

## **The History of Hunting**

Understanding the prehistoric history of hunting and its history in North America provides insight into the development of hunting as we know it today. This understanding also provides support for the notion that hunters have always had an appreciation and respect for the animals they hunt, as well as a vested interest in the welfare of wildlife.

### **Early Humans as Hunter-gatherers**

Early humans hunted because their survival depended upon success as a hunter. Some anthropologists even hypothesize that language developed because of its importance to early human hunters. Skill and success as a hunter often determined whether families and clans would have animal foods. Skins were used for both clothing and shelter as well as for other purposes. Bones, antlers and teeth were used for tools. Animal parts were used as decoration or symbols of authority and status. In some situations hunting skills were used by early man for protection from predators.

### **Development of Early Hunting Techniques**

No one knows for sure how hunting got started among early humans. Anthropologists theorize that hunting of larger animals began with groups of humans driving large predators from their kills - a risky venture at best. Early humans gathered easily captured food items like insects, small reptiles and nestling birds. Simple tools, like twigs, small sticks, or even thorns or pieces of cordage were used to capture prey or force the prey from hiding places.

Humans are social animals, and early humans seem to have lived in clans or extended family groups. These groups demonstrated divisions of labor with some members foraging for easily captured animal foods and plant foods, while others hunted for larger prey. Readily available tools like sticks and stones were used in many cases. Even the terrain was used as a means of capturing and killing prey animals. Cliffs, water or natural corrals were used to gain advantage over animals that could be killed with relatively primitive tools. Using fire hardened poles to make jabbing or throwing spears likely developed fairly quickly, as did the use of flaked stone, like flint, chert and obsidian to make spear points and blades for stone axes. All of these tools required the hunter to be very close to the prey animal. Learning to throw spears and stones accurately was vital to taking larger and more dangerous game animals.

While brandishing, striking or throwing tools might have been adequate protection under some circumstances or for driving predators off their kills, these tools were extremely inefficient as hunting tools. Stone axes, stone-tipped or fire sharpened spears gave some advantage, but propelling devices for higher velocity and greater range were clearly advances. One of the first of these advances was the atlatl or spear throwing stick. This allowed a relatively light spear or javelin to be thrown with much greater force and from a much greater

distance than did throwing with the hands alone. A similar progression took place with leather or cordage slings used to throw stones with much greater force. Blowguns permitted the use of very small darts to take game animals at modest ranges.

The ultimate long range, high velocity hunting arm for early humans was the bow. Many styles and sizes of bows developed with great variation in the materials used. Arrows were similarly diverse. Some societies laminated their bows with sinew, horn, whale bone, or other materials to increase their cast. Bows changed in length, design and cast over time; but they lasted for many centuries as the premier hunting tool. Arrows changed in many characteristics, primarily in the types of points and fletching, but they remained functionally the same from prehistory to the 1400s.

Continued evolution of hunting tools resulted in the development of the crossbow with its heavier cast and shorter quarrels or bolts. These were followed rather quickly by matchlock, wheel lock and flintlock firearms. Flintlocks remained the dominant type of hunting tool for a couple of centuries before being replaced by the caplock which led rather quickly to the development of modern firearms. The time between innovations became progressively shorter and continuing changes in earlier technologies are still taking place as hunters try their skills at more challenging types of hunting tools today.

While the game hunted early in human prehistory was usually small or disadvantaged by terrain or conditions, humans used their developing hunting skills to harvest larger fauna such as ground sloths, mastodons, mammoths and other large game. Their use of natural land features and fire was also effective in harvesting large animals, often in extremely large numbers. Like most predators, however, humans were opportunistic and took many smaller animals.

Hunting skills developed in parallel with hunting tools. American Indians, for example, used many of today's hunting skills in their hunting. They were excellent stalkers and trackers, and they were adept at the use of camouflage, decoying and the use of calls. A wide variety of traps, including snares and deadfalls, were used to increase hunting efficiency.

### **Hunting in North America**

Just as it was critical to native Americans, hunting was critical to the survival of early European settlers in North America. Game served as a primary food supply. Game animals provided clothing, as well as some types of shelter and other necessities. Europeans also hunted large predators or other animals that were a threat to their livestock or crops. The fur trade was also a significant source of income.

The first North American game law was written in New Amsterdam. It established the right of all people to hunt for their survival needs. Within a few generations,

habitat changes and continued subsistence hunting resulted in the depletion of game in the vicinity of towns, villages and settlements. Some pioneers moved westward to find richer hunting grounds. Residents of several colonies or states enacted closed seasons or other restrictions on some species to ensure their continued availability.

As the states became populated, market hunting developed into both a major business and a respected profession. With the development of the country, needs for specialized skills developed in the society. Shopkeepers, blacksmiths, doctors, wagon-makers and other craftsmen concentrated on their trades. While they may have enjoyed hunting as a personal activity, they could not afford to hunt for subsistence. One of the developing trades became market hunting. Market hunters provided a supply of wild game meat to the growing towns. These professional hunters specialized in their trade as well, making a living by hunting, trapping or otherwise providing meat.

Skilled specialists, market hunters were not restricted by bag limits or seasons in most cases. As a result, their unrestricted harvests were able to deplete game populations significantly. Those impacts were enhanced by habitat loss. One state that was nearly completely forested in colonial times had only 16 percent of its forests by 1850. With the loss of that forested habitat came the loss of most forest and forest edge wildlife.

Although today we know that market hunting led to over-exploitation of many species; market hunters provided a necessary service. Immense game herds and flocks seemed limitless, but as demand for meat and market hunting efficiency increased, populations began to suffer. Obvious declines or even extirpations of deer, bison, antelope and elk took place. Waterfowl and upland game birds, including the passenger pigeon, declined under continuous demand for game meat by the growing American population.

As these losses became obvious to modern hunters (non-commercial hunters), they developed a concern for the future of wildlife and began to work for change and improvement. As the end of the 19th century approached, sportsmen conservationists who recognized something was wrong began to call for controls on the harvest of game. They demanded that action be taken to conserve wildlife populations. In 1888 a group of sport hunters started the Boone and Crockett Club which led a crusade to protect the nation's troubled game herds. Their actions led to the development of national parks and wildlife refuges as well as regulation of harvests. By 1900, twenty-three states enacted laws that limited harvest.

The efforts of these early hunter/conservationists started a trend of caring for wildlife that continued into the 20th century. In 1900, the Lacey Act prohibited interstate shipment of illegally killed wildlife. This provided some federal help under the interstate commerce clause of the constitution to control market

hunting. A forester at the University of Wisconsin, Aldo Leopold, wrote the first wildlife management text in North America in 1933 and helped to formalize the emerging art and science of wildlife management. The Duck Stamp act of 1934, lobbied for by waterfowlers, provided funds from federal stamps to aid in waterfowl management and to permit purchase of lands for federal waterfowl refuges. Sportsmen lobbied for an additional excise tax on sporting arms and ammunition to provide aid to states for resident wildlife management. In 1937 the Pittman-Robertson Act was passed, taxing long guns and ammunition for this dedicated purpose. This legislation has perhaps had the greatest impact on wildlife research and management of any legislation ever passed.

Sport hunters and other conservationists continued to build organizations to address their concerns, significantly expanding conservation, restoration and enhancement efforts by state and federal agencies. Numerous private organizations developed on the heels of the Boone and Crockett Club. Dedicated organizations like Ducks Unlimited, Quail Unlimited, the Rocky Mountain Elk Foundation, the Pope and Young Club, the National Wild Turkey Federation, Pheasants Forever, Safari Club International and many others associated with gun dogs, hunting, outdoor sports, and conservation developed. Each of them contributed and continues to contribute to promotion of regulated hunting, high ethical standards and research and conservation of wildlife. Professional associations, like the Wildlife Society and the Hunter Education Association, as well as others related to wildlife and conservation developed. State and federal agencies charged with wildlife management also grew in numbers and quality. Primarily supported through licenses and fees, these agencies are responsible for all wildlife and wildlife habitat kept in trust for the citizens of the states and nation.

### **Economic Contributions of Hunting**

Hunters provide the primary support for all wildlife management, game and non-game. License fees alone bring in approximately \$500 million each year. In addition, excise taxes on hunting arms and ammunition provide nearly \$200 million annually. Direct economic effects of hunting in the United States alone exceed \$14 billion annually. Indirect effects have been estimated conservatively at in excess of \$40 billion annually. Regulated hunting has become a bigger business, in terms of its economic effects in our country, than many blue chip corporations.

### **Recreational Impacts**

Although hunting is a huge economic factor, that is not its only benefit. Hunting is a recreational activity. Its participants spend approximately 200 million person-days each year hunting. Many of them expand that time afield by training dogs, shooting, spending time afield observing or photographing wildlife, or scouting their favorite hunting areas for seasonal prospects. Although hunting involves the potential killing of wildlife, its participants are lovers of natural settings and the wildlife that good habitat provides.

## Why we hunt

Humans are part of the ecosystem. We have scavenged or hunted for food, shelter, clothing, tools, or protection since the beginning of human society. Until fairly recently some people hunted wildlife commercially, providing food, skins and furs to a public that needed them. Remnants of these market hunters remain among fur trappers today, but early in the 20th century market hunting was legally banned in the United States. Conflicts with the growing interest in sport or recreational hunting and over-exploitation of some wildlife resources were the reasons for that ban. From a legal standpoint, wildlife belongs to all members of the society and depleting wildlife resources for private gain was no longer accepted. Regulation of hunting was passed to state and federal agencies or even to international treaty. Although people still hunt for food, fur or hides, the main reason we hunt is for recreation.

When asked why they hunt, people share a wide variety of reasons. Most hunters use the meat, hides or fur of the animals they take. Although that is not truly subsistence hunting in most cases, enjoying the food, warmth or other uses of the animal products is a significant reason for hunting to nearly all hunters. Sometimes we hunt to reduce the number of certain species or to eliminate individuals causing specific problems. Varmint hunters harvesting coyotes, prairie dogs, or ground squirrels from agricultural land are hunting in that mode.

The most common reason for hunting is recreation. We hunt to enjoy nature, to feel a part of the natural world, to share time with companions, to be alone, to use our equipment, to enjoy working with dogs or horses, or to seek some personal challenge. Most hunters do not consciously hunt to manage wildlife, even though hunters are the tool of a wildlife manager. No hunter worthy of the name hunts merely to kill something. Hunting is the act of seeking specific wildlife, not simply killing. While the potential for a kill or harvest must be there for a true hunting experience, it is the act of hunting itself that provides the personal benefits. Killing is not recreational, nor is it to be taken lightly.

Although it may be difficult to define, recreation is one of the most powerful benefits of hunting. Recreation, as the structure of the word implies, is an action or activity that rebuilds physical, mental, and spiritual resources. It is not mere play, but a vitally important factor in the health and well-being of all people. For most hunters, the recreational value of hunting cannot be replaced with any other activity.

Hunting is important to wildlife management. Paul Ehrlich, a noted ecologist, once said that if bald eagles were good to eat or came readily to decoys, they would not have been endangered. He implied that having a group of dedicated people with a vested interest in a species provided some protection for that species and its environment. Far beyond their utility to the manager as a harvest tool, hunters have a significant impact on wildlife and environmental issues. They

speak for wildlife and wildlife management. They provide a powerful political support base for voiceless resources that cannot vote or pay taxes.

Hunters also provide economic support for wildlife. They pay special taxes on arms and ammunition to support wildlife and conservation education. License and permit fees form nearly all of the support for resource management programs. Hunters are also the most common supporters of non-game and conservation programs, even where they are not directly connected to hunting activities. Hunters are responsible for the development of the national wildlife refuge system and it was a group of hunters who devised the National Parks system.

Hunters also support many private organizations that work for wildlife and conservation. The list ranges from Safari Club International and the National Rifle Association to groups interested in specific species or groups of species.

Why do we hunt? We hunt because it is what we are. We hunt because we need the benefits it gives us. We hunt to eat. We hunt to protect crops and livestock. We hunt to rebuild our personal reserves, our spiritual strength and our mental health. We hunt because we enjoy it and it makes us better human beings.

#### **Sharing and Exhibit Suggestions**

1. Interview several hunters to see why they hunt. Summarize your findings and share them with your club.
2. Study the funding for wildlife management in the United States, looking at the contribution made by hunters to these programs. Make a poster or present a report to your club on what you have found.
3. Study the laws that provide the foundation for federal funding of fish and wildlife programs and the history of their enactment. Share your findings with your club.
4. Prepare a report on the benefits of hunting to those who participate in it. Document your points and share the information with your group.
6. Write your own reasons for hunting or wanting to hunt in your hunting journal. Keep the notes current and use them in discussions with non-hunters about why you hunt.

## Hunter Ethics

Ethics is the field of philosophy concerned with right and wrong and the actions of individuals. Society at large or defined groups within the society may develop a code of ethics that defines what is proper, accepted or expected behavior. Societal or group norms or standards are further refined by personally defined codes of conduct. Ethics determine what we view as right and wrong and the way we act.

Hunting ethics are codes of hunter behavior and action. Some of these codes of conduct are generally agreed upon, while others may be regional or local norms. The core of hunting ethics, however, is personal. It is the way hunters behave when nobody is watching in a situation where they must make decisions without the assistance of a referee. Development of hunting ethics involves a complex interaction of socially and personally derived attitudes, skills, knowledge and experience. It is strongly tied to hunter development.

### **Understanding Ourselves as Hunters**

To understand how personal ethics develop, it is important to understand what prompts us to hunt and what we enjoy about hunting. It is equally important to understand how these factors change as we get older, as we develop as hunters, as we get more hunting experience and as we spend more time in the hunting environment.

A model has been proposed and modified to help us discuss and understand hunter development based upon the motivations and satisfactions of hunters. It is important to understand several key points as you discuss these hunter stages.

- These stages of hunting are not good or bad and there is no set time required before going to another stage.
- Some people never go from one stage to another. They just stay at one stage.
- There may be other stages or sub-stages that fit some hunters.
- The speed at which a hunter goes from one stage to another does not reflect their "quality" or "level" as a hunter.
- The stage of a hunter may be different for different game species.

**Shooter stage** - The shooter's primary motivation and satisfaction is governed by the use of their equipment. Success is most often measured in the number of shots taken. During this stage it is important that the individual refrain from shooting at inappropriate targets like protected species or animals that do not offer high percentage killing shots.

**Limit bagger** - The limit bagger measures success by achieving the bag limits. Because numbers bagged is the key satisfaction, their measure of success may

cloud excellent days of hunting with failure to bag the prescribed number of game animals.

**Trophy hunter-** The trophy hunter pre-determines criteria for the game they will harvest. Trophy hunters personally define restrictions they place on themselves. Thus, the doe hunter who is looking for an older, dry doe as a quality meat animal is actually behaving as a trophy hunter. It is important that the trophy hunter not become so focused upon the quality of the trophy that they forget about other elements contributing to the quality of the hunt.

**Method hunter** - For the method hunter, the tools and techniques of the hunt are more important than the bag or the "quality" of the game taken. How game is taken is the primary measure of success. Generally the method hunter has a deeper commitment to the chase and has acquired specialized equipment and skills to permit pursuit of his or her favorite methods. Lack of tolerance for users of other methods may be a problem with some method hunters.

**Aesthetic hunter** - Aesthetic hunters, often called the "mellowing out stage," are motivated and satisfied primarily by the processes of hunting. Their satisfactions are based upon the total experience. Bagging game and specialization in technique or equipment is important, but all of these are secondary to appreciation for the total experience of hunting.

### **Defining Hunter Ethics**

The nature of hunter ethics dictates that there are as many definitions as there are hunters defining it. When looking for a single characteristic that is essential to ethical hunting behavior, **respect** is the key element. Self-respect is the foundation upon which the respect for others and wildlife depends. Self-respect outlines the personal and internal reasons for ethical behavior. Respect for others includes respect for other hunters, respect for landowners, respect for non-hunters, and even respect for anti-hunters. Certainly, respect for the game we pursue is an ultimate concern

Respect dictates that the hunter makes every effort to maintain quality relationships with others and to permit them the benefit of the doubt and rights to their opinions and actions. It also demands that they show character traits like generosity, tolerance, understanding, patience and willingness to support their beliefs with actions.

Aldo Leopold, the father of modern wildlife management, noted that the ethical value of hunting could be either positive or negative depending upon whether the hunter abided by his or her convictions when the time to act upon them came. He noted that hunting had no referees or audiences, and that the ethical outcomes were almost entirely internal.



Respect for wildlife and habitat has resulted in development of "rules" for fair chase. These restrictions on hunter behavior modify the early hunter-gatherer into a modern licensed hunter. Today's regulated hunting (as opposed to subsistence or market hunting) still involves the harvest of wildlife for human use. It also includes development of skills and knowledge necessary to become a safe, responsible and effective hunter. These skills are varied and complex. Many of them are ancient survival skills. Others are restraints of the hunter-gatherer to avoid wounding or other problems. Respect for wildlife and habitat also includes involvement and commitment to issues relating to wildlife and habitat. Hunters were among the first conservationists, and they should be in leadership roles in conservation affairs today as well.

### **Hunter Responsibilities**

Every hunter shares certain responsibilities. Among those is the responsibility to project a positive image of hunters and hunting. Like it or not, every hunter is a representative for all hunters and for hunting. Policing our ranks and helping each other become better is part of the hunter's role.

Times change and so does our language. The common meanings of words change over time ("cool", "gay", etc.). We are sometime resistant to change because it seems we are conceding to pressure groups or we are trying to be "politically correct". Some words or phrases however, can cause confusion or may provide fodder for those who want to attack our hunting heritage.

The term "sport-hunter" can be taken negatively. It is commonly used to mean we hunt as a sport or recreational activity – and not because we have to in order to survive. However, the term came about during the era of Theodore Roosevelt. Today, "sport" is seen as competitive and for the "thrill". Because we don't always have the opportunity to define the term when we use it, we should try to use "regulated hunting" when we want to differentiate from market or survival hunting.

"Trophy hunting" is a concept that can be misunderstood. It is important that we value ALL game we harvest, not just those with large antlers. We must always appreciate the table fare, the chase, the challenge of the natural elements, the exposure and interaction with the natural world, the camaraderie with fellow hunters and all the other aspects of the hunting experience. Too much emphasis placed on antler size or bag limits will lead to diminishing the most enjoyable aspects of hunting.

Among the responsibilities toward people are those toward other hunters. Respecting and abiding by all pertinent game laws is one of those responsibilities. Laws related to seasons, bag limits, shooting hours, equipment restrictions and so forth are designed to protect wildlife, protect people and provide for equitable sharing of wildlife resources. The behavior of hunters toward each other while afield is also part of that responsibility. Avoiding conflict

or interference with other hunters, honoring their right to hunt, teaching others about hunting or skills, and respecting them as people and fellow sportsmen is important. Using proper etiquette in field behavior is important. That includes behavior toward other hunters and even toward their dogs. Avoiding criticism of other hunters or will go a long way in maintaining a relationship with fellow hunters.

### **Responsibilities toward Landowners**

Responsibilities toward landowners go well beyond leaving gates the way you found them. It starts with requesting permission to use any private land for hunting, regardless of whether it is posted or not. When asking permission to hunt, accept the decision of the landowner graciously and with thanks regardless of their decision. Work toward developing a personal relationship with the landowner, taking a real interest in their land and showing respect of them. Respect any restrictions they might place on your use of the land. If they do not voice any, ask if they have any restrictions they would like to place on your activity. Behave as an invited guest on the land, treating it as though it were land you were holding in trust. Leave things as you find them, but be sure to report any apparent problems if you notice them. If emergency actions are needed, offer to help - and mean it when you offer. Avoid causing any form of damage to equipment, fences, crops or livestock; and offer to make amends for any inadvertent damage you might do accidentally. Above all, watch the way you act and the things you say while a guest on the land.

Giving something back for the permission to hunt is often helpful to show your gratitude. Lending a hand with a project like mending fence or putting in a wildlife food plot is usually appreciated, even though most landowners will not ask you to help. Staying in touch with cards or emails during the off season is also helpful, as is sending a gift for a special occasion or a holiday. Offering to share game taken on the land is sometimes appreciated. When making the offer, be prepared to spend the time making the game table ready rather than offering an undressed and matted carcass. Skin or pluck the game, dress it and make it as appealing as possible. If the person is unsure how to cook the game, offer suggestions of ways you particularly enjoy. You may find a hunting companion as well as a host.

### **Responsibilities toward Non-hunters**

The vast majority of people today are non-hunters. Their images of hunting and hunters are based upon their observations of hunter behavior. Hunters need to wear hunting clothing when they are actively hunting, and they may stop to eat, buy fuel or purchase other items during the day or on the way to or from the field. If they are well-groomed, courteous and careful with their language, they still present a good image: Association of hunting clothes with purchases of alcohol or with obnoxious behavior damage the image of all hunters. Watching our appearance and our behavior helps.

Apparent disrespect for game irritates many non-hunters. Bloody carcasses being displayed openly or loose talk about gruesome details of lost, wounded or even harvested game animals is completely out of place. Be aware of the fact that the person sitting next to you may not want to have the details of your field dressing as a side order with their lunch. Promote the positive values of hunting to your family and to you as a person without the details of kills, blood and gore.

#### **Responsibilities toward Anti-hunters**

The opinions held by hunters and anti-hunters tend to place us at odds by the nature of those views. In spite of that, hunters have responsibilities toward anti-hunters as well. The items mentioned above for non-hunters are important with anti-hunters as well. In addition, hunters need to respect the right of anti-hunters to hold the opinions they do about hunting, even while we disagree pointedly with those opinions. When involved in discussion with an anti-hunter about hunting, feel free to disagree, but avoid being disagreeable. Strive to understand the nature of their concerns and motivations and avoid antagonizing them. Do feel free to defend your own right to an opinion about hunting and to voice the positive things hunting does for you.

#### **Respect for Wildlife and Habitat**

Respect for wildlife and wildlife habitat involves several inter-related factors. While fair chase can be defined in many different ways, it amounts to regulating the actions of the hunter so the wildlife has an opportunity to escape or avoid the hunter. Fair chase may differ between hunting companions or in different parts of the country. One may feel that killing a gamebird on the ground or in a tree is not acceptable, while a companion may feel that any gamebird that is foolish enough to provide such a shot may be taken without prejudice. Some may feel that baiting of wildlife of any kind is taking unfair advantage of them, while others promote the use of bait stations to increase wildlife numbers or concentrate them for more effective harvest.

One of the greatest responsibilities of all hunters is maintaining adequate knowledge and skill to take game effectively and with a minimum of crippling or wounding loss. Shooting skills, identification skills, shot placement and shot selection skills, and the ability to track and recover wounded wildlife are important ones. Ancillary skills are also important. Hunters should know how to use calls, decoys, camouflage, water craft, and other equipment safely and effectively. They should continue to learn new skills and refine old ones for their entire hunting career. Hunters must know how to care for game in the field and in preparation for home use. Knowing about wildlife cookery is a bonus that might be appreciated at home

Involvement and commitment to wildlife issues and the improvement of wildlife habitat is all, advanced responsibility. It is never too soon to participate, and today's hunter needs to gain back the high moral ground of our predecessors who led the conservation movement in the United States. Personal commitment

to local projects is a positive step. Involvement with other conservation issues and evidence of your standing as a hunter-conservationist is an excellent way to enhance hunter images.

### **Skills for Ethical Hunters**

Hunting requires skills, and ethical hunting requires a commitment to developing and honing those skills. Among the skills required is a deep and intimate knowledge of wildlife. The ethical hunter must be able to identify wildlife species effectively, even under poor light conditions or while it is moving. Often this skill is related to regulations as well as ethical considerations. In addition to the ability to identify wildlife effectively, hunters must understand how the animals behave. That understanding increases hunter success makes evaluation of hits easier and aids in the recovery of wounded animals. Understanding the anatomy of game animals is a tremendous aid to proper Shot placement and making quick, clean kills.

Circumstances related to wounding and losing game are one of the greatest concerns about hunting by non-hunters. Hunter responsibility includes having the skills to recover wounded game animals and having the will to make every reasonable effort to do so. Game recover, including hit evaluation, tracking or trailing, and the use of trained dogs are learned skills that demand effort and experience.

Using trained dogs can make hunting more successful as well as more enjoyable. It is also ethical in that the dogs reduce losses of many types of game animals.

Game handling and use is an important element of ethical hunting. Many state and federal laws prohibit the wanton waste of game. Waste can come about by neglect, improper field care, failure to use good home care and preservation techniques or neglecting the carcass in the freezer until it is no longer fit for human consumption. Proper game handling is the key to high quality table fare. Game carcasses that are prepared for use so they resemble a form that might be purchased from a store is more likely to be used at home. This preparation is the hunter's responsibility.

Shooting skills are among the fundamental requirements of the hunter. Every hunter must practice to achieve a reasonable measure of marksmanship under field shooting conditions. They must also understand and stay within the limitations of their equipment and their skill with that equipment. Shooting beyond reasonable ranges (their personal limits or that of their equipment) marks hunters as tyros who have not learned to limit their shots to high percentage ones. This is observed as big game hunters taking shots beyond their skill level and by waterfowlers who seem to believe that they can hit anything they can see. This skybusting behavior tends to reduce their effectiveness and to irritate all responsible hunters in the vicinity.

Proper shot placement and careful shot selection are the keys to clean kills and minimizing wounding rates. Shots should be placed to inflict maximum damage on the vital areas of the animal while avoiding the potential for a wounding hit - one in a non-vital area or in an area that does not affect a quick kill. Generally, shots should be limited to the heart-lung area or the central nervous system on big game animals. Broadside or quartering shots maximize the area of those vital regions presented to the hunter and allow the greatest margin for error. Shots intended to cripple or "break down" an animal should never be considered! Proper shot selection means the hunter has the restraint to wait until an adequate shot is presented. Avoiding high risk shots and selecting, high probability shots is the mark of an accomplished and ethical hunter.

### **Interpersonal Skills**

Although hunting is often a solitary activity or one conducted with a few close friends, the need for sound interpersonal skills is obvious. Every hunter projects an image to others that represents all hunters. Further, every hunter will have occasions to talk about their favorite activity either in its defense or to encourage others to become involved. Those who hunt on private land will also find abundant opportunity to use those skills effectively.

### **Hunter Image**

Hunter image is the perception of hunters and hunting held by other people. It is a projection, positive or negative, of who and what we are. What others think about hunters and hunting is more important in the political environment than facts. If facts and the image are clearly and accurately linked, public opinion is accurate and valid. If they differ, a damaging public opinion may arise toward hunters and hunting.

Actions and words by hunters observed by non-hunters are key elements in the formation of that image. Slovenly, boorish, callous or insensitive behaviors are extremely harmful to the image of all hunters. Nine of the top 15 concerns about hunting by non-hunters related to wounding loss and suffering of crippled animals. Gory stories or laments about hit and lost animals reinforce those concerns and convince non-hunters that they are common circumstances and valid concerns. Dirty, bloody clothing, openly displayed carcasses, loud or foul language and obnoxious behaviors tend to reinforce the insensitive idiot image some groups would like to project for hunters.

Like behaviors that hurt the image of hunters and hunting, many behaviors exist that help that image. Actively share the positive values of hunting to people, including the benefits to families and the positive effect on mental and physical well-being. Program like Hunters for the Hungry promote hunters as caring for people less fortunate than themselves. Finally, involvement with youth programs

and the education and development of new hunters can result creating hunters with higher ethical standards.

### **Developing a Personal Code of Ethics**

Hunting is unlike team sports where a referee watches for infractions of the rules or individual sports where judges sit on the sidelines and assess points or penalties. Hunting takes place individually without a referee or judge. It requires that the author of a personal ethical code be the arbiter and judge of the code as well. You are the only one that can build a personal code of hunting ethics. It should include the agreed upon and codified standards of hunters, but it should go beyond. It should capitalize on the benefits you derive from participating in regulated hunting - aesthetic, physical, mental, re-creative and tangible. It should flow from the experience and govern the nature of the experience.

### **The Relationship of Laws and Ethics**

Law and ethics are related but not the same. Some hunting laws come from ethics. Laws against wanton waste of game stem from ethical demands that every effort be made to recover wounded game. Most hunters would agree that ethical hunting includes adhering to all wildlife laws. However, sometimes ethics and law conflict. For example, going after a wounded animal that crosses property lines may conflict with trespass laws. Such real situations cause an ethical dilemma. Exploring such dilemmas is valuable to ethical development. Young hunters need to explore their responses to dilemma situations and their reasons for their responses. The exposure to these different ways of looking at ethics helps hunters develop internalized ethical codes which is the true source of wildlife law.

### **SHARING AND EXHIBIT SUGGESTIONS**

1. Discuss the elements included in your personal code of ethics.
2. Create one or more dilemmas that challenge young hunters in the development of their ethics. Share them with your family, leader or other interested persons. Lead a discussion on the dilemmas you have created.
3. Select a local conservation project and lead your group in completing it.
4. Write a short essay on what hunting means to you and share it with an appropriate audience, as an illustrated talk, or in some other forum.
5. Make a poster contrasting ethical and unethical behaviors or actions that enhance or detract from the image of hunters and share it with your group.
6. Research a wildlife or conservation group and share their principles, objectives and activities with your group.
7. Discuss why you hunt with a non-hunting friend.
8. Make a set of visual aids to assist in shot selection, shot placement or other ethical considerations and provide it to your leader for use in the program.

## **Hunting Laws and Regulations**

Natural resources can be divided into "commons" and "proprietary" resources. Proprietary resources are those that can be owned or possessed individually. Commons resources are those that are owned by all members of society. The atmosphere, for example, is a commons resource. The gold in a mine is a proprietary resource. The European tradition was that wildlife belongs to the landowner. When North America was settled however, wildlife was designated as a commons resource. It could not be owned by anyone until it was reduced to legal possession. Until that time it was owned by everyone. Since what belongs to everyone belongs to no one, our society created governmental agencies responsible to everyone for the conservation (wise use) of wildlife.

States administer laws related to resident wildlife, the kinds of animals that spend most of their lives in a relatively limited area. Most mammals and gamebirds are resident wildlife. The federal government is responsible for managing migratory wildlife like marine mammals, waterfowl and many songbirds. Often, the actual management requires state and federal cooperation, as well as participation by individuals and non-governmental organizations. The right to pursue or take wildlife is governed by law. Both tradition and legal precedent support harvest of wildlife for food and fiber.

### **Types of Wildlife Laws**

Wildlife laws can be classified in three groups. Some laws provide for the equitable sharing of resources. These would include season lengths and bag limits. Other wildlife laws are designed to protect the resource. These would include license requirements and harvest quotas. A third group of regulations is designed to protect human lives and property. These would include hunter orange regulations and hunter education requirements.

### **Laws That Provide Funding for Wildlife Management**

Wildlife management is funded primarily by the hunting public. Pitman-Robertson funds are gained from special taxes on arms and ammunition. Sportsmen lobbied hard for that tax and the ear-marked use of its revenues. Licenses, stamps and permits generate most of the money to support federal and state refuges, agency activities, and wildlife law enforcement. General tax levies are seldom used for these purposes. Check-off programs have been heavily supported by sportsmen even though they are often directed at wildlife that is not hunted.

### **Wildlife Legislation**

Legislative actions are governed primarily by politics. Specific problems may create general laws. For example, declines in whale numbers may result in laws to protect all marine mammals, even though many species are not declining. Hunters need to understand how legislation is developed and to help their legislators understand the realities of hunting. Being well informed and actively

## **Hunter and Landowner Relationships**

Private landowners control much of the wildlife habitat in the United States. Landowners are very important to both game animals and hunters.

### **Importance of Private Land**

Management of forests, farms and ranch lands determines the quality and quantity of habitat available to wildlife. After climate and soils, the type of land management is the principle factor in determining the habitat types and locations on the landscape. Availability of escape, breeding, resting or loafing, and winter cover is a key to wildlife survival. Private land also provides many of the food and water sources required by wildlife. The location of private lands often coincides with the best soils (therefore the best potential habitat) and frequently includes critical wintering areas. Private lands also provide supplemental foods through agricultural waste.

Landowners are the key people in selection of the management options that will be applied to the land. They may elect to favor wildlife and agriculture or forestry, intensive agriculture or forest management, or even development of housing, malls or other human structures on the land they control. Keeping the land in active production for wildlife and crops, livestock or trees is often a matter of landowner resistance to placing the land in "non-productive" but lucrative uses. Landowners are the primary wildlife managers on their land. They decide how much forage will be used by livestock and how much will be left for wildlife. They decide which windmills are shut off when livestock are not using them and which are left on to provide water for wildlife. They decide whether to leave or eliminate escape cover, whether or not to plow crop residues under in the fall, and many other choices that impact wildlife.

Landowners decide their level of cooperation with agencies and private organizations. They can adopt conservation practices, accept limitations of wetland development or other activities, or elect to maximize production of a crop or livestock species. They control access to their lands, and therefore control to some degree the level of harvest on that land. They also advise wildlife officials of possible poaching or other illegal activities that have an impact on wildlife. Landowner cooperation and action is often the key to creation of quality habitat and successful management plans. Sportsmen must recognize the importance of private landowners.

### **Incentives for Managing for Wildlife**

Most landowners look at wildlife as something desirable on their land. Other landowners see wildlife as a source of competition for forage or crop damage. To some landowners wildlife is an attractive nuisance, bringing hunters who might cause them problems or interruption. However, many landowners appreciate wildlife and promote wildlife on their lands. Their motivations may be complex and interactive.



Profit motivation is significant for some landowners. They may charge access fees on a seasonal or daily basis. Some landowners guide hunters on their land or provide facilities or camp for hunting parties.

Tax incentives or other governmental programs may also provide an incentive for wildlife management. Some states offer payments, tax credits or deductions for wildlife management practices or allowing hunter access. Wildlife habitat programs may provide benefits. Several programs, both governmental and through private organizations, provide for cooperative development of wildlife habitat. Programs like the Conservation Reserve Program (CRP) meet multiple objectives such as reduction in erosion and pollution of waterways, reduction of crop surpluses, and provision of quality wildlife habitat.

Personal interest and a sense of social responsibility are probably the greatest reasons for private land wildlife management. The traditions of seeing and interacting with wildlife on the land may cause multiple generation landowners to promote the kinds of wildlife that their parents or grandparents did. A personal interest in hunting for both recreation and food is often a motivating factor.

Personal pride in producing wildlife on their land is a common incentive for many land managers. Some landowners enjoy the interaction with hunters, particularly those with whom they have developed a friendship. Still others maintain wildlife on their lands out of a sense of stewardship for a resource that happens to be in their charge. Some may even view their wildlife populations as environmental monitors, helping them assess the health of their lands.

#### **Why Landowners Grant or Deny Hunting Permission**

Landowners have both a right and a vested interest in knowing who is on their land for any purpose. Many landowners readily grant access to their lands to hunters who seem responsible and respectful. They may grant access as a gesture of good will to hunters with whom they interact in other settings. Often they grant trespass rights to unknown persons who show a sense of responsibility and training and who make their contacts early and introduce themselves positively. They may grant permission to a hunter who shows concern about their land and livestock. Hunters who show a willingness to lend a hand where it is needed are often granted permission as well. Permission is often linked to the impression left by the prospective hunter on the landowner.

The reasons for denying hunting access are a bit more complex. There may be concerns about protecting crops or livestock from damage or disturbance. Hunting or allowing dogs to hunt in standing grain or seed crops can be extremely damaging and reduce yields significantly. Some landowners may have had negative experiences with hunters such as driving their vehicles across fields softened by rain. They may fear careless shooting around livestock, harassment of livestock or even the loss of livestock either by shooting or failure to leave gates as they were found.

Disruption of farming activities is sometimes the reason for denying access. This may come about because the hunting activity would interfere with normal farming or ranching operations or because an insensitive hunter broke into a busy landowner's schedule to push for permission to hunt. Creation of additional work is also a reason to deny access. Failure to leave things as they were found or to report problems that were observed can result in denial of hunting access. Gates that are closed when they should be open or left open when they should be closed can result in greatly increased workloads. Damage to fences and gates creates work for the landowner and can cause loss of stock or crops as well as the fence damage. Damage to equipment, either accidental or deliberate can result in loss of access for all hunters after such an incident.

Safety and behavioral concerns may also result in denial of hunting access. Irresponsible or unsafe shooting or gun handling is a sure way to close lands to all hunters. Violation of safety zones or specific restrictions or directions from the landowner are grounds for denying future access. Rowdy or irresponsible behavior, including loud, foul or abusive language will result in denial of access most of the time. Bringing along unauthorized persons or the appearance of friends of friends tends to make the landowner wary or angry at being misled. Driving or camping in areas where permission was not granted or showing disrespect for the landowner or his/her family, pets, livestock or the landscape (like littering) is a sure way to sour access hopes for all those who follow. Denial of access is often based upon past personal experience or reports from neighbors.

Management for personal hunting may be a landowner's reason for denying access. Perhaps only family members hunt, or the landowner allows hunting only by invited guests and personal friends. Hunting may be used as an income source, where exclusive lease rights have been granted or the landowner acts as a guide or outfitter for hunting parties.

Simple uneasiness about having strangers on the land may lead some landowners to deny hunting access. The landowner may be a very private person who enjoys their privacy and does not want it disturbed. That may be a stated reason that hides a major concern over potential liability risks involved if a hunter is injured on the land and decides to litigate.

Regardless of their reasons, landowners have the right to permit or to deny access to their lands by hunters. Potential hunters must respect that right and the persons who exercise them, without bias toward the response received when seeking access permission.

#### **Obtaining Permission to Hunt on Private Land**

Hunters can do many things to increase their chances of success when seeking permission to hunt on private land. If at all possible, visit the area and make initial contacts with landowners well before the hunting season, carefully avoiding very

busy times or seasons for the landowner. Early contact sets you apart from other hunters and may impress the landowner with your seriousness and responsibility. Dress neatly and casually for your visit with the landowner. Your appearance impacts his or her perception of you a great deal. Be particularly careful to avoid dressing in camouflage clothing, face paint or other features that may make you appear a bit odd. Leave guns, bows, dogs and other hunting equipment at home for pre-season visits or at least leave them in your vehicle. If you will be hunting with kids or companions, take them along to meet the landowner; but keep the group size minimal.

Courtesy is vital in gaining permission to hunt as it is in all walks of life. Use regionally acceptable forms of address, including "sir" or "ma'am" when speaking to the landowner and his/her family. Greet the landowner warmly and introduce yourself in a positive way. Let him/her know who you are; where you live, what you do (if that helps to establish credibility), and offer a card with your name, address and telephone number on it. Comment on the good qualities you have observed on the land, and let the landowner know that you are seeking permission to hunt, and continue by letting him/her know that you are a responsible, well prepared and trained hunter who will respect both the property and the landowner's wishes. Look the landowner in the eye and let him/her know that you are sincere; but do not overdo it or you may come off looking like a phony. Be specific with the types of hunting, names of companions (like your child), and times you plan to hunt. Volunteer to phone ahead of the hunt date to confirm your being able to hunt.

Whether permission is granted or not, thank the landowner graciously and wish him/her a good day. Even if access is denied this time, the goodwill you generate will instill a favorable impression of you and other hunters. That good will and positive attitude may open the doors of that property at a later date. Even if the landowner is not polite or friendly, maintain a respectful attitude and courteous manner at all times. If permission is granted, record the landowner's name, address and telephone number in a notebook so you can contact them later. If written permission slips are required in your state, have those available if possible to avoid bothering the landowner later.

A few helpful hints might be useful in gaining access to land for hunting. If you are using any special hunting methods, like bowhunting or muzzleloader hunting or you use well-trained dogs, let the landowner know about those methods. Keep first-time groups small. Two is a good number for a first visit. Leave your guns and other gear at home or out of sight when seeking hunting permission. Leave any dogs in the vehicle and under control. Pet any friendly dogs that may approach you on the farmstead. Be sincere, open and genuine in your comments and behavior. Landowners, like other people, like honesty and sincerity. They do not like people who appear to be putting up a front or pretending they are something they are not. Finally, make a point of outlining obvious restrictions, and ask about any additional ones that you cannot see from a casual look at the

property. Let the landowner know that you consider hunting on their land a privilege and that you are sensitive to their wishes and needs. This includes asking where you should park your vehicle to keep it out of the way of farm or ranch operations.

### **Hunter Responsibilities on Private Land**

Receiving permission to hunt on private land carries a set of responsibilities with it. Safety both around the vehicles and in the field is of paramount importance. Adhering to strict rules of sportsmanship is also critical. Hunters should maintain friendly courtesy and respectful attitudes, and they should avoid rowdiness, including loud, foul or abusive language. Make sure that you initiate any questions about extra restrictions and that you abide by those restrictions when afield. Drive your vehicle only where permitted, and park in designated areas or where access is not restricted. Leave gates as you found them, and report any problems you have observed while afield. Avoid disturbing livestock, and stay out of crops that could be damaged, keeping dogs out of them as well. Pick up your litter, including spent shells, and any other trash or litter you find. Leave the area looking better than it was when you arrived. Make sure that you get specific permission before bringing anyone else on the land, and be very careful not to over-extend your permission to be there.

Show your respect for the landowner in your behavior. Try not to impose upon him/her with additional things like asking for water, permission to cut firewood or towing help for a vehicle problem. Offer to share bagged game with the landowner, and select good specimens that have been dressed properly for that sharing. Always stop to thank the landowner when your hunt is over if possible. If not, call or drop a note to the landowner expressing your thanks. Ask if you can help with off-season chores, like mending fences or other activities where an extra set of hands will be useful. Even if your help is declined, stop by and say hello during the off-season if possible. Treat the landowner as a respected friend, sharing Christmas cards or gifts with him/her at appropriate times. All of these things help you to maintain communication over the year and to let the landowner know that your respect and thanks is genuine.

### **Exhibit and Sharing Suggestions**

1. Prepare a skit or demonstration on asking landowners for permission to hunt and share it in an appropriate forum.
2. Develop a hunter's code of conduct that you can use as a one-way contract with landowners who give you permission to hunt or have other outdoor activities on their land.
3. Create a form for written permission to hunt on private land. Include the important information such as hunter behavior, the types of activity and seasons where they are permitted. Share your product with others interested in using private lands.

# Wildlife Management and the Hunter

## What is Wildlife Management?

Aldo Leopold, the first professor of wildlife management in the United States, defined Wildlife Management in his early texts as "wise use without waste." We will define wildlife management as "the art and science of manipulating wildlife populations and their habitats to achieve societal goals." The inclusion of "societal" shows recognition that wildlife management is often primarily people management.

Wildlife can be defined in a lot of different ways. Some people include only game animals in their definition. Others include all mammals and birds. Most wildlife professionals include all non-domestic animals. Some even include feral animals like feral horses, burros, goats, sheep or swine, as well as exotic wildlife species introduced into the wild.

Wildlife can be subdivided in many ways. Often these subdivisions are based on the perceptions or uses of the wildlife. Terms like big game, small game, waterfowl, upland birds and non-game wildlife are used to identify a smaller group of animals.

## Some Basic Wildlife Management Concepts

Wildlife management is both an applied science and an art. Its fundamental principles are applications of basic ecology, the study of animals "at home." These applications are concerned with the basic needs of animals and animal populations and with the ways animals and habitats interact. These concerns include reproduction and recruitment (the entry of young animals into the population). They also include mortality and population turn-over rates.

### Carrying Capacity

A piece of land can support only so many animals on a continuous basis. This basic concept of wildlife management may be most important as wildlife managers set population and habitat objectives. Managing population levels to stay within carrying capacity and managing habitat to maintain or increase carrying capacity underlies most wildlife management decisions.

There are several factors to remember when considering carrying capacity:

- (1) Carrying capacity changes with the seasons. Summer carrying capacity is usually higher than winter carrying capacity.
- (2) Manage for extremes when considering carrying capacity. Habitat will have a higher carrying capacity in a mild winter than during a severe winter.
- (3) Exceeding carrying capacity will have a multiplying effect. If too many animals over-browse and kill shrubs, that same range will support fewer animals than it could have supported before over-browsing.

- (4) One species can affect the carrying capacity of another species. Heavy elk use of an area may increase the browse line to a height deer cannot reach.
- (5) Factors limiting carrying capacity may change from year to year. Snow depth, drought, cover and food are examples that might establish carrying capacity one year but not the next.

### Limiting Factors

All living things cope with limiting factors. These are the factors which at any given time prevent a wildlife population from increasing and set the carrying capacity. Understanding the factors which limit the increase of a wildlife population will help identify management actions that will make a difference. It is important to remember there is rarely one factor by itself that limits the size of a wildlife population. Normally, several interacting factors affect population size. For example, coyote predation may appear to be a limiting factor preventing a white-tailed deer herd from expanding. However, if a drought, fire or some other factor has eliminated cover, fawns will be easier for coyotes to find.

### Population Dynamics

Many wildlife populations have natural fluctuations we call population cycles. Some of these are short term and some are long-term fluctuations. Some are subtle and some are extreme natural fluctuations.

Many wildlife populations will naturally follow an "increase until crash" population fluctuation. In these populations, the numbers climb steadily until some factor such as food shortage causes the population to abruptly drop or crash. Surviving individuals have an ample food supply, so they are healthy and maximize production of offspring, and the population numbers climb rapidly. Eventually, a level is reached where a limiting factor causes the population to crash and the cycle continues. Wildlife managers try to reduce the impact of this boom and bust cycle. One objective of wildlife management is often to keep the population low enough through hunting so the crash level is not reached. Not only does this prevent death and suffering of the species involved, it prevents habitat degradation and waste of a resource.

Some factors that drive population cycles are density dependent. This means when the habitat is densely populated, a density-dependent factor will kick in. Contagious disease is an easily understood density dependent factor. When coyote populations are low, the few that have mange are less likely to interact with and infect other coyotes with the mite that causes mange. When populations are high, the likelihood of one coyote interacting with others is high and the incidence and mortality from mange increases.

Causes of some cyclic fluctuations are poorly understood. Ruffed grouse, snowshoe hares and cottontail rabbits have populations which increase and decrease for no apparent reason. Some theories use sunspots, ozone and randomness as factors to explain these wildlife population fluctuations.

### Habitat Needs

Traditionally we have looked at food, water, cover and space as being the components of habitat that determine suitability for wildlife. Other factors such as disturbance or arrangement of the habitat, may enhance or reduce the value of the habitat.

**Food** is one of the major requirements of all animals. Since animals cannot capture the energy of sunlight directly, they must get their energy from plants or from animals which eat the plants. Each animal is adapted to use a specific type of food or foods. The availability and quality of the food available is a major element in controlling populations. These needs can be extremely specific. Browsing animals, for example, may not be able to survive on a diet of grasses, even when those grasses are abundant. They need higher quality food sources, like forbs or succulent shoots on bushes. Since food is required essentially all the time, its availability is an important limiting factor to wildlife. If food is abundant for most of the year but lacking in a critical time period, the animals may starve unless they have some way to survive during that time period. Some species may hibernate, aestivate or migrate to avoid food shortages. Others are adapted to store fats for periods of low food availability.

**Water** is critical to all living things. Some animals get all the water they need from their food or by utilizing dew. Others must drink on a daily basis. If water is limiting, having an abundance of food or other requirements is not enough to allow the species to survive. All requirements must be met within the range of the animal for it to survive.

**Cover** is a broad term applied to the types of environments required to support the animal or population. Several types of cover can be identified. Breeding, nesting or brood rearing cover is used during the period when animals are nesting or taking care of dependent young. Some animals require secure areas to rest or loaf. This is not laziness, but conservation of energy for more important uses. It may be a shaded area in the southwestern deserts or shelter from bitter winter winds in the far north. It is critical to survival. Feeding cover permits the animals to gather their food effectively and with some protection from predators. Escape cover provides refuges from people or predators. All of these types are included in the general term "cover." It is a critical that cover types be matched to the needs of wildlife if the populations are going to thrive.

Space or the arrangement or pattern of habitat components is also a vital concern. The size, interspersion, proximity and accessibility of various types of cover patches or resources is a critical element in assessing the quality of habitat for a given species or group of species. Mountain lions, for example, are very unlikely to occur in packs or herds because their behavior and hunting success requires relatively large amounts of space. A pheasant, on the other hand can do quite well on a few acres of good cover and food.

### The "Balance" of Nature

Although people commonly refer to the balance of nature and view it as a static entity, natural systems are constantly changing. That results in a dynamic equilibrium where constant changes counterbalance one another to give the impression of a steady state. If, for example, an area can support six cottontail rabbits, an observer might see six rabbits and think that is the constant population. However, it is likely hundreds of rabbits have been born, bred and died to maintain that apparently static situation.

### Landscape Considerations

Whether we are considering public land or private land we must look at a large area of landscape. What one land manager does to manage wildlife will affect neighbors both near and far. For example, prohibitions on hunting, which allow overpopulation to occur, will affect habitat over the entire range of the herds. A lack of winter habitat for migratory populations will affect population potential in summering areas.

Effective wildlife managers must look beyond their land boundaries. When making habitat management decisions, managers must consider what is and is not available elsewhere. Harvest objectives are difficult to achieve when immigration and emigration nullify harvest strategies. The most effective population and habitat strategies are done in cooperation with neighbors. It is worth the effort to communicate with neighbors to be sure wildlife management objectives on adjacent lands are not at cross-purposes.

### Population vs Individual Management

An important concept of wildlife management is that our objectives should be directed toward benefits to the population, even at the expense of individuals. Whenever a decision is made or an unpleasant event is observed, wildlife managers must react based on population effects. As unpleasant as deer mortality caused by a train might be, as long as the population effect is acceptable, we would not attempt to eliminate the railroad. Although harvest of pheasant hens is seldom legal or desirable, a hunter occasionally harvesting a hen by accident is not justification to outlaw hunting. As obvious as some of the examples may seem to be, some segments of the public often pressure managers to make wildlife management decisions based on individual rather than population effects.

### Wildlife Management Options

#### Population Management

Managers have several options for managing wildlife. Letting nature take its course is a management option, but one that has little support among wildlife professionals and the general public. It generally involves removing human



beings from the management equation and attempting to maintain functional systems without using any management tools.

Manipulating populations is a second option. It is based on the notion that reproduction exceeds replacement needs, leaving a harvestable surplus. Since only a small portion of the young produced each year can be recruited into the breeding population and the carrying capacity of the land generally reaches a peak during the rearing season, surplus animals that would be forced to emigrate or die may be taken under a regulated harvest to allow people to use some of the over production for their own purposes. Muskrats have the capability of increasing their populations by a factor of 18 while deer have the capacity to double their populations each year if no mortality occurs. Harvesting some of those species for human uses puts their collected energy to use for people. Regulating that harvest allows the population to maintain its productivity.

Reduction in population size takes place in many ways. Predation, starvation, parasites, diseases, natural catastrophes, accidents and intra-species fighting are all common mortality factors. Hunting and trapping are human predation. This has been a natural mortality factor since humans became hunter-gatherers. Human predation changes the type, not the nature of predation. The only major difference is that humans tend to place limitations on their predation in the form of laws or ethical restraints. In many cases, all the mortality factors that are proportional to or dependent upon population size interact to maintain a fairly constant total mortality rate. This is known as compensatory mortality. In other cases, the population responds to higher loss rates by increasing its productivity - compensatory natality. In both cases, the populations remain at or near carrying capacity (biological or sociological) while allowing the use of a surplus population for other purposes.

The primary tools of the wildlife manager in working with population management are related to the control of harvest rates. These include the restriction of seasons, bag limits, types of equipment or restriction of the total take through the issuance of tags. Complex models that show the relationship between the probability of taking an animal and the numbers of tags issued may result in more tags being issued than there are individuals in a population.

Although predator control programs (like bounties) are seldom cost effective, under some circumstances predator management could be a valuable tool to recovery or enhancement of a wildlife population.

#### Habitat Management

Manipulating habitat is a more comprehensive means of managing wildlife. Most of the time, the objective in habitat alterations is to increase the population size, but decreasing habitat quality can reduce populations as well. Since habitat requirements are specific to each species or cluster of species sharing a habitat type, changing the arrangement of habitat components or the structure of the

habitat or addressing the limiting factors for wildlife can modify the populations on a given site.

Habitat succession is the tendency of vegetation to move from one stage to a more advanced stage. Forests that emerge after a major fire start out as annual plants. They then advance through stages of grasses, shrubs, small sun-loving trees and finally, the "climax" stage of an old growth forest. This is habitat "succession". Grasslands also go through succession advancing from early annual grasses and forbs to bunch grasses at the later climax stage.

Many game species prefer early or mid-succession habitats. Setting back plant succession is a common tool of habitat managers. Fire or mechanical disturbance like disking or bulldozing an area can be used successfully to return an area to an earlier successional stage. Logging, farming or ranching can provide wildlife benefits by establishing early succession stages.

Habitat management may include prescriptive changes in the habitat to increase carrying capacity for a particular wildlife species. Planting cover or food plots, providing guzzlers for water in dry regions, constructing shallow impoundments or using fire or mechanical means to increase the forb production while opening up the ground cover are all ways to address limiting factors.

Where limiting factors are difficult to identify or the capability of the area to produce abundant wildlife is limited, attempting to address a subtle limiting factor may not be cost effective.

#### Hunters Can Help

There is much more to wildlife management than can be covered here! The purpose of this section is to show you how hunting and your support of scientific wildlife management can have huge effects on wildlife populations. You can help be a wildlife manager by focusing your hunting efforts on species, age classes, gender and locations that need population management. You can encourage others to support scientific wildlife habitat management. Let your local wildlife biologists know you are available to work on projects or be a voice to generate encouragement to actively manage wildlife habitat and populations.

#### **Sharing and Exhibit Suggestions**

1. Explore and report on other 4-H Projects which can further develop your knowledge about Wildlife Management. Especially discuss the Wildlife Habitat and Evaluation Project (WHEP). Forestry and Range Projects will also be of interest.
2. Meet with a wildlife professional and discuss his or her training, motivations and reasons for selecting their profession. Report on your discussions to your group.
3. Write a report on the course work required to become a wildlife biologist.

## SURVIVAL IN THE OUTDOORS

Although most careful hunters never face a serious survival situation, anyone that goes afield is wise to be prepared to cope with those situations. Survival situations arise from getting lost, an injury, lack of preparation, boating or wading accidents, unexpected weather changes or a variety of other reasons. Prior planning and preparation are very helpful in avoiding problems, and prudence adds an additional level of prevention. Successfully coping with these situations depends upon self control, knowledge of survival skills and practice in applying survival skills. One of these factors without the others is not adequate. Maintaining a positive attitude and self control is greatly enhanced by the confidence that comes from knowledge mixed with practice.

Recognizing reality in a survival situation starts the coping process. Just knowing that most survival situations last less than two nights can be a calming influence. Start by recognizing the situation and realizing that your best option if you are lost, hurt or stranded is simply to stay put. Staying put simplifies things, making it easier to cope with the prevailing conditions and easier to be found if you are lost. It also conserves your energy reserves and other resources. Having practiced survival skills provides reassurance that you can manage and helps you to remain calm.

Most hunter survival situations result from getting lost. Once the decision is made to stay put, the other matters affecting survival can be addressed. Any injuries should be handled first. Basic knowledge of first aid (and a personal first aid kit) will make this easier. In cool or cold weather, a fire can provide reassurance and comfort, even if it is not essential for warmth. In cold weather, providing for a night's worth of fuel before darkness sets in is a good precaution against hypothermia. Every hunter needs to understand the dangers of hypothermia and the use of proper clothing, emergency blankets, shelter, hot food or drinks, and activity as means to prevent losing heat from the body core.

### Factors Affecting Survival

**Attitude and Mental State** - The attitude and mental state of the person in a survival situation have a profound impact on the outcome of that event. Panic is among the most dangerous mental states, but fear of any kind tends to erode the individual's ability to cope. It can lead to depression and a sense of hopelessness -- an extremely dangerous situation for even healthy, well-prepared people. Loneliness and boredom also have negative impacts on survival.

A positive mental state, on the other hand, promote survival, even when conditions are severe. A person's sense that they are doing something to cope with the situation at hand and that those efforts will have a positive impact provides a positive impact on its own. Shelter, a bright fire, and adequate food and water all increase that sense of a successful outcome from a survival situation. Strong personal relationships contribute to the will to survive as well, and focusing on those relationships can quell fears and increase desire to cope. Finally, determination, persistence and perseverance are powerful, positive influences on survival under any conditions, often turning a potential disaster into an adventure.

**Shelter** - Shelter is important in most survival situations because it moderates temperature extremes. While most hunters are conscious of the dangers of hypothermia, many do not know the dangers of dehydration and hyperthermia. Over-exposure to heat and sun can result in dehydration as well as dangerous increases in body temperature. Heat exhaustion is the milder form of heat-induced problems. Its symptoms include profuse sweating with a hot, wet, flushed skin. It may result in relatively minor weakness and disorientation in its milder forms, but it may also cause a loss of consciousness. Rehydration and shelter from the heat usually bring a quick return to normal. Heat stroke, on the other hand is much more serious. Usually the victim loses consciousness. The skin is hot and dry. Heat stroke is a life-threatening situation that requires cooling, rehydration and immediate medical attention. Obviously, taking advantage of shelter from

the sun and keeping oneself hydrated is important in preventing these two heat-induced problems.

Hypothermia is on the other end of the heat spectrum. It occurs when the body's core temperature begins to drop. Cool or cold temperatures, particularly when they are accompanied by dampness and wind, strip away the envelope of warm air around the body and cause it to give up heat from the core to warm that air. Immersion in cool or cold water quickly reduces body temperature, and may become life threatening in a very short time. The effects of hypothermia range from misery and loss of dexterity in the mildest forms to life threatening situations in the more serious ones. Hypothermia shows a number of symptoms, some of which are mimicked by other problems. Nausea, slurred speech, confusion or disorientation, and a sense of physical weakness may be present. Uncontrollable shivering is a serious danger sign. Cessation of that uncontrollable shivering is even more serious. A person in this condition needs help to recover, since without that help they may become lethargic, yield to the cold, and "freeze to death" even in warm to cool temperatures. Treatment involves shelter from the cold and wind, removal of cold, wet clothing, provision of fire or another source of heat, and adding adequate dry clothing. In serious situations, the person may need to have shared body heat from a donor.

Prevention is far easier than curing hypothermia, particularly for persons who find themselves in survival situations alone. Dressing for the weather is one of the best prevention and survival strategies. Using layered clothing and clothing that retains its insulating properties even when wet is also wise. Carrying some form of shelter that can help to break the wind is also important. Providing for fire or other heat sources also contributes to maintaining the body temperature and preventing hypothermia. Finally, eating properly and having adequate food and water are helpful.

**Water** - Thirst and dehydration are serious problems in some survival situations. Water is a critical need for humans, regardless of the weather or temperature. Dehydration saps energy and it may result in a feeling of malaise or depression. Some people experience headaches or other pain, and many feel a sense of physical weakness when exposed to modest dehydration. Dehydration reduces blood flow, inhibits evaporative cooling, and may lead to heat stroke. Water loss takes place constantly. In cold temperatures, particularly at higher elevations, considerable amounts of water are lost through simple breathing. In hot weather or during periods of intense physical exertion, both sweating and respiration contribute to water loss. The key to preventing dehydration problems is to rehydrate before the body presses the need by showing thirst. Water or other fluid replenishers (water is about the best) should be used frequently. Wise hunters include water and water purifiers in their gear.

In a survival situation, water is far more likely to be a need than is food. Surface water can be used, but using it without some purification can cause other problems. A filter capable of removing pathogens and parasite cysts can be carried relatively easily in a day bag or fanny pack. Boiling is a good purification method, as is the use of iodine or other water purification tablets. Water can be extracted from the soil using a solar still. Ice or snow can be melted to provide water, but one should be careful about becoming chilled if the frozen article is melted in the mouth. The outside bends of streambeds, even intermittent streambeds, can have water available below the surface. Digging can locate a water source, even in dry climates. Finally, some plants store adequate water to aid a person in surviving. Knowing these plants can be an asset, particularly in desert survival.

The body requires about two to three quarts of water each day to function normally. It adjusts water loss to some degree when moderately dehydrated, so people have survived several days without water when shade was available and they were inactive. Survival gear should contain the needed materials to build a solar still in dry climates, a pan or foil to melt snow or boil surface water where it is available, and other gear as appropriate to the area. It does the hunter no good if it is in camp or in the vehicle when the survival situation presents itself.

A solar still is simply a 4x4 foot hole covered tightly by a large piece of plastic. A small stone placed in the center of the plastic forms a depression that will allow water to drip into a container placed in the soil directly under it. Many solar still makers like to use a piece of plastic tubing to connect their water container to the surface so they do not need to disturb the still while getting a drink. Placing vegetation in the bottom of the still will speed up evaporation. Practice making a solar still will generate confidence if the need for one arises.

**Pain or Injury** - Pain or injury can be a complicating factor in survival situations. It may inhibit rest or movement, making it more difficult to stay alert or to find needed materials. Chronic pain can be a negative influence on the mental attitude of the person, leading to depression or a sense of hopelessness. Stabilizing injuries and treating them to minimize discomfort contributes to positive attitudes and better survival. Where several persons are in a survival situation, care should be taken to avoid shock in any injured person, and both encouragement and support should be provided constantly.

**Hunger** - While hunger is seldom a serious consideration in a survival situation, it contributes to a sense of discomfort and may increase the incidence of fear and depression. Prolonged hunger can reduce vitality and vigor. Hunters are usually equipped with the means to harvest some food from the wild, but shooting an elk or a moose for a one-day stay in the field is seldom advisable. A small amount of high energy food can be a great morale builder, and it should be part of the hunter's day bag or fanny pack cargo. Use of wild plants requires knowledge of the edible and poisonous plants in the area, and hunters must learn them before the need to use them might arise. It might be wise to learn to recognize and prepare some of the local plants prior to needing them in a survival situation. Starvation is unlikely in short to moderate survival situations. In fact, a day or so without eating might do some of us some good.

**Fatigue** - Physical fatigue or exhaustion can be a serious factor in survival, because it impacts the mental attitude, decision making ability and dexterity. It seems to reduce both energy and strength, and that may contribute to fear. Mental fatigue, the simple stress of coping with the survival situation, can also be exhausting. Rest is the cure for both of these factors. A modest amount of comfort, a cheery fire as a morale builder, and shelter from the wind and elements can help a person obtain needed rest and refreshment.

Adequate rest and the resulting active mind defeat the sense of boredom and loneliness by keeping the person busy. Building rescue signals, making shelters, collecting firewood, preparing water or anything else that keeps a mind occupied will help.

## **Preparing for Survival**

The best survival technique is to prevent oneself from getting into a survival situation. This requires a hunter to think through situations, exercise some common sense and caution, and to plan well before taking to the field. Preparation for support and quick location can minimize the time spent in a survival situation. Start by telling someone where you are going and for how long. Prepare an itinerary and leave it where it can be found by a friend or family member. Once at the planned location, leave a note on the automobile or in camp indicating the direction you are planning to take, including any landmarks or preferred spots. Plan to hunt with one or more partners, sharing plans, arranging emergency signals, and setting rendezvous times and locations. Carry some basic emergency signaling tools, like a whistle, flashlight, signal mirror, pocket flare kit and fire starting materials.

Be prepared to take to the fields, forests, marshes and mountain tops. Get into reasonable physical condition to go hunting. Start with aerobic conditioning. Add some endurance training and a little strength training. Eat and drink properly, fueling the body for exercise. Carry emergency rations and water as needed. Plan and prepare for the weather by selecting proper clothing that can be layered and adapted to the conditions that might be encountered on a hunt.

Be prepared for foul weather with at least modest foul weather gear that will let you cope with serious weather changes. Carry a map, compass and/or GPS receiver and know how to use them, practicing enough to make sure you can use them with confidence. Use them as needed and trust them! Carry a basic first aid kit that is adapted to your needs and local conditions. Include any personal medications that you must take on a regular basis or in emergency situations. Anticipate your needs by trying a shake-down trip to determine what is required and what is simply extra weight.

Build, maintain and carry a personal survival kit. Basic contents might include some means of making a shelter, a cutting tool, fire starters, water purification tablets or filters, and signaling devices appropriate to the area being hunted. Keep the kit small enough to make it easy to carry, and make a habit of keeping it with you in the field. Practice using basic survival skills and techniques before they are needed. Practice builds skills and confidence in one's ability to use them effectively when use is required. Sometimes being prepared makes the difference between discomfort and misery. At other times, it can be the difference between life and death.

### **Basic Survival Techniques**

**Fire Building** - The ability to build a fire successfully under a wide variety of conditions is one of the most fundamental and important of all survival skills. Fires provide warmth, signals for rescuers, comfort and security, and something to keep you busy. Fire also provides the means of purifying water or cooking a meal.

Practice building fires in wet conditions, in snow, in low fuel situations and with different materials. Know where to find dry materials and how to safely start a fire with a variety of aids such as smokeless powder, fuels, starter sticks, wax, bird's nests, pine knot chips, frizzle sticks and various other materials. Always have matches in a waterproof container with you. Other fire starting devices such as cigarette lighters, flint and steel or magnesium sticks are nice to know how to use, but the reliability of matches in a waterproof container is hard to beat. Other aids for starting fires such as candle stubs, paper, cloth, gas and starter cubes are nice if you have them but in many survival situations you are lucky to have just your matches.

A good fire needs fuel, air and an ignition source. Fuel can be divided into tinder, kindling, and fuel wood. Tinder is composed of fine, dry materials that burn hot enough to ignite the kindling material. Knowledge of regionally available tinder sources can be very helpful. Items like the outer bark curls of birch, tiny pine or hemlock twigs, or even pack rat nests can be very useful as tinder. Fine, dry grass wadded into balls can work effectively as an abandoned bird nest or shavings from dry, light woods. Kindling increases in size progressively, starting with toothpick to match stick sized materials and progressing up to items that are about the thickness of a person's thumb. Often dry kindling can be found under the shelter of dense woods in the form of smaller dead branches still attached to the tree. Larger branches, small dead saplings, split logs, or whole logs can be used as fuel. Long pieces of wood can be ignited in the center of a fire and pushed into it as they burn. Logs can be used as both fuel and a reflector to bounce heat into a shelter. Split, dry wood lights more quickly, but round wood burns longer. Some wood burns well when it is green, but most wood burns much better when it has dried.

Hunters should know how to build a tepee fire and a reflector fire. Fires should be located carefully and the area around the fire should be cleared down to mineral soil. Sheltering the fire from the wind and the elements makes it easier to maintain and conserves fuel. Using a rock ledge or logs for a heat reflector can increase its efficiency.

**Shelter Building** - Many natural shelters can be helpful, either as they stand or with a little construction work. Deadfalls can provide a basic framework for a lean-to with little extra effort required, and existing vegetation can be used to construct a brush or grass-covered lean-to. Caves or rock overhangs can be excellent shelters as well. Shelters can also be made of man-made materials that are light, weatherproof and easily carried. Mylar or heavy polyethylene sheeting can be used effectively, and a mylar emergency blanket makes a good, small shelter

that reflects heat inward as well. In snow country, snow or ice caves or shelters can be excavated or constructed of blocks. These should be vented, but they can increase the ambient temperature significantly. When it is below zero outside, a 32°F environment inside the insulating layer of snow or ice can seem warm.

**Rescue Signals** - Numerous signals and signaling devices can be helpful. The traditional three shots in the air can be helpful under some conditions, but in other circumstances they are a waste of time. Fired after hunting hours are over and it is too dark to shoot safely at game, this signal can be effective for hunters who are relatively close to other hunters, camp or a vehicle. Whistles can also be effective under these conditions, and they are also useful during the day, at least over short ranges. Fire makes an excellent signal at night, particularly in relatively open country. Smoke is similarly effective during the day. A signal mirror can be used to reflect a bright flash of light toward airborne searchers or distant searchers that can be seen. Pocket sized aerial flares can be useful night or day, but their use should be confined to times and situations where they are likely to be seen by searchers. Although a variety of ground to air signals are available, the basics include an X stamped into the snow and lined with branches to make it obvious, strips of cloth in the same pattern, or other obvious markers to indicate one's position. These should be placed where aerial searchers are able to spot them easily. Similarly obvious arrows with a point in the direction of travel can be used if you have figured out your route to camp or vehicle and have started in that direction.

**Water** - Finding water has been discussed above. Surface water, either temporary or permanent, can be used if adequate precautions are taken against pathogens and parasites. Ice and snow are good sources if they are melted first. Underground water is often present in dry stream beds, with the outside bends being the best places to look. Soil water can be extracted using a solar still, although some areas do not yield significant amounts of water because of the soil type and structure. Water in plants may be both palatable and abundant, but it must be used with some caution because of materials that may be in some plant tissues.

**Food** - Food is not a critical concern in most survival situations since most people can survive several weeks without any food at all. It is helpful to morale and energy, however. High energy foods should be part of the survival gear, particularly for wilderness hunters. Gorp, high energy bars, or similar foods with a balance of nutrients are excellent choices. Plant identification is vital if one is going to use wild plant foods, and both poisonous and edible plants must be identified carefully before eating them. Wildlife and fish can be used for food, and a bit of salt or pepper helps their flavor. A line with some hooks and lures or flies can produce good meals in survival situations.

### **Summary**

Avoiding survival situations is the best way to cope with them, but prior preparation helps significantly when a survival situation arises. A calm, positive attitude is one of the greatest assets in these types of situations, and developing survival skills before they are needed aids in maintaining that mental condition. The vast majority of survival situations last less than 72 hours, with most of them becoming adventures rather than life-threatening situations.

### **Sharing and Exhibit Suggestions**

1. Build a first aid kit and share its contents with a family member, club member or other interested person.
2. Build a personal survival kit that can be carried easily in a back pack or fanny pack. Share its contents with your group. Encourage them to build their own. Lead your group in a session where each one builds a personal survival kit.
3. Take a field trip to a hunting area and survey the area for likely shelter, water sources, foods and other items that might be important in a survival situation. Report your findings to others in the group or to your hunting partners.