On T.R.A.C.K.S.

Teaching **R**esource **A**ctivities and **C**onservation to **K**ansas **S**tudents

Vol.11, No. 2 **Kansas Wildlife and Parks** **Winter 2000**

DEER IN KANSAS

Inside...

Coming this spring:

WATERWE HAVE HERE?

Whitetail Whereabouts

The whitetail deer has generated vast numbers of scientific studies, precipitated many bitter debates, triggered departmental reorganizations, and has even been in the political arena of state legislators. Volumes have been written on deer biology and countless sporting journals tell how to hunt the animal. It is undoubtedly the most abundant hoofed mammal in North America, so why are we dedicating an issue of On TRACKS to it? We hope that we can provide a greater understanding of the situation in Kansas and give educators a better background for dealing with the complexities of the situation. We also hope to stimulate critical thinking in young minds about this many-sided issue.

Description

The whitetailed deer is so well known that it probably needs little description. Whitetail are stately, graceful animals characterized by long legs, pointed hooves, reddish-brown (in summer) to grayish-brown (in winter) coat, a relatively long tail that is brown above but white underneath (hence the name "whitetail"), white undersides, and the presence of antlers during part of the year in males (bucks). Whitetail antlers typically consist of one main beam out of which the tines (normally unbranched) emerge one at a time. It is not possible to tell the age of a buck by the size of the antlers or the number of points. The size and shape of antlers depend on nutrition, age and heredity.

Most people believe deer to be much larger than they really are. An adult whitetail buck will rarely stand over waist-high to the average man and the belly may only be a mere 23 inches from the ground. The average weight is between 100 to 300 lbs, however, a Kansas buck that dresses over 250 pounds is *big*. (A hunter in Iowa downed a monster whitetail in 1962 that weighed 440 pounds!) Among deer of similar ages, females average lighter in weight than males.

Distribution and Habitat

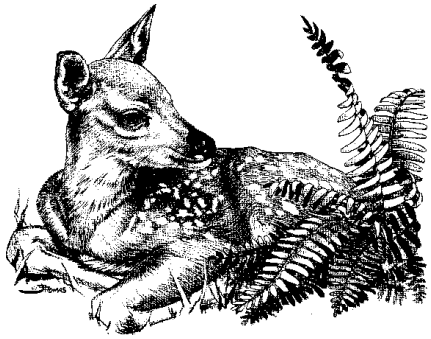
The whitetail inhabits most of the U.S. and southern Canada, and occurs south through Central America to the northern parts of South America. Their preferred habitat is that of field and forest edges, woodlands, and wooded banks of rivers and streams. Kansas deer habitat is a constantly changing array of woody, grassland, and agricultural vegetative communities whose ability to support deer fluctuates with season, climatic conditions, intensity of land use, cropping patterns, and degree of human disturbance. Diversity in plant species and density, as well as canopy coverage, is the key to prime whitetail cover.

Food Habits

One of the main reasons for the preference of field and forest edges, is the greatest variety of foods desired by deer grows best along the margins of timbered areas or in clearings in the timber. Except during the summer months, agricultural crops make up 50% to 60% of the whitetail deer diet in Kansas. Woody plants provide 30% to 40% of the forage during all seasons of the year. Summer diets are composed of nearly 50% forbs, 30% woody material, and 10% to 15% farm crops. Grasses comprise the smallest portion of the diet. The daily forage intake for a deer is about 3% of its live weight. Deer have a daily water requirement of about 1 1/2 quarts per 100 pounds body weight in summer. Deer will eat snow or lick ice if all the open water is frozen.

Reproduction

The peak of the mating season, also called the rut, is in November but mating can successfully occur from September to February. Shortening day length and reduced light intensity in the fall trigger sexual activity in bucks as well as does. Females are receptive for about 24 hours while in "estrus" but will cycle again every 28 days until breeding occurs. Whitetails are polygamous with the males wandering extensively in pursuit of does in heat. Typically, a mature buck may breed with many does during the rut. In Kansas, 50% of all whitetail doe fawns breed before they're a year old. About 95% of the whitetail does breed as yearlings. Healthy females frequently have twins, and triplets are not uncommon.



Pregnancy lasts 6 1/2 to 7 months. The young are most often born in late May or early June. Each fawn weighs between 6 to 9 pounds at birth and the eyes are open. Its coat is reddish-brown with white spots to help it blend with the forest floor. The female leaves the fawns alone (each one in a different hiding place for the first few weeks) but stays within hearing range. Fawns hold all urine and feces until the mother returns, for she will consume them to remove any trace of scent. The young have no scent to keep them safe from predators. Fawn mortality is high; half the fawns born may not survive their first year. Causes for these losses include predation, farm machinery accidents, starvation, fence entanglements, and roadkills.

Fawns depend on their mother's milk until five weeks of age. At two to three weeks, they begin to forage and follow their mother. By the time they are four months old, most are weaned. Fawns lose their spots between 3 and 5 months. By fall, the doe and fawns are nearly always seen together, and most of the family groups remain together until the following fawning season.

Life Span

The prime of life for a whitetail is between the ages of 2 1/2 to 7 1/2 years. Captive deer have been known to live up to 25 years. However, the life span of a deer in the wild is about half that of a captive animal. Rarely do wild deer reach 12 years of age--whether they are hunted or not.

WHAT DEER EAT IN KANSAS

Spring foods

Alfalfa
American Elm
Clover
Coralbeery
Corn
Dandelion
Grasses
Mulberry
Ragweed
Sand Plum
Soybean
Sumac
Sunflower
Wild Cherry
Wild Lettuce
Winter Wheat

Summer foods

Alfalfa
American Elm (leaves)
Blackberry
Corn
Gooseberry
Gray Dogwood
Morning Glory
Sorghum
WILD Grape
Wild Lettuce
WILDROSE
WILDSTRAWBERRY

FALL foods

Alfalfa
apple
clover
coralberry
Gray Dogwood
Morning Glory
Sorghum
soybean
sunflower
WILD Grape
Wild Lettuce
Winter wheat

winter foods

Alfalfa
apple
coralberry
corn
Kentucky coffee tree
Morning Glory
Oak (acorns)
sagebrush
Sorghum
soybean
sunflower
Wild Lettuce
Winter wheat

This is not a complete list. Over 450 different kinds of plants are known to be eaten.

Deer History 101

A very familiar verse from our State song-- "Oh give me a home where the buffalo roam and the deer and antelope play ..."-- was only partly right. Our prairies had their share of antelope but, with a few exceptions, whitetail deer were never very abundant in what we know as Kansas. The prairies of Kansas were covered with bison, antelope and elk. Whitetail deer were mainly confined to the state's eastern woodlands. Early reports on the American Indians of the western Kansas prairies mentioned very little about the usage of deer as part of their lifestyle. On the prairies, the bison was the main source for food, clothing and other commonly used staples of life. Lewis and Clark did report, in 1804, of seeing a large concentration of deer near the present site of Kansas City. Zebulon Pike found deer in east central Kansas. In 1806, Captain George A. McCall described the deer population in the vicinity of Fort Scott as plentiful. Judging from these accounts, deer herds appeared to be fairly common along the wooded portions of streams and in large, forested areas of the eastern section of the state. Newspaper articles indicated deer were still relatively abundant in these areas in the 1870's. But, shortly thereafter, the deer population in Kansas began a steady decline. The use of the land for agriculture and the clearing of the forest and woodlands along rivers and streams, greatly reduced much of the habitat which deer depended upon. By 1890, the deer herds had all but disappeared from most of Kansas and, in 1904, deer were considered extirpated from the state. The U.S. deer population reached its all-time low between 1875 and 1915. In 1911, all deer hunting was closed, beginning a 50-year ban on deer hunting in Kansas.

The drought of the 1930's turned out to be a double-edged sword, restricting what deer remained in Kansas to a few areas, but also allowing the more drought resistant woody plants to become established along streams and in previously forested areas. A greater awareness of conservation measures brought about the use of shelter belts and flood control structures. As more woody plants appeared, so did the deer. A steady growth of deer was taking place throughout the Midwest due to improvements in the habitat, more effective management, and support from sportsmen. Because deer herds were increasing in neighboring states, excess animals crossed into Kansas in search of good habitat. This natural dispersal, to a great extent, was responsible for providing most of Kansas with its initial breeding population. By 1950, it became apparent deer were making a steady comeback and, in 1965, Kansans were again allowed to hunt deer. Just over 5,000 permits were sold and 1,500 deer were harvested. Ten years later, 4,347 deer were harvested. It is estimated the 1999-2000 deer harvest will top 100,000 for the first time in history.

Several factors have contributed to the recent (1960-1999) expansion and population increase of the Kansas deer herd. As mentioned earlier, deer habitat in Kansas has improved. The early "Soil Bank" Programs and the present Conservation Reserve Programs (CRP) have provided deer with vast areas of habitat, as well as providing corridors for travel. Whitetail deer now occupy sections of the state never previously inhabited. Today's crops, especially corn and milo, are more to the liking of deer. And, the lack of natural predators, except humans, has allowed the deer population to expand beyond what one would consider its natural potential.

ANTLER FORMATION

Antlers are found on all members of the deer family, including elk, caribou, and moose. There is a significant difference between antlers and horns. Antlers are shed annually, to grow anew every summer and harden in the fall. Horns are never shed, and continue to grow throughout the animal's life. If a horn is broken off, it will not grow back. Cattle, bison, sheep, and goats have horns.

Early Spring- actual growth starts in April or May. Increasing hours of daylight stimulate the pituitary glad to initiate antler growth.

Mid -May - "buds" appear.

May to Late July-Blood transports calcium, phosphorus, proteins, and other materials from which the antlers are made. The soft skin and short hair covering each antler have a plushlike quality giving this stage the name "velvet."

Late August- full size is reached. The male hormone testosterone is being produced in increasing amounts and initiates the shedding of the velvet. The blood supply dries up and the velvet dries and begins peeling.

Mid-September- time of prime condition. Velvet is rubbed off against trees and shrubs, leaving the lifeless, bony core. This hardens and, by continual rubbing, is polished.

November- peak of the breeding season, also called the rut.

January- toward the end of the breeding season, the antlers become loosened around the base by resorption of bone in this region and are shed. The shedding is related to a decrease of testosterone and possibly to the nourishment of the individual, as well-fed bucks tend to carry their antlers longer than poorly fed ones.

Shed antlers fall to the ground and are gnawed by rabbits and rodents for their minerals and protein.

Drawings from <u>The Wild Mammals of Missouri</u> by Charles Schwartz

The Exceptional Kansas Deer Herd

The deer we have in Kansas today are the results of individuals that survived the period of over-exploitation, combined with deer that dispersed from neighbor states and established here. Although genetic makeup (Kansas is blessed to have deer that are the recipients of excellent genetic makeup) and nutrition play a large part in the size of deer, the Kansas deer hunter, and the tight restrictions on the harvest of antlered deer, are really the key to this quality deer herd.

Just how exceptional is the Kansas herd? The Boone and Crockett Club, and the Pope and Young Club maintain records of the trophy big game. From 1984 to 1993, Kansas had as many whitetailed deer entered into the Boone and Crockett records (89) as all of the states along the Atlantic Coast plus the states of Vermont and West Virginia. Six of the top ten, and 24 of the top 100 non-typical (non-symmetrical antlers) whitetailed deer, and 23 of the top 100 typicals ever taken by archers and honored by the Pope and Young Club came from Kansas. Of the top one hundred typical and 100 non-typical scores, forty-seven are from Kansas while the combined total for the states of Colorado, Nebraska, Missouri, and Oklahoma is only eleven.

The management of this resource, along with wise conservation practices financed by sportsmen, indicate our willingness to maintain the quality of our deer herds for future generations.

Deer Management

Deer management basically consists of three components: the habitat, the animal, and those factors which influence population changes.

Habitat

Early Kansas had limited whitetail deer habitat. It was more suited for animals that preferred the open spaces of the prairie. However, habitat can be improved over a period of time, which is what happened in Kansas with respect to the deer. The changes which have occurred are more often the result of outside influences rather than those within.

One example of an outside influence creating new habitat is the Conservation Reserve Program. While the CRP program prevents almost 700 million tons of topsoil from eroding each year (its primary purpose), it has been instrumental in reestablishing habitat for wildlife, including deer. Not only does the CRP program provide vast areas of habitat for deer, it also supplies corridors for expanding the deer's home range. Other outside influences affecting the habitat for deer include the drought of the 1930's (allowed more woody vegetation to thrive) and the choice of crops grown on agricultural land.

Of the three components of wildlife management, the habitat is the most difficult to deal with, but it also has the greatest impact on wildlife populations. Because most of the land in Kansas is in private ownership (97%) and associated with agriculture, the restoration of wildlife habitat can become very complex. The problems of habitat management often transform into economic and/or political issues, characterized by polarized special interest groups.

Deer

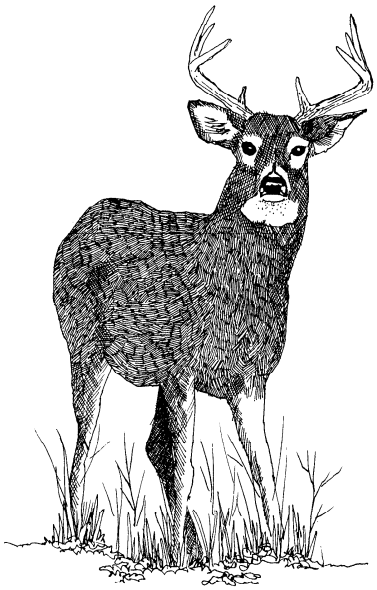
What about the animal itself? Can't deer manage themselves? Yes they can, or better stated, the laws of nature will prevail. Nature has built-in systems to manage wildlife populations. One is called predation. In a natural system, deer populations are controlled by predators, such as wolves, bears, mountain lions, and humans. Most of these natural population controllers have been removed from Kansas for over a century, except one - humans. (We will expand upon the human factor a bit later.)

If the natural predator/prey scheme is not in place, nature employs a second control measure, self -elimination. An unchecked deer population will self- destruct in a number of ways. The most common is to eat themselves out of their food supply. A habitat can only support so many deer (the carrying capacity). Once a population exceeds its carrying capacity, it starts borrowing from its habitat's ability to provide the necessary food. In a short period of time, this borrowing effect will cause the population to crash, known as the adjustment or starvation period. The food supply is reduced far less than in the beginning, often reducing the carrying capacity (population) to a mere fraction of its former total. The more frequent contacts between deer in a ballooning population weakened by starvation can also intensify the spread of contagious diseases.

Deer can control their population, but it comes at a very steep price. Not only does the deer population take a tremendous hit, but so does the habitat. Many other forms of wildlife depend on the habitat besides deer. These animals will also be devastated by the deer population's impact on the habitat.

Outside Factors

We know habitat development is very difficult to nurture, and deer controlling themselves results in a dysfunctional habitat. So what's left? Outside influencing factors, such as humans, become an important factor in the deer management equation. Humans have always been associated with the harvesting of deer. Since the natural controls on deer have been eliminated, the harvesting of deer by humans becomes the most important factor of management. Deer can't add or subtract, but they do know how to multiply.



Managers must consider the deer population from a biological aspect, as well as from the public's perception of the deer population, better known as **public tolerance.** Add into this mix the economic impact of the deer population and one can quickly see that managing a deer population is no simple matter. A cold fact of deer management is **whatever you do today, the results may not be evident immediately.**

Research programs focus on gaining a better understanding of this animal, including the ecological role it plays, the bio-interaction it has within the habitat, and its control factors, which are particularly important in managing an increasing population. Information extracted from these studies determines how to best monitor and control the deer population, but gathering information can be a challenge.

For example, how does one try to estimate the size of the deer herd in the state? We can't ask deer to return a census survey. (They don't handle ball point pens very well!) To obtain this information, a biologist must study trends. In some states, aerial surveys are utilized. This is more effective in states where deer herds tend to "yard up." Some states, including Kansas, uses the number of deer-vehicle accidents reported as one measure of deer populations trends. A higher accident rate in a given area indicates the deer population is increasing and may also be extending its range. Finally, the most formal method to monitor a deer population is through reports submitted by hunters who harvest deer.

Management in Kansas

Kansas statutes establish the management of deer in Kansas to be the responsibility of the Kansas Department of Wildlife and Parks. Our deer management program mainly focuses on population monitoring, protection, and public education.

The harvesting of deer is a very important population stabilizer. As mentioned earlier, humans are the main predators today that can significantly affect a deer population. Several factors are taken into consideration when establishing deer harvest goals. They include:

- **public tolerance**
- **population size and location**
- **species of deer**
- **deer herd quality** (includes ratio of bucks to does, number of trophy bucks, and controlling "hot" spots (where the deer population is rapidly increasing or declining)
- **hunter densities**

Public Tolerance

A recent poll asked people to identify the animal they most enjoyed seeing in the wild. The deer was named in the top three. The same poll asked, "Which animal have you had a negative experience with?" Again, the deer was rated in the top three. Has the deer changed? No, but each person's perspective of an encounter with deer is very different. It is a thrill to see deer along a path through the woods, but it may not be such a pretty sight to see a herd of deer eating one's crops.

State law provides landowners with a legal means of controlling deer that are destroying property or "creating a public safety hazard." This last point, "creating a public safety hazard," brings up a topic which has been receiving a lot of ink in the press lately (deer/vehicle accidents). But, how much is too much? Isn't it all a matter of perspective?

A Northern Perspective

How serious is the problem? From 1987 to 1998, the number of recorded deer-vehicle

accidents in Kansas increased from 3,601 to 9,992. (Totals, including unreported collisions, could be 40-50% higher). Now compare these totals for deer-vehicle accidents reported in the state of Michigan: 1987 - 38,927 and 1998 - 65,381. Kansas has 24,000 more square miles of land than Michigan, but only about a fourth of Michigan's deer population. This year, Kansas hunters were expected to harvest 100,000 deer. Michigan will harvest somewhere between 400,000 to 600,000 deer. More deer, less square miles, and more vehicles results in more deer/vehicle accidents in Michigan. But, the tolerance level makes all the difference.

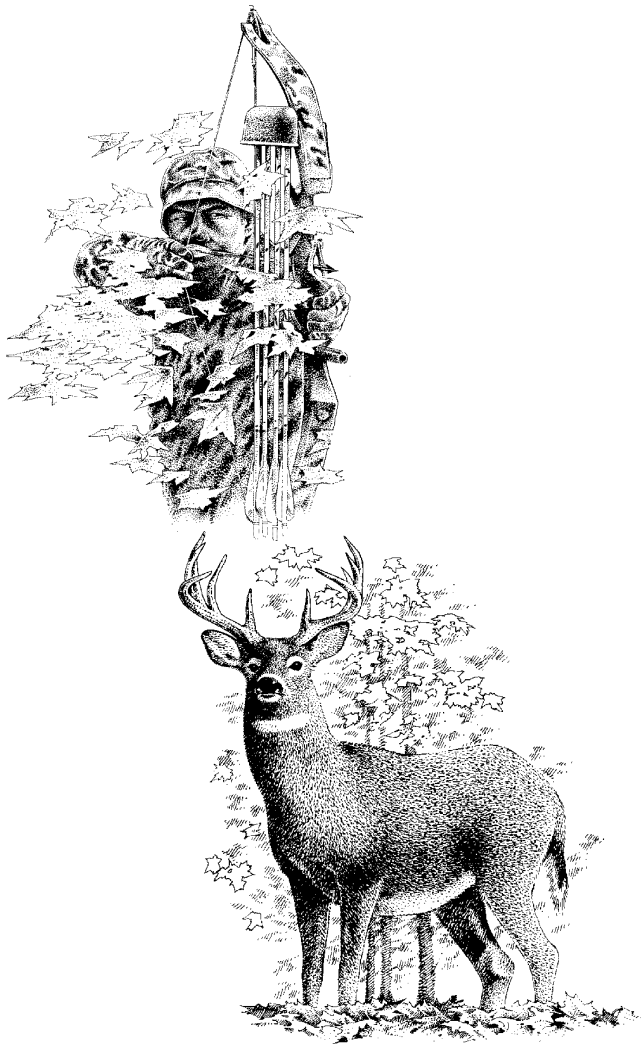
Why the difference? The deer herd expansion for Kansas is a relatively recent event. The majority of the increases have occurred over the last ten years. Deer/vehicle accidents were not common prior to 1990. This rapid, accelerated pace for deer/vehicle accidents has caught the interest of the general public. People are concerned about deer/vehicle encounters and they should be. The chances for you to have one of these encounters is increasing, but learning the necessary precautions to employ during the times of year deer are most active (i.e., the rut) can go a long way in curbing these encounters *(See "When Bumper Meets Deer," pg 9).*

Northern states also view deer differently in regards to economy. Their deer herd represents an important aspect of northern Michigan's economy. Last year, more than 836,000 hunters in Michigan participated in the deer season. In some sectors of Wisconsin, the commerce which occurs over the deer season will determine whether an enterprise is profitable. And, it is not just during the hunting season that deer prove an economic boon. The tourist industry thrives on visitors who have the opportunity to see deer in the wild. According to resort owners, it gives their resorts a sense of wilderness.

Kansans' tolerance for deer may change in time as experience with the deer herd increases over time and the economic impact of the deer population, become apparent.

The Future

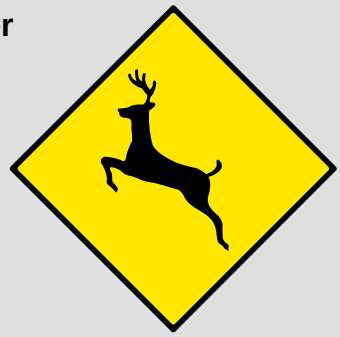
Kansas has been a leader in the management of deer for many years. It is often cited as an example of how a deer herd should be managed. Management units, harvest goals, permit quotas, season dates and lengths, concerns of landowners and sportsmen, and professional input are all considered in maintaining our deer herd at reasonable levels. Clearly, the Department of Wildlife & Parks can't solve all the problems or satisfy all the people all the time. But we have incorporated responsive approaches that address most of the concerns. The greatest management tool we have is a willingness to adopt the best management practices available and learn from the mistakes of others. When we proceed with thoughtful planning and exercise patience (deer populations don't change overnight), we will all be the benefactors -including that wonderful, wild animal - the whitetail deer.



When Bumper Meets Deer

Big, brown hairy things can quickly appear from the wilderness to cross a public road. Unfortunately, no one has taught them to look both ways before crossing. The deer usually comes out second-best in these encounters, but the toll on vehicles and their occupants can also be substantial. No foolproof way has been discovered to keep deer off highways and away from vehicles. Some people have used "deer whistles," but the Insurance Institute for Highway Safety (IIHS) has not found any scientific evidence to support these claims. One approach has shown promise--the use of roadside reflectors. These are designed to reflect light from vehicle headlights, causing the deer to "freeze" rather than cross the road. Studies in Minnesota suggest they do reduce crash frequency, but they are very expensive to employ.

The following are some suggestions on how drivers can avoid an unplanned meeting with a deer.



- **Be aware of your surroundings. Pay attention to "deer crossing" signs.**
- **Be especially alert in areas near woods, water, and feeding grounds**
- **Look well down the road and far to each side. Use your high-beam lights when possible at night.**
- **When you see one deer, several more may be nearby.**
- **Be particularly alert at dusk and dawn--deer often venture out to feed at these times.**
- **If you see a deer on or near the roadway and you have time to avoid hitting it, reduce your speed, tap your brakes to warn other drivers, sound your horn, and flash your headlights.**
- **If a collision seems inevitable, do not swerve to avoid the animal; your risk of injury may be greater. Report the accident to the police.**

Condensed from the State Farm Insurance brochure *"When Bumpers Meet Antlers"*

Do Deer /Vehicle Accidents Affect the Insurance Rates For Kansas?

Dan Gillig, a representative for State Farm Insurance replied, "As a region, State Farm Insurance does not specifically keep track of deer claims. They are filed under miscellaneous comprehensive claims, which would include several different types of comprehensive losses. A deer/vehicle accident does not affect your auto rates individually. In other words, State Farm will not surcharge an auto premium as we do not consider it a chargeable accident (one that you are at fault). Deer claims are just a very small portion of all the claims."

Oh Deer, What Can the Matter Be?

Over the past few pages you have been given a great deal of information concerning deer in Kansas. Let us take a more in-depth look at a few of the concerns and possible solutions.

Population Hot Spots

Deer population trends are set by vehicle/deer accident reports that are reported by the Kansas Department of Transportation. The highest incidents occur in the most densely human populated areas (urban) because of the greater number of vehicles on the road. Specific areas must be monitored year after year to establish a general population trend of the area. Areas which contain higher vehicle/deer incidents are called “hot spots."

There are several factors which contribute to these “hot spots” of increased deer populations in urban areas. As people plant trees, grow gardens, develop ponds and other water sources, and extend woodland corridors with stream parkways, urban areas become ideal habitat for deer. This ideal habitat becomes a safe haven for the deer when predators are absent.

As you have read, hunting is the only significant means to effectively stabilize the deer population. Hunting is illegal within urban areas due to city ordinances which make it illegal to discharge a weapon within city limits. The Kansas Department of Wildlife and Parks may increase the number of deer permits to decrease the population, but when deer reside within the city limits, the city ordinances negate hunting as a management tool.

Special Hunts

Over the years, several initiatives have been tried to reduce these "urban" deer in other states. States such as Pennsylvania and Minnesota have implemented special hunts within city parks and other tracts of undeveloped land. These are controlled hunts that set human safety as a priority but allow the harvesting of deer to lower the population. These means have been successful in the states utilizing them. These hunts require cooperation of many governments and organizations. Perhaps the largest hurdle for implementing the program is communication between all interested parties and the ability to reach a compromise. Special hunts in city parks are not used in Kansas at this time. However, a few special hunts (such as special hunts for disabled hunters) have been offered in a few state parks.

Relocation and Birth Control

Other means such as relocation, birth control and sterilization have been explored. None of these methods are successful. Without exception, for these methods to work, does must be captured. This puts the animal under extreme stress. To relocate a doe, she must be tranquilized and this tends to create a high mortality rate among relocated animals. Most relocated deer die within three months of the relocation. Relocation poses another problem not often considered. When you remove a deer from one area and place it in a new location, there is usually a healthy resident population already there. Adding new deer to the area disrupts the resident deer population and causes displacement of even more deer than were removed from the original area.

Birth control must be administered two times a year which makes recapturing the same doe a gamble at best. It is not always a successful procedure and it is very labor intensive. Sterilization often causes too much stress on the doe and is difficult to perform on a large number of does. All of these methods are extremely costly to perform, are not shown to be successful over the long term, and are extremely stressful to the animal which leads to high mortality rates.

New Initiatives

The Kansas Department of Wildlife and Parks has been successful with other initiatives. Because only about 200,000 acres of land in Kansas is Department land, deer often thrive in areas of private ownership. Deer on

Deer on private lands are not accessible to many hunters unless they know the landowner. "Walk in Hunting" (WIHA) is a program that allows the Department to lease private land from owners for use during the hunting season(s). Special signs are posted and the lands are patrolled by Conservation Officers much like public lands. The program has been successful and is gaining lease property every year. Initiated in 1996 with only 56,000 acres, by 1998, there were 490,000 acres enrolled. During the 1999 deer season, WIHA allowed hunters access to 635,000 acres of private land.

It is a beneficial situation for all. Landowners have the opportunity to lower deer populations and hunters have access to the deer. The increased land access has created the opportunity to increase the number of permits and doe game tags, and extend the deer hunting season.

These new opportunities have more than doubled the number of deer harvested since 1994. This can easily be seen on the chart at the bottom of the page. Since 1994, deer harvest has climbed from 43,840 to 108,000 (projected for 1999). Particularly notice the increase in game tags from 1997 (2,800) to 1999 (37,300)-- an increase of nearly twenty fold.

Damage Control Permits

Another initiative provided for the land owner is the opportunity to receive deer depredation tags when no other means have lessened deer damage to private property. When a landowner contacts the Department concerning land damage from deer, a wildlife biologist will work with the landowner to implement damage control practices. When specific damage control practices have been implemented, but are not successful, the wildlife biologist will review a written complaint and the landowner can obtain specific tags to harvest deer. Knowing that some landowners do not know enough hunters to utilize the tags, the Department will also help landowners contact ethical hunters. This allows hunters the ability to meet land owners, increase their opportunity to hunt, and give the landowner a way of knowing the hunters on their property.

You may have noticed that all of the aforementioned initiatives focus on the harvest of does rather than bucks-- not the image most people have of deer hunting. The reason is simple. Deer are polygamous and one buck will breed with several does. Considering the fact twins are quite common, a rapid rise in the deer population can result over a short time. In fact, it can double in one season. **In order to effectively lower a deer population, the does must be harvested in greater proportion to bucks.**

History of deer harvest in Kansas, 1994 to 1999

Permit Type	1994	1995	1996	1997	Preliminary 1998	Projected 1999
Regular Firearms	25,500	27,700	31,200	39,600	40,700	42,700
Hunt-Own-Land	8,400	8,900	8,800	10,400	10,900	10,900
Game Tags	1,800	2,500	3,100	2,800	20,300	37,300
Nonresidents	340	290	450	640	1,200	1,500
Archery	7,800	7,200	8,500	9,700	8,000	15,600
Grand Total	43,840	46,590	52,050	63,140	81,100	108,000

Diseases of Deer

Kansas is very fortunate to have an extremely healthy deer population. There are only two diseases to discuss when talking about Kansas deer. One is a concern for people and the other is a concern for deer.

Lyme Disease

The first is Lyme disease. Lyme disease was discovered in 1975 in Lyme, Connecticut and a few cases have been reported in Kansas within the last few years. Lyme disease is caused by *Borrelia burgdorferi*, a bacteria the deer tick (*Ixodes dammini*) acquires from a host. Although the bacteria is transmitted through the bite of the deer tick, deer are **not** the main host which transmits the bacteria to the tick. According to the Center for Disease Control "larvae and nymph deer ticks become infected with Lyme disease bacteria when they feed on infected hosts, particularly the **white-footed mouse**." Larvae and nymph-stage ticks are so small they are not easily detected and may have the opportunity to spend enough time on a human to transfer the bacteria. A tick must be attached approximately 48 to 72 hours in order to transfer the bacterium. Deer ticks utilize deer as hosts primarily during the adult stage, by which time the tick is large enough to be easily seen and removed before the bacteria can be transferred.

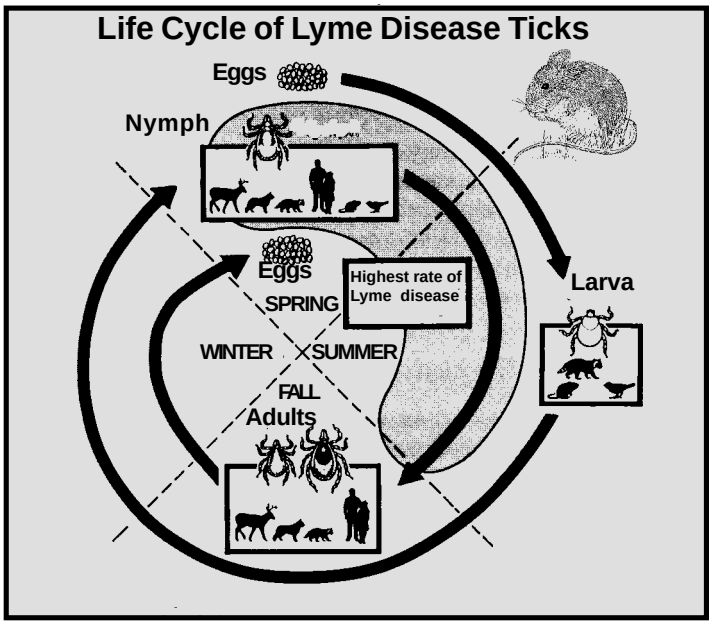
Only a few dozen cases of all the tick-borne diseases combined occur in Kansas each year. Lyme disease in Kansas is most common in the eastern one-third of the state. Evidence suggests that Lyme disease in Kansas may be contracted not only from bites of the deer tick but also from lone star ticks (*Amblyomma americanum*). Many lone star ticks harbor spirochetes known as *Borrelia lonestari* that look like *Borrelia burgdorferi*. This newly named species may be the cause of Lyme disease in Kansas and southern states.

More deer does not necessarily mean more Lyme disease. It is the population of white-footed mice that is of real concern when discussing Lyme disease.

Hemorrhagic Disease

Hemorrhagic disease is another disease concerning deer that is making the news. According to the Southeastern Cooperative Wildlife Disease Study, "hemorrhagic disease is the most important infectious disease of white-tailed deer." The disease is caused by either of two closely related viruses: **bluetongue virus** or **epizootic hemorrhagic disease (EHD) virus**. These viruses are transmitted by biting flies in late summer and early fall. Hemorrhagic disease can cause visible signs ranging from a depressed, feverish condition, to swollen head, neck, tongue, or eyelids. The deer may have difficulty breathing, become lame and lose it appetite. Deer may die within three days or suffer for weeks or months. Internally, the disease causes lesions on tissue and organs and/or hemorrhages or congestion in the heart, rumen, and intestines. Lesions in the mouth and growth irruptions on the hooves may also be present.

Cases of EHD have been found in Kansas deer. This disease is not a threat to humans nor appears to be of great concern to livestock. Cattle may have mild symptoms from EHD. Sheep are not affected by EHD but develop a serious illness from blue-tongue virus.



Deer Management Activity

Purpose

Because of human intervention with wildlife species and habitats, some species must be actively managed to achieve stable and healthy populations. In this activity, students develop a management plan to handle deer overpopulation.

Learning Outcomes

After completing this activity, students will be able to:

A. List three reasons why people manage deer populations.

B. List three strategies that might be used in deer management.

C. Write a one-page report discussing the advantages and disadvantages of various wildlife population management techniques.

Organization

Who: Individual students, and groups of four or five

Where: Indoors

When: Any time of year

Time: Two to three hours

Material: For Each Student

- Data Sheets
- Pencil
- Paper

Directions

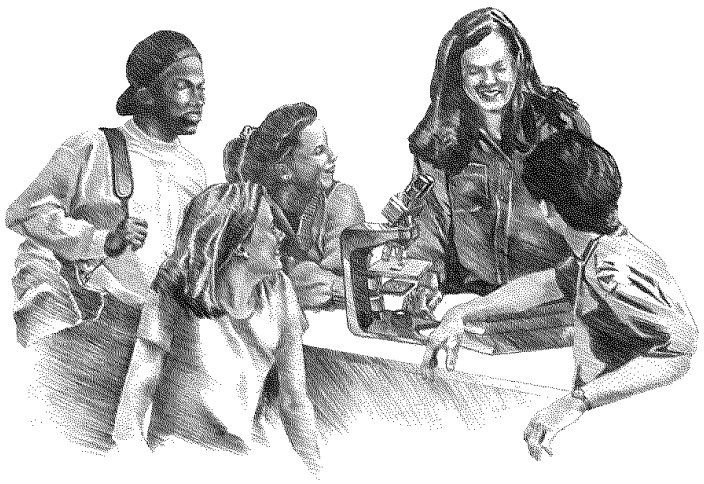
1. In this activity, students will be asked to design a one-year management plan for an expanding deer herd. Explain this goal to the class, pointing out the effects of overpopulation on habitat and species. Overpopulation leads to damage of habitat as herds of deer overbrowse an area. More deer means less food for each individual. This can result in malnutrition, starvation, disease, and infestation by parasites. Overpopulation also causes increased deer/vehicle collisions and higher crop damage to nearby farms. To prevent these and other problems, people must manage deer herds to control their populations.

2. Having established the need for management, briefly discuss methods of population control. Hand out the data sheet and tell the class they are managers in charge of a wildlife refuge with an expanding deer herd. Their goal is to control deer numbers over a one-year period, working within a limited budget. They may use one method or combine methods to achieve their goal.

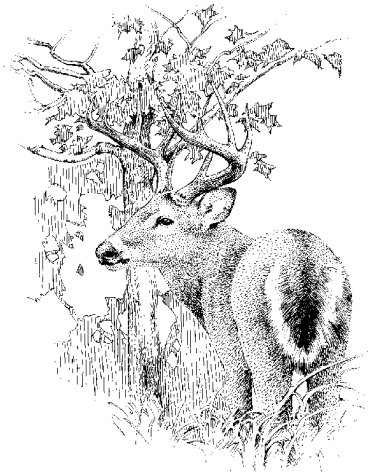
3. Discuss the following management methods with the class, making sure they understand the costs, benefits, and effects of each. (**Note:** All costs are rough estimates, but are stated as precise figures to make the simulation easier).

a. Expand Habitat. A plot of land near the refuge is for sale. It will cost $50,000 and will support 50 more deer. This is a way to increase the carrying capacity of the refuge by 50 deer, but what will happen when the herd expands in following years?

b. Improve Habitat. The quality of refuge habitat can be improved by planting shrubs which provide good food and cover for wildlife. For $50,000, 100 deer can be accommodated. For $80,000, 120 deer can be



accommodated. For $90,000, 130 deer can be accommodated. This method has the advantage of improving conditions for a wide variety of animals, besides deer, but the carrying capacity of the refuge can only be improved to a certain point. Once this optimum carrying capacity is reached, spending more money will have little positive effect.



c. Live Trapping and Relocating Deer. The refuge manager can trap and move deer to another area. However, it costs $600 per deer to catch and move them and few places are available where the deer can be relocated.

d. Professional Removal. Done by hiring an expert to shoot or trap the surplus deer. The professional would charge $150 for each deer removed.

e. Supplemental Feeding. Corn can be bought to support the deer population. The necessary feed will cost $300 per deer. What will happen if the manager had to stop feeding in the winter? When there are more deer born in the spring, what will happen the following winter? Is supplemental feeding a permanent solution to the problem?

f. Sterilization and Introduction of Predators. So far, no practical methods have been found to sterilize large numbers of deer. Predators such as wolves and mountain lions don't really control deer populations. Predator populations tend to follow the ups and downs of the deer herd, not cause them. Besides, what would be people's reaction when the wolves start to kill pets and livestock of nearby farms and communities? (**Note:** This option is not included on student data sheet, but should be brought out in class discussion.)

g. Traditional Hunting. Hunters can be allowed to remove the surplus deer populations. It will cost the refuge $20,000 each year to run the hunter education program and to do patrols and law enforcement work during the hunting season to make sure the laws and hunt rules are observed. At $20,000, the cost to remove 200 deer would be $100/deer. (**Note:** The hunters will actually return a major share of the $20,000 through the purchase of hunting licenses and tags. However, this money would not be paid directly to the refuge in most cases, and is not considered as part of this simulation.)

4. Have each student devise a management plan for their deer herd, using information on the data sheet. Give the class 30 minutes to develop their plans.

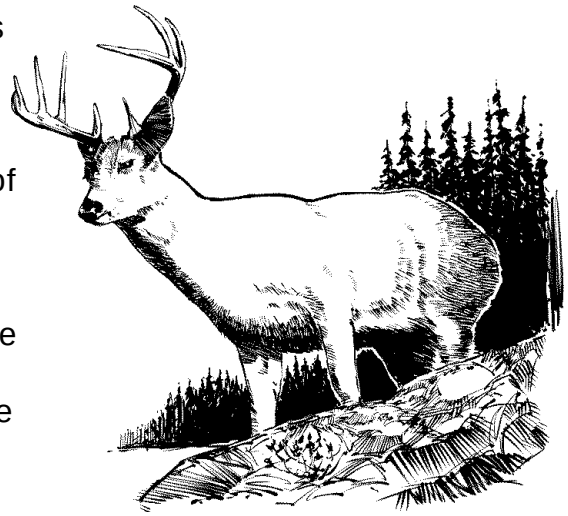
5. When the students have completed their plans, divide the class into groups of four or five to discuss and pick the most effective plan in the group. Tell them they can combine plans to come up with one best plan. Give the class about 30 minutes to do so.

6. Have each group write and present its plan to the class. Follow up by discussing the number of combinations, strategies, and options available in wildlife management. Stress that there is no one right answer and that some solutions and options might not work depending on the area, time limits, species to be managed, and resources available to the managers. For instance, expansion of the habitat may be limited by surrounding development. Live trapping and removal is usually not a practical solution when managing large animals.

Followup

Have students find newspaper articles and talk to a wildlife manager about actual instances of deer management in their area. Compare these cases to their hypothetical management plans. Have students note the budget and other factors influencing decisions and list them.

Deer Management Data Sheet



You are the manager of a wildlife refuge. There is a herd of 200 deer on the refuge. This herd will expand at the rate of 200 deer per year. The refuge can only support 200 deer. Since the carrying capacity has been reached, the rates of disease and starvation are increasing. Farms surround the area and more deer are beginning to forage on these private lands in search of food. Listed below are several ways to control the deer population. However, there is only $100,000 available to spend. Devise a plan to manage the 200 surplus deer over the next year. Choose options, add the total costs, and stay within the $100,000 budget.

WAYS TO CONTROL DEER POPULATION

1. Expand Habitat. You can buy a plot of land for $50,000 which will support 50 deer.

2. Improve Habitat. You can improve the habitat by planting shrubs to provide food and cover. For $50,000, you can accommodate 100 deer; $80,000 will provide for 120 deer; and $90,000 will provide for 130 deer.

3. Live Trapping and Relocating Deer. It costs $600 per deer to catch and move it to another area.

4. Professional Removal. You can hire a professional hunter at $150 per deer.

5. Supplemental Feeding. Corn can be bought to support population. Cost is $300 per deer.

6. Traditional Hunting. Hunters can be licensed to remove the surplus deer. Hunter education and law enforcement costs $20,000 each year or $100 per deer.

Notes:

Planning Grid

Option (s) Chosen*	Amount of Budget Used	# of Deer Managed
Option #____		
Option #____		
Option #____		
Option #____		
Option #____		
TOTALS	$	

* You do not have to pick five options, but can use one or two or as many as you like.

Name _____

Deer Management Activity Review

1. Name three possible ways of reducing the size of an overpopulated deer herd.

a. _____

_____

b. _____

_____

c. _____

_____

2. Why should wildlife populations be managed if there are too many of one species in a given area? List three reasons.

a. _____

_____

b. _____

_____

c. _____

_____

3. If you were a wildlife manager deciding on a plan to solve an overpopulation problem, what would be three factors you would consider in making your plan? Check the three most important factors below.

_____ **a**. Amount of money in your budget.
_____ **b.** Number of hunters in your area.
_____ **c**. Length of time you have to reduce your population.
_____ **d.** Costs of individual techniques.
_____ **e**. Amount of land paid for by license fees.

4. List two reasons why buying more land may not solve an overpopulation problem.

a. _____

_____

b. _____

_____

We Want To Hear From You!

Throughout this issue we have presented information on the Kansas deer herd. We looked at its history, current problems, and management, and discovered it is a rather complex situation. Numerous solutions have been proposed by various individuals and groups to assist in the management of our deer herd. We would like the readers (teachers and students) who receive ON T.R.A.C.K.S. to suggest possible management programs that deal with the current problems related to our present deer population. A quick summary of some of the issues presented in this publication are:

1. Increasing deer/vehicle accidents;
2. More reports of crop damage by foraging deer;
3. Increasing the doe harvest;
4. Supervision of hunters and illegal harvesting of deer;
5. Maintaining the quality of the Kansas deer herd;
6. Dealing with the public's tolerance levels for deer;
7. Coping with "Hot Spots," such as the frequent appearance of deer on the runways of an airport;
8. How to increase the general public's knowledge, awareness, and understanding of the issues related to Kansas' deer population so individuals can be actively involved in preserving the quality of our deer herds.

I am sure there are other issues, some local, which could be added to this list. We are encouraging readers to respond to the above list and any other deer related situations which you feel should be addressed in Kansas. As many as possible will be printed in our follow-up issue along with responses from various individuals who deal with the management of our deer herds.

Interesting side note: any of the above topics would make a great science project. Just think of the great research project you could develop regarding deer issues in your own area; is the incidence of deer/vehicle accidents increasing in your county? Or how many of the hunters in your county harvest does? Or what are the favorite animals of your classmates and does the deer appear on the list? The possibilities are unlimited. Have fun!

Mail your responses to: Kansas Department of Wildlife & Parks
ATTN: WES
512 SE 25th Ave.
Pratt, KS 67124

Or e-mail us at WES@wp.state.ks.us

Looking forward to hearing from you.