AL 2 1988-454

Wildlife Management

Alberta

FORESTRY, LANDS
AND WILDLIFE
Fish and Wildlife

00N 8037762

Digitized by the Internet Archive
in 2017 with funding from
University of Alberta Libraries

<https://archive.org/details/wildlifemanageme1988albe>

Wildlife Management

880693

Introduction

Everybody likes wildlife of one kind or another.

What is wildlife? The Wildlife Act defines "wildlife" as any non-domestic mammal, bird, reptile or amphibian. In Alberta, fish are not normally considered to be wildlife and are regulated by separate legislation. The "Fish and Wildlife" Division is therefore the title given to the provincial government agency responsible for managing these groups of animals.

Many people, particularly hunters, tend to think of wildlife only in terms of game animals — those species which may be legally hunted and harvested. In Alberta, however, less than 50 of the 500 or more birds and mammals that occur here are classed as game species. The remainder are non-game wildlife species.

"Fur-bearers", some of which are also game animals, are those forms of wildlife that may be taken and used for their fur.

"Predators" are those animals which prey on and use other animals for food.

Some kinds of wildlife are generally considered as undesirable, particularly by farmers or ranchers. These forms are often called "pest" species and may be given little or no protection by the Wildlife Act, the legislation used to govern the use and well-being of wildlife in our Province.

Most our wildlife species are native to Alberta, occurring naturally here before settlers arrived. Some, however, are not native. They have been brought in from another area and introduced here by man. Such non-native, introduced forms of wildlife are often referred to as "exotic species".

Wildlife is a living resource. Living things have a life span and will eventually die to be replaced by others of that kind. Such living animals cannot be "preserved" or saved for future use beyond their normal life span. Living resources can be "conserved" or used wisely. Wildlife conservation is founded on the principles of planned management and wise use.

Wildlife is a valuable renewable natural resource that can be drawn upon and used in a number of ways. Some uses are "consumptive"; the individual animal is removed from the population through predation, hunting or trapping and used for food or fur. "Non-consumptive uses" of wildlife, which do not result in removing animals from their population, include such activities as bird-watching, wildlife photography or simply enjoying wildlife through observation.

Throughout history, man has developed a fascination with wildlife as a result of his curiosity about animals and his use of them.

This has been intensified in recent times when most people live in cities and are not in daily contact with wild animals. Most of their knowledge about wildlife comes from T.V., movies, newspapers and books, rather than first-hand contact with living things.

To a degree, most people regard themselves as experts when it comes to wildlife matters — certainly the case with many hunters and fishermen. As a result of this many myths have arisen.

However, the science of ecology has dispelled many of these myths and scientists are continually shedding new light on how wild animals and plants interrelate to man and other aspects of their environment. This field of study is called ecology.

Basic Principles of Ecology

In the world around us, the living organisms or communities and the non-living environment function together and interact as an ecological system or ecosystem.

Habitat

Within an ecosystem the kind of "home" or habitat a species of wildlife lives in must provide everything it needs to survive — places for feeding, drinking, resting, breeding and escaping danger.

Habitat is the total environment that supplies everything the animal needs — food, cover, air, water and space. When these habitat factors are in good supply, they contribute to the well-being of wildlife. If any component of habitat is in short supply, it limits the number and distribution of wildlife and is called a limiting factor.

Habitat Change

Habitat, the complex association of soil, water and plants is in itself dynamic and ever changing. These changes can be subtle or dramatic. A forest fire causes a dramatic habitat change. The coniferous forest, cool and shady, disappears. Eventually, on the blackened, but now sunlit ground, fireweed, grasses and other plants appear. Each type of plant appears, grows, matures, and disappears to be replaced by others which also go through their stages and are replaced by still other varieties. This series of changes taking place is not random or haphazard but a predictable, sequential chain of events called succession. Each stage of plant life is succeeded by another. At each successional stage, changes in the plant component of the habitat complex alter that complex in total. With each change, be it subtle or dramatic, habitat is changed. With changes in habitat come changes in the forms of wildlife using that particular habitat.

The coniferous forest, burned over, is replaced by a low ground cover of grass and flowering plants. Over the next few years shrubs, bushes, willows, aspens and coniferous trees each in turn, make their appearance. Finally the forest is once again as it was, composed almost entirely of coniferous trees. This final or climax stage will remain until, as a result of fire or logging, the successional cycle is triggered once again.

Wildlife and Plant Succession

Each species of wildlife has unique habitat requirements. Therefore, changes in habitat will effect changes in the kinds of wildlife associated with it.

In the example of coniferous forest succession, elk might be found grazing on the open grass areas made possible by the removal of the trees. As willow and low shrubs take over, moose take advantage of the abundance of their preferred food. The climax coniferous stage accommodates such species as fisher, marten and red squirrels. An older spruce forest with lichen covered trees provides ideal caribou habitat.

Edge Effect

The edges or borders of habitats overlap each other and it is here that change in vegetation is most noticeable.

The zone of change or transition offers the greatest mixture of habitat which in turn is utilized by a high diversity of wildlife species. Ideally the best wildlife habitat has an abundance of edge arranged to provide for feeding, escape, shelter, resting and drinking all within close proximity.

Carrying Capacity

Carrying capacity is the ability of a given habitat to support or carry a number of a particular wildlife species. The carrying capacity of habitat changes from place to place, from season to season and from year to year. When carrying capacity is at its lowest, usually in the critical winter period, those animals in excess of that number must either move to new habitat or perish.

The number of ungulates living on a lush summer meadow will be sharply reduced when winter snows flatten cover and lessen the availability of food and shelter. Successional changes over longer periods of time will cause habitat change and alter that habitat's carrying capacity. Because of these changes, both short and long term, carrying capacity cannot support a fixed number of animals of a given species continuously. Over time, nature will maintain a wildlife population balance at or near carrying capacity.

Limiting Factors

Carrying capacity of a habitat is determined by any one of a number of factors. Changes in any of these individual factors may result in either an increase or a reduction of the carrying capacity.

Food:

Each wildlife species eats specific plants or animals, regardless of others that may be available. Some foods

have more nutritional value than others which may vary according to the time of year. For this reason, both the quantity and the quality of food may limit the abundance of the wildlife dependent upon it.

Cover:

Wildlife needs cover to shelter and protect it while feeding, sleeping, breeding, roosting, nesting and travelling, or to escape from predators. Cover can take many forms, such as vegetation, burrows, rocks or other features. If a particular kind of cover is in short supply, it may also limit wildlife populations.

Water:

All wildlife needs water. Sources of water are lakes, ponds, streams, dew, snow, and succulent (juicy) vegetation. Some animals can also use metabolic water (water produced by chemical processes in the body). Water may be required only in small amounts for drinking, or in the case of fish and mammals like beaver and otter, in much greater quantities as the principle component of their habitat.

Space:

Wildlife needs space if it is to survive. Overcrowding leads to severe competition for the habitat components essential to life. For this reason, only a specific number of animals can live in an area (carrying capacity).

In addition, wildlife may have territorial requirements associated with mating and/or nesting. Many species of wildlife occupy a home range and spend their entire lives within that range. In the case of white tailed deer, they rarely move beyond the 150 to 200 acres that comprise their home range.

Predation:

Any animal that eats another animal is a predator and the animals they eat are their prey. Predators are generally opportunists. Animals that are either very young or very old, or those weakened by disease, parasites or malnutrition are most likely to first fall prey to predators. When a prey population is low, the predator must find other species to prey on or its numbers will also be affected. Since most predators are well adapted to pursue and take only a few prey species, their numbers are very much dependent on the abundance of their specific prey. This has been dramatically demonstrated by the relationship between lynx and varying hares over a number of years.

Population Dynamics

A population is a group of animals of the same species that occupy a particular area. Dynamics refers to motion or change from within. Population dynamics, therefore, means the changes that occur in a population over time. The study of population dynamics helps explain why wildlife populations must be managed and how.

Two major factors affect the population dynamics of wildlife — the birth rate and the death rate.

Birth Rate:

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

- age at which breeding begins
- number of births per year for each breeding female (how many times each year young are born)
- number of young born per litter. How many at a time?

Weather:

This is undoubtedly a major factor in determining population numbers. In Alberta virtually all other limiting factors are directly or indirectly influenced by climatic conditions. Climatic changes (weather) will obviously affect the cover, food, water, space and other components of habitat needed by wildlife.

Human Activities

Human activities such as alteration of habitat, killing of wildlife, impairment of reproduction by pesticides and harassment of wildlife can also serve to limit both numbers and kinds of wildlife in a given area.

Disease and Parasites

The effect of disease and parasites on a wildlife population may range from lethal to debilitating. At the extreme, die-offs of wildlife may occur, thus severely reducing population numbers. At lesser levels of infestation, reproductive capacity may be impaired and the ability of a population to sustain itself can be seriously affected.

Death Rate:

The death rate of most wildlife species is high. The smaller species of wildlife have higher death rates than the larger species. The principal factors affecting the death rate of wildlife in Alberta are:

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

Note that these are generally the same factors discussed earlier in relation to limiting the carrying capacity of a habitat.

Principles of Inversity and Compensation:

Two principles of ecology deserve mention at this point. The first is often referred to as the "Law of Inversity". Simply stated, it means that as the survival of breeding populations increases, the survival of their offspring will decrease. The result would be a wildlife population composed mostly of older animals and very few young.

When the breeding population declines, usually the number of young per litter increases. The reverse is also true, as for example with white-tailed deer populations on the prairies. Following a mild winter many adults of breeding age will survive. Under these conditions, the number of fawns produced is low, generally only one per doe. When severe winters have reduced the adult population, twin fawns are commonly seen.

The second principle, applicable to the death rate, is often called the "law of compensation". If one or more factors affecting the death rate decline, others will increase so that overall death rate will not significantly change. Over a given time period, the same number of animals in a population will die due to one cause or another. Thus you cannot stockpile wildlife from one year to the next.

If the birth rate is greater than the death rate, population numbers will increase. If the death rate is greater than the birth rate, population numbers will decrease. If birth and death rates are equal, population numbers will not change. However, populations of wildlife species are not static — they do not remain stable and unchanging.

Seasonal Changes:

In addition to the shifts and changes that occur from year to year, populations demonstrate an even greater seasonal fluctuation in numbers.

The most obvious change in population level occurs in the spring when the young of most wildlife species are born. The extent of this immediate increase in population level will depend on the number of breeding females as well as the number of young each female produces. Cow moose and elk may bear one or possibly two calves, while a hen mallard may hatch 12 to 14 new additions to the populations of that species. Not all young will survive, but understandably, populations reach their peak levels in the spring. At this time of the year — habitat is at its best, offering lush new vegetation for the herbivores or plant-eating forms of wildlife and large prey populations for the predators.

Though many animals will die over the spring, summer and fall, the winter period is the heaviest period of mortality.

In winter, the ability of habitat to support a large

number of animals is reduced, often drastically. Those animals in excess of the number that the habitat can then support become surplus and may be lost to starvation and other factors. This annual mortality is part of the natural cycle. All that is required in nature is that a sufficient number of animals — the breeding stock — will survive until the spring and the cycle starts over.

Surplus wildlife cannot be stockpiled and saved for future use. A surplus is used or lost.

The average life span of most wildlife species is less than three years. All forms of wildlife are living creatures that will inevitably die and be removed from the population. This loss is replaced by the birth and addition of new individuals to the population.

Man's ability to control and manipulate both the rate of depletion and the factors that influence the rate of production of a wildlife population forms the basis for wildlife management.

Seasonal Comparisons

Game Management and Conservation

Using the basic principles of ecology, wildlife managers attempt to maintain and manage wildlife populations. Wildlife is one of our valuable resources and in this context wildlife managers are really resource managers. A resource can be defined as "any available supply that can be drawn upon when needed".

Natural resources are those resources supplied to us by nature, for example, plants, water, soil, minerals and wildlife.

Some resources, once drawn upon and used, are then no longer available to us. Coal, gas and oil are examples of natural resources that cannot be replenished or replaced once they have been used. They are called "non-renewable resources". Other kinds of natural resources can replenish themselves through natural means and thus continue to remain available for further use. These resources such as vegetation and wildlife are termed "renewable resources".

Game Management

Game management can be thought of as a field of "applied ecology" and is in many respects, very similar to the practice of agriculture or forestry. A forester plants trees, allows them to grow and eventually harvests them. A rancher must continually remove and market animals from his herd to keep it within the carrying capacity of the range he has available for grazing. If he did not do this, the yearly addition of calves to the herd would increase the number of animals to a point beyond the capacity of the land to support them.

Similarly, game managers try to control wildlife populations. A sufficiently high breeding population is maintained to maximize the reproductive potential of that population. As with the rancher, there is a need to remove or harvest a portion of that population to keep it within the ability of the habitat available to support it. In essence, game managers "farm" wildlife just as the rancher manages his herds. Through hunting, the wildlife manager crops portions of game populations just as the rancher removes and markets the surplus portion of his herd.

The science of game management is more than simply exercising control of population numbers by controlling harvest. Today, the game manager manages not only the species but the ecosystem in which it occurs. Through manipulation of the various factors which affect game species and limit carrying capacity of their habitats, he attempts to maximize the crop of game available for harvesting. This can generally be done by developing habitat to create more space, food, cover or other critical component. Although primarily done to benefit a game species, the creation of new habitat will also benefit many other kinds of non-game wildlife.

Why Manage Game?

Few Albertans who enjoy the outdoors really understand or fully appreciate the basic objectives and principles of game management in Alberta. The primary objective of game management is to maintain game species, in sufficient numbers and variety, throughout Alberta to meet the present and future economic, recreational and aesthetic needs of the people of Alberta. Game is a publicly owned resource.

Through their game management programs, two government agencies share the responsibility for meeting this objective. The Canadian Wildlife Service, a federal government agency, has responsibility for all migratory birds in the province as well as the management of all wildlife occurring within the National Parks in Alberta. Management responsibilities for migratory birds are shared with the United States and Mexico under the terms of the Migratory Birds Convention Act.

The Fish and Wildlife Division of the Department of Energy and Natural Resources, a provincial government agency has responsibility for all other wildlife within the province.

Together the two government agencies, in concert with many private organizations, landowners and concerned citizens work actively to ensure the future welfare of Alberta's wildlife.

Who Manages Wildlife?

As shareholders of Alberta's wildlife, all citizens should be concerned about its welfare. Private landowners are in a position to benefit wildlife through the maintenance of wildlife habitat under their control. Funding from citizens and other financial help from programs such as "Buck for Wildlife" can also help maintain wildlife. Everybody can communicate their wildlife concerns to their M.L.A.'s and the Fish and Wildlife Division. The Government of Alberta, through Cabinet decisions represents the final authority on wildlife management in the province. They determine the amount of funding to be provided for this purpose annually.

"Buck for Wildlife"

The Buck for Wildlife Program of the Alberta Fish and Wildlife Division is designed to maintain, improve or develop important wildlife and fisheries habitat throughout the province.

Specific projects are conducted to enhance recreational opportunity and to protect wildlife and fisheries populations with the cooperation of landowners, conservationists and the Province of Alberta.

Hunters and fishermen contribute to the program when they purchase licenses. Additional donations are received from interested organizations, industry, and private citizens.

Alberta
ENERGY AND
NATURAL RESOURCES
Fish & Wildlife Division

Sportsmen and other users of the resource can also contribute to its welfare by conscientiously following the rules and regulations associated with wildlife management. Through a public communications program, the Division works to ensure a better public understanding of wildlife laws.

Fish and Wildlife Divisional staff as well as Hunter Education Instructors work with schools and a wide variety of groups and organizations to increase public awareness of wildlife management and the need for resource management. Organizations from the private sector such as the Alberta Fish and Game Association, Ducks Unlimited, the Federation of Alberta Naturalists and others also cooperate in this effort.

To ensure an opportunity for public organizations concerned about wildlife management input and direction for wildlife management, a Fish and Wildlife Advisory Council, drawn primarily from public organizations having an interest in wildlife meets regularly with government staff and makes recommendations to the Associate Minister of Public Lands and Wildlife.

Wildlife Management System Components and Techniques

Biological Research

Across North America, wildlife management systems and techniques used do not vary significantly. Techniques are standardized and differ only in relation to the wildlife species to which they are being applied.

In each case the wildlife manager must be able to accurately determine a number of basic items of information about the resource he is to manage. Biological research provides the foundation for management programs through developing wildlife management techniques and providing basic information on wildlife ecology.

Two of the many biological research needs for managing wildlife are:

1. Techniques for accurately estimating numbers of particular wildlife species in a given area. Since wildlife populations are not static but continually changing, methods for determining and evaluating these changes must also be designed.

Methodology for identifying age and sex classes of populations is also required for predicting birth and death rates. In addition to estimating population size, information is also needed concerning the movement of a species. Animals are captured, marked with distinctive tags or bands and released. Subsequent sightings and information from animals harvested by hunters provides data for determining the range of a population and whether such movement is sporadic and random or of a regular migratory nature. Some individuals are fitted with radio transmitter collars enabling biologists to continually monitor their movements.

2. Determining the lifestyles and biological needs of various species. This very basic information is needed to be able to determine the habitat requirements and carrying capacities of that habitat for each species.

Inventory

As discussed earlier, it is of prime importance for the game manager to have a reliable count or estimate of the numbers of individuals in populations of wildlife species. This information, when related to an inventory of the area's habitat, will make it possible to estimate the area's carrying capacity and calculate the potential "surplus" population. The difficulties encountered in trying to accurately count wild animals are many. Populations may be thinly spread over large areas or may be tightly packed into herds or flocks of hundreds or even thousands of individuals. Most wild animals avoid man and can be difficult to see and count under ideal conditions.

Difficulties notwithstanding, the most accurate method of determining the number of animals in a given area is to physically count them. Since big game populations are usually surveyed from the air, total counts of every individual of any particular species would be very costly. Attempts to count all, or as many as possible, of the animals present are restricted to only a few species, such as whooping cranes, mountain goats or big horn sheep. Nearly all other game species are censused by first identifying and inventorying the specific habitat appropriate to each species. Small representative portions of this habitat are surveyed and game counts taken. From these sample areas, estimates can then be made as to the number of animals that would be found in other areas of similar habitat and a total population figure for the province arrived at. For example, by counting deer seen from the air on a 1/16 mile strip on either side of an airplane, the average number of animals can be determined and estimated for larger areas of habitat. This is usually a conservative estimate

as not all animals in the survey area will be seen, because of variable cover and terrain. Big game surveys are usually flown during winter months when trees are leafless and the snow on the ground helps to make animals more visible from the air. If possible, surveys are flown at a time when sexual differences are most obvious, as for example, before moose, deer or elk have shed their antlers. Survey personnel are trained and skilled in their ability not only to spot and identify animals but to accurately classify them into their appropriate sex and when possible, age groups.

Other species of game, not as easily observed directly, require different techniques for censusing. Sound counts are used for pheasants and ruffed grouse. Ruffed grouse make a drumming noise on an average of every four minutes in the early morning and late evening during courtship. If a series of four minute stops are made at regular distance intervals, the average number of drums per stop can be counted and then used as an index for spring breeding populations each year. Spring pheasant populations can be monitored similarly by listening for and counting the number of cock pheasants crowing in a given period.

In other circumstances, animal tracks, degree of use of vegetation, or counting scats (animal droppings) can be used to estimate population sizes.

By itself, a single estimate of population, no matter how accurate, is of limited value. However, when surveys are done over a period of years they provide a basis for determining whether populations are on the increase or in a decline.

Nearly all other game species are censused by first identifying and inventorying the specific habitat appropriate to each species. Small representative portions of this habitat are surveyed and game counts taken. From these sample areas, estimates can then be made as to the number of animals that would be found in other areas of similar habitat and a total population figure for the province arrived at.

Estimates of population sizes or numbers of animals present in an area mean little except when used in reference to the carrying capacity of habitat in that area. In order to accomplish this, wildlife habitat must be inventoried as to the wildlife it is capable of supporting. Since the capability of habitat to support wildlife may vary greatly from season to season and year to year. Habitat assessment must take these changes into account.

Many species of wildlife occupy different habitats at different times of the year. In winter, elk move down from the higher open mountain slopes to take advantage of the less severe conditions and greater protection found at lower altitudes. The herds will move back up to the green slopes the following spring and remain through the summer. In cases such as this, both winter and summer habitat must be inventoried and assessed. The seasonal habitat with the lowest carrying capacity, is the most critical and constitutes a limiting factor on the total population.

Waterfowl and other migratory birds make regular annual movements of even greater magnitude. Some species, such as the blue-winged teal, migrate to winter habitat as far away as Central and South America returning to Alberta to nest the following spring. In addition to identifying and evaluating the two separate and distant habitats required by the species, the travel routes between require identification.

The paths or flyways used by waterfowl during their annual migrations have been well studied making it possible to predict where, and to some extent when, various species of waterfowl will be found during migration. These staging or stopping places used during migration are critical habitat areas for waterfowl. Such information is needed in the setting of seasons and bag limits to ensure an equitable sharing of the resource with the United States and Mexico under the Migratory Bird Convention Act.

Habitat Manipulation

Habitat is the complex of soil, water and plants, commonly called "cover" in which wildlife exists. The relationships between soil, water, plants and the

species of wildlife dependent on them are many and varied. One of the greatest influences on habitat is that of seasonal change. The cold, leafless and barren vista of winter is in obvious contrast to the warmth and lush growth of spring and summer. These seasonal changes in habitat have direct relation to the ability of habitat to carry or support game populations.

Man and his activities can cause profound and often irreversible changes on habitat, usually to the detriment of wildlife. In order to maintain productive wildlife habitat, sound planning programs concerning man's use and future of habitat components are necessary. Both short and long term planning for use of our land and water resources must include a recognition of the need to maintain suitable habitat if native wildlife is to continue to flourish. Agriculture, timber harvest, extraction of coal, oil and gas, as well as our use of water must be based on and guided by sound land and water use planning. Both the private sector and the many agencies of government, including wildlife resource managers, are cooperatively working and planning to minimize man's effect on habitat and the wildlife dependent on it.

Habitat, like wildlife, cannot be "preserved" perpetually in a particular stage or condition. In any natural system, changes are constantly occurring. Plant food used by wildlife germinates, grows, matures and is replaced by other plants. Each stage in the series or succession of changes that occur constitutes a different

kind of habitat and results in an accompanying change in the wildlife found there. An area that is diverse in habitat, which offers a variety of different kinds of cover, will maintain the greatest diversity of kinds of wildlife. Habitat provides more than food. It also provides protection and means of escape from predators or the elements. Strip or patch cutting of trees, rather than clear cuts with complete eradication of forest over large areas, will provide food and shelter for wildlife because of the increased amount of "edge" created. The planting or retention of shelter belts will do the same for wildlife in agricultural areas.

Once research has identified the habitat requirements of a game species and inventory has determined the abundance of that habitat, the wildlife manager can decide whether or not to alter or manipulate habitat using various techniques. One method used involves the creating of a particular successional stage of cover for the wildlife species desired and maintaining that stage as long as possible. Fire is used as a management tool to accomplish this. Coniferous areas can be cleared and the growth of willows and dogwoods, browsed by moose, encouraged. The provision of such habitat increases the carrying capacity of the area and game populations for which it was created increase accordingly.

Blasting potholes and controlling water levels by damming has helped create new nesting habitat for waterfowl. Construction of small nesting islands in shallow lakes or sloughs has had a major effect in increasing Alberta goose populations in local areas. Planting of shrubs and shelter belts has been used extensively to provide upland overwintering habitat for pheasants in southern Alberta.

Much of the funding needed for creating, improving and maintaining wildlife habitat is provided by hunters and other sportsmen. A portion of the annual fee paid for wildlife certificates (part of the hunting licence) is allocated to the "Buck for Wildlife" program which helps to finance wildlife habitat projects throughout the Province.

Wildlife Population Manipulation

In addition to modifying habitat, wildlife managers also use various techniques to alter the abundance and distribution of game populations. Much of this is accomplished through varying the seasons and bag limits associated with the annual sport hunting harvest.

Predators and Problem Wildlife

In the past, game managers placed a heavy emphasis on reducing predator populations in the mistaken belief that, by doing so, game animals would be more abundant. Bounties were used as an incentive to encourage people to shoot or poison predators. Game managers now have a greater appreciation for the true role and value of predators in natural systems. Resource managers now realize that it is most beneficial to maintain a diversity of wildlife including predators to maintain healthy game populations. Towards this end bounties and the poisoning of wildlife have been eliminated and severely restricted in Alberta.

Wildlife can sometimes conflict with man's interests and activities and may present a problem to the land owner. Damage to grain crops by waterfowl, use of haystacks by feeding elk or destruction of beehives by bears are examples of such conflict. Problem wildlife programs of the Division emphasize prevention of the problem and involve removal or displacement of wildlife only as a last resort. Current programs include bait or lure stations for waterfowl and protective fencing for haystacks and beehives. In some cases, the farmer or rancher may be partially compensated for his loss through a wildlife damage fund. This fund is maintained by contributions from sportsmen and various levels of government. Hunting can be an effective means of controlling or reducing wildlife damage caused by game species. In some cases it may be possible to increase bag limits or extend seasons in specified damage areas to effectively reduce populations of particular problem species.

Wildlife Rearing and Stocking

Some birds are raised in captivity for release into the wild. In Alberta this is done to bolster populations of wildlife species in particular areas.

Other wildlife species are trapped and moved to other areas to re-establish them within their former range or expand their natural distribution.

New non-native or exotic species of wildlife have been introduced in Alberta on several occasions. The successful introduction of ring-necked pheasants and Hungarian partridge are examples. Primarily, because of habitat loss, natural self-sustaining populations of pheasants have declined substantially over the past few years. To augment natural populations and provide additional sport for the upland bird hunter, additional pheasants are raised in the Brooks Wildlife Centre and released each fall. Licenced private operators may also raise and release game birds for shooting as a commercial enterprise.

Sport Hunting

Sport hunting is used as a tool of wildlife management. Hunting controls are man-made and comparatively easy to manipulate. The effect of hunting varies with the species being hunted and the methods employed. In wildlife management, hunting is used to remove a portion of the annual surplus before it is lost to "natural" causes. The hunter thus serves as a compensatory factor (see: "Law of Compensation") At the same time, it provides the hunter with an opportunity for outdoor recreation. Hunting also provides wildlife biologists with a chance to sample

game populations and gather data relative to distribution, sex, age, and the physical condition of the animals in them.

Sport hunting is useful in helping to alleviate local problems caused by bears, wolves, elk, ducks or other potentially problem species.

An often heard public concern about hunting is that a species may be depleted to the point of becoming endangered or even extinct. The "Law of Diminishing Returns" generally works to prevent the "shooting out" of game animals. As a population decreases, the remaining animals become more wary, widely separated and harder to find. It then takes more effort on the part of the hunter to get game. Beyond a certain level of effort required, most hunters will lose interest and turn to hunting other species, or move to other areas. Even at low population levels the animals taken by hunters are a part of the harvestable surplus. These are animals that, if not taken through hunting, would be removed from the population by some other factor in the environment. Regulated hunting makes it possible to harvest animals when populations are at or close to their highest numbers over the year. By removing animals before the critical habitat conditions of winter occur, more food and cover is left to the remaining population and increases its chance for survival. Pheasant populations, for example, will be reduced by 90% or more due to winter mortality, whether they are hunted or not.

Control over the number of animals harvested can be achieved in several ways. Bag limits (the number of game animals each hunter is allowed to take or possess) can be raised or lowered. Female animals may be taken in some zones and not in others. Hunting seasons for a particular species may vary from a few days to several months depending upon the species. In any particular area or wildlife management zone, a hunting season can be opened for some species and closed for others.

Notes

Wildlife Harvesting and Stalking

Wildlife harvesting and stalking is a popular activity for many people. It can be a fun and challenging way to spend time in nature. However, it is important to follow the rules and regulations of the local wildlife management agency. This ensures that the activity is done in a responsible and sustainable way.

Wildlife harvesting and stalking is a popular activity for many people. It can be a fun and challenging way to spend time in nature. However, it is important to follow the rules and regulations of the local wildlife management agency. This ensures that the activity is done in a responsible and sustainable way. Wildlife harvesting and stalking is a popular activity for many people. It can be a fun and challenging way to spend time in nature. However, it is important to follow the rules and regulations of the local wildlife management agency. This ensures that the activity is done in a responsible and sustainable way.

Wildlife harvesting and stalking is a popular activity for many people. It can be a fun and challenging way to spend time in nature. However, it is important to follow the rules and regulations of the local wildlife management agency. This ensures that the activity is done in a responsible and sustainable way. Wildlife harvesting and stalking is a popular activity for many people. It can be a fun and challenging way to spend time in nature. However, it is important to follow the rules and regulations of the local wildlife management agency. This ensures that the activity is done in a responsible and sustainable way.