

KANSAS FISH & GAME



WINTER 1969

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Holidays*

Conservation Is!

"Conservation" is one of our most popular words, ranking right up with "mother," and "patriotism."

But, many of those who toss the word "conservation" around so carelessly have given little thought to just what it means. All too often they think of it as consisting of a series of "don'ts," when actually it should be considered as a positive and not a negative philosophy.

There are many definitions of conservation, but to us it means simply the wisest use of natural resources for the greatest benefit of the greatest number in such a way that the future supply will not be depleted or endangered. There may be, of course, differences of opinion over what is the wisest use.

In considering conservation of wildlife we must recognize certain basic facts:

1. The primary obligation of the land is to support the human population. When there's a conflict between human needs and wildlife needs it's generally easy to predict the outcome. Too often, however, what we call need is nothing but greed and a disregard of the rights of future generations.

2. There is a great interdependency among resources. What we do to one invariably affects others, sometimes harmfully and sometimes to their benefit. Every tree that is cut down, every stream that is dammed, every field that is planted and every bird, animal or fish that is harvested has some effect on other resources. The effect is sometimes great and sometimes infinitesimal.

3. Man's use of the land is more important in determining game populations, at least small game populations, than the amount of game harvested. Without suitable cover and food no game species can survive.

4. The land has a definite carrying capacity and will support only certain numbers of the various species of birds and animals. The periods of greatest species abundance coincide with the times of greatest food abundance. Hunters take mainly the surplus that could not survive the period of low food supply.

5. Wildlife, particularly small game, has a terrific annual mortality. And a terrific reproduction potential. Of the three or four dozen young rabbits produced by a pair of adults during the year only three or four will be alive next summer, but that's enough to provide a huntable surplus the next fall. . . .

Reprinted from "South Carolina Wildlife."



Cover Photo

Winter has two faces. To wild creatures, it is often most difficult—a time when food and cover are scarce commodities. To man, Winter with its accompanying blankets of snow, is a time of beauty, even with the slowing of outdoor activities. But for both wildlife and man, Winter can be made more enjoyable as we preserve and provide habitat so desperately needed by our wildlife friends. From the banks of the Ninescah River, scene of this issue's cover, employees of the Kansas Fish and Game Commission sincerely extend Season's Greetings to all who are laboring to maintain all forms of wildlife as part of our natural resource. To you may Winter be a gentle, peaceful time. (Photo by Leroy E. Lyon)

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IN THIS ISSUE

CONSERVATION IS! <i>An Editorial</i>	2
"CALL" TO THE WILD <i>By F. Robert Henderson</i>	4
WILDLIFE WONDERS <i>By Marvin D. Schwilling</i>	7
HOME IS A HEALTHY HABITAT <i>By Leroy Lyon</i>	8
THOUGHTS <i>By Bob Wood</i>	11
TURKEYS FOR TOMORROW <i>By Stephen Capel</i>	12
HIGH PLAINS BUSHYTAILS <i>By Bob Wood</i>	14
WATER AIDS WILDLIFE <i>By Jim Norman</i>	17
GAME BIRD OF TOMORROW? <i>By Leland M. Queal</i>	18
A FABLE? <i>By Merle Gary Hesket</i>	20
OUR UNSUNG GAME BIRD <i>By Jerry Horak</i>	22

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"Call" to the Wild

By F. ROBERT HENDERSON

It is late afternoon. There is no wind. The air has started to chill. Two coyotes trot across an open flat. Suddenly they stop, their large ears turning like miniature radar screens. From a nearby hillside comes the screams of a jackrabbit. Without hesitation the coyotes move in at a full gallop, zeroing in on the spot where the sounds originate.

But, there's no rabbit, no free meal this time—it is a man armed with a call and rifle.

Coyote calling is not a new method of hunting. American Indians used it before white men were here.

Rabbits are the main food of coyotes. The sound of a dying rabbit is well known to them. They hear it many times. To many predators, a rabbit in distress means a defenseless, injured animal is near. They rush in, expecting an easy meal.

Coyote calling is no more difficult than duck or crow calling. One of the best ways to learn is to spend time with an experienced caller and practice until you get the hang of it. Or you can learn from one of many recordings available.

Calls, costing from two to eight dollars, can be purchased at many sporting goods and hardware stores. Some sound like those of a jackrabbit, others resemble cottontails. Either works well but it's best to buy the kind that mimicks the call of rabbit which is abundant in your area. Since no two calls give quite the same series and tones, stick with one which obtains results.

The more pain, fright and urgency you put into calling, the more likely you are to bring in predators. Keep in mind that the squalls of a rabbit struck by an owl. At the attack, it lets out a long, loud, scream of terror and pain, then breaks off into a series of short gasping cries. Finally the cries fade to whimpers, then die away.

But if the rabbit isn't dead, the owl will attack again after a short wait of

(EDITOR'S NOTE: F. Robert Henderson, author of this article, is a wildlife damage control specialist with the Kansas State Cooperative Extension Service, Kansas State University, Manhattan.



Perfectly camouflaged, author begins to make like an injured rabbit. (Photo by Jack Jackson)

about one minute. It begins to squeal again—short cries that fade and die out.

To call, start with a long wailing series, let it die away, wait half-a-minute then repeat, omitting the first prolonged scream and shorten-

ing the series. The shortened calls should be repeated at intervals of one-half to one-minute, mimicking a rabbit dying a slow death.

Each breath of a dying rabbit is separate, therefore you should mimick these squalls in separate breaths. Do not run the squalls together.

Choice of a calling site and approach are important. If you show yourself, make noise, or let the animals get your scent, you're wasting your time.

Tracks and droppings are often the best guide to predator abundance. Look for them along roads, game trails, around water in arid country, in bare, sandy places and along ridgetops. In dry areas, dens with young are usually near water.

I like to call from knolls or hills which provide a clear view in two or three directions. Heads and mouths of draws and gullies are also good.

Your approach to the calling site should vary with the location, but generally follow these steps: First, figure out where the predator is likely to be and from which direction you expect him. Foxes and coyotes usually rest in cover during the day, sometimes on hillsides, in gullies, draws, or swales. If the weather is cold, they're likely to lie in the sun; if it's hot they seek shade.

It's important to keep the wind in your favor. Always call into the wind. A coyote's sense of smell is keen and calling with the wind is a waste of time.

Once a calling site has been located, park your car out of sight below a hill and be quiet. Walk carefully uphill, into the wind. At the top, get down and crawl over the crest and far enough down the opposite slope so you can sit without being silhouetted on the horizon.

Never call from a standing position.

Most animals fear any object that looks like an erect man, but pay little attention to a caller in a sitting position, provided his clothing blends into ground cover and he remains absolutely motionless. On bare ground, it's a good idea to wear a camouflage outfit. On snow, wear a white parka or coveralls. Sitting in shadows also helps.

Sit among bushes or other tall cover to break body outline. In short cover, lie prone. On rocky hillsides sit in front of, not behind, a big boulder. This provides a watch in all directions without moving.

It's best to call by yourself. The

more hunters on one stand, the greater the chance for a fumble. If two are working together, they should sit back to back, or at least where each can see different areas. Stretch a string between you to allow signaling without moving or speaking when an animal is sighted.

Once in position, wait a couple of minutes before starting to call and be careful about moving hands, head or body.

An animal may appear a minute after calling begins; the next one may take his time. Nearly all coyotes and foxes show up within five minutes, however, terrain and cover are im-

portant factors in determining time. In heavy timber, a stand should last at least 15 or 20 minutes; on open plains, 20 to 30 minutes.

As soon as an animal is in sight, calling should cease and not be resumed as long as it continues to approach. If he stops, tease him with a few short gasping cries, cutting down the tone and volume as he gets closer. A few faint whimpers or squeaks at close range are likely to bring your visitor the rest of the way. Don't be in a hurry to raise your gun but move only when he is out of sight or close enough for a shot.

If a fox, coyote or bobcat stops



T. SWEARINGEN



On rocky hillsides, sit in front of, not behind, a big boulder. (Photo by Jack Jackson)

and turns back without coming into gun range, call again. They can often be coaxed into a return visit. Bobcats are especially easy to call back.

Much of the excitement in calling predators results from animal behavior. No two approach the same way. One may race to you—another may be cautious, stopping to size things up. Many coyotes and red foxes approach boldly; grey foxes and bobcats prefer to take advantage of cover.

In a territory where one predator rules the roost, the dominant animal is likely to charge out recklessly, while lesser animals make a cautious circle or two. For instance, where there are no coyotes, the red fox comes in boldly, but in coyote country he hangs back.

Many times an animal seems to appear out of nowhere. Once I shot a 32-pound bobcat on a ranch in the West River country of South Dakota. Tracks revealed he had come more than 200 yards across an open sagebrush flat, but I saw no movement until he was 20-feet away.

Often when animals suddenly find themselves looking a man in the face, their actions are downright laughable. One second the predator's ears will be laid back, eyes blazing, every muscle tense; the next second he's a dumbfounded, crestfallen critter that knows

he's been fooled. They rarely run away until you shoot, seeming to think their chances are better if they slink off.

In open-prairie country, where the bulk of my hunting is done, I prefer a rifle. Any good rifle, such as the .220 Swift, 22-250 Winchester, or the .243, will do. In brushy or timbered areas a shotgun is better than a rifle, and if two persons are calling as a team it's a good idea for one to have a shotgun and the other a rifle. Under normal conditions you should be able to kill at least 50 percent with a shotgun.

Although calling can be done anytime of the year, some seasons are better than others. August through February, from the time the young leave the den until the end of the next breeding season, is a prime period.

The best time of day is from two hours before dusk until dark, and the first three hours after daylight. Never call at night—it is dangerous and tends to ruin the sport.

Foxes, bobcats and coyotes aren't the only animals interested in the screams of a dying rabbit. I've had wolves, coyotes, bobcats, weasles, mink, badgers, raccoons, housecats, dogs, antelope and deer respond to my calls. Once I sat beside an abandoned farmhouse hoping to lure a red

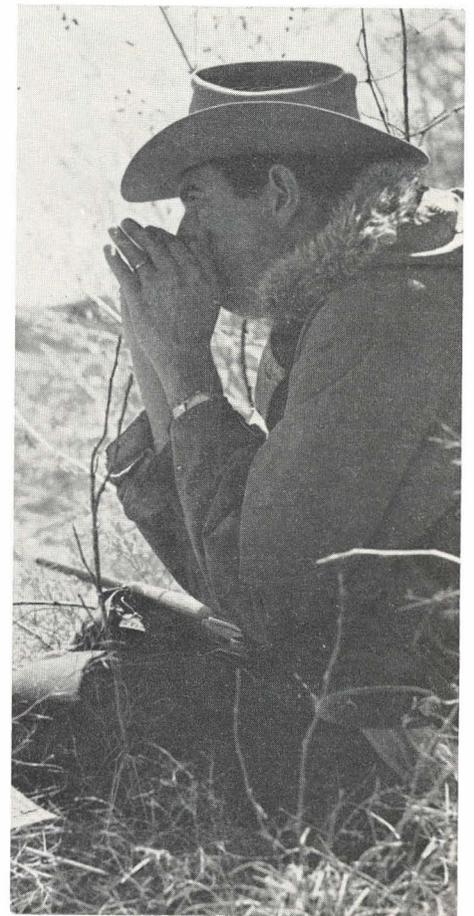
fox into the yard from an adjacent soil-bank area. I'd called only a couple of times when around the corner of the house came an outraged skunk, battle flag hoisted and ready for action. I went around the opposite corner.

Regardless of the callers' intentions which may be to kill the predator or take its picture, callers have a responsibility toward all wild creatures. An animal should not be killed without good reason.

Any hunter who establishes a reputation for calling is almost sure to get requests for help from local farmers or ranchers. Calling is an effective way of getting rid of a problem coyote that is raiding poultry or stock.

Predator calling has many possibilities, and is a "natural" in many areas of Kansas. If you're interested, buy a good call, check your game laws and seasons, and give it a try.

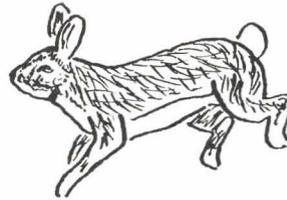
You'll find it a rewarding recreation.



Author selects proper location then begins calling.—(Photo by Jack Jackson)



By MARVIN SCHWILLING



Harvest is underway, not the harvest of grain but the hunters' harvest of game. Seedstock left last spring has replenished various game birds and animals to again provide surplus individuals that can safely be harvested this winter. Game Commission personnel, rural mail carriers and landowners have, by an almost continuous series of surveys, monitored density levels of game populations. First, there is a spring survey to establish the level of potential breeders then nesting surveys follow to determine the percent of the population that attempts to reproduce and measure the degree of success.

Finally, all surveys are fitted together by biologists to calculate the fall population level of each species. The estimated population is then used to determine season length and bag limits.

These recommendations are carefully formulated to assure that all possible surplus will be permitted for harvest by hunters and at the same time leave adequate breeders to replenish the crop and fill all available habitat next year. It's certain these game men are not going to recommend an excessive harvest that could reduce next year's crop if they can help it. For, without this resource they would be out of a job. Most of them are also hunters and want the opportunity to share in a full harvest.

The recommendations are reviewed by wildlife administrators and Commissioners, along with additional factors such as landowner acceptance, public acceptance, political implications and law enforcement problems. Finally, individual seasons for each species of game bird or animal are established.

After the purchase of required licenses and stamps, hunters may participate in the harvest of the wildlife crop—thus utilizing a natural renew-

able resource that otherwise would be wasted.

It was late in the upland game bird season with only a few days of quail and pheasant hunting remaining. The day had been cloudy and a mild winter snowstorm was building. There were only a few flakes in the air when I drove into the yard from work.

Tarby, my black lab, came bouncing out to meet me. This kind of weather was hunting weather to her. She was rarin' to go. With a vest full of shells and my reliable scattergun we headed for a patch of sunflowers along the east edge of a nearby pasture.

Summer had produced thick sunflowers in undisturbed areas along the lane, in the pasture and along a creek—a work by nature that couldn't be improved by man.

To my wife and family, they were weeds that should be mowed or sprayed. Other relatives and friends dropped hints that I should do something about the weeds. I could plow up grass to plant maize and call it wildlife food plot, but to let Nature produce a crop of sunflowers was something else. I did mow walkways through the tangles to make them accessible and easier to hunt.

I was still mulling over the diversity of thinking among people and how they evaluate the natural out-of-doors when a cock pheasant, which my dog had been trying to pin down, broke cover. The first shot was wild, but the second broke a wing. The cock hit the ground running. I was thankful I had a dog to compete in the footrace. He was a young bird from an early hatch and was nearing adult plumage.

As we circled back along one of the mowed trails, Tarby began picking up scent and finally pointed. This time I was ready, hoping for another cock. Six quail roared out—a small covey—so I let them go. There would be adequate food and good cover to carry them on through the winter.

We returned by way of a maize food plot. Blackbirds by the hundreds—mostly redwings—appeared to be getting more than their fair share. They took wing as we approached. As they circled, I noticed a white bird in the flock and shot it when it passed within range. It was a redwing male, except there were pink patches where the redwing patches are normally found.

Some might criticize me for taking the unusual bird, but such a specimen is much more valuable in a museum collection than left in the wild, eventually to die a normal death.

The beautiful bird is now on display in the fine collection at Emporia State Teachers College.

NOTICE TO READERS

Kansas Fish and Game Magazine is distributed free to Kansas residents, upon written request. Complete name, address and zip code number should accompany any correspondence relative to the publication. Anyone moving to a new address must notify the Information-Education Division, Kansas Fish and Game Commission, Box 1028, Pratt, Kansas (67124) if they desire to continue receiving the magazine.

Home Is a *Healthy* Habitat

WANTED: Year-'round rural home for large family. Should have big area for living space, food, and cover for nesting and protection from weather and enemies. Consumption of grasshoppers and other harmful insects will more than pay rental. Contact any member of the Bobwhite family.

By LEROY LYON

If members of any wildlife community were able to write, such ads as that above would appear regularly on the classified pages of Kansas newspapers.

Long lists of similar ads would be common, particularly during critical winter months when cover is sparse and food supplies hard to find.

It seems most unfortunate that Bobwhite quail and other wildlife species are unable to communicate in human terms. But since they can't, they hope that humans, who are supposed to have a higher level of intelligence, will realize their plight and lend a helping hand.

But modern man has been largely indifferent to the needs of wildlife. Quite often he has failed to realize that wild animals are a product of the soil and that they flourish or decline according to what is done with the land and its plant covering.

Although each species of animal and bird has life requirements somewhat different from every other kind, the four basic needs of all wildlife are food, cover, water and living space. Providing these four fundamental needs is the all-important key to maintaining and building game bird and animal populations.

The landowner who is an avid hunter or the one who enjoys watching wildlife are in unique positions to provide homes for wildlife thereby increasing their pleasure in the future.

Admittedly there are many specific things that a farmer or rural landowner can do throughout the year to improve living conditions for game birds and animals on private land. A booklet, "Habitat Management Means More Birds!," available from the Fish and Game Commission, Box 1028, Pratt, Kansas, provides detailed in-

formation on various programs which can be conducted on farms and ranches. Generally these habitat improvement and restoration projects can be accomplished without interfering with major farming interests.

While it is impossible to list all of the various programs which can be initiated on private land, one of the most obvious and most successful wildlife habitat improvement programs has been the planting of trees and shrubs. These plantings provide three of the basic needs of wildlife—food, cover and living space.

Historically known for its vast, treeless prairies, Kansas has never been known as a forest state since most of its timbered areas are privately owned. Kansas currently has an estimated 1.3 million acres of natural woodland plus 215,000 acres of tree plantations. A majority of the tree plantings are found in farm woodlands and in shelterbelts, hedgerows or windbreaks.

The forestry program in Kansas is administered by foresters employed by the Extension Division of Kansas State University under the direction of Harold G. Gallagher, State Extension Forester—NOT by the Kansas Forestry, Fish and Game—although the Commission's official name indicates otherwise.



Multiflora rose also provides berry for wildlife food during hard winter months, especially when snow covers ground foods.

The severe drought of the 1930's focused attention on the importance of planting shelterbelts and windbreaks in central and portions of western Kansas. While they were planted for the primary purpose of reducing wind erosion and preventing loss of moisture from fields of growing crops through evaporation, they have become important to Kansas' wildlife resources. In many of the state's agricultural areas they form wildlife cover in what otherwise would be large open areas and on many farms are the best cover for pheasants, quail, squirrels, rabbits and other small game and non-game species.

While many of the shelterbelts planted in the "dust-bowl" era were planted without thought for wildlife, such is not the case today. "I don't design a shelterbelt plan without consideration for wildlife," said Henry Deutsch, Hutchinson, District Extension Forester for the central district.

Many of the trees in these older shelterbelts were planted too close. "The condition of these belts can be improved for wildlife by controlled thinning," Deutsch said. This allows for growth of grass and other ground cover and the resulting brush can be piled into loosely-built brushpiles—ideal homes for cottontails and quail.

Since many of the shelterbelts are



Thick shelterbelt provides excellent home for wildlife, and protection from severe winter weather.

now over 30 years old, some mature deciduous trees, particularly cottonwoods, are being lost due to age and wind damage. Resulting holes in the windbreak reduce the effectiveness of the planting. The warming days of spring are an ideal time to plant replacements keeping windbreaks in good condition.

To make a shelterbelt, hedgerow or woodlot suitable for wildlife, it is essential for livestock to be fenced out. Grazing will ultimately destroy all undergrowth and with no ground cover there will be little use of the timber by many of the more desirable small game species.

Thousands of farmsteads in the state are in need of windbreaks which may be established with a minimum of effort and without losing a large amount of valuable farmland. A field windbreak need be no more than four rows wide, with 18 to 20 foot spacing allowed between rows, to be effective for both wind control and wildlife. Two rows of shrubs, one row of cedar and one row of tall deciduous trees will produce a planting with low ground cover for game and still have the height needed to protect adjoining fields from wind damage.

Shrub plantings not only have value for wildlife in a windbreak or shelterbelt but are an ideal way to put wildlife cover between cropfields and on waste or odd areas of the farm which are either too small to farm profitably or impossible to farm.

Fencerows offer some of the best opportunities to create favorable conditions for wildlife. Although not as neat, fencerows with a growth of grass



GRASS STRIP—Commission plants strips of native grass along hedge rows to provide nesting cover for wildlife.

and woody shrubs, such as multiflora rose, honeysuckle, wild plum or lilac provide excellent cover throughout the entire year. Birds and small animals not only find cover in or under these shrubs but feed on the seeds and fruits. Clumps of these shrubs should be protected from mowing and grazing to allow them to develop into good game cover.

Like many of the habitat improvement programs, a shrubby fencerow is as beneficial to the farmer as it is to wildlife. A fencerow of brush and sod acts as a filter strip preventing or slowing the flow of water from one field to another—an important erosion control measure. Such a fencerow is also beneficial in that it attracts both desirable insects and birds that feed on farm pests.

Odd areas, such as small timbered draws, gullies, field corners and rock outcrops can also be included in the farmer's wildlife management program. Such spots should be allowed to grow up to native vegetation and will help to round out the cover pattern. Several brushpiles or a clump planting of cedars or shrubs will

provide necessary winter and escape cover. Native redcedars will survive in shallow soils providing cover and seeds upon which many birds and animals feed.

Sixteen million seedling trees have been ordered and planted by Kansas landowners in the past 11 years through the Extension Forester's tree distribution program. Again this year orders are being taken at county extension offices and some Soil Conservation Service offices. Bare-root shrubs, deciduous trees and evergreen trees cost \$8.00 per hundred and must be ordered in multiples of 50. Potted trees, costing 25¢ each are also available and should provide a higher survival rate.

This year foresters expect an increase in orders because most of the state has better moisture conditions now than for several years. Since the demand may be heavy it is important that orders be placed immediately to insure delivery in early spring.

Shrubs available are multiflora rose, cotoneaster, lilac, honeysuckle, American plum and tamarix. Deciduous

tree seedlings available include black walnut, Russian olive, Chinese elm, redbud, cottonwood, green ash, honeylocust, Russian mulberry, Osage orange, silver maple, burr oak and hackberry.

In addition to providing trees and shrubs, foresters work with individual landowners aiding in planning the planting layout, advising on species to plant in specific areas of the state and advising on care after planting. District foresters are located in Hays, Hutchinson, Parsons and Hiawatha as well as the Manhattan office.

Without a doubt cover and food provided by trees and shrubs planted in wildlife habitat improvement programs are important factors in boosting the wildlife population on a farm or ranch. As a result hunting will be more enjoyable for the landowner and his guests and increased wildlife populations will add to the family's enjoyment of the outdoors.

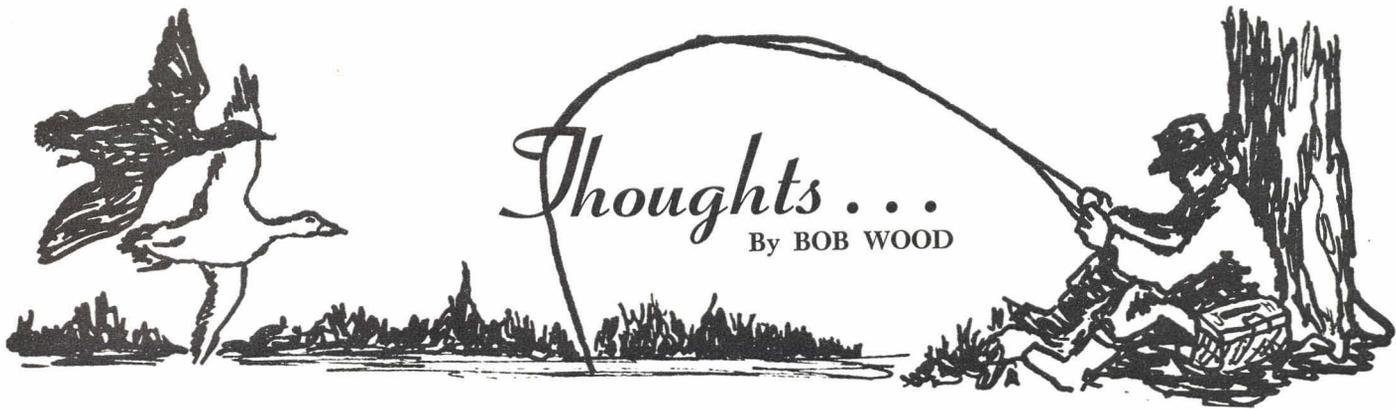
While some rural landowners are busy providing new homes for wildlife, others are thoughtlessly and ruthlessly destroying the last remaining strips of cover on many farms. Shelterbelts, hedgerows, small woodlots—all are being grubbed and plowed from the face of the land. Land, which once housed a community of living creatures, once again becomes exposed to the elements of nature. And our wildlife friends, so dependent upon us for their basic needs, are left homeless—rejects of a sophisticated society.

In the face of this destruction, Kansans who love to have creatures of the wild in their natural environments, sportsmen, and others who realize the importance and value of wildlife, are faced with an immediate challenge. Unless the current trend of habitat destruction is halted and unless more private landowners initiate immediate habitat restoration and improvement programs, we will continue to lose another valuable crop of the land—that of our wildlife resources.

Since spring is only a few weeks away, let's pretend we saw an ad placed by one of our wildlife friends. Then, let's act to provide homes for wildlife—an investment that will pay dividends for years to come.



High weeds and buckbrush provide excellent quail habitat.



In this day of protest, conservation agencies have long been accustomed to receiving their share of complaints. Invariably, the bulk of complaints is voiced immediately after hunting season dates are set. They are generally in a vein of opposition to specifics of a particular hunting season because those specifics do not conform to the protestors' ideas of what would be most convenient. Only rarely is a complaint received which appears to be derived from well considered thoughts on the welfare of a natural resource.

Unfortunately, the above is so consistently true, we in the conservation field often find it difficult to encourage active lay interest in our programs. Protesting does at least indicate presence of a spark of interest. If there is anything conservation is in continual need of, it is public interest. Kansas sportsmen are encouraged to become more actively interested in overall Forestry, Fish and Game Commission activities and other governmental actions influencing environmental conservation.

To take one small portion of a broad scope of factors having an effect on nature, consider Forestry, Fish and Game Commission programs. All Commission activities have either a direct or indirect influence on our natural surroundings. Whenever anything affects our environment, for good or bad, everyone should show interest. Still, how many hunters have ever attended a Commission meeting other than one at which hunting seasons are being considered? Further, how many nonhunters have ever attended any Commission meetings at all? Very few, you can be sure!

More and more, as years pass, the Commission must realize an obligation to approach wildlife management as being in actuality environmental manipulation. Any alteration of wildlife populations or wildlife habitat will have significant effects on many other living organisms. With this in mind, the Commission must take all aspects of nature in mind when making their decisions.

To support the Commission in making their deliberations, all concerned sportsmen must begin to take more interest in learning what conservation programs are being considered at their local level. Hunters should attend more Commission meetings than the one or two per year at which hunting seasons are under consideration. They should make an effort to learn the full scope of Forestry, Fish and Game Commission responsibility.

Commission members have been appointed as representatives of all Kansas hunters and fishermen. Commission operations are funded almost entirely by sale of licenses, permits and fees. Still, little attention is shown by most sportsmen toward Commission discussions on budgeting and funding of agency programs. As vociferous as many sportsmen are about a particular date upon which they can shoot their first duck of the year, they are mute by absence at Commission meetings where stands on federal and state legislative problems, or public lands acquisition proposals are made. In many cases, strong stands at such meetings are the very reason many of us have an opportunity or place to hunt and fish.

Grassroots support of Commission programs and policies is vital to their success.

Another area in which both hunters and nonhunters should show more interest is legislation at the state level. Our state legislature is currently nearing another session. Do you know your local state senator and representative? Do you know if any conservative legislation is proposed? Are you aware of any pending legislation that may not appear to be directed toward wildlife, but if put into effect, could have far reaching and damaging results? Forestry, Fish and Game Commission personnel assigned to legislative sessions must continually make efforts in the public interest toward such legislation. Much thought must be given in analyzing proposed statutes. More importantly, considered public opinion is needed in such legislative areas as those providing for: Enforcement and administering of penalties for violation of existing pollution laws; laws providing for unnecessary wholesale chemical or mechanical eradication of various plants and vegetation; or, unnecessary restrictive firearms laws.

You as a concerned inhabitant of natural surroundings are hereby challenged to take greater interest in both Forestry, Fish and Game Commission functions and state legislative proceedings. In both cases, make your thoughts known. Support is often needed to stem efforts of environmental exploiters and destroyers. Your increased knowledge and ultimate voicing of well considered opinions can be the rock that turns a tide.



Considered extinct at the time, turkeys are making a comeback thanks to the Commission's restoration program.

Turkeys for Tomorrow

By STEPHEN CAPEL

Big Game Biologist

For four years a handful of Commission employees has been conducting trapping and transplanting operations attempting to return wild turkeys to their former range in Kansas.

Although an infant, the restoration program is already paying dividends and providing promise for tomorrow. Because of the trapping and transplanting effort, several flocks have been established where none existed before.

Trapping wild turkeys is a difficult task. When coming to bait, the extremely wary birds are usually reluctant to venture under the 60-foot-square net which has been

erected over their dinner table. But hunger usually wins.

Once eating begins, it is just a matter of waiting each morning until birds of the right sex and age ratio have ventured under the net. The net is then tripped. While as many as 45 turkeys have been snared at one drop, usually about 25 are caught. They are quickly removed from the net, banded and boxed for shipment to their new homes.

A majority of the birds are left at the trap site to provide for perpetuation of the flock and ensure additional trapping in the future.

The trapping effort was most successful during the winter of 1969 when 55 Rio Grande wild turkeys were taken and placed in previously unoccupied habitat in western Kansas. This winter trappers will be shooting for 70.

Why does the Commission go to all this effort to trap wild turkeys when more could be raised in a game farm? The answer is simple. Pen-reared birds are unable to survive in the wild.

Only through the use of wild-trapped turkeys will a population of sufficient size be built, hopefully resulting in a hunting season on this highly prized game bird in future years.

Although trapping operation is winter activity, cold usually doesn't bother happy trapper.



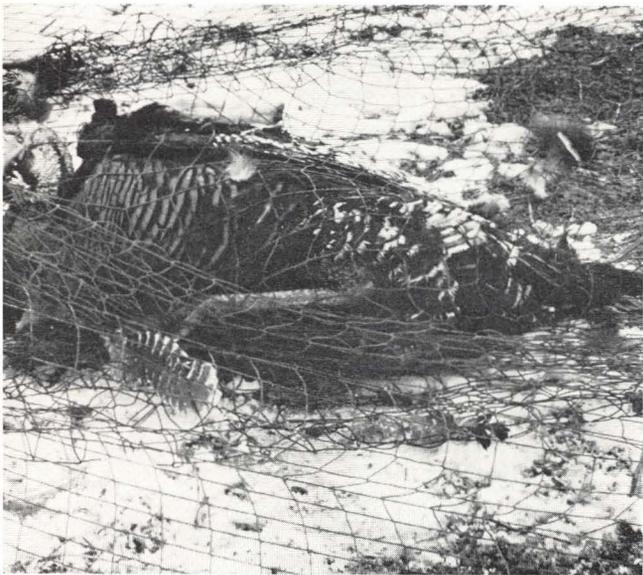
After removal from net, birds are banded and their returns tell their own stories of



turn of the century, wild
come-back in Kansas—
n's wild turkey restora-



Some birds are live-trapped from large flocks through use of drop nets. As net drops, a struggle begins but seldom are any injured.



Once trapped, turkeys are quickly freed from net.

Turkey wings its way to freedom at a carefully-selected release site. Sites are chosen on basis of suitable habitat combined with interest and cooperation of people living in area.



l and boxed for shipment to new homes. Band
ongevity, movements and flock make-up.



High Plains Bushytails

By BOB WOOD

Game Biologist

Wheatfields! Milo stubble! Windbreaks! All are characteristics of Kansas pheasant country. But, what of those conspicuous balls of leaves in a Stafford County shelterbelt? There's another in a clump of cottonwoods along Prairie Dog Creek in Norton County! After one look at the leaf nests, easterners would be quick to recognize that many western Kansans are missing out on some good hunting and excellent table fare. There are many hunters in eastern Kansas who would give an eye tooth to be in the middle of virtually unhunted populations of one of their favorite game animals—fox squirrels!

Over the past decade, the Fish and Game Department has been collecting hunter activity information on all major game species in the Sunflower State. Data collected on squirrels indicate 85 percent of Kansas' squirrel hunters live and hunt east of a line roughly paralleling U. S. Highway 81, which runs north and south through Wichita and Belleville. Correspondingly, 90 percent of all squirrels harvested each year are taken east of that same line.

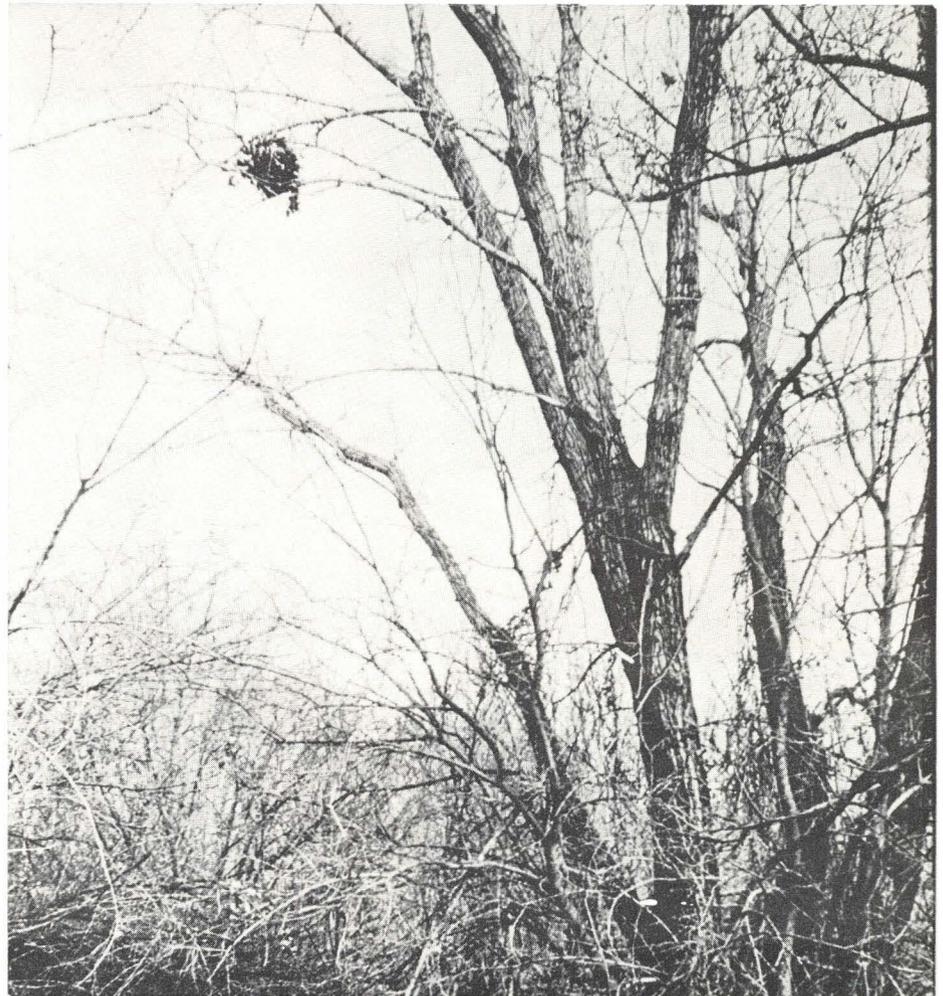
Surprisingly, where you can find suitable habitat, squirrel densities in central and parts of western Kansas are not unlike those of more eastern counties. The accompanying map shows areas of central and western Kansas having fair to good squirrel populations going largely unharvested.

The principal difference between Kansas' high plains squirrel country and its more eastern counterpart is that suitable squirrel habitat is not as abundant in the west and squirrel hunting pressure is light. Kansas' prairie bushytails are restricted to those areas where mature hardwood trees are found, such as windbreaks, farmplot tree plantings and timbered stream bottoms. Squirrels are not unlike any other game. They must have sufficient food and cover to supply their year-round survival needs before they will establish permanent residence.

Adequate shelter is probably a high plains squirrel's primary need. For nesting, winter cover and escape cover, tree cavities are used whenever available. But, when tree cavities are scarce, squirrels are able to utilize leaf nests for both temporary and permanent homes.

Availability of food apparently offers prairie squirrels little problem. A

lack of mast (nut) producing trees appears to have little effect on squirrel distribution. For example, squirrels taken in winter in Edwards County windbreaks, where no nut trees have been planted, show excellent accumulations of belly fat and fat around the kidneys, both indications of a good food supply. Western squirrels thrive on bark, buds and seeds of many trees found in farmland tree plantings. Cottonwood and elm buds, elm and hackberry seeds, elm and Russian olive bark, Russian olive seeds, and osage-orange seeds are all relished.



Nest in high tree is good sign that squirrels are near, and are often sought by hunters to determine best areas. (Photo by Bob Wood.)



"Old Mr. Bushytail" has an uncanny way of hiding, and blending his body into surrounding protection, when hunters are near. (Commission Photo by Leroy Lyon.)

Waste grain from milo fields is an important fall and winter food. During summer, many a farmer's wife will also testify to bushytail's fondness for garden tomatoes.

Enough about the squirrel itself, how can we take better advantage of a largely unused resource? Squirrel hunting in the west need not be too unlike that in the east. There are several things to keep in mind, however. As with any hunting, knowing preferred habitat of the

species pursued plays an important role in helping a hunter decide where to try his luck. Not all western Kansas shelterbelts and tree claims are inhabited by squirrels.

A drive through the country in late January, February or March can save many fruitless hours of hunting come next fall. Scout out choice areas by watching for squirrel signs in windbreaks and timber claims. Two or three leaf nests in one quarter-mile windbreak could easily mean a sim-

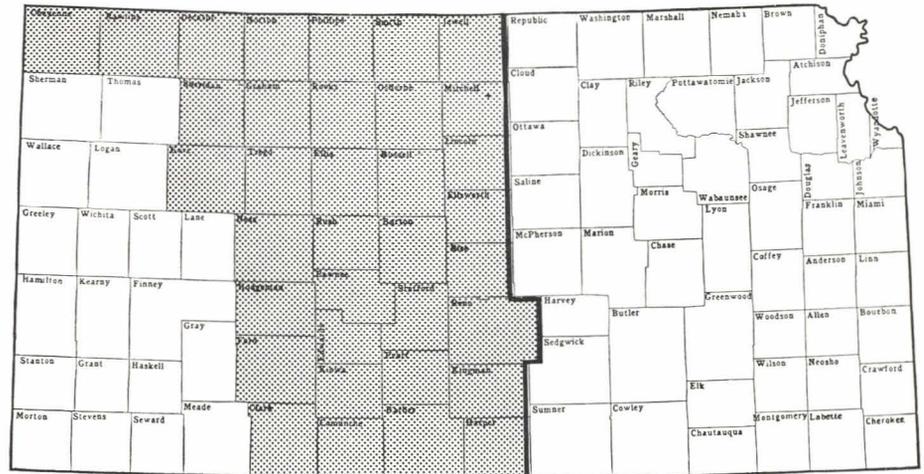
ilar number of plump bushytails for the pot in September. Look for signs of "barking" on elms, hackberry and Russian olive branches. Squirrels relish the tender cambium layer of bark on these trees as well as new bark on branch ends. Cambium is reached by stripping away tough outer bark on older branches. This bark stripping leaves light-colored heartwood exposed and easily visible, a beacon to prospecting squirrel hunters.

Windbreaks and tree plantings con-

taining over-mature cottonwoods are also likely prospects for a successful hunt. Such cottonwoods are continually losing branches through wind damage or plain old age. When a limb breaks from the main stem, an entrance for decay is formed. Progressively, action by rotting, insects, birds, and with a little help from squirrels, will eventually form a hollow. Squirrels prefer tree cavities as homes and an abundance of such cavities will usually assure squirrel activity.

Hunting methods for squirrels are universal. Still hunting, taking a stand, or walking with a buddy can all be equally effective. Still hunting is merely taking a slow stalk through a tree claim, stopping every 20 feet or so to wait, look and listen. Taking a stand by finding a comfortable spot to sit down and wait 'em out also puts many a squirrel in the stew pot.

Two men hunting together can be an extremely effective team when shelterbelt hunting. Moving through a tree belt, one hunter on each side of the rows of larger trees, permits almost total surveillance of available habitat. Move slowly and look care-



**CENTRAL AND WESTERN KANSAS COUNTIES
HAVING HUNTABLE SQUIRREL POPULATIONS**

fully though, a squirrel flattened on a limb can look surprisingly like a knot of rough bark.

It is true that western Kansas squirrels are potentially more vulnerable to hunting than their eastern counterparts. The limited extent of each parcel of squirrel habitat makes it possible for a party of hunters to systematically hunt all suitable cover, a feat nearly impossible with other types of western Kansas hunting. For-

tunately, squirrels are resourceful and squirrel hunters are inefficient. Each year's production from unharvested animals, plus squirrels immigrating from un hunted timber, can easily repopulate a hunted area.

Preferred firearms are hunter's choice. Both shotgun and rifle can make quick clean kills for those familiar with their use. Among eastern squirrel hunters, arguments are quick to start over which is the most sporting firearm to use. The term "sporting," however, is a relative thing, depending on the individual speaking at the moment. Generally, the lighter shotguns, 20 gauge or .410, or a .22 rifle are best suited for squirrel hunting as they are less likely to damage meat. For a real shooting challenge, try squirrel hunting with a .22 handgun. Use whichever weapon you desire, but use it effectively. A delicious plate of fried squirrel, or a ladle of Brunswick stew over hot biscuits will be your reward. Squirrel hunting is a great sport in itself and with overlapping seasons on game birds, quail and pheasant hunters in central and western Kansas have an excellent opportunity to add another tasty morsel to their November bag.

As with all hunting, good sportsmanship must come into play when squirrel hunting. Though seldom refused, landowner permission to hunt is required by law. Many landowners will welcome a squirrel hunter so, ask before hunting!



"JUST RETRIEVE! I'LL DO THE SHOOTING!"

Water Aids Wildlife

By JIM NORMAN

Game Biologist

From the scenic Missouri River bluffs to the semi-arid regions of the Cimarron grasslands, Kansas is home to a large variety of wildlife.

While some species are found in nearly all areas of the state, others live only in certain regions. Scaled quail, for example, are confined to the dry, sandy counties of extreme south-west Kansas, while greater prairie chickens are inhabitants of the rolling Flint Hills in the eastern part of the state.

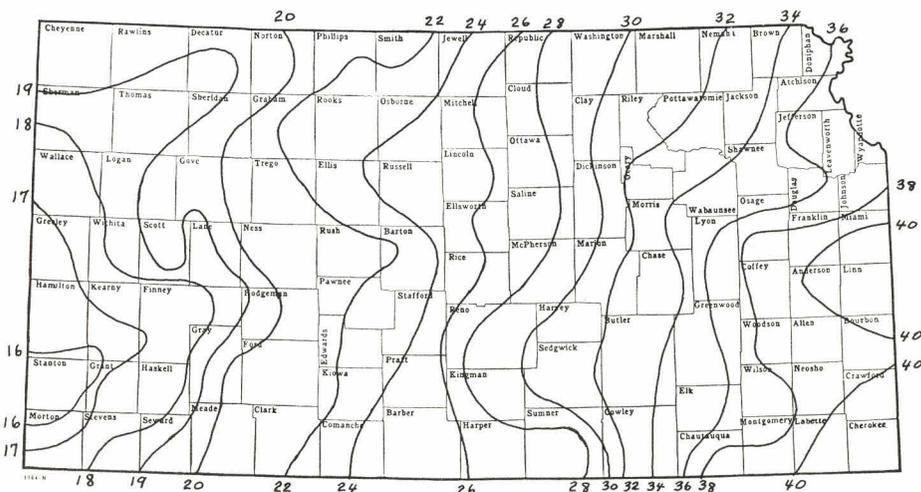
Even our two leading gamebirds, the ring-necked pheasant and Bobwhite quail, are primarily inhabitants of certain regions; the Bobwhite, although found nearly statewide, more abundant in eastern Kansas; the pheasant, primarily a dweller of western agricultural areas.

Admittedly, there are many reasons for the wide distribution of wildlife within the state, but the two most important are precipitation and temperature.

In western Kansas, annual precipitation averages about 17 inches while eastern portions may receive more than 40 inches. This has a tremendous influence on the kinds and forms of plant growth.

For instance, in extreme eastern Kansas, a wide selection of trees may be found growing on almost any site, lowland or upland. But in central Kansas, uplands most generally produce tall and intermediate grasses. Trees, no longer found in great variety, are restricted to lowlands and streams. In western Kansas, the change is even more dramatic. Here, upland sites usually produce short or intermediate grasses while lowlands support intermediate to tall grasses and a few shrubs. Trees are usually found along the few streams which traverse the area.

Even though there are many factors which influence various forms



of plant growth, it is apparent that our great variety of wildlife is a direct result of the numerous usable cover or habitat types which exist throughout the state. However, the habitat must be usable or suitable for wildlife; not every kind of habitat will produce a good balance of wildlife.

Quite often a change of habitat from one type to another within a given space will be accompanied by a change in the kind of wildlife which occupies that space. While farming and livestock grazing in western Kansas has severely reduced prairie chicken populations through a general change in habitat, these same land practices have produced a more favorable habitat for pheasants, game birds not originally native to the United States. Thus an acceptable "trade" has been made; we still have some prairie chickens and also have a different, highly-prized gamebird which previously was not present.

Land use, another important factor in the variety and distribution of Kansas' wildlife resources, is also directly related to precipitation. In the heavier rainfall area of eastern Kansas, a greater variety of farm

crops—corn, soybeans, alfalfa, for example—can be grown in addition to wheat and grain sorghums, universal crops within the state. However, irrigation is being substituted for natural precipitation in many western Kansas regions bringing more land into production and providing many opportunities to grow more diverse crops.

Many rapid changes are occurring in the land use picture today—not all of which are favorable for the survival of wildlife. They include more efficient crop varieties and farm machinery, more productive cultural practices and better control of agricultural "pests."

It becomes imperative, then, that if we are going to continue to have a wide variety and abundance within the wildlife resource, or have any kind of wildlife resource at all, we must maintain a variety of habitat useful to wildlife and in adequate quantity to satisfy a sustained yield for future generations.

Snapping turtles cannot swallow unless their heads are submerged, hence they never feed out of water.

Game Bird of Tomorrow?

By LELAND M. QUEAL



A startling whirl of wings on the covey rise, a setter pup backing up the wide-ranging pointer as he locks on a covey at the end of a hedge row, a boy's first double with a new gun, and fireside tales of men and dogs of bygone years go together to make the Bobwhite the most popular game bird of the past.

And 160,000 Kansas quail hunters, riding high on an unprecedented series of good quail years which have yielded a harvest of about 20 million quail since 1961, can attest to the fact that Old Bob is certainly the game bird of the present.

The winter of 1959-60 was the last year in which widespread storms severely cut into the wintering quail population. Since that time Kansas hunters have witnessed excellent production, and through the advent of more liberal regulations have enjoyed highly successful seasons highlighted by a peak harvest of more than four million birds in 1966.

But through this rosy setting shows a cloud of gloom, and a gaze into the crystal ball reveals that Bob's future is uncertain. While quail populations have remained high with nine successive mild winters, the basic foundation of the quail resource, the quality and quantity of habitat, has deteriorated.

Three decades ago conservationists lamented that man's imprudent use of the ax, the plow, fire and the cow had done more harm to wildlife than the gun had ever done. Today, modern technology has added the bulldozer, the chain saw, pesticides and herbicides.

In recent years, mile after mile of hedge rows have fallen before the bulldozers operated by and for private landowners, State and County road departments, utility companies, and others. Thousands of acres of pastures have been cleared of brush and cedar and in many cases the

native bunch grasses have been replaced with brome and fescue. Fence lines with varying degrees of protective cover are being removed to make larger crop fields. The value of crops to quail is reduced because of their size and the widespread use of herbicides which eliminate the annual weeds that formerly provided food and cover. The increasing use of persistent insecticides can cause direct losses of birds as well as indirectly affecting future populations through decreased productivity. Residential building and super-highway construction also have taken their toll.

The "Why?" of the situation is simple. ECONOMICS!

The successful farmer is operating on the basis of high output and a low margin of profit. Rapidly-rising costs of land, farm machinery, building material, and labor, coupled with high interest rates and low prices for farm products, place the operator in a position where he continually must increase his output to make a profit. This is ironic when one considers the vast efforts by Federal agencies to reduce farm surpluses.

It seems that here on the prairie we have come full circle. Almost 100 years ago the great buffalo slaughter began, encouraged and abetted by the Federal government in an effort to bring the Plains Indians to their knees and thus hasten settlement of the West. This spectacle followed by the extinction of the passenger pigeon sparked a movement of public concern which evolved into the period of scientific resource management that we know today.

Yet, here we are again, witnessing another decline of wildlife habitat and its associated animal populations fostered by governmental agencies that encourage and subsidize land exploitation supposedly for the benefit of the individual landowner. There is some question of who really benefits, the landowners or the agencies which are self-perpetuating.

But you say, "Now we have a Fish and Game agency. We didn't have that 100 years ago."

Yes, we have such an agency, but we **Cannot** prevent it from happening.

We **Can** encourage, advise and assist interested persons in maintaining and restoring game producing habitat, but we have no legal means of demanding their concern. We **Can** curtail hunting, but to what avail when the turnover in quail population is from 75 to 85 percent from one November to the next, regardless of whether the population is hunted? We **Can** add more enforcement officers, but again to what avail when the declining resource base will support fewer and fewer birds? Stronger enforcement at that point will only help to preserve a low level population, **not** provide an increase in game. We **Need** laws protecting the resource base — land, not hunting regulations. Enforcement would then take on a new dimension.

We **Can** provide some public lands managed for upland game animals, but **Cannot** provide enough land and enough game for 200,000 license buyers. We **Cannot** counter-subsidize the land operator to retain and restore hedge, to restore pastures to native grasses, and to desist in the use of herbicides and insecticides. Based on short-term economics, a State agency cannot compete on this scale with a Federal agency. But, based on the long term, it is not good economics to permit the systematic destruction of the land resource which supports all life.

The private landowner is the key to success with regard to future quail populations in Kansas, as indeed he is with all resident wildlife species.

If populations decline to levels which will provide no huntable densities then it would seem that only the private landowners as a group and the agencies which encourage the destruction of wildlife habitat can be blamed. But yet, when one looks at the situation from the present economic position of the individual land operator it appears that he has a limited choice. He must weigh the dollar value of his added output gained from the destroyed game habitat against the value, either esthetic or monetary, of a few covies of 6-ounce birds.

Do the landowners and sportsmen of today want huntable quail populations in the future? I hope they do! The decision to maintain, encourage or restore quail habitat is theirs. Without their efforts, I fear that the fine hunting seasons of the recent years will be just more memories of "the good old days."

Pessimistic? Yes! But all too often the concern for lost wildlife habitat and reduced populations has come after the spectacular decline. I hope that the lessons learned in decades of past mistakes will not go unheeded.



Hedge and fence row combine to provide winter home for a large covey of Bobwhite quail. Photos by Leroy E. Lyon.

A Fable?

By MERLE GARY HESKET

State Game Protector

A young, ambitious scholar learned of the professed ability of an old Indian Chieftain to envision and predict coming events. In hopes of improving his intellectual desires and economic endeavors, the scholar decided to seek out the old Indian in order to gain an insight into the future.

His search led him from one reservation to another until at last he entered a poverty stricken village in what was once the proud land of the Ogallala Sioux. Here he found the old man, the lines of age streaked across his weathered face, cataracts which blurred his vision, and thin bony limbs which moved laboriously. His hair was long and gray, with teeth worn by the erosion of time and substance.

Upon viewing the aged man, the scholar became dubious. It lowered his intellectual status to squat on the ground with him. He smelled of age and death, and he was the embodiment of all the primitive beings which inhabit the earth.

With difficulty, the scholar was able to commute the reasons for his arrival, and pleaded with the old chief to furnish him with a vision of the future, and to provide an interpreter so that he might record it so that all literate men might someday read his prophecy and judge its accuracy.

Finally, the old man consented and advised the young man to depart. He would summon him, he said, when the time came. Delighted, the young man left with great expectations for scholastic achievement, but his anticipations grew dim after several years had passed.

On day the scholar was called to the Reservation, with the message that the prophecy was ready. The young scholar, surprised that the old Indian was still alive, proceeded with haste to the village.

The morning after his arrival, he was directed to a large, high knoll which overlooked the valley floor. As he and the interpreter squatted on the ground the dim light of sunrise was appearing in the East. A gentle fog was rising from the valley, en-

shrouding the slight frame of the old Chieftain against the faint Eastern light.

The old man remained motionless as the dim light grew more intense, and with a sudden motion he raised his arms skyward, his chanting dialect echoing across the valley. The scholar became awesome, as if all the demons of hell had suddenly awakened to listen with glee from all the high perches of the world, their devilish grins awaiting this mortal to unfold their deeds and advertise their works yet unfinished.

As the old man chanted, the interpreter, speaking in a low and scarcely audible tone, related the old man's vision. The scholar feverishly wrote until the voice of the interpreter and his hand became one, the words falling like raindrops in regimented rows across the whiteness of the paper.

To the East, the Chieftain envisioned the rumble of metropolitans, the loud blast of traffic and the shrill sounds of sirens. Multitudes of voices were pushing, cursing, gasping and crying for freedom. Men and women were running and killing each other in an attempt to escape their own magnitude. He envisioned the vast cancer of industry spreading into the Adirondacks, destroying the last true beauty of the land, and still they ran, groping, plundering and falling distraught in utter confusion.

To the North he envisioned the last of the magnificent Boreal Forest falling to the great progress of mankind, for lumber, not to build houses of men, but temples of demagogue's. The Great Bald Eagle, once a symbol of a nation's proud heritage, could now be seen only on the currency which destroyed them. The moose were gone, as were the beaver, birds

and fishes which perished in the aftermath of man's pollution.

To the Northwest of Alaska, the old man envisioned his blood brother, the Eskimo, whose face he had never seen. They were cold and bewildered, accepting hand-outs from the white man, like a dog accepting a bone. Welfare was coming from a race which now contained them, which had robbed them of their resources and belittled their livelihood until they could no longer maintain themselves. The last of the great polar bears had long fallen to the guns of a trophy hunter raining bullets from the safety of an airplane.

He envisioned the falling of the forest, replaced by the steel of oil derricks. Within the midst of the once primitive land, he envisioned a dam so large it was difficult for the eye to conceive. Large turbines turned within its bowels carrying the defecation of man's technology to the industrialized coast.

As the old Indian pivoted to the West, he spoke of the barren coast of California, the majestic redwoods crashing to the ground, clipped by modern machines and the lumber lobbies.

Tears came to his eyes and his chanting grew louder as he envisioned Colorado with its once-proud mountains criss-crossed with roads. Timber had been replaced by oil derricks, standing like ghostly toothpicks against the eroded mountainside. The deep purple of polluted streams intermingled with diverted river courses to feed the desert valleys to the South. Lean cattle wandered aimlessly among the rocky, overgrazed land which was once known as public domain. What had once been a monument of life and beauty had been sold to the highest bidder by those entrusted with its security.

As the old chief turned to the Southwest he envisioned huge oyster dredges along the Gulf coast, their aftermath of mud and muck polluting

the last refuges. The great white whooping cranes had vanished skyward, never to be seen again.

In Arizona, great cities sprawled over the desert floor. The greenery of artificial landscapes withered in the sun. Underground estuaries had long since been drained, and throats became parched for the sweetness of pure water.

As his hands motioned to the Southeast he envisioned the once proud land of Florida. The Egrets no longer called from the mossy-covered Cypress and the diminutive Key Deer had long vanished from the face of the earth. Here the land had fallen to the dreary dullness of civilized man, and the water for the once mysterious basin of the Everglades had been cut off for man's industry. The last alligators had been killed and sold to the leather merchants, the last trophy displayed from the handbag of a prosperous lady who knew nothing of life, nor of alligators. Now only the monstrosity of hurricane barriers stood between man and the sea. The sea unleashed its wrath while the overpowered man wondered how nature could dare do such a thing.

As the old Chieftain envisioned the Central Plains, his hands drooped slightly and his chanting lowered, for this was his land and his visions were not so distant. Here he saw laughing demons as they looked upon the silt-laden land rolled against man-made structures which sighed and heaved to support it. Water was so turbid not even a turtle would enter its depths, and he found huge feedlots financed by people who were now enveloped in their putrid odor.

He saw the prairie sunsets, vivid in their usual colors, but void of the flights of waterfowl. The last remaining potholes had lost their importance to the technical man, and their pools, which had once reflected the flights of ducks, geese and marsh dwellers, had been stifled forever.

Sandhill cranes with hallowed calls no longer gathered on the Platte river of Nebraska to engage in their ritual dances. The great dam in Alaska had flooded their nesting grounds, and with their death arose a great monument to the engineer who drew its



Erosion comes behind the plow, which has loosened the soil and allowed much of our land to wash its way to the sea.

design, the politicians who favored it, and the public who allowed it to happen while the demons laughed from their perches.

He envisioned a dead land in the western portion of Kansas and Colorado, where dry irrigation canals told of depleted underground water supplies. Through the central portions he saw fields of corn and grain, waving in regimented rows without sign of weed nor insects. The stench of insecticides hung heavily in the air and herbicides, developed by specialized man, had wiped the prairie rose, larkspurs, and primrose from the face of the earth.

He envisioned villages of corporations, their equally regimented houses standing like concentration camps upon the prairie. The prisoners were

a once-proud race who had settled here and now manipulated the machinery of technology with neither love for the land nor that which grew upon it.

Suddenly the old man's chanting ceased and his slight frame shaded out the Eastern sun for an instant.

Then, without pain, he crumpled heavily to the ground, and all life drained from his body.

The scholar was led from the hill to the silent, waiting faces in the village below.

As he drove away, the haze lifted into the atmosphere, and the sun glinted brightly through the windshield. Once again he turned and gazed toward the high knoll.

Thoughts told him that even the demons of Hell were saddened by the passing of the old chieftain.

Our Unsung Game Bird

By JERRY HORAK

Game Biologist

Popular, but seldom in the spotlight, is the Kansas prairie chicken.

With the 1969 hunting season on "chickens" now a thing of the past, only a few hunters will give them another thought until next year. Few pause to realize that the prairie chicken provides many thousands of hours of recreation for Kansas sportsmen, and an opportunity for them to better appreciate Mother Nature.

Certainly, it's high time that hunters realize that the prairie chicken has survived and served them well, through many adverse and trying years, with little help from mankind.

The value of prairie chickens to pioneers during early settlement of the state was immeasurable. The birds and their eggs were a main source of food.

After settlers established homesteads, the chicken was not needed for food, and soon was forgotten as an important crop of the land. Huge flocks of chickens dwindled away because man simply went about his business of making a living and intensifying his use of the land.

As the midwest was settled, areas of the nation from east to west went through a period of high prairie

chicken population. There was a certain point in the utilization of the land when cover and food supply was in balance for optimum prairie chicken use.

The bird, predominately a grassland creature, flourished with a few scattered grain farms. But when farming became intensive and only a few suitable grasslands remained, chicken populations declined rapidly in a majority of the prairie states. Kansans can feel fortunate that a sizable population of greater prairie chickens still survive in the eastern third of the state, mainly in the Flint Hills regions.

Sportsmen and bird watchers can be compared to pioneers in regard to this prairie bird. But rather than needing the birds for food, people today seek them for recreation which in many ways is equally as important. Like the pioneers, when the bird doesn't fulfill our needs for recreation (after the hunting season), man goes about his business of making a living and giving little thought to these fine prairie inhabitants.

Game technicians agree that the most important prerequisite for prairie chickens is suitable habitat. The basic requirements are:

1. Food resources, which will vary. Chickens will choose areas of plentiful quantities of seeds. Cultivated grains, particularly sorghums, are a stable item in the winter's diet. Summer foods are composed primarily of leafy vegetation and insects.

2. Night and day roosting areas are generally located in grasslands where vegetation is short and sparse enough to provide good visibility.

3. Booming grounds (courtship areas) are in vegetation of short stature, located on ridges or areas slightly higher than the surrounding countryside. Saltlicks on ridge tops are utilized by chickens.

4. Nesting areas are generally in the tallest cover. A majority of nests



Prairie chickens require tall grass cover for successful nesting.

are located on the north and west slopes of hills, about half way up.

5. Broods seem to require an area of weedy vegetation which is high in forbs. The need is associated with the high production of insects in this type of vegetation and the fact that young birds subsist primarily on insects during the first weeks after hatching.

To obtain optimum living standards for prairie chickens, both the quality and quantity of the habitat are important. Throughout the major prairie chicken range in Kansas (Flint Hills), the quantity of habitat (ratio of grassland to grain fields) is generally sufficient. But, in some areas the quality of the habitat leaves much to be desired.

The major abuse of prairie chicken range occurs in pastures through annual burning and over-grazing. Game managers, through experience, know that both burning and grazing are good management tools,



but the abuse of either or both can be disastrous to the pastures. Ultimately, the crops of the land will be lost, which in this case includes the prairie chicken population. In short, good range management is good wildlife management.

Annual burning of large areas of grassland is not only destructive to the range, but leaves virtually no nesting cover for the chickens. This situation occurs too often in the Flint Hills and the hens must either give up the idea of nesting or congregate in

small secondary areas to lay their eggs.

Rotation burning of the pastures at three to five-year intervals would give ample nesting cover for chickens and also burn the accumulated duff.

Over-grazing, another problem with both range and wildlife management, occurs throughout the entire prairie chicken range, but is more common east of the Flint Hills. A good rule-of-thumb for grazing as part of prairie chicken management in the tall grass prairies is to take half and leave half of an annual growth of grass.

The principles of good management have been established by game biologists and managers, but the ultimate responsibility for wise use of our lands rests with landowners and operators. Kansas hunters must exert every influence to help landholders preserve our important natural products.

The prairie chicken deserves to be placed high on the list.



Annual burning of large areas of grassland leaves virtually no nesting cover for chickens. Nests that survive the fire and new nests are easily found by predators. Thus, directly or indirectly, burning wipes out nearly all nests in a burned-out area.



Landscaped grounds of Kansas Forestry, Fish and Game Commission's headquarters and hatchery are one of many beauty spots in Kansas—even in Winter.

S. L. Loewen
Tabor College
Hillsboro, Kansas 67063