguns use a **shotshell** containing either a single slug or a large number of small projectiles (shot or pellets). However, the basic components of cartridges and shotshells are similar.

Basic Components of Ammunition

The basic components of ammunition are the case, primer, powder, and projectile(s). Shotshells have an additional component called wad.

- **Case:** The container that holds all the other ammunition components together. It's usually made of brass, steel, copper, paper, or plastic.
- **Primer:** An explosive chemical compound that ignites the gunpowder when struck by a firing pin. Primer may be placed either in the rim of the case (rimfire) or in the center of the base of the case (centerfire).
- **Gunpowder:** A chemical mixture that burns rapidly and converts to an expanding gas when ignited. Modern smokeless powder will burn slowly when ignited in the open (outside of the case). Black powder is less stable and can be explosive when impacted or ignited in the open.
- **Projectile:** The object(s) expelled from the barrel. A bullet is a projectile, usually containing lead, fired through a rifle or handgun barrel. A slug is a solid projectile, usually of lead, fired through a shotgun barrel. Shot is a group of lead, steel, tungsten alloy, or bismuth pellets fired through a shotgun barrel.
- **Wad:** A seal and/or shot container made of paper or plastic separating the powder from the slug or shot in a shotshell. The wad prevents gas from escaping through the shot and holds the shot together as it passes through the barrel.

Rifle and Handgun Cartridges

- It's critical to select the correct cartridge for your rifle or handgun (see page 19). Carefully compare the data stamp on the barrel of the firearm against the description on the ammunition box and the stamp on each cartridge.
- Bullets used in rifle and handgun cartridges come in various designs, sizes, and weights. The bullet usually is made of lead and may have a jacket made of copper, brass, or another metal. Bullets used for hunting game may have soft or hollow points designed to expand (mushroom) upon impact. Bullets used for target shooting usually have solid points that make smaller holes.
  - **Common Types of Rifle Bullets**
    - Pointed Soft Point: High velocity, accurate bullets with a flat travel path (trajectory); excellent mushrooming
    - Rounded Soft Point: Popular for low-velocity calibers; recommended for tubular magazines
    - Protected Tip: Highly accurate with excellent expansion
    - Full Metal Jacket: Maximum penetration without mushrooming; these bullets are ***illegal for big game hunting in most states***
  - **Common Types of Handgun Bullets**
    - Roundnose Lead: Good penetration, little expansion
    - Full Metal Jacket: High penetration, no expansion
    - Semi-Wad Cutter: Balances penetration and expansion
    - Hollowpoint: Designed for high expansion on impact
    - Wad Cutter: Flat-ended, used for target shooting; creates clean hole in paper

cartridge:
Ammunition used in modern rifles and handguns; a case containing primer, gunpowder, and a bullet

shotshell:
Ammunition used in modern shotguns; a case containing primer, gunpowder, wad, and a slug or shot

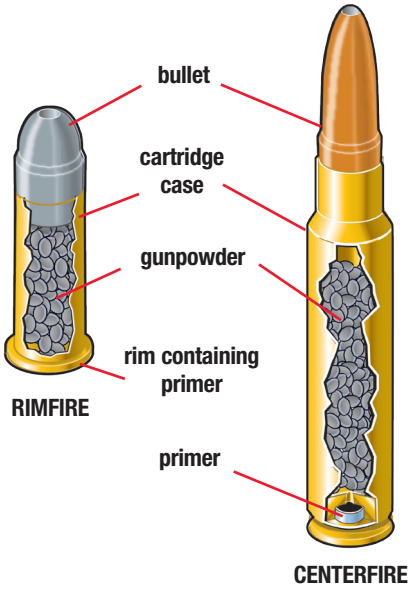
Centerfire and Rimfire Ammunition

- *Centerfire ammunition is used for rifles, shotguns, and handguns. In this type of ammunition, the primer is located in the center of the casing base. Most centerfire ammunition is reloadable.*
- *Rimfire ammunition has the primer contained in the rim of the ammunition casing. Rimfire ammunition is limited to low-pressure loads. Rimfire cartridges are not reloadable.*

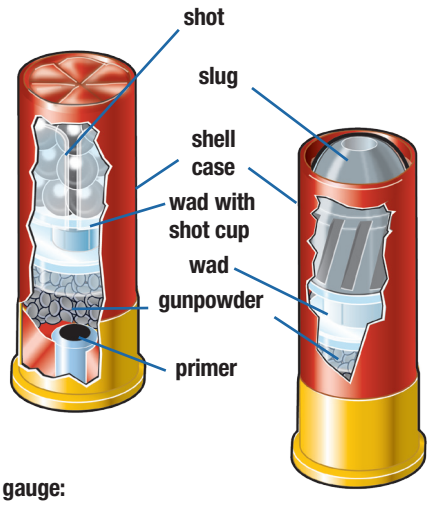
SAFETY TIP

In tubular magazines, the bullet tip of one cartridge rests directly on the primer of the cartridge immediately ahead. For this reason, use only rounded or blunt tips in tubular magazines.

Rifle and Handgun Ammunition



Shotgun Ammunition



gauge:
Term used to designate bore diameter of a shotgun; gauge is the number of lead balls with diameters equal to the diameter of the bore that, when combined, weigh one pound

Shotshells

- Shotgun shells (shotshells) use a slug or shot as the projectile(s).
  - A slug is a solid projectile, usually of lead, used for hunting big game with a shotgun.
  - Shot are multiple pellets fired through a shotgun barrel. Shot size is adaptable to the game being hunted. This type of projectile is used typically to hunt game birds and small game animals.
- The shotshells must match exactly the **gauge** and shell length specified by the manufacturer. This information usually is found on the barrel of the shotgun. Shotguns may be chambered for 2½-inch, 2¾-inch, 3-inch, or 3½-inch shells. This refers to the length of the shell *after* it has been fired. Read more about correctly matching ammunition to your firearm on page 19.
- You also must choose the correct type and size of shot for the shotshell. In general, as the size of your target decreases, you should decrease the diameter of the shot you use.
  - As pellet diameter decreases, more shot can be placed in a standard shotshell.
  - The smaller the shot "number," the larger the pellet diameter.
  - Shotshell marked as "magnum" means the shell has more shot or more gunpowder than a regular shell. Magnum and regular shotshells are interchangeable *if the correct gauge and shell length are used.*

Shot Sizes

U.S. STANDARD DESIGNATIONS

SHOT SIZES

Shot Number	12	9	8	7½	7	6	5	4	3	2	1	B	BB	BBB	T
Diameter (in.)	.05	.08	.09	.095	.10	.11	.12	.13	.14	.15	.16	.17	.18	.19	.20
Number of Lead Pellets per Ounce	2,385	585	410	350	300	225	170	135	n/a	90	n/a	n/a	50	n/a	n/a
Number of Steel Pellets per Ounce	n/a	n/a	577	490	420	317	243	192	154	125	103	86	72	61	53

BUCKSHOT SIZES

Shot Number	4	3	1	0	00	000
Diameter (in.)	.24	.25	.30	.32	.33	.36

Shot size can be adjusted for the game being hunted. As pellet diameter decreases, more shot can be placed in a standard shotshell load. The smaller the shot number, the larger the shot size.

Non-Toxic Shot

Non-toxic shot is required throughout the U.S. for waterfowl hunting. Studies showed that many waterfowl died each year because of lead poisoning. Lead pellets from traditional shotshells were picked up and digested by waterfowl. The toxic effect spread to other birds, such as the bald eagle, who consumed the poisoned waterfowl. To reduce this problem, conservationists worked with shotshell manufacturers to produce effective alternatives to lead shot—steel, tungsten alloy, or bismuth shot.

- Steel shot pellets react differently than lead when shot. Steel weighs about ⅔ as much as lead but is much harder. Steel does not deform and is not as unstable in flight. It will produce a tighter pattern than lead shot. If using steel shot for hunting, choose a steel shot size one to two sizes larger than the lead shot you would select and choose a less constrictive choke. See page 18 for information about chokes and shot strings for lead and steel shot.

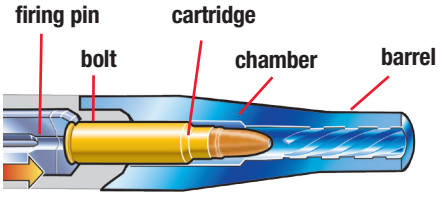
HOW A FIREARM WORKS

The same physical process is used to shoot shotshells from shotguns or cartridges from rifles or handguns. Pulling the trigger causes the firing pin to strike and explode the primer in the base of the cartridge or shotshell. The spark from the primer ignites the gunpowder, which burns rapidly and converts to a gas. The gas rapidly expands and drives the projectile(s) through the barrel with great force.

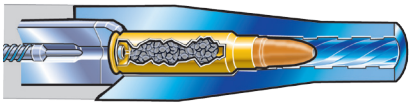
- **How the rifle and handgun fire:**
  1. A cartridge is inserted into the chamber.
  2. The action is closed, and the firing pin is pushed back and held back under spring tension.
  3. The trigger is squeezed, releasing the firing pin, which moves forward with great force. The firing pin strikes the primer, causing it to explode.
  4. The spark from the primer ignites the gunpowder. Gas converted from the burning powder rapidly expands in the cartridge.
  5. The expanding gas forces the bullet out of the cartridge and down the barrel with great speed.
  6. The rifling in the barrel (see page 16) causes the bullet to spin as it travels out of the barrel. The bullet's speed and escaping gases produce a "bang."
- **How the shotgun shoots:**
  1. A shotshell is inserted into the chamber.
  2. Closing the action pushes the firing pin back and holds it under spring tension.
  3. Pulling the trigger releases the firing pin. The firing pin strikes the primer producing sparks.
  4. Heat and sparks from the primer ignite the gunpowder. Gas converted from the burning powder expands in the shell.
  5. The expanding gas forces the wad and shot out of the plastic body of the shell.
  6. The escaping gases produce a "bang" as the wad and shot leave the barrel.
  7. The wad quickly opens and falls away. The shot cluster spreads. This spread is called the shot string.

How Ammunition Is Fired

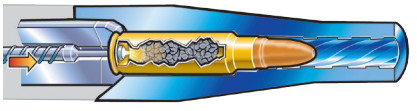
The firing sequence for handguns and shotguns is very similar to this sequence shown for a bolt-action rifle.



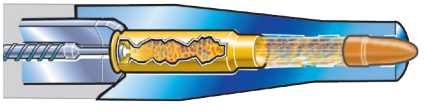
- *The bolt moves forward, compressing the firing pin spring and inserting a cartridge into the chamber.*



- *The firing pin is held back under spring tension.*



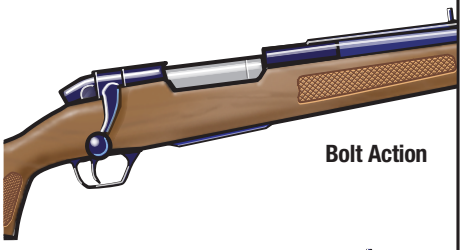
- *When the trigger is squeezed, the firing pin moves forward, crushing and igniting the primer in the cartridge base.*

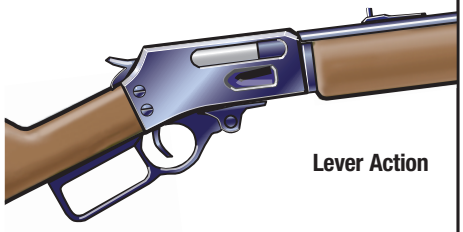


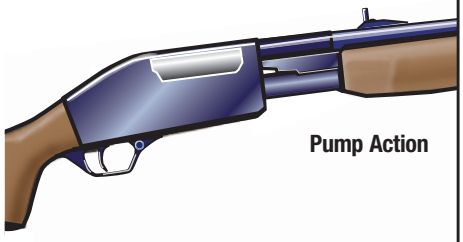
- *The primer ignites the gunpowder, generating gas pressure, which forces the bullet forward and out of the barrel.*

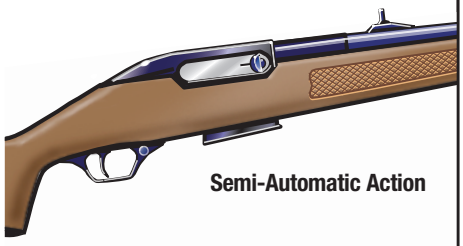
Common Actions on Rifles

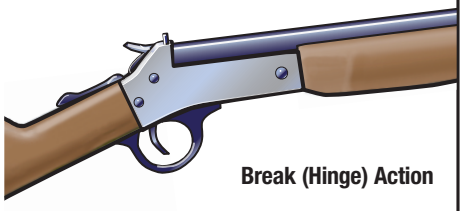
Single-shot rifles are usually break or bolt actions. Repeating rifles include the bolt-action, lever-action, pump-action, and semi-automatic types. Operating the lever, bolt, or forestock ejects the empty cartridge case, chambers a new round of ammunition, and cocks the gun.


Bolt Action


Lever Action


Pump Action


Semi-Automatic Action


Break (Hinge) Action

COMMON FEATURES OF FIREARMS

All types of firearms have actions and sights, and they may have safeties or magazines. Features unique to rifles or shotguns are discussed in the following sections.

Firearm Actions

Firearms can be classified by their action type. The action of a firearm is made up of parts that load, unload, fire, and eject the shotshell or cartridge. Actions are either single-shot or repeating styles. Single-shot firearms must be reloaded each time the firearm is fired. Repeating firearms have extra cartridges or shotshells ready in a magazine, cylinder, or extra barrel.

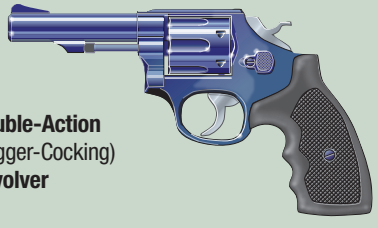
- **Bolt Action:** A bolt-action firearm operates like opening and closing a door bolt. The bolt solidly locks into the breech, making it accurate and dependable.
  - To open the action, lift the handle up and pull it to the rear.
  - If the firearm is loaded, the cartridge or shotshell will be ejected as you pull the bolt to the rear. To make sure it's unloaded, visually check *both* the open action *and* the magazine for extra cartridges or shotshells.
  - You can store a bolt-action firearm safely by storing the bolt separately from the firearm.
- **Lever Action:** The lever-action firearm has a large metal lever located behind the trigger. This handle usually forms the trigger guard as well.
  - To open the action, push the lever downward and forward, which extracts the cartridge case from the chamber and ejects it. If a magazine holds extra cartridges, another is immediately ready to be loaded into the chamber.
  - It's often difficult to tell if a lever-action firearm is loaded. To unload, push the lever downward and forward repeatedly until no more cartridges are ejected. To make sure it's unloaded, visually check *both* the chamber *and* the magazine for additional cartridges.
  - Most models also have an exposed hammer, which can be dangerous.
  - ***Always use extra caution to keep your hands away from the trigger while working the lever action.***
- **Pump Action:** The pump-action firearm is fast and smooth. It allows the shooter to re-cock the firearm without taking his or her eye off the target. The pump action also is referred to as "slide action" or "trombone action."
  - To open the action, slide the forestock to the rear, which extracts the cartridge or shotshell from the chamber and ejects it. Sliding the forestock toward the muzzle closes the action and readies another cartridge or shell for loading. A pump-action firearm will open only after it's fired or if a release lever is pressed and the forestock is pulled to the rear.
  - To make sure it's unloaded, you must visually check *both* the chamber *and* the magazine for cartridges or shotshells.
- **Semi-Automatic (or Autoloading) Action:** As each shot is fired manually, the case of the cartridge or shotshell is ejected automatically and the chamber is reloaded automatically.
  - To open the action, you must pull back the bolt's operating handle (on a rifle or shotgun) or the slide (on a pistol). Most semi-automatics, when the bolt or slide is pulled back, will lock in the open position if the magazine is empty. If the firearm does not lock open, it means that a cartridge or shotshell from the magazine has gone into the chamber, making the firearm ready to fire. A few semi-automatics do not lock open and must be held open to check the chamber.

- To unload, *first remove the magazine* and lock the action open. Then make sure it's unloaded—visually check the chamber for an additional cartridge or shell.
- When closing the action for loading, pull back to unlock the bolt or slide and then let go, allowing it to travel forward on its own. Do not guide it forward with your hand because it may not seat properly.
- On a semi-automatic, the trigger must be pulled each time a shot is fired. This makes the semi-automatic different from the fully-automatic firearm, which fires continuously as long as the trigger is held down. ***The fully-automatic firearm may not be used for hunting or sport shooting.***

- **Break (or Hinge) Action:** The break-action firearm operates on the same principle as a door hinge. Simple to load and unload, a hinge action is often chosen as a hunter's first firearm.
  - To open the action, point the barrel(s) at the ground. A release is pressed, and the stock drops downward. This allows the cartridges or shotshells to eject or to be removed manually if the firearm is loaded.
  - Hinge-action firearms have a separate barrel for each shot rather than a magazine. Most models have one or two barrels, but some have up to four.
  - Some models also have an exposed hammer(s), which can be dangerous.
- **Revolving Action:** The revolving action takes its name from a revolving cylinder containing a number of cartridge chambers. One chamber at a time lines up with the barrel as the firearm is fired. Revolving cylinders may rotate either clockwise or counterclockwise, depending on the manufacturer. This type of action usually is found on handguns but may be found on some older rifles. Revolving actions are referred to as either "single action" or "double action."
  - **Single Action:** Will fire only after the hammer has been cocked manually.
  - **Double Action:** Pulling the trigger both cocks and releases the hammer. A double-action revolver typically also can be hammer-cocked like a single-action revolver.

Typical Handgun Actions

Break-Action Pistol (Single-shot)



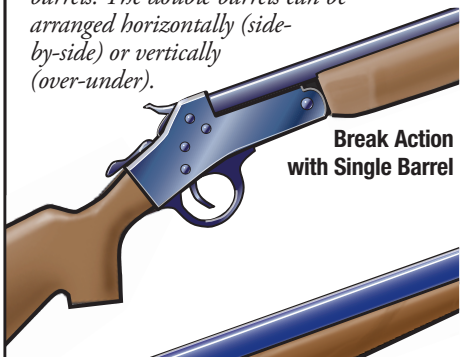
Double-Action (Trigger-Cocking) **Revolver**

Semi-Automatic Pistol

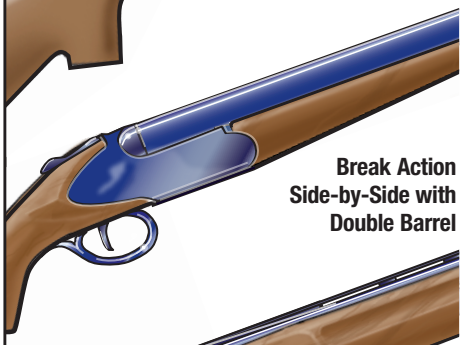
Single-Action (Hammer-Cocking) **Revolver**

Common Actions on Shotguns

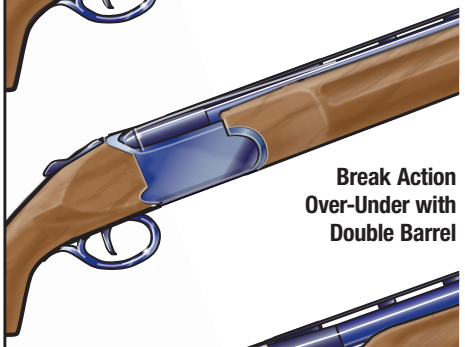
Shotguns use many of the same actions as rifles—the pump action, semi-automatic action, and bolt action. They also use a break action as either a single barrel or double barrels. The double barrels can be arranged horizontally (side-by-side) or vertically (over-under).



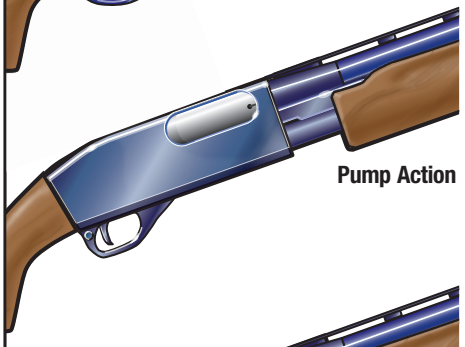
Break Action with Single Barrel



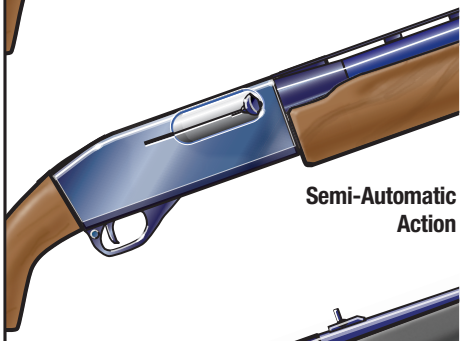
Break Action Side-by-Side with Double Barrel



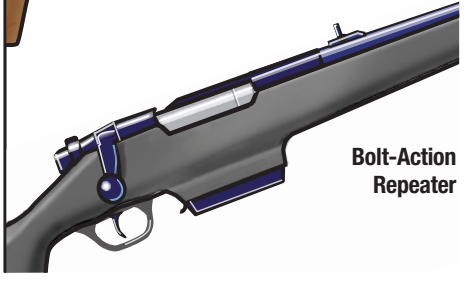
Break Action Over-Under with Double Barrel



Pump Action



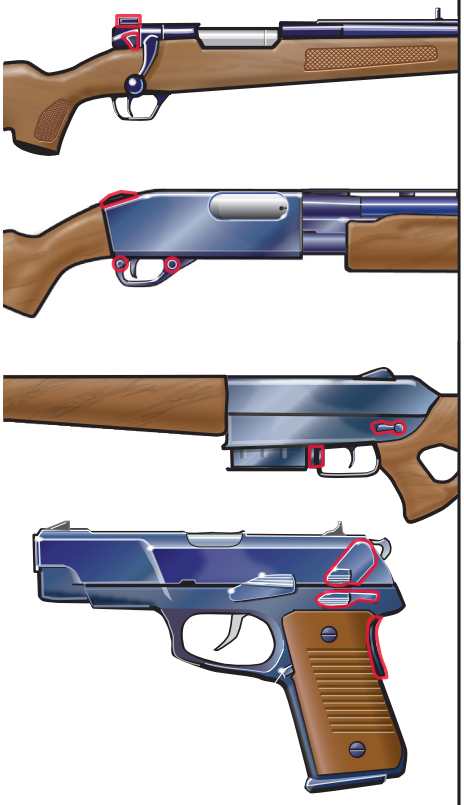
Semi-Automatic Action



Bolt-Action Repeater

Typical Locations of Safeties

The red outlines indicate where safeties typically are located on rifles, shotguns, and handguns.



SAFETY TIP

You should never replace safe firearm handling by trusting the safety on a firearm. A safety is a mechanical device that could fail. Don't release the safety until just before you shoot.

Knowing where the safety is and how it works is not always as simple as it might seem. There are many types of safeties. Sometimes persons alter or modify their guns to disable the safety. This is very dangerous, especially if the gun gets into the hands of an inexperienced shooter. Be sure you know how the safety works on your own gun or any others you handle. Never alter or modify your firearm yourself. Have an experienced gunsmith look at your gun if the safety does not work or if anything else is wrong with it.

Safety Mechanisms

A safety is a device that blocks the action to prevent the firearm from shooting until the safety is released or pushed to the "off" position. The safety is intended to prevent the firearm from being fired accidentally. However, safeties should never be relied on totally to protect against accidental shooting. Safeties are mechanical devices and subject to mechanical failure from wear and other factors, and can fail when least expected. Also, safeties can be bumped from the safe position unknowingly as your firearm is being handled or as it catches on clothing or tree branches.

All safeties are located around the receiver of the firearm and are usually easy to spot. Common types of safeties are:

- **Cross-Bolt Safety**
  - Common on pump and semi-automatic firearms
  - A simple, push-button action that blocks the trigger or hammer
  - Usually located at the trigger guard or ahead of the hammer
- **Pivot Safety**
  - Common on handguns and bolt-action rifles
  - A pivoting lever or tab that blocks the trigger or firing pin
  - Located on the frame (blocks trigger) or on the bolt or slide (blocks firing pin)
- **Slide or Tang Safety**
  - Common on some rifles and break-action shotguns
  - A sliding bar or button that blocks the firing action
  - Located on the tang (a metal strip behind the receiver) of break-action firearms or on the side of the receiver on some rifles
- **Half-Cock or Hammer Safety**
  - Common on firearms with exposed hammers
  - Positions the trigger at half-cock, away from the firing pin
  - Engaged by placing the trigger at half-cock; some firearms automatically rebound to the half-cock position after the trigger is released
  - While not a true safety, it sometimes is described as a mechanical safety device by firearm manufacturers

Magazines

In repeating firearms, the magazine is the place that stores the ammunition that has not been fired. When you work the action, a cartridge is picked up from the magazine and placed in the chamber ready to be fired.

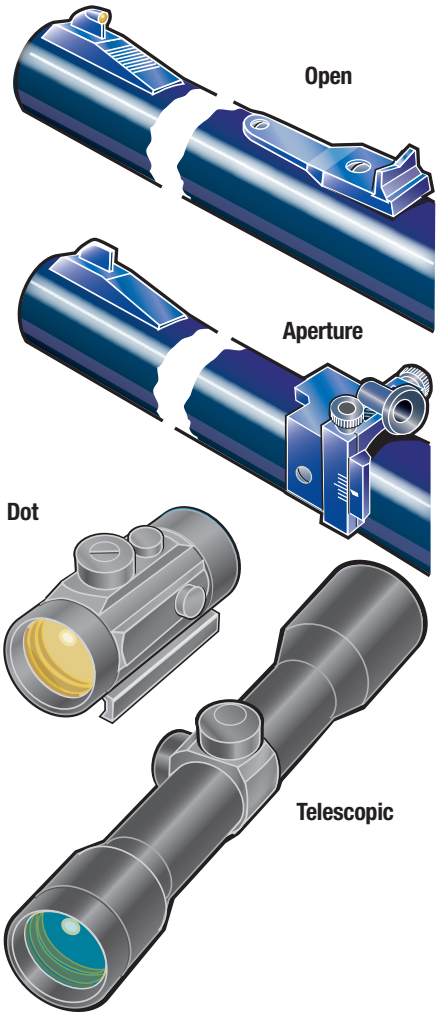
- Magazines are designed with a spring and follower that push against the cartridges to move them into the action. When checking a magazine to make sure it's empty, you must be able to either see or feel the follower; if you cannot see or feel the follower, there may be a cartridge jammed in the magazine, which can be dangerous. Tubular magazines require close attention to make sure a cartridge is not jammed in the magazine.
- Magazines may be detachable or fixed.
  - Detachable magazines allow you to remove extra ammunition from the firearm simply by removing the magazine.
  - Fixed magazines require the ammunition to be removed manually from the gun itself. These include tubular, hinged-floorplate, and revolving magazines.

Sights

A sight is a device used to line up the muzzle with the shooter's eye so that he or she can hit the target. Sights are more critical on a firearm that fires a single projectile (rifle and handgun) than on a firearm that shoots a pattern of shot (shotgun). Shotguns usually have a simple pointing bead. Rifles typically have an open, aperture (peep), or telescopic sight. Most handguns have an open sight, although some specialized handguns have a dot or a telescopic sight. Read more about using sights in Chapter Three.

- **Bead Sight:** Simple round bead set into the top of the barrel near the muzzle of a shotgun. Some shotguns have a second, smaller bead about halfway back on the barrel. The shooter uses the shotgun to "point" at and follow a moving object. The bead is used only for a reference as the shotgun is pointed and moved to follow flying or running targets.
- **Open Sight:** Combination of a bead or post front sight and a notched rear sight. These sights are simple and inexpensive. Open sights allow quick sighting. To aim, you center the top of the bead or post within the notch of the rear sight and line up on the target. Open sights can be fixed or adjustable.
- **Aperture (Peep) Sight:** Combination of a bead or post front sight and a round hole set on the rifle's receiver close to the shooter's eye. To aim, you center the target in the rear peep or aperture sight and then bring the front sight into the center of the hole. An aperture sight lets you aim more accurately and is adjusted more easily than an open sight.
- **Telescopic Sight (Scope):** Small telescope mounted on your firearm. A scope gathers light, brightening the image and magnifying the target, and does away with aligning rear and front sights. The aiming device inside the scope is called the "reticle." To aim, you simply look through the scope and line up the crosshairs, post, or dot with your target. Telescopic sights provide the most accurate aiming, which makes them popular for hunting.
- **Dot Sight:** Small device mounted on your firearm. A dot sight uses electronics or optical fibers to project a glowing dot or other mark on a lens in front of the shooter's eye. Some dot sights also magnify like telescopic sights.

Types of Rifle Sights



REMEMBER ...

Never use the scope on your telescopic sight as a set of binoculars!

The Damascus Barrel

Damascus or "Damascus twist" barrels are older shotgun barrels that typically were made before 1900. Iron and steel ribbons were twisted and welded together. Damascus barrels are weaker than modern barrels and are not designed for the high gas pressures created by modern ammunition. Damascus barrels have a distinctive, irregular pattern of short, streak-like marks around the barrel.

If you have a Damascus barrel gun, don't shoot it. The barrel may burst slightly ahead of the chamber, crippling the shooter's hand or forearm. If you have an older firearm and are not sure if it has a Damascus barrel, go to a qualified gunsmith to identify its make before shooting it.

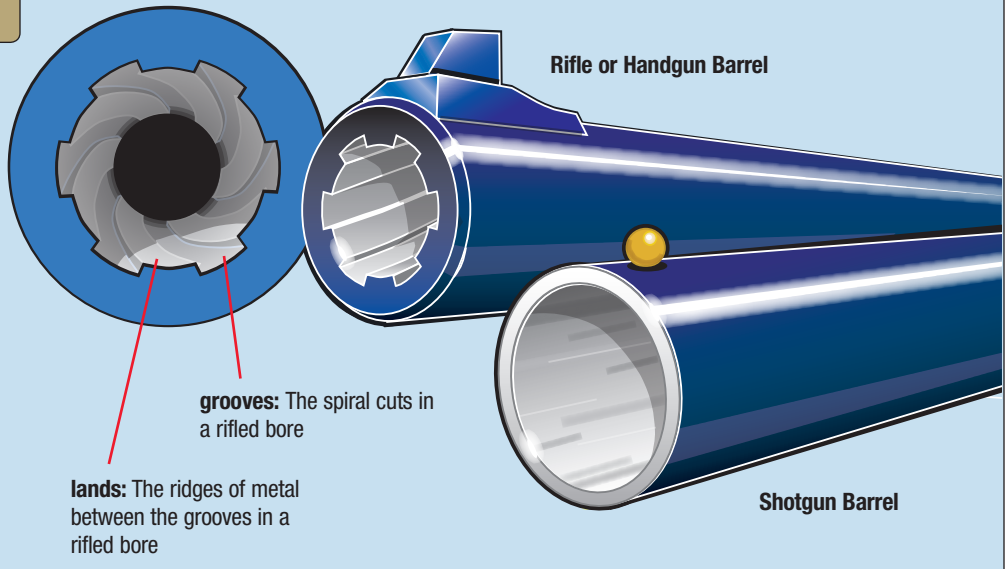
DIFFERENCES BETWEEN RIFLES, SHOTGUNS, AND HANDGUNS

The main differences between rifles, shotguns, and handguns are their barrels and the type of ammunition used.

- The rifle barrel is long and has thick walls with spiraling grooves cut into the bore. The grooved pattern is called rifling.
- The shotgun barrel is long and made of fairly thin steel that is very smooth on the inside to allow the shot and wad to glide down the barrel without friction. It's thinner than a rifle barrel since it does not have to withstand as much pressure.
- The handgun barrel is much shorter than a rifle or shotgun barrel because the gun is designed to be shot while being held with one or two hands, rather than being placed against the shooter's shoulder. The bores of most handgun barrels also have a grooved pattern similar to rifles.

Rifle, Handgun, and Shotgun Bores

The bore of a rifle or handgun is grooved, which puts a spiral spin on the bullet for greater accuracy. The bore of the shotgun barrel is smooth because rifling would spread the shot pattern too soon.



REMEMBER ...

Reloaded shells may have wrong information or have been improperly reloaded. It's important to mark reloaded shells clearly. Use only shells or cartridges that you have reloaded yourself or that have been reloaded by a person whom you know is competent.

Rifling in the Rifle or Handgun Bore

A bullet fired from a rifle or handgun has a spiral spin that keeps it point-first in flight, increasing accuracy and distance. This is achieved by the rifling inside the barrel, from which the rifle got its name. The barrel is thick and has spiraling **grooves** cut or pressed into the bore. The ridges of metal between the grooves are called **lands**. Together, the grooves and lands make up the "rifling."

A Rifle's or Handgun's Caliber

Caliber is used to describe the size of a rifle or handgun bore and the size of cartridges designed for different bores.

- Caliber usually is measured as the diameter of the bore from land to opposite land and is expressed in hundredths of an inch, thousandths of an inch, or millimeters. For example, a .270-caliber rifle bore measures 270/1000ths of an inch in diameter between the lands and has a larger bore diameter than a .223-caliber rifle. However, there is no standard established for designating caliber. In some cases, the caliber is given as the diameter of the bullet, which is the distance between the grooves.
- Caliber designations sometimes have a second number that has nothing to do with the diameter. For example, the popular .30-30 is a .30-caliber cartridge, but the second number is a holdover from the days when the cartridge took 30 grains of powder. The "06" in .30-06 refers to the year (1906) it became the official ammunition of the U.S. military.
- Every rifle or handgun is designed for a specific cartridge. The ammunition must match the data stamp on the firearm. For example, there are several .30-caliber firearms that use the same bullet size but are designed for different cartridges (the .30-30, .30-06, .308, and the .300 Savage). If you cannot find the caliber stamped on the firearm, take it to a qualified gunsmith.

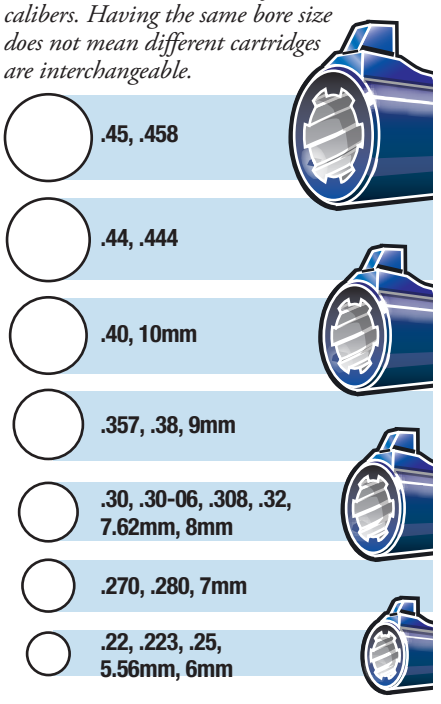
A Shotgun's Gauge

Shotguns are classified by gauge, which is a measure related to the diameter of the smooth shotgun bore and the size of the shotshell designed for that bore.

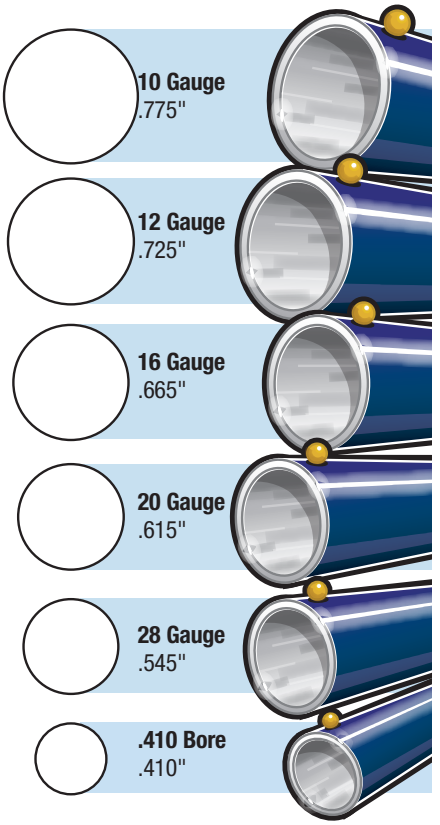
- Common shotgun gauges are 10 gauge, 12 gauge, 16 gauge, 20 gauge, and 28 gauge. The smaller the gauge number, the larger the shotgun bore. Gauge is determined by the number of lead balls of size equal to the approximate diameter of the bore that it takes to weigh one pound. For example, it would take 12 lead balls with the same diameter as a 12-gauge shotgun bore to weigh one pound. Today, however, gauge can be measured much the same way as caliber by measuring the inside bore diameter.
- The .410-bore shotgun is the only exception to the gauge designation for shotguns. It has an actual bore diameter of 410/1000ths of an inch, which is approximately equivalent to a 67½ gauge.
- Each gauge of shotgun shoots only shells of the same gauge. For example, 12-gauge guns use only 12-gauge shells.
- The gauge of a shotgun is usually marked on the rear of the barrel, and the gauge of a shell is marked on the shell as well as on the factory box.

Rifle and Handgun Calibers

The circles show bore sizes of common calibers. Having the same bore size does not mean different cartridges are interchangeable.



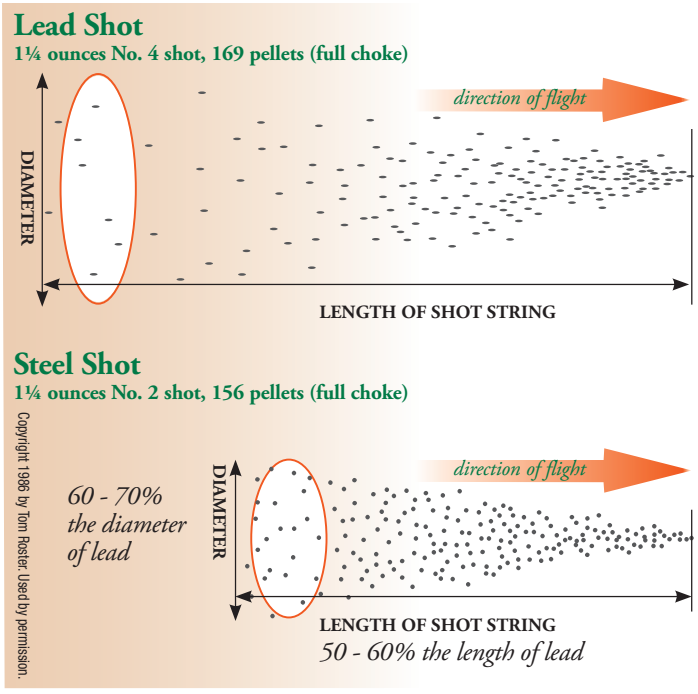
Shotgun Gauge Sizes



Sizes shown are the minimum inside bore diameter with a tolerance of +0.020". Data is presented courtesy of SAAMI.

Shot Strings

The illustrations of shot strings represent the full load of pellets at a particular instant in time after a shotshell is fired.



shot string:
The three-dimensional spread of shot pellets after they leave the barrel

choke:
The degree of narrowing at the muzzle end of the shotgun barrel

shot pattern:
The spread of shot pellets after they hit a non-moving target

Steel Shot

Steel shot is slightly lighter than lead shot of the same size—reducing its velocity and distance (range). Also, steel shot is harder than lead, so the individual pellets stay round, keeping the pattern tighter.

Some hunters use steel shot one or two sizes larger to make up for the difference in weight from lead shot. Others use the same size steel shot or even smaller steel shot to get more shot into their patterns. You should pattern your shotgun with various loads of steel shot before hunting waterfowl with it.

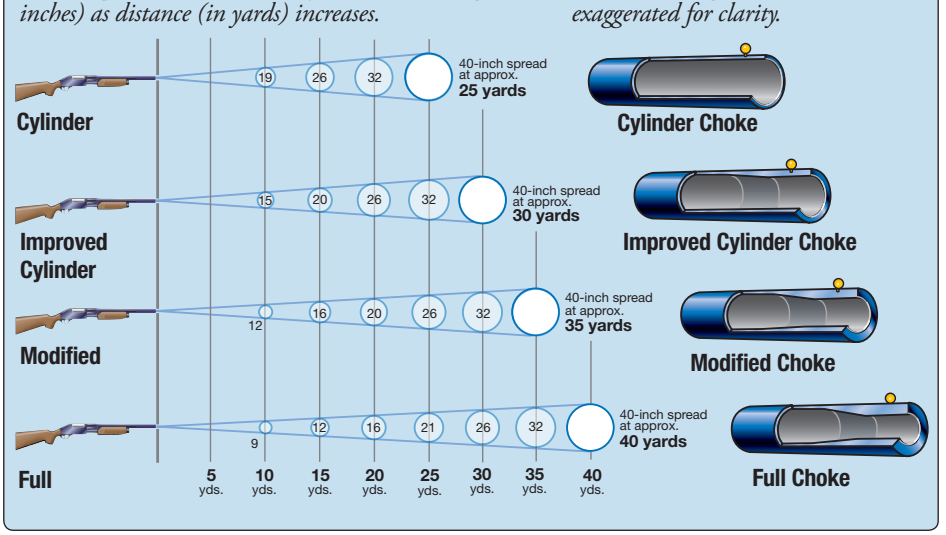
Effective pattern density is the key. Maximum pellet counts spread evenly across a 30-inch circle are best. Full chokes generally produce poor patterns with steel shot.

Shotgun Choke and Shot String

When a shotshell is fired from a shotgun, the pellets leave the barrel and begin to spread or scatter. The farther the pellets travel, the greater the spread of the group of pellets (shot) both in length and diameter. This spread is called the **shot string**. To control the shot string, shotgun barrels have a **choke** that will affect the **shot pattern** when the shot string hits the target. Read more about how to pattern a shotgun in Chapter Three.

- Your distance from the target determines the choke you need. The choke of a shotgun determines shot string only. It has no bearing on shot speed (velocity) or distance (range). That is, the choke does not alter the shotgun's power—it just controls how tight or spread out the pellets will be at a specific distance.
- The spread effect of the most common chokes is illustrated below, showing how many pellets will hit within a certain area at different ranges.
  - **Cylinder** choke is an unconstricted barrel. The shot string spreads quickly.
  - **Improved Cylinder** choke has a slight constriction. It allows the shot string to spread fairly quickly. This is a good choice for quail, rabbits, and other upland game at relatively close ranges.
  - **Modified** choke has moderate constriction. The pellets stay together longer, making the shot string denser and more useful at longer ranges. This choke is used often when dove hunting and when using steel shot to hunt for ducks or geese. There is also an Improved Modified choke that is slightly tighter than Modified.
  - **Full** choke has tight constriction. The shot string holds together even longer, making this choke good for squirrels, turkey, and other game shot at 40-yard and longer ranges. Turkey hunters sometimes use Extra Full or Turkey choke for even denser patterns at long range.

Effect of Choke on Shot String at Various Distances



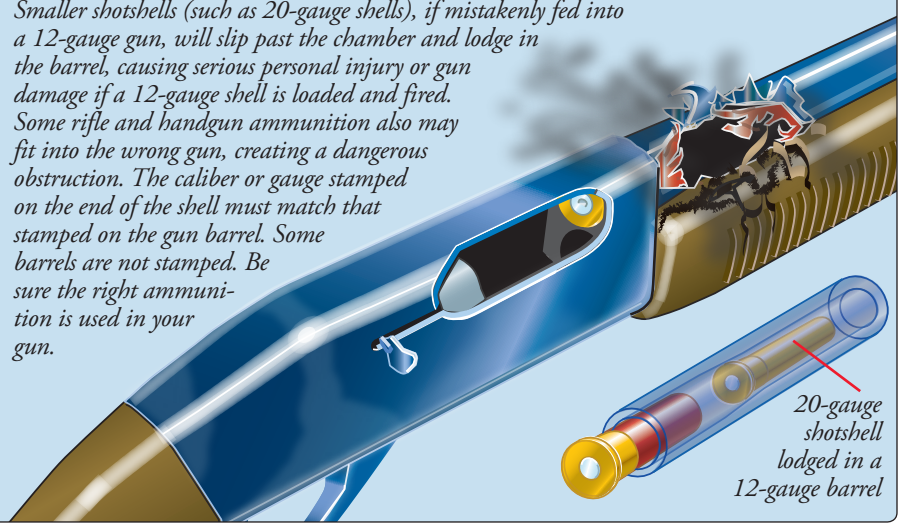
MATCH FIREARMS AND AMMUNITION ... *CORRECTLY!*

With so many kinds of firearms and types of ammunition, it's not always easy to match the proper ammunition to your firearm correctly—but getting it right is critical. If you match the wrong ammunition to your gun, you can cause an explosion, injuring or possibly killing yourself and any bystanders.

- To match the proper ammunition to your rifle, shotgun, or handgun correctly:
  - Read the specific caliber or gauge designations on the side of the barrel. Match that designation *exactly*. For example, if it says ".270 Winchester," you cannot use ".270 Weatherby." Shotgun barrels will give the gauge and the length of the chamber (for example, "12 gauge for 2¾-inch shells" or "20-gauge magnum for 3-inch shells").
  - Carefully read the information on the lid of the ammunition box. With shotgun ammunition, always check both the gauge and the shell length, and whether it's a magnum **load,** to ensure it matches the data on the barrel.
  - Finally, match the information on the barrel to the information on the cartridge or shotshell *before you shoot*. If in doubt, ask a more experienced shooter or a qualified gunsmith. Some store clerks, although they sell ammunition, may not know about the differences in sizes or the type of firearm you shoot.
- Safety practices that will help you avoid using the wrong ammunition are:
  - Purchase only the correct ammunition for your firearm. Buy the exact caliber or gauge and length of ammunition for which your rifle, handgun, or shotgun was designed. For example, shotshell must be the correct length for the shotgun. The data stamp on the barrel of the shotgun will identify what length shell can be used. Never use a shell that is longer than this length.
  - Carry only the correct ammunition for the firearm you're using. Never mix ammunition such as carrying a caliber or gauge your companion uses. A common mistake involves putting a 20-gauge shotshell into a 12-gauge shotgun. The smaller gauge shell will slide through the 12-gauge chamber and partly down the barrel, causing an obstruction. The shooter, especially when excited by the presence of game, then might insert a 12-gauge shotgun shell behind the 20-gauge shell.

WARNING!

Smaller shotshells (such as 20-gauge shells), if mistakenly fed into a 12-gauge gun, will slip past the chamber and lodge in the barrel, causing serious personal injury or gun damage if a 12-gauge shell is loaded and fired. Some rifle and handgun ammunition also may fit into the wrong gun, creating a dangerous obstruction. The caliber or gauge stamped on the end of the shell must match that stamped on the gun barrel. Some barrels are not stamped. Be sure the right ammunition is used in your gun.



20-gauge shotshell lodged in a 12-gauge barrel

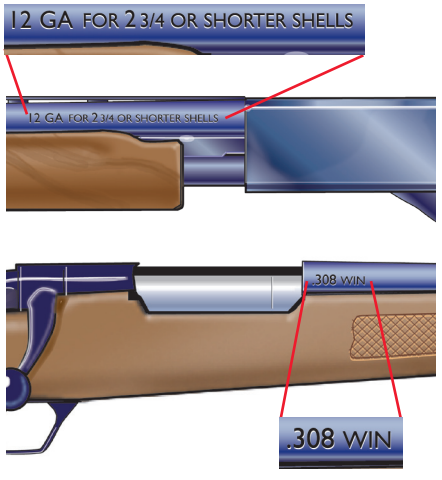
SAFETY TIP

Hang fires happen when the firing pin has struck the primer and there is a delay before the gun fires. This can occur for several reasons, such as a faulty firing pin or spring, defective primer, or other cartridge-related problems. A misfire is when the primer fails to ignite the powder. Hangfires and misfires can happen with any kind of firearm.

Always treat a "misfire" or a "hang fire" as if the firearm is going to discharge at any second and keep the firearm pointed in a safe direction. Leave the action closed and retain your shooting position. Most importantly, maintain safe muzzle control at all times. Failure to follow these safe handling practices could result in a tragedy.

load:
The amount of gunpowder in the cartridge or shotshell together with the weight of the bullet or shot charge

The rear of a shotgun barrel should be marked with the gauge and the length of the chamber.



The data stamp of a rifle is usually stamped toward the rear of the barrel.

History of Firearms

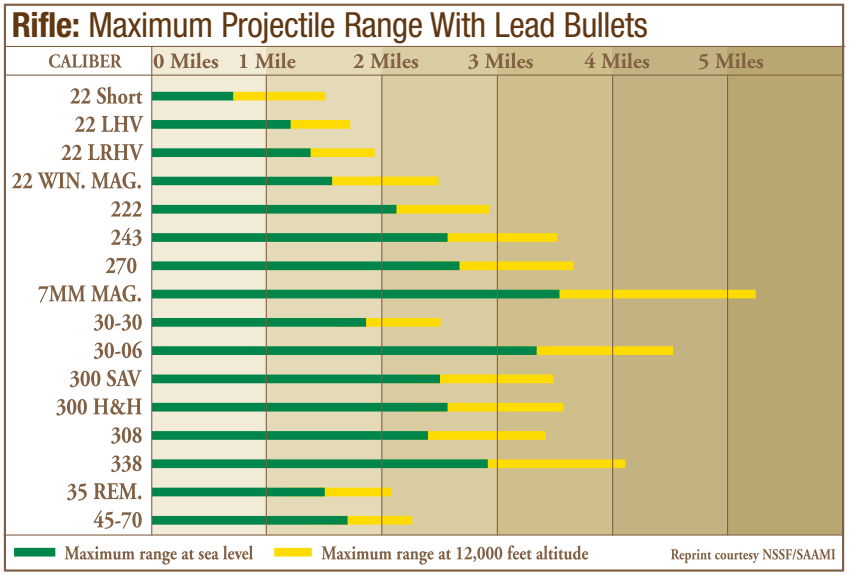
The Chinese are believed to be the first to use gunpowder, now called "black powder." The first firearms were tubes closed at one end, usually made of brass or cast iron. Early firearms were loaded by pouring black powder and shoving a projectile into the tube from the muzzle end, and then igniting the powder using a lighted wick or match. The powder burned, creating pressure that launched metal objects or arrows. These firearms are called "muzzleloaders" due to their loading process.

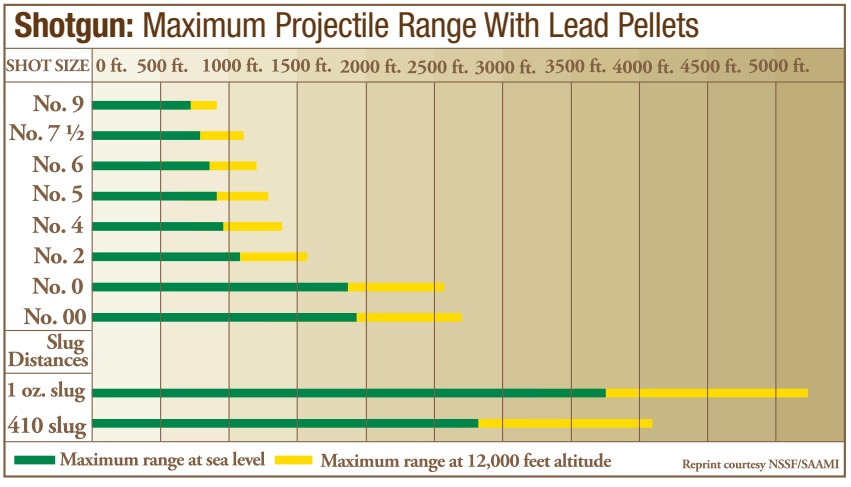
Advances in ignition systems were the major changes that brought about modern firearms.

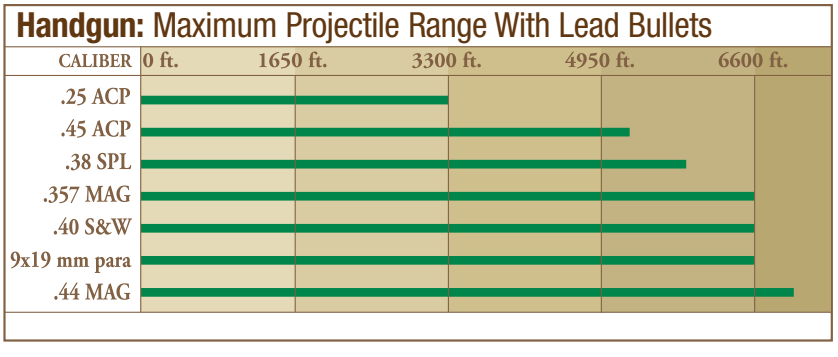
- ***Matchlock ignition** was developed in the early 1400s. When the trigger is pulled, a lighted wick is lowered into a priming pan located next to a vent hole drilled into the closed end of the barrel. When the priming powder ignites, it lights the main charge.*
- ***Wheel lock ignition** replaced the wick of the matchlock in the 1500s. When the trigger is pulled, a coiled spring forces the rough-edged steel wheel to spin against a piece of iron pyrite, creating sparks to ignite the powder in the priming pan.*
- ***Flintlock ignition** appeared in the late 1600s. When the trigger is pulled, the hammer holding a piece of flint falls against a steel cover (the frizzen) sitting over the priming pan. The hammer knocks the cover out of the way, and the collision of flint and steel causes sparks that ignite the powder in the priming pan.*
- *The **percussion lock** (also called "caplock") replaced the flintlock in the early 1800s. Early percussion locks used priming compounds inside a metallic foil cap placed over the vent hole. When the hammer strikes the cap, the resulting spark ignites the main charge.*
- *The next advance, in 1835, was to arrange a series of percussion locks and barrels on a rotating wheel (cylinder) to allow a rapid succession of shots (Paterson revolver). With a single hammer and trigger, multiple shots can be fired without reloading—a **repeating firearm**. The percussion cap revolvers are the forerunners of modern revolvers.*
- *The **percussion cap** also paved the way to the self-contained ammunition we have today—cartridges and shotshells. In the mid-1800s, gunpowder, the projectile, and the primer were put together into a single housing that could be loaded quickly.*
- ***Actions** were developed to allow shooters to load cartridges and shotshells at the rear, rather than the muzzle, end of the barrel.*

KNOW YOUR FIREARM'S RANGE

Knowing your firearm's "maximum projectile range" is critical to being a safe and responsible hunter. The maximum projectile range tells you at what distances your firearm's projectile could cause injury or damage to persons, animals, or objects. When hunting, knowing the "effective killing range" lets you immediately assess when a shot will give a clean kill. The effective killing range will always be less than the maximum projectile range. Learning to estimate distances and knowing your firearm's projectile range and your effective killing range are important parts of hunting.



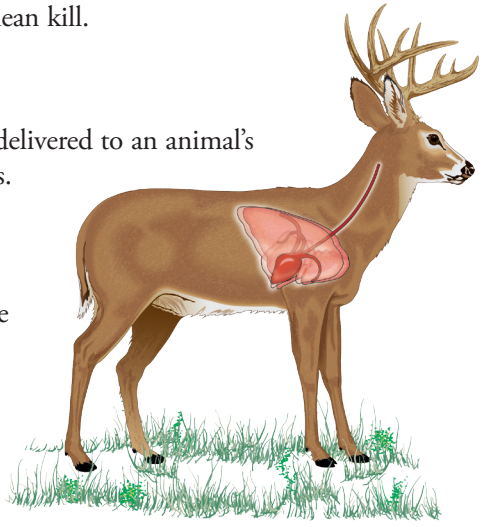




VITAL SHOTS

Every hunter wants to bring home the game he or she is seeking; true sportsmen strive to do it by inflicting a minimal amount of suffering. To achieve these twin goals, it's essential that you understand the anatomy of the game you're after and learn how to place a shot for a clean kill.

Where To Shoot



- The most effective shots are delivered to an animal's vital organs—heart and lungs. In large game animals, these organs lie in the chest cavity behind the front shoulder. A lung shot is the most effective shot for big game.
- The area of the vital organs also contains major blood vessels and arteries. A shot in this area causes considerable bleeding. If the animal doesn't die immediately and tries to flee, it will leave a blood trail that's easy to track.
- Aside from being a good marksman, the key to a clean kill is patience. Hunters should limit shots to the vital organs only. If you do not have clear shot to the vital organs, wait until the animal presents the best possible shot.

Choosing the Proper Shot Angle

The shot angle is the angle at which the animal is standing in relation to the hunter. Knowing which angles offer the most effective—and least effective—shots is an essential part of being a responsible hunter.

- **Broadside**

  The broadside shot angle is the preferred shot angle for both firearm and bow hunters for larger game animals, such as elk, deer, and bear.

  - **Firearm:** The broadside position offers several excellent shots for a firearm hunter. The best target is the shoulder and chest area. A bullet of the correct weight and fired from a firearm adequate for the game will break the shoulder bone and enter the lungs or heart.
  - **Bow:** The broadside angle offers the best shot for the largest big game animals, such as elk, deer, and bear. For most big game, the aiming spot is straight up from the back side of the front leg, one-third of the way up from the bottom of the chest. An arrow will penetrate the ribs but not the shoulder bone; wait until the near leg is forward, and aim behind the shoulder.

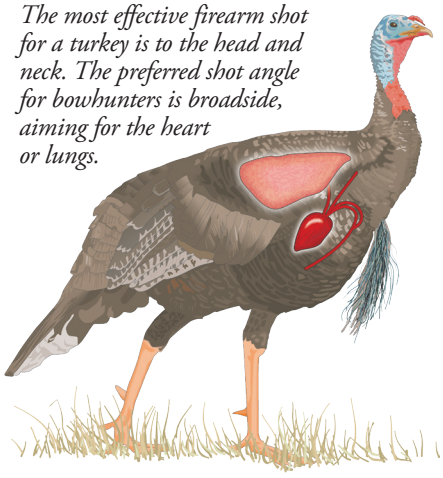
- **Quartering-Away**

  The quartering-away shot angle is when your target is facing away from you, but at an angle. The animal is usually looking away from you.

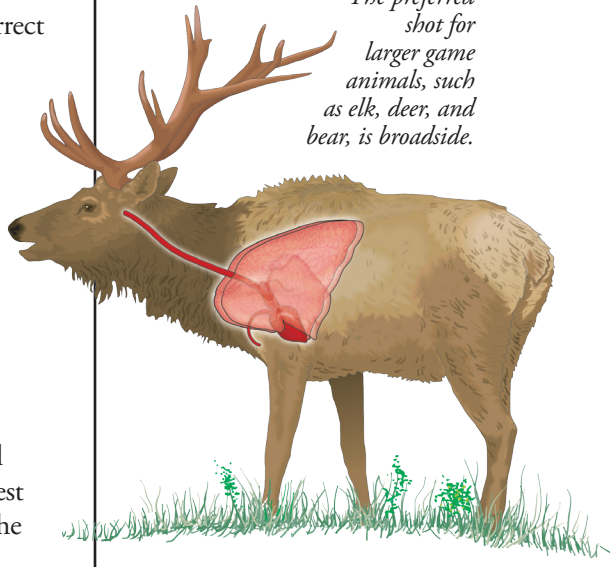
  - **Firearm:** For firearm hunters, the quartering-away position offers several aiming spots on all big game. The area just behind the shoulder is the best aiming spot for direct penetration of the vital organs. Focus on hitting the chest area above the opposite front leg.

REMEMBER ...

It's difficult to hit a vital area on an animal that is running or moving straight away from you. Rather than risk crippling the animal or ruining meat, wait for a better shot.



The most effective firearm shot for a turkey is to the head and neck. The preferred shot angle for bowhunters is broadside, aiming for the heart or lungs.



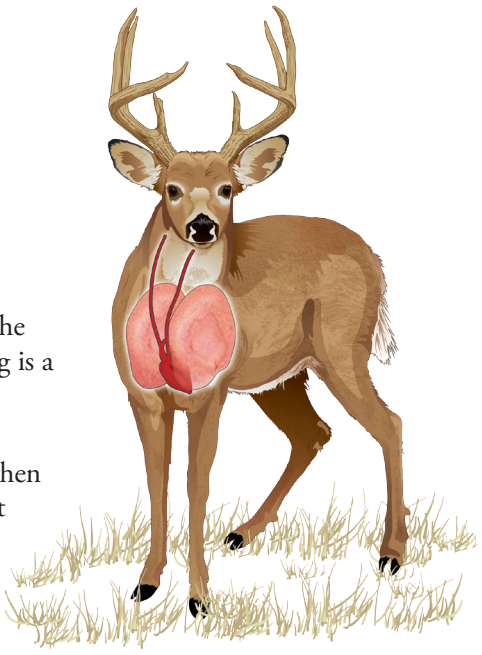
The preferred shot for larger game animals, such as elk, deer, and bear, is broadside.

Trailing Wounded Game

It is a hunter's ethical responsibility to stop the hunt and search for any wounded animal.

- *You should wait for at least a half-hour to an hour before trailing a deer, unless the downed deer is in sight.*
- *Make a practice of carefully observing every movement of a game animal after you shoot it. Investigate the ground and trail after shooting before assuming you missed.*
- *Once at the site of the shot, look for signs:*
  - *Blood on the ground or vegetation*
  - *Broken twigs or branches, or scattered leaves*
  - *A "dew" line if early in the morning*
  - *Tracks*
  - *Hair, meat, or bone fragments*
  - *Downhill trails, especially toward water*
- *If you lose a trail, search in a circular or grid pattern and try to pick up the trail again.*
- *Use fluorescent orange flagging to mark the blood trail in case darkness or weather forces you to quit the search and return the next day. Marking the blood trail also shows where to look for more signs if you lose the trail. Be sure to remove the orange flagging after use.*

Approach downed game from above and behind the head; and wait a short distance away, watching for any rise and fall of the chest cavity.



- **Bow:** The quartering-away shot angle offers a good opportunity for a clean kill on antelope, white-tailed deer, mule deer, black bear, and other big game of similar size or smaller. This is not a good shot for bowhunters on larger game because their massive stomachs and intestines will block a clean shot to the lungs or heart. The opposite front leg is a good reference point for aiming.

Quartering-Toward

The quartering-toward shot angle is when the animal is facing toward you, but at an angle. Since the animal is typically looking your way, it most likely will spot your movements.

- **Firearm:** The quartering-toward angle presents a clean shot to the vital organs. A shot can be taken at this angle if the gun is already trained on the animal. For an effective hit, aim at the front of the shoulder of the near front leg. *Caution:* A light bullet may deflect off the shoulder bones of large game, such as elk, deer, or large bears. Be certain to use a firearm and ammunition adequate for the game you hunt and the angle of shot you might select.
- **Bow:** This angle offers a poor shot opportunity and **should not be taken**. Heavy shoulder bones shield the majority of vital organs from broadhead-tipped arrow penetration. Also, bowhunters should never fire an arrow at an animal that is looking at them.

Head-On

The animal will certainly detect your movements with a head-on shot angle.

- **Firearm:** A head-on shot can be effective if you have an adequate firearm and your firearm is already positioned for the shot. However, head-on shots rarely result in a clean kill and ruin a lot of meat. Aim at the center of the chest to hit the vital organs.
- **Bow:** These angles offer very poor shot selection and **should not be taken**. Heavy bones in front and muscle mass and non-vital organs in back block penetration of the main vital areas.

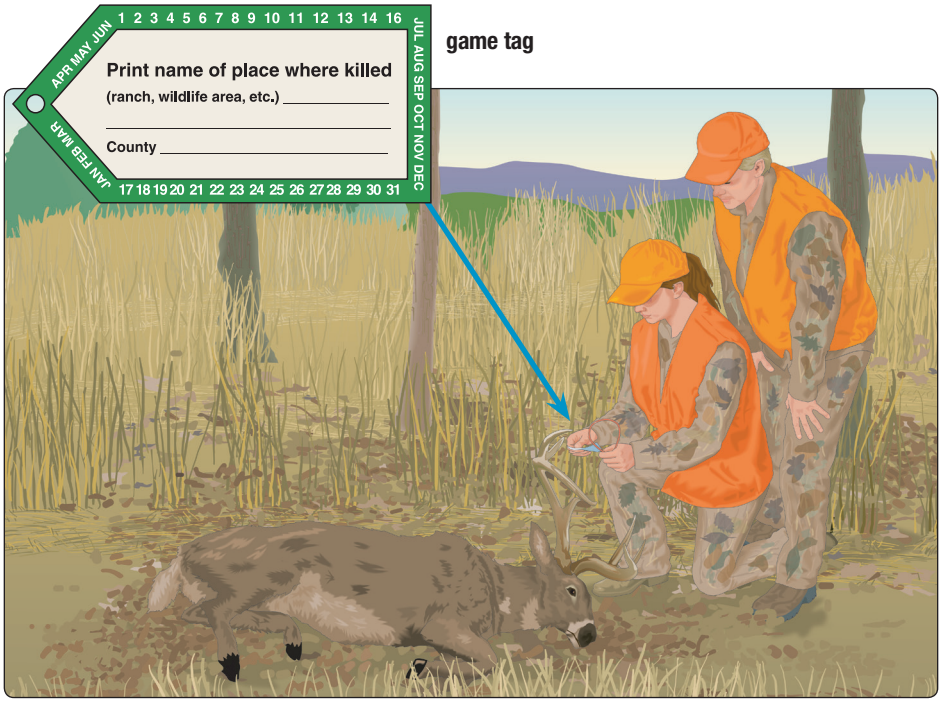
Rear-End

The rear-end shot **should not be taken** by hunters using firearms or bows.

Approaching Downed Game

- A downed deer or other large animal should be approached carefully from above and behind the head.
  - If the animal appears to be dead, wait a short distance away for a few minutes. Watch for any rise and fall of the chest cavity.
  - Notice if the eyes are closed—the eyes of a dead animal are usually open. You can be certain that the animal is dead if the eye doesn't blink when touched with a stick.

- If the animal is still alive, it should be finished with a quick shot to the base of the ear. If you wish to mount the head, place your shot in the heart-lung area. For bowhunters, the only option is placing an arrow in the heart-lung area.
- Once the animal is dead, follow the state regulations for reporting or recording a kill. Some states require you to tag the animal immediately and indicate the date of the kill. Then begin field dressing.



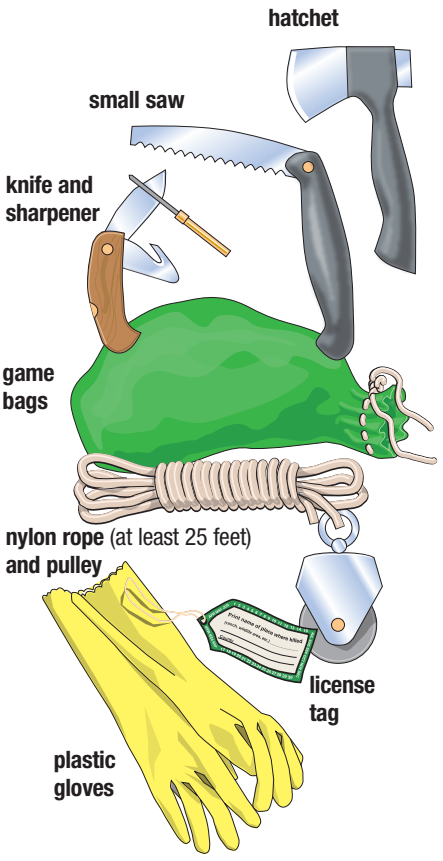
FIELD CARE OF GAME

The way you handle game after it's harvested can have a significant impact on the quality of the meat.

Field Care Basics

- The growth of bacteria is the cause of spoiled meat. Three factors contribute to bacteria growth.
  - **Heat:** Heat is the number one concern. Bacteria grow rapidly in a carcass, especially if it's allowed to stay warm. Meat begins to spoil above 40° Fahrenheit. The higher the temperature—and the longer the meat is exposed—the greater the chance of spoilage. This is particularly true with large game.
  - **Moisture:** Moisture also encourages the growth of bacteria.
  - **Dirt:** Dirt can introduce bacteria.
- Basic field dressing techniques help cool game by removing entrails, which lowers body heat by allowing air into the body cavity. As a rule, it's best to field dress immediately.
  - When cooling the body, use available shade. Hang deer, if possible. For larger animals like deer, elk, and moose, you should prop the carcass open with a clean stick to allow air to circulate.

Game Care Kit



Other typical items include:

- *Black pepper to repel insects*
- *Cheesecloth bags for organs you plan to use as meat (heart, liver)*
- *Cooler and ice*
- *Disposable plastic gloves*
- *Fluorescent orange flagging*
- *Foil*
- *Gambrel and pulley system*
- *Hand towels*
- *Large bag for caped or trophy head*
- *Plastic bags for cleanup*
- *Plastic or cotton gloves*
- *Salt (noniodized) for hide care*

Field Dressing Larger Game

Here are some additional tips for dressing large game.

- *Because it's harder to move larger animals, you may need to skin and quarter the animal to pack it out, particularly in a remote area.*
- *If you're unable to hang the animal for skinning, begin by making a lengthwise cut and removing one side of the hide. Then turn the animal onto the skinned hide and skin the other side.*
- *To keep dirt off the meat, use the inside of the removed hide as a protective mat as you quarter the animal.*
- *Put each quarter in a game sack and attach the sacks to a backpack frame for the hike out.*

REMEMBER ...

A clean kill improves the flavor of game meat. A wounded animal that has to be chased down yields strong-flavored meat because waste products, produced by stress, accumulate in the flesh.

- In warm weather, it's helpful to place squirrels and doves in a cooler after dressing, as long as they remain dry.
- Dispose of entrails carefully. Don't leave them lying by the side of a road or near a residence where they can be dragged home by a dog.
- Keep meat clean by covering it with cheesecloth. This also protects it from flies, which lay eggs in exposed flesh. Rubbing meat with black pepper also will repel insects. If you have to drag the game to camp, try to keep dirt and debris out of the chest cavity.
- Because moisture damages meat, don't use excessive amounts of water to wash the cavity. Allow it to dry.
- If you plan to process the animal yourself, skin the animal as soon as possible to allow the carcass to cool.

- Finally, a sure way to ruin meat—as well as earn the disdain of non-hunters—is to tie the animal to the hood or roof of a car, where it's exposed to heat, exhaust fumes, road salt, and airborne dust.

Transporting Game

- Keep the dressed game cool and free of insects. If you've quartered the animal, pack the quarters in ice chests—don't process the deer beyond quartering until you reach your final destination. Be sure to keep proper "evidence of sex" if required by your game laws.
- Most hunters take their game to a commercial meat cooler, where a typical white-tailed deer can be properly aged up to three or four days at 40° Fahrenheit.

When transporting game, be sure to keep it covered to avoid offending others.

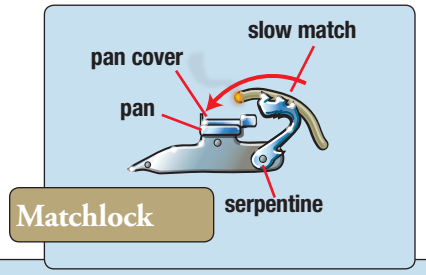
Objectives
You should be able to...

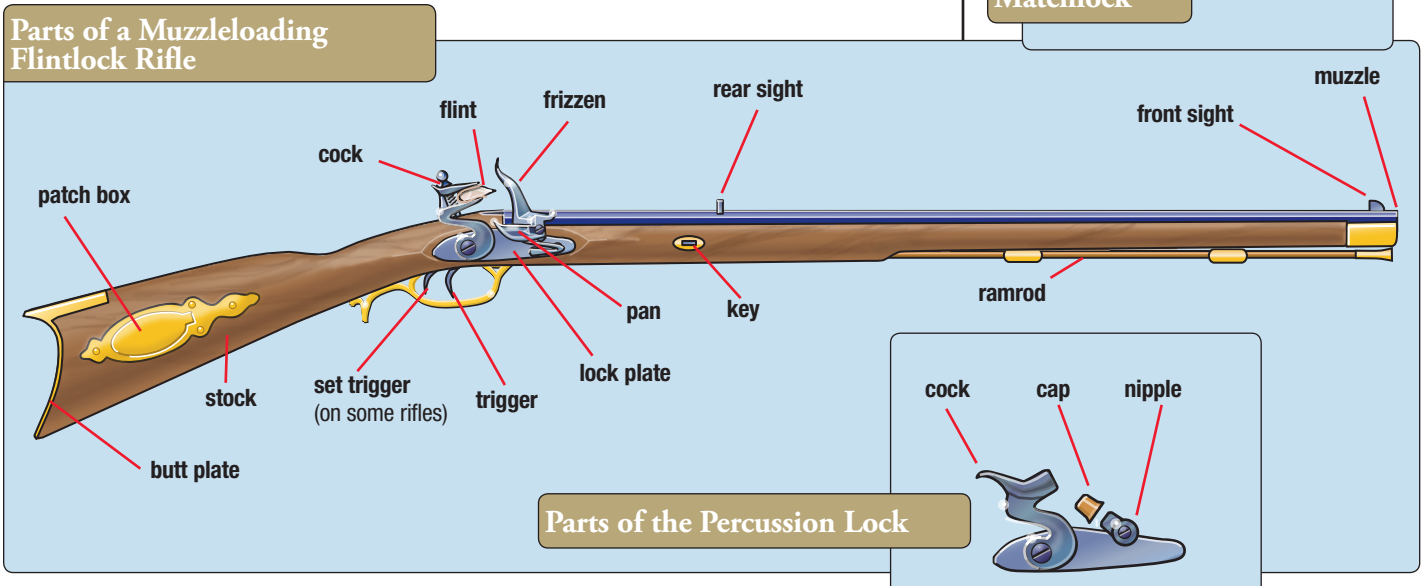
- Identify the basic parts of a muzzleloader.
- Explain why you should use only black powder or a synthetic substitute in muzzleloaders.
- State three safety practices when using muzzleloaders.
- Demonstrate safe loading and unloading of a muzzleloader.
- Demonstrate safe firing of a muzzleloader.
- Identify the common bow types and their basic parts.
- Identify the basic parts of an arrow.
- List the different types of arrowheads and the primary use of each.
- State three safety practices for archers.
- Explain additional precautions that must be practiced when using broadheads.
- Explain the safety rules that should be followed when using a crossbow.
- Demonstrate how to nock an arrow and how to draw and anchor the bow.
- Demonstrate how to use a bowsight and how to aim a bow instinctively.

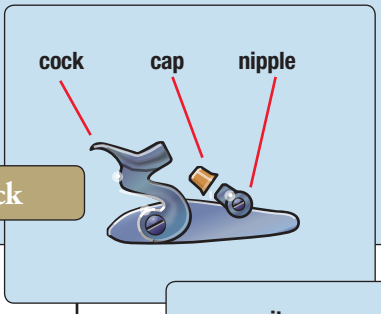
KNOW YOUR MUZZLELOADER

Primitive hunting arms include the muzzleloader firearm, the bow and arrow, and the crossbow. Today, these hunting arms are sought as collector's items and used for sporting purposes.

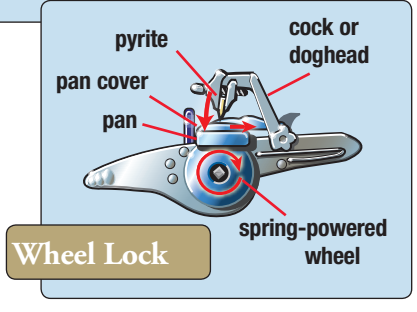
Muzzleloader is the term given to early firearms because they are loaded from the muzzle or open end. Read about the history of muzzleloaders in Chapter Two.

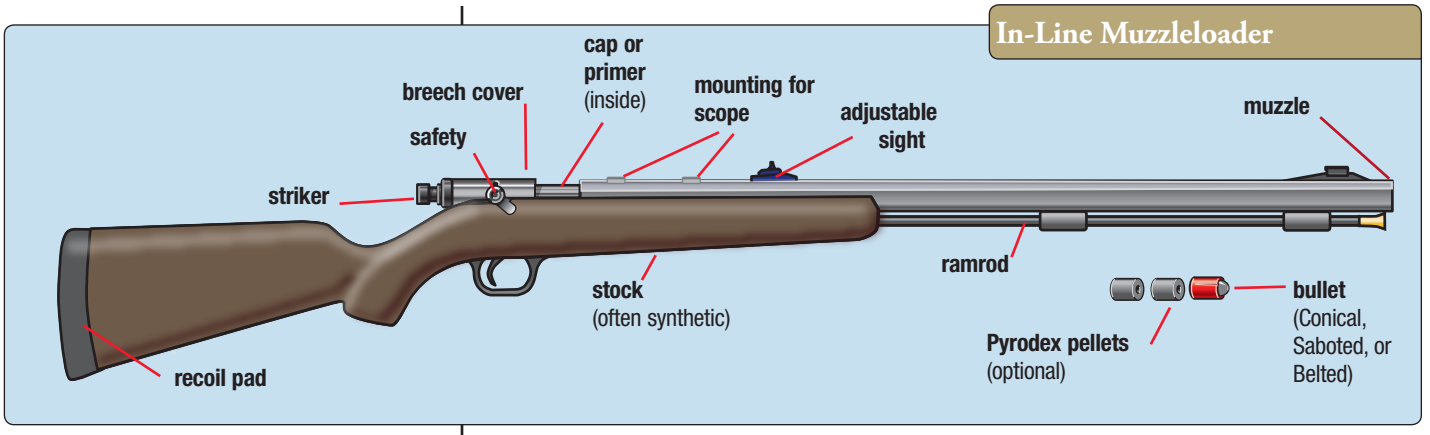






- On these early firearms, locks played the role of modern-day actions. Matchlock and wheel lock muzzleloaders are rare and valuable, but they also may be unsafe to use. Flintlocks and percussion locks are the muzzleloaders typically used for shooting competitions and for hunting. They are generally less expensive, lighter, more reliable, and easier to load and maintain than matchlocks and wheel locks.





Ammunition for Muzzleloaders

Three types of projectiles—the round ball, the bullet, and shot—are used in muzzleloaders. Most are melted and cast from pure lead.

Round balls are used mainly for target practice but also can be used for hunting. Bullets are preferred for hunting because they are generally more accurate at certain ranges. Shot pellets are designed to spread, just as with today's shotguns.

Black powder is made of potassium nitrate (saltpeter), sulfur, and charcoal. When ignited, it causes a dense cloud of white smoke. It comes in four sizes or granulations.

- ***Fg:*** *Coarse grain typically used in cannons, rifles larger than .75 caliber, and 10-gauge shotguns or larger*
- ***FFg:*** *Medium grain typically used in larger rifles between .50 and .75 caliber, 20-gauge to 12-gauge shotguns, and pistols larger than .50 caliber*
- ***FFFg:*** *Fine grain typically used in smaller rifles and pistols under .50 caliber and smaller shotguns*
- ***FFFFg:*** *Extra-fine grain typically used as a priming powder in flintlocks*

Pyrodex and Clear Shot are black powder substitutes that can be used in amounts equal to black powder, but loading may vary. Be sure to get instructions from a qualified gunsmith for loading procedures. Substitutes are not recommended for use in flintlocks because they may not ignite from sparks as easily.

- Muzzleloaders are most commonly rifles. However, there are also smooth-bored muzzleloaders—shotguns. Shotgun muzzleloaders can have either a single barrel or double barrels joined side-by-side. When loading the double-barreled muzzleloader, it's critical to avoid putting the two loads down the same barrel. Double-barreled guns usually have two locks, one for each barrel. This allows the shooter to fire each barrel separately before the gun is reloaded. Most double-barreled guns were designed with two triggers.
- Muzzleloading handguns come as both pistols and revolvers. Pistols are mainly single-shot. The revolvers contain multiple-shot chambers. Chain firing muzzleloading revolvers can be dangerous. When the chamber round is fired, it produces sparks that could accidentally ignite loads in another cylinder(s). Therefore, be sure to protect each load in the cylinder with a coating of grease to prevent sparks from entering the open end of the other cylinders.
- Black powder is the only type of powder that should be used in muzzleloaders. However synthetic substitutes, such as Pyrodex, also can be used. Don't use modern-day smokeless powders in black powder firearms. Smokeless powders can cause serious injury if used in muzzleloaders.

BASIC MUZZLELOADER SAFETY AND SKILLS

Cleaning a Muzzleloader

- Firing a muzzleloader leaves a corrosive residue inside the barrel that causes pitting and reduces accuracy. The buildup of residue, called fouling, also will make loading difficult.
- To avoid fouling, swab the barrel with a moist patch after each shot. The patches or cleaning rags used to wipe the barrel must be the correct size and should be made of cotton or approved synthetic materials. Follow the recommendations of retailers who sell muzzleloaders or those who regularly use muzzleloaders.
- Thoroughly clean a muzzleloader after each shooting session. Black powder residue can damage the barrel if left overnight.
- Clean the gun's lock periodically. Normally it's held in place by one or two bolts. Once the lock has been removed, scrub both sides with an old toothbrush and hot water. Make sure the entire lock is completely dry, and then lightly oil and replace it.

Loading a Muzzleloader

- Loading or charging a muzzleloading firearm presents some special concerns because it requires the muzzle to be pointed upward.
- For rifles, position the butt on the ground between your feet. You should be facing the underside of the barrel. The muzzle should be pointed upward and away from your body. Never work directly over the muzzle.
- Determine if the gun is already loaded by checking the barrel with a marked ramrod, which has an "unloaded" or empty marking. If you aren't sure, consult an experienced muzzleloader user or gunsmith.
- Measure out the proper amount and type of powder using the calibrated powder measure. Replace the powder flask's cap, and swing the flask to the other side of your body. Pour the powder into the barrel from the measure. Tap the barrel to make sure all powder falls to the breech end.
- Center a lubricated precut patch over the muzzle. You can lubricate the patch using a manufactured lubricant or using saliva by placing it in your mouth. Lay the ball on the patch with the sprue or flat side up, if the ball comes with this feature. Then seat the ball and start it down the barrel using the short starter.
- Use the longer ramrod to push the ball the rest of the way, making sure it's seated well on the powder charge. Push the ramrod in short strokes, gripping it just a few inches above the muzzle. If you use longer strokes, you might accidentally snap the rod and injure your hands or arm. Your ramrod should be marked to show when the ball is properly seated over a specific load, such as 70 grains of FFFg powder.

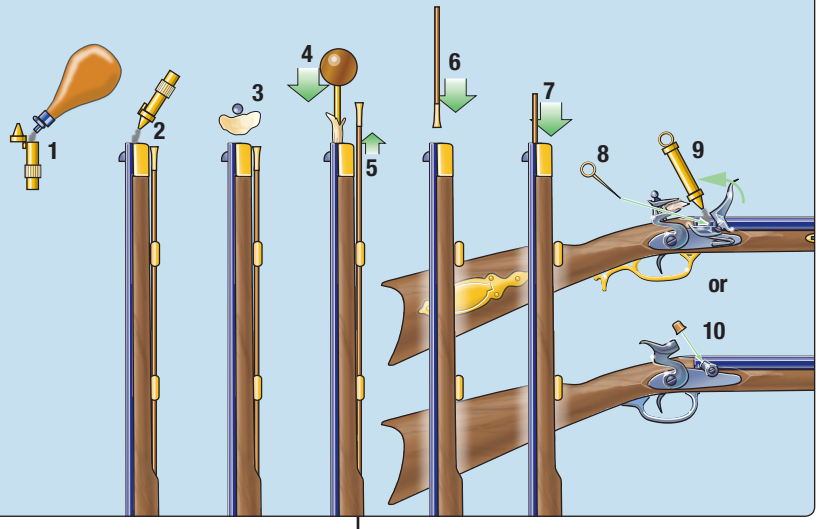
Basic Muzzleloader Safety

Muzzleloaders take significantly more knowledge to operate than modern firearms. They also present greater risks. Several rules must be followed to ensure safe operation.

- *Keep the muzzle pointed in a safe direction. Do not lean over, stand in front of, or blow down the muzzle.*
- *Use only black powder or a safe substitute in a muzzleloading firearm.*
- *Wait until you're ready to fire before you prime or cap a muzzleloader.*
- *Always wear shooting glasses and ear protection when shooting a muzzleloader; a long-sleeved shirt is also advisable.*
- *Never smoke while shooting or loading or when near a powder horn or flask.*
- *Load a muzzleloader directly from a calibrated powder measure—do not load from a horn, flask, or other container. A loose spark or glowing ember in the barrel can cause the powder to explode.*
- *Load only one charge at a time.*
- *Unload a muzzleloader before bringing it into your home, camp, or vehicle.*
- *Stay with your charged muzzleloader at all times.*

Steps for Loading a Muzzleloader

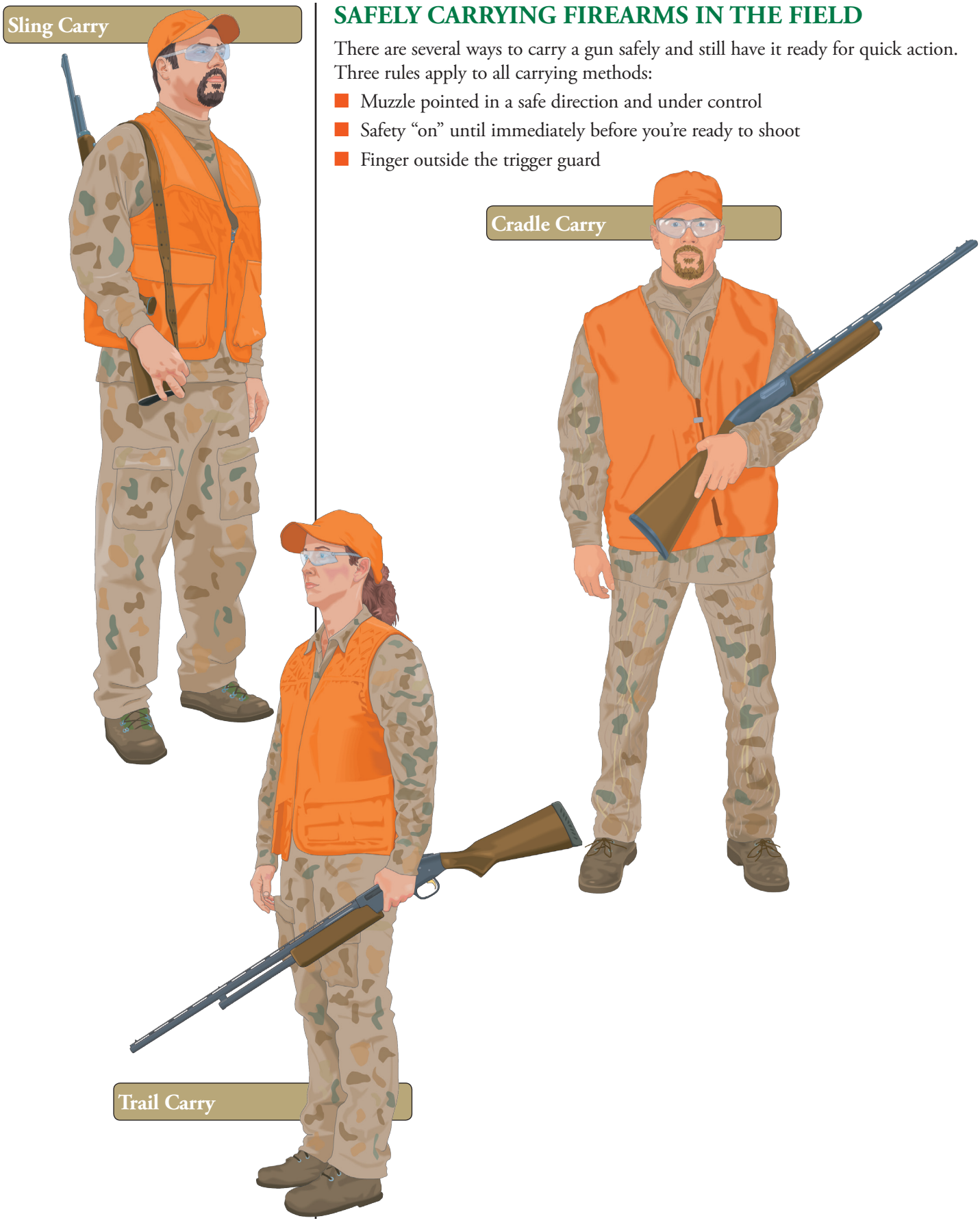
1. *Measure powder charge.*
2. *Pour measured powder down barrel.*
3. *Place patch and ball on muzzle.*
4. *Tap ball into barrel with starter.*
5. *Take out ramrod.*
6. *Ram ball down barrel.*
7. *Be sure ball is completely seated.*
8. *Clear vent hole with pick if necessary.*
9. *On flintlock muzzleloader, pour powder into pan and close frizzen.*
10. *On percussion lock muzzleloader, place cap on nipple.*



SAFELY CARRYING FIREARMS IN THE FIELD

There are several ways to carry a gun safely and still have it ready for quick action. Three rules apply to all carrying methods:

- Muzzle pointed in a safe direction and under control
- Safety "on" until immediately before you're ready to shoot
- Finger outside the trigger guard



Proper Field Carries

- **Sling Carry**
  Easy carry for long treks through open country. Keep a hand on the sling when walking so that it doesn't slide off your shoulder if you trip. Not recommended for thick brush because the gun could be knocked from your shoulder.
- **Trail Carry**
  Leaves a hand free for balance, but don't use it when you're behind someone. Not recommended when walking in snow or brush—debris can get in the barrel.
- **Cradle Carry**
  Comfortable and secure; reduces arm fatigue.
- **Elbow or Side Carry**
  Comfortable, but it has the least muzzle control. It also can snag in brushy terrain. Use it when no one is in front of you.
- **Shoulder Carry**
  Good choice when walking beside or behind others. Don't use it if someone is behind you.
- **Two-Handed or "Ready" Carry**
  Provides the best control, particularly in thick brush or weeds, or when you need to fire quickly.

Two-Handed or "Ready" Carry

Shoulder Carry

Elbow or Side Carry

Checking for Obstructions

Occasionally you may trip or stumble in the field, accidentally dipping the barrel into the ground or snow. Immediately check for an obstruction.

- *Point the muzzle in a safe direction.*
- *Open the action, and make sure the firearm is unloaded.*
- *Check for debris in the barrel. If the firearm is a break action, look through the barrel from the breech end, or use a barrel light to inspect the barrel for obstructions.*
- *Remove any obstructions with a cleaning rod.*
- *Check the barrel again to make sure no debris remains.*

Selecting the Right Carry When Hunting With Others

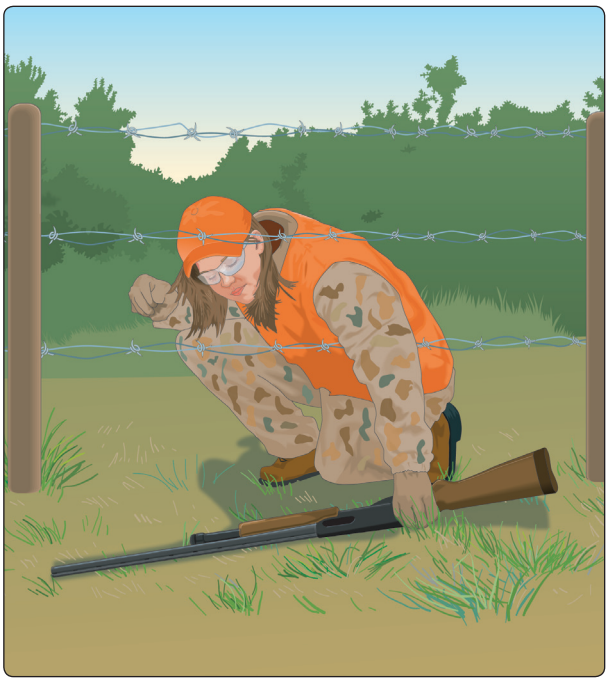
Carry selection is based primarily on muzzle control and terrain.

- If three hunters are walking side by side, the ones at the sides may carry their guns pointing either to the side away from their party or to the front. The one in the center should keep the gun pointing to the front or up.

- If three hunters are walking single file, the one in the lead should have the gun pointed ahead but never over the shoulder. The one in the middle must have the gun pointed to the side. The hunter in the rear may point the gun to either side or the rear.

- When facing another hunter, any carry is safe except the trail carry or forward-facing elbow or side carry.
- Remember that the same rules for safe carry apply when your hunting companion is a dog.

Crossing Obstacles



- Always unload guns before crossing fences or other obstacles or before negotiating rough terrain.
- Cross wire fences close to a fence post to prevent damage to the fence.
- After unloading it, place the gun on the other side of the fence or obstacle to be crossed, with the muzzle pointed away from you and your crossing point. Then cross the fence and retrieve your gun.

- Pull a gun toward you by the butt—never by the muzzle.
- If two people are crossing, one person gives the other person both guns, crosses first, and then receives the unloaded guns from the other hunter.

REMEMBER ...

In addition to gun handling, several other factors affect your safety during the hunt:

- *Weather, especially the sun's glare*
- *Pests, such as fire ants, snakes, and bees*
- *Your emotional state*
- *Your stamina, especially when hunts are physically demanding*

REMEMBER ...

Removal of ammunition from the magazine or removal of the magazine from the firearm does not mean the firearm is unloaded!

SAFELY LOADING AND UNLOADING FIREARMS

Even something as simple as loading or unloading a firearm can result in tragedy if it isn't done properly. Here's how to do it safely.

Loading

- Point the muzzle in a safe direction.
- Open the action; make sure the barrel is unobstructed.
- Put the safety on if the firearm can be loaded with the safety on.
- Load the ammunition.
- Close the action.
- Put the safety on if you were not able to do so before loading.

Unloading

- Point the muzzle in a safe direction.
- Put the safety on if it is not already on.
- Keep your finger outside the trigger guard.
- Open the action.
- Remove the ammunition by first detaching the magazine. Eject cartridges or shells if it's the only way to remove them. (See "Firearm Actions" in Chapter Two for details on specific actions.)
- Make sure the gun is empty by checking both the chamber and the magazine.

SAFELY TRANSPORTING FIREARMS

Transporting firearms involves both legal and safe practices. In addition to federal laws, there are regulations that vary from state to state.

General Rules

- Always unload and case firearms before transporting them. In many states, this may be the law. The action should be open or the gun broken down, whichever makes the firearm safest if it's mishandled.
- Firearms should not be displayed in window gun racks because the display may provoke anti-hunter sentiment. It's also an invitation to thieves.
- Lean a firearm against a secure rest only. A vehicle does not provide a secure resting place. A gun that falls over might accidentally discharge or be damaged.

Typical Gun Cases

Padded, soft-sided case

Material: Canvas, nylon, neoprene, polyester, or leather

Advantages:

- *Light, easy to handle and store*
- *Many designs accommodate scoped rifles*
- *Offered in camouflage*
- *Waterproof and floating cases available for duck hunters*
- *Less costly than hard cases*

Disadvantage:

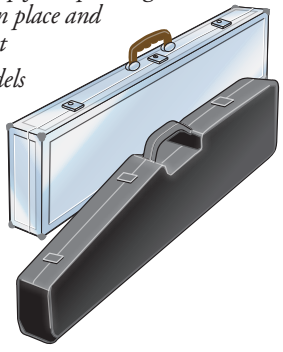
- *Less protection than hard-sided cases*

Lockable, hard-sided case

Material: Aluminum or composite

Advantages:

- *Lightweight but sturdy*
- *Meets airline standards*
- *Can include deep foam padding that holds firearm in place and cushions impact*
- *Composite models can be molded to fit firearm*
- *Available in waterproof models*



Disadvantage:

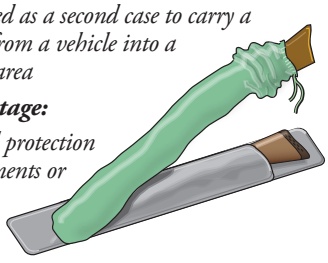
- *Bulkier and costlier than soft-sided cases*

Gun sock

Material: Durable stretch fabric (polyester/acrylic) or soft pile materials

Advantages:

- *Lightweight protection from dust, dirt, and moisture*
- *Offered in camouflage*
- *Often used as a second case to carry a firearm from a vehicle into a hunting area*



Disadvantage:

- *Minimal protection from elements or impact*

SAFETY TIP

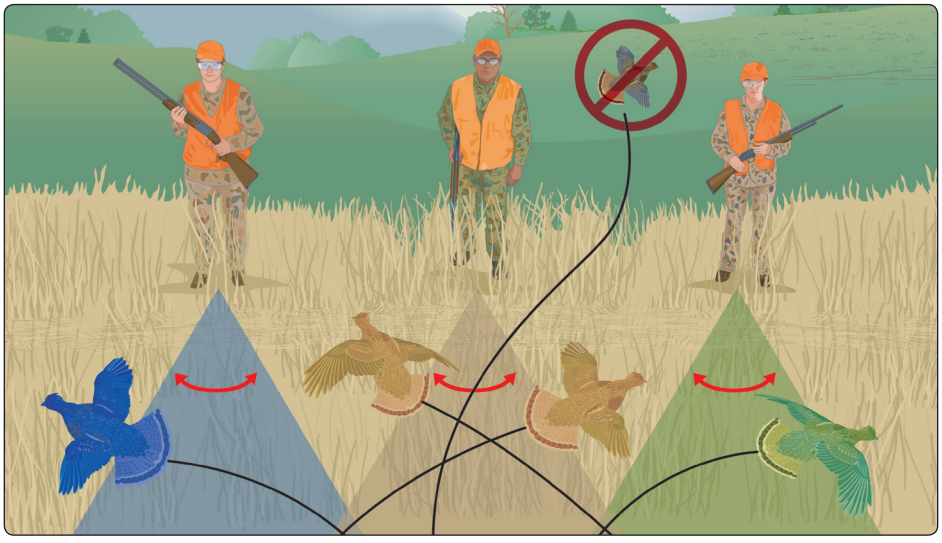
A hunter's zone-of-fire changes with every step. It's important to remain alert and aware of your companions' locations at all times.

SAFE ZONE-OF-FIRE

The area in which a hunter can shoot safely is referred to as a zone-of-fire. Before setting off in a group, hunters should agree on the zone-of-fire each person will cover. A zone-of-fire depends on many factors, including the hunter's shooting ability, the game being hunted, the hunting environment, and the hunting strategy being used. A hunter's zone-of-fire changes with every step. This is particularly true of groups hunting birds, rabbits, or other small game.

- For safety purposes, it's best to have no more than three hunters in a group. For new hunters, two is a safer number until they become familiar with maintaining a proper zone-of-fire.
- Hunters should be spaced 25 to 40 yards apart and always in sight of one another. Each hunter has a zone-of-fire which spans about 45 degrees directly in front of each hunter. (Some states require an adult to be immediately beside a youth hunter. In this case, the adult should be a supervisor only—not a hunter.)
- A way to visualize 45 degrees is to focus on a distant, fixed object that is straight out in front of you. Stretch your arms straight out from your sides. Make a fist with your thumbs held up. Gradually draw your arms in toward the front until both thumbs are in focus without moving your eyes. This will give you your outer boundaries.

Only one hunter should aim at the target. Also, hunters should only shoot if there is an adequate backstop. Don't shoot at a "skylined" animal.



SAFETY TIP

When hunting in a group, hunters should shoot only at game in front of them.

- If three hunters are walking side by side hunting pheasants, the hunter in the center will shoot at birds flushed in the middle which fly straight away. The other hunters will shoot at birds flying toward their end of the line.
- If a bird turns and flies back across the line of hunters, it's best if all three hold their swings and do not fire. The same is true of a rabbit scurrying back between the hunters.
- No hunter, especially when swinging on game, should allow his or her gun to point at a person. Better to pass up a shot than risk injuring someone or damaging property.
- Everyone hunting in these situations should wear daylight fluorescent orange whether it's required by law or not.

OTHER SAFETY CONSIDERATIONS

Self-Control and Target Identification

- Some hunters may become overly anxious or excited on a hunt, which can lead to careless behavior. They may fire at sounds, colors, movements, or unidentified shapes, or simply shoot too quickly. In the excitement after hitting their target, they may swing a loaded firearm toward their companions or run with the safety off toward a downed animal.
- Slow, careful shooting is not only safer, but it also produces a higher degree of success.

Accuracy

- Shooting accurately is not only the key to successful hunting, but it's also a safety factor. Some incidents, often deadly ones, have occurred when stray bullets have hit people out of the shooter's sight. Be sure you have a proper backstop before you shoot.
- Accuracy is also essential for achieving a clean kill. No real sportsman wants to wound game and cause needless suffering. You must learn how to hit the vital organs of the game you hunt. Knowing your game, equipment, and skill level will tell you when you're in position to make a clean kill.

Alcohol and Drugs

- Consuming alcohol before or during the hunt increases the risk of incidents because it impairs coordination, hearing, vision, communication, and judgment.
- Drugs can have a similar effect. If you have to take prescription medicine, check with your physician to see if it's safe to take while hunting.

HUNTING FROM ELEVATED STANDS

Elevated stands place the hunter above ground level. They can be tree stands placed in or against trees, or free-standing structures. They have become increasingly popular in recent years with both firearm and bow hunters. While they offer certain advantages, they also have some drawbacks, including a degree of risk.

- **Advantages**
  - Provide a wider field of vision—game is spotted sooner than at ground level
  - Allow time to plan for best shot through earlier detection of game
  - Position a hunter above the animal's normal field of vision
  - Make a hunter's scent harder to detect and movement less noticeable
  - Make a hunter more visible to other sportsmen so that he or she is less likely to be hit by a stray bullet
  - Provide a good backstop for arrows or bullets due to shooting at a downward angle
- **Disadvantages**
  - Increase risk of injury resulting from falling
  - Can be difficult to carry, especially large, portable stands
  - Provide no protection from cold or wind
  - Give little room for movement
  - Cannot move toward game while hunting

REMEMBER ...

A rifle scope should never be used as a binocular.

SAFETY TIP

Self-control is an essential aspect of hunter safety. Only shoot when you know the target is legal game and that no people, domestic animals, buildings, or equipment are in the zone-of-fire—remember that bullets can pass through game and continue on for some distance with deadly force.

A DEADLY MIX

The best thing you can do for your safety and the safety of others is simple ...

Don't drink and hunt!

Because you can drink faster than your system can burn the alcohol off, there is an increasing level of alcohol in your blood. This level is referred to as Blood Alcohol Concentration (BAC).

Elevated Stand Location

- *Place a stand adjacent to game trails or where game sign is abundant.*
- *Place a stand no higher than necessary.*
- *Never place a stand in a dead tree, in trees with large overhanging dead limbs, or on or near utility poles.*
- *Select only trees that are straight.*
- *Locate the stand downwind from the animals' expected route.*
- *Never place stands on fence lines or near another landowner's property.*

Be a Responsible and Ethical Hunter

Objectives
You should be able to...

- Give five reasons why we have hunting laws.
- State how the "father of wildlife management" defined ethical behavior.
- Describe how responsible and ethical hunters show respect for natural resources.
- Describe how responsible and ethical hunters show respect for other hunters.
- Describe how responsible and ethical hunters show respect for landowners.
- Describe how responsible and ethical hunters show respect for non-hunters.
- Identify public and private land where you can go hunting.
- List and describe the five stages of hunter development.
- Give three examples of what you can do to be involved in making hunting a respected sport.

Know the Law

Ignorance of hunting laws is not a valid excuse for violating them. It is the hunter's responsibility to review state game laws before the hunting season.

REMEMBER ...
A substantial amount of funding for wildlife management comes from the purchase of licenses, which annually raises millions of dollars.

How Hunting Laws Are Passed

In most states, a wildlife management agency sets hunting regulations. These agencies will have regular meetings where the public can voice their concerns and make suggestions. Hunters wishing to propose changes to the regulations should participate in these meetings or join a hunting organization that interacts with the agency.

WHY DO WE HAVE HUNTING LAWS?

During the 19th century, many game animals were hunted nearly into extinction. The thundering herds of buffalo that once roamed the plains were reduced to about 800 head. The beaver was almost wiped out. Once plentiful elk, deer, and pronghorn had been reduced to a fraction of their original number.

Game Conservation

To conserve wildlife for future generations to enjoy, wildlife management laws were passed. These laws allow game to flourish by:

- Establishing hunting seasons that limit harvesting and avoid nesting and mating seasons.
- Limiting hunting methods and equipment.
- Setting "bag" limits on the number of animals that can be taken.
- Establishing check stations and game tag requirements to enforce the laws.

Safety, Opportunity, and Funding

In addition to ensuring the availability of game for future generations, hunting laws:

- Establish safety guidelines for hunting that protect both hunters and non-hunters.
- Offer equal opportunity for all hunters, whether they use modern firearms, muzzleloaders, or bows.
- Ensure adequate funding for wildlife programs by collecting license fees.

Fair Chase

- Hunting laws also define the rules of fair chase. The concept began in the Middle Ages when hunters increased the challenge of sport hunting by setting rules that limited how they took game.
- More recently, fair chase rules were developed to stem public criticism of hunters. One of the earliest models was the "Fair Chase Principle" established in the late 1800s by the Boone and Crockett Club, which was founded by Theodore Roosevelt. Those who violated club rules were expelled.
- The rules were later expanded, banning the use of vehicles, airplanes, and radios; electronic calling; or shooting in a fenced enclosure. Many states have made those rules into law.

The Hunter's Image Matters

- Responsible hunters welcome laws that enforce sportsmanlike hunting practices because the behavior of irresponsible hunters has caused some people to oppose hunting.
- Nationally, about five percent of the population hunts, and roughly the same percentage actively opposes hunting. The rest of the population is predominantly neutral. However, bad behavior by hunters could sway some of the neutral crowd into the anti-hunting camp.

HUNTER ETHICS

- While hunting laws preserve wildlife, **ethics** preserve the hunter's opportunity to hunt. Because ethics generally govern behavior that affects public opinion of hunters, ethical behavior ensures that hunters are welcome and hunting areas stay open.
- Ethics generally cover behavior that has to do with issues of fairness, respect, and responsibility not covered by laws. For instance, it's not illegal to be rude to a landowner when hunting on his or her property or to be careless and fail to close a pasture gate after opening it, but most hunters agree that discourteous and irresponsible behavior is unethical.
- Then there are ethical issues that are just between the hunter and nature. For example, an animal appears beyond a hunter's effective range for a clean kill. Should the hunter take the shot anyway and hope to get lucky? Ethical hunters would say no.

The Hunter's Ethical Code

As Aldo Leopold, the "father of wildlife management," once said, "Ethical behavior is doing the right thing when no one else is watching—even when doing the wrong thing is legal."

The ethical code hunters use today has been developed by sportsmen over time. Most hunting organizations agree that responsible hunters do the following.

- **Respect Natural Resources**
  - Leave the land better than you found it.
  - Adhere to fair chase rules.
  - Know your capabilities and limitations as a marksman, and stay within your effective range.
  - Strive for a quick, clean kill.
  - Ensure that meat and usable parts are not wasted.
  - Treat both game and non-game animals ethically.
  - Abide by game laws and regulations.
  - Cooperate with conservation officers.
  - Report game violations.
- **Respect Other Hunters**
  - Follow safe firearm handling practices, and insist your companions do the same.
  - Refrain from interfering with another's hunt.
  - Avoid consuming alcohol, which can impair you to the point of endangering others.
  - Share your knowledge and skills with others.

How Hunters Make a Positive Impact

- *Put in countless hours to improve wildlife habitat.*
- *Help biologists transplant game species and save other species from extinction.*
- *Encourage others to practice ethical behavior.*

ethics:
Moral principles or values that distinguish between right and wrong; they are unwritten rules that society expects to be followed

How To Ask Landowners for Permission

- *Make contact well ahead of the hunting season.*
- *Wear street clothes—no hunting gear or firearms.*
- *Don't bring companions—a "crowd" could be intimidating.*
- *Be polite, even if permission is denied. Your courtesy may affect the outcome of future requests.*

Contact the landowner while wearing street clothes and well in advance of when you wish to hunt.

Landowner Complaints About Hunters

- *Don't get permission to hunt.*
- *Don't tell the landowners when they arrive at or leave the property.*
- *Make too much noise.*
- *Leave litter behind.*
- *Carry loaded firearms in vehicles.*
- *Drive off the ranch roads.*
- *Don't leave gates as they were found (open or shut) when the hunter arrived.*
- *Shoot too close to neighbors or livestock.*
- *Leave fires unattended.*
- *Violate game laws.*
- *Drink alcohol to excess.*

REMEMBER ...

Hunting is a privilege and can be taken away if hunters fail to act responsibly.

How To Behave If Confronted by Anti-Hunter Protesters

- *Remain calm and polite, and do not engage in arguments—never lose your temper.*
- *Never touch an anti-hunter or use any physical force, and especially* ***never threaten an anti-hunter with your firearm****.*
- *Report hunter harassment to law enforcement authorities. If possible, record the vehicle license number of harassers.*

Hunting Opportunities on Public Lands

All states have federal- or state-owned public lands that are available for hunting. Public lands may have regulations that control hunting on these properties and may require special permits. Check with your state's wildlife agency and get maps before you go.

Public lands that may be open for hunting:

- *Bureau of Land Management properties*
- *Bureau of Reclamation properties*
- *National forests*
- *National parks*
- *National Wildlife Refuge properties*
- *State parks and forests*
- *State-owned wildlife management areas*

Respect Landowners

- Ask landowners for permission to hunt.
- Follow their restrictions on when and where you may hunt.
- Treat livestock and crops as your own.
- Offer to share a part of your harvest with the owner.
- Leave *all* gates the way you found them.
- If you notice something wrong or out of place, notify the landowner immediately.
- Never enter private land that is cultivated or posted, unless you have obtained permission first.

Respect Non-Hunters

- Transport animals discreetly—don't display them.
- Keep firearms out of sight.
- Refrain from taking graphic photographs of the kill and from vividly describing the kill while within earshot of non-hunters.
- Maintain a presentable appearance while on the street—no bloody or dirty clothing.

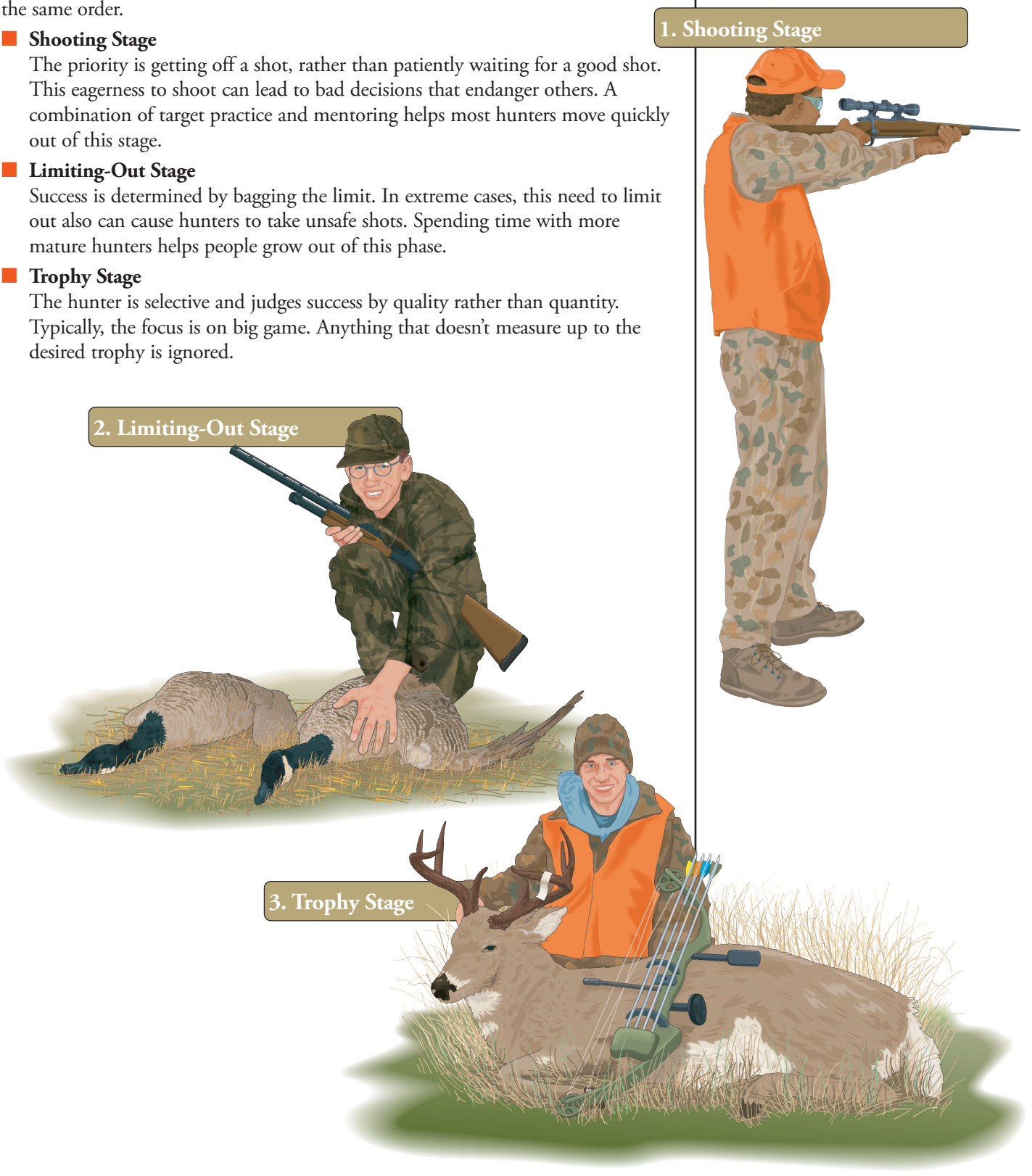
Personal Choice

- As in every human endeavor, there are gray areas of ethical behavior that come down to a matter of personal choice.
- Examples of gray areas of ethical behavior, which may even be illegal in some locales, are:
  - Baiting deer with corn or protein pellets
  - Shooting birds on the ground, on the water, or in trees
  - Shooting from a vehicle or boat within private boundaries or on private waters

THE FIVE STAGES OF HUNTER DEVELOPMENT

It should be the goal of every responsible hunter to become a true sportsman. As a hunter gains experience and skill, studies have shown that he or she will typically pass through five distinct stages of development. Keep in mind, however, that not everyone passes through all of these stages, nor do they necessarily do it in the same order.

- **Shooting Stage**
  The priority is getting off a shot, rather than patiently waiting for a good shot. This eagerness to shoot can lead to bad decisions that endanger others. A combination of target practice and mentoring helps most hunters move quickly out of this stage.
- **Limiting-Out Stage**
  Success is determined by bagging the limit. In extreme cases, this need to limit out also can cause hunters to take unsafe shots. Spending time with more mature hunters helps people grow out of this phase.
- **Trophy Stage**
  The hunter is selective and judges success by quality rather than quantity. Typically, the focus is on big game. Anything that doesn't measure up to the desired trophy is ignored.

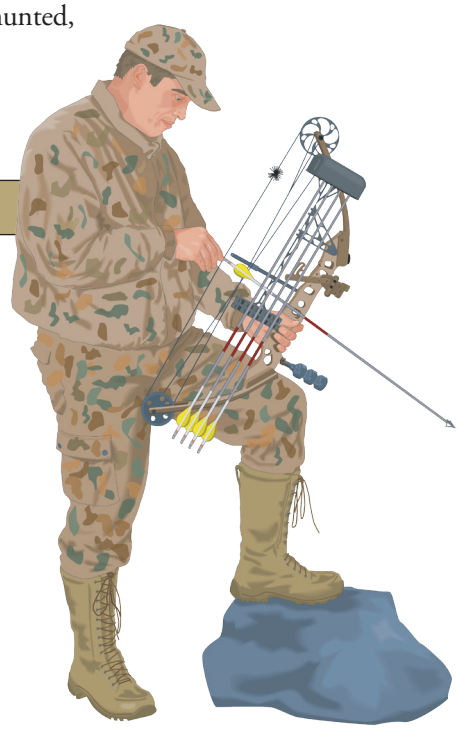


Involvement

- *Part of the process of becoming a true, responsible sportsman is becoming involved in efforts to make hunting a respected sport. That includes teaching proper knowledge and skills to others, working with landowners, and cooperating with wildlife officials.*
- *It also includes joining conservation organizations dedicated to improving habitat and management efforts. Young hunters can be involved by joining organizations such as 4-H, Boy Scouts, and Girl Scouts, as well as by participating in wildlife projects in their local communities.*
- *Responsible, ethical behavior and personal involvement are both essential to the survival of hunting. How you behave and how other people see you will determine whether hunting will continue as a sport.*

- **Method Stage**
  In this stage, the process of hunting becomes the focus. A hunter may still want to limit out but places a higher priority on how it's accomplished.
- **Sportsman Stage**
  Success is measured by the total experience—the appreciation of the out-of-doors and the animal being hunted, the process of the hunt, and the companionship of other hunters.

4. Method Stage



5. Sportsman Stage

Lessons in Wildlife Management

- Initially, **wildlife management** in the United States was skewed toward protection. In the early 1900s, for example, wildlife managers attempted to preserve a mule deer herd in the remote Kaibab Plateau of Arizona. Hunting was banned, and predators were destroyed. The result was severe overpopulation, **habitat** destruction, and mass starvation.
- The Kaibab Plateau was opened to hunting in 1929, which brought the population into balance with the habitat. Today, a large, healthy herd of mule deer inhabits the area.
- Around the same period, a similar event took place in Pennsylvania. Deer had been brought into the state after the native population was thought to be extinct. With most of the predators eliminated and little hunting allowed, the herd grew out of control. As the food supply dwindled, thousands of white-tailed deer starved to death.
- From these hard lessons, wildlife managers learned that there is more to conservation than just protecting wildlife. They discovered that nature overproduces its game resources and that good wildlife management yields a surplus that can be harvested by hunters.

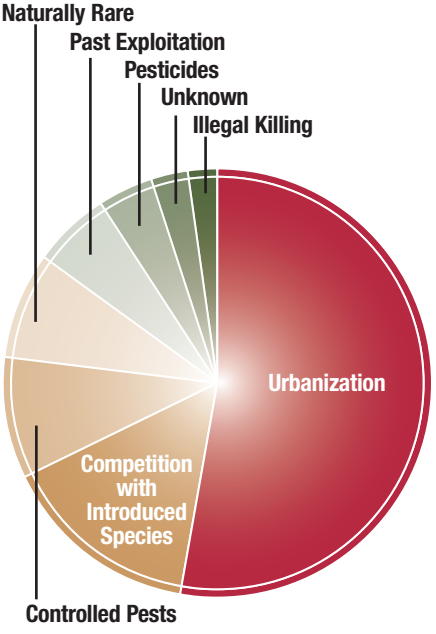
The North American Model of Wildlife Conservation

In the first two decades of the 20th century, sportsmen from the United States and Canada developed a set of guiding principles for managing wildlife resources. Called the North American Model of Wildlife Conservation, these seven principles provide the foundation for the success of fish and wildlife conservation in North America.

- Wildlife is public property. The government holds wildlife in trust for the benefit of all people.
- Wildlife cannot be slaughtered for commercial use. This policy eliminates trafficking in dead game animals.
- Wildlife is allocated by law. Every citizen in good standing—regardless of wealth, social standing, or land ownership—is allowed to participate in the harvest of fish and wildlife within guidelines set by lawmakers.
- Wildlife shall be taken by legal and ethical means, in the spirit of "fair chase," and with good cause. Animals can be killed only for legitimate purposes—for food and fur, in self-defense, or for protection of property.
- Wildlife is an international resource. As such, hunting and fishing shall be managed cooperatively across state and province boundaries.
- Wildlife management, use, and conservation shall be based on sound scientific knowledge and principles.
- Hunting, fishing, and trapping shall be democratic. This gives all persons—rich and poor alike—the opportunity to participate.

wildlife management:
Science and practice of maintaining wildlife populations and their habitats

Causes of Threatened and Endangered Species



Of the possible causes for a species becoming endangered or threatened, legal hunting equals 0%.

habitat:
Complete environmental requirements of an animal for survival: food, water, cover, space, and arrangement

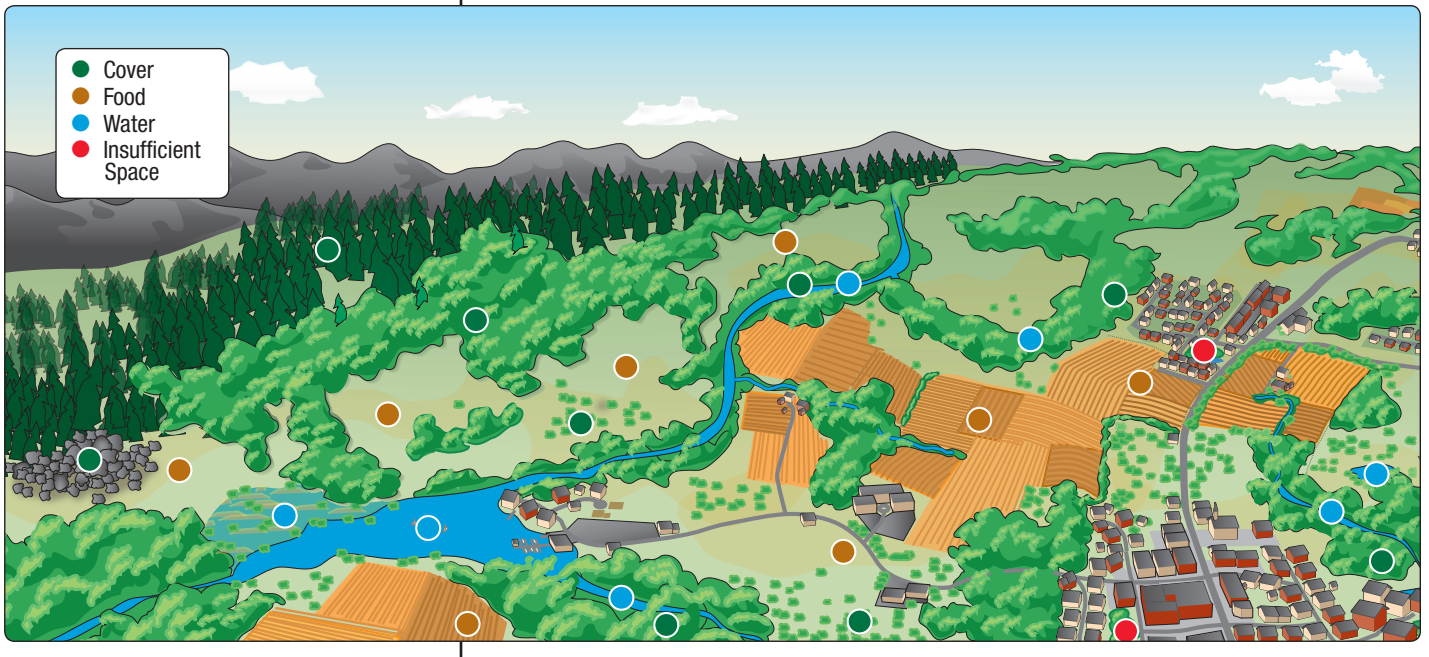
REMEMBER ...
No North American animal has become extinct because of sport hunting.

Balancing Act

Habitats must be in balance in order to support wildlife. Remove a certain population of plants or animals from a community, and the community may not survive. This typically happens when urban development pushes into wildlife areas.

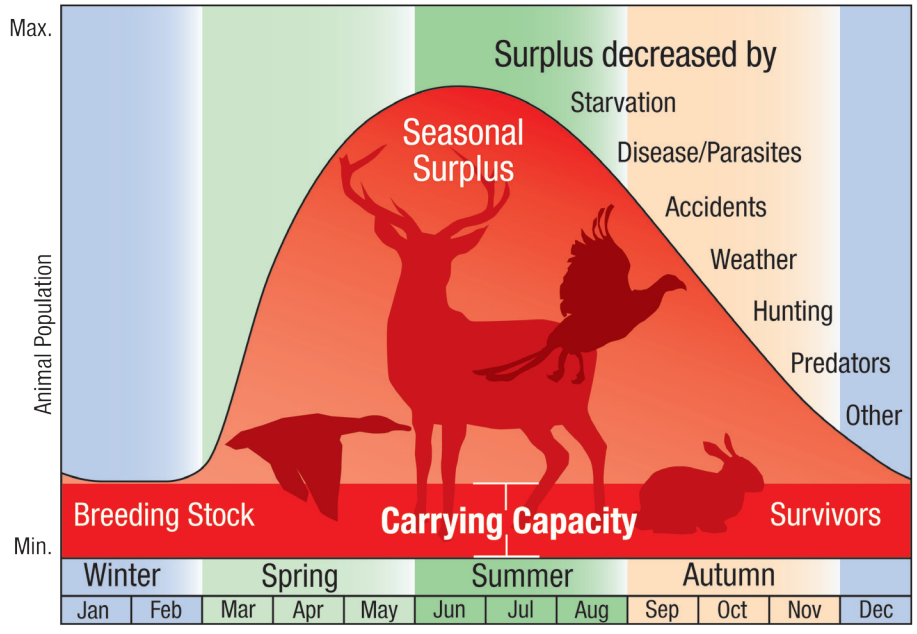
Habitat Management

- The habitat is where a species fulfills its basic life needs: nourishment, procreation, and rest. If not managed properly, urban development can result in habitat loss, which presents the greatest threat to wildlife. Habitat management, the most essential aspect of wildlife management, safeguards the essential elements to meet these needs.
  - **Food and water** are necessary to all wildlife. Competition for these elements among species makes cover, space, and arrangement top priorities.
    - **Cover** protects animals from predators and the weather while they feed, breed, roost, nest, and travel. Cover ranges from thick weeds and brush to a few rocks piled together.
    - **Space** is necessary for adequate food among wildlife, territorial space for mating and nesting, and freedom from stress-related diseases.
    - The ideal **arrangement** places food, water, cover, and space in a small area so that animals minimize their energy use while fulfilling their basic needs for nourishment, procreation, and rest.
- **Edge effect** refers to the consequence of placing two contrasting ecosystems adjacent to one another. Most animals locate where food and cover meet, particularly near water. An example would be a river bottom, which offers many animals all their habitat needs along one corridor.



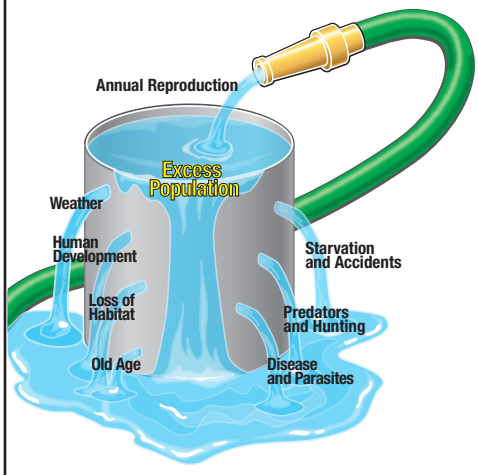
Carrying Capacity

- The resources in any given habitat can support only a certain quantity of wildlife. As seasons change, food, water, or cover may be in short supply. **Carrying capacity** is the number of animals the habitat can support all year long. The carrying capacity of a certain tract of land can vary from year to year. It can be changed by nature or humans.
- **Factors that limit the potential production of wildlife include:**
  - Disease/parasites
  - Starvation
  - Predators
  - Pollution
  - Accidents
  - Old age
  - Hunting
- If the conditions are balanced, game animals will produce a surplus, which can be harvested on an annual, sustainable basis.

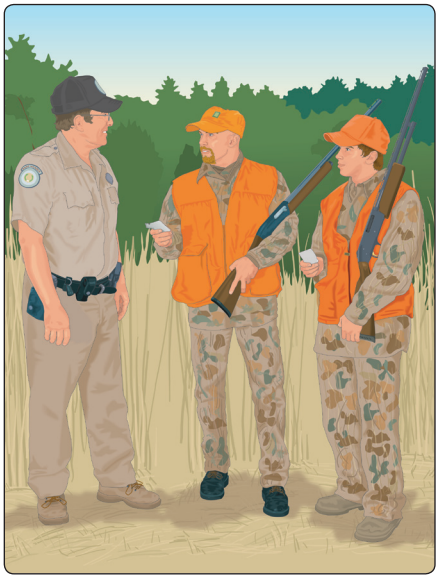


The Hunter's Role in Wildlife Conservation

- Since wildlife is a renewable resource with a surplus, hunters help control wildlife populations at a healthy balance for the habitat. Regulated hunting has never caused a wildlife population to become threatened or endangered.
- Hunting is an effective wildlife management tool. Hunters play an important role by providing the information from the field that wildlife managers need.
- Funding from hunting licenses has helped many game and non-game species recover from dwindling populations.



carrying capacity:
The number of animals the habitat can support throughout the year without damage to the animals or to the habitat



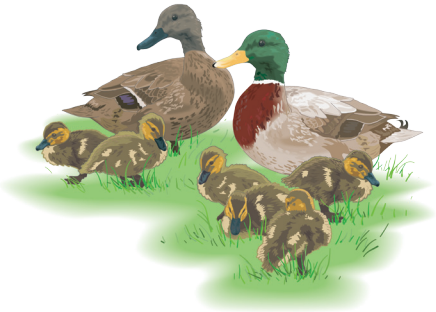
Hunters and Wildlife Conservation

Hunters spend more time, money, and effort on wildlife conservation than any other group in society. In addition to participating in the harvest of surplus animals, hunters help sustain game populations by:

- *Filling out questionnaires*
- *Participating in surveys*
- *Stopping at hunter check stations*
- *Providing samples from harvested animals*
- *Helping fund wildlife management through license fees*

Beneficial Habitat Management Practices

- *Brush pile creation*
- *Controlled burning*
- *Diking*
- *Ditching*
- *Food plots and planting*
- *Mechanical brush or grass control*
- *Nuisance plant or animal control*
- *Timber cutting*
- *Water holdings*



Suppose each adult pair of waterfowl produces six young each year and none of the factors that limit wildlife production are active. At the end of the fifth year, the initial pair will have grown to more than 2,000 waterfowl.

birth rate:
The ratio of number of young born to females of a species to total population of that species over one year

death rate:
The ratio of number of deaths in a species to total population of that species spanning one year

succession:
Natural progression of vegetation and wildlife populations in an area; for example, as trees grow and form a canopy, shrubs and grasses will disappear along with the wildlife that use them as cover

predator:
Animal that kills other animals for food

WILDLIFE MANAGEMENT AND CONSERVATION PRINCIPLES

- The wildlife manager's job is to maintain the number of animals in a habitat at or below the habitat's carrying capacity so that no damage is done to the animals or to their habitat.
- In a sense, a wildlife manager's task is similar to a rancher's. Just as a rancher limits the number of animals in a cattle herd to a level that the habitat can tolerate, wildlife managers try to keep the number of animals in balance with their habitat. In addition to looking at the total number of each species in a habitat, wildlife managers also monitor the breeding stock—the correct mix of adult and young animals needed to sustain a population.
- To manage a habitat, wildlife managers must consider historical trends, current habitat conditions, breeding population levels, long-term projections, and breeding success. With that knowledge, wildlife managers have a variety of practices at their disposal to keep habitats in balance.

Wildlife Management Practices

- **Monitoring Wildlife Populations:** Wildlife managers continuously monitor the **birth rate** and **death rate** of various species and the condition of their habitat. This provides the data needed to set hunting regulations and determine if other wildlife management practices are needed to conserve wildlife species.
- **Habitat Improvement:** As **succession** occurs, the change in habitat affects the type and number of wildlife the habitat can support. Wildlife managers may cut down or burn forested areas to promote new growth and slow down the process of succession. This practice enables them to increase the production of certain wildlife species.
- **Hunting Regulations:** Hunting regulations protect habitat and preserve animal populations. Regulations include setting daily and seasonal time limits, bag limits, and legal methods for taking wildlife.
- **Hunting:** Hunting is an effective wildlife management tool. Hunting practices help managers keep animal populations in balance with their habitat.
- **Predator Control:** In rare instances, **predators** must be reduced to enable some wildlife populations to establish stable populations, particularly threatened or endangered species.
- **Artificial Stocking:** Restocking of game animals has been successful in many parts of the nation. An example of restocking is trapping animals in areas where they are abundant and releasing them in areas of suitable habitat where they are not abundant.
- **Controlling or Preventing Disease and Its Spread:** Disease can have a devastating effect on wildlife. Avian cholera, for example, poses a serious threat, especially to ducks and geese on crowded wintering grounds. Once avian cholera occurs, managers must work to prevent its spread by gathering and burning waterfowl carcasses daily.
- **Management Funds/Programs:** In addition to Pittman-Robertson funds, many states have initiated programs that help finance conservation efforts.

"The conservation of natural resources is the fundamental problem. Unless we solve that problem it will avail us little to solve all others."

— Theodore Roosevelt, U.S. President
Memphis, Tennessee, October 12, 1907

"Defenders of the short-sighted men who in their greed and selfishness will, if permitted, rob our country of half its charm by their reckless extermination of all useful and beautiful wild things sometimes seek to champion them by saying 'the game belongs to the people.' So it does; and not merely to the people now alive, but to the unborn people."

— Theodore Roosevelt,
U.S. President, 1916

"A peculiar value in wildlife ethics is that the hunter ordinarily has no gallery to applaud or disapprove of his conduct. Whatever his acts, they are dictated by his own conscience, rather than by a mob of onlookers ...."

— Aldo Leopold
A Sand County Almanac

"… only the hunter, imitating the perpetual alertness of the wild animal, for whom everything is danger, sees everything."

— José Ortega y Gasset
Meditations on Hunting,
as translated by
Howard Wescott

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