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Cover Photograph by Ken Formanek

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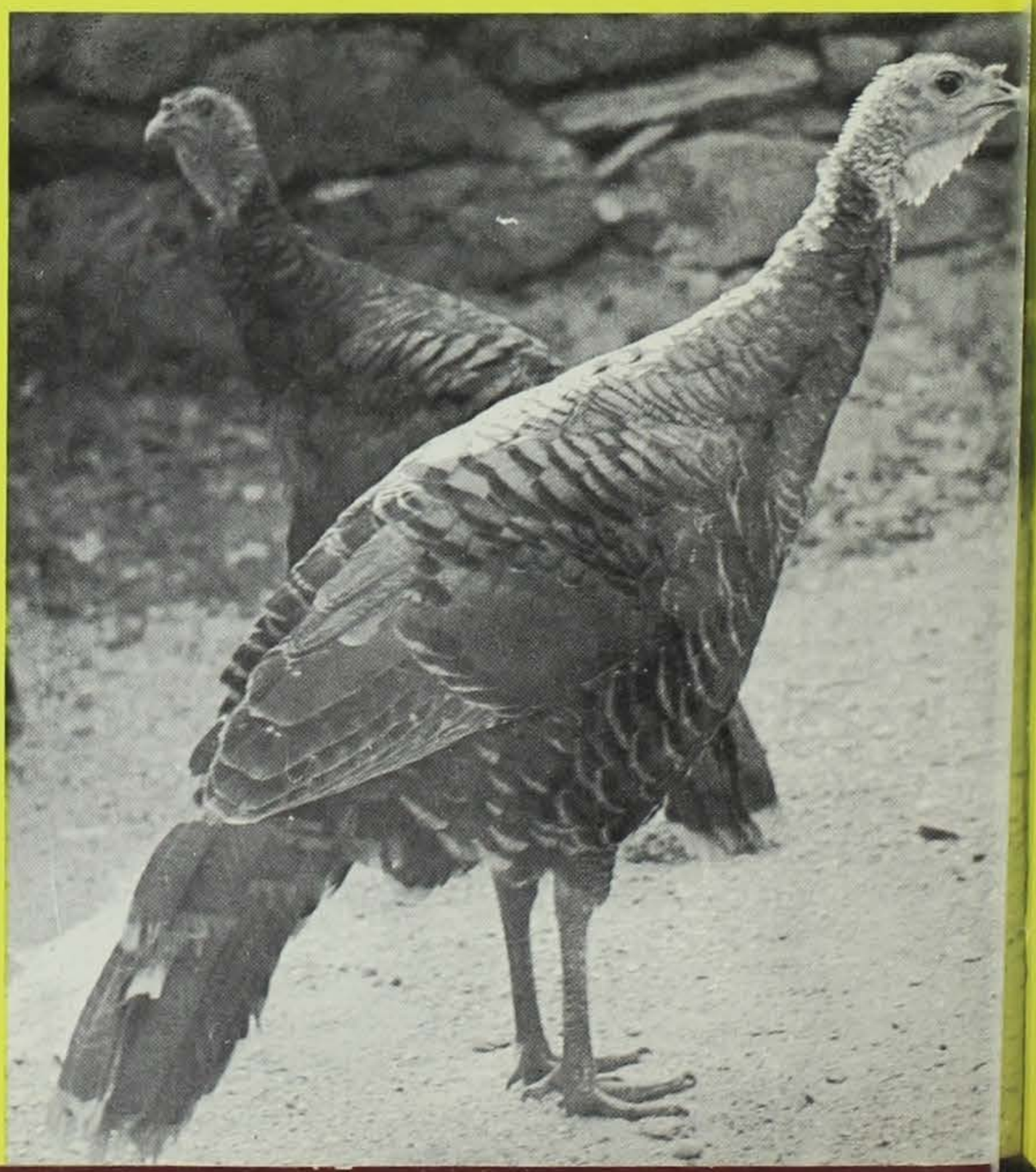
Cover Story

TURKEY HUNTING ...where it's best

by Terry Little
WILDLIFE RESEARCH BIOLOGIST

5:00 a.m. May 4, 1974. In most ways it was a spring morning like any other in southern Iowa. The familiar morning litany had already begun. A whip-poor-will's strident, 3-noted call could be heard repeatedly from the margins of a field adjoining a remnant stand of oak-hickory forest. Just as the goatsucker's song ceased with the first gray light of impending dawn, a familiar chorus of muted *Whoo-whoo, Whoo-whoo, Whoo-whoo, Whoo-whooooaaghs* cascaded from the surrounding ridgetops as barred owls serenaded the end of another night. Then, almost in response to the hooting, a not so familiar *Gobbleobleobleoble — Gobbleobleobleoble* announced to the world that a wild turkey gobbler was officially awake. Soon answering gobbles came from nearby ridgetops and valleys as a whole turkey community awoke and began the serious business of mating activities. The breeding season was nearly over and gobblers were especially active that morning, for most hens had left them to incubate a nest, leaving the toms without female companionship for the first time in weeks.

But this morning was unlike other mornings. For a special predator had returned to the forest, one that had been absent for nearly three quarters of a century. Whip-poor-wills and barred owls were longtime residents of Iowa, but wild turkeys, though once common here, had been absent since about 1900.



Human intrusions in the form of land clearing and uncontrolled hunting eliminated turkeys from Iowa, and they were gone until restoration efforts by the Iowa Conservation Commission led to the establishment of pioneering flocks in southern Iowa in the mid 1960's. With the disappearance of the turkey went a special breed of predator — the turkey hunter — and he would not reappear until this morning 1974, which marked opening day of Iowa's first modern wild turkey hunting season.

This turkey hunter was a specialized beast with seemingly every advantage over his quarry. He had practiced his turkey call until he could imitate the yelp of a lonesome hen to attract a lovesick gobbler, and he wore camouflage clothing which made him nearly invisible in the early morning light. Still, he was apprehensive and unsure of himself. Wild gobblers possess extremely good eyesight and hearing, which, coupled with a natural wariness unsurprassed in the animal world, make them among the most difficult prizes for even the most experienced hunter. And, perhaps most importantly, a wealth of turkey hunting knowledge and tradition had been lost in the generations which passed while turkeys were gone from Iowa. This new hunter was a novice at his sport, enthusiastic and excited, but essentially unprepared for the challenge which he faced. Certainly most of these hunters had few illusions about bagging a turkey. Yet the results of that first hunting season, and the four seasons held since then, far exceeded all expectations and provide a glimpse into one of the most successful wild turkey restoration programs in the nation.

Unlike his predecessors of the previous century, the modern turkey hunter accepts several limitations in the name of sport. Early settlers saw the turkey primarily as a food source and pursued them year around without discriminating the age or sex of the birds they shot. By the mid-20th century, however, subsistence hunting was a thing of the past and hunters now look on wild gobblers as one of the greatest sporting challenges. Turkeys are polygamous, so shooting only gobblers has no effect on reproduction and does not affect population growth or dispersal. This makes it possible to have a spring hunting season just a few years after turkeys are released into uninhabited areas.

To add further challenge, hunting is restricted to ½ hour before sunrise until noon to discourage roost shooting and protect nesting hens from undue harassment. Only shotgun or longbows are allowed as weapons, and rifles, bait, decoys, dogs or electronic calls are forbidden. Hunters had to rely on their woodsmanship and skill in calling to lure gobblers within 40 yards or less, the normal range required to be certain of killing these tough old birds.

Timber stands in Iowa are remnants of once-extensive forests which covered nearly 7 million acres. These small, scattered blocks today total no more than 25 percent of their former acreage, mostly on lands too steep to clear for the plow or pasture. To prevent overcrowding of hunters in these small stands, as many as 7 hunting zones with 3 consecutive seasons per zone have been used in the past 5 years, each zone and season with its individual license quota.

The Lucas-Clarke zone (including Stephens State Forest) and Lee County zone (including Shimek State Forest) were opened in 1974 and have been hunted all 5 years (Figure 1). The Northeast Iowa zone was opened in 1974, restricted to a much smaller area in 1975, and closed to turkey hunting in 1976 to allow restocking of this zone with the eastern subspecies of turkey from Missouri which was native to the state and had successfully colonized southern Iowa. Northeast Iowa formerly contained small populations of Texas and North Dakota turkeys which had not done well. The Chariton River and Van Buren County zones were opened in 1976, and the Appanoose-Davis and Lucas-Monroe zones were opened in 1978, as a result of successful releases of turkeys in these areas and dispersal of birds from established populations in northern Missouri. Altogether, about 166,000 acres of timber were open to turkey hunting by 1978, of which 68 percent was privately owned.

Conservative license quotas were established in 1974, but quotas have increased from just 450 that year to 1,815 by 1978 as new zones were established and zone quotas were increased after successful hunting seasons. Applications for hunting licenses increased also, from 1,296 in 1974 to 3,623 by 1978, a somewhat slower rate than the license quotas increased. Closing the Northeast zone in 1976 nearly eliminated applications from that region, so the increase in applicants by 1978 represented increased demand from other regions of the state. Although most turkey hunters have come from heavily populated urban areas, turkey hunting is becoming more popular and demand is widespread — only 8 counties did not have at least 1 turkey hunter in 1978.

Iowa turkey hunters have been amazingly successful even though many are novices. Gobbler harvests have increased each year from 113 to 142, 194, 215 and 366 gobblers from 1974 - 1978, and totalled 1,030 birds for the 5 hunting seasons. Hunter success rates fluctuated annually after a first year high of 29 percent, stabilizing at 23 - 24 percent since 1976. Only 14 turkeys were shot in Northeast Iowa in 1974 and 1975, which led to the closing of this zone for restocking purposes. The Lucas-Clarke and Lee County zones have consistently produced the best turkey hunting, with annual success rates ranging from 18 - 41 percent, and have accounted for 75 percent of the total 5-year harvest in southern Iowa. The other southern Iowa zones have produced somewhat lower hunting success rates, ranging from 14 - 25 percent, in part reflecting the more widely scattered timber found in these zones and probably lower turkey numbers.

Comparing turkey harvests per unit of habitat produced essentially the same trends. Annual harvests have ranged from 0.5 - 2.6 gobblers shot per square mile (mi^2) of timber in southern Iowa, with the greatest harvest recorded in the Lucas-Clarke (1.6 - 2.6 per mi^2) and Lee County (1.0 - 2.1 per mi^2) zones.

Turkey hunting has been good in all 3 seasons each year, but has been slightly more difficult the third season. Third season hunters have bagged slightly fewer gobblers and seen fewer turkeys than first or second season hunters, but third season success rates have still averaged about 16 percent. Hunting conditions are generally more difficult the third season for a number of reasons — gobbling activity declines as reproductive activities wind down, gobblers have been harassed by hunters for 2 weeks and are more cautious, and shrubs usually are leafed out, making it more difficult for hunters to see.

Iowa turkey hunters have consistently averaged 2 - 3 days of hunting per year, with successful hunters (average = 2.9 days) spending fewer days afield than unsuccessful hunters (average = 3.5 days). Most successful hunters bag their gobbler the first morning of hunting and few hunters hunted more than 5 days regardless of their eventual success, so the current 7 and 11 day seasons provide enough turkey hunting for most individuals.

Although more than two-thirds of the turkey habitat in southern Iowa is in private ownership, most hunters have chosen to hunt on state forest lands. This has been most apparent in the Lucas-Clarke and Lee County zones which contain the largest public hunting areas. Over the 5 hunting seasons, 62 percent of the total hunter-days expended and 54 percent of the total harvest in these 2 zones have taken place on Stephens and Shimek State Forests which comprise only 14 percent of the turkey habitat open to hunting.

As a result, hunter densities have reached as high as 14 hunters per mi^2 of timber on the state forests, compared to just 2 per mi^2 on private lands. ›

(Continued) Hunter success rates have tended to be higher on private lands, however, indicating that high hunter concentrations on public areas have affected hunter success. The quality of turkey hunting has also suffered with more than one-third of the hunters on public lands reporting interference from other hunters compared to just 15 percent of those hunting on private forest lands.

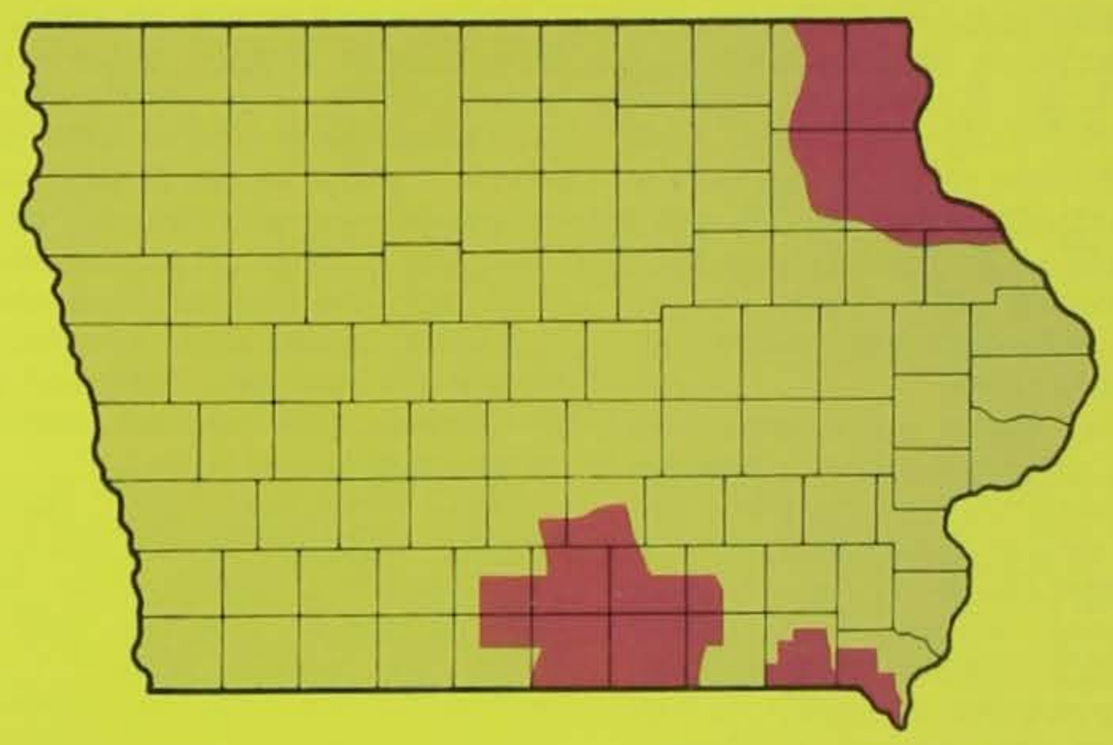
Hunter concentrations on state forests apparently are the result, indirectly, of the licensing procedure. Since the drawing is random, most license holders have come from urban areas where the most people live. Most urban hunters must drive several hours to the turkey hunting zones and apparently do not take time to locate hunting areas on private lands. About 70 percent of these nonlocal hunters hunt on state forest lands, and they suffer greater interference from other hunters and have lower success rates than hunters on private lands as a result.

To reduce the effect of hunter concentrations, all current hunting seasons open in midweek. Prior to 1976, all seasons opened on Saturday. With weekend openings more than 80 percent of the hunters were afield on opening day causing extreme hunter densities on the state forests. With Thursday openings in 1977 and 1978, no more than ⅔ of the hunters were afield on any day. Most hunters spend their 2 - 4 days of hunting prior to or during the weekend with a few still hunting during the last 3 days of any season. At the same time, daily hunter success rates appear to be unrelated to the number of hunters afield and are probably determined more by daily weather patterns. Thus midweek openings have reduced daily hunting pressure without reducing the weekend hunter's chance of bagging a turkey, and have increased the chance for an enjoyable experience for those hunting on the state forests.

Spring turkey seasons are aimed at harvesting adult gobblers many of which do not participate in breeding due to competition between gobblers and can be removed without affecting reproductive success. Each year a number of "jakes", or yearling males, are shot also. Most of these young males are sexually immature and incapable of breeding and are shot incidentally as they wander into range of a hunter calling at gobblers. Even those jakes which have matured and do gobble and strut are usually kept away from hens by adult toms.

About one-third of the gobblers harvested have been jakes, but the percentage of jakes in the harvest has increased from just 5 percent in 1974, to 47 percent in 1978. A high percentage of jakes in the bag was also reported from other Midwest states last year and reflects excellent turkey production in the warm, dry summer of 1977. Overall these percentages of jakes are similar to those reported from other states and indicates we are not overharvesting gobblers. Apparently a large surplus of adult gobblers existed when the first turkey season was held in 1974 and cropping of these excess toms has reduced age ratios of male turkeys closer to those found in states where gobbler seasons have been held for a number of years.

Wild Turkey Hunting Zones - 1974-78



Iowa gobblers are somewhat heavier than is normally reported for the eastern subspecies. Weights of adult toms have averaged from 20-21 lbs. and jakes from 13-14 lbs. In addition, 110 hunters have harvested gobblers weighing more than 23 lbs. and qualified for a trophy turkey award. The current state record is a 27 lb. gobbler shot in Shimek State Forest in 1975. In many areas of traditional turkey range in the Southeast any turkey weighing 18 lbs. is considered very large. Thus Iowa turkeys seem to be in good condition.

Earlier I stated that results of Iowa's 5 turkey hunting seasons provide a glimpse into a highly successful restoration program. By most hunting standards, a total annual harvest of just 366 animals with only 1 of every 5 hunters being successful would seem quite poor. Iowa's 1978 turkey harvest compares rather poorly with spring gobbler hunting in traditional eastern turkey states in the Southeast and East, many of which harvest more than 2,000 gobblers annually. Iowa turkey hunting does compare much more favorably with other states on the northern fringe of eastern turkey range which have recently restored turkey populations. Indiana hunters shot 34 turkeys in 1978, Ohio 147, Illinois 97 and Minnesota 94. Each of these states has much more timber remaining than Iowa.

Statewide hunter success rates of at least 20 percent are among the highest reported for spring gobbler hunting. Among the other northern Midwest states, only Minnesota (25 percent in their first turkey season) and Missouri (20 percent) exceeded 10 percent hunter success in 1978. Hunter densities on state forest lands have reached or exceeded tolerable levels and success rates as high as 20 percent would not be possible without an abundant supply of gobblers. Also, spring turkey harvests in other states seldom exceed 1 gobbler per mi² of timber, compared to at least 3 and as high as 10 gobblers shot per mi² on public lands in Iowa, where most hunters concentrate. Thus while turkey hunting success is low compared to other types of hunting, our success rates are excellent compared to other states and our total turkey harvest is among the best in the upper Midwest.

While hunter success rates and harvests indicate Iowa's spring gobbler seasons have been very successful and that our turkey population is in excellent shape, we will never harvest as many gobblers as the leading turkey hunting states because we have only 1½-2 million acres of timber left. Restocking operations are currently introducing eastern wild turkeys into the remaining timbered areas in Northeast Iowa, western Iowa's loess hills and many of the timbered river bottoms in central and eastcentral Iowa. Initial results indicate that most of these releases are successful. If they are successful, and assuming at least 1 gobbler per mi² can be harvested from these areas, a very conservative estimate would place gobbler harvests at 700 - 800 birds at some point in the near future.

The only problem which has surfaced with turkey hunting to date relates to

(Continued Page 15)

Student Kevin Pearson with Gladys Black, local area ornithologist.

Science Goes Outdoors at Knoxville

by Charlie Holdefer

TAKING THE REQUIRED science credits to graduate is an unpleasant chore for many high school students. Often high school science courses are of the text-and-lab; desk-and-specimen; yawn-and-pass-through variety.

But recently there has been an upsurge in the interest in science classes at Knoxville High School. Curt Froyen is the biology teacher whose ideas and extra efforts have provided the students with stimulating field courses. These courses, along with the High School Science Club that Froyen sponsors, are the key to this increase in interest. Mr. Froyen points out, however, that without the enthusiastic support of the school board, school administration and community the science program wouldn't be possible.

Froyen has evolved a series of projects for his field classes and the Science Club that make some serious demands on the student. These plans are changing to accommodate an increasing number of students, and this year Knoxville is offering courses in *"Botany and Zoology"* and *"Advanced Microbiology"* to meet the demands of students who want more science.

There are presently two field courses offered, both having a strong emphasis on outdoor work. Each student gets the opportunity to leave the often stifling atmosphere of the classroom and observe and work with nature on its own terms.

"Environmental Science" is a field course that is recommended for students who don't plan to take much science in high school. It is designed to give them an understanding of Iowa ecosystems and some of the environmental problems that are relevant to these ecosystems.

The *"Environmental Science"* students undertake a variety of class projects designed to focus on the environmental problems faced in Marion County, where they are located. For example, all environmental science students are required to choose a farm site from a list of cooperating landowners and develop a soil conservation plan for that farm. The plan takes form only after many hours of field work as well as prior background study in the classroom and help from the local Soil Conservation personnel. The plan is then presented to the landowner as a means of helping him determine how to properly manage his farm in the future.

"Field Biology" is the other field course offered for the more advanced or science oriented student. It covers the basic principles of the *"Environmental Science"* course, but in greater depth, and more is expected of each student.

The *"Field Biology"* classes also become involved in numerous projects. One which took up much of the students' time last spring was a bluebird study. Bluebirds are blue-listed (a threatened species) for this area and any accurate research about them is significant.

Froyen set the students to work building 200 bluebird houses. The classes gained the cooperation of many local farmers who were willing to have the houses put on their land. Students inspected each farm to ensure that the habitat was favorable, and 20 farms were then selected. The nest boxes were checked twice a week and nest records were kept. When the data was compiled, only three of the

200 houses had bluebirds and in only one of these houses did the newly hatched young survive. When the students examined the results of *their* work, suddenly the fact that bluebirds are a threatened species in Iowa wasn't just another statement made by some teacher in a classroom — it was a fact proven by their own field study.

The bluebird project will continue for *"Field Biology"* classes in the future, and Froyen has plans for expansion. Next year 200 more houses will be placed in the vicinity to be studied along with the original houses.

Another spring project was a nesting study on a 60 acre pasture the classes were permitted to use. Each of the classes was assigned to a specific area, and succeeded in locating 89 nests of 13 different species. Students were required to keep careful records and the results were forwarded to Cornell University.

Froyen explained, *"The idea behind the project was to have the students learn to identify birds and study their habits ... such as behavior and feeding patterns; and to become aware of the problems that bird populations face due to predators."*

The students did some banding in cooperating with Gladys Black, Pleasantville, Iowa ornithologist. Six volunteer students worked with Black on the project throughout the summer and each received a research credit in science from Knoxville High School. Their efforts were featured in a one half hour IPBN special on Iowa birds in November.

One of the most popular plans the *"Field Biology"* classes initiated was tree planting. Froyen saw how the study of soil conservation could be turned into something tangible not only for the students, but for the citizens in the Knoxville area as well.

Once again the cooperation of the local farmers was asked, and the request was met with an enthusiastic response. Farmers were asked to set aside land as wildlife habitat in accordance with the requirements of the State Conservation Commission concerning the planting of trees from the state nursery.

"Field Biology" students inspected the farms and 15 farm sites met the requirements. Each class drew up a plan for two of the farms. This process involved the prior study of methods of using trees in soil conservation work, the advantages and disadvantages of using various species, methods of planting, soil analysis and a host of other information. 17,500 trees were obtained from the state nursery; an assortment of various pines, hardwoods, and shrubs.

The *"Field Biology"* classes planted 6,000 of the trees by hand, and the Science Club finished planting the remaining 11,500 on weekends with a tree planting machine. The trees were paid for by the farmers, who were glad to have the labor of planting the trees provided by the students.

Knoxville High students Kelly Shilling, Teresa Rowley and Ann Davis.

This year there are plans to involve both *"Environmental Science"* and *"Field Biology"* classes not only in additional tree plantings (20,000 in 1979), but the classes will also study and record survival rate by species, annual growth rate, weather patterns, etc. All data will be carefully recorded and presented to the district forester and other interested agencies.

Every *"Field Biology"* and *"Environmental Science"* student is required to do a project outside of class. Many students have been helping at the local elementary schools by teaching lessons and showing displays they've prepared for the younger kids. Presentations on various levels were given during National Wildlife Week and each of the three elementary schools is planning on setting aside a wildlife area on their playgrounds. *"Field Biology"* students will help supervise the planting of native grasses and trees and an "outdoor classroom" will be constructed by the elementary kids with the help of the high school students.

All of the *"Field Biology"* classes make the student see what a wide scope studying science really involves. He not only observes cause and effect, he also sees and participates in the steps that occur in between. He gets experience in keeping precise records to calculate important data, studying aerial photographs, mapping and other skills, and then has the chance to put this knowledge to practical use in the field. Often a desk and a text will deny him this, and as his interest declines, so does his learning.

There are some projects and tasks that were outside of the realm of any of the field classes either financially or physically, and that's where the Science Club plays its major role at Knoxville High School. Throughout the school year the club was involved in fund raising for various science activities. The club is open to any high school student regardless of whether he might have any science classes.

The Science Club got the tree planting project started with some financial help for equipment and much of the project was a Science Club undertaking. There are two other projects the Science Club is preparing at the present time.

The first project is the development into prairie land of 40 acres of pasture owned by the Iowa Conservation Commission near the Red Rock Wildlife Refuge. This is another long range project with the land initially being sown with four native grasses recommended by the Conservation Commission. The club members will begin with a two acre plot and they'll introduce other native grasses and forbs.

The second tentative venture has been labelled *"The Giant Canadian Goose Project."* The Science Club will purchase some parent geese and erect goose pens on a large pond in the school district. They'll take the baby geese from the parents and release them in large nearby ponds when they are almost ready to fly. Research shows that the female geese will return during mating season to where they first learned to fly. Eventually, this will have them returning year after year to mate and establish new flocks of giant Canadian geese in the area. According to Froyen, *"This is another research project that will require summer work by the kids."*

The Science Department at Knoxville Senior High School is thriving. Teacher Curt Froyen's enthusiasm for science outdoors has been contagious to the students. Students *are* learning, and they like what they're learning. The results from the projects of the *"Environmental Science"* and *"Field Biology"* classes attest to this. Also, students interested in science have made the Science Club one of the most influential extra-curricular activities with the most ambitious plans. This surge is encouraging to everyone in education, not just science teachers, as it's a prime example of students taking the initiative with positive feelings about learning.

And for science outdoors at Knoxville High School, actually this is only the beginning ... □

Mushroom!

by Ed Gardiner
District Forester

THIS IS A NICE TIME to visit the woods. Things are just starting to grow. In the ungrazed wooded areas, the soft, spongy mat of decaying leaves and twigs has absorbed the spring rains and the warm sun. The sun penetrates to the forest floor in the spring because the leaves on the trees have not developed. There are many plants and fungus that start at this time. In this group are the early woods flowers and the mushrooms.

Mushroom hunting has become an important recreational activity in the last 15 years due to elms dying from the Dutch Elm disease. The morel is the most common mushroom this time of year and as mushrooms go it is quite distinctive and easily recognized. There are other types of mushrooms that are good to eat and there are other types that are poison. Stick to what you know is edible.

There are all kinds of theories as to where mushrooms grow. Some people favor maple trees, others ash, and last year I met a man who finds them under white oak. Some people ask, *"Will the mushrooms be gone when all the elms are gone?" No, they won't, they will just be harder to find."* In fact, it looks now as if the elm will not completely disappear from our timbers. The Dutch Elm disease doesn't kill the trees until they get up to 6 to 8 inches in diameter, and by this time they have already thrown some seed. Eventually nature may develop elms that have natural resistance to the disease.

Scientists don't know how morel mushrooms reproduce; that's why they aren't grown commercially. It's kind of nice that there is something in our everyday lives that has an element of mystery. That way your theory of where and when to find mushrooms and how fast they grow is just as good as anybody's. No one can shoot you down with facts.

Here's a tip from an old mushroom hunter. *"Mushrooms will be out when the leaf of the burr oak is the size of a squirrel's ear."*

It's a fortunate family that has access to timberland they can enjoy. It's true that timberland may not be as financially rewarding as crop or grazing land, but the recreation rewards, picnicking, hunting, wildflowers, bird watching and mushrooming have special values that the dollar yardstick cannot measure.

"It's kind of nice that there is something in our everyday lives that has an element of mystery."

In two more weeks the trees and shrubs will have a full canopy of leaves and the forest floor, instead of absorbing the sun to start growth, will start to act as a cooling agent. This will bring different flowers that like partial shade. Early in the morning the song birds will be protecting their territory by singing up a storm.

Spring is just a nice time to go to the woods. Even if you don't find any mushrooms, it's fun to look under that dry leaf that's being pushed up by something growing underneath it. It's fun to sit still and listen to the woodland noises that gradually start up again after you have intruded. □

PHOTO BY KEN FORMANEK

Rattler Country

by Jim Zohrer
WILDLIFE MANAGEMENT BIOLOGIST

PHOTOS BY THE AUTHOR

MOST PEOPLE DON'T think of Iowa as rattler country, but we do have our share of these interesting and often feared reptiles. Of the approximately thirty-two species or sub-species of snakes found in Iowa, four are poisonous. The timber rattler, massasauga rattler and prairie rattler all have the warning rattle on the end of their tail. The northern copperhead is a poisonous cousin that lacks these rattles. Other characteristics that these poisonous snakes have in common include a pit between the eye and the nostril, an elliptical pupil, and the two enlarged fangs used for injecting their poison.

Although many people report seeing water moccasins, most are probably common water snakes. Iowa is out of the normal range for the poisonous water moccasin.

The timber rattler is our largest and most common poisonous snake. It is found throughout portions of eastern and southern Iowa. These snakes will reach a length of six feet. Although large, they are normally so shy and retiring that few people actually see them in the wild.

The massasauga is a much smaller snake. It will reach a maximum length of about three feet. It is also found in eastern and southern Iowa, but only in isolated populations and never in large numbers.

The prairie rattler is only an occasional visitor in western Iowa. It is found in the northwest corner of the state along the Missouri River.

The copperhead is also uncommon in Iowa. A few can be found in the extreme southeast corner of the state.

These last three species are so uncommon in Iowa that they have recently been placed on the state's endangered and threatened species list. They are now protected by law, and destruction of the snakes or their habitat is to be discouraged. The timber rattler is in no danger at this time. In 1977 a bounty was paid by some counties for this snake, and a total of 171 were presented for claim.

You may wonder why poisonous snakes should be protected. Some people feel that every species has a right to live, and that man should not knowingly terminate the existance of any type of plant or animal. There are also more scientific reasons for maintaining these species in the wild. Endangered species are usually located in sensitive habitats or on the fringe of their normal range. Species located in these areas show population changes in response to environmental change. Because of this they may serve as barometers to environmental change or to population shifts within the main body of the species range. There is also the thought that if we lose a species now, we may have destroyed the source of some important substance that may be needed in the future. Many of our present day medications were derived from rare or exotic plants and animals.

If you are going to be in snake country, a knowledge of their habits may help you avoid any problems. During cool periods snakes will normally be found out in the open seeking the warmth of the sun. During the heat of the day they will be back in the cool shade. If you do run across a rattlesnake just back away and let the snake go about its business. Rattlers will try to avoid human contact whenever possible. They would rather crawl away than put up a fight.

In the unlikely event that you are bitten by a rattlesnake the Red Cross recommends that you appl constricting band above th bite, use suction to remov the poison and get the

▲ Massasauga rattler ▼ Timber R

Massasauga close up

im to a doctor as soon ossible.

here is one other point to p in mind. Rattlesnakes ot always rattle, and all kes that rattle are not ays rattlesnakes. When a rattlesnake is cold and wet, his rattle may be slow or inaudible. Many other snakes will shake the tip of their tail when threatened. In dry grass or leaves they can make a noise that could be mistaken for a rattle. The best way to hold a rattlesnake is not at all. If you plan on catching one, don't. Most people that are bitten by poisonous snakes were trying to handle them. Some people are extremely sensitive to the toxins injected by rattlers, and a bite could be fatal.

Like most of nature's critters, rattlers will leave you alone if you leave them alone. If you will be out in rattler country enjoy yourself, but please, keep your eyes open.

Natrix water snake Often mistaken for water moccasin.

Nine Eagles State Park

By Larry Moffitt
State Park Ranger

LOCATED NEAR THE MISSOURI BORDER IN DECAT County, Nine Eagles State Park is about five and one-l miles southeast of Davis City. But it almost ended up in M souri — or at least the man who once owned the land thou so. Lela Kirk Parker recounts the history of the park . . .

Away back in the year 1839, two young men, Allen S and Edward Winkles, came with their families and settle "Thompson's fork of Grand River"; that being the name plied to what we now term just Grand River.

They supposed themselves in the northern part of Miss and for many years paid taxes to that state. Grundy Cou Missouri claimed nearly half of Decatur County and sheriff from Trenton came the sixty-five miles to collect taxes. Two attempts were made by the government to de the exact boundary. One was known as Sullivan's line anc other as Brown's. The latter, so the Indians declared, was purposely so that Missouri might take in their sugar camp Terre Haute. This seemed to have caused the Indians no of uneasiness. It is doubtful if there would have been an terference with their sugar making no matter which claimed them. Nevertheless, they resented Missouri's clai

Young Scott and his wife, who was only fifteen, had

PHOTOS BY RON JOHNSON

than their bare hands when they invaded this new fron-
by way of Burlington. After crossing the river they hired
o an old bachelor to work for a month in order to get
cient funds to purchase some of the most necessary
sions.

ey came on a little farther west and staked a claim about
le and a half from a mill in which Scott obtained work.
Scott, being young, was afraid to stay alone all day in
abin so she packed up her lunch also and walked with
to his work. One day in early spring she noticed the
earth worked up in a colony of gopher hills and was
k with the idea of making herself a garden there. She did
ound that the plants grew amazingly and that there was
a startling absence of weeds. Those pests, like the
ish sparrow, seem to have followed man's trail into the
Then, too, she learned to fish and between her garden-
nd fishing was able to spend a good portion of the long,
us days.

one time Scott was away from home for several days
a party of young men out staking claims on Sugar
k, and during his absence his wife was forced to stay
. So far she had never seen any Indians in that neighborhood; but the very day her husband left she heard the tinkle, tinkle, tinkle of many little bells. She was frightened nearly to death for she knew the little bells were jingling on Indian ponies. And as her cabin wasn't much of a fortress with only a quilt for a door, she hid in the fireplace and hoped most fervently that the Indians wouldn't stop. For some unknown reason they didn't, and she was safe for the time being.

However, later that day an Indian lifted the quilt and walked in. He spoke to her in his language, which at this time she couldn't understand. Then he drew a large hunting knife from his shirt and began whetting it back and forth across his hand. She felt certain now that her time had come; but the Indian seemed to forget his terrible purpose, when he spied a loaf of bread and was so well pleased when she made him understand that it was his that he joyfully stuffed it into his hunting shirt and left. Later, when she came to understand the Indian language better, she realized that her fright had all been unnecessary, for he had only been trying to tell her that he wanted to borrow a whetstone.

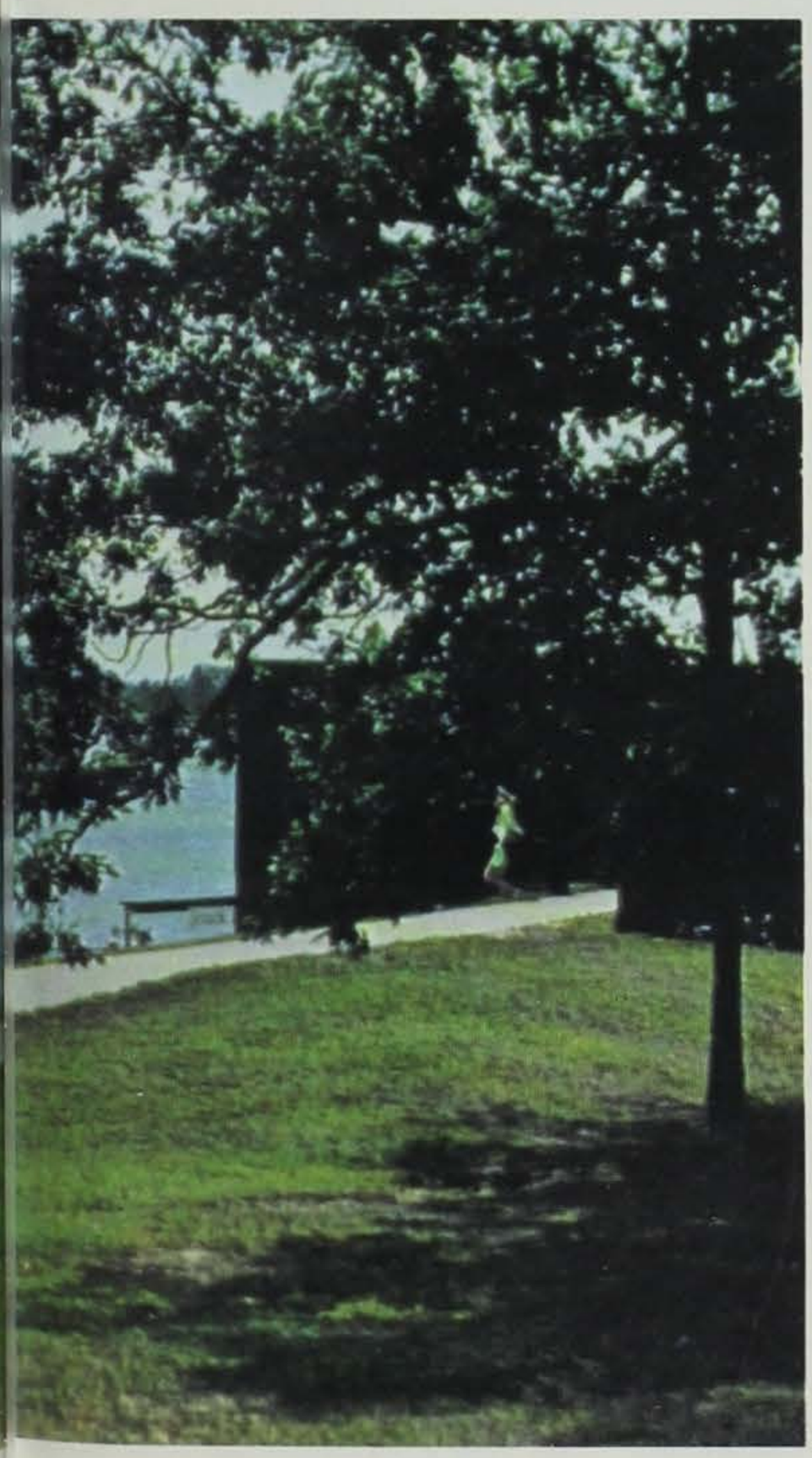
In the succeeding years she dealt much with the Indians, trading butter and lard to the Sacs and Pottawattamies for tea, coffee and sugar, which they drew on their annuties granted by the government.

Her husband raised great crops of potatoes, corn, turnips and pumpkins which he also traded to the Indians for their drygoods and groceries. The Sacs received their annuties at Fort Des Moines and the Pottawattamies at Council Bluffs. And each drawing helped to swell Scott's stores. For ten years he dealt with the Indian tribes and during this time became immensely wealthy.

As the country became more settled, the Scotts were noted far and near for their lavish hospitality. Their table was bounteous, and their home, for that time, was quite pretentious and seldom without guests.

Today, the 1,100-acre park attracts many visitors, both from Iowa and other states. It's easy to understand why. The wooded hills and sparkling 57-acre lake make it a gem in Iowa's necklace of state parks. It offers a variety of outdoor pleasures, including fishing, camping, picnicking, hiking, swimming and bird watching during summer months.

During the winter, snowmobiling is becoming increasingly popular at Nine Eagles. It is a particularly beautiful park just after a fresh snow. Take your ice gear and try for some panfish or just walk the wooded hills and enjoy the Iowa (not Missouri) countryside. □



PHOTOS BY THE AUTHOR

Brook trout from South Fork Big Mill.

Return of the Brookies

by Don Degan
FISHERIES BIOLOGIST

AS WE APPROACHED THE SMALL spring fed stream from the upper reaches, I could see no reason why this stream was different than many others in northeast Iowa. Deeply gouged dry runs converged from the surrounding hillsides to form a single eroded stream channel. Several springs seeping from the layered limerock and sandstone filled the waterway with cold clear water. Grazing cattle had trampled the banks, devouring much of the streamside vegetation, and allowing the rushing water to eat away at the bare dirt banks. But this stream was different. It harbored the last known naturally reproducing brook trout population in Iowa. I had learned about the stream from Gaige Wunder, a fellow biologist at Decorah, and was anxious to see the stream, and to determine whether we could find out what had made this stream so different from others in Iowa where the brook trout had become extirpated in spite of hatchery stocking in the 1940's and 1950's.

The brookie or speckled trout is Iowa's only native trout. The original native locale of this species was throughout the Eastern United States as far south as Georgia. The brook trout, identified by vivid white markings on the front edges of the lower fins and dark grey markings over an olive-green background forming worm-like markings, or vermiculations, on the back, is one of the most colorful North American fish. Insects make up the bulk of the brookie's diet. These members of the char family spawn in October and November under natural conditions in nests, or redds, constructed by the female in gravelled headwaters or spring-fed streams. The eggs lay under the gravel for about 50 days before hatching. After hatching, the young fry remain in the gravel until the yolk sac is absorbed.

Prior to the settlement of northeastern Iowa, there were many streams in this unglaciated area which supported populations of brook trout. But as farming became more extensive and the forests were cleared, the spring-fed streams warmed and became silted from erosion, causing conditions to change so the streams could no longer support trout. The first Iowa trout hatchery at Anamosa was established in 1873 to stock the cold-water streams in northeast Iowa with trout to replace the destroyed brook trout populations.

After initial study of the brook trout stream we had found, it was evident that many factors had contributed to the success of this brookie population where others had failed. After talking to the landowner, we had determined that this stream had received very little fishing pressure. The farmer knew his stream harbored a population of brook trout and he let very few fishermen in to fish.

We also found several springs in the stream bed with clean gravel for spawning. The springs maintained the water temperature at a cool 50° F while the eggs were incubating in the gravel and maintained a favorable environment for the adult trout throughout the

In-stream habitat enhanced by construction of bank hides on South Fork Big Mill.

summer. Somehow the brookies had tolerated heavy spring floods with silty, turbulant water and flourished in this stream.

Studies in neighboring states have found that brook trout are very susceptible to overharvest by fishermen and reproductive success is dependent on having a large number of reproducing adults in the stream. With a high mortality rate for the eggs and fry from spring floods, we would have to maintain a high population of spawners to duplicate the semi-protected population of brook trout in the stream we had found. We would also need to find streams which had part or all of their watershed under proper soil conservation management to reduce the possibility of floods destroying the eggs before they could hatch. And the streams would need good sources of cold, clear springwater to maintain cool water temperatures and clean gravel for spawning sites.

In 1977 we selected two trout streams for stocking brook trout. The Conservation Commission then passed an administrative rule in the spring of 1977 closing the season for brook trout fishing in North Cedar and South Fork Big Mill Creeks, and allowing fishing for other species in these streams by artificial lure only. North Cedar Creek in Clayton County and South Fork Big Mill in Jackson County were stocked with 2,700 fingerling brookies in October 1977. Both streams are located on state-owned areas and have undergone intensive stream habitat improvement in 1977 and 1978 to enhance the in-stream protective habitat for brook trout. The stream improvement will continue in future years. Along with the in-stream structures, soil conservation management is being implemented to control erosion on the watershed.

We sampled the brook trout in both streams in October 1978 after the fish had been in the stream one year. We found high mortality rates for the brook trout in both areas, with only 4 percent of the fingerlings stocked in October 1977 remaining in the streams. However, growth was exceptionally good and many brook trout reached 12 to 14 inches during their first year in the stream. Brook trout redds were found in South Fork Big Mill in November. This spring we will sample the streams to determine whether spawning was successful. We have restocked brookies into both streams in October 1978 and will be stocking again in 1979 to establish three year classes of adult brook fish similar to the stream where natural reproduction has been observed.

With cooperation from anglers and continued efforts to control siltation in these streams, we may be able to re-establish brook trout in Iowa. Success of this program would enable Iowa's trout anglers to relive the past as they seek the colorful Iowa brookie. □

LOOKIN' BACK

Ten Years Ago

the *Iowa Conservationist* featured an outlook for the '69 fishing season. The pleasant spring of that year made for many happy anglers and the fishing remained good for most of the year.

Also in this issue was a story on the management of Bays Branch in Guthrie County and an article on mushroom hunting.

Twenty Years Ago

we were also looking for mushrooms — this time as the lead story. The hot spot then was the Missouri River bottoms. Remember looking for dead elm trees? Well, in those days we looked for cottonwood and ash trees.

In another article research showed that the rat probably killed more chickens than any other predator including mink and weasels.

Thirty Years Ago

the magazine ran an article on bullhead fishing. In those days it was the most popular fish in angler surveys and it still rates high today (second to channel catfish).

It was noted that in Missouri the 1949 game laws closed the season on rabbits for the first time ever. No, we don't know why.

Classroom Corner

by Bob Rye

ADMINISTRATOR, CONSERVATION EDUCATION CENTER

MANY PEOPLE HAVE TROUBLE relating to something which doesn't positively affect them. This is like understanding the positive value of a red traffic light.

A walk in the woods, whether for observing wildlife, picking mushrooms, or just for enjoying nature's "golden silence," stirs the spring blood in all of us. Spring flowers are making their appearance, along with many young of the year.

Not all walks are a total pleasure, however, for one notices insects beginning to make their presence known, and poison ivy is reaching out to those unaware of it.

Poison ivy grows vigorously as a woody vine, shrub, or, where conditions restrict it, in a "herbaceous state". It is known for having three leaves *(trifoliolate)* and possessing alternate arrangement of these leaves. Alternate indicates that the leaves switch sides of the stem as you look up or down it. All three growth types are found in close proximity at the Center.

The flowers of poison ivy are greenish-white to cream colored. They are about one-quarter of an inch across and grow in the leaf axils after the leaves appear in spring (see photo).

Fruit are greenish when young and ripen into a tan or yellowish drupe (appearance and structure of a cherry or peach) with a scaly outer coat and a white, hard, waxy inner flesh with black striations.

Poison ivy is toxic throughout the year. Almost one-half the United States population is sensitive to "average" contact with this plant. One may obtain dermatitis from clothing or other articles which have touched broken parts of the plant as well as from touching the plant itself. The plant can be broken, providing an exit for the poison. Chewing insects, animals or twigs striking the plant release the substance also.

Pulling up the plant even after leaves have fallen can cause a reaction, since all parts of the plants contain the poison. When burning occurs, the poison is released in droplet form on particles of dust and ash. This poses a danger to anyone inhaling the smoke.

The dermatitis is recognized by reddened and itchy skin in mild cases or blisters which exude serum in the severe cases. In treating, the first thing to do is to wash with soap and water. It is necessary to wash not only the skin, but also clothes or tools which might reinfect the body. There are a number of lotions and creams available to aid in treatment. In some cases physicians will administer a cortisone derivative as an injection. Jewel weed is a "natural" remedy for reducing the itch caused from poison ivy.

Animals, except for man, are generally not sensitive to poison ivy — primarily because of their coats of hair and fur. Birds, such as flickers, and mammals, like the cottontail, eat the fruit for food during the winter.

Wildlife is instrumental in distribution of the plant, especially near trees and fence rows. There are several excellent examples along the trails at the Center of a tree surrounded by poison ivy plants. These are used to bring together the ideas of plant propagation and specific requirements for survival.

This plant with its long history of causing problems very aptly allows us to explain Berry Commoner's *"The Four Laws of Ecology"* from *The Closing Circle:* 1. Everything is connected to everything else. 2. Everything must go somewhere. 3. Nature knows best. 4. There is no such thing as a free lunch. Take a trip into the out-of-doors and observe. Find an object which doesn't strike you as positive. Relate it to the four laws of ecology.

We have a program for juniors and seniors in high school who have an interest in conservation called the *County Conservation Board's Youth Leadership Program.* It takes place at the Conservation Education Center with three sessions in June and July. Do you know what conservation is? Have you studied the four laws of ecology? What is a County Conservation Board? Are you the type of a person who becomes involved? Contact your County Conservation Board or its executive officer for more information on this program.

PHOTO BY LEROY MOORE

TURKEY HUNTING *(Continued)*

high hunter densities on state lands. That reduced hunter success rates on state forests is related in some way to high hunter concentrations seems clear but the method through which it works is not as evident. It could be related to higher direct interference rates between hunters, continual harassment of gobblers resulting in reduced gobbling activity and greater wariness among gobblers on the state forests or a greater total number of inexperienced hunters on state lands. Regardless of which factor, or combination of factors, are operative, hunter densities approaching 12 per mi² seem too high to assure continued hunter satisfaction, considering that 25 percent hunter success is probably the best that can be attained at these levels of hunting pressure. Considering the high hunter densities achieved, it is surprising that hunter success rates could reach these levels, with 20 percent of even the inexperienced hunters bagging a bird. This again suggests that a large number of gobblers must be available.

If demand grows slowly; hunter concentrations may be reduced as more areas are opened to hunting. Increasing the license quotas, which will lead to a greater proportion of the hunters obtaining licenses, should result in the development of more experienced turkey hunters and reduce the need for travel, allowing more individuals to hunt in familiar territory. Other states have experienced a tremendous growth in the popularity of turkey hunting in the past decade and if Iowa recruits more turkey hunters as hunting opportunity increases, problems with maintaining a semblance of hunting quality will be intensified. A careful monitoring of the program will be necessary to determine in which direction turkey hunting progresses and the amount of control that will be required to maintain a successful program. Pursuing a wary gobbler on a warm spring morning is one of the greatest hunting experiences which can be achieved in Iowa, and it must not be spoiled!

Warden's diary

by Rex Emerson
LAW ENFORCEMENT SUPERVISOR

MY OLD FRIEND WHO LIVES down by the river came up with this one. *"A person who is always saying, 'There's no two ways about it' is evidently a bachelor."*

The old fellow was out in his shop getting his fishing equipment ready to go. The project at that time was sharpening the hooks in his tackle box. That is very important and something most of us forget to do.

The carp bait receipe in this column last year was not complete. Here is the correct recipe, from the champion carp fisher-people of Keosauqua.

1 cup cornmeal
1 cup salt
¼ to ½ cup flour
1 cup boiling water

Sometimes a little cinnamon added to it will help. Another good tip is to add an envelope of unsweetened Kool-Aid, whatever flavor is in season, such as grape flavor when the wild grapes are ripe. It really works. Knead the bait and make into a ball. Place the ball of bait into a paper sack that has about a cup of flour in the bottom. If the bait gets too soft you can knead a little more flour into it.

The game warden gets a lot of phone calls asking for all kinds of information. A lady in Council Bluffs called Ward Garreth one night and asked if this was the *game* warden. Ward replied that he was.

She said, *"Oh, good! Can you tell me some good games for my six year old's birthday party?"*

Most of the phone calls are for fishing and hunting information, such as:

Q. *Where is it legal to use throw lines?*

A. *That has changed this year. It shall be lawful to use throw lines in all rivers and streams of the state, except in Mitchell, Howard, Winneshiek, Allamakee, Fayette, Clayton, Delaware, Dubuque and Jackson Counties. Throw lines may be used in the above nine counties in the Maquoketa River, Jackson County; Turkey River, mouth to state Highway 13; and Upper Iowa River, mouth to state Highway 76.*

Q. *How many throw lines and hooks can I use?*

A. *In the rivers and streams that are open for throw lines you may use five lines, with no more than a total of fifteen hooks. Your fifteen hooks may all be on one line if you wish, or divided up on as many as five lines. Each line must be attached to the bank above the water line and have a tag on each one with your name and address. They must be checked at least every twenty-four hours. No, you can't tie them to tree limbs that hang out over the water.*

Q. *How many "diddie" poles can I have? The law leaflet doesn't even mention "diddie" poles. How am I supposed to know?*

A. *"Diddie" poles are just another name for a type of throw line. The same law applies.*

Q. *Do I need a fishing license to fish in the river that runs right through my farm?*

A. *If it is a meandered river running through your place you only own to the bank of the river and you wouldn't be fishing on your own place. If it is not a meandered river you would be fishing on your own property and would not need a license. For example, if your farm is on the Skunk River upstream from the town of Coppock you would not need a license. The same would be true on the Iowa River upstream from Koszta.*

Q. *My son is in military service. Does he need a license to hunt or fish when he comes home on leave?*

A. *No. Military personnel on active duty who are legal residents of Iowa, when on authorized leave, are not required to have a fishing license, or a hunting license to take small game.*

Q. *If the state stocks a farmer's pond with fish, can he keep me out?*

A. *He sure can. It's his property. He will probably let you fish in it if you ask him.*

Q. *Do we really have muskellunge in Iowa?*

A. *We sure do. The largest one caught so far weighed thirty-eight pounds and was taken from West Okoboji.*

Then about midnight the phone rings and when you answer you can hear the juke box playing and the tinkle of ice in glasses.

Some guy says, *"Shay, I got an ol' buddy here that says he shot a hunderd pheasants today. What should we do with him?"*

My answer to that is, *"Pour him back into the bottle."*

Pasque Flower by Ken Formanek