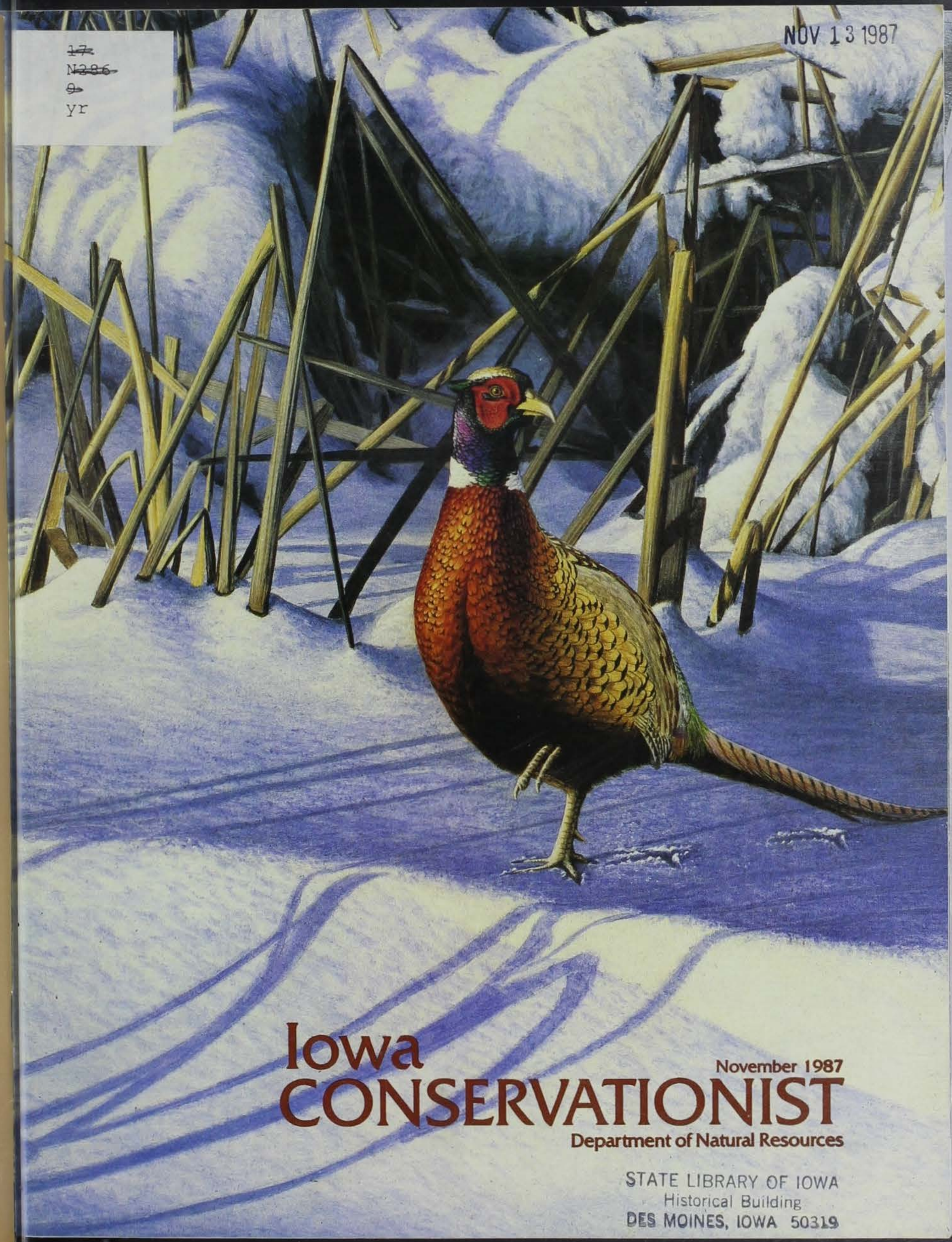


Iowa CONSERVATIONIST

November 1987

Department of Natural Resources

DNR

Iowa CONSERVATIONIST

DEPARTMENT OF NATURAL RESOURCES

VOLUME 46 NO. 11 NOVEMBER 1987

FRONT/BACK COVER: "Winter Cover — Ringnecks" by Larry Zach of Ankeny, the 1987 Iowa Pheasants Forever Print and Artist of the Year. (Image has been reversed.) For further information, see page 21.

CONSERVATIONIST Staff
Ross Harrison, *Bureau Chief*
Julie Holmes, *Editor*
Tami Pavlicek, *Assistant Editor*
Larry Pool, *Graphic Artist*
Ron Johnson, *Photographer*
Ken Formanek, *Photographer*

Iowa CONSERVATIONIST *(USPS 268-780), is published monthly by the Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034. Second class postage paid in Des Moines, Iowa, and additional mailing offices.* **Subscription rates: $6 for one year or $12 for three years.** *Include mailing label for renewals and address changes. POSTMASTER: Send changes to the* Iowa CONSERVATIONIST, *Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.*

Bobwhites By The Book

By Willie Suchy

WHAT WOULD YOU DO IF YOU WERE A HUNTER OR birder and were interested in learning more about bobwhite quail? You would probably go pick up a book at the library, read magazine articles and talk with local wildlife experts to find answers to your questions. You would compare what you read and heard with what you observed in the field, then decide what you believed was correct.

If you were interested in the breeding and nesting behavior of bobwhite quail, you would probably read and be told the following.

Quail are monogamous; they pair and stay with a single mate during the breeding season. Both the bob and hen share in the nesting and rearing of young. Although the hen generally performs most of the incubation, bobs will complete incubation if the hen has been killed. After hatching, both parents share in the brood-rearing duties. Adults and young remain in a covey until fall. A persistent myth is that hens raise more than one brood. Small chicks observed late in the summer are the result of quail finally raising a successful clutch after losing one or more earlier nests.

After comparing this to what you've observed in the field through the years, you would most likely accept these statements as fact. And why not? After all, a lot of time and effort was spent doing numerous studies to document these facts. It's not likely everyone would make the same mistakes and realize the same results and conclusions. That's exactly what we at the DNR thought also. How could all of the studies be wrong?

Well, a project initiated on quail in southern Iowa has been raising many questions about how correct these

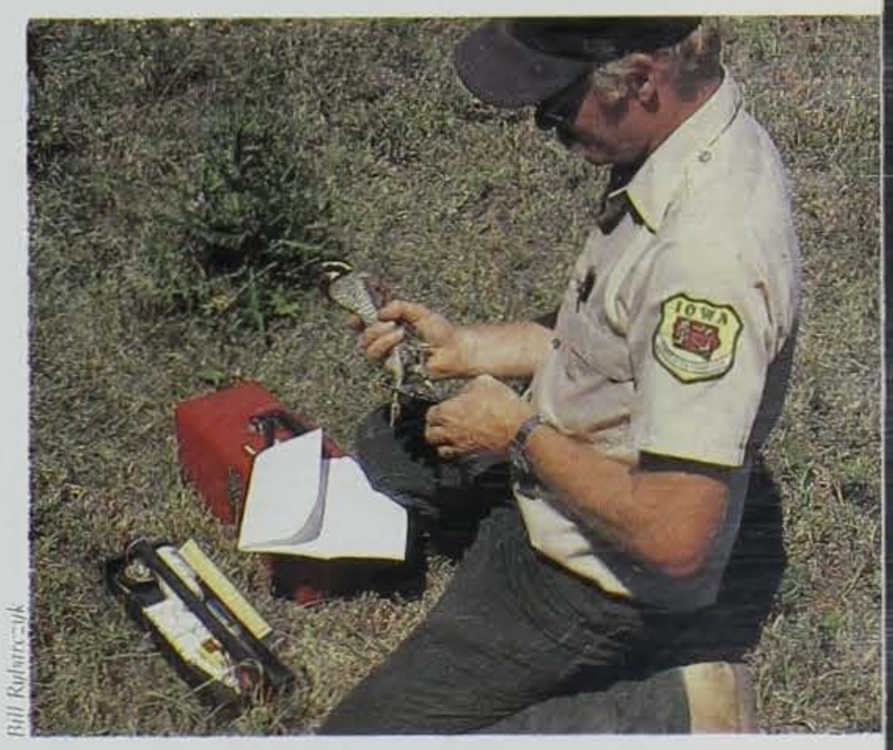
Iowa DNR photo

"facts" really are. After three and one-half years, we have yet to observe a hen and bob stay together for more than a week or two. We have yet to observe a hen and bob share incubation duties or have a bob take over incubation for a hen that was killed. We have yet to observe a hen and bob share duties in raising a brood. We have observed males incubate, hatch and raise a clutch by themselves. We have observed hens leave their chicks and start a second nest, and successfully raise more than one brood during the summer.

You might ask, why have we observed all these things when countless other studies have failed to detect them? Although we would like to claim that we are really just that much better at what we do, the real reason is that our "observations" are not made solely with our eyes. They are obtained with the aid of biotelemetry.

Biotelemetry is a relatively new technology made feasible through the use of miniaturized electronic circuits. Basically, it requires that miniature radio-transmitters be attached to wild animals. A receiver and antenna are then used to pick up signals from the transmitter. This allows us to locate the animals and find out what they are doing. By taking locations on our "radioed" quail, we can follow a bird's daily and seasonal movements. We can find its nest and see if it hatches and follow the bird and its young after the hatch. And we can determine how long each individual bird lives.

Most of our following is done with pickup trucks that have antennas, much like TV antennas, mounted on the roofs. We also use hand-held antennas and receivers and go in on foot when trying to locate birds on nests or recover the transmitter from a bird that has died.

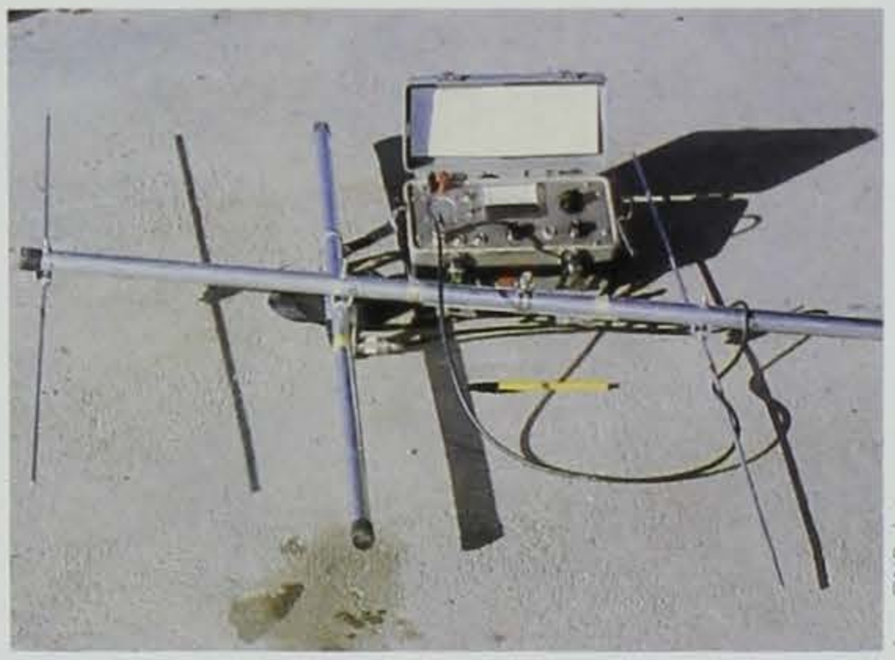


Bill Rabinezuk

Banded quail provide researchers with valuable information on Iowa's bobwhite population. With this information and data acquired through biotelemetry, biologists have discovered some interesting facts about the habits of bobwhite quail.

Iowa DNR photo

A live hen and recorded assembly call is one way to lure quail into a live-trap such as the one above. Radio-tagged quail will be monitored with the use of an antenna.



Iowa DNR photo

Dale Humbury

The key to using biotelemetry on quail is finding a small radio that lasts long enough. The radio we use on the adult birds is solar-powered and weighs about seven grams (about ¼ of an ounce). We have even smaller transmitters that have been put on three-week-old quail chicks. These weigh only 1.5 grams (about 5/100 of an ounce).

So far our project seems to be raising a lot of questions. It is also providing us with answers. It appears that since quail can raise a second brood, they have tremendous reproductive capabilities. We had one hen that hatched two nests for herself and probably laid one for a bob. She produced almost 50 eggs and 35 chicks that hatched. It also appears that bobs often take sole responsibility for nest incubation and the raising of young. This frees up hens to lay additional nests. These findings offer a plausible explanation for the almost instantaneous rebound in quail populations that we see after drastic losses during severe winters. On our study areas, quail populations recovered, in only two years, from the effect of the severe winter in 1983-84. This year's roadside surveys indicate quail numbers are at an all-time high, with quail up as much as 100 percent in Iowa.

We are also finding that quail can and do move around quite a bit during the year. It is not unusual for adults to move over a mile in one day during the spring and summer. Bobs seem to move around quite a bit during this time. However, we observed a hen move her entire brood over a seven-mile straight-line distance one fall.

Further work this fall and next year will undoubtedly help us understand more about the bobwhite quail in Iowa. We have many questions that still need to be answered. It appears from what we've found so far that quail haven't read the book or talked to experts to find out how they should behave. So we'll just have to continue to get our information straight from the quail themselves.

Willie Suchy is a wildlife biologist. He holds an M.S. degree in zoology from the University of Wyoming. He has been with the department since 1984.

GEOLOGIC TIMEKEEPERS

By Robert D. Libra

THE CONCEPT OF GEOLOGIC TIME IS INTRIGUING TO ANYONE WHO HAS PICKED up a rock or fossil specimen and wondered about its age. When geologists state that the oldest rocks seen in northeast Iowa are 500 million years old, or that a glacier occupied the statehouse grounds in Des Moines 14,000 years ago, people often ask how these ages are known.

In no other science does time play as important a role as it does in geology. Time provides the frame of reference necessary to the interpretation of past events and processes in Iowa's earth history. In the field, it is possible to speak in terms of the relative age of what is seen. For example, younger rock units occur on top of older rock units, and valleys are younger than the deposits into which they are carved. The relative age of geologic strata also can be determined by the fossil record contained in the rocks. Certain distinctive fossils characterize the different periods of geologic time. It is the establishment of absolute age, however, that gives geologists the precision to tie the earth's deposits and geological events to actual increments of time.

Finding a built-in clock, or chronometer, to measure time within the geologic record was possible after the discovery of radioactivity at around the turn of the twentieth century. Certain elements, such as uranium, have unstable internal atomic structures and are constantly making adjustments toward more stable isotopes or elements by emitting particles from their nucleus. This spontaneous breakdown is called radioactive decay, and it continues at a predictable rate over long periods of time. According to the principles of radioactive decay, the time required for one-half of the radioactive element to decay to its more stable form is expressed as its "half-life." After each half-life interval has passed, one-half of the remaining radioactivity will be present, and so on through time. Each "parent" radioactive element has its own unique rate of decay, and its own known half-life, stated in years. As time passes, the increasing number of "daughter" by-products of this breakdown can be measured against the remaining number of "parent" elements, and the amount of time that has elapsed since formation of the mineral or rock in question can be determined.

Office of State Archaeologist

These bison bones found near Cherokee contain a built-in "clock" for measuring geologic time.

A number of different radioactive isotopes are commonly used to date geologic materials. Long-lived radioactive elements, those with a long half-life, are used in dating the most ancient rocks, while the short-lived radioactive elements can be used effectively to date more recent materials. For example, a good choice of element pairs to measure the age of the earth's oldest rocks would be the use of the known rate of decay of Rubidium-87 to Strontium-87. Rubidium has a half-life of about 50 billion years. This method has been used to date ancient igneous and metamorphic rocks, as well as lunar samples brought back from the moon. Because of its very long half-life, the Rubidium-Strontium method loses accuracy with rocks younger than 50 million years or so. A better choice for dating these younger rocks would be the decay ratios of Uranium-238 to Lead-206, with a half life of about 4.5 billion years, or the decay of Uranium-235 to Lead-207, with a half-life of about 700 million years. In Iowa, the Uranium-Lead methods have been used to date the igneous granites that underlie the thick sequence of sedimentary rocks in parts of the state. The resulting ages of these "basement" rocks range from 1.4 to 2.5 billion years. The durable, pink outcrops of Sioux Quartzite in extreme northwest Iowa at Gitchie Manitou State Park fall within this age category.

Earth materials of very old to intermediate age are commonly dated using the known decay ratios of Pottasium-40 to Argon-40, with its half-life of 1,300 million years. A variation of radioactive time-keeping, called "fission-track dating," is also widely used toward the younger end of this interval, especially for that awkward age between 40,000 and one million years, a period for which neither Carbon-14 nor Pottasium-Argon methods are suitable. In this method, an electron microscope is used to observe the trails left by fragments fired off during the spontaneous fission of uranium. Fission-track dating of different beds of volcanic ash (Pearlette Family) located within the glacial deposits of western Iowa, has been instrumental in establishing benchmarks in time which, in turn, have enabled geologists to redefine both the number of glacial advances into Iowa and when these events occurred. For example, geologists now believe at least seven major glacial events occurred prior to the two more recent, and thus better-known, Illinoian and Wisconsinan advances.

In addition, glacial deposits are present below an ash bed in Union County that has been fission-track dated at 2.2 million years. This places the beginning of glaciation in Iowa at more than 2.2. million years — considerably older than previous estimates.

Another technique that is especially useful for sediments too old to be dated with Carbon-14 is Uranium-Thorium. Speleothems, or the calcium carbonate formations which decorate caves, lend themselves to this method. Stalactites from Cold Water Cave in Winneshiek County and Mystery Cave in southeast Minnesota were dated as being about 160,000 years old by the Thorium-Uranium method. Because caves form below the water table, and stalactites form after the water table drops below the cave level, we know that parts of these caves had already developed, and the local water table had dropped below cave level, prior to 160,000 years ago. Sampling cave formations for material to date is done with considerable care, from inconspicuous locations, so that the beauty of these special environments is not impaired.

Tim Kemmis

The amount of Carbon-14 remaining in this Webster County log can be measured to determine the age of the wood and thus the age of the surrounding glacial deposits of pebbly clay which buried it.

Uranium-thorium ratios from Cold Water Cave aid geologists in dating the cave's origin.

Mike Bourk

Perhaps the best known of the age-dating techniques is the Carbon-14 method. It is widely used for determining the age of geologically young materials, including archaeological evidence of early man. This short-lived radioactive isotope forms in the atmosphere by the interaction of Nitrogen-14 and cosmic rays. Thus, Carbon-14, in the form of carbon dioxide, is present in air and water, and therefore is present in all living organisms. When a plant or animal dies, the Carbon-14 is no longer replenished and begins to diminish in accordance with its own rate of decay back to Nitrogen-14. Because of its relatively short half-life rate of 5,730 years, only materials 45,000 years old or younger can be dated with this technique. Some geologic materials, such as the glacial deposits that mantle much of Iowa, cannot be directly age-dated. If pieces of wood or other organic materials are present within these deposits, they can be dated using Carbon-14. The sediments surrounding the wood are thus determined to be about the same age. Such dates have helped pinpoint the southernmost extension of the Wisconsinan glacial advance into north-central Iowa as being marked by the course of the Raccoon River at Des Moines 14,000 years ago. Radiocarbon dates have also been applied to unraveling the landscape evolution of extreme northeastern Iowa. Although the old, Paleozoic sedimentary rocks are the key ingredients in this scenic, high-relief terrain, current geologic research demonstrates that much of this relief is remarkably young. Radiocarbon dating of stream deposits shows that the deepest entrenchment, or erosion of streams into the landscape, occurred only 20,000 to 40,000 years ago.

Radiocarbon dates are frequently seen expressed, for example, as 11,800 ± 200. This additional range of time allows for any unavoidable margin of error. Also, in referring to radiocarbon dates, they are often written as a number followed by BP or RCYBP, meaning "radiocarbon years before present." The "present" has been arbitrarily assigned to the year 1950, not long after W.F. Libby and his associates devised this technique in 1947.

Carbon-14 has applications other than determining the age of geologic strata. Bone and charcoal also can be dated making this technique an invaluable tool for archaeologists. The oldest archaeological sites that have yielded dateable materials show that early man inhabited Iowa over 8,500 years ago. In addition, Carbon-14 may be dissolved in groundwater, so that it is possible to estimate the period of time groundwater has been in an aquifer and isolated from the atmosphere. In Iowa, the only dating of this type that has been done was on a sample of water from the deep-lying Jordan Sandstone aquifer. The sample was collected in southwestern Iowa where the Jordan occurs at a depth of approximately 3,300 feet and was subjected to Carbon-14 analysis. The water sample proved "dead;" that is, it was too old to date, using this technique. At a minimum, this indicates the groundwater in the Jordan Sandstone in this region of the aquifer is more than 45,000 years old.

Age dating of materials using radioactive methods has become an invaluable tool in the geological and related sciences. It is not without its problems, as unavoidable losses or gains of isotopes can occur through interactions with the surrounding environment, and erroneous ages can result. Improvements in radiometric geochronology, however, are continually being made and will permit future refinements in the calibration of these built-in clocks which measure geologic time.

Reprint from *Iowa Geology*

Robert D. Libra is a hydrogeologist with the geological survey bureau in Iowa City. He holds an M.S. degree in geology from Indiana University. Libra has been with the department since 1982.

The Minerals of Iowa

An excellent starting point for potential "rock hounds" and mineral collectors is the Department of Natural Resources' 1974 publication, *The Minerals of Iowa*. Written for the non-technical reader and full of historical tidbits and advice to beginning collectors as well as seasoned amateurs, this book continues to be a best seller.

The book covers numerous topics pertinent to mineral collecting in Iowa and contains numerous illustrations in both color and black and white. It can be found in many public and school libraries around the state. Anyone with an interest in Iowa's rocks and minerals and historical lore will enjoy this publication. It provides both general locations for collecting minerals in Iowa and the basics of mineral composition and identification, including descriptions of crystal forms and distinguishing physical properties. Also included are tips to aid in collecting, information about useful field equipment and recommended safety precautions.

In addition to the detailed descriptions and photographs of Iowa minerals, the book contains a recommended reading list, a glossary of terms, a summary of the availability of minerals and gemstones for cutting and polishing and a geologic map of Iowa.

This 88-page, 8½ x 11-inch format book is available for only $3.95 which includes postage and handling. If you are searching for a gift idea that is unique and educational, consider this introduction to Iowa's rocks and minerals. Recommended for ages 12 and up.

Order from:

Department of Natural Resources
Geological Survey Bureau
123 North Capitol Street
Iowa City, Iowa 52242

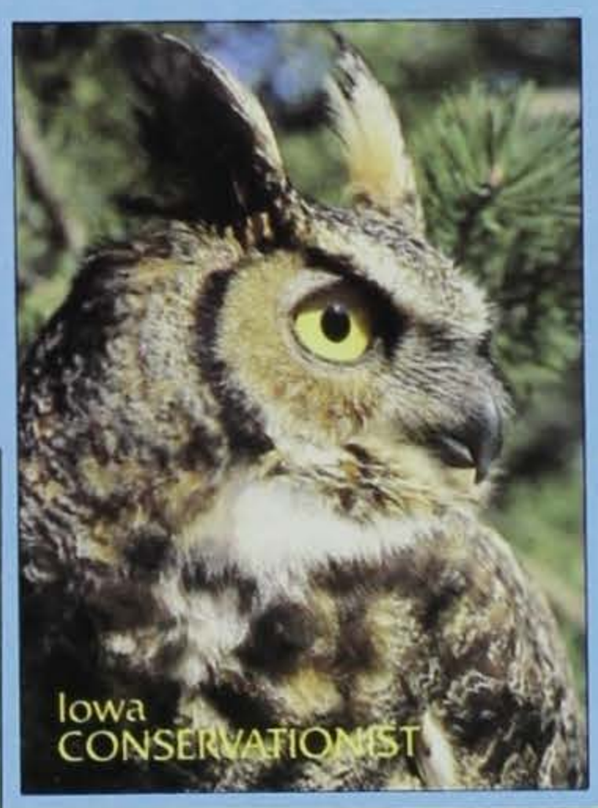
Paul Horick

Paul Horick

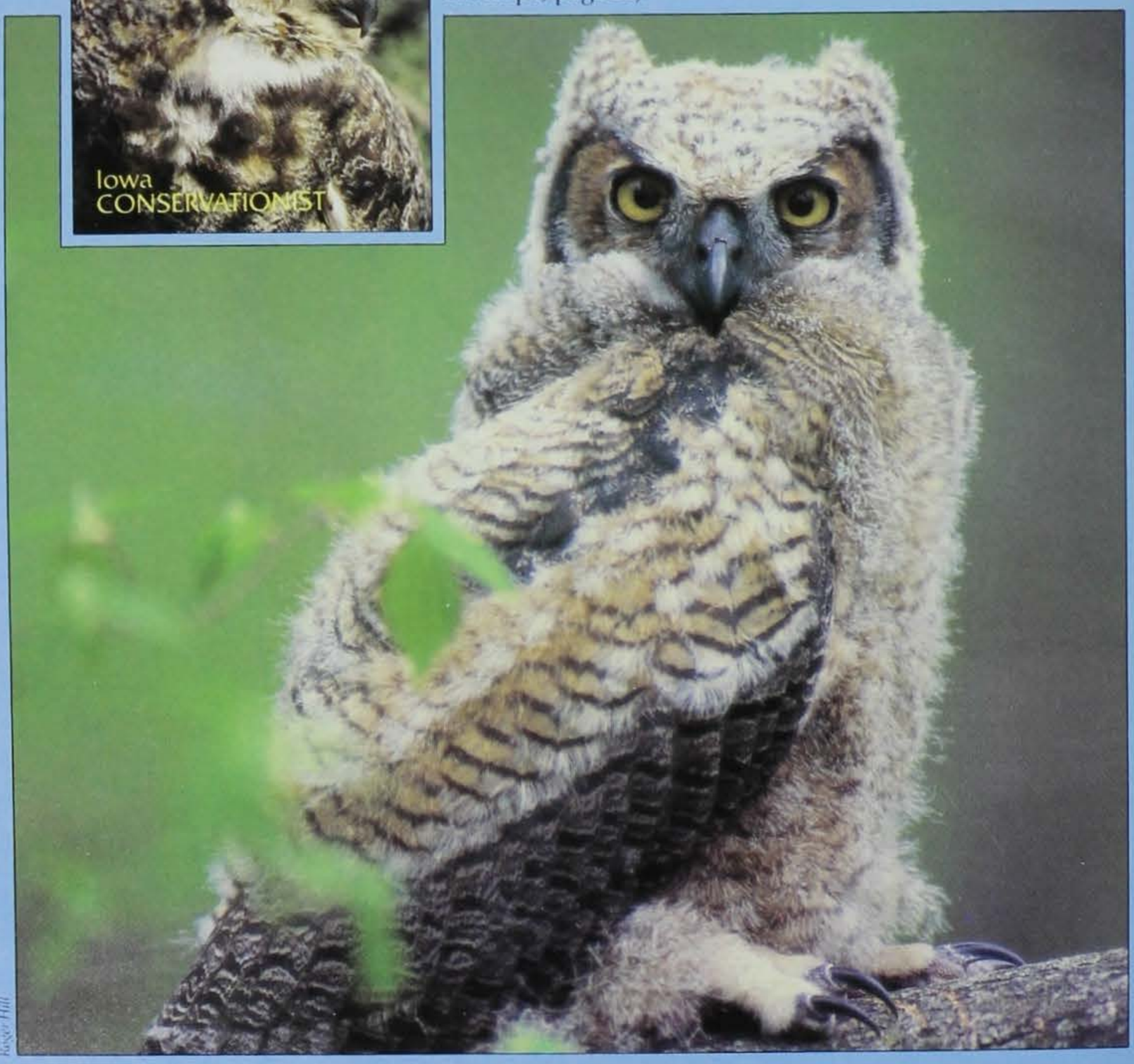
Paul Horick

Millerite (upper left)
Lake Superior agates (above)
Quartz geodes (left)

A Gift of the Iowa Outdoors



The *Iowa CONSERVATIONIST* is a great Christmas gift that is remembered each month. Beautiful pictures mixed with stories to please almost everyone…that's the *Iowa CONSERVATIONIST*. Gift subscriptions are just $6 per year (12 issues) or $12 (36 issues) for three years. Order now and have a free 1988 calendar (our special December issue) sent to the new subscriber, along with a card acknowledging your gift (order form at right; pre-paid envelope, page 24).



Roger Hill

o
later
is
e's
a
ed.
ack,
and
the
is-
half
nd
orse
ay-
t,
t's
hat
the
ey

readily admitted their guilt and Galen took them forthwith to court. "How about that?" he grinned.

Galen never backed away from the big ones either. One day he heard that the annual game feed, which was always held at a large public-owned facility, hadn't gotten any venison donated. Seems as if the top-dog took it upon himself to shoot a couple of local ones, even though the season was closed. Galen backed up to the kitchen where it was being cooked, loaded it all into his trunk, walked back into the office and issued the tickets. Believe you me, that caused quite an uproar and was heard a long ways from Iowa. After paying his fine, the individual wasn't seen around there anymore.

Sometimes, in this business, it's not always so easy or pleasant to issue those tickets, especially when you know your decision is not going to be very popular with certain people or even friends. But he remembered what an Ol' Warden taught him, "You take 'em as they come, and call 'em like you see 'em!" *Right? RIGHT!*

live swan before; just what they saw in pictures and *thought* that's what a swan looked like.

"Well," I told him, "without the bird, you don't have much for court! You need that carcass or some feathers, or some way to prove they actually shot a swan. You've only got their tentative identification. That's

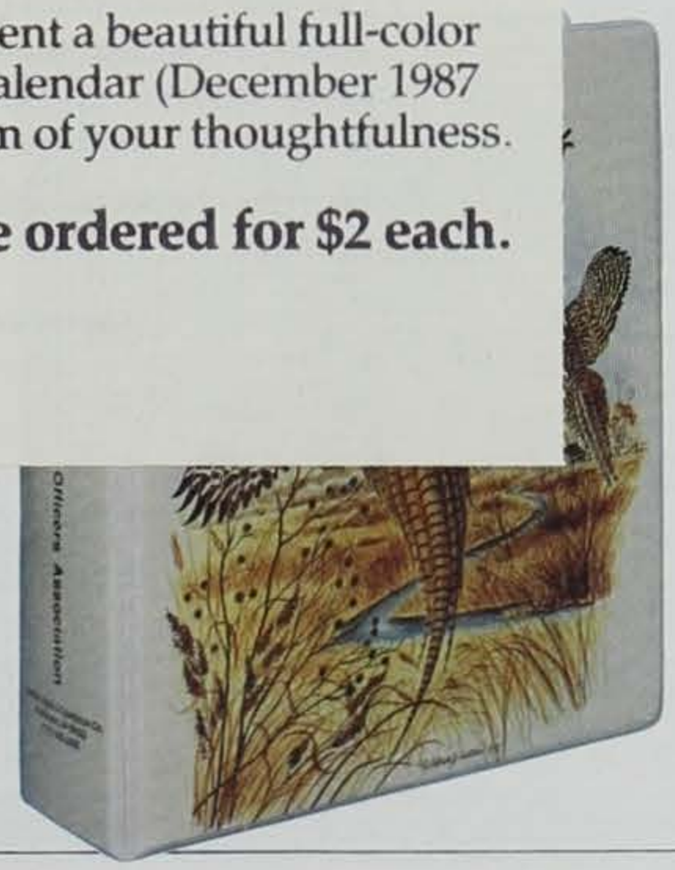
's Cookbook

e
soci-
dens'
tains

over 400 recipes from game wardens and friends all over Iowa and features colored paintings from noted artist, Patrick J. Costello of Maquoketa, Iowa.

Categories include "From the Oven," "From Deep Woods to Backyard," "Greens and Other Ground Things," "Possibles" as well as Fish, Waterfowl, Soups, Small Game, Upland Game, Venison and, of course, Desserts. The book also contains some warden's stories, a few jokes and helpful hints such as how to get the fish smell off of hands. There's a list of poisonous flowers and even some wine recipes — a little bit of everything.

Wardens' Cookbook may be purchased for $10 from any Iowa conservation officer or by mail from George Hemmen, Box 105, Rte. 1, Guthrie Center, Iowa 50115. Please add $2 for mail orders.



A Gift of th

T
t
v
C
y
r
is
a
e

Roger Hill

Holiday Gift Order Form

Please include payment with order.
Additional gift orders may be enclosed on a separate sheet.

GIFT FOR—
Name _____

Address _____

City & State _____ Zip Code _____

☐ One-year subscription ($6)
☐ Three-year subscription ($12)
☐ New
☐ Renewal

GIFT FOR—
Name _____

Address _____

City & State _____ Zip Code _____

☐ One-year subscription ($6)
☐ Three-year subscription ($12)
☐ New
☐ Renewal

GIFT FOR—
Name _____

Address _____

City & State _____ Zip Code _____

☐ One-year subscription ($6)
☐ Three-year subscription ($12)
☐ New
☐ Renewal

GIFT FROM—

Please be sure to fill in this portion.

My name _____

My address _____

City & State _____ Zip Code _____

Enter my own subscription to the Iowa CONSERVATIONIST.
If possible, please include your mailing label.

☐ One-year subscription ($6)
☐ Three-year subscription ($12)
☐ New
☐ Renewal
☐ Please send me ____ 1988 Iowa CONSERVATIONIST Calendar(s) (December 1987 issue) ($2 each)

Please make checks payable to the Iowa Department of Natural Resources.

Allow eight weeks for subscriptions to start.

WARDEN'S DIARY

By Jerry Hoilien

He was too darned good looking to be a game warden, was my first impression of my new neighboring warden at Burlington. Like all of us starting out, he was "green as grass," but willing and eager to learn. We spent a lot of time together that year as he learned his new territory, and I tried to help him as much as I could. Guess that's the nature of wardens; they want to learn so much as fast as they can, and the older ones are so willing to share. They're a unique and very special group.

That fall, as usual, I was up to my neck in work when Galen called and asked if he could stop down and discuss a case with me. "Sure," I told him, but I was busier than the proverbial "cat on a hot tin roof" when he arrived. He had had a complaint from a couple of young duck hunters about somebody shooting a swan. A pair of swans had flown right over them and lit in the decoys of a couple of other hunters. The barrage of shots crippled both birds. The two men motored out, retrieved one and chased the other, across the river, over the levee and then apparently lost it. The two young hunters who complained had gone after them, but as they approached the boat, a large sack was dumped overboard. The evidence was in the bottom of the Mississippi River. What could he do?

I quizzed Galen about his two witnesses, thinking maybe he could make an expert witness out of one of them on swan identification. No such luck. With no background or years of experience, neither one of them could say they'd even seen a live swan before; just what they saw in pictures and *thought* that's what a swan looked like.

"Well," I told him, "without the bird, you don't have much for court! You need that carcass or some feathers, or some way to prove they actually shot a swan. You've only got their tentative identification. That's a tough one!" I was on my way to court with a case of my own and later when I looked around, Galen was gone. "Too bad," I thought, "you don't get a chance to make a case like that very often, but at least he's trying. Darn!"

The next day he was back with a big grin. "Well, I got them!"

"Who?" I asked.

"The swan shooters," he replied.

"How in the world did you do that? You didn't have much." I couldn't believe it.

"You told me I needed that carcass," he shrugged, "so I went back, got my witnesses, my drag hook and went out and dragged. Got it on the third pass!" Keep in mind, the Mississippi River is almost *two and a half miles wide* in that area. Looking and dragging for that sack was a *lot* worse than "looking for a needle in a haystack." It was a billion to one shot, but that didn't bother him. If that's what it takes, go for it!

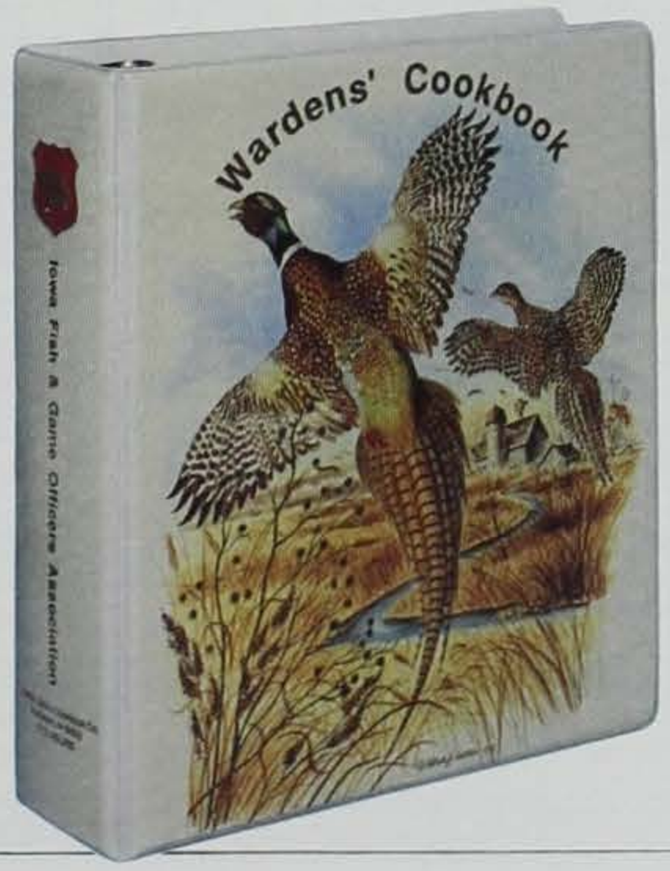
After miraculously retrieving that swan in the sack, he approached the shooters in town as they got off work. They were so shocked. They readily admitted their guilt and Galen took them forthwith to court. "How about that?" he grinned.

Galen never backed away from the big ones either. One day he heard that the annual game feed, which was always held at a large public-owned facility, hadn't gotten any venison donated. Seems as if the top-dog took it upon himself to shoot a couple of local ones, even though the season was closed. Galen backed up to the kitchen where it was being cooked, loaded it all into his trunk, walked back into the office and issued the tickets. Believe you me, that caused quite an uproar and was heard a long ways from Iowa. After paying his fine, the individual wasn't seen around there anymore.

Sometimes, in this business, it's not always so easy or pleasant to issue those tickets, especially when you know your decision is not going to be very popular with certain people or even friends. But he remembered what an Ol' Warden taught him, "You take 'em as they come, and call 'em like you see 'em!" *Right? RIGHT!*

Warden's Cookbook

Looking for a Christmas gift? The Iowa Fish and Game Officers' Association has recently published *Wardens' Cookbook*. The 171-page book contains over 400 recipes from game wardens and friends all over Iowa and features colored paintings from noted artist, Patrick J. Costello of Maquoketa, Iowa.



Categories include "From the Oven," "From Deep Woods to Backyard," "Greens and Other Ground Things," "Possibles" as well as Fish, Waterfowl, Soups, Small Game, Upland Game, Venison and, of course, Desserts. The book also contains some warden's stories, a few jokes and helpful hints such as how to get the fish smell off of hands. There's a list of poisonous flowers and even some wine recipes — a little bit of everything.

Wardens' Cookbook may be purchased for $10 from any Iowa conservation officer or by mail from George Hemmen, Box 105, Rte. 1, Guthrie Center, Iowa 50115. Please add $2 for mail orders.

1988 Application for Seedlings

Your State Forest Nursery provides tree and shrub seedlings for conservation planting on Iowa lands. We encourage you to plant for reforestation, wildlife habitat and erosion control.

Last year was a banner year for sales. More than 4,000,000 seedlings were distributed for conservation purposes. With the newly introduced fall planting program, some species were sold out by late winter. So, order now and reserve your seedlings even if you don't intend to plant until spring.

You must fill out the application completely and sign the statement agreeing to use the plants for conservation purposes. You must order 500 plants in multiples of 100, unless completing the previous year's planting or ordering the wildlife or songbird packets.

If you order more than 5,000 seedlings, the nursery will give you a 15 percent discount. For orders more than 2,000 seedlings, we will give you a 10 percent discount. We have initiated this new discount system to help landowners reach a goal of 3,000,000 acres in forest cover in Iowa.

Don't send money when you mail your application. If we have the plants you want, we'll deduct them from our inventory and send you a bill for the correct amount. This bill is our acknowledgement of your order. You must pay this bill within 15 days, or we will cancel your order. If the nursery has insufficient stock, substitutions will be made.

We begin shipping orders early in the spring, but unfavorable weather can cause delays. Hence, we can't guarantee availability on a specific date. Call (515) 233-4110 for information about our spring shipping schedule and species available.

If you have any questions, write the State Forest Nursery at 2404 South Duff Avenue, Ames, Iowa 50010, or call (515) 233-1161, Monday through Friday, 8 a.m. to 4:30 p.m.

GENERAL INFORMATION

Species	Mature Size Range	Moisture			Light		Remarks
		Dry	Well Drained	Moist	Full Sun	Some Shade	
Wildlife packet							200 plants valuable to wildlife. 50 conifers, 50 hardwoods, 100 shrubs chosen by the nursery.
Songbird Packet							Mixed variety of 20 shrubs beneficial to songbirds.
White Pine	50-80'		X	X	X	X	Intolerant of air pollutants. Good timber tree. Adaptable to most sites. Native to NE Iowa.
Scotch Pine	30-60'	X	X		X		Hardy. Adaptable.
Red Pine	50-80'		X		X		Requires cool sites. Good timber tree.
Ponderosa Pine	60-100'	X	X		X		Recommended for Western Iowa only.
Jack Pine	35-50'	X	X		X		Hardy and adaptable. Good cover for coal spoil banks.
Norway Spruce	40-60'		X		X		Good wildlife habitat.
White Spruce	40-60'		X	X	X	X	Good wildlife habitat.
Red Cedar	40-50'	X	X	X	X		Tolerates poor, gravelly soils; prefers airy site. Very drought resistant. Good wildlife food and habitat. Native.
Black Walnut	50-70'		X		X		Valuable wood products tree. Good firewood. Requires deep, rich, well-drained soil. Native.
Green Ash	50-60'		X	X	X		Valuable wood products tree. Very good firewood. Native.
White Ash	50-80'		X		X		Valuable wood products tree. Very good firewood. Native to all but NW Iowa.
Shagbark Hickory	60-80'		X		X		Wood products. Excellent firewood. Native to all but NW corner of state.
Silver Maple	60-80'		X	X	X	X	Bottomland sites. Valuable wood products trees. Good firewood. Native.
Red Oak	60-80'		X	X	X		Valuable wood products tree. Excellent firewood. Native to all but NW corner of state.
White Oak	50-80'		X	X	X		Valuable wood products tree. Excellent firewood. Native to all but NW corner of state.
Bur Oak	70-80'	X	X	X	X		Adaptable to various soils. Excellent firewood. Staves and railroad ties. Native.
Mixed Oak							May contain red oak, white oak and bur oak in varying proportions.
Mixed Hickory	60-80'		X		X		May contain shag and shellbark and bitternut hickory in varying proportions.
Russian Olive	12-25'	X	X		X	X	Very hardy plant. Good food for wildlife. Drought resistant.
Tatarian Honeysuckle	10-12'	X	X		X	X	Very hardy. Dense growth. Good wildlife habitat and food for birds. Fruit available July-August.
Amur Honeysuckle	12-15'	X	X		X	X	Occasional winter killing of branches in northern Iowa. Fruit available September-November. Good wildlife habitat and food for birds.
Redosier Dogwood	7-9'		X	X	X	X	Produces cluster of stems from ground. Good wildlife food and habitat. Native to NE Iowa.
Gray Dogwood	10-15'	X	X	X	X	X	Hardy. Forms large colony of plants from original. Good cover. Native.
Common Lilac	8-15'		X		X		Hardy. Shrub border or in groupings. Good wildlife habitat.
Common Chokecherry	20-30'	X	X	X	X	X	Hardy. Good food for wildlife. Native.
Hybrid Poplar	40-60'	X	X	X	X		Mixed hybrids of cottonwood selected for Iowa. Good for fuelwood plantations.
Wild Plum	12-15'	X	X	X	X	X	Hardy. Forms thicket. Good wildlife habitat.

1. Fill in the "number wanted" column.

PLANTS AVAILABLE

Wildlife and songbird packets can be ordered separately.

	Cost/ Packet	Code	Number of Packets Wanted	Office Use Only
Wildlife Packet	$22.00	96		
Songbird Packet	12.00	95		

Species	Height	Cost/ Hundred (taxes, shipping, and handling are included)	Code	Number of plants in units of 100	Office Use Only
(Do not order less than 500 plants, and order in units of 100)					
White Pine	5-12"	$11.75	30		
Scotch Pine	5-12"	11.75	20		
Red Pine	6-14"	11.75	17		
Ponderosa Pine	5-12"	11.75	15		
Jack Pine	6-14"	11.75	10		
Norway Spruce	6-12"	11.75	13		
White Spruce	6-12"	11.75	43		
Red Cedar	6-12"	11.75	16		
Black Walnut	10-18"	11.75	24		
Green Ash	8-18"	11.25	08		
White Ash	8-18"	11.25	28		
Shagbark Hickory	4-12"	11.25	52		
Silver Maple	8-18"	11.25	21		
Red Oak	8-18"	11.25	41		
White Oak	6-12"	11.25	29		
Bur Oak	8-18"	11.25	04		
Mixed Oak	8-18"	11.25	51		
Mixed Hickory	4-12"	11.25	64		
Russian Olive	8-16"	10.75	19		
Tatarian Honeysuckle	8-16"	10.75	23		
Amur Honeysuckle	8-16"	10.75	01		
Redosier Dogwood	8-18"	10.75	18		
Gray Dogwood	6-12"	10.75	07		
Common Lilac	6-12"	10.75	47		
Choke Cherry	8-16"	10.75	39		
Hybrid Poplar (rooted cutting)	8"	11.25	53		
Wild Plum	10-18"	10.75	31		

APPLICATION FORM

2. ADDRESS

(Please Print)

(LANDOWNER NAME — **PLEASE PRINT**)

(MAIL ADDRESS)

(CITY) (STATE) (ZIP)

(PHONE NUMBER)

3. Check pick-up or ship box.

☐ **I will pick up my order at the nursery when notified.**

☐ **I want my order shipped to the address above.**

SHIPPING ADDRESS
(If different from above)

(NAME — **PLEASE PRINT**)

(MAIL ADDRESS)

(CITY) (STATE) (ZIP)

(PHONE NUMBER)

4. Please Answer Each Question

1. These trees are to be planted in _____ County.
2. Are you a tax-exempt government? Yes ☐ No ☐
3. Have you purchased plants from the Nursery before? Yes ☐ No ☐

Volume Discount

15% for orders over 5,000 plants
10% for orders over 2,000 plants

5. Sign the agreement. Fill in your mailing address.

I agree to plant and use the nursery stock requested upon the described property for establishing or improving existing forests, erosion control, game or water conservation, with these restrictions: I agree NOT to resell or give these plants away with roots attached to any person, firm, corporation or agency nor to plant any of them for new windbreak, shade, or ornamental purposes. I agree to protect all plantings from fire and domestic livestock grazing. I agree to forfeit for destruction any trees planted or used in violation of the above restrictions.

Landowner Signature

1987 Record Deer Racks

Photo by Thomas Kitchin

SHOTGUN TYPICAL

(Minimum Qualifying Score — 150 Points)

Name	Address	Year	County Taken	Total Score
Randy Hall	Creston	1986	Union	181⅞
Larry Belding	Stuart			178⅝
Steve Maher	Onawa	1986	Monona	175⅝
Art Daniels	New Virginia	1986	Warren	175⅜
Ed Golay	Coon Rapids	1984	Carroll	174⅝
Pat Kenaley	Sioux City	1986	Plymouth	173⅜
Jim Schrobilgen	Dubuque	1984	Dubuque	172⅝
Terry Sparks	Knoxville	1985	Monroe	172⅜
Craig Mitchel	Dunlap	1986	Crawford	172⅛
Doug Enfield	Crawfordsville	1985	Bremer	172⅛
Glenn Brandt	Davenport	1974	Appanoose	172⅛
Ed Fowler	Sioux City	1986	Monona	170⅝
Mike Roussel	Dubuque	1986	Clayton	170⅝
Dallas Moore	Pacific Junction	1986	Mills	168⅞
Donnie Drennan	Atlantic	1972	Adams	168⅝
Dewight Green	New Virginia	1970	Warren	167⅞
Jesse Boehmer	Goose Lake	1984	Clinton	167⅝
Dale Gorham	Mediapolis	1986	Des Moines	166⅞
Larry Nicklaus	Wheatland	1986	Clinton	166⅝
Kurt Boyd	Des Moines	1986	Lucas	166⅛
Merlin Peiffer	Onslow	1986	Jackson	165⅞
Rick Bandstra	Harvey	1986	Marion	165⅝
Kyle Voss	Missouri Valley	1986	Harrison	165⅜
Don Grossnickle	Panora	1986	Guthrie	165⅛
George Janecek	Washington	1975	Des Moines	165⅛
Mike Giltner	Agency	1986	Wapello	165⅛
Greg Carpenter	Coon Rapids	1986	Guthrie	165
Patricia Kumpf	New Albin	1986	Allamakee	164⅞
Shane Thordsen	Burlington	1986	Des Moines	164⅞
Mike Lahiff	Clare	1986	Webster	164⅝
Brian Weiss	Burlington	1986	Des Moines	164⅜
Tom Haag	Monticello	1986	Jones	164⅜
Jerry Johnson	West Burlington	1986	Henry	164⅛
Dennis Hansen	Solon	1986	Keokuk	164⅛
Robert Ridnour	Glenwood	1986	Fremont	164⅛
Doug Pettyjohn	Bussey	1986	Marion	163⅞
Randy Dittmer	Davenport	1986	Muscatine	163⅝
Duane Chance	Lovilia	1967	Monroe	163⅜
Dennis Moore	Sioux City	1986	Woodbury	163
Steve Reicks	Cresco	1985	Howard	162⅛
Lynn During	Osage	1986	Mitchell	162⅛
Ron Johnson	Sioux City	1986	Woodbury	161
Allen Davidson	Ottumwa	1986	Wapello	160⅞
Tim Wolf	Des Moines	1984	Dallas	160⅞
Dale Collett	Blakesburg	1983	Monroe	160⅞
Harley Everts	Gilman	1986	Van Buren	160⅝
Harold Cobb	Derby	1980	Lucas	160⅛
Pat McKinney	Sioux City	1986	Woodbury	160⅛
Merle Headington	Cedar Rapids	1984	Winneshiek	160⅛
Bill Wahlers	Logan	1982	Harrison	160
Randy Kongable	Winfield	1986	Van Buren	159⅞
Brian Nading	Harpers Ferry	1984	Allamakee	159⅝
Les Williams	Oelwein	1986	Allamakee	159⅝
Ron Aylsworth	Wadena	1984	Fayette	159⅜
Dave Westphal	Decorah	1985	Allamakee	159⅜
Bill Kickbush	Des Moines	1984	Van Buren	159⅛
Kenneth Jordan	Ottumwa	1986	Monroe	158⅞
Gary Bond	Colesburg	1979	Delaware	158⅝
Dale Lynch	Walnut	1986	Pottawattamie	158⅝
Clark Fobes	Johnston	1985	Madison	158⅜
Jim Hollinrake	Lovilia	1986	Monroe	158⅜
Jerry Neuhaus	Farmersburg	1981	Clayton	158⅛
Wade Guffy	Sioux City	1986	Woodbury	157⅞
Dave Keleher	Sioux City	1986	Pottwattamie	157⅞
Brent Hoover	Melcher	1986	Warren	157⅝
John Bauer	Holy Cross	1985	Clayton	157⅝
Dave Patterson	Guthrie Center	1979	Guthrie	157
Rev. Fred Christensen	Bayard	1967	Guthrie	156⅞
Todd Emerson	Belle Plaine	1986	Des Moines	156⅝
Larry Robertson	Washington	1974	Washington	156⅝
Terry Bockenstedt	Luxemburg	1986	Delaware	156⅜
Dan Francis	Eddyville	1986	Wapello	155⅞
Jeff Goecke	State Center	1986	Marshall	155⅞
Paul Schaefer	Goodell	1966	Hancock	155⅝
Joe Bennett	Washington	1961	Washington	155⅜
Jerry Bishop	Maxwell	1985	Wayne	155⅜
Dale Manders	LaMotte	1986	Dubuque	155⅛
Patrick Bishop	Maxwell	1986	Wayne	155⅛
Gary Schafer	Lansing	1985	Allamakee	154⅝
Earl Edel	New Providence	1986	Story	154⅝
Pat Robinson	Lenox	1986	Taylor	154⅜
Doug Stanley	Lacona	1986	Lucas	154⅛
Randy Peterson	Corning	1981	Adams	154⅛
Jim Miller	Des Moines	1986	Fayette	154⅛
Dwight Kelderman	Knoxville	1986	Appanoose	153⅞
Dennis Koppes	Monmouth	1986	Jackson/Jones	153⅞
Mike Ernst	Bellevue	1986	Jackson	153⅞
Raymond Harris	Sheldahl	1986	Boone	153⅞
Melvin Boldy, Jr.	Minburn	1985	Dallas	153⅞
James Brown	Hiawatha	1986	Clayton	153⅝
Mike Pietz	Ames	1983	Guthrie	153⅝
Craig Schneider	Muscatine	1986	Muscatine	153⅜
Richard Morris	New Vienna	1986	Clayton	153⅛
Darrel Dieleman	New Sharon	1986	Marion	153
Dave Jones	Mitchellville	1986	Wayne	152⅞
Mike Hansel	Edgewood	1985	Clayton	152⅞
Ronald Schrock	Creston	1986	Union	152⅝
James Engle	Waukee	1986	Davis	152⅜
C. K. Pettit	Bloomfield	1982	Davis	152⅛
Gary Lytton	Indianola	1985	Madison	152⅛
Matt Brown	Fort Dodge	1986	Webster	152⅛
Kevin Oetken	Sperry	1986	Des Moines	152⅛
Dan Kinley	Marquette	1986	Clayton	152⅛
Jim Milewsky	Urbandale	1986	Howard	152⅛
Bill Ahrens	Montezuma	1986	Poweshiek	152⅛
Scott Schmid	Kingsley	1983	Plymouth	152⅛
Roy Johnston	Albia	1982	Monroe	152
Owen Sandbulte	Sioux Center	1986	Sioux	151⅞
Frank White	Lime Springs	1957	Howard	151⅝
Robbie Vande Vorde	Stanley	1986	Buchanan	151⅝
Darin Gruenhaupt	Waukee	1986		151⅜
Mike Morris	Indianola	1986	Warren	151⅜
Larry Bartholomew	Keosauqua	1986	Van Buren	151⅛
Lewis Wernett	Center Point	1986	Winneshiek	151
Ken Syndergaard	Peterson	1968	Clay	150⅞
Dennis Bayless	Shenandoah	1986	Page	150⅝
Al Bellingtier	Fort Dodge	1985	Shelby	150⅜
Harley Jewell	Tama	1986	Tama	150⅛
Rick Krause	Griswold	1986	Cass	150⅛
Harold Dickman, Sr.	Woodbine	1968	Harrison	150⅛
Gary Freeman	Lenox	1986	Taylor	150⅛
Lynn Morkert	Pomeroy	1984	Monona	150

SHOTGUN NONTYPICAL

(Minimum Qualifying Score - 170 Points)

Name	Address	Year	County Taken	Total Score
*Edgar Shields	Grand River	1986	Decatur	229⅞
*Max Marlin	Blakesburg	1981	Wapello	222⅛
Paul Pearson	Knoxville	1964	Marion	211⅝
Bob McFadden	Muscatine	1986	Muscatine	202⅛
Daniel Kauffman	Wapello	1984	Louisa	197⅛
Ron Marovec	Vinton	1986	Benton	189
Greg Martin	Massena	1984	Adams	188⅛
Thomas Behrle	Tipton	1984	Johnson	181⅞
Davis Heywood	Randolph	1986	Fremont	180⅛
Dave Mathis	Harpers Ferry	1984	Allamakee	174
Chris Shell	Schaller	1986	Harrison	174⅛
Bob Caven	Maquoketa	1986	Jackson	173⅛
Hank Cox	Thurman	1986	Fremont	171

BOW AND ARROW TYPICAL

(Minimum Qualifying Score - 135 Points)

Name	Address	Year	County Taken	Total Score
*Vern Backstrom	Des Moines	1986	Polk	180⅛
Charles Bemer	Cedar Rapids	1985	Linn	171⅞
Charles Gunn	Jefferson	1986	Greene	168⅝
Mike Bell	LeClaire	1983	Louisa	162⅜
Paul Johnson	Robins	1986	Jones	161⅞
Dave Bayless	Clarinda	1986	Page	159⅝
Doug Roll	Pacific Junction	1986	Mills	158
Don Smith	LeClaire	1986	Des Moines	156⅝
Carl Stogdill	Crawfordsville	1986	Washington	156⅛
Gerald Kluesner	New Vienna	1986	Clayton	155⅝
David Wunnenberg	Burlington	1986	Des Moines	155⅛
Daniel Parker	Guttenberg	1986	Clayton	155
Robert Vanderpool	Thurman	1982	Fremont	154⅞
Bob Reitan	Whiting	1986	Monona	154⅛
Rusty Fowler	Sioux City	1986	Plymouth	154⅛
Gerald McCredie	Keokuk	1985	Lee	153⅝
Don Dyer	Des Moines	1985	Madison	153⅜
Ron Elbe	Davenport	1986	Lee	153⅛
Mark Koenigsfeld	Charles City	1986	Floyd	152⅝
Steven Donnelly, Jr.	Knoxville	1986	Marion	152⅝
Don Baloun	Marshalltown	1986	Marshall	151⅝
Ernest Burroughs	Waukon	1985	Allamakee	151⅜
Bryron Meyerhofer	Riceville	1986	Mitchell	150⅞
Okee Walker	Vinton	1986	Benton	150⅜
Ron Potter	Maquoketa	1986	Jackson	150⅛
Mike Krier	Ollie	1986	Keokuk	149⅞
Kenny Salladay	Udell	1986	Appanoose	147⅞
Joe Larson	Emerson	1985	Mills	147⅞
Chris Hewlette	Grand River	1985	Decatur	146⅞
Mike Rummells	Atalissa	1982	Cedar	146⅝
Bill Brown	Chariton	1986	Lucas	146⅛
L. E. Kimnach	Council Bluffs	1986		146
Mark Gulick	Dubuque	1984	Muscatine	145⅝
Steve Hutchinson	Des Moines	1985	Warren	145⅛
Ken Miller	West Union	1986	Fayette	145
Mark Gulick	Dubuque	1985	Muscatine	144⅛
Todd Chapman	Meriden	1986		144⅜
Jim Ranum	Waukon	1986		143⅝
Paul Farni, Jr.	Dubuque	1986	Clayton	143⅛
Richard Eldridge	Waterloo	1986	Bremer	143⅛
Dale Wiley	Chariton	1986	Lucas	143⅛
Tom Delaney	Cedar Rapids	1985	Des Moines	143
John Bantz	Glenwood	1975	Mills	141
Steven Houdek	Calmar	1986		140⅝
Dennis Rote	Dexter	1986	Adair	140⅜
John Mitchell	Council Bluffs	1986	Pottawattamie	139⅝
Tim Pottorff	Hamilton	1985	Marion	139⅛
Bill Kreamalmyer	West Burlington	1986	Des Moines	139⅛
Kenny Salladay	Udell	1979	Appanoose	138⅝
Tim Howell	Granger	1986	Dallas	138⅝
Ernie Burroughs	Waukon	1986	Allamakee	138⅜
Brad Volker	Waterloo	1986	Fayette	138⅜
Jim Kluesner	New Vienna	1982	Dubuque	138⅜
Jerry Purvis	Monroe	1985	Marion	137⅜
Phillip Bishop	Knoxville	1986	Marion	137⅜
Paul Winters	Burlington	1986	Des Moines	136⅞
Don Allely	Shenandoah	1985	Fremont	136⅝
Gary Bentley	Sioux City	1986	Plymouth	136⅛
Betty Jungk	Dubuque	1985	Clayton	136⅛
Thomas Knoll	Oakville	1986	Louisa	136⅛
Tom Wing	Grand Mound	1986	Clinton	136
William Janssen	Monticello	1986	Jones	135⅜
Chris Bearden	Tama	1985	Tama	135⅜
Harold Clark	Chariton	1986	Lucas	135
Dave Padget	Swisher	1985	Johnson	135

BOW AND ARROW NONTYPICAL

(Minimum Qualifying Score - 155 Points)

Name	Address	Year	County Taken	Total Score
*Ted Miller	New Virginia	1986	Warren	203⅝
Larry Sparks	Dow City	1985	Crawford	195⅞
Tom Lappe	Morning Sun	1985	Des Moines	174⅞
Randy Frazier	Dunlap	1986	Monona	170⅛
Pat George	Diagonal	1986	Ringgold	167⅝
Guy Williams, Jr.	Cedar Rapids	1986	Linn	165⅜
Bill Cowan	Exline	1986	Appanoose	156⅛

*new top ten entry

All-Time Top Ten Racks

Shotgun Typical

Name	Address	Year	County Taken	Total Score
Wayne A. Bills	Des Moines	1974	Hamilton	199⅝
Kenneth Tilford	Lamoni	1985	Decatur	198⅛
George L. Ross	Ottumwa	1969	Wapello	195⅛
Bob Jackson	Des Moines	1983	Madison	191
Gregg Redlin	Iowa City	1983	Johnson	187⅝
Dennis Vaudt	Storm Lake	1974	Cherokee	187⅜
Roy Metzger	Bloomfield	1985	Davis	186⅞
Randall Forney	Glenwood	1971	Fremont	186⅜
Jack W. Chidester, Jr.	Albia	1976	Monroe	186⅛
Franklin Taylor	Blencoe	1976	Monroe	185⅝

Bow and Arrow Typical

Name	Address	Year	County Taken	Total Score
Lloyd Goad	Knoxville	1962	Monroe	197⅝
Robert Miller	Wyoming	1977	Jones	194⅝
Richard Swim	Des Moines	1981	Warren	190⅝
Robert McDowell	Ottumwa	1985	Wapello	183⅜
*Vern Backstrom	Des Moines	1986	Polk	180⅛
Ernie Aronson	Davenport	1985		176
Gary Wilson	Cherokee	1974	Cherokee	175⅛
Gordon Hayes	Knoxville	1973	Marion	175⅛
Don McCullough	Conesville	1980	Muscatine	174⅞
Ken Dausener	Dubuque	1984	Jones	174⅛

Shotgun Nontypical

Name	Address	Year	County Taken	Total Score
Larry Raveling	Emmetsburg	1973	Clay	282
Carroll Johnson	Moorhead	1968	Monona	256⅞
David Mandersheid	Welton	1977	Jackson	253⅛
*Edgar Shields	Grand River	1986	Decatur	229⅝
Duane Fick	Des Moines	1972	Madison	228⅜
LeRoy Everhart	Sumner	1969	Van Buren	224⅛
Todd Hawley	Panora	1982	Guthrie	224⅛
*Max Marlin	Blakesburg	1981	Wapello	222⅜
Donald Crossley	Hardy	1971	Humboldt	221⅜
Mike Pies	Ackley	1977	Hardin	221⅜

Bow and Arrow Nontypical

Name	Address	Year	County Taken	Total Score
Bob Harding	Pleasantville	1985	Wapello	229⅛
Jerry Monson	Clear Lake	1977	Cerro Gordo	220⅞
Blaine Salzkorn	Sutherland	1970	Clay	218⅛
Chris Hackney	Alberton	1983	Wayne	211⅝
Phillip M. Collier	Burlington	1978	Des Moines	203⅝
*Ted Miller	New Virginia	1986	Warren	203⅝
Bill Erwin	Sioux City	1966	Woodbury	202⅝
Dorrance Arnold	Oelwein	1977	Clayton	200⅝
Dennis Ballard	Iowa City	1971	Johnson	197⅜
Marsha Fairbanks	Martelle	1974	Jones	197⅛

Nonresident Deer and Turkey Hunting

An Idea Whose Time Has Come

By Lee Gladfelter

SURPRISINGLY, ALLOWING NONRESIDENT DEER AND TURKEY HUNTING IN IOWA has become a controversial issue. The Iowa Department of Natural Resources (DNR) first introduced legislation to allow the issue of nonresident deer and turkey licenses in 1985. Many sportsmen spoke in favor of this legislation, but a surprising amount of opposition has developed. The Iowa Legislature is caught up in this controversy because it must pass the legislation necessary to make nonresident big game hunting a reality. A nonresident license bill (HF 133) was passed by the Iowa House of Representatives on February 12, 1987, but it ended the session in a Senate subcommittee. This legislation should again be considered during the 1988 legislative session so let's take a look at some facts and opinions surrounding this emotional issue.

Those opposed to nonresident hunting feel that Iowa doesn't have enough deer and turkeys to meet resident hunter demands, or that there are already too many hunters in the timber, or that nonresident hunting may lead to bad hunter/landowner relations. Some appear to object for mostly selfish reasons. Most opposition appears to be from hunters located along Iowa's borders who feel they will receive the major impact of nonresident hunting.

Nonresident hunting is not new to Iowa — 27,000+ nonresident hunting licenses were sold in 1986 for small game (pheasants, quail, rabbits, etc.), waterfowl and furbearers. Nonresident small game licenses sell for $47.50 compared to $8.50 for residents, and both must purchase a $3 wildlife habitat stamp. In general, reports from DNR field staff indicate that nonresident hunters are courteous, knowledgeable about hunting laws and maintain good hunter/landowner relations. The occasional headline-making arrest of nonresident game hogs seems to be the unusual exception, rather than the rule. Nonresidents often travel great distances to hunt and are interested in preserving a place for future use. Since 95 percent of Iowa's wildlife habitat is privately owned, this requires dealing with landowners and keeping in touch during the off season. Some resident hunters could take lessons in courtesy and ethics from our nonresident guests!

There are several good reasons why nonresident deer and turkey hunting should be allowed. First and foremost is to allow Iowans who have moved away, to return home to hunt with their family and friends. Many of Iowa's sons and daughters have left because of jobs, marriage, or school and would like to return for a fall hunt. After all, hunting is a family-oriented sport and should be encouraged rather than discouraged. The DNR receives many letters each year from former residents inquiring about nonresident deer and turkey hunting. These folks have an investment in our wildlife resource and should be allowed to continue to enjoy hunting opportunities as nonresidents. In addition, many Iowans would like to extend an invitation to hunt big game to relatives that may never have lived in Iowa but would still enjoy such an experience.

Another good reason for nonresident hunting is the development of reciprocal agreements between states. These agreements simply mean that Iowans will not be allowed to hunt in other states unless citizens from that state are allowed to hunt here. Ironically, Iowa is one of five states with reciprocal agreements designed to protect equality in sporting opportunity, yet Iowa is one of only two states that does not allow nonresident deer hunting. Several other midwestern states are currently discussing reciprocity laws.

A limited nonresident season in Iowa would protect out-of-state hunting interests for 20,000 of our citizens who currently travel to hunt in other states. About 12,000 of these (60 percent) hunt big game animals. States most commonly visited by Iowa hunters are Missouri (33 percent), western states (29 percent), Nebraska (7 percent), Illinois (6 percent), Minnesota (5 percent) and Wisconsin (4 percent). A recent survey of turkey hunters indicated that four percent (500) hunted turkeys in other states this spring. Big game hunting opportunities for Iowans in other states could be jeopardized if nonresident deer and turkey hunting continues to be restricted.

Another advantage of nonresident deer and turkey hunting is strictly economical. Surveys indicate that each nonresident small game hunter spends about $500 while hunting here. These expenditures for gas, food, lodging and sporting goods, bring important funds into local Iowa communities. These expenditures provide money from outside sources for economic growth here in Iowa. We spend a great deal of time and money promoting tourism in Iowa, yet we are missing a golden opportunity to show others our recreational and natural resources, as well as our excellent quality of life. Also, nonresident hunting license fees provide revenue for DNR programs to purchase, maintain and manage public lands that residents may also use and enjoy.

Nonresident hunting is not being considered as a means to stabilize or decrease deer or turkey numbers. This can be accomplished more efficiently by liberalizing resident hunting seasons and quotas. Recent liberalizations have provided residents some of the best deer and tur-

Jim Zahniser

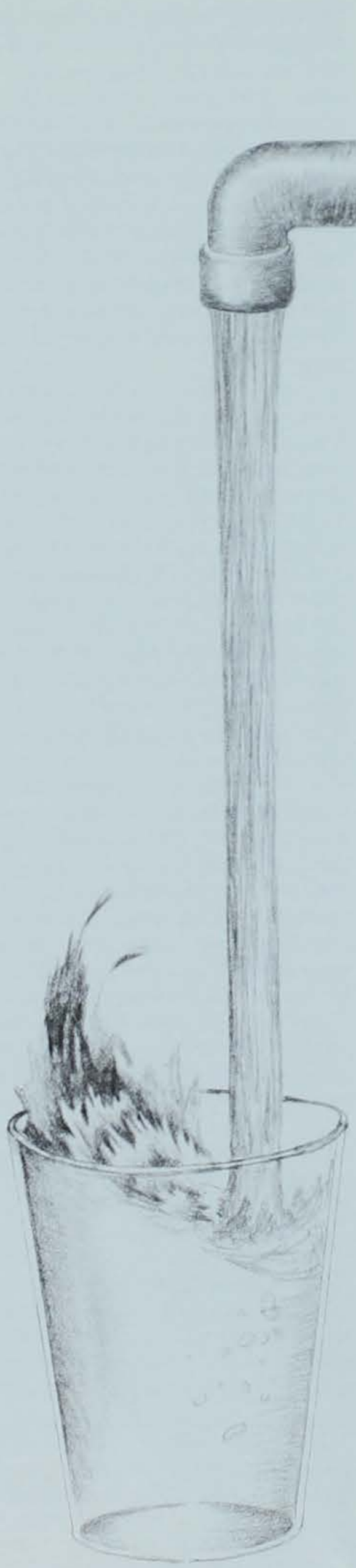
Roger Hill

key hunting in the U.S. Populations of both species remain at all-time high levels, however, and more than enough hunting opportunity remains for nonresidents. To ensure this point, strict limits on nonresident license quotas would be set by the DNR. Quotas of around 1,000 deer and 500 turkey licenses are being discussed, numbers compared to the 140,000 resident deer and 18,000 turkey licenses issued in 1987. Most states in the Midwest sell fewer than 1,000 nonresident deer or turkey licenses so a limited demand is expected.

Proposed license fees for nonresident deer hunters are $100 plus $3 for a wildlife habitat stamp. Turkey licenses would be sold for $50 plus a $3 habitat stamp. These prices are about average for other midwestern states that charge between $41.50 (Ohio) and $147.75 (Illinois) for nonresident deer licenses and from $20.25 (Michigan) to $122.75 (Illinois) for turkey licenses. The DNR's Fish and Wildlife Division operates solely on money received from hunting and fishing license sales and from a tax on sporting equipment and ammunition. This money is used for purchase of fish and wildlife habitat, equipment, trapping and transplanting programs, salaries, maintenance of state areas and facilities, and all other research, management and enforcement programs. Nonresident hunters would therefore be providing license money for Iowa programs.

Nonresident deer and turkey hunting is a positive move for Iowa's citizens — it assures that they will have an opportunity to hunt in other states, can have friends and relatives return here to hunt and at the same time, provide for economic growth. We should discourage the attitude of "...what's mine is mine and what's yours is mine too." The bottom line is that nonresident hunting would be good for Iowa. But, without support for this legislation from concerned sportsmen and citizens around the state, it may never become a reality.

Lee Gladfelter is a wildlife research biologist located at Boone. He holds an M.S. degree in wildlife conservation from the University of Idaho. He has been with the department since 1969.



W

By Tami Pavlicek

EACH TIME YOU TURN ON YOUR FAUCET FOR A DRINK OF WATER, YOU MAY unknowingly be tapping a health hazard. According to the Environmental Protection Agency (EPA), you may be consuming high levels of lead — a toxic substance — when drinking from your water faucets.

Because lead is known to cause serious health problems, it has been banned for use in paint and caulking materials and is currently being phased out of gasoline. Now it appears that tap water is a principal source of this harmful substance. To compound the problem, lead cannot be detected by color, smell or taste.

Too much lead in the human body can cause serious damage to the brain, kidneys, nervous system and red blood cells. Lead is believed to have the most serious effects on small children, infants and developing fetuses. Even very small amounts found in drinking water are believed to alter brain development, increasing the risk of behavioral problems and learning disabilities. Lead is also suspected of stunting bone growth and increasing the risk of hypertension, stroke, heart disease, miscarriage and some birth defects such as club foot.

Lead has been a popular material for plumbing systems for centuries. Considered an easy and appropriate means of transporting water, lead was used extensively for water pipes during the 19th and early 20th centuries. Lead piping was used for interior plumbing as well as for the service connections that join residences to public water supplies.

In 1845, people were advised to avoid the use of lead pipe for carrying water which was to be used for drinking. Lead pipes were outlawed in several areas of Germany in the second half of the 19th century because of health concerns. In the United States, a warning of potential danger from lead pipes was given to the New England Water Works Association in 1900.

Despite these and other warnings, in 1924 it was reported that half of the 539 cities surveyed in the early 1920s used lead or lead-lined service pipes. The greatest use of lead service lines existed in the Midwest, New England, Texas, Oklahoma and Montana.

After World War II, the use of lead piping decreased dramatically. This decrease, however, was not a result of the continuing concern over lead contamination, but occurred because of expense and convenience factors and because of the availability of better piping material. Copper quickly replaced lead due to its cheaper cost, ease of installation and longevity.

Copper is more durable than lead and is also more resistant to corrosion, the dissolving or

ater

Is It Safe To Drink?

wearing away of metal caused by a chemical reaction. Today, copper pipes have replaced lead pipes in most residential plumbing. However, the use of lead solder with copper pipes has been commonplace. Experts believe this lead solder is the major cause of lead contamination of household water in U.S. homes today.

The 1986 Amendments to the Safe Drinking Water Act included a provision banning the use of materials containing lead in public water systems and in residences connected to public water systems. While the ban took effect immediately, states have until June 1988 to enforce the ban. In Iowa, officials of the Department of Natural Resources would like to see the ban imposed statewide, to include both public *and* private water systems.

Currently, federal guidelines limit the amount of lead in water to 50 parts per billion (ppb). Due to new health and exposure data, the EPA has proposed tightening this standard to 20 ppb. If tests show that the level of lead in your household water is in the area of 20 ppb or higher, it is advisable — especially if there are young children in your home — to reduce the lead level in your tap water as much as possible.

Scientific data indicate that the newer the home, the greater the risk of lead contamination. Lead levels decrease as a building ages. This is because, as time passes, mineral deposits form a coating on the inside of the pipes (if the water is not corrosive). This coating is a protective barrier between the water and the solder. But during the first five years (before the coating forms), water is in direct contact with the lead. More likely than not, water in buildings less than five years old has high levels of lead contamination.

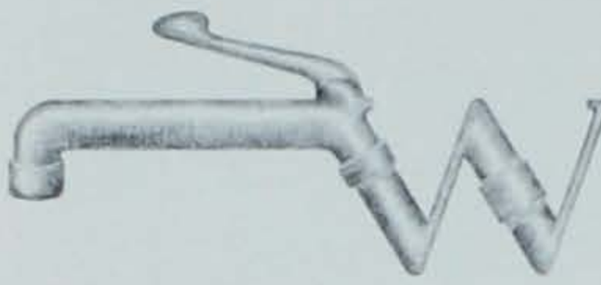
All water is corrosive to some degree. While corrosive waters have the highest levels, relatively noncorrosive waters can also leach significant amounts of lead. The highest lead contamination levels occur with the newest solder, but those levels decline and are generally not elevated beyond five years.

In 1845, people were advised to avoid the use of lead pipe for carrying water which was to be used for drinking.

While "soft" water is often preferred over "hard" water, due in part to the east of lathering soap, soft water is more corrosive than hard water. Generally, hard water contains large amounts of calcium carbonate, which forms a protective coating on the interior of the pipes, insulating the water from high levels of lead contamination. Soft water tends to be more corrosive because of low levels of calcium carbonate. If you have a water softener, it is recommended that it not be connected to those water taps used for consumption purposes (drinking, cooking, etc.).

Fortunately, there are simple steps that can be taken to significantly reduce lead levels. If the source of lead is restricted to your home's plumbing, you should flush *each* cold water faucet before using the water for drinking or cooking whenever the faucets have not been used for several hours. Keep the water flowing until there is a noticeable temperature change; and after you have run the tap, store some water in the refrigerator for later use. While the sale of bottled water has increased in recent years, federal standards for lead levels in bottled water are currently the same as for tap water — 50 ppb.

Flushed water can be used for non-consumption purposes such as washing dishes or clothes. Flushing is important because the longer water is exposed to lead pipes or lead solder, the greater the possible lead contamination. *Never* use water from the hot water tap or the first water out of the cold water faucet for cooking, washing or mixing of food and especially for making baby formula. Hot water is likely to contain higher levels



Water

continued

of lead because it dissolves lead more quickly than cold water. If hot water is needed for cooking, draw the water from the cold tap and heat.

Experts caution that if the lead source comes from outside your home, running the cold water may actually *increase* lead levels. In these instances, you may have to install a

While the sale of bottled water has increased in recent years, federal standards for lead levels in bottled water are currently the same as for tap water — 50 ppb.

reverse-osmosis filter, the most effective method available to homeowners for reducing lead to the lowest possible level. Before purchasing a reverse-osmosis filter, your tap water should first be tested. (The simple carbon-activated filters that attach at the tap may make water taste better, but will not reduce the lead.)

Reverse-osmosis filters are expensive — ranging in price from $300 to $800 for under-the-counter models and from $100 to $300 for small countertop models which yield less-filtered water. The filters can be tricky to install and maintain; be sure to use only reputable dealers and follow maintenance guidelines. Some companies will rent filters for about $20 a month.

If you own a well or another water source, you can treat the water to make it less corrosive. Corrosion control devices for individual households include calcite filters and other devices. Calcite filters should be installed in the line between the water source and any lead service connections or lead-soldered pipes.

Short of wholesale replacement of distribution pipes, water utilities can lower lead concentrations by controlling corrosion. Control techniques currently used include pH adjustment, hardening and the addition of silicates or phosphates. The choice of method depends upon the characteristic of the water and the types of materials used in the distribution system.

There is no way to tell if water has a lead problem without specific tests. According to the EPA, lead does not discriminate — it has been found in drinking water in all geographic regions of the U.S., in both rural and urban areas. To find out if your drinking water is high in lead, you should check both the pipes inside your home and those serving your house. Begin by checking the pipes in your basement and under your sink to see if lead solder or lead piping was used. Lead is a dull gray metal that is soft enough to be easily scratched or dented and will make a dull sound rather than a metallic sound when you rap on it. You should also be alert for corrosion — frequent leaks, rust-colored water or stained dishes or laundry.

Also, you should call your local water supplier or water district and ask if lead or lead solder is used in the mains or service lines that serve your home. Questions to ask should include:

— Are service lines made of lead?

— Is the water corrosive?

— Does the water contain high levels of lead (more than 20 ppb)?

— Have tests been conducted to determine lead content? If so, where and when were these tests conducted?

If there *is* lead in the municipal system and/or in your own plumbing, the water should be tested. For further information and to receive a sample container, write or call the University Hygienic Lab, Wallace State Office Building, Des Moines, Iowa 50319, (515) 281-5371. Cost of the lead analysis is $10.

CALENDAR

DECEMBER

December Weekends	Cross-Country Skiing Lessons (Weather Permitting)	Hamilton County (515) 832-1994
Dec. 5	Full Moon Night Walk 7 p.m.	Carroll County Swan Lake State Park (712) 792-4614
Dec. 6	House Concert Dave Porter and Renee	Clinton County Eagle Point Nature Barn Clinton (319) 847-7202
Dec. 12	Seasons of Palo Alto County Hike-Snowshoeing 1-3 p.m.	Palo Alto County (712) 837-4866
Dec. 18	Christmas Bird Count	Clinton County (319) 847-7202
Dec. 20	Tree Ideas for 1988 1:30 p.m.	Carroll County Swan Lake State Park (712) 792-4614
Dec. 30	Beginning Cross-Country Ski Clinic 1:30 p.m.	Carroll County Swan Lake State Park (712) 792-4614
Dec. 30	Cross-Country Skiing 1-3 p.m.	Palo Alto County Long-Island-Huston (712) 837-4866
Dec. 31	Cross-Country Skiing 1-3 p.m.	Palo Alto County (712) 837-4866

JANUARY

January Weekends	Cross-Country Skiing Lessons (Weather Permitting)	Hamilton County (515) 832-1994
Jan. 2	Beginning Cross-Country Ski Clinic 1:30 p.m.	Carroll County Swan Lake State Park (712) 792-4614
Jan. 9	Cross-Country Skiing Workshop	Clinton County Eden Valley Refuge (319) 847-7202
Jan. 9	Seasons of Palo Alto County Hike-Snowshoeing 1-3 p.m.	Palo Alto County (712) 837-4866
Jan. 9	Winter Treasure Hunt	Wright County Pikes Timber (515) 532-3185
Jan. 9	Ice Fisheree-Izaak Walton	Benton County Rodgers Park (319) 472-4942
Jan. 10	Cross-Country Skiing 1-3 p.m.	Palo Alto County Lost Island-Huston (712) 837-4866
Jan. 16	Bird Feeder Construction Day	Benton County Izaak Walton (319) 472-4942
Jan. 16	Winter Fest	Polk County Chichauqua Wildlife Area (515) 255-7047
Jan. 24	Beginning Cross-Country Ski Clinic 1:30 p.m.	Carroll County Swan Lake State Park (712) 792-4614
Jan. 24	Cross-Country Skiing 1 p.m.	Jackson County Blackhawk Wildlife Area (319) 652-3783
Jan. 26	Snowshoe Making Workshop 6:30 - 9 p.m.	Black Hawk County Hartman Reserve Nature Center (319) 277-2187
Jan. 28	House Concert Bob Bovee and Gail Heil	Clinton County Eagle Point Nature Barn Clinton (319) 847-7202
Jan. 29-30	"Winter of the '80s: The 1880s" Camp Wyoming Environmental Education Workshop	Clinton County Camp Wyoming (319) 847-7202

Conservation Update

CHANGES IN STATE PARK USER PERMIT

The cost of the annual state park user permit will decrease to $5.50 beginning Jan. 1, 1988. The annual permit had been $10 since the user system began in 1986.

According to officials of the Department of Natural Resources, the user fees should raise more than $1.1 million in 1988 to be used for the renovation and replacement of state park facilities.

A second annual permit may be purchased for a vehicle registered in the same household (same address) for $2. Daily permits valid until 10:30 p.m. on the day following purchase will continue to be available for $2. These are available on a "self-service" basis at convenient locations in each park.

Free permits will no longer be available.

Nature Center Certified As Wildlife Sanctuary

The Indian Creek Nature Center near Cedar Rapids in Linn County has become the first Urban Wildlife Sanctuary in Iowa under a nationwide program of the National Institute for Urban Wildlife.

Approximately 140 acres in size, the nature center adjoins about 1,000 additional acres of Cedar Rapids "greenbelt" property, and includes about three-quarters of a mile of Red Cedar River shoreline. The diverse habitats include reestablished prairie, upland oak forest, xeric prairie spots, a 4000-year-old bog, lowland forest and Eurasian meadow.

The National Institute for Urban Wildlife works with private, public and corporate landowners to certify small and large properties as urban wildlife sanctuaries and to provide educational materials on urban wildlife management.

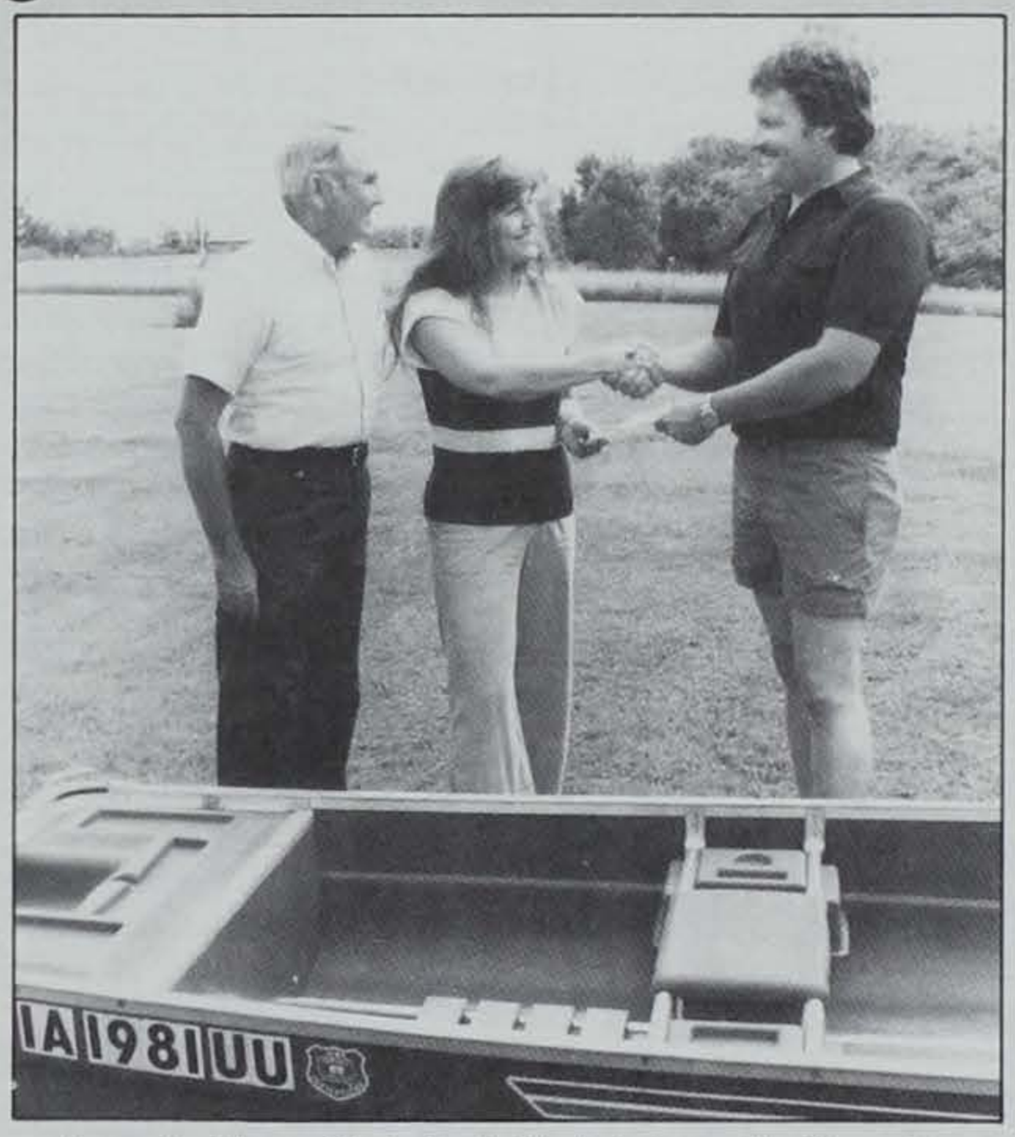
Bald Eagle Days

The 4th Annual Bald Eagle Days will be held Jan. 22-24, 1988, at the Keosippi Mall in Keokuk and Feb. 5-7, 1988, at Modern Woodmen Insurance in Moline, Illinois. An hourly program will feature a live bald eagle and information on bald eagle biology will be available at a film festival.

The event has also been scheduled at DeSoto Bend National Wildlife Refuge in Missouri Valley on Feb. 19-21, 1988. DeSoto will follow a similar format with a live eagle program and observation areas.

Nearly 6,000 visitors witness the feeding and soaring of this majestic bird each year during Bald Eagle Days. The event is sponsored by the Iowa and Illinois nongame programs and the Army Corps of Engineers.

For more information, contact Laura Jackson, urban biologist, at (515) 281-4815. For school, reservations at Keokuk, call the Keosippi Mall at (319) 524-8041. For school reservations at the Quad Cities, call (309) 788-6361, extension 484.



As part of Iowa State Park Week in June, the Department of Natural Resources held a drawing for a Coleman "Crawdad" Fishing Boat. Donated by Herold Trailer Sales of Indianola, the boat was given to Janet Hull (center) of Ottumwa. The boat was presented to Hull by Doyle Adams (left), chief of parks and recreation, and Morris Herold (right) of Herold Trailer Sales.

The Department of Natural Resources sponsored a drawing for a Coleman Colorado Fold-Down Camper at this year's Iowa State Fair. Michael Carrier (center), division administrator for parks, recreation and preserves, presents the camper to Loretta and Dennis Enos of Ankeny (far right). Gaylord Nelson (left) of Kueen's Trailer Ranch, Inc., and Morris Herold of Herold Trailer Sales donated the camper along with The Coleman Company, Johnny Ketelsen and Cheyenne Camping Sales.

TURKEY PRODUCTION UP

Results of the Department of Natural Resources' summer turkey brood survey indicate that 1987 was an excellent year for turkey production over most of the state. According to Greg Hanson, turkey biologist for the DNR, a warm, dry spring provided excellent weather for nesting and poult survival. "Every production statistic was up, indicating that we probably had one of the best years to date for turkey production in Iowa," said Hanson.

Survey cards were sent to approximately 3,800 rural resident cooperators and about 200 mail carriers throughout the forested areas of Iowa. This year, cooperators reported 842 turkey broods statewide, an increase of 56 percent over 1986. Northeast and southern Iowa and the Des Moines River valley in central Iowa showed the best production statistics. Northwest Iowa was also very good. The only area where reports were not up significantly was in the southwestern corner of the state. "Several very heavy rains with extensive flooding probably reduced production in that area," said Hanson.

DNR research studies show that hens in their first nesting season are not very persistent nesters, and only about 10 percent may hatch a clutch of eggs. Two-year-old hens will usually try again if they loose their first clutch. "In many areas of the state we went into the nesting season with a very high number of two-year-old hens as a result of an excellent hatch in 1985. The good hatch this year will mean that much of the state will have the highest turkey populations they have had since the birds were reintroduced to Iowa.

"The brood survey results correlate highly with hunter success the following fall and spring; therefore, turkey hunters can look forward to more good hunting seasons. The DNR issued more permits this fall and increased the season length from 13 to 28 days. Changes have also been proposed for next spring, including increasing the number of permits and extending shooting hours to sunset. More liberal regulations can also be expected while turkey densities remain high," said Hanson.

DONATIONS

Keils Bait Shop Bellevue	$100 for prize for state park special event at Bellevue State Park
Bellevue Sand and Gravel Bellevue	Limestone rocks valued at $300 for parking lot barriers and trail steps at Bellevue State Park
Lutheran Brotherhood Branch 8269 Dubuque	Flowers, shrubs, landscaping timbers and labor for E.B. Lyons Nature Center
Rudy Pruszko Dubuque	Use of welding tools and equipment valued at $270 for area maintenance at E.B. Lyons Nature Center
Anonymous	Electric stove valued at $100 for E.B. Lyons Nature Center
Aid Association to Lutherans Onawa	$500 for playground equipment at Lewis and Clark State Park
Jerry Rook Sioux City	Picture collage valued at $50 for nature center at Stone State Park
River City Anglers Sioux City	Largemouth bass valued at $150 for pond stocking at Stone State Park
Mr. & Mrs. Ray Kennedy Sioux City	Windows and door valued at $60 for Stone State Park
Howard Easton Sioux City	118 hours of volunteer labor at Stone State Park, valued at $400

Elderhostel At Springbrook State Park

Elderhostel, a learning program for those 60 years or older, will be held Nov. 15-21, 1987, at the Conservation Education Center in Springbrook State Park, Guthrie County.

Inspired by European youth hostels and folk schools, Iowa *Elderhostel* is a week-long experience that takes place in several Iowa locations, each covering unique topics. Each non-credit course is designed to be a self-contained unit which requires no previous knowledge of the subject being presented.

Coursework at the Education Center includes studies of local wildlife, natural areas and the history of the park area. The cost for *Elderhostel* at the center is $215 and includes all meals from Sunday evening through Saturday breakfast and six nights lodging. Included are field trips to DeSoto Bend National Wildlife Refuge, Dallas County Forest Park and Museum, local prairie areas and more.

Scholarship money is also available. Monies are not rewards for previous academic achievement, but are awarded to encourage participation.

To register or for more information contact Peggy Houston, State Director, 116 International Center, The University of Iowa, Iowa City, Iowa 52242. (319) 335-2533.

STEELE PRAIRIE DEDICATION

Steele Prairie, a 200-acre tract of native prairie in Cherokee County, was dedicated as a state preserve on Sept. 11. Nearly 300 people attended the ceremony which included the signing of the dedication statement by Governor Terry Branstad.

Individuals involved in the dedication included, front row (left to right): John W. Humke, Director, Midwest Regional Office, Nature Conservancy; Governor Branstad; and Tom Steele, current manager of the prairie. Back row (left to right): Paul Christiansen, Chairman, State Preserves Board; Bill Crews, State Director, Nature Conservancy; and Larry Wilson, Director, Department of Natural Resources.

"WINTER COVER — RINGNECKS"

This 1987 Iowa Pheasants Forever Print of the Year, featured on our cover, was designed by Larry Zach, 1987 Pheasants Forever Artist of the Year. "Winter Cover — Ringnecks," a limited edition print of 500, can be purchased for $95 plus $5 for postage and handling by writing P.O. Box 2093, Waterloo, Iowa 50704, or by calling (319)233-6280 or (319)268-0485. Remarques are available for an additional $50.

HUNTERS COMPARE FAVORABLY WITH NATIONAL AVERAGE

According to a recent study by the National Shooting Sports Foundation, the average hunter is better educated, makes more money and is older than the national average.

The demographic profile of hunters revealed that they are more affluent than the average American. The average hunter's household income is $26,675, nearly $3,000 more than the national average of $24,000. Being better educated goes hand-in-hand with being more affluent, and 49 percent of all the hunters polled had attended college, in comparison with the national average of 39 percent.

According to the study, hunters have a strong allegiance to their sport. The average hunter (38 years old) has been actively engaging in the sport for 23 years. To take it a step further, the study indicated that the hunters interviewed who were over 50 years old had been involved in the sport for an average of 41 years.

What do these people stalk? Deer, crows and turkeys are being hunted more frequently and deer remains at the top of the list as the most popular species to hunt. Upland game is the most popular form of hunting at 94 percent, followed by big game hunting at 85 percent.

And what type of firearms does the average hunter own? These people have 2.7 shotguns, 2.4 centerfire rifles and 1.3 rimfire rifles among their 6.4 guns.

When hunters were asked what they thought was the sport's number one problem, gaining access to hunting land topped the list by a narrow margin (19 percent). The other negative influences that ranked closely behind were crowded hunting areas (18 percent) and finding time to go hunting (17 percent).

CLASSROOM CORNER

By Robert P. Rye

SOUNDS

Have you ever had to imagine what the world and your life would be like without sounds? Have you ever thought how sounds are created or how you are able to hear?

Sound was described as a physical characteristic by scientists years ago. To animals of all kinds, including humans, sounds are very important in communication. Try matching the following questions with the animals and learn how different animals receive sounds.

QUESTIONS

1. What animal's ears are lacking, but has tympanic membranes on its first pair of legs?
2. What animal's ears are almost non- existent? (They would be in the way as it tunnels through the earth.)
3. What animal's ears are lacking, but has a large tympanic membrane on either side of its head?
4. What animal's ears are lacking, but has a tympanic membrane on the first segment of the abdomen?
5. What animal's ears are lacking, but is very aware of the earth's vibrations?
6. What animal's ears are large for its size? (But it needs them as it travels through the night by means of sonar.)
7. What animal's ears are often confused with upstanding feathers that are called "ear tufts?"
8. What animal's ears are lacking, but is keenly aware of wave vibrations?
9. What animal's ears are six to eight inches long and stand upright when a hunter is in the vicinity?
10. What animal's ears seem to "swivel" to be able to pick up sounds from any direction?

ANSWERS

a. Jackrabbit
b. Trout
c. Katydid
d. Snake
e. Deer
f. Mole
g. Bullfrog
h. Grasshopper
i. Great-Horned Owl
j. Bat

1. c 2. f 3. g 4. h 5. d 6. j 7. i 8. b 9. a 10. e

Proper Firearm Transportation

Iowa's #1 Hunting-Related Violation

Text and photos by Rod Slings

Transporting firearms in this manner is illegal. While hunting, it may be wise to carry a light-weight gun-case, folded and carried in a pocket, to use after a drive.

This method of transporting is also illegal. Guns must be cased or "taken down." Pick-up rear window gun racks will advertise firearms to thieves.

Iowa has all types of laws designed to protect its citizens. These laws range from the new seatbelt law and life jacket requirements in boats, to manner of firearms conveyance. Some of these safety laws are not popular, but it has been proven that these saws do save lives.

Under Iowa law, the term "manner of conveyance" refers to the method in which a firearm can be transported on or in a motor vehicle on a public roadway. Past violation reports show that this is Iowa's number one hunting related violation. Manner of conveyance laws will vary state by state. The Iowa law says that all firearms must be completely unloaded — chamber and magazine. The firearm must be either "taken down" or cased.

Opinions on the term "taken down" go as far back as 1946. Back then, the state attorney general's opinion noted that the lawmakers obviously felt preparatory action would be required before a gun could be used as a firearm. Simply removing the bolt of a bolt-action rifle or shotgun is not enough to meet the "take down" requirement. Traditionally, the principal components of a gun are lock, stock and barrel. The term "take down," therefore, requires that the barrel be removed from the lock or action to completely disable it. With a pump action or semi-automatic action, removal of the barrel will meet the requirement of "take down."

The cased method without a doubt is the best way to transport a firearm. The investment in a well-made gun case will not only help keep a firearm clean, but will also protect the stock and metal components from scratches or more severe damage. The cased method also must pass the "tip test." If you have a zipper-type case, a tie or buckle, it must be completely zipped, tied or fastened. If the case is tipped down on either end and the firearm can fall out, it is *not* legally cased.

Many lives in Iowa and throughout the country have been lost due to loaded guns in motor vehicles. A number of people have been accidentally shot while an excited violator was trying to unload and take down a loaded firearm in a vehicle. Please, for the protection of all of us, obey this safety law — transport your firearm legally!

Rod Slings is a recreational safety officer for south-central Iowa. He has been with the department since 1973.

Unveiling The Secrets
of the Masked Marauder

By Ron Andrews and Jon Judson

ANY CRITTER, HUMAN OR OTHERWISE THAT DONS A MASK, DRAWS THE attention and suspicion of those who encounter it. True to form the raccoon is no exception. He stirs varied reactions from those who come in contact with him. Sweet corn lovers and gardeners curse this masked marauder who often robs them of their favorite meal just a day or two ahead of their scheduled harvest. The raccoon raises the blood pressure of the farmer when he invades the farmer's hay mow. The ring-tailed bandit raises the ire of property owners when he breaks into buildings and pillages the contents. Rattling garbage cans and scattering their contents, looking for a few tasty morsels disposed of by humans, is a common habit of suburban raccoons and many times that raises the dander of some city dwellers. Waterfowl and upland game managers disgustingly encounter the carnage left by raccoons and their country associate, the striped skunk, as they prey upon ducks and other ground-nesting birds.

Furharvesters, however, paint a much better image of the masked bandit as they pursue this ring-tailed quarry through Iowa's forests and glens. Raccoons are highly regarded as game to the trapper who attempts to take a big corn-fed Iowa coon or the hunter whose nights are filled by the baying of coonhounds pursuing the scrappy masked marauder.

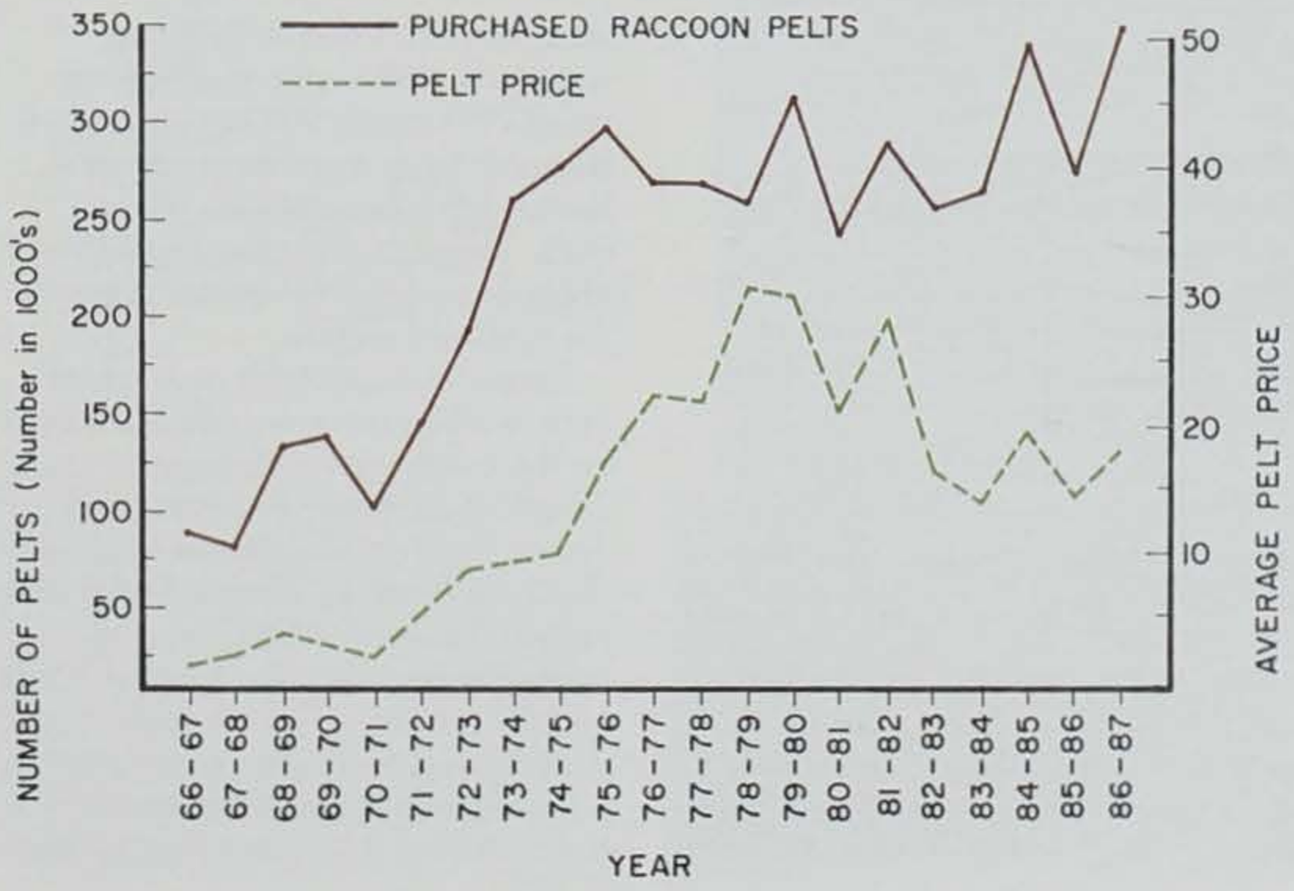
The raccoon is a cousin of the bear and most weigh under 20 pounds although a few will approach 35 pounds. The animal has been given the scientific handle of *Procyon lotor* which means "washer." This refers to the animal's habit of sometimes washing certain foods before eating them.

In the early 1800s, it appears that the raccoon's distribution was probably concentrated in the hardwood forests of eastern Iowa and along heavily wooded stream corridors in the rest of the state. The clearing of timber by early settlers likely had a negative effect on their numbers. Present-day agricultural practices have undoubtedly contributed to their current widespread distribution, however, and relatively high density. The brush piles left from clearing land and grain crops, particularly corn, provide a statewide smorgasbord of food and shelter.

The table shows the number of raccoon pelts purchased by fur buyers since 1970. During the last furharvester season (1986-87) a record harvest of 350,000 raccoons were taken. Annual spring spotlight surveys of 2,125 miles of Iowa's roadsides indicate that the raccoon population is sustaining itself and perhaps even increasing in certain locales.

Interestingly, Iowa Department of Natural Resources' (DNR) surveys prior to 1970 indicated that about 20 percent of the raccoons taken by fur hunters were never taken to fur-

Lowell Washburn



buyers. However, high pelt values and the general rise of the status of this masked bandit as an important furbearer has contributed greatly to this animal's once-tarnished image. During 13 of the last 14 years over a quarter-million raccoon hides have been purchased annually from Iowa hunters and trappers. During the same period 60 percent or more of the total value of all Iowa pelts has been in raccoon hides.

The reasons the raccoon population remains healthy is most likely due to this heavy hunting and trapping pressure. During the late 1970s, when high quality raccoon pelts began to approach $50 each, some furharvesters began clamoring that the raccoon might be on the verge of extinction. Never before had Iowa's raccoon harvest been so high for such an extended time. Because of this concern and the increasing importance of the raccoon as a furbearer, the DNR provided funding to Iowa State University's (ISU) Animal Ecology Department in 1983 to finance three graduate students to unveil some of the secrets of the masked marauder. A 15-square-mile study area along the appropriately named South Raccoon River in central Guthrie County was selected. Interspersed with cropland and timber, the area was excellent for raccoons. The basic premise of the entire study was to determine the population ecology and dynamics of Iowa's raccoons. Dr. Bill Clark, associate professor at ISU, initially recruited Thomas Glueck to collect the baseline data. In the fall of 1985 James Hasbrouck began studying the effects of hunting and trapping on survival, reproduction and density of the raccoon population.

Field work is now underway and will continue through the 1988 harvest season on Hasbrouck's phase of the project. A special effort is being made to double the harvest rates seen during Glueck's study to measure the impact of hunting and trapping on the raccoon population in the study area.

Little is known about the survival and causes of mortality of young raccoons during the first few months of life. Plans are now underway for Jon Judson to begin study on this phase.

During the spring and early fall of each year, raccoons are captured in live-traps. Animals that are captured are sedated to facilitate handling. All animals are weighed and measured, a blood sample is taken and a numbered ear tag is placed in each ear. With all adult raccoons, researchers extract a small tooth that is used to age the animal. Fifty animals each year (20 adults and 30 young-of-the-year) are also fitted with collars equipped with radio transmitters. Since 1983 nearly 900 raccoons have been ear tagged on the study area. Radios have been put on 180 animals. These devices have been the ultimate tool used to unveil some of the ringtail's secrets.

Jim Zabrey

Those raccoons with radio transmitters allow the researcher to monitor their activities and movements. Typical nightly movements usually do not exceed one-half mile. But seasonal movements, referred to as dispersals, have averaged six miles, with 48 miles being the longest. Only a small number of the animals on the study area have dispersed to date.

By locating the radio-collared raccoons during their normal activities, it is possible to learn what type of habitat is important for their survival. Raccoons den-up during the daylight hours and choose sites that allow them to remain safe from predators. The raccoon is very versatile and will utilize a variety of den sites, including trees, brushpiles, underground burrows, abandoned (and sometimes occupied) houses and buildings.

As mentioned earlier, a tooth is removed from all live-trapped raccoons. These teeth are later cut into very thin slices and observed under a microscope. Like rings on a tree stump, the number of rings observed on the tooth indicate the age of that raccoon. From this we have found that approximately two-thirds of the animals harvested each year are young-of-the-year animals. Ninety percent are three years old or younger. This is indicative of a heavily exploited raccoon population and probably a major factor that keeps the raccoon population young and healthy. The oldest raccoon found in the study area thus far is a 10-year-old "gummer."

An interesting technique is used to collect blood samples from raccoons.

Before sealing envelope, be sure to enclose holiday gift order form along with your remittance.

via roadkills. Nearly three-fourths of the harvest occurs during the first two to three weeks of the season, which indicates the importance of weather during this period.
Although many raccoons do not survive through the winter because of furharvesting, the reproductive capabilities of this critter boosts their

hunted, trapped or found along the roadside or elsewhere, can be turned into Jon Judson, ISU Research Technician, R.R. 2, Box 67, Guthrie Cen-

Radio collars and ear tags aid the researcher in monitoring activities and movements.

Lowell Washburn

; Iowa 50115, (515) 747-2703 or
eorge Hemmen, Guthrie County
nservation Officer, R.R. 1, Box 105,
ıthrie Center, Iowa 50115, (515)
7-3643.
While many secrets of the masked
ırauder have been and will be
ıveiled, a few of its secrets will
ınain sacred behind its mask. Ver-
tility and adaptability (and maybe
mysterious mask) are characteris-
s which guarantee the success of
e raccoon. He has been here for
any years and will endure many
ore. Even with future changes in
ricultural land practices seen for
wa, the raccoon will abound along
r waters and woods.

---

*n Andrews is a furbearer resource spe-
list located at Clear Lake. He holds a
S. degree in fisheries and wildlife biol-
y from Iowa State University. He has
n with the department for 20 years.*

---

*ı Judson holds a B.S. degree in fish and
ldlife biology from Iowa State Univer-
y. He is involved in wildlife research for
.U.*

---

buyers. However, high pelt values and the general rise of the status of this masked bandit as an important furbearer has contributed greatly to this animal's once-tarnished image. During 13 of the last 14 years over a quarter-million raccoon hides have been purchased annually from Iowa hunters and trappers. During the same period 60 percent or more of the total value of all Iowa pelts has been in raccoon hides.

The reasons the raccoon population remains healthy is most likely due to this heavy hunting and trapping pressure. During the late 1970s, when high quality raccoon pelts began to approach $50 each, some furharvesters began clamoring that the raccoon might be on the verge of extinction. Never before had Iowa's raccoon harvest been so high for such an extended time. Because of this concern and the increasing importance of the raccoon as a furbearer, the DNR provided funding to Iowa State University's (ISU) Animal Ecology Department in 1983 to finance three graduate students to unveil some of the secrets of the masked marauder. A 15-square-mile study area along the appropriately named South Raccoon River in central Guthrie County was selected. Interspersed with cropland and timber, the area was excellent for raccoons. The basic premise of the entire study was to determine the population ecology and dynamics of Iowa's raccoons. Dr. Bill Clark, associate professor at ISU, initially recruited Thomas Glueck to collect the baseline data. In the fall of 1985 James Hasbrouck began studying the effects of hunting and trapping on survival, reproduction and density of the raccoon population.

Field work is now underway and will continue through the 1988 harvest season on Hasbrouck's phase of the project. A special effort is being made to double the harvest rates seen during Glueck's study to measure the impact of hunting and trapping on the raccoon population in the study area.

Little is known about the survival and causes of mortality of young raccoons during the first few months of life. Plans are now underway for Jon Judson to begin study on this phase.

Typical nightly movements usually do not exceed one-half mile. But seasonal movements, referred to as dispersals, have averaged six miles, with 48 miles being the longest. Only a small number of the animals on the study area have dispersed to date.

By locating the radio-collared raccoons during their normal activities, ger. This is indicative of a heavily exploited raccoon population and probably a major factor that keeps the raccoon population young and healthy. The oldest raccoon found in the study area thus far is a 10-year-old "gummer."

An interesting technique is used to collect blood samples from raccoons.

Blood is collected by sticking a hypodermic needle into the heart of an anesthetized raccoon. Most people wince at the thought of this, but it is an effective way of collecting blood from a variety of mammals. The blood is used to identify diseases to which raccoons are exposed. In cooperation with Dr. George Berans of the College of Veterinary Medicine at ISU, analysis has begun. Preliminary results indicate about 50 percent of the raccoons sampled have been exposed to canine/feline parvovirus and about 25 percent to porcine parvovirus. Another interesting bit of blood analysis showed that 20 percent were exposed to rabies. Whether this is really rabies or not is uncertain and further analysis is necessary before results are conclusive. This does not mean the animals actually contracted these diseases but only that they had been exposed to them. Very little evidence of psuedorabies or distemper has been found although many people believe that distemper is still a major disease mortality factor affecting raccoons. Further analysis needs to be done concerning these two diseases as well.

Because of all the publicity associated with the raccoon roundworm often referred to as *Baylisascaris*, samples of fecal material were collected from the lower intestine of raccoon carcasses. About two-thirds of the samples showed the presence of this parasite. Raccoon pursuers need not panic, because normal routine cleanliness after handling a raccoon should not allow this to happen.

Returns of ear tags and radio collars have shown hunting, trapping, vehicle collisions, disease and farm dogs as major factors affecting survival of the raccoon. Furharvesters are the major cause of death to raccoons that survive until fall, with about 65 percent of the tag recoveries from hunters and trappers. About 10 percent of our tag recoveries occur via roadkills. Nearly three-fourths of the harvest occurs during the first two to three weeks of the season, which indicates the importance of weather during this period. Although many raccoons do not survive through the winter because of furharvesting, the reproductive capabilities of this critter boosts their numbers back to the prior spring's level. In excellent habitat, it is speculated that densities may be as high as 35 or 40 raccoons per square mile. Depending on high or low densities during the breeding season, the females have the capability of having larger or smaller litters.

From data collected in this study and past research, it has been estimated that at least 40 percent of the raccoon population could be harvested each year without affecting it. The main thrust of Hasbrouck's study has been to test this idea by attempting to reach or exceed that harvest percentage. In the fall of 1986 work began with local hunters and trappers to increase harvest efforts on the 16-square-mile study area. Thanks to their efforts, the high population, high raccoon pelt prices and excellent raccoon harvest weather, last year's harvest rate was 36 percent, just shy of the goal. Even with this high harvest (20 percent has been average for prior years' efforts), preliminary results indicate raccoon numbers are still good. Again, it appears that the harder the raccoon population is harvested, the healthier it will be. It is hoped that this high harvest rate can be maintained for at least two more seasons and thus further prove the raccoon's resiliency.

The missing information in the study is determining mortality factors on raccoon kits. During the spring and summer of 1988 and 1989, Jon Judson will equip kit raccoons with tiny radios to determine kinds of mortality they encounter. At least some of these raccoons will be surgically implanted with radios.

Cooperation is essential for the success of this project and many thanks are owed to the landowners, the community and furharvesters in the area for their past and continued assistance and cooperation. A small reward is offered for return of tags and radio collars. Any tagged animal hunted, trapped or found along the roadside or elsewhere, can be turned into Jon Judson, ISU Research Technician, R.R. 2, Box 67, Guthrie Center, Iowa 50115, (515) 747-2703 or George Hemmen, Guthrie County Conservation Officer, R.R. 1, Box 105, Guthrie Center, Iowa 50115, (515) 747-3643.

While many secrets of the masked marauder have been and will be unveiled, a few of its secrets will remain sacred behind its mask. Versatility and adaptability (and maybe its mysterious mask) are characteristics which guarantee the success of the raccoon. He has been here for many years and will endure many more. Even with future changes in agricultural land practices seen for Iowa, the raccoon will abound along our waters and woods.

Ron Andrews is a furbearer resource specialist located at Clear Lake. He holds a B.S. degree in fisheries and wildlife biology from Iowa State University. He has been with the department for 20 years.

Jon Judson holds a B.S. degree in fish and wildlife biology from Iowa State University. He is involved in wildlife research for I.S.U.

Lowell Washburn

Radio collars and ear tags aid the researcher in monitoring activities and movements.

THE GOOD OLD DAYS

By Richard Bishop

THE OLD GOBBLER SLOWLY AND CAUTIOUSLY STEPPED OUT FROM BEHIND THE tree that had hidden him from view for what seemed like 20 minutes. My arms ached from holding the Model 12, 12-gauge too long in a ready position. My finger tightened on the trigger and the loud explosion jolted me out of an intense brow-sweating trance.

Like most youth, I had dreams of things that probably would never be. Turkeys had long been extirpated from Iowa but I thought in a more conscious manner that someday I might take a trip to the deep South and partake in this exceptionally exciting sport. Growing up in the late 40's and early 50's no one talked of hunting turkeys or deer in our small Iowa community. They were days gone by of deer, beaver and turkey. I read stories in outdoor magazines about hunting various game animals but the dream of shooting a wild turkey never left. I also listened intently to stories from gentlemen many years my senior telling of what hunting was supposedly like before the turn of the century, when there were large numbers of prairie chickens, deer, turkeys, ducks, ruffed grouse and even nesting Canada geese.

The good old days we have long heard about are illusive and definitely relative. Many conversations around the campfire, country store or office place have debated just what time period should be designated as the "Good Old Days" of hunting. I have always believed that I was born too late and that I missed the great field and stream opportunities. Even worse my children really missed out on the great times. I have given considerable thought to this.

The 1800 s in Iowa were no doubt interesting times. Stories, pictures and newspaper accounts document hunting opportunities for prairie chickens, waterfowl, buffalo, squirrels and rabbits but are rather limited on facts concerning the number of deer, turkey, quail or ruffed grouse. Certain periods in the 1800 s found numerous buffalo, deer, turkey, bear, ducks and geese for the number of people using these wildlife resources for food and sport. Market hunting by a few individuals produced large bags of certain species. However, we also know late in this period these resources were being depleted due to habitat changes and over exploitation. Maybe the 1800 s were the "Good Old Days" but with the difficulty of making a living, hunting for sport and enjoyment was probably limited.

Shortly after the turn of the century we had few if any deer, turkey, beaver or nesting Canada geese. Prairie chickens were declining and pheasants were not counted as important game birds. Waterfowl were plentiful, trapping was good, rabbits and squirrels were abundant and I imagine bobwhite quail were on the increase. The "Good Old Days" may have from 1920 to the late 1940 s but during the 30's a drought drastically reduced duck numbers, prairie chickens were all but gone, some years saw closed quail and ruffed grouse seasons, wood ducks were thought to be on the way to extinction, and it was a recordable event when a hunter shot a Canada goose. Pheasant hunting was fantastic but only in certain portions of

DNR Photo

northern Iowa and seasons were short. For many hunters it was a long drive to hunt pheasants. There were no seasons on turkey, ruffed grouse or deer.

The 40's was a period of stories from past experiences and a few accounts of good times but most of the time was dominated by the war and tough economic times. Hunting was not the major thing on people's minds and stories of great times in our fields and streams were few. The 50's are remembered as the golden years of pheasant hunting even though the 40's produced some excellent pheasant shooting. The northern half, or more correctly the northern one-third, of the state yielded stories of pheasant hunting that cause my sons to wrinkle their brow with disbelief and comment "that was in the olden days, Dad."

The period of 1950-1980 may have rivaled any of these previous periods. Pheasant populations were expanding into additional Iowa counties during the 50's and early 60's. Season length was extended allowing many more hours of recreation, and pheasant harvests reached two million birds annually. Ducks rebounded due to better water conditions in the late 50's and excellent duck hunting was experienced. Goose populations were increasing and Iowa was among the leading goose harvest states in the nation with annual harvests up to 70,000 birds, most of which were snow geese. Fox hunting for the specialized sportsman was excellent through the mid-70's. A deer season was opened in 1953 and the number of hunters as well as the annual harvest grew throughout this period. Hungarian partridge were expanding their range and a ruffed grouse season was opened. Quail populations in southern Iowa were periodically high during the 50's through the mid-70's. The harvest of furbearing animals like raccoon and the numbers of people trapping greatly increased.

In 1965 a turkey stocking program and giant Canada goose restoration project were undertaken. Turkey stocking was a success and the first spring gobbler season was opened in 1974. Since that time the number of turkeys and harvest increased yearly. Giant Canada geese paralleled turkeys with breeding populations growing from zero to approximately 8,000 birds. Wood ducks rebounded from closed seasons to the number two duck in the hunter's bag, untouched only by the mallard. Wood ducks surpassed the blue-winged teal to become the most abundant breeding duck in the state. Beaver became so abundant as to be termed a nuisance by many farmers. This period truly gave witness to some major accomplishments in the wildlife management field. In fact, the recreational opportunities offered to the Iowa sportsman, at least in diversity, was not equalled anytime since the mid 1800 s, if then. Maybe these past 30 years have been *real* "Good Old Days."

There were drawbacks during this period. However, wildlife habitat losses escalated due to a larger agricultural movement to meet export demands for feed grains. This resulted in the end of the soil bank program and a shift to all-out crop production. Valuable nesting and winter cover were converted to raise crops, causing a major decline in pheasant numbers in northern Iowa. Woodlands and wetlands were rapidly converted to pasture or cropland. The loss of wildlife habitat was extensive and was having an impact on upland wildlife species as well as limiting the places sportsmen had to hunt.

The 1980 s and looking into the 1990 s is a period of concern and action for protecting the environment. While I am hesitant to predict what will actually happen in the 1990 s I certainly feel a closer look at the last six years is revealing. A reversal of the agricultural program from one of high prices and expanding land values to a recession of serious magnitude has almost stopped the conversion of wetlands and timberlands. The 1985 farm bill idled 1.5 million acres of crop ground that will be out of production for ten years and should provide excellent nesting and brood cover for most wildlife species. Concern over soil erosion and water quality is gaining momentum. For the time being we have stemmed the loss of wildlife habitat and have gained back some lost ground, no pun intended.

Iowa's hunting seasons open in early September for rabbits and squirrels and continue through the end of January for squirrels and February for rabbits. The season on ruffed grouse runs from early October through the end of January and quail and gray partridge seasons continue from around the first of November in a given year to the end of January. Sportsmen have six months to pursue their sport plus a

Ron Johnson

spring wild turkey season to break the off-season boredom.

Let's compare this opportunity to any ten-year period since 1900. Looking at season length and harvest opportunity for the full array of wildlife species, you can see some negatives with the reduction in pheasant and quail harvests and definitely a loss of opportunity for ducks, but all in all sporting opportunity has greatly expanded. It certainly looks to me the "Good Old Days" are now.

Early frontiersmen and settlers might argue there were fewer people to compete for the resource and lots of wildlife, but times were more difficult and recreational time was quite limited. We will never know if those early years were truly the "Good Old Days" but I am confident we are *now* experiencing the golden years of hunting opportunity in Iowa.

Richard Bishop is the wildlife bureau chief for the department. He holds an M.S. degree from the University of Arizona. He has been in wildlife research and management for 20 years.

Oil Overcharge Funding

By Dr. W. Tony Heiting

Reprint from *Iowa Energy Bulletin*

ON MARCH 6, 1986, THE STATE OF IOWA RECEIVED $27.4 MILLION AS A RESULT OF A DECISION IN *UNITED STATES* VS. *EXXON CORPORATION*. THAT decision found Exxon liable for overcharges on crude oil sales made during the period of federal price controls on U.S. oil between 1973 and 1981. These price controls were an attempt to encourage the efficient use of energy resources and, therefore, the overcharge refund must be spent for the same purpose.

Over $14 million in oil overcharge funds has been allocated by the 1987 Iowa Legislature. This money is to assist low income Iowans, aid in economic development, promote research, provide for study and pilot programs in groundwater protection and for numerous energy conservation projects.

Energy Bank Program

The DNR was allocated $500,000 for the Energy Bank Program. This is a continuation of a $1.5 million program established in 1986. The Energy Bank sponsors walk-through audits of school and other public buildings. Inefficient energy uses that are uncovered as a result of the audits will be analyzed by energy engineers for cost-effective solutions. This program's purpose is to establish energy conservation practices within public schools, area education agencies, public community colleges and technical institutes and local government buildings.

Low Income Aid

Low income Iowans have already seen benefits from oil overcharge funds and will continue to see benefits in projects that emphasize weatherization, housing and mass transit aid. The Division of Community Action Agencies of the Department of Human Rights was allocated $175,000 to be used to help low income persons in weatherization projects for their homes. The DNR will have $500,000 in funds available for energy conservation efforts by low income non-profit housing organizations. "The DNR plans to explore the possibility of using these funds to compliment a program by the energy bureau to weatherize shelters for the homeless," stated Larry Bean, administrator of the Energy and Geological Resources Division. The Department of Transportation (DOT) has $1.7 million to be disbursed for mass transit aid to low income Iowans.

Economic Development and Competitive Grants

Economic development projects will also receive a boost from the oil overcharge funds. The DNR was allotted $500,000 to work with the Department of Economic Development on a competitive grants program. This program will provide venture capital to new businesses whose products and services are energy related. The Department of Economic Development will also receive an additional $125,000 to be used in the further development of the "Iowa Main Street" program. The funds will be spent on energy conservation projects to help in the revitalization of downtown areas.

The DNR was given an additional $1 million for a competitive grant program for cost effective and environmentally sound energy conservation and renewable resource projects.

Since August 1986, 25 energy conservation projects in Iowa have been given grants at a cost of $900,000. Some of these projects include the burning of pelletized waste paper as fuels at Dordt College and Sioux Center Community High School. Other grants funded energy audits and engineering analysis in buildings owned by United Way and allowed for the Department of Education and the DNR to hold teacher workshops on energy.

Research and Evaluation

Research on energy conservation methods are also being financed by the oil overcharge funds. With $75,000, the DNR will evaluate the Federal Weatherization Program that is already in place in Iowa. The DOT will receive $750,000 for one or more pilot projects of intermodal transportation facilities. This will include the development of ports, terminals and transfer facilities. The State Board of Regents has been allocated $30,000 for research at Iowa State University to establish a waste stream for used motor oil. Alternative methods of disposal for motor oil will be investigated.

Groundwater Protection Fund

The DNR was allocated $5.53 million for deposit in the oil overcharge account, Groundwater Protection Fund. Protection of groundwater is vital because the majority of Iowans depend on groundwater as a drinking water source. Through testing, Iowa's groundwater has been found to be contaminated in many areas around the state. The Legislature and the DNR have developed a plan to efficiently use these funds for groundwater programs that affect energy efficiency improvements, avoid considerable future increased energy needs and develop renewable energy resources while enhancing environmental quality.

The DNR has allotted $860,000 for the implementation of groundwater protection programs. They will be mapping vulnerable groundwater sights, developing a public education program, and locating and evaluating the sources of groundwater contamination.

The DNR has also allocated $560,000 for the assessment of private rural water supply quality which will require the development of a monitoring network. One hundred thousand dollars ($100,000) will be used to monitor the groundwater at sanitary landfills. This will involve field assessment of sanitary landfills for documentation of the problems and potential costs of remedies for the situation. The DNR will use $760,000 to demonstrate alternatives to landfills such as refuse-derived fuel and recycling programs.

Grants amounting to $120,000 will be given to the Iowa State Water Resource Research Institute for alternative waste disposal methods and groundwater protection. The Leopold Center for Sustainable Agriculture will receive $800,000 to establish programs that will focus on agriculture/energy relations and will include biomass energy production projects.

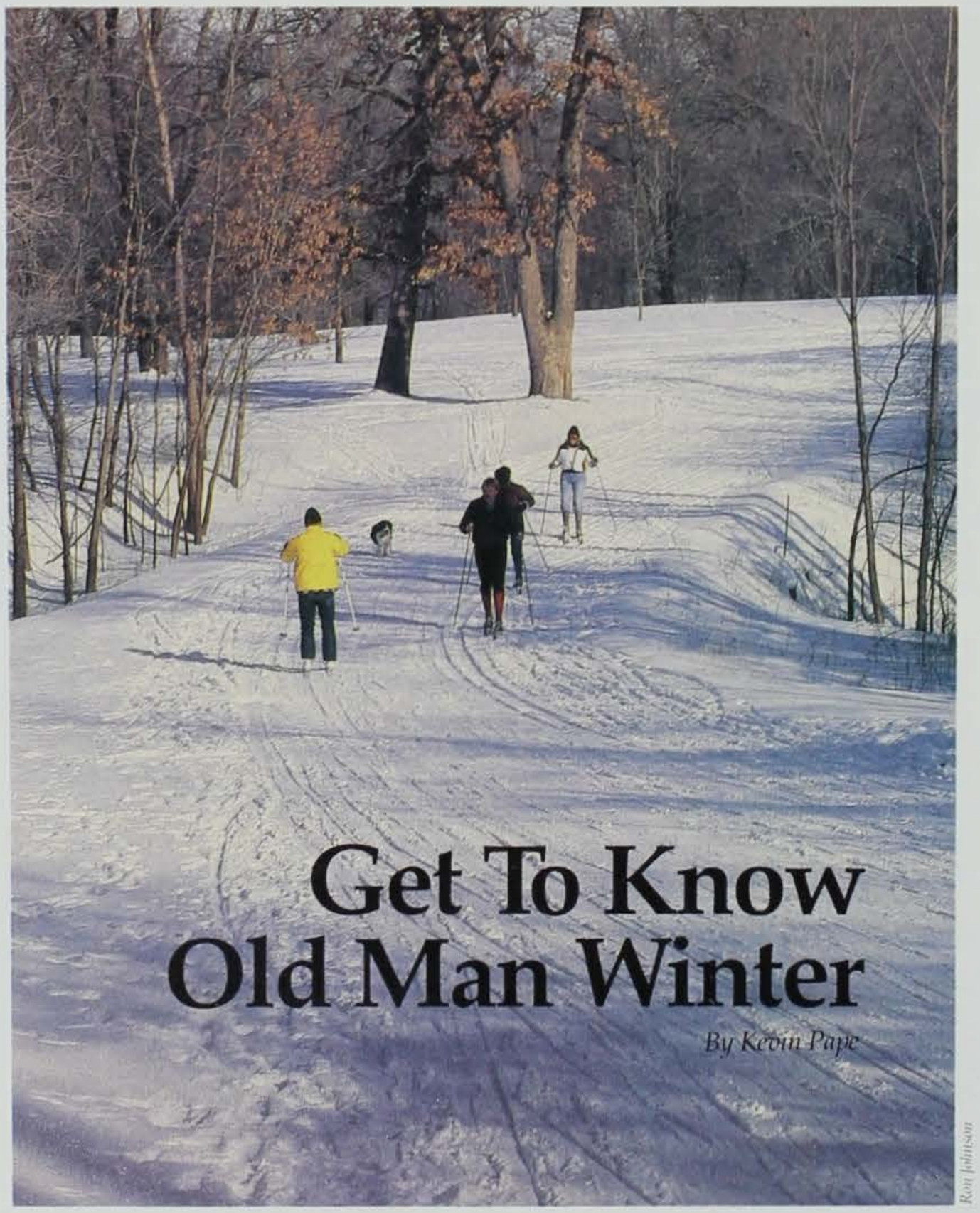
Many other conservation efforts will also receive funding. The DOT has been allocated $1.5 million for energy projects at their Ames facility. Funds totaling $50,000 were given to the Department of General Services for energy conservation improvements to the Governor's mansion, Terrace Hill.

Oil overcharge money will be used to maintain present funding levels for each of the federal energy programs administered by the DNR and for the weatherization program which is administered by the Department of Human Rights. These programs are State Energy Conservation Programs (SECP), the Energy Extension Service (EES) and the Institutional Conservation Program (ICP).

Dr. Tony Heiting is the program and planning administrator for the energy bureau of the DNR. He holds a PH.D. in environmental science from the University of Iowa. Heiting has been with the department since 1976.

Jerry Leonard

Ken Earnaack



Ron Johnson

Get To Know Old Man Winter

By Kevin Pape

IT SEEMS LIKE THE OLDER YOU GET, THE MORE YOU CURSE OLD MAN WINTER. Winter means dead batteries, high heating bills and shoveling snow. But, there is a good side of Old Man Winter — a chance to get acquainted with Iowa's state parks.

Millions of Iowans visit state parks during the summer, but few experience parks in the winter months. Winter snows create beautiful scenes and open up new recreational possibilities.

Hiking is just one. Trails, that are heavily used during the summer, are waiting to be tracked over in winter. With leaves off the trees, wildlife is often more visible and sometimes more approachable.

When the snow deepens, cross-country skiing becomes a popular activity in state parks. Most state parks offer miles of trails to explore and many have expanded their trail systems to accommodate cross-country skiing's increased popularity.

There are plenty of wide open spaces to snowmobile also. The snowmobile is perfect for covering miles of ground in winter. Iowa offers more than 4,000 miles of groomed and signed snowmobile trails. These trails often connect to state park trails.

Overnight camping is permitted in most parks, even in winter. When the weather breaks, a few brave souls venture out to winter camp. Electricity is usually available but water and

Ron Johnson

Ron Johnson

showers are not. With proper equipment, winter camping can be a unique and enjoyable experience. Still, for some the best equipment might be a self-contained motorhome with electric blankets.

A number of state park lakes have plenty of fish just waiting to be pulled through the ice. And what better way to chase away the winter doldrums than a tasty, hot dish of fresh bluegill fillets.

Other ways to beat the winter blues or potential cabin fever might include sledding, nature study, ice skating or photography. With proper clothing, a snack or two in the coat pocket and maybe a thermos of hot chocolate or coffee, winter can be very pleasant.

Imagine hiking through the woods in one of Iowa's state parks. The fresh snow clings to the branches of the red cedars. A big buck darts onto the trail ahead, then stops to look back. That's the good side of Old Man Winter.

For more information on winter recreation in Iowa, contact your nearest state park ranger or the Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0045.

Kevin Pape is a park attendant at Ledges State Park. He holds a B.S. degree in fisheries and wildlife biology from Iowa State University and has worked for the DNR since 1984.

Ron Johnson

Ron Johnson