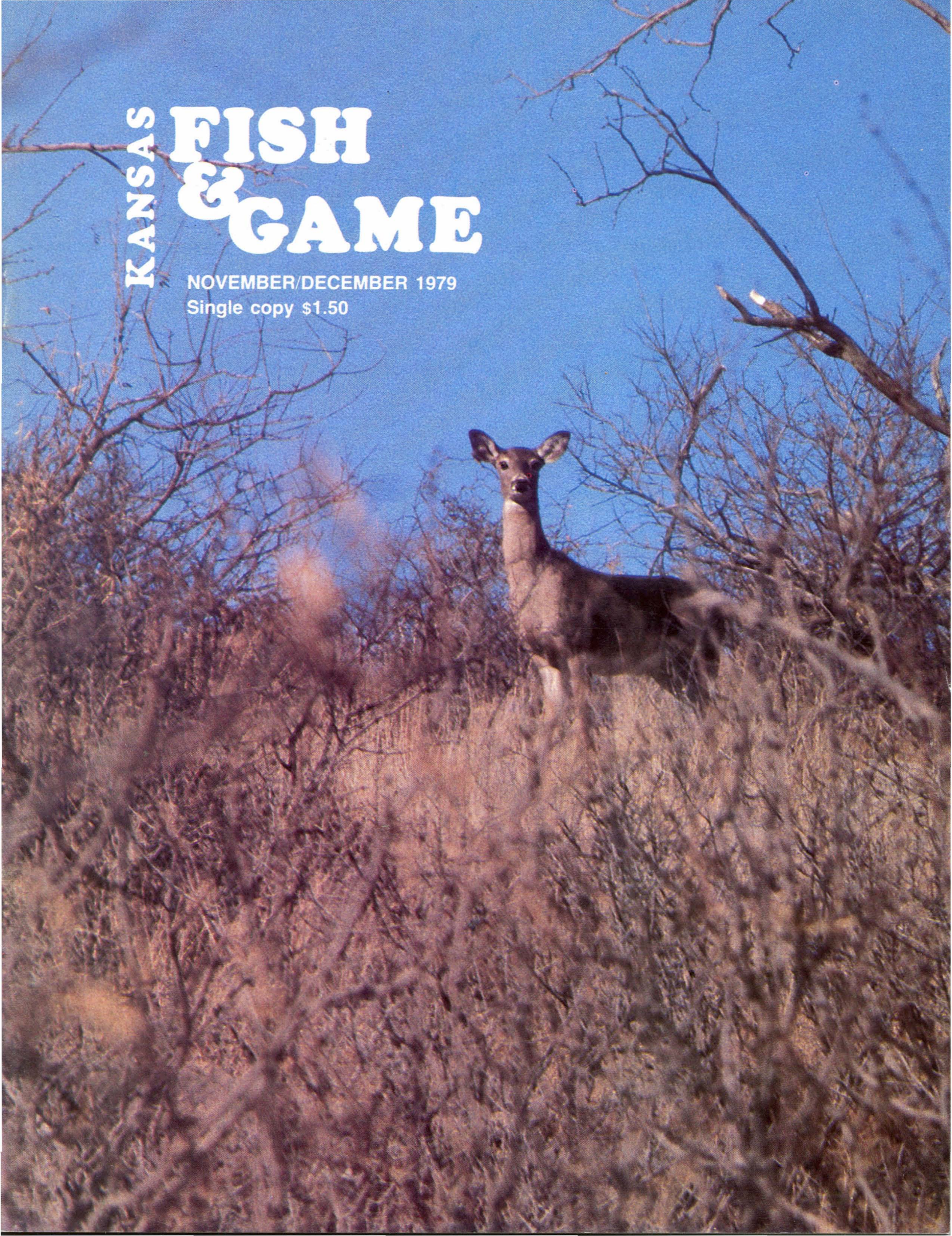

KANSAS FISH & GAME

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KANSAS FISH & GAME MAGAZINE

A great gift.

Guess Who's Coming to Dinner

Bill Hlavachick

The winter of 1978-79 will probably go down in the annals of many western states as one of the worst on record. In many parts of the West, snow covered the ground as early as October and stayed until March. The snow was unusually deep and accompanied by extremely low temperatures.

In the Rocky Mountains and parts of the plains, the result was an increase in crop, orchard, and hay stack damage by foraging deer, elk, and antelope. Usual wintering areas were so snow packed that most, if not all, native food was unavailable. Large herds moved into areas where they could find something—anything—to eat. In all too many cases, this was cropland or hayland with unprotected hay stacks. In several parts of Wyoming, for example, large herds of antelope moved right into town, foraging on anything available, even shrubs and bushes in yards, a new dimension to

Biologists know relatively little about the migration habits of the common crow, but any farmer in Stafford County, Kansas could write a book on where they spend the winter. When harvest of milo and corn is delayed into early winter, large wintering flocks of crows can have significant economic impact. Losses of cattle and other stock, however, are drastically overrated. Photo by Ken Stiebben.

the problem of wildlife damage. Weakened and hemmed in by deep snow, these pronghorns were vulnerable to wandering groups of urban dogs. Face-offs between wildlife officials who were trying to protect the herds and local residents who couldn't believe their pets were killing antelope led to even more than the usual tension that surrounds wildlife damage complaints.

The problem is certainly not new. Competition between farmers and wildlife began with the first field cleared by Pilgrims. In the 1940's, a number of states had already been forced to react to damage complaints. My father worked as a "deer herder" for the Colorado Game Department near Durango in that era. One of my fondest memories is riding into the upper reaches of Hermosa Canyon on a sled filled with baled alfalfa and windfall apples. We scattered the forage for elk and deer to feed on, hoping to keep them from drifting down the canyon to feed in the hay fields and orchards in the lowlands. I suspect that we only sharpened their appetites for alfalfa and apples and encouraged them to look for more. Today, those same orchards are protected by tall elk- and deer-proof fences that stretch from one canyon wall to the other.

Modern approaches to wildlife damage vary considerably. Some states with consistent, serious wildlife damage actually reimburse landowners for their losses, but these states are in a minority. Of the seventeen states west of the Mississippi, only five provide this service. Budgets for big game damage control range from $1,000 per year in Nebraska to $1.2 million in Wyoming. Idaho operates its damage control program on about $10,000 a year, and Oregon budgets about $245,000. Colorado went over $345,000 last year, not including salaries or travel. Colorado's $125,000 budget last year was gone by the middle of the year; they were forced by the severity of the winter to request another $300,000 from their legislature. Most of this money went to landowners for damage on stacked hay. Many of the states that pay damages pay only on documented claims and then only when the claimant has made a reasonable effort to protect his property. Some states furnish materials, including permanent fencing, to the landowner who must install them in order to be eligible for damage compensation.

Kansas is somewhat better off than many of its western neighbors when it comes to wildlife damage. We do have several damage complaints each year—mainly deer and antelope browsing—but they are never on the scale of last winter's claims in the mountain states. The

Fish and Game Commission provides some materials, equipment, and personnel to correct a damage situation, but the agency is not authorized to make direct payments for wildlife damage. Most big game damage complaints deal with destruction or use of winter wheat, alfalfa, milo, corn, and soybeans. This kind of damage can often be curtailed by the judicious and continuous application of some number nine shot, but this method is very time consuming. Propane exploders, hazing, firecrackers, fuse rope, and shell crackers have been used either one at a time or in combination to spook the offenders.

Although big game damage complaints may be spectacular, they are not the only kind we receive. The suburbanite in greater Kansas City couldn't care less about deer; he wants to know how to get rid of the skunk under his porch or the raccoon who is using his fireplace chimney as a den. There are a tremendous number of such complaints each year. Even though the damage is seldom appreciable (except to the householder's nerves), the complaints are generally valid. Solution of the problem usually depends on the ingenuity and experience of a local game protector.

In addition to deer and antelope complaints and the myriad "skunk-under-the-porch" problems, we have blackbird-starling-crow problems and, of course, the coyote. Complaints concerning these animals are so common that we have worked out a memorandum of understanding with the Wildlife Damage Control section of the KSU Extension Service to split responsibility for control work. The Extension Service handles complaints concerning coyotes and nongame (mostly rodents like prairie dogs), and the Fish and Game Commission handles complaints of game animal or furbearer damage. The two agencies cooperate on starling, blackbird, and crow complaints.

The rabbits that so many householders appreciate on their lawns through the summer can cause damage to ornamental shrubs and fruit trees (opposite). One antidote to a rabbit problem, the coyote, can cause problems of his own. When predators and prey are allowed to reach an equilibrium in good habitat, depredation problems are less likely to reach major proportions. Photos by Ken Stiebben.

These last critters may be the single most important source of damage in Kansas. According to Bob Henderson, wildlife damage control expert with the Kansas Extension Service, studies have shown that a starling will eat a pound of feed a month around a livestock feeding operation. This isn't waste grain but good feed taken right from the feed bunks. Bob has counted as many as 300,000 starlings congregated on one feedlot. Simple mathematics will show the magnitude of the losses being suffered by feedlot operators. And loss of feed isn't the only problem. Feed bunks may have to be cleaned as often as twice a month because they have been fouled by the birds. The town version of this plague also occurs; townspeople find themselves sharing a block with several thousand starlings.

The Extension Service and Commission personnel use a variety of control techniques to deal with such flocks. Tape recordings of starling distress calls may be played under the roost or a few of the birds may be fed treated food that will cause them to show distress behavior that frightens the rest of the flock. The birds may be harassed with gas exploders or shell crackers; in extreme situations, they may be killed with detergent treatments or poisoned bait designed to select for the problem species. Less drastic methods seem to work best when problems with large feeding aggregations are reported early before the birds establish a pattern of activity in the area.

Crows have traditionally migrated into Kansas for the winter. Damage to standing corn and milo near the huge winter roosts can be severe in some years, especially when weather delays the harvest into December. There is some indication that crows may spread diseases like histoplasmosis. Crows have also been blamed for causing damage to young pigs and calves as well. Control measures for crows are about the same as for starlings and blackbirds except that roost shooting crows is much more common. In a roost of several million crows, however, killing a few doesn't do much to solve a depredation problem, although constant shooting can convince the crows to find a new residence.

In the late Forties and early Fifties, roosts were cleared with homemade shrapnel bombs. They killed quite a few crows (5,000-10,000 at a crack), a number that was hardly noticeable in a group of as many as ten million birds. The bombings did disrupt the roost, but the crows merely moved to another woodlot and set up housekeeping, leaving Commission personnel with the problem of disposing of 10,000 dead and dying crows. The bombs were eventually replaced with other more effective and less gory dispersal techniques.

Arkansas, Kentucky, and Tennessee have all had problems with blackbird roosts that have made national news. The blackbird problem isn't quite as well reported in Kansas, mainly because the focus of blackbird roost is the feedlot, not a city park. Blackbirds are controlled in the same way as starlings, but, because they are protected birds, a special permit from the Fish and Game Commission is required before control efforts can be undertaken. Crows are also protected by an international treaty with Mexico, but crows causing damage are exempted from the agreement. As a result, a control permit is not required before action against problem crows is taken.

Another group of Kansas birds, waterfowl, are causing increasing damage problems, not in the U.S. but in Canada. The dates of peak wheat swathing in Manitoba and Saskatchewan and the staging of waterfowl for migration often overlap. Huge concentrations of ducks move out from the limited forage areas in protected marshes and search for high-octane grain in anticipation of migration energy demands. Swathed wheat is a perfect source, especially when fall rains leave sheet water on the fields before the grain is brought in.

For years, Ducks Unlimited and other conservation organizations have felt that the main threat to waterfowl populations was the loss of prairie pothole breeding areas. Suddenly, the economic problem of crop depredation is looming as another important threat. Canadian farmers have demanded compensation for their losses; if none are forthcoming, some have threatened to begin their own wildlife control—with shotguns *and* draglines. The potential effect of such action on Kansas duck hunting is obvious.

No discussion of wildlife depredation would be complete without mentioning the coyote. Second (perhaps) only to the wolf in the persecution he has endured from man, the coyote has prevailed while the wolf has been relegated to the endangered species list. Why does one species survive while others disappear? In the case of the coyote, the answer is adaptability. Coyotes have learned to live with man and to prevail even in the face of man's attempts to eradicate him. The coyote has actually increased his range while being trapped, shot, poisoned, chased, and otherwise vilified. It is this ability to adapt to changing environments that has raised him to the top of many stockmen's hit lists. Coyotes can and do cause losses in livestock operations which, in some cases, can be severe.

In Kansas, the Extension Service handles coyote damage complaints with a system of self-help instructional meetings with livestock producers. The system is founded on the premise that only a very few coyotes are actually taking livestock, and that once the offender has been removed, losses will be drastically reduced. Over the years, the Kansas predator damage control system has become one of the best in the country.

Once a producer knows he has coyote problems, he contacts his county agent or local Fish and Game employee. The complaint is forwarded to one of two damage control experts who set up a meeting with the producer to look over his operation and make recommendations on how to reduce the damage. Often his recommendations include suggested improvements in the operation itself as well as trapping instructions. By modifying his techniques, the producer not only takes care of his immediate problem, he also prevents future damage. Bob Henderson estimates that livestock losses to coyotes amounted to a little less than $150,000 last year. In 1976, the last year in which accurate figures were kept, Kansas sheep producers alone lost $70,000 to coyote depredation.

Interestingly enough, Bob indicates that the high prices being paid for coyote pelts have made a coyote worth about as much as a sheep is.

Someone once described a predator as "a critter that takes something you wanted for yourself." This philosophy forms the basis for many of our wildlife damage complaints. Most predators—in fact, most wild animals—are opportunists; within a broad range of foods, they will take whatever is the easiest to handle and the most available. In all too many cases, this is a chicken, a sheep, a ripening fruit crop, or a bale of hay.

I think the time is rapidly approaching when man must realize that working with nature instead of against her is the way to go. Somewhere a balance has to be reached between the cost of the depredations of winter blackbirds and their music on a spring marsh, the loss of some stacked alfalfa to a whitetail in January and the presence of that same whitetail along a field edge in September.

As long as men and animals live on the same ground, there will be conflicts, but with a new awareness of environmental interdependence, perhaps we can reach a sort of Mexican stand-off, some kind of compatibility. If we ever get to the point where there is no place in our society for coyotes, blackbirds, or deer in spite of the occasional problems they cause, the loss will be more than we can balance with our savings in farming. We will have made our planet a poorer place to live.

□

Bill Hlavachick has been a biologist with the Fish and Game Commission, in the field and in administration, since 1963. He has worked on everything from endangered species to big game and has seen the problem of wildlife depredations from nearly every angle.

Thought to be extinct until the mid-Thirties and scarce until the early Sixties, deer in Kansas have made an amazing recovery in the last two decades. It was no accident—

The Comeback

Whitetail and mule deer in Kansas

Bill Peabody

Courtesy of Terry Sieve and Wild Wings, Inc., Lake City, MI.

Bruce Kintner

Deer are more abundant in Kansas now than ever before in the state's history. They are highly adaptable, secretive animals that take advantage of every opportunity to increase their numbers and extend their range. Encouraging as this may sound, the reality of land use changes which are detrimental to continued herd growth, particularly the loss of quality woody habitat, coupled with growing intolerance of landowners and motorists to "too many" deer, will limit the opportunity for increasing our herds much beyond populations levels expected in the early 1980's.

Fourteen seasons and 51,595 legal deer later, the 1965 skeptics who predicted that hunting would wipe out the Kansas deer herd and cause all sorts of havoc in the first season, have been sheepishly quiet. Kansas has yet to record its first firearm fatality as a result of deer hunting, and a productive and healthy deer herd is a tribute not only to the Commission's successful management program, but to the state's landowners who raise and support the bulk of the deer produced in the state. The sportsmen of Kansas also deserve considerable credit and this article is dedicated to them. Without their support and cooperation, much of what you are about to read would not have been possible. They pay at least as much or more for a resident deer hunting permit as hunters in any other state in the country. They have driven miles to mandatory check stations, contributed biological samples from their deer, and most have religiously returned questionnaires providing information about their hunt.

If there is an Achilles' heel associated with the deer management program, it is the inability to satisfy demand for firearms permits in most management units. The potential danger here is apparent. The Commission's primary responsibility related to deer is to maintain and/or increase the resource and the habitat base upon which it is inseparably tied. Yet, the agency must be responsive to the needs and desires of Kansas deer hunters who support its programs. The two responsibilities should be and generally are compatible. What is good for the long-term benefit of the resource should also satisfy the needs of the deer hunter—at least we would like to think that it is the case, but this requires a certain degree of understanding on the part of the hunter. The Commission is dedicated to optimum, sustained yield deer herd management that attempts to satisfy both harvest and non-harvest demands. If harvest demand cannot be met, it is not because the Commission would not like to do so but because current deer populations cannot tolerate additional hunting pressure without adjustments in management strategies that will most certainly reduce the quality of the hunt.

The outlook for deer in Kansas can perhaps best be described as one of cautious optimism—cautious because of the realities of intensified land use that eats away at the key to a deer's very existence—its habitat, yet optimistic that a "cure" can and will be found. Finding that "cure" is important because having wildlife around, whether it is a deer or an obscure little critter we seldom see, enhances the quality of life for all Kansans.

Beginnings

With few exceptions good deer cover was never abundant on the pristine prairie. Frequent uncontrolled fires burned large areas of prairie and were only stopped by streams and other natural barriers. These fires maintained the prairies but eliminated or retarded the growth of many woody plants. After the white man moved into the territory, the frequency of uncontrolled fires decreased and burning was confined to smaller areas of prairie, but it still helped to control woody plant development. In addition, periodic flooding and the scouring effect of moving water on many streams slowed and in some cases precluded the establishment of brush and trees. With habitat thus limited, deer were uncommon on most of the prairie.

Early Kansas history contains numerous accounts of bison, deer, wapiti, and antelope. While deer did play a significant role in the settlement of this state, particularly in the eastern one-third, they were secondary in importance to the thundering herds of bison that once roamed the Kansas plains and provided most of the meat, hides, and bones used by Indians, explorers, trappers, and settlers.

Whitetails (*Odocoileus virginianus*) and the less common mule deer (*O. hemionus*) were found just about anywhere there was woody cover. The Lewis and Clark Expedition reported a large concentration of deer on the banks of the Missouri River near the present site of Kansas City, Kansas in 1804 and Zebulon Pike found deer in 1806 in an area of eastcentral Kansas comprising what is now Chase, Coffey, Lyon, Morris, and Woodson counties.

In 1857, a surveying party led by Col. Joseph E. Johnston surveyed the southern boundary of the Kansas Territory. The party crossed the Chautauqua Hills (Cross Timbers) along the southern line of present Chautauqua and Montgomery counties. Notes taken by the group indicated that slightly west of Elgin, game including deer, antelope, and wild turkeys was very numerous. This area continues to support good wildlife populations today and was thought to provide the last remaining stronghold for deer before they were reportedly extirpated in the early 1900's.

During the winter of 1859, good numbers of mule deer were found in the hills between the Saline and Solomon rivers, and other small herds of mulies were reported along the upper reaches of the Smoky, Saline, and Solomon rivers as late as 1866.

Newspaper accounts attest to the fact that deer were still relatively abundant in Kansas in the 1870's. The Junction City Union of December 24, 1870 stated "there have been thirteen deer killed in the bottom about a mile from town during the past two weeks." And the Hutchinson News, July 4, 1872 reported "a drive sixty miles southwest brings us to the best hunting ground in Kansas, in the valley and among the hills of Medicine Lodge Creek, Barbour (now Barber) County. In addition to other game, here are deer and wild turkey in the greatest abundance."

Judging from these and other reports, deer were more or less common along the wooded portions of streams and in large timbered areas as late as 1875. Several authors reported deer as common until about 1884, but considered them extinct in Kansas by 1904. By 1890, deer had disappeared from most of western and northern Missouri, but maintained a precarious existence in the southern Ozark areas. In general, deer numbers in the United States hit a low between the years 1875 and 1915. Seton estimated the entire population in 1908 to be 500,000 deer. Current estimates place the nationwide population at about seventeen million animals.

In his discussion of the history and population growth of the white-tailed deer in the Great Plains Region, Cook noted that the whitetail was fairly common in riparian woodlands but was never as abundant on other portions of its range and became greatly restricted by advancing settlement. Use of the land for agriculture combined with brush and timber clearing destroyed much of the habitat on which deer were dependent. The effect of land settlement and of uncontrolled hunting was to reduce herds to small and widely scattered groups that maintained themselves with difficulty. Winter habitat became greatly restricted, forcing deer to concentrate in the limited tree and brush growth along streams.

Deer were not abundant anywhere in the Plains following the drought of the 1930's and were still considered absent from Kansas in 1933. The prolonged drought permitted new woody plant seedlings to become established along streams in the absence of destructive floods, and woody plantings such as shelterbelts and timber claims were encouraged to control wind and water erosion. Natural establishment of woody plants occurred on many drainages following the construction of flood control structures, and with complete protection and public cooperation combined with habitat changes beneficial to deer, populations began to increase. This scenario was repeated in all of the Plains states with Kansas the last state to develop a huntable population.

Deer herds in the Midwest increased rapidly during the 1930's and 1940's. This was due to improved habitat conditions, closure to hunting, more effective law enforcement, restocking, establishment of refuges, emigration from surrounding states, and support from sportsmen.

The Fish and Game Commission and a few private

individuals stocked deer in various parts of the state in the late thirties and early forties. This was a minor effort compared to the extensive management, trapping and transplanting programs being carried out by states surrounding Kansas. During this period, deer were increasing in Missouri, Nebraska, and Colorado, and it is likely that natural dispersal was responsible for providing most of Kansas' initial breeding population. This may account, at least in part, for the slow growth rate of our deer herd initially. By the early 1950's signs of deer were being seen frequently in many areas of the state, and it was apparent that deer were making a slow comeback in Kansas. Hunting in adjacent states and eventually in Kansas helped to distribute deer better and alleviated a growing number of crop damage complaints.

Life Styles

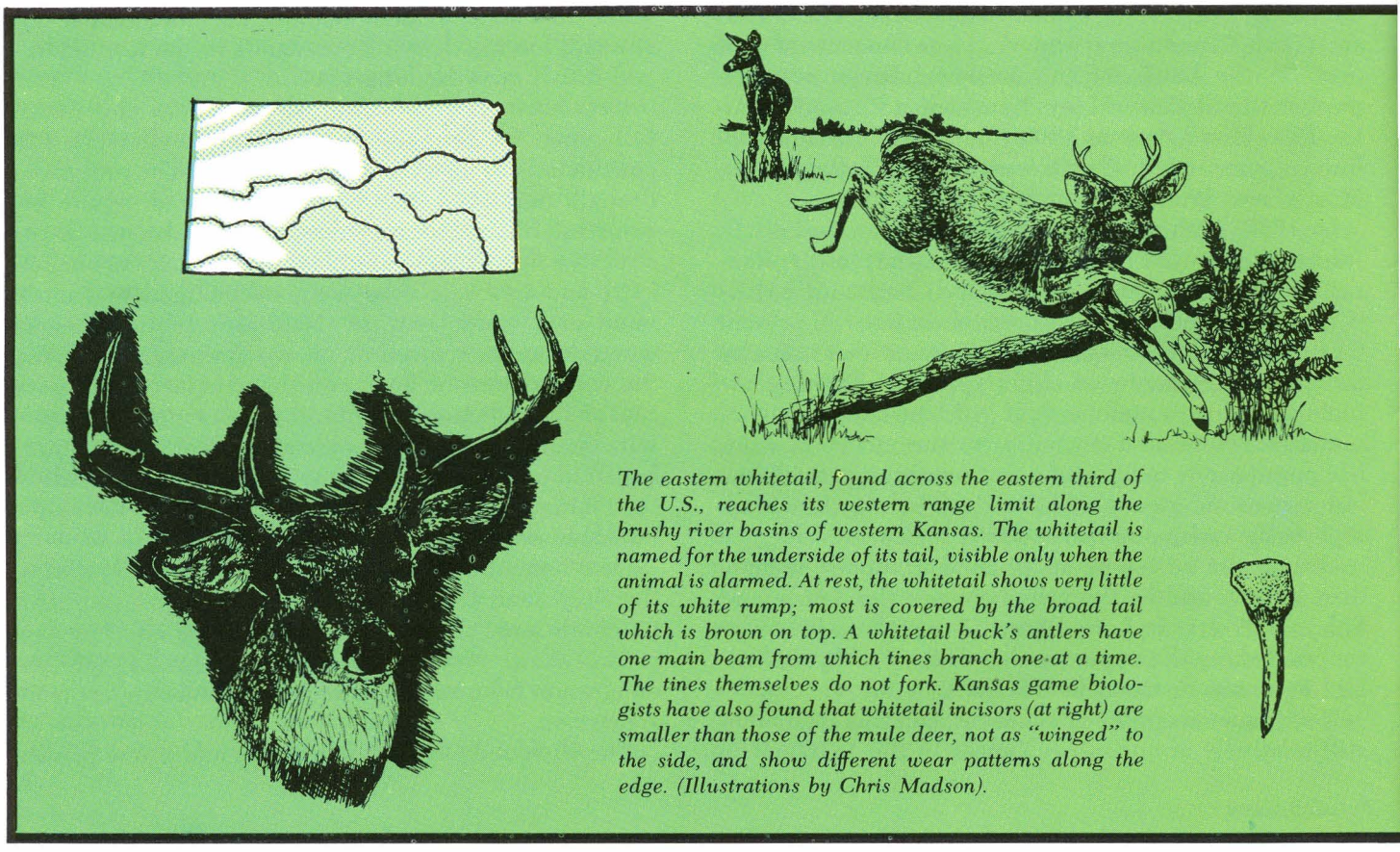
The breeding season for whitetails and mule deer takes place in the fall with the peak of breeding occurring in the last two weeks of November. Since spotted fawns have been seen as early as April and whitetail does killed on the road in August have been found carrying unborn fawns, biologists have estimated that actual breeding extends from October into February.

Reproductive rates for deer vary among species and age classes and are strongly influenced by the doe's "plane of nutrition." In Kansas, most deer have access to waste grain, winter wheat, and alfalfa through the winter which, combined with spring foods like coralberry (buckbrush), grape, gray dogwood, elm, ash, hackberry, mulberry, and sweet clover, bring pregnant does through the winter in excellent physical condition, ready to bear many healthy fawns.

In Kansas, from fifty to seventy percent of all whitetail doe fawns breed before they're a year old. Mule deer are less productive than whitetails because fewer mule deer fawns and yearlings breed. Adult does of both species have about the same rate of productivity. The average for all age classes of both species is about 1.2 fawns per doe.

Summer is an easy time for Kansas deer. Many move out into seasonal cover provided by crops and thrive on a mixed diet of wild fruits, forbs, alfalfa, and acorns and crop residues as they become available.

Through the fall, does go through a series of estrus cycles, usually twenty-eight days in length for whitetails and twenty-four to twenty-eight days for mule deer. If a doe doesn't breed in her first "heat" period, three, even four estrus cycles will occur before her breeding potential for the year ends. Most does capable of conceiving each year are bred. The "dry does" many hunters pursue are generally yearlings or fawns that



The eastern whitetail, found across the eastern third of the U.S., reaches its western range limit along the brushy river basins of western Kansas. The whitetail is named for the underside of its tail, visible only when the animal is alarmed. At rest, the whitetail shows very little of its white rump; most is covered by the broad tail which is brown on top. A whitetail buck's antlers have one main beam from which tines branch one at a time. The tines themselves do not fork. Kansas game biologists have also found that whitetail incisors (at right) are smaller than those of the mule deer, not as "winged" to the side, and show different wear patterns along the edge. (Illustrations by Chris Madson).

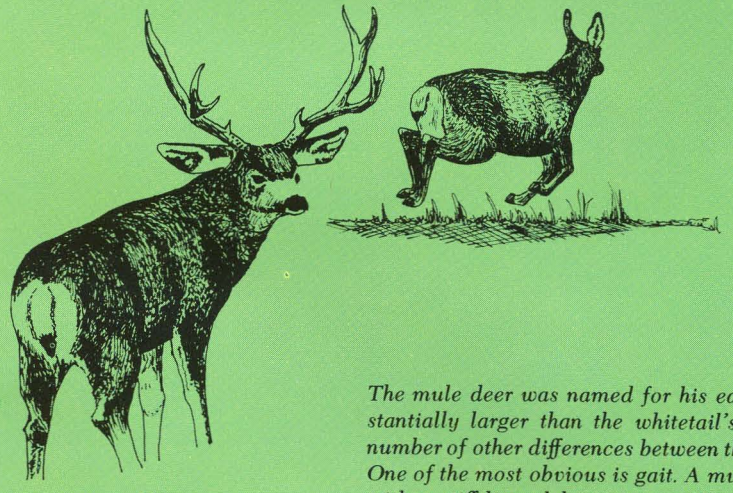
have not yet been bred. This is particularly true of yearling mule deer does which usually breed for the first time at about sixteen to eighteen months of age.

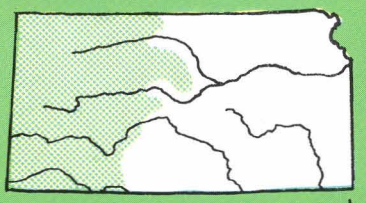
Shortening day length and reduced light intensity in the fall triggers sexual activity in bucks as well as in does.

Bucks become sexually mature when they are one and a half years of age, although wildlife researchers in New Hampshire have demonstrated that some precocious fawn bucks on urea diets can fertilize does. Under ideal conditions with penned deer, a buck can service twenty does. This is probably seldom, if ever, achieved in the wild. A whitetail buck will mate with six to ten does during a rutting season, but will stay with a single doe for several days prior to and following her short heat period. Thus, he is probably "out of action" for four or five days per each doe serviced.

Whitetail bucks do not form strong family ties with does and fawns, nor do they collect a harem as elk do. Mule deer bucks also will mate with several does during the breeding season, but have a slightly greater tendency than whitetail bucks to collect a small harem. In most areas of Kansas there does not appear to be a shortage of bucks to breed all of the does. Much of the breeding occurs before the firearms season and enough bucks survive the seasons to insure that most does capable of conceiving are bred.

A buck's antlers are solid, bony growths protruding from the skull. They are not horns. Horns are hollow or nearly so and once grown are not shed. Sheep, goats and cattle have horns, while deer, elk and moose have antlers. Antlers are shed every winter and begin new growth in the spring. In Kansas, new antlers begin to form in April and early May. They are covered with skin and short hair known as "velvet." This velvety skin, filled with blood vessels, nourishes and builds the growing bone-like material of the antlers. In August and early September the blood supply to the antlers is cut off; they harden, and the velvet dries and starts to peel off. Bucks hasten the removal of velvet from their antlers while testing their strength on limber saplings with the approach of the rutting season. There is much "shadow boxing" and an occasional encounter between bucks, but fights to the death are uncommon. Bucks expend large amounts of energy during the rut, actively pursuing does and taking little time to feed or rest. Body weight may decrease by five to ten percent, and by the end of the breeding season, bucks may appear to be completely devoid of fat. This constant activity also increases their vulnerability to hunters. While tree rubs signal the presence of a buck, the presence of active "scrapes" indicate that the buck has established a breeding territory. Scrapes are made when a buck paws the ground with his hooves and then urinates on his metatarsal glands to impart scent to the scrape. Active scrapes are pawed clear of leaf litter periodically by the buck and have strong, musky odor. They alert does of his presence and deter other





The mule deer was named for his ears which are substantially larger than the whitetail's, but there are a number of other differences between the species as well. One of the most obvious is gait. A mule deer often runs with a stiff-legged bouncing motion that looks spring actuated. Mule deer antlers do not have a main beam. The antler base forks into tines which branch again in larger bucks. Most of the white of a mule deer's rump is visible because the tail is small and white for most of its length. Mule deer incisors are set at a different angle than whitetail teeth; as a result, they have a broader area of wear down the back. Differences in behavior, reproduction, and tastes in habitat are numerous which is lucky—the mule deer fills habitat in Kansas the whitetail can't handle.

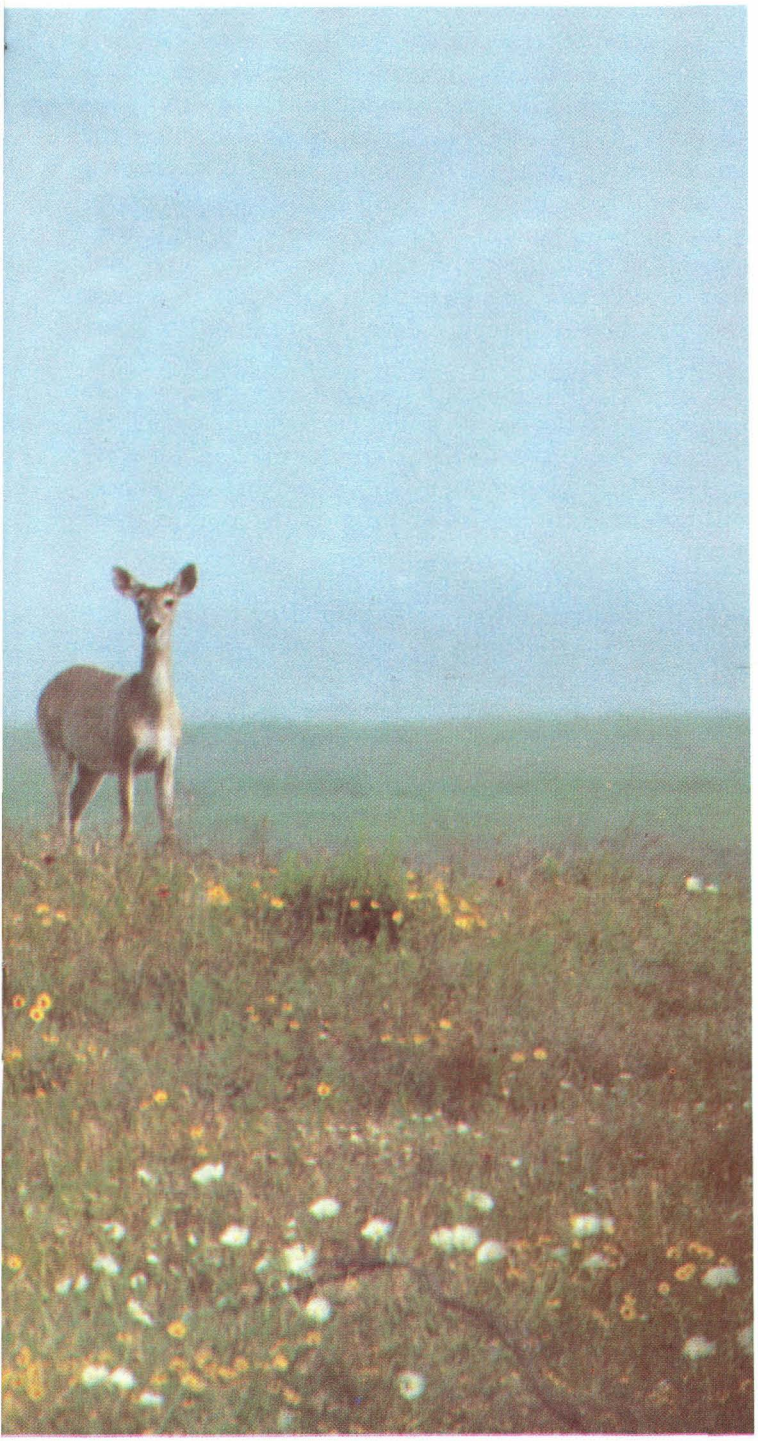
bucks who might be inclined to move into his territory.

Bucks begin to lose their antlers in January and most have been dropped by the end of March. In Kansas, however, there are two records of firearms hunters thinking that they were shooting does during the December season only to have the antlerless deer turn out to be bucks that had already dropped their antlers. At least two cases of antlered does have been reported in Kansas also. Abnormal hormone secretions are apparently responsible for this antler development in females, as this condition can be induced experimentally by injecting does with certain male hormones.

Antlers are among the fastest growing animal tissues known to man. It takes a high level of nutrition and good quality food to produce racks. Once antlers are shed, mice and other rodents usually consume them within a year or two. Occasionally a farmer will "find one" when he runs it through a tractor tire!

Fawn bucks do not develop antlers their first fall—only small one to two inch bumps. The following year, if they live that long, a young buck will develop antlers. If the one-and-a-half year old gets plenty of

quality food to eat and the proper supply of minerals (primarily calcium), he'll be a nice forkhorn or even a four- or six-point buck. Five to seven percent of Kansas bucks, especially those shot in the Chautauqua Hills (Cross Timbers) region, grow only spikes as yearlings. Contrary to popular belief, the number of points on a set of antlers has nothing to do with the age of a deer. Mature bucks merely have larger, more massive sets of antlers. Bucks from three and a half to seven and a half years of age develop the largest racks. Biologists determine a deer's age by examining the degree of tooth replacement and wear on the premolars and molars, or by counting annual rings in the cementum of a deer's first incisor. Kansas wildlife biologists have also developed a method of determining species and three age classes of deer (fawns, yearlings and adults) by simply looking at the deer's incisors.



Kent Montei

Following the rut and particularly after the hunting seasons have ended, deer activity lessens and both species tend to form groups. Herds begin forming when leaf fall occurs and crops are harvested. Harvest reduces deer range to a fraction of its summer abundance. Herding is frequently an environmental requirement because of severe weather and reduced food supplies during the winter. Relatively long movements to wintering areas are not uncommon, particularly among mule deer. During this "fall shuffle" period, hunting influences deer movements and distribution more than any other factor. After that, food availability and secure winter cover are important. "Yarding," the concentration of large numbers of whitetails in small wintering areas in northern deer range, does not occur in Kansas.

Once winter is past, the process of replenishing the deer population begins. Most fawns are born during late May and throughout June. Some females that have bred later in the winter (particularly fawns) may drop their fawns in July and August. The does of both species usually produce a single fawn from their first mating, but whitetail does just one year old have been known to bear twins. Twin fawns from healthy adults are the rule; and a small percentage (eight to fifteen percent) of adult does have triplets. Fawns retain their spotted coats for three to four months and can become nutritionally self-sufficient at about two to three months of age if something happens to the doe. When deer populations are maintained within the limits of the biological carrying capacity of the range, good productivity, excellent physical development, and impressive racks on bucks result. Fawn production and survival are very important factors in determining the growth rate of our deer herds.

Deer movements through the year in Kansas are profoundly influenced by the limited amount of deer habitat in the state and the fact that most of this habitat is thinly spread along watercourses and drainages.

Movements are seasonal and are dictated partly by the physiological needs of deer and changing habitat conditions. The more a given deer range provides year-round requirements, the less likely it is that long movements will occur. Deer movements peak once in spring (21.2 percent of all roadkills occur during April and May) and again in October, November, and December (40.4 percent of all roadkills). The spring flurry of activity is related to winter herd break-up and prefawning activity while the fall shuffle is in response to the rut, changing habitat conditions that force deer to move to secure wintering areas, and hunting pressure. The relative severity of any given winter appears to

have a strong influence on the size of winter herds and the distance traveled to habitats that meet their needs. In mild winter, deer are more widely distributed and do not form large herds until stressed.

Kansas mule deer are non-migratory, but relatively long movements are not uncommon, particularly among yearlings. This was demonstrated during a 1966 to 1972 study conducted in a twelve county area of northwest Kansas. Wildlife biologists and conservation officers caught, tagged, and released sixty-seven mule deer fawns and seven whitetails.

Nineteen of the mule deer (thirteen bucks and six does) were recovered. Four were recovered as fawns, thirteen as yearlings, and eleven as adults.

Deer recovered as fawns remained in the vicinity of their capture site with no straight line movements over one mile recorded. Those recovered as yearlings moved an average of forty-six miles while adults traveled eighty-four miles from their tagging location. Movement of yearling males and females was nearly equal. A Utah study showed that fawn dispersal was infrequent but relatively long movements for yearlings was common.

Most of the wandering deer struck out across country rather than following a single drainage. In the study, mule deer over one year old crossed an average of 2.8 drainages. A pair of yearling females marked as fawns were recovered at the same time and location after a sixty-eight-mile movement. Nebraska's firearms hunters recovered three of our marked bucks after movements of thirty-seven, sixty-five, and seventy-five miles north of their capture site. Another set of twin bucks were recovered as yearlings during the same year but over sixty miles apart.

The longest known straight line movement for mule deer was ninety-seven miles. However, a yearling whitetail doe holds the Kansas record for the longest journey. Tagged as a fawn in Sheridan County, she moved 170 miles to her recovery site on the Chikaskia River in Kingman County crossing at least seven drainages in the process.

Such long-distance deer movements seem to be common on the Plains. Reports from the northern lake states and other whitetail country to the east indicate that deer in other habitat types may be much more sedentary. It may be that eastern deer habitat provides year-round food and cover in a much smaller area.

Even in the best habitat, deer suffer year-round losses that reduce the growth rate of the population. Deer-vehicle accidents removed a minimum of 1,456 deer from our herds in 1978. We estimate that three to five percent of our deer population is lost on the highway each year. The magnitude of loss to poachers is difficult to determine but may approach the legal harvest in some areas of the state. Similar losses are reported in other Midwestern states.

Other accidents (*e.g.,* fawns killed in hay meadows by mowing machines), crippling loss, predation, disease, and parasites further reduce the deer population. Disease and parasitism are a minor problem for deer in Kansas. The coyote and, to a lesser degree, the bobcat are the most important wild predators on deer in the state. Domestic and/or feral, free-ranging dogs on occasion kill or cripple deer and, perhaps more importantly, harass them so that they are predisposed to other forms of mortality (highways, falls, etc.).

Since the winter of 1973-74, high fur prices have stimulated hunting and trapping of coyotes and bobcats. One might speculate that the number of predators that survive the winter and are capable of killing fawns during early summer has been reduced. Additionally, the increase in other prey species like rabbits and rodents in recent years provides mama coyote with a readily available and easily obtainable food supply for her pups. At any rate, the impact of predation on our deer herds is difficult to determine, but if it has been a significant fawn mortality factor in the past, the population should respond favorably. Most Kansans, irrespective of their desire for more deer, want to see and hear coyotes and would deplore any effort to reduce their number to "benefit" deer. Most biologists agree that relationships between all predator and prey species are incredibly complex and that even the complete elimination of the coyote might have surprisingly little effect on deer survival. These species evolved together in the prairie environment and given half a chance, will continue to coexist as long as the prairie itself survives.

While epizootic hemorrhagic disease (EHD) is the most devastating disease affecting deer herds in the Midwest, its significance in several minor Kansas die-offs has not been fully documented. The disease can and occasionally does decimate deer herds with amazing swiftness. The EHD virus is spread by a mosquito and has its most pronounced effects during hot, dry years from late July through early October. Perhaps as deer congregate around water during dry years, they run a greater risk of exposure. This particular disease appears to be specific for whitetails, but has been found infrequently in mule deer and antelope.

The state's veterinarians and farmers are more concerned about leptospirosis, anaplasmosis, and brucellosis or "bangs" disease as it affects their dairy and cattle herds. "Bangs" is practically nonexistent in deer while blood serum analysis from almost 2,000 deer showed a very low 2.9 percent incidence of leptospirosis and a 1.4 percent occurrence of anaplasmosis. As the deer population increases it may be advisable to test a sample of deer again, if for no other reason than to demonstrate good faith on the part of the Fish and Game Commission to monitor for wildlife diseases. It is highly unlikely that deer populations in Kansas will ever pose a disease threat to the state's livestock and dairy industry. Population levels will be maintained at some point compatible with agricultural interest.

the YELLOW Pages

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THE SCIENTIST AND THE PHILOSOPHER

In the past ten years there's been rising interest in the hunter and what makes him tick. Costly studies have been made by universities and government agencies. Some of these make sense to the hunter—but more often than not, he is unable to recognize himself in their findings.

The most recent study, and one that's gotten little national attention, is by Dr. Louise M. Arthur—a USDA research analyst based at Oregon State University. Made for the U.S. Fish and Wildlife Service and issued in December 1978, it is titled "Attitudes Toward Wildlife Management: A Study of Hunters and Fishermen in the U.S."

Dr. Arthur pulled her raw data from two basic sources: the National Hunting and Fishing Survey of 1975, and a 1976 survey of 3,642 waterfowl hunters who had bought duck stamps. Her conclusions, unlike those of some other studies, will ring a bell with hunters.

For example, her analysis of the National Hunting and Fishing Survey led her to conclude that satisfaction in hunting may not be as dependent on actual hunting success as is commonly thought. Even the developers of the questionnaire had expected hunting success and hunting satisfaction to be much the same thing, but it didn't turn out that way. The high importance of non-success motives in hunting was shown by the fact that more hunters preferred lower bag limits to a shorter season, than vice-versa. The chance to hunt was more important than the actual killing of game.

This was born out even more strongly in the waterfowl hunter survey, which generally indicated that game availability is not necessarily the most important part of the hunting experience. In fact, availability of game "seemed only to provide an impetus and opportunity to get out and enjoy the wilderness, to enjoy companionship, to develop hunting skills, and to escape from problems."

Both surveys revealed that crowding and environmental quality were generally of greater concern to hunters than big bag limits—and the esthetic experience of hunting was judged as more important than killing the limit.

The fact that many deeply dedicated hunters from both surveys had rather low success rates suggests that their commitment may be less to the kill itself than to experiences with nature and friends. For example, about 90 percent of all waterfowl hunters indicated that they took special trips to observe birds outside the hunting season—and there is good reason to believe that these were not merely scouting trips.

There are times when science and philosophy run in the same channel. Dr. Arthur's conclusions echo Ortega y Gassett, who wrote in his 1942 classic, *Meditations On Hunting*:

"To the sportsman the death of the game is not what interests him; that is not his purpose. What interests him is everything he had to do to achieve that death—that is, the hunt. Therefore what was before only a means to an end is now an end in itself. Death is essential because without it there is no authentic hunting: the killing of the animal is the natural end of the hunt and the goal of hunting itself, not of the hunter. The hunter seeks this death because it is no less than the sign of reality for the whole hunting process. To sum it up, one does not hunt in order to kill: on the contrary, one kills in order to have hunted."

For further information on Dr. Louise Arthur's excellent report, write the Director, U.S. Fish and Wildlife Service, Washington, DC 20240.

(Conservation Dept.—Winchester-Western)

† † †

FARMLAND WILDLIFE INCENTIVES PROPOSED

The International Association of Fish and Wildlife Agencies (IAFWA) is urging some changes in U.S. farm policy that could help reverse the rapid depletion of quality wildlife habitat.

Intensively-farmed states like Kansas, says the

Association, are susceptible to accelerating soil erosion, reduction of natural soil fertility, water quality complications, and depressed fish and wildlife populations. For those reasons, the IAFWA is asking the President, the Secretary of Agriculture, and the Congress to provide a farm program which would establish minimum criteria for wildlife habitat.

The proposed program would encourage maximum participation through economic incentives, including:

— Cost sharing in the Agricultural Conservation Program be provided at the 100 percent rate for practices which will enable landowners to meet minimum wildlife habitat criteria. Once minimum wildlife habitat criteria are met, all other wildlife enhancement practices be cost shared at a rate no less than 90 percent.

— Set-Aside and Diverted acre parments be commensurate with current rental values to those landowners meeting minimum wildlife habitat criteria.

— Loan rates through Farm Home Administration be at a reduced rate for land meeting minimum soil conservation and wildlife habitat criteria.

— Crop support payments be increased for crops grown by landowners who have met minimum wildlife habitat criteria.

— Income tax reductions on profits from land meeting minimum wildlife habitat criteria.

— Soil conservation practices that provide dual functions including wildlife habitat enhancement should receive 95 percent cost share.

The proposal was adopted in the form of a resolution at the most recent meeting of the IAFWA. The group's membership roll includes the Kansas Fish and Game Commission, along with fish and wildlife managing agencies of all other states, Canada and Mexico.

† † †

OKLAHOMA LAW RESTRICTS FEDERAL LAND ACQUISITION

Oklahoma House Bill 1178 has been signed into law by the governor. The statute, in effect, prohibits the federal government from acquiring land in that state for national forest, wildlife refuge, or park purposes without the Legislature's permission, the Wildlife Management Institute reports. The law does not effect federal authority to acquire land for "sites for custom houses, post offices, arsenals, forts, magazines, dockyards, military reserves, irrigation or drainage projects, municipal water facilities, or for needful public buildings."

Congress has passed several laws allowing certain federal agencies to purchase lands if the state involved has enacted legislation permitting it. Examples include the Weeks Act of 1911, which authorizes federal acquisition of lands in the East for national forests, and the Wetlands Acquisition Act, which authorizes federal acquisition of wetlands for wildlife refuges. Every state in the Union reportedly has one or more laws of this kind on the books.

The American Farm Bureau Federation appears to be spearheading the repeal of such laws which benefit forests, wildlife, or parks.

† † †

TURKEY STAMP ENTRANTS INVITED

Wildlife artists interested in entering the 1980 Wild Turkey Stamp Contest have until Jan. 15, 1980 to get their entries in, according to Tom Rodgers, executive vice president of the National Wild Turkey Federation.

The 1980 design is limited to any species of wild turkey residing in the U.S. The Florida, Eastern, Rio Grande, and Merriam's wild turkeys have appeared on the 1976-79 stamps and have developed into a unique collection.

The Federation's annual stamp contest has become one of the richest wildlife art contests held in the country. Noted artist Ken Carlson, San Francisco, Calif., took top honors in the 1979 contest. Funds derived through sale of the annual turkey stamps and stamp prints have accomplished much in educating the public about problems facing the wild turkey and all other wildlife.

Artists interested in submitting an entry or obtaining more information on rules and regulations should write: Wild Turkey Stamp Contest, P.O. Box 467, Edgefield, S.C. 29824.

† † †

DUCK STAMP PRICE HIKE RESULT OF RISING COSTS

Hunters and conservationists who have been purchasing the 1979-80 Migratory Bird Hunting and Conservation Stamp this year have noticed a difference in the stamp over previous years—a $7.50 purchase price, a $2.50 increase over the previous issue.

In 1978, the U.S. Congress approved legislation mandating the Secretary of the Interior to charge $7.50 for the stamp in any year in which migratory bird conservation funds for the previous year had been fully obligated. This year's price hike is intended to offset spiraling land purchase costs which must be met in order to acquire vital habitat for migratory waterfowl. The price increase took effect July 1, 1979.

The increase is expected to yield some $5 million in additional revenue for the Interior Department's U.S. Fish and Wildlife Service to acquire waterfowl habitat. Over 300,000 acres of wetlands are estimated to be lost each year to development, and land acquisition; duck stamp revenues is one way to insure that some of this habitat is preserved.

† † †

KANSAS HUNTER SAFETY PROGRAM EARNS AWARD

PRATT—Kansas' hunter safety education program has again earned the recognition of its peers as one of the best in the nation. It was named third best in the country at a recent meeting of the International Association of Fish and Wildlife Agencies in West Yellowstone, Mont.

Missouri and Maryland placed first and second, respectively. This year marks the first time Kansas has been eligible for the competition since winning the nationwide competition in 1975, said Royal Elder, Fish and Game's hunter training coordinator. Winners are ineligible for awards consideration for three years after taking the top award, he explained.

"Most of the credit should go to our volunteer instructors," Elder noted. "About 3,000 of them all over the state donate their time to help teach young hunters." More than 113,000 youngsters have been certified since the program was initiated in Kansas in 1973. The hunter training is required for all hunters born on or after July 1, 1957.

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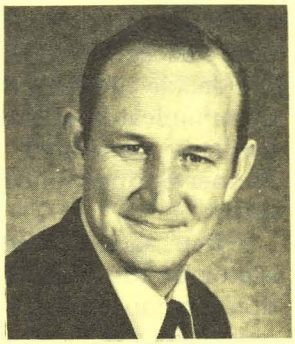
FISH & GAME EMPLOYEE AMONG TOP CONSERVATIONISTS



Don Davis

A Fish and Game employee has been named Wildlife Conservationist of the Year in the Kansas Wildlife Federation's 1979 Conservation Achievement Program.

Don Davis, area manager at Norton Wildlife Area, and an employee of Fish and Game for 14 years, earned the honor for his work with landowners in Norton and Phillips counties. By working with landowners in those counties under Fish and Game's WHIP (Wildlife Habitat Improvement Program) and the Soil Conservation Service's ACP (Agriculture Conservation Practices) programs, Davis reached agreement with 68 landowners interested in habitat improvement work on their properties. After contacts were made and habitat improvement plans drawn up, Davis set up and supervised several work crews who planted trees, shrubs, and grasses on cooperators' lands. The work crews used were from two federally-funded employment programs.

Robert K. Griffith, Salina, was named recipient of the Governor's Award-Conservationist of the Year. Griffith was honored for his years of work with the Soil Conservation Service.

Other winners recognized at the Oct. 13 awards banquet include:

—Roger C. Arensdorf, Dodge City, Land and Soil Conservationist of the Year, for his 35-year career as an SCS conservationist in Ford County.

—Mrs. Bertha Gustafson, Junction City, Forest Conservationist of the Year, for timber restoration efforts in Geary County.

—Shelby Smith (former Lt. Governor), Wichita, Water Conservationist of the Year, for his work as chairman of the Governor's Task Force for Water Resources.

—William C. Brunker, Kansas City, Air Conservationist of the Year, for his work in environmental control of air emissions at Owens Corning, where he has been employed for 29 years.

—Eldon Smith, Kansas City, Youth Conservationist of the Year, for his individual work in Geary County in which he built brush piles, placed rock rip-rap to control water erosion, planted trees and food plots for wildlife.

—Louis J. Bussjaeger, Wichita, Conservation Educator of the Year, associate professor of biology and chairman of the biology department at Kansas Newman College.

—Jackie Jones, Bonner Springs, Conservation Communicator of the Year, for conservation-related publicity generated in the weekly Edwardsville-Bonner Springs Chieftain, of which she is managing editor.

—Rep. Jack L. Rodrock, Leoti, Conservation Legislator of the Year, for conservation-related legislation introduced or co-sponsored by him and for his service on the Governor's Task Force on Water Resources.

—See-Kan Resources Conservation and Development Board, Parsons, Conservation Organization of the Year, for resource conservation efforts in nine southeast Kansas counties.

—George Hoffmann, Jr., Kansas City, K.W.F. President's Award, for outstanding service to the Federation during 1979.

—Kansas Rod and Gun Club, Kansas City, Outstanding Affiliate Award.

—Jim Mahoney, Neosho County, Kansas Tree Farmer of the Year.

† † †

RESEARCHERS INVITE INFORMATION ON WATER RECREATION ECONOMICS

Resources for the Future, a nonprofit research organization based in Washington, D.C., is about to begin an economic study of the benefits of water pollution control. The first part of the study will concentrate on benefits of recreational use of water, especially fishing, boating, and swimming. But there is a big problem. Most water-related recreation is free, so that there are no readily available and believable measures of what people are really prepared to pay for the use of natural water resources—let alone how much more they would be willing to pay if the water were cleaner.

RFF is trying to produce some more convincing benefit estimates by finding out as much as possible about places at which people actually do pay (by the hour, day, or longer period) to fish, boat, swim, picnic by or otherwise use a stream, river, pond, or lake.

"If people use, belong to, or know about a club, syndicate, profit-making operation, or public park at which fees are charged for fishing, boating, or swimming, or other activities related to water, we would be very grateful if they would tell us about them, giving the mailing addresses or phone number or the place so that we can follow up," said one RFF spokesman. Any further information, such as price lists, descriptive brochures, or advertising would also be appreciated.

Replies should be sent to Clifford S. Russell, Resources for the Future, 1755 Massachusetts Avenue N.W., Washington, D.C. 20036.

† † †

BIG BUCKS BASSIN'

Following the lead of gold and home heating fuel, the price of bass in America is going up.

While weekend anglers joke that it costs them $10 to $20 per pound of bass they bring home, the value of bass on the Bass Anglers Sportsman Society professional fishing circuit has also escalated. Competitive bass fishing has leaped higher into the ranks of big-time, big-money sports with the expansion of the B.A.S.S. Tournament Trail into an inter-divisional fishing circuit paying out $600,000 next year, compared with $475,000 for anglers competing in 1979, B.A.S.S. President Ray Scott reports.

The B.A.S.S. Tournament Trail has come a long way since June 1967, when Ray Scott's first All-American Bass Tournament on Beaver Lake, Ark., offered a total prize fund of $5,000. In 1980, the cast-for-cash crowd will stalk largemouth and smallmouth bass worth $70,000 to the top 40 fishermen in each of seven preliminary contests, plus $70,000 in the bass fishing world finals, the 1980 Masters Classic tournament Sept. 24-26, on a lake to be announced.

There's something else new and different in professional bass fishing for 1980: the regional division of B.A.S.S. Instead of a far-ranging, continent-crossing tournament schedule that took play-for-pay anglers to such under-utilized and over-abundant bass havens as Lake Powell (Ariz.), Thousand Islands (N.Y.), and Lake of the Woods (Ontario), the 1980 Tournament Trail will be one of retrenchment.

"Because of the uncertainties in the availability of fuel—and because of the certainty that fuel will be higher—we've decided to pull in our horns," Scott explained in announcing the creation of East and West divisions of B.A.S.S. "We have scheduled the national qualifying tournaments closer to home

for the bulk of the 310,000 B.A.S.S. fishermen, so that few will face extremely long, costly trips to our tournament sites."

Currently, to qualify for one of 24 berths in bass fishing's Big Event — the BASS Masters anglers must accumulate the heaviest total poundage of bass in six qualifying events. Next year, though, 40 bass pros—20 from each division—will earn an expense-paid trip to the championship fish-off based on their success in four preliminary tournaments, explained Harold Sharp, B.A.S.S. tournament director.

CATTAIL POWER

University of Minnesota scientists are studying the energy potential of a unique alternative to coal, oil, gas, or nuclear power: the common cattail. While the cattail is one of the most versatile gifts of nature, it can be a bothersome invader of recreational lakes and waterfowl refuges. It's high productivity and enormous energy content prompted the scientists to take a closer look at its possibilities as an energy source.

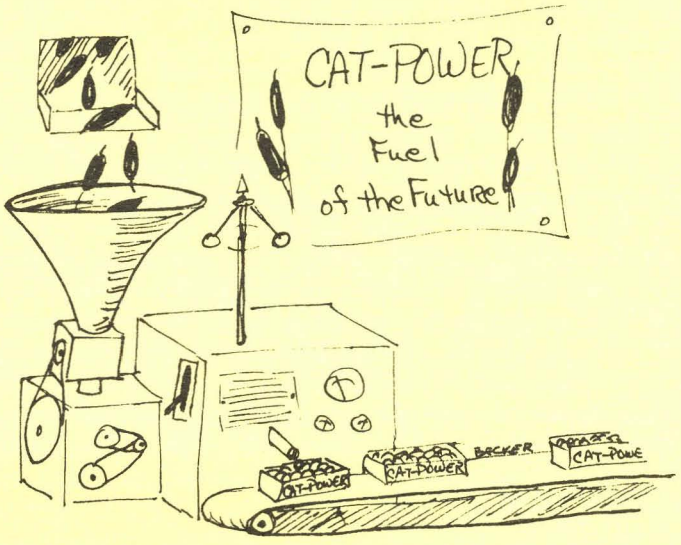
Although cattails burn too quickly to be used as they emerge from the wet earth, they can be compressed into fuel pellets or their starch can be converted into alcohol, researchers told a New York Times writer.

Douglas Pratt, head of the university's botany department, sees these advantages to cattails:

—Since they grow in wetlands, cattails do not compete for land that could be used for crops or forests, and drainage is unnecessary.

—Cattails use some pollutants as nutrients. Cattail farms near sewage treatment plants could clean troublesome nitrogen and phosphorus from effluent.

—Unlike nuclear power and fossil fuels, cattails do not add heat and carbon dioxide to the earth but recycle them. The plants use the sun's energy



and the atmosphere's carbon dioxide to produce starches and sugars through photosynthesis. This heat and gas are returned to the earth when the cattails are used as fuel.

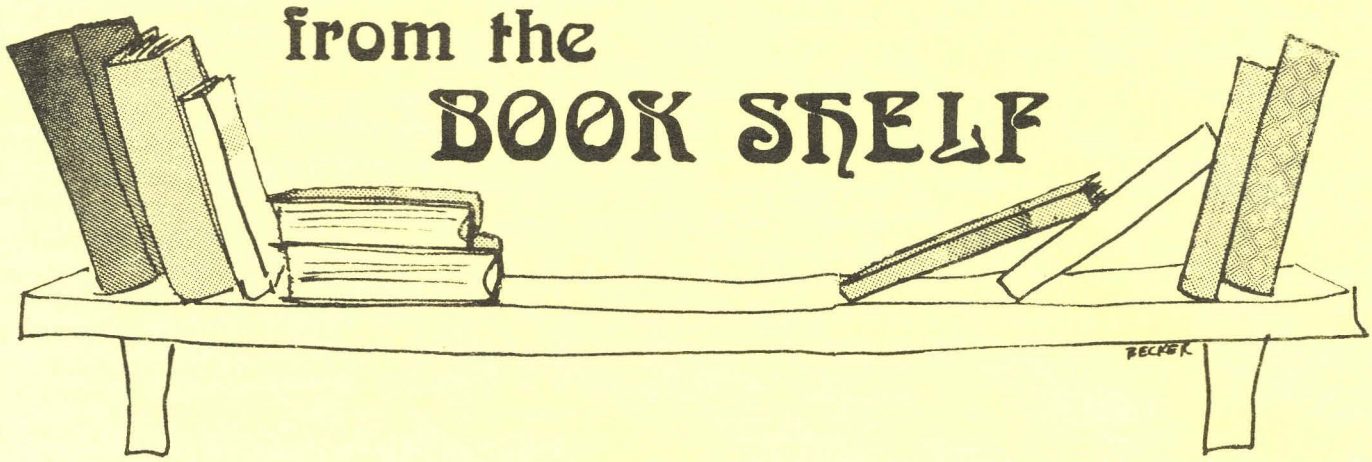
—Harvesting cattails in strips is compatible with preservation of wildlife and makes replanting unnecessary. Cattails spread with underwater stems called rhizomes and each year can re-cover the harvested strips.

—Cattails are an annually renewable resource, while coal, oil, and peat take thousands or millions of years to form.

CULTIVATING TASTEFULNESS

Got a flavorful fish or game recipe you'd like to pass around? If so, we'd like to hear from you. We're sure there are some tried and true epicurean delights that deserve wider acclaim. We're also sure there are thousands of others like us more than willing to sample innovative table fare.

If you'd like to contribute, write: Editor, Kansas Fish & Game, Route 2, Box 54A, Pratt, KS 67124. We'll give contributors credit so we'll all know who to thank.



BACKWOODS ETHICS: ENVIRONMENTAL CONCERNS FOR HIKERS AND CAMPERS
by Laura and Guy Waterman

"Nonconsumptive users." A couple of issues ago, we ran an article in which an Alaskan biologist took strong exception to the concept that some people consume the outdoors as they use it while others don't.

If the article had needed more proof, *BACKWOODS ETHICS: ENVIRONMENTAL CONCERNS FOR HIKERS AND CAMPERS* would have provided it in spades. The authors are obvious veterans of the backcountry wars, but unlike many dedicated backpackers and campers, they seem to have maintained a fairly calm outlook on the thundering herd of neo-Thoreaus (at least in print). The book centers on problems the Watermans have encountered in the White Mountains and Adirondacks in New England, but their comments apply beautifully to the heavily-used western "wildernesses" and even to Lake Perry on Labor Day.

The book addresses the impact that Vibram soles, mountain tents, dogs, flower photographers, and increasing interest in camping may have on American backcountry. They discuss ways to lessen the impact of campers so that more can use the outdoors without damaging them, and they return again and again to the possibility of having to limit human use of fragile environments. Having brought up a forest of pretty thorny issues, they provide a few well-thought-out answers and many more provocative questions.

Overall, it's a well-written, thoughtful book that should make excellent bedside (or trailside) reading for anyone who thinks a vacation should include at least as much walking as driving.

175 pages. Stephen Greene Press, Brattleboro, Vermont 05301. Price $5.95

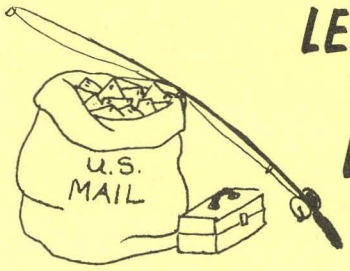
THE DEER OF NORTH AMERICA
by Leonard Lee Rue III

The widely published photojournalist has authored a comprehensive volume based on his years of studying, photographing, and hunting the deer of this continent. Nearly 300 photos complement the insightful text for an indepth look at whitetails, muleys, and blacktails. Rue illustrates with words and pictures how deer fit in the environment, how the three species differ, physical development from birth through maturity, seasonal variations in behavior, deer management problems, and more . . . all tempered by the author's years of experience with wildlife.

Rue delves into the historical successes of deer management in this country, as well as the threats imposed by man's continued encroachment on the natural world.

Anyone interested in deer—whether hunter, hiker, naturalist, or photographer—will find the book compelling reading.

463 pages. Crown Publishers, Inc., New York. Price $12.95. Autographed copies available for $12.95 plus $1.25 shipping costs by writing the author, R.D. 2, Box 88a, Blairstown, N.J. 07825.



LETTERS to the EDITOR

PLEASED TEXANS

Prior to June of 1977, I had served as pastor of the United Methodist Churches at Arnold/Utica north of Dodge City. I knew what wonderful folks live out on those western Kansas High Plains and I also knew excellent pheasant hunting (after opening week) was available. When I moved to Houston in semi-retirement in June 1978, I got three trips of eight or ten Houston sportsmen to join me in hunting up around Brownell, Arnold, Ness City, Hays, Ellis, and Ransom. I speak for all these Texans, when I give a great big thanks to y'all . . . the Legislature, and, above all else, the farmers who have preserved and protected the ringneck pheasants there.

The hunters all agreed they were literally overwhelmed at the genuine hospitality shown them by the folks in Kansas . . . merchants . . . officials . . . innkeepers . . . cafe operators . . . etc. Overall, we barely got 25 percent of the bag limit (total), but gained a lifetime of friendships and happy memories with the folks out in western Kansas.

Frank Canfield
Houston, TX

* *

PRAIRIE PARK REBUTTAL

Larry Wagner's article in the September/October issue reminds me of the old time snake oil salesman—a lot of slick talk with only a touch of fact! He speaks glowingly of the National Park Service and says any mismanagement must have been by BLM or the Forest Service. He blithely overlooks the heavily overgrazed Yellowstone National Park elk ranges and the Grand Canyon National Park wild burro range. Can we look forward to the "Flint Hills Overgrazed Wasteland National Park?"

Wagner states, "You seldom see eastern gama grass in pastures." He's right! He's right because eastern gama grass wasn't here to begin with. This grass grows in low areas where additional run-in water and deep soils favor its development. In short, it does not grow in abundance in the Flint Hills because of the dry, rocky, shallow soil. Perhaps Wagner should come out of his ivory tower and spend some time with a basic ecology text.

Wagner speaks of decreaser and increaser plant species and says that the broad leaf decreasers are disappearing because cattle prefer these species. This is, at best, half truth. Ranchers manage rangeland so that all decreasers are maintained—both grasses and forbs. I challenge Wagner to produce scientific evidence supporting his claim that the Flint Hills is becoming devoid of broad-leaved wild flowers. Ranchers DO NOT use herbicides in place of burning.

Wagner claims that the federal government owns only 1.3 percent of Kansas and he seems to think because other states have more federal ownerships it would be okay for Kansas to have more. It's sort of like "All the other kids are doing it, why can't I?" Maybe Wagner should listen to the news or read the newspaper and see what the western states think of federal ownership.

A reduction of over 300,000 acres of prime grazing land will mean a loss of over 25 million pounds of beef per year. A man who calls this insignificant, as Wagner does, can't be too concerned with high meat prices. Of course, Wagner also calls $10 million very small.

Wagner is correct when he speaks of the need for preservation of prairie heritage. He is dead wrong when he excludes the people living there now. They are as much a part of the ecosystem as any other living thing.

Jim Hess
Alma, KS

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FISHING COST HIKE URGED

First off, we enjoy your magazine very much with its interesting and informative articles and pictures.

Second, we highly agree with Lawrence and Libbie Shaw in their letter in the July/August issue. We understand that, in the middle to eastern part of Kansas, Nebraskans flock over to Kansas to fish because it is so cheap for a non-resident license. When we go over to Nebraska, it costs us $70 right off for two licenses and a pond permit. Colorado charges us $38 with a pond permit plus $28 for the second license. Why should Kansas be so big-hearted and let those states come here and have the privileges that we

(more)

allow them for a measly $15. What must we Kansans do to get this equalized?

Since we have very little recognition by the Fish & Game here in Cheyenne County, it is necessary to travel to the closest ponds which happen to be in Colorado and Nebraska. Most of the fishing for us there is in federally impounded waters. Should this not make a difference in non-resident licenses, especially since our taxes helped build them. Five of us older guys used to go fishing in those states, but now we do not feel that we are being treated fairly. We are all over 70 years old. We do thank Kansas for letting us fish free but, since we have no lakes or ponds in this northwest corner, it really isn't such a big deal.

I would be interested in knowing how most Kansans feel about this and how to go about getting this situation corrected.

James T. Manson
St. Francis, KS

THANK YOU GAME PROTECTORS

The early September teal season was a special occasion for me to pull on my waders, load up my homemade hunting vest, carry my shotgun and trudge through thigh deep marsh at Perry Lake. I wondered if I had lost the ol' eye at bringing down those small ducks.

What made it special was that my husband and two toddlers set alongside the road watching good ol' Mom, who had not been hunting since they were born.

This spot was a duck hunter's paradise. Wood ducks, mallards, and teal were swooping in and setting down into the cattails everywhere. My heart was beating up in my throat watching these beautiful birds.

Then, my excitement was ruined. While I watched woodies, who were not in season, come over the marsh flashing their white bellies, hunters opened up on them, dropping them like flies. I stood there helplessly watching so-called hunters kill anything that had a long neck on it. I was so angry and frustrated I wanted out of there as quickly as possible.

When I got back to the car I wanted revenge for those ducks so badly I could hardly talk. No wonder hunters often have a public image of being bloodthirsty.

Then my frustration and revenge was relieved. Two Kansas game protectors stood at the end of the road waiting for the "hunters" to bring in their bags. My hopes were restored knowing these wardens were on their jobs protecting our wildlife and holding those accountable for breaking the law.

By the way, I had lost my touch; fourteen shots had brought down only one teal. Clay pigeons, here I come!

Chris Bush
Bonner Springs, KS

* *

It's The Law.

The Kansas Wildlife Federation has announced a new program to help protect Kansas wildlife. The program—called RAP (as in Report All Poachers)—will provide cash rewards for persons who report acts of poaching that lead to arrest and conviction.

A reward of up to $200 will be paid to any person who reports the illegal taking of any deer, antelope, or wild turkey if the report leads to the conviction of the violator. The amount of the reward will be decided by a committee consisting of the Kansas Fish & Game's law enforcement chief and the Kansas Wildlife Federation's executive director. Each case will be considered on its own merit and the sum decided upon will be paid directly to reporting individuals.

To qualify for consideration, persons reporting possible violations should give their name, address, and telephone number to the law enforcement officer contacted and then call the Kansas Wildlife Federation (913) 456-2500.

Home Country

If deer managers agree on nothing else, they all share a common concern for the maintenance of deer habitat in sufficient quality and quantity to provide abundant populations of America's top big game animal. "A difficult task," you say, in light of increasing demands on the resource, and you're absolutely right, but it can be done by providing rural landowners with economic incentives, by continuing to base management decisions on sound biological information, and by letting Kansans know what they can do to maintain and improve cover.

For example, it would help deer, the gas shortage, *and* the low price of grain to avoid planting that last two, five, or ten acres of marginal farmland. It would help deer, save on winter propane bills, and reduce wind erosion to develop windbreaks and shelterbelts around farmsteads and fields. Such breaks catch snow for early spring moisture, provide shade, furnish habitat for wildlife, and make a pleasing break in the monotony of an otherwise nondescript landscape. Many highly effective wildlife management techniques are no more complex than these. The key to their success is involving Kansans in *action* programs they can identify with. We all have different pet causes. What affects one person may not arouse another. The secret is letting people know how many interests are served by abundant wildlife populations.

The agriculturally-oriented Midwest produces the healthiest, most productive, and many of the largest deer in the United States. In the North American Big Game Awards competition (formerly the Boone and Crockett Club), Kansas has ten typical whitetail racks listed; two in the top twenty. Bowhunting's counterpart, the Pope and Young Club, shows listings of forty-six typical whitetail racks from the Sunflower State of which an amazing five are in the top twenty. And, we all know of one or two "rocking chair" racks that have never been measured.

The habitat that raises these Kansas trophies is a constantly changing array of woods, grassland, and agricultural ground whose ability to support deer fluctuates with season, climatic conditions, intensity of land use, cropping patterns, and degree of human disturbance (mostly hunting pressure).

Most deer populations are associated with permanent woody vegetation. This habitat exists in Kansas primarily as small woodlots, the loess drift hills along

In the depths of winter, even the most modest tracts of riverside timber support a few deer. Woody cover moderates the weather, provides staple midwinter browse, and is often close to high-energy sources of food like corn, milo, and alfalfa. This herd was photographed along the Smoky Hill River near Ellis. (Photo by Kent Montei).

the Kansas and Missouri rivers, the blackjack-post-oak forest known as the Cross Timbers area in southeast Kansas, the oak-hickory woods on the eastern uplands, and as stream-associated vegetation.

It is estimated that five percent (2.6 million acres) of Kansas provides the base habitat that supports our deer herds for most of the year. Eighty percent of this habitat is land with ten percent or more tree cover.

Whitetails are most numerous along streams where elm, ash, cottonwood, hackberry, willows, oak, and boxelder are common along with brushy species like sumac, coralberry or buckbrush, dogwood, plum, chokecherry, and gooseberry. Adjacent croplands provide cover during the growing season, but the focal point of deer activity is almost always secure woody cover. This may take the form of small, ungrazed pockets of brush interspersed with native grasses and forbs, particularly in mule deer range. Kansans are lucky to have the mule deer as a second species because the muley uses sparser western habitat that whitetails ignore. A mule deer may range many miles from bottomland timber through most of the year, but in the depths of winter, the mule deer is just like the whitetail in its preference for woody cover.

Because deer use a wide variety of cover types, including crop fields during the growing season, it is difficult to determine just what constitutes good deer habitat in an agricultural environment. Therefore, it is often meaningless to discuss deer densities in Kansas.

It is ironic, but the large flood control and irrigation reservoirs which have stabilized stream flow and helped protect woody cover on floodplains have also allowed landowners to clear timber and intensify farming along major rivers to the detriment of deer. Most eastern Kansas impoundments have inundated thousands of acres of prime deer habitat, but management in the upper reaches of most western Kansas reservoirs has provided excellent deer cover, increasing the carrying capacity of the drainage before the dam was built. With ninety eight percent of all land in Kansas under private ownership, the value of this publicly owned deer habitat, usually managed by the Fish and Game Commission under an interim lease, is readily apparent. This reservoir-associated cover in the west is like an oasis in the midst of an agricultural "desert." Corn, sorghum, soybean, wheat, and alfalfa residues on private ground provide deer with a highly nutritious food source, but it is the cover, not food, that is the vital link in deer management on western farmland.

Highly mechanized, large-scale monoculture farming is having adverse effects on all wildlife, including deer. We can be thankful that the Department of Agriculture's "maximum production" philosophy during the Butz years has been tempered with a more reasonable farm program that has not only put more dollars in the farmer's pocket but has benefited wildlife through a reduction in acres planted.

The grazing of woodlots and floodplain timber by livestock is common in Kansas. Probably seventy percent of all woodland is grazed or used as livestock wintering areas. Livestock trample understory vegetation and tend to discourage deer from using the area. By excluding grazing from small ten- to twenty-acre patches, landowners can attract deer.

It is unlikely that Kansas' climate imposes any direct limitations on the distribution and population growth of deer. Weather's greatest influence is related to precipitation and the availability of moisture to woody plants. Availability of drinking water may occasionally present a problem.

Severe winter storms are generally short-lived and although deer may move to areas that afford better protection from the elements, concentrations of deer do not occur for any length of time. Little, if any, direct mortality is thought to occur over the winter in Kansas. The winter of 1978-79 was as severe as any in recent years, and no mortality directly attributable to bad weather was reported even though large herds of deer formed and stayed together for a long period. During periods of heavy snow, free ranging dogs constitute a greater threat to deer than severe weather.

Management

The current deer management goal of the Fish and Game Commission is to increase the deer population to the optimum carrying capacity of the existing habitat and provide for recreational use. The use of the word 'existing' may seem to imply passive management but is probably realistic when the potential for increasing deer habitat in the state is considered. However, to meet increasing resident demand for firearms deer hunting permits, Fish and Game will have to take a more active role in maintaining and hopefully improving the quality of Kansas deer habitat. In addition, efforts will be made to reduce the number of deer lost to nonhunting mortality.

Our deer population is currently below the biological carrying capacity of the habitat, but it is fast approaching the economic carrying capacity of the range. Defined in terms of big game management, biological carrying capacity is the number of deer a unit of range can support in good physical condition while not reducing the vigor of the habitat. Landowners, motorists, and others with deer problems will eventually establish another, artificial, but economically realistic upper population limit.

Kansans have become increasingly tolerant of deer as the herd has grown. In the farming community, this

acceptance is perhaps closely related to increasing yields and the diminishing economic impact of occasional deer browsing, but sooner or later, deer will reach a population level that will balance demand for more deer and complaints from agricultural interests.

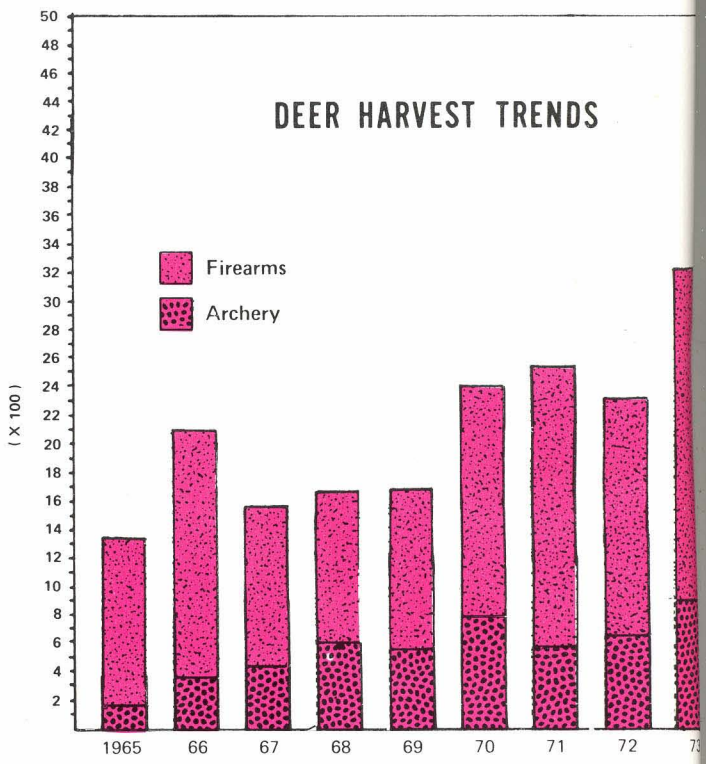
Because most land in Kansas is privately owned and the Fish and Game Commission has had relatively little influence on private land management, the agency's deer management is primarily harvest management. During and after each year's seasons, the wildlife biologist responsible for the deer program gathers biological data and hunter performance information. Analysis of these parameters is compared with base information from previous years to find out whether goals for the population's growth rate and physical condition are being met.

When preparing hunting season recommendations for the next year, the manager reviews all these data, obtains additional input from field personnel, considers the number and location of crop damage complaints and deer-vehicle accidents, and with other staff members recommends harvest quotas for each management unit. On occasion, public meetings are held to find out how sportsmen feel about Kansas deer management and season recommendations.

The Commission director is involved in the staff review of the season; the recommendations themselves are presented to Fish and Game Commissioners at their April meeting. The public is always invited to attend and comment during this final review before the Commission takes action. Usually, the Commissioners have already reviewed the proposals at their leisure, but they now consider public comment, carefully reflect on constituent suggestions, the future of deer resource, and operational objectives before they vote on the recommendations. In the fourteen years that this author has been involved in the process, I believe the Commissioners have approved biologically sound and justifiable recommendations that have met with the approval of most Kansans.

By law, half of all firearms deer hunting permits (including muzzleloaders) are reserved for landowners who have eighty or more acres of farm land used for commercial agricultural purposes. However, all are required to pay the $15 permit fee (if they are successful), and in 1980 the fee will be $20.

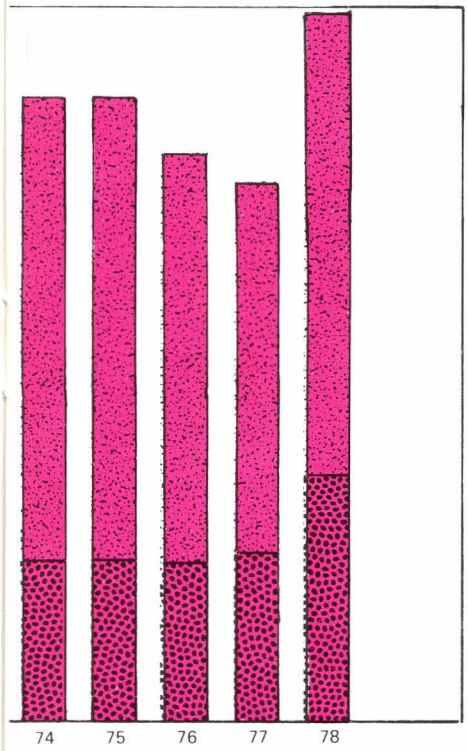
Is this adequate compensation for the people who own enough land to manage for deer? Many say no, but of the 78,000 or so farm units in Kansas, only a small percentage actually support the state's deer herds. Should all landowners, regardless of whether they have deer on their farms, receive the same special consideration? This question is open to debate. If the Commission were somehow able to identify only those farms that produce and feed deer and provide some kind of preferential treatment or monetary incentive, it might increase landowner tolerance of deer *and* deer hunters. This latter factor is especially important as we



attempt to satisfy sportsmen's demand for firearms permits by increasing hunting pressure. The majority of permit holders hunt deer on private land. Further, not all landowners with deer on their property are interested in hunting them, but if they are and fail to draw a permit, are they likely to grant hunting permission to the general public? Not likely! And if so, perhaps only very reluctantly.

If you were to ask ten deer hunters for their definition of a quality hunt, there would probably be ten different answers. It is likely that bowhunters will see things a little differently than firearms hunters. To some, a quality hunt depends on the environment in which the hunt takes place. Others consider relative hunter densities important, while some feel that seeing deer, especially antlered bucks, is crucial to a quality hunting experience. The Fish and Game Commission has responsibility for controlling the sport and must maintain some standards of quality for the deer hunter. Our laws and regulations attempt to do this. They will not satisfy everyone and are not really expected to. Without some controls, the deer resource and the rural landowner who has deer on his land would "take it in the head."

Because Kansas has a relatively small deer population and a limited amount of habitat, the Commission has limited annual deer kill and tried to focus hunting pressure on large, productive populations. Before the 1965 season, the state was divided into management units. Twelve of these units were opened in the first



The effect of progressively more liberal seasons can be seen in this graph of deer kill. From 1965 until 1969, firearms deer season was five days long in selected areas of the state. From 1970 through 1972, hunters in western Kansas had a nine-day season, and in 1973, the nine-day season was expanded to all hunting management units. At the same time, archery season was expanded from forty-six to seventy-seven days. Even with this increasing harvest, the Kansas deer population continues to grow.

season; by 1968, the entire state was opened. The number of firearms permits issued in each unit is set according to the results of local population surveys so that the deer herd can continue to expand while it supports hunting. By allowing annual but limited harvests of deer on a sustained yield basis, total herd size and its growth rate can be controlled. While "bucks only" hunting continues to be the mainstay of our harvest program, some antlerless deer (does and young-of-the-year) are taken annually.

In fourteen bow and firearms seasons, 51,595 deer have been harvested. Of this number, seventy-three percent were antlered bucks and twenty-seven percent does and fawns. Total annual harvest (bow and gun) has increased 344 percent since 1965 although the increase hasn't been continuous since harvest rate is influenced by permit quotas, number of antlerless deer taken annually, length of season, and prevailing weather conditions.

Bowhunters across the state await the arrival of October 1 with the excitement of an Indian brave about to begin his first hunt. The anticipation begins with the last day of the previous season. Except for 1971 when the archery deer season began on October 16, all others have opened on the first. Season length has varied from forty-six to seventy-seven days and in recent years is averaging about seventy-five days. Approximately eighty-five to ninety percent of the permittees are active and in 1978 they averaged 16.7 days afield. Even though a record 1,738 deer were harvested by 7,395 bowhunters in 1978, and resulted in an excellent twenty-four percent success rate, more than seventy hunter-days were spent in the woods per deer legally taken. Average hunter success is about nineteen percent.

In the past fourteen years, bowhunters have reported harvesting 11,371 deer of which forty-nine percent have been antlered bucks. The seasons have provided countless days of wholesome, outdoor recreation, almost 124,000 hunter-days in 1978, with relatively little drain on the resource. Archers have been some of the nation's strongest supporters of sport hunting and have recognized the need to "clean up" their own ranks and adopt the highest ethical standards and most humane hunting equipment and methods possible for harvesting deer.

It is not surprising in light of increasing deer herds, more liberal permit quotas and regulations, that the largest antlered buck harvest on record was reported in all management units in 1978. In fourteen years, prior to 1979, 40,224 deer have been harvested by rifle, shotgun, and muzzleloader hunters. Of that number, almost eighty percent (32,098) were antlered deer. The legal harvest has increased 269 percent during this period while there has been a 224 percent increase in hunting pressure. Average hunter success is almost thirty-five percent with a management unit range of seventy to eighty-five percent in the west and twenty eight to sixty percent in the central and eastern units. To illustrate the effect of "any deer" permits, 1,551 were issued in 1978 and thirty-seven percent (575) of the permittees harvested antlerless deer.

Approximately ninety percent of all firearms permittees are active annually. In achieving the record harvest they spent almost 49,000 hunter-days in the field and averaged about ten days per deer taken.

Almost 19,000 Kansans participated in the 1978 deer seasons and accumulated 172,744 hunter-days of recreation. Based on $7.39 per day of recreation, last year's deer seasons were worth $1,276,578 to Kansas sportsmen. In addition to the recreation provided, the harvest of 6,680 deer produced about 367,400 pounds of boneless venison valued at approximately $657,646. Admittedly, this may be "small potatoes" in states with larger deer herds and many more hunters, but it represents a sizable cash credit for Sunflower Sportsmen.

At present, harvest management strategy is aimed at maintaining reasonably good statewide hunter success (thirty-five to forty percent), moderate hunter densities and a harvest age structure that maintains a productive, healthy herd within the tolerance limits of landowners, yet provides an abundance of yearling three and four point (western count) bucks and a liberal sprinkling of two-and-a-half to five-and-a-half year old trophies. Legal deer harvests and associated hunting mortality remove twenty to twenty-five percent of our fall population compared to fifteen to eighteen percent just a few years ago.

This type of management strategy requires the annual harvest of some antlerless deer along with antlered bucks. The deer population's growth rate cannot be controlled with "bucks only" hunting and, fortunately, Kansas has never fallen into that unwise and restrictive management trap. The producing segment of the population (females) must be controlled if a herd's growth rate is to be contained. About twenty-seven percent of all deer legally taken in the state have been does and fawns. Don't misunderstand; antlered-only hunting has its place in our flexible management program, but it is just one of several options used to provide hunting opportunity and herd control.

In past years, several different types of anterless deer harvest regulations were used. In some management units, hunters have been allowed to take deer of any sex or age on all days, the first two days, or the last day of the firearms season. These regulations did not provide the means to control the number of antlerless deer taken, and overharvests occurred in several areas. Now, in units where antlerless deer hunting is authorized, ten to fifty percent of the permittees receive "any-deer" licenses. This enables the Commission to predict the number of does and fawns that will be taken with a reasonable degree of accuracy.

The number of active hunters, percent of "any deer" permits, length of the season, weather conditions during the hunting period, number, species and vulnerability of deer, all combine in ways that determine annual harvest and hunter success. Fourteen years of experience and data enable the Commission to achieve predictable results with its harvest management. We can increase or decrease the take of deer, particularly of does and fawns, merely by changing those things over which we have control. The degree of control exerted depends not only upon statewide management objectives but on conditions within each management unit.

Any reasonable person should be able to understand that the Commission's primary concern as it relates to deer is the maintenance of the resource for this and future generations, to keep problems associated with deer at a tolerable level, and provide as much recreational opportunity as possible within the limits imposed by the natural reproductive ability of our herds and the habitat they occupy.

Now, let's get down to specifics about our deer population and relate some of the things we've learned about them during the past seventeen years. Although frequently asked to do so, resource managers across the nation are reluctant to provide deer population estimates. In most instances, statistically reliable data are just not available. Excessive costs, difficulty with survey design, manpower requirements, and the plain fact that deer are secretive creatures and not easy to physically count precludes a complete statewide census.

Post-season hunter questionnaires, determination of ages of harvested deer from deer teeth submitted by successful hunters, occasional mandatory check stations, January deer counts, records of nonhunting deer mortality, and periodic use of a landowner opinion survey are all used in place of a complete statewide deer census. These surveys allow Commission biologists to assess population and harvest trends, assess the impact of deer on farming, and find out about public attitudes toward deer and deer management in the state.

Kansas' deer population has been increasing every year since the deer project began in 1962; slowly in some areas, more rapidly in others. The number of deer-vehicle accidents provided a fairly reliable population trend indicator until gasoline shortages, less evening travel, a reduced speed limit, and less traffic volume necessitated the development of a new data base. From 1965 to 1974, the average annual rate of increase in road-killed deer was 9.6 percent. The deer roadkill index, which takes traffic volume into account, increased an average of 7.4 percent during the same period. Deer-vehicle accidents increased from 563 to 1,423 in nine years before decreasing to 1,211 in 1974. A total of 1,456 road-killed deer was reported last year.

The statewide deer density is approximately 0.6 deer per square mile. When only "deer range" is considered, densities approach eight to twelve deer per square mile. Until farmers voice opposition to too many deer, we can assume that they find the population tolerable, and we can allow it to increase in an effort to provide more deer to satisfy recreational demands. All our deer population, harvest, and age structure data suggest that we had about 15,000 deer in the state when we began to hunt them in 1965. Today, we estimate a herd of 45-50,000.

It is vitally important to determine the age structure of a deer herd in assessing mortality and survival rates. In the past, deer age was determined at mandatory check stations by biologists who examined tooth replacement and wear in the lower deer jaw. This method was subject to error due to variations in deer tooth wear and aging mistakes, but it remains the most reliable field age determination technique available. When compulsory check stations were discontinued in 1969, successful hunters were asked to remove the two front incisors from their deer and mail them in for examination. Biologists determine species and age of these deer from various tooth characteristics.

In 1978, this sample of harvested whitetail and mule deer contained 4.7 percent fawns, 63.7 percent yearlings, 17.3 percent two-and-a-half year olds, and 14.3 percent older deer. Numbers of fawns and yearlings in the harvest showed important differences between the two deer species and between the hunters of each species. Whitetail hunters took more fawns than mule deer hunters harvested, indicating that they had more trouble identifying fawns and that they were probably less finicky about the age of the deer they took. Mule deer hunters in western Kansas took very few fawns. This may be partly because mule deer are often in

groups during the hunting season so that the hunter can compare sizes more easily, but it probably also shows that the western Kansas deer hunter is more selective.

The relatively low number of fawns and yearlings harvested from the mule deer population is another sign that mule deer are less productive than whitetails. Using the average age composition for the two species, we have calculated that 100 whitetail does of all ages produce 130 to 140 fawns per year while an equal number of mule deer does have eighty to eighty-five fawns. This rate of pregnancy is reduced by ten to twelve percent because of fawn mortality before birth. An unknown amount of fawn mortality after birth also reduces the number of deer added to the population before hunting starts.

On the buck's side of the ledger, yearling whitetails comprised 68.4 percent of the antlered harvest in 1978 and 67.3 percent the previous year. Mule deer one-and-a-half year olds accounted for 71.9 percent of the 1978 kill and 68 percent of the '77 harvest.

Now, just what does all this statistical gobbledygook mean? First, it strongly indicates that, under the modified bucks-only hunting regulations at current levels of hunting pressure, our deer herd is in excellent shape and is still increasing in most areas. Older trophy bucks are still common enough to tempt the most discriminating hunter, and the relative abundance of yearlings and two-and-a-half year olds should make the hunt interesting, if not successful, for almost half of the permittees. Generally, the slight excess of males born into the population every year is quickly eliminated as hunters select for antlered deer. A buck's ability to fertilize several does means that the productivity of a deer population won't usually decline because of the hunter's preference for bucks. By the same token, the growth of a problem deer population can't be controlled by a bucks-only season.

The statistics also show that mule deer are not as productive as whitetails. Since mulies are also more vulnerable to hunting, Fish and Game has tailored regulations to reduce mule deer harvest and insure sustained yield year after year.

Kansas deer are in excellent physical condition as demonstrated by their productivity, impressive antler development, and weight gains. Field dressed buck fawns average about seventy-six pounds for whitetails and seventy-five pounds for mule deer. Yearling whitetail bucks weigh approximately 123 pounds field dressed whereas their western Kansas cousins tip the scales at 116 pounds. In short, the fertility of the Kansas prairie is reflected in its ability to raise healthy, fast-growing deer as well as in its agricultural potential.

However, the Commission recognizes that, while the deer herd itself is a vital element in the state's deer management, it isn't the only element. While we have developed confidence in our ability to assess deer populations, landowner tolerance, and the results of annual hunting seasons, we have also begun to recognize that every interested person sees deer management problems a little differently and that his solutions will probably be in terms of his personal experiences and may not agree with the Commission's program. In this regard, we will continue our efforts to improve deer management in Kansas and incorporate sportsman input into our season and permitting recommendations.

The key to more successful management is the financing of more habitat. By far the most promising solution to the problem is to offer landowners a tax reduction for land retained in woodlands, and perhaps additional monetary incentives to plant more trees.

In some states, hunters and others interested in wildlife contribute substantial sums of money to their respective conservation agencies by purchasing habitat stamps or by donating part of their state income tax refund. These funds are used in a variety of ways to maintain, improve and develop additional habitat for wildlife. In Missouri, a 1977 constitutional amendment to divert an eighth of one percent of annual sales tax revenues into conservation programs is having a very positive impact on maintaining wildlife habitat in that state. Obviously, these measures require overwhelming legislative and public support to be implemented, but they fairly place the responsibility for maintaining wildlife populations on the shoulders of all Kansans.

Kent Stucky

A look ahead

For all practical purposes, the scientific management of Kansas wildlife resources didn't get off the ground until 1962. Since that time, we've come a long way. The road has been paved with some notable successes and several minor setbacks. Through the years, however, one encouraging situation has developed. Kansans who have been in the state long enough to see the return of deer to the prairie almost unanimously agree that it's good to have them back. We have had a rare opportunity to find out how much a wildlife species can mean by losing it, then gaining it back again. Let's hope the lesson sinks in; we may not be able to heal similar mistakes as easily in the future.

Fortunately, when we manage deer, we are dealing with a renewable resource in a prairie environment that maximizes reproductive rates. If deer poaching can be controlled and nonhunting mortality reduced to the lowest possible level, more deer will be available for recreational use, both harvest and nonharvest. It is totally unrealistic to expect to meet all sportsmen's demands for hunting uses, but careful consideration of all management options and imaginative thinking will enable the wildlife manager to provide optimum recreation benefits within the limits imposed by finite habitat.

We must maintain our credibility with the public by resisting the temptation to fulfill all demand with "pie-in-the-sky" proposals. Kansans are traditionally a solid, conservative, hard-working people. As long as we give them straight, factual answers and sound biological management, we're confident that they will provide the long-term support needed to maintain our deer.

Hunter, anti-hunters, farmers, urbanites all have their opinions on hunting seasons. In the midst of these crosscurrents, biologists are also trying to keep a little science in the laws . . .

Setting the Seasons

Jerry Conley
Director

It's tough getting caught between a dog and a tree without a raincoat. As I recall, though, no one promised me an easy job.

Thoughts like that only rarely come to mind, but they are more frequent when that time of year arrives to set the upland game bird hunting season regulations. Pheasant, quail and prairie chicken hunting seasons appear to attract about as much attention when the regulations are being set as they do on opening day of the actual season. Usually armed with sound, often unique, logic, it seems that everyone demands something a little different out of these season regulations.

Obviously, not everyone can be totally pleased.

As Director of Fish and Game, it is my responsibility to formulate the basic recommendations for hunting season regulations that are presented to the Kansas Fish & Game Commissioners for approval or modification. I lean heavily on the staff of our Game Division and other personnel to help in this task. Our five member commission which ultimately approves or modifies the seasons views season setting considerations in three broad categories: biological, social, and legal. Defined better, those considerations are: the status of the resource; the acceptability of regulations by hunters, landowners, and the public-at-large; and the ability of hunters and game protectors to understand and enforce them. No one said it was an easy job.

One of the founding statutes which gives the Commission authority to set game seasons, states: "The Fish and Game Commission shall give considerations to the many conditions affecting game birds . . . is hereby authorized . . . to establish by regulations upon seasons . . . in any part of the state . . ."

The phrase, "the many conditions affecting game birds," not only applies to the physical condition of the birds and their habitat, but it applies to countless other factors which may have an impact on the birds. Rules so complicated or confusing that they are violated more by ignorance than by intent may be damaging because they cannot be followed. Rules which do not consider the attitudes of hunters, landowners, or the general public may damage the resource even more. In addition to being flagrantly violated, inconsiderate rules may result in closing land to hunters; purposeful destruction of habitat; or they may bring down the wrath of an indignant public on the Commission which will hinder future wildlife conservation efforts.

"It's tough to measure attitudes

Every regulation adopted by the Commission must first meet the most critical question: Will the future of the wildlife resource be harmed in any way?

To answer that, our biologists monitor game populations and keep in touch with habitat trends. Detailed hunters activity surveys are conducted so biologists can calculate the harvest and the amount of hunting pressure according to each species. We have consistent records of game population trends and harvest for the last twenty years. Careful analysis, coupled with the experience and observation of our biologists, has shown that the quality and quantity of habitat, not hunting, are the primary factors which determine the available supply of game species—and just about all wildlife—at any time during the year.

Hunting seasons, whether they are three weeks long like the 1963 quail season, or eleven weeks long as in 1978, have had no bearing on populations by the time the season begins the next year. In fact, it is theorized that prairie chicken, quail, and cock pheasant could support much longer hunting seasons than we've had, without hurting spring breeding populations. Spring pheasant surveys, for example, have shown cock pheasants are twice as abundant as biologically necessary to mate with the number of hens available. Even more detailed studies have shown that when populations are dense, such a large surplus of cocks might even act to retard breeding potential, due to competition and fighting between the roosters.

When a season gives hunters ample opportunity to pursue their sport (and the seasons through the 1960's didn't come close), their total harvest by the end of the season remains about the same percent of the available bird supply, whether the supply is good or poor. Quail hunters for example, take about fifty percent of the fall population; pheasant hunters claim about sixty percent of the cocks.

Birds left after the hunting season undergo still further reduction in numbers. Winter elements, predation, and disease assure the only birds making it to spring breeding are those strong individuals in areas where sufficient habitat pulls them through. If hunters do not claim the surplus, you can depend on nature to take it.

Most such biological considerations have the most validity when viewed on a statewide, or a large regional basis. Validity wanes as the size of the geographic area lessens to the point where the law of averages does not apply to a few square mile area. On this more local basis, there can be extreme circumstances, good and bad, which do not occur over the big scene. Removal of a long shelter belt, or plowing under permanent vegetation, even a hail storm, can render locally devastating effects, knocking local bird populations way out of line with regional and statewide averages. But, as you'll see when we discuss the social and legal considerations, it becomes impractical to deal with such small areas varying from the norm.

Social considerations, or attempting to meet the interests of landowners, hunters, and the public at large, are probably the most difficult. It's tough to measure attitudes of people and there are often many which conflict. Right off the bat, landowners get a major concession on the hunting season opening date, always set in November. November dates have been selected by the Commission as the earliest possible time for hunters to be in the field after most crops have been harvested. While it is biologically known that more birds are available in September and October, this early opportunity for hunters has always been foregone due to the expected irritation it would cause farmers with crops still in the field.

What many also forget is that a high percentage of farmers are also hunters, probably more so than for about any other occupational group in Kansas. Since they like the opportunity to hunt and since their farming schedule is quite busy prior to early November, the opener is delayed, giving them an equal chance with other hunters.

In most of the 1960's, the western pheasant season (Kansas had two regions for pheasants then) opened a week later than quail season. It was great for hunters who liked two different openers, but it definitely concentrated hunting pressure, first in the eastern third of the state for the prime quail shooting, then the following week in the northwest quarter for pheasants. Complaints from landowners were considerable. Since 1971, there have been concurrent openers of pheasant and quail seasons, statewide. In the period 1973 through 1975, pheasant, quail, and prairie chicken (both lessers and greaters) seasons opened the same day, forcing most hunters to pick one or two game bird species for opening weekend. With the best populations of these birds seldom overlapping, except for prairie chicken and quail in the Flint Hills, hunting pressure was successfully dispersed over much more of the state, relieving some competition for hunting areas and many landowner headaches. Another result was a major decline in prairie chicken harvest, because most hunters chose either pheasant or quail for the opener. Since there are not nearly the number of hunters who actively seek chickens, we took the hunter's social consideration to account and offered the chicken

# of people . . ."

season opener a week earlier than the other "big two" in 1978, a practice which will be continued for at least the next three years. Because most chicken hunters rely on feed field hunting from a fenceline close to a road, and because hunters are relatively scarce, a separate opener has not resulted in significant hardship complaints from the majority of Flint Hills ranchers. It seems to have worked well last year, judging from the more than thirty percent jump in total harvest and the relative calm of landowners in the area.

Pheasant and quail seasons have averaged from eight to eleven weeks long since 1970. Again, in biological theory, it could easily start in September and run through February without hurting the resource. As you could imagine, hunters would like to make it as long as possible; landowners seem to prefer it shorter. We cannot have both, so for at least the near future, it is likely that seasons will remain about the same length.

Drastic changes in season length or bag limits, hopefully things of the past, have been replaced with minor changes from year to year. Such changes help us convey to hunters that populations are up or down. Especially when populations are down, announcements of new season restrictions give us the opportunity to preach the "declining habitat sermon" to many hunters who listen better when season prospects are not as bright as they had hoped.

Hunter surveys reveal the vast majority of hunting activity in any one season occurs in the very early part of the season. As the season progresses, fewer and fewer hunters take to the field, with some minor upsurges in hunting pressure around the holidays. While the number of January hunters is almost nil, those who are out there are died-in-the-wool veterans. Most of these folks feed good bird dogs all year long, and they not only know how to hunt, they take great pride in avoiding those practices which upset landowners. They are more inclined to get permission before hunting, and in respecting private property in general. Rarely do late season hunters have conflicts with landowners, not just because they are fewer in number, but because they are better in all facets of their sport.

The late season hunts allow at least the opportunity for those purists who wish to take advantage of it. We know it won't hurt the birds, and it appears that landowners are looking with increasing favor on such seasons as their farm chores are usually light and they get a better crack at their share of game, too.

During most season setting meetings of the Commission, there are requests for splitting the state into several regions, each to have a little different type of season regulation. Considerations of social effects and enforceability of regional regulations weigh heavily here; usually, the Commission attempts to keep regional seasons to an absolute minimum.

As I've said, biologically, there are seldom any noticeable benefits which result from different seasons for different parts of the state. The primary reason for a separate regional set of seasons is for social considerations. Regionalized seasons definitely complicate matters. They are more difficult for hunters to follow and game protectors to enforce.

Considerations of enforceability are based on some basic principles of law enforcement. One is that if there is some way to get around a regulation, a number of people will take advantage of it, no matter what the effect on others. Getting around regulations through loop holes has seldom created problems in recent seasons because the Commission has learned the hard way to keep regulations as functional and simple as possible.

Another principle is that simple regulations encourage voluntary compliance and give courts a better chance to punish violators. Simplicity is becoming a popular goal of all regulatory agencies which are attempting to communicate better with the public.

To cover all season setting considerations would take much more time than you or I have to read or write about them. If you have the chance, you should come to the Commission meeting, usually in late August, when these rules are set. If not, write me with your opinions. I am always interested in a better way. You might find you are more influential than you think.

In general, our upland game bird seasons try to advance the concept of providing a "fair share" of the resource to all participants, keeping in mind the social and enforcement spin offs, and of course the future of the resource. It's not easy—in fact it is impossible—to satisfy everyone's special interest. The way I see it, though, Kansas has had and will have some of the best working models for bird seasons of any state. We are lucky that many of our citizens recognize the important financial contribution which Kansas hunters make to the state's economy, estimated at nearly $30 million annually. We're lucky, too, that the privilege of hunting is granted by so many of our state's private landowners, particularly when they and their property are treated with respect.

Kansas upland game bird populations and seasons have consistently put the state among the nation's leaders in hunting opportunities. With more attention to habitat improvement, and landowner-sportsmen relations I'm confident we can remain at the top for the generations yet unborn. □


NEAL ANDERSON

Running the Line

Neil Johnson

Illustrated by Neal Anderson

I awoke to the static of the clock radio. Our local station hadn't come on yet. I struggled out of bed while my wife mumbled some unmentionables that cast aspersions on the whole race of trappers. As I stepped into my longjohns, I reflected on the trials of combining trapping with a steady job that starts at 7:30 a.m. I was thankful that I had found enough time the weekend before to set my muskrat traps in full daylight.

The sky was slowly starting to lighten as I slipped into my hip boots and started out to check the line. After checking traps from a vehicle, it's a nice change of pace to walk the full line. It gives a feeling of isolation and a better understanding of the way the original trappers felt as they worked through the West.

My first traps were set in a small pond of less than an acre. The owner was very concerned that the muskrats be taken out of the pond so they would not damage the dam. Generally, a pond this size will support one female and her litter. It takes a pond of at least two acres to support more than one family group. At any rate, the rats in this pond were all in the tail water; at least, there was no evidence of dens on the dam.

Muskrats being muskrats and doing what muskrats do will dig into pond banks to make dens. The rat starts with a small dug-out in the bank where he sits and eats. This will generally be enlarged into a tunnel about three feet long with one chamber above the waterline in the first year of use. As the years go by, the system becomes more extensive and causes trouble. As the tunnels cave in, the bank becomes pocketed and uneven. If the dens are in the dam, they eventually cause leakage and washing out of the dam.

The only way to avoid this kind of damage is to trap the rats out every fall and winter. Even if every rat is trapped out during the season, the pond will be repopulated by rats dispersing from neighboring areas.

I had set my first trap in a slight depression along the bank where rats had been feeding. It was empty. The

second set was a 110 Conibear on the entranceway to a bank den. It held a large rat. As I walked around the cattail stand toward my third set, I quickly checked the sex of my first rat. There were no teats, and I could feel the sheath of the penis without any trouble. A large male.

My third set was in a runway in about three inches of water. I had set a Number 1 Stoploss trap in this runway. I've always liked this kind of set. In a pond like this, the water level generally goes down in the fall, forcing the rats to dredge a channel from their exposed dens to the water's edge. When a rat swims down this channel, his hind legs set the trap off. In a plain Number 1 trap, the rat will not drown and can escape. With the Stoploss, these rats almost always drown quickly. This trap had another rat in it.

I left the pond with a feeling of satisfaction. With any luck, those three traps would take eight rats in the next couple of days.

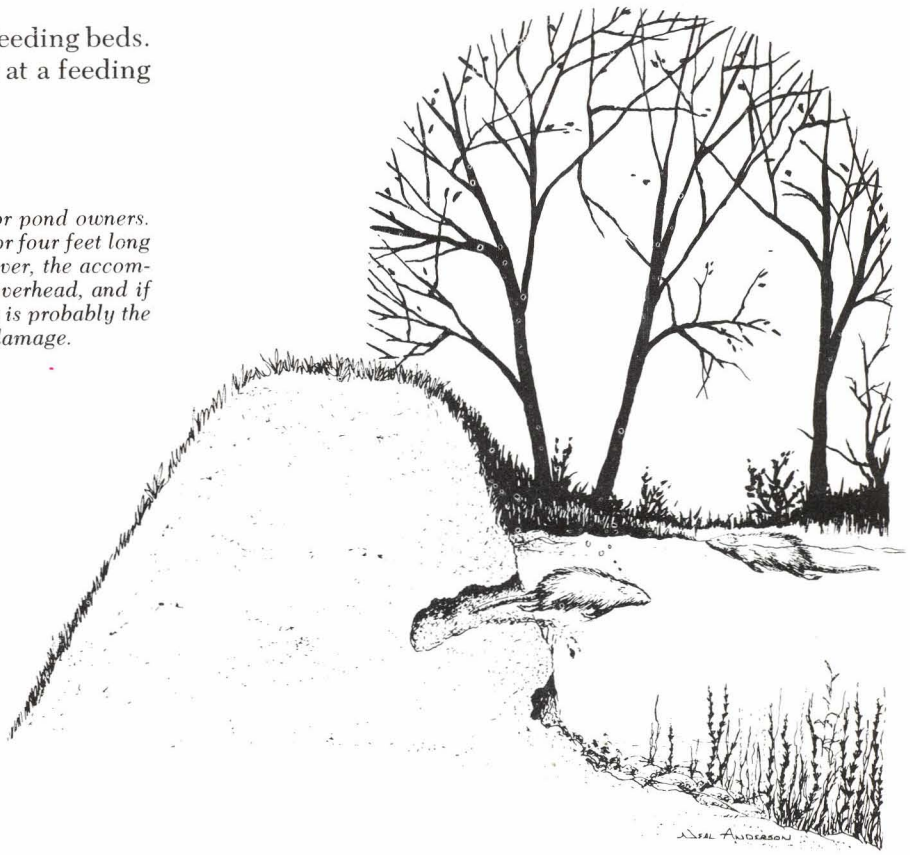
It took about ten minutes to make my way over to the drainage system where I had set my next traps. The washed-out gully was nearly filled with sediment from severe upstream erosion, but it supported some cattails, held a couple of inches of water and a lot of rats.

This was a salvage trapping effort since it is highly doubtful that the rats could survive the winter in the area. Starting at the head of the drainage, I had made five sets down the system. The first was a runway Conibear which had taken a good female rat. She weighed two pounds, four ounces—about average for an adult female. A big male might have weighed four to six ounces more.

The second and third traps were set by feeding beds. Both had rats. My fourth trap was also set at a feeding platform, but it had been covered with vegetation and litter. I pulled the trap and reset it a few feet away from the feed bed. The fifth trap was set in a runway where the water left the gully. It had also taken a rat. As I left the area, I estimated the number of rats I would take out of the area before the end of the season. The sign along the drainage and my success for one day had my hopes soaring—fifteen, possibly even twenty rats.

I left the gully and headed for the river, reevaluating my guess as I went. All told, I doubt that there was half an acre of habitat in the entire gully. Examining it with a critical eye, I realized that there probably weren't more than ten rats in the area; seven was a better guess. And how many of those could I catch?

The temperature dropped as I headed down into the river bed. The combination of cold air drainage and the woody banks made the air temperature along the banks at least fifteen degrees cooler than it had been on the uplands. I was trapping about two miles of river, but I hadn't been too pleased with the amount of sign I had seen while setting traps the day before. I had found only four places that looked promising. The river bed and banks are mainly loose sand which doesn't promote growth of aquatic vegetation or allow rats to dig bank dens. My first set was in a scooped-out area where rats had been sitting to feed. There had been quite a bit of sign there when I had set the trap, but it hadn't done anything. The second set was at an old stump which had had a large number of droppings on it. I had set my Stoploss trap at the logical landing location and wired it out into the river channel to assure a drowned rat.



Muskrat excavations can cause endless headaches for pond owners. Burrows start out as relatively modest tunnels, three or four feet long with one den chamber above water. Over time, however, the accommodations are enlarged; the bank begins to cave in overhead, and if the burrow is in the dam, water will be lost. Trapping is probably the cheapest, most effective way to avoid this kind of damage.

The trap was missing from the landing, so I used my hooked rod to catch the wire and pull it in. There was resistance. The rat probably weighed around two pounds. It occurred to me again that the rats I've caught over the years in places as sterile as this river were always smaller and less abundant than those from good habitat.

My third set was a 110 Conibear set in front of a bank den. It hadn't been disturbed. My fourth set was at an abandoned beaver dam. When the beaver had been active, they had backed water about 400 yards into an old river channel—a fine muskrat run. For several years, I had guarded those beaver, but someone had finally taken them out. Since the beaver dam was not maintained, the rats had many dens in it. One or two of these had washed through so the dam did little to hold water in the old channel. My last set was a Number 1½ Stoploss trap in one of the holes in the dam. I had it wired as a drowning set into the main river channel.

As I walked out on the old dam, I saw that the trap was gone. I hooked the wire with my bent rod and started to pull in the rat. As it bounced toward me, I realized that it wasn't a rat but a big mink.

Mink have never been too common on my trapline, and I was not at all enthusiastic about trying to wipe them out for the sake of local muskrats. I've long ago realized that there is a lot more to the predator-prey relationship than meets the eye. One thing about rats I've found to be true is that wiping out mink doesn't necessarily result in a larger rat population. Mink are probably more beneficial to muskrats as sanitary engineers than they are detrimental as predators.

Mink tend to be opportunistic. They will feed on muskrats whenever they can, but a healthy adult rat in good marsh habitat can be a handful for the boldest mink. A meeting between the two is often a stand-off. On the other hand, a mink has no qualms about eating carrion. If, in the process of foraging on fish, frogs, or tadpoles that concentrate near lodge entrances and runways, a mink stumbles on a dead or weakened rat, he will take advantage of the situation. When a rat population is suffering from contagious illness like Errington's hemorrhagic disease, mink clean up the carcasses of dead rats, reducing the threat of further infection and inadvertently providing a service to beleaguered rats in the area.

I had finally come to my major rat area, a twenty-acre slough choked with cattails and bulrush. I had counted more than thirty-five houses on it. On a good slough like this one, there are generally four to five rats per house. It's possible to safely harvest three of those rats per house—about a hundred rats on this slough. With eight traps, I knew it would take a while to trap that many, but I wasn't concerned because my other sets would freeze out well before the end of the season and be available for use on this slough. Actually, it's easier to trap a larger marsh like this one after it has frozen solid and eased access to houses. The major point is to avoid taking too many rats.

Most rat houses are built in the fall with a stump or some other solid object as a foundation. Over the years, I've encouraged rats to build in good cover along my line by placing tripods of four-inch logs in easily reached places. Most of these have become rat houses.

After freeze-up, muskrats build somewhat smaller structures called push-ups by shoving submerged vegetation up through the ice. Push-ups are generally built in a rough circle around a house to provide protected spots for resident muskrats to feed in.

My eight traps were spread around one edge of the slough on runways, feeding platforms, and houses. Six of them had rats. My total first-day catch was eleven muskrats and one good mink. I headed back to the house with the first warmth of the morning sun on my back and a feeling of satisfaction. I hung the day's take up to dry and headed for the office.

The day's trapping, however, was only half done. After dinner that evening, I skinned, fleshed, and stretched the pelts. Nine of the rats were juvenile, a typical proportion in fall and winter muskrat populations where roughly eighty percent of the animals are young of the year. The ages of the animals showed in the pattern of primeness on the skin side of the pelt. Juvenile rats have two parallel lines of blue-black unprime skin running down their backs; adults have random spots of unprime skin scattered through the whitish prime skin.

The day's harvest had obviously meant a little extra cash for me, but there were other profits besides the monetary return. I had seen a little more of the way marshes, streams, and waste areas serve wild populations; I had seen some of my opinions about muskrat behavior validated and others debunked. In the large scheme of things, even the muskrats had profited. Rats are prolific animals that are known to force themselves into situations of overcrowding by their rapid breeding. When they are crowded, less dominant animals are mercilessly hounded by dominant adults and are driven into other, less suitable habitats where they are generally lost to predators. The individuals that stay behind are susceptible to disease and may even be eaten by their fellows.

I hung the last pelt, stretched my back, and headed for the house and bed. Even in December, daylight always comes too soon.

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Neil Johnson is furbearer biologist for the Fish and Game Commission. When not checking his traps, he is usually deeply involved in statewide bobcat research or contacts with houndsmen, fur dealers and trappers who have an interest in Kansas fur resources.

Neal Anderson is a gifted wildlife artist from Lincoln, Nebraska. His work has appeared in many national publications and he is a regular contributor to Nebraskaland magazine.