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FLANDENBERGER

Iowa CONSERVATIONIST

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FRONT COVER: *Mallards by James F. Landenberger of Cedar Rapids.*

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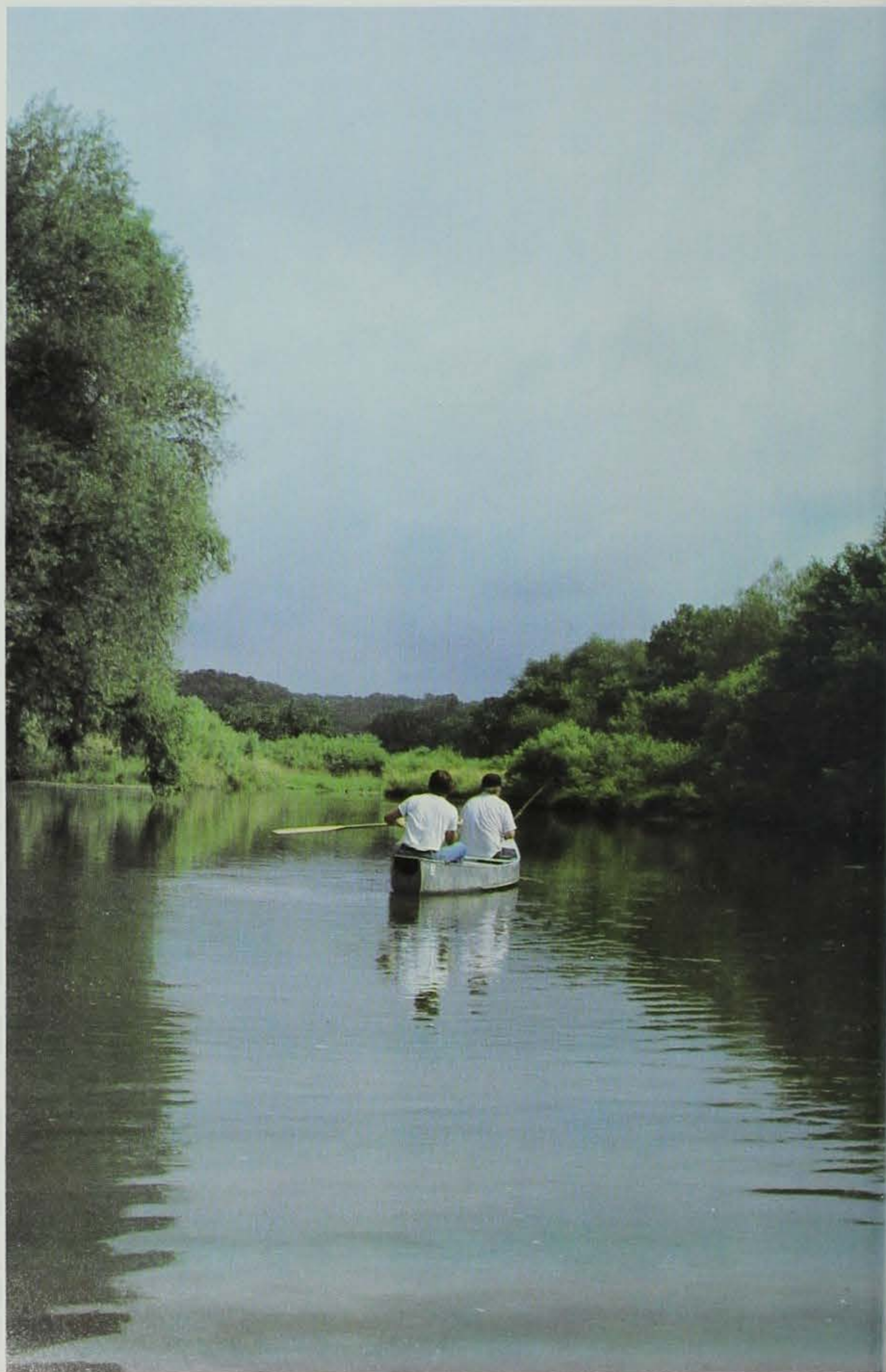
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Floating and Fishing

Ken Formanek



the Iowa River

By Robert Middendorf & Steve Schutte

BELMOND TO MARSHALLTOWN

The Iowa River, as it flows through Wright, Franklin and Hardin Counties is characterized by its heavily timbered shoreline with periodic large rock outcroppings. Mud predominates as the bottom type in Wright County while a combination of sand, gravel and rock prevails in Franklin and Hardin Counties.

Channel catfish and bullheads provide the major fishery in the Iowa River through Wright County. Large snags, formed by fallen trees are present throughout this stretch of river and supply the habitat needed to attract

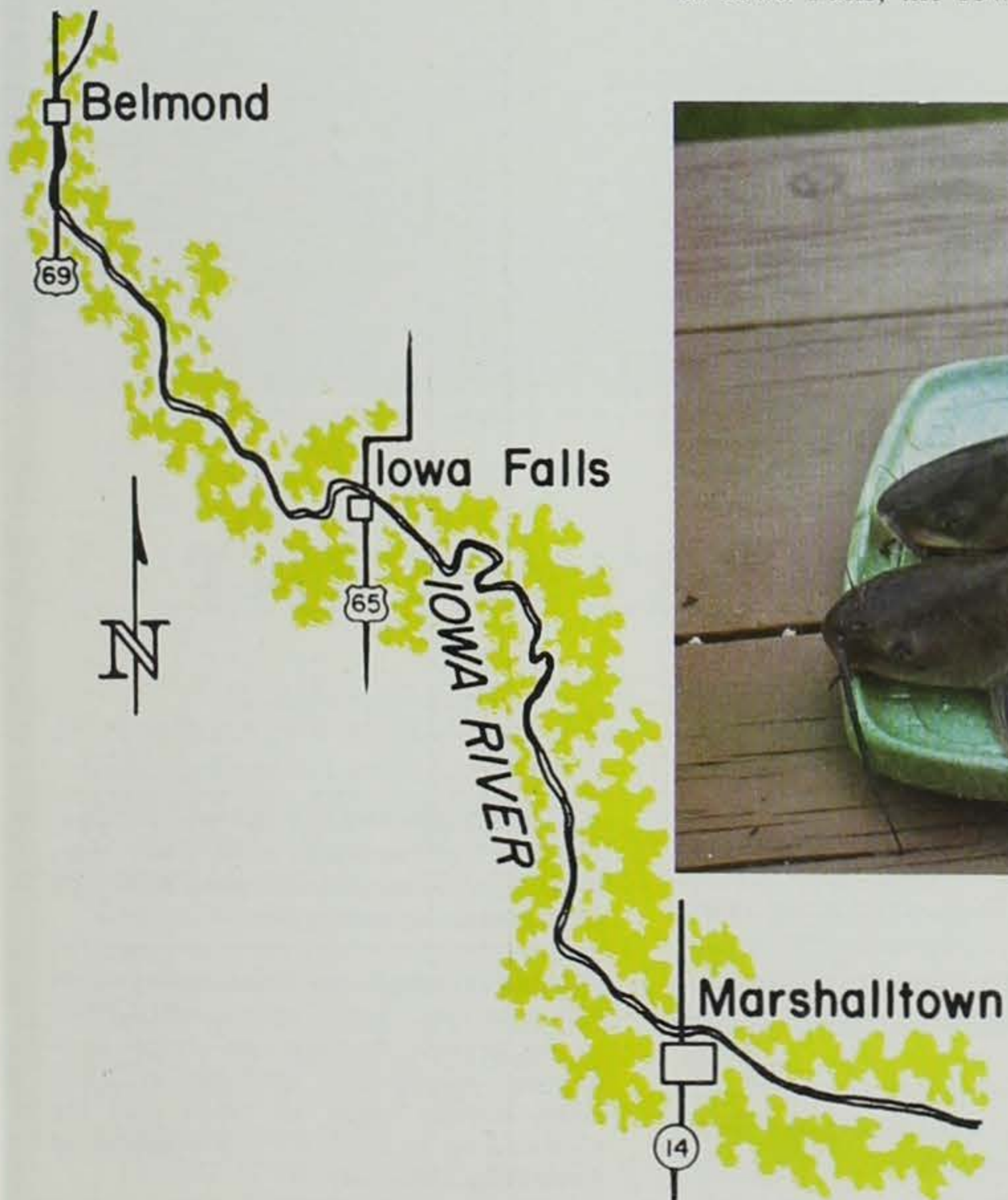
and hold channel catfish. Baits used for channel catfish include chicken livers, nightcrawlers, stink baits, frogs and homemade dough baits.

As a result of activities of the Hardin County Conservation Board, a "green belt" exists along most of the Iowa River through Hardin County. This has resulted in making the Iowa River one of the most beautiful stretches of canoe water in Iowa. The "green belt" provides many accesses to the River as well as containing picnicing facilities, hiking trails and camping areas.

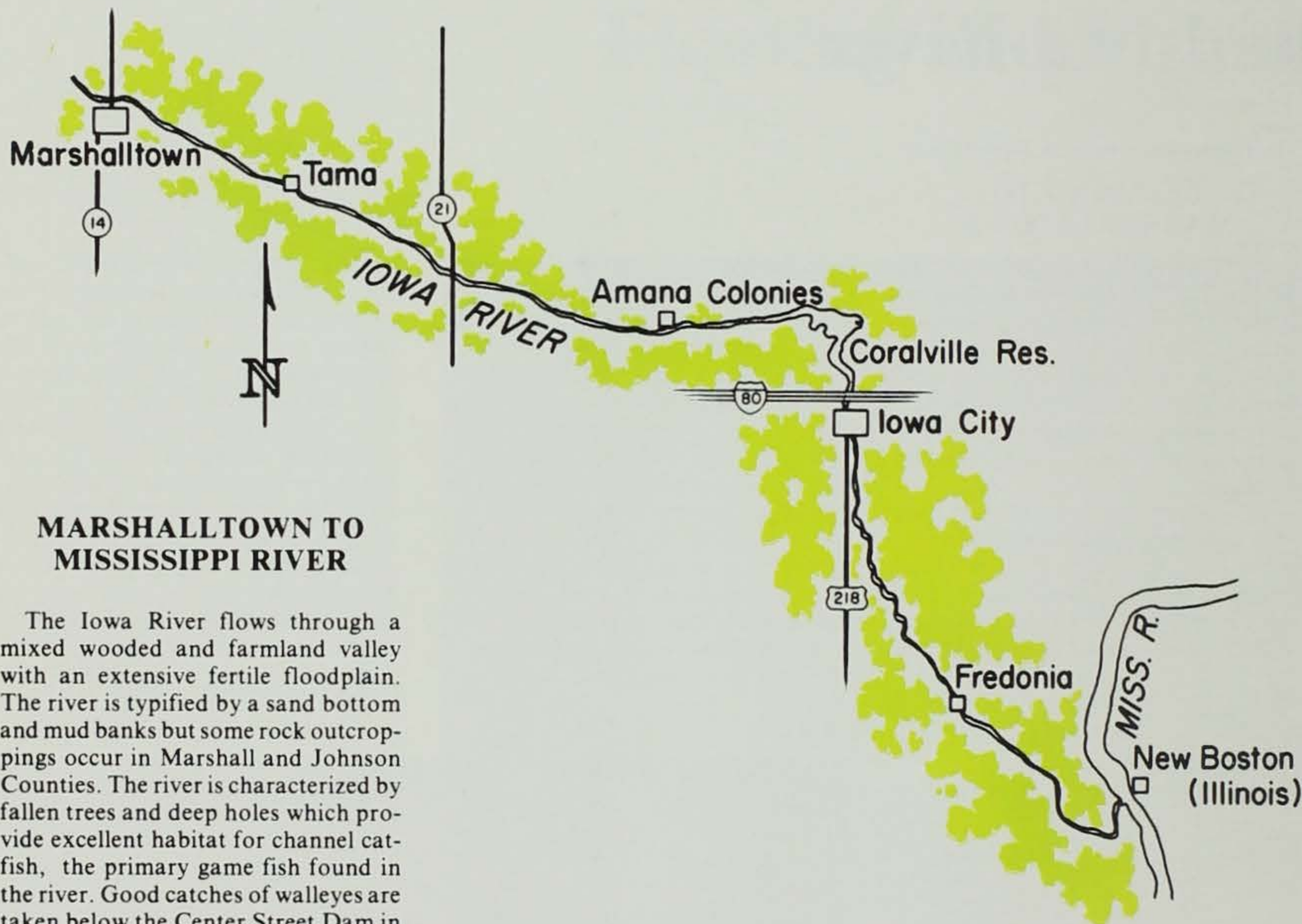
From Alden to the power plant dam at Iowa Falls, the Iowa River offers

anglers the opportunity to catch channel catfish, walleyes, northern pike, crappies and bullheads. In addition to fishing, the impoundment above the Iowa Falls dam is a popular recreation area for pleasure boaters and water skiers. Below the Iowa Falls dam and continuing through Hardin County, the River contains many riffle areas resulting in excellent smallmouth bass angling. Popular smallmouth baits include spinners, nightcrawlers, small Rapalas and jigs or "leadheads" of varying colors. Northern pike are also frequently caught by anglers in this stretch.

Continued on page 4



J. Satre



MARSHALLTOWN TO MISSISSIPPI RIVER

The Iowa River flows through a mixed wooded and farmland valley with an extensive fertile floodplain. The river is typified by a sand bottom and mud banks but some rock outcroppings occur in Marshall and Johnson Counties. The river is characterized by fallen trees and deep holes which provide excellent habitat for channel catfish, the primary game fish found in the river. Good catches of walleyes are taken below the Center Street Dam in Marshalltown, the Amana Colonies Dam approximately five miles below Marengo in Iowa County, the Coralville Reservoir and tailwaters in Johnson County and below the Burlington Street Dam in Iowa City. Fair small-mouth bass fishing can be found in the rocky areas above the Marshalltown as well as below the Center Street Dam in Marshalltown. Favored catfish baits vary from stink baits to nightcrawlers, liver or leeches. Walleye and small-mouth bass are caught on spinners or light colored jigs.

Points of interest include the Mesquaque Indian settlement located downstream of Montour in Tama County. This is the only major Indian settlement in Iowa. Debris of an old dam in the settlement makes river travel difficult. Otter Creek Marsh, below Tama, is a state-owned wildlife area managed for waterfowl. The Amana Society owns 23,000 acres adjacent to the Iowa

River below Marengo in Iowa County. The Societies Dam, approximately five miles below Marengo, diverts water from the river to a canal system which links several of the seven villages of the Amana Colonies. This dam blocks the river and is impassible to up or down river travel. The remains of an old Indian fishing weir is located near Main Amana but can only be seen at time of very low water.

Coralville Reservoir is a Federal mainstream impoundment on the Iowa River in Johnson County. The dam is located four miles north of Iowa City and is the headquarters for the reservoir operation. Numerous access points and boat ramps provide facilities for most water-based recreation and camping.

The Cedar River joins the Iowa near Fredonia in Louisa County and flows into the Mississippi River near New Boston, Illinois.

Robert Middendorf is a fisheries management biologist stationed at the Lake Macbride Station near Solon. He has been with the Commission since 1948.

Stephen Schutte is currently a conservation officer serving Cerro Gordo County. Prior to his present position, he served as a fisheries management biologist at Clear Lake. Schutte began his career with the Commission in 1972. He is a graduate of Iowa State University.



Forney Lake harbors many thousands of snow geese each fall and spring.

Ken Formanek

THE RIVERTON WILDLIFE UNIT

By Robert Moore

The Riverton Wildlife Management Unit is comprised of five counties in southwest Iowa - Page, Fremont, Montgomery, Mills, and Pottawattamie. The area is not densely populated. Council Bluffs is by far the largest city with over 60,000 population, two towns with over 6,000, and a host of towns with a population around 1,500 or less. It is an area of rural influence with its many small farming communities.

The topography is varied from the flat, broad river valley of the mighty

Missouri River on the west, the famous loess hills (bluffs) with labyrinths of gullies and ravines, to rolling hill country on the east. Winding through the fertile countryside are the many creeks and streams making up the tributaries of the major, natural drainage systems. They are the Missouri, Nodaway, and Nishnabotna Rivers.

The Missouri River flowed from bluff to bluff during times of rapid run-off. Eroding away, building up new land masses, and constantly changing the location of the main river channel. The smaller streams also over-

flowed, perhaps from glacial melt further to the north, depositing silt loads and forming fertile valleys.

Therefore, the formation of soils in this region of the state were of wind and alluvial deposits over many centuries.

An estimated 1k million acres, 2,741 square miles, are in agriculture crops in this unit. As noted, soil fertility is generally high.

Livestock graze the steep bluff region. Characteristic of this area is native grasses on the southern slope and tree or brush growth on the north-

ern exposure and in the gullies. But, there are small crop fields in the valleys and along the ridge tops. In past years, orchards and vineyards were common in the bluffs.

Moving on to the rolling hills east of the loess bluffs is a region combining grain and livestock production. Here a crop rotation pattern is followed that includes crops of hay, oats, corn, soybeans and permanent pasture.

The Missouri River no longer goes on flooding rampages due to numerous Corps of Engineer projects upstream. To reduce possible damages from local high water, an earthen levee runs the entire length of the river from Council Bluffs to the Missouri state line. As additional control over the river flow is exercised, more and more land between the river and levee is being farmed. There use to be numerous marsh and lake beds in the Missouri River valley. However, modern drainage methods and less likelihood of a flooding river have provided incentive to drain these areas for additional crop fields.

Coupled with the vast drainage ditch network are numerous watershed development that control water runoff from the hills onto the river bottoms. The watershed impoundment structures not only reduce soil and water erosion, but also reduce water flow into existing marsh and lake areas. Two examples of old Missouri

River oxbow lakes easily seen today are Folsom Lake in Mills County and Forney Lake in Fremont County.

Yes, man's activities are steadily changing his surroundings to meet his needs. Each additional acre that is drained, fall plowed, overgrazed, cleared, leveled, etc. affects another inhabitant of the area - our wildlife of which most are native species of the region.

Nearly all upland game production and hunting takes place on privately owned land. There simply isn't enough publicly owned land to do the job. Therefore, each acre of native or replenished habitat is important to maintaining our wildlife populations.

A variety of game species are found in this part of the state. Some of the best quail numbers are located in the southern two-thirds of Fremont and Page Counties where hedge rows still mark property boundaries. Not to be overlooked are the areas in the bluffs where small crop fields are located.

The states number one game bird, the ring-neck pheasant, abounds in this richly agricultural area, especially in the northeastern portion of the unit. Fair bird numbers may be found in bottoms along drainage ditches provided adequate cover is left standing.

Two under-hunted game species are the cottontail and squirrel. Generally, good cottontail populations can be found in the quail country. Fox and

gray squirrel can be found in the bluffs. Also fox squirrels in the native oak timbers, along timbered rivers, and around homesteads.

The deer have been forced to concentrate along the river drainage systems, the loess bluffs, and scattered timber tracts. Southern Page and Fremont Counties still have some fairly good deer habitat. Wild turkeys were stocked in the bluffs in 1976. A portion of the area was open to turkey hunting in 1980.

Trapping muskrat, mink, beaver, raccoon, is a productive adventure in the numerous drainage ditches, watershed impoundments and state management areas. There is an increased interest in hunting coyotes during winters of prolonged snow cover. However, being known as the "banana belt" region often finds this area without much snow.

Prime waterfowl hunting is found in this portion of the state, especially for snow geese. Numerous private hunting clubs have been developed surrounding the commission's Riverton and Forney Lake areas. Many landowners are finding additional revenue by leasing harvested crop fields to goose hunters. The Missouri River bottom is the more popular waterfowl hunting area.

A spectacular wildlife event takes place each spring along the broad alluvial flood plain of the Missouri River - the spring goose migration. Tens of thousands snow geese arrive in the Hamburg, Riverton, and Thurman areas in early March at the first sign of spring. Bird numbers may build to 250-300 thousand as they slowly advance north with the spring thaw. The weather is the key factor affecting timing of migration and peak numbers. Canada and white-fronted geese are also observed although in lesser numbers. Adding variety and color to the annual event are the various species of ducks intermingled with the geese. Ducks are in their bright breeding plumage at this time.

There are thirteen fish and game management areas making up the Riverton Unit, collectively some 5,500 acres. There are four state parks, Lake Manawa, Viking Lake, Wilson Island and Waubonsie, in the Unit which provide needed habitat.

The management of the public hunting areas fall into two categories: upland game and waterfowl.

Upland ground is managed for production and harvest of pheasant, rab-



bit, and quail. Non-game species also benefit from practices carried out. Numerous crop fields, each approximately ten acres in size, are interspersed with nesting and winter cover. A portion of the row crop is left standing to provide winter food and cover. Hay cutting is permitted between July 1 and Sept. 1 to provide optimum nesting cover. Tree and shrub wildlife plantings which provide winter cover and loafing sites are located in close proximity to crop fields.

There are two public use areas managed primarily for waterfowl. They are Forney Lake and the Riverton Area. The main Forney Lake area is controlled waterfowl hunting as is a portion on the north end of Riverton. Snow geese are the main birds utilizing these areas. Collectively, there are 56 blinds on the two areas used by some 8,500 hunter annually. Proper management of the areas require fall pumping to maintain adequate water level for waterfowl use.

A very popular public duck hunting area is found in the south end of the Riverton Area. This area is known as the "ol' mallard hole" of southwestern Iowa. As expected, the most sought after duck in this flooded combination timber, pothole, open water area is the greenhead.

Several management areas provide a combination of upland game and waterfowl hunting. A brief summary of each public use game management area of the unit follows:

Forney Lake: 1,128 acres located near Thurman. The old oxbow lake was purchased in 1943. The lake has received silt laden Missouri River flood waters on several occasions, the last time being in 1960. Consequently, much of the marsh is in a plant succession stage toward brush and tree growth. Water is pumped from two deep wells each fall to maintain adequate water level for waterfowl use. The main lake as incorporated into a controlled waterfowl hunting program in 1969 and is still in effect. Briefly, controlled hunting is fee hunting and the number of hunters on the area is limited. Following the goose season, the area is open to public hunting (pheasant primarily) except for the refuge segment.

In 1951, 200 acres of upland ground was added to the south of the lake proper. This area is cropped and several wildlife plantings have been made. It is excellent hunting area for pheas-

sants. An additional 60 acres of heavily timbered bluff ground was added in 1982.

Riverton Area: 2,493 acres located near Riverton. The original 721 acres were purchased in 1941 and became a popular duck hunting spot. This is the oldest public hunting area in the unit. Additional land purchases were completed in 1972. A segment north of the public duck hunting area was developed for goose utilization, and controlled hunting implemented in 1972. All water segments are flooded each fall by pumping out of the West Nishnabotna River.

The upland ground is currently being developed to provide for production and harvest of pheasant primarily. Not to be overlooked is the timbered area along the East Nishnabotna River and in the duck hunting area for finding the elusive white-tailed deer.

Waubonsie Access: 52 acres located near Nebraska City. This area was acquired in 1967 primarily for access to the Missouri River. However the seeded area provides limited pheasant hunting, and some squirrels are found in the timber along the river.

Willow Slough: 599 acres located near Henderson. This area is a combination of marsh, upland and timber. A great variety of hunting opportunity is provided on this area. This area was purchased in the late 1950's and a man-made 200 acre marsh developed. Waterfowl hunting is fair - primarily ducks are bagged. A very good pheasant population abounds on this area. The deer hunters find this a popular place to search out their quarry.

Robert Moore is a wildlife management biologist stationed at the SCS Office Bldg. in Malvern. He is responsible for wildlife management of the five county Riverton Area.



Ken Formanek

Interstate 29 Borrow Areas:

In 1972-1973 the Iowa Highway Commission transferred jurisdiction (management control) of seven borrow areas along newly constructed Interstate 29 to the Conservation Commission to be developed for public recreation. There are four areas in Fremont County, 583 acres, and three areas in Mills County, 236 acres, for a grand total of 619 acres. The size ranges from 33 to 166 acres.

The removal of borrow dirt during interstate construction created nine small lakes. Fish have been stocked in these waters.

Land surrounding the water areas have been seeded and wildlife plantings developed. The larger areas have crop fields interspersed with the seeding and wildlife shelterbelts.

The areas are small and will not support sustained hunting pressures with any success. However, they provide limited wildlife habitat in the heavily cropped Missouri River bottom.

Smith Area: 260 acres 2½ miles NE of Council Bluffs. This timbered area was given to the State by the Smiths in the late '50s. Wildlife production on the area include deer, quail, rabbit, pheasant, squirrel and turkey. This gift of maturing timber in an area that is



Ken Formanek

becoming more urbanized is quite significant.

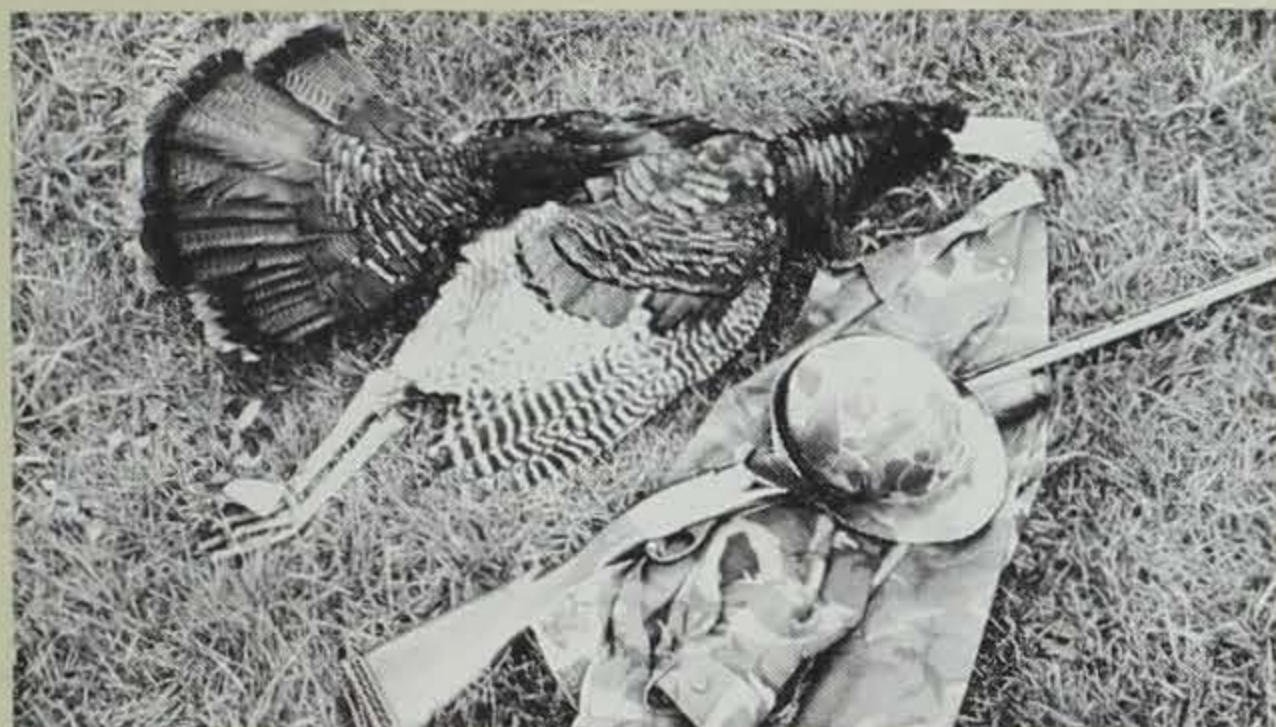
Green Property: A ten acre timbered tract SE of Avoca given to the state in 1980.

The unit's headquarter's office is located on the east side of the Riverton Area. The Conservation Technician living on the area is charged with the daily operation and maintenance of the various management areas in the unit.

The Management Wildlife Biologist's office is located in the Soil Conservation Service (SCS) Office in Malvern. He is there to assist landowners in planning and developing wildlife habitat on private lands, coordinate local conservation activities with various ag-related state and federal agencies, and prepare public relations programs relating to wildlife activities in the five southwestern counties.

RIVERTON WILDLIFE MANAGEMENT UNIT

COUNTY	NAME OF AREA & ACREAGE	NEAREST TOWN	DESCRIPTION OF AREA	PRINCIPAL GAME
Fremont (36)	Forney Lake - 1,128	2½ mi. NW Thurman	2/3 shallow marsh 1/3 upland	WF, pheasant
	Riverton - 2,493	1 mi. W Riverton	shallow marsh- 2/3 upland - 1/3	WF, pheasant, deer
	Waubonsie - 52	½ mi. N. Nebraska City	upland	Pheasant
	I-29 Borrow:			
	Percival - 80	1 mi. N. Percival	lake & upland	WF, Pheasant
	McPaul - 166	½ mi. N. McPaul	lakes & upland	Pheasant, WF
Mills (65)	Scott - 80	2 mi. S. Bartlett	lakes & upland	WF, Pheasant
	Bartlett Lake - 57	N. edge Bartlett	lake & upland	WF
	Willow Slough - 599	3 mi. S. Henderson	1/3 marsh, 2/3 prairie & timber	WF, pheasant, rabbit, squirrel, deer
	I-29 Borrow:			
	Keg Lake - 103	3½ mi. SW Glenwood	shallow lake, upland	WF, Pheasant
	P.J - 33	½ mi. W. Pacific Jct.	small lake	WF
Pottawattamie (78)	Folsom - 100	4 mi. NW Glenwood	deep lake	WF
	Smith Area - 260	2 mi. NE Council Bluffs	timber	Deer (REFUGE)
	Green Property - 10	2 mi. SE of Avoca	timber	Squirrel



Spring Wild Turkey Hunting Season Another Success

Iowa's wild turkey hunters had another successful spring season in 1982, in spite of poor weather and generally uncooperative turkeys during the April 13-May 9 hunting period. An estimated 6,244 hunters scored a success rate of 27%, down somewhat from last spring's record 36%, but still outstanding for spring gobbler hunting. In most traditional turkey hunting states, spring hunter success rates of 10% are considered good. The average hunter success rate recorded in Iowa for the years from 1974 to 1981 was 26%.

The harvest for all 8 hunting zones was estimated to be 1,685 turkeys, up 17% from 1981. Harvests and success rates for each zone and season are listed in the attached table.

Decreased hunter success compared to 1981 was due to several factors: 1) Turkey populations in southern Iowa, historically the primary hunting zone, were somewhat below last year's record levels because of a poor hatch in 1981. The increased harvest occurred in western, central, east-central Iowa and parts of northeast

Iowa, where turkey populations are still growing; 2) about 2,000 more licenses were issued in 1982 than in 1981, which put more inexperienced hunters in the field; 3) Perhaps most importantly, early April snowstorms delayed normal turkey breeding activities as much as a month. This put hunters in the field during the peak mating time, when gobblers were very difficult to call away from hens. In spite of these unusual circumstances, hunters did very well.

This marks the 9th consecutive year that license quotas and harvests have increased, since the first spring season in 1974. The increases have been allowable because the Conservation Commission's aggressive wild turkey restoration program has produced rapidly growing turkey populations in most of Iowa's remaining forest habitats. About 1,500 wild turkeys have been trapped and released at 100 sites since 1966. Nearly 85% of Iowa's forest lands now have turkey populations where none existed 20 years ago, and most of these areas are open to spring hunting, or will be soon.

BOOK REVIEW

By Ken Smith

"A BOOK FOR PRAIRIE GARDENERS"

The Prairie Garden
70 native plants you can grow
in town or country
J. Robert Smith with Beatrice
S. Smith
University of Wisconsin
Press, 1980
\$9.95

Backyard plantings of Indian grass, little bluestem, sideoats grama, butterfly milkweed, coneflower, and prairie clover? That's right. If you've been thinking about starting a prairie in your yard, you're not alone. Prairie buffs, wildlife enthusiasts, naturalists, and landscape architects have been advocating the idea for years. The problem has always been knowing how to successfully do it. Now, Robert Smith along with Beatrice Smith have written an excellent guidebook for establishing prairie gardens.

Robert Smith, a Forester and Wildlife Manager by training, has over 14 years of experience propagating and establishing prairie plants and for 10 years has operated a commercial prairie nursery at Westfield, Wisconsin. The book contains chapters on

planning a prairie garden, preparing the site, collecting and processing seed, raising seedlings and plantings, and maintaining a prairie garden. Seventy individual prairie plants are described and accompanied by sketches. The authors have used both common and botanical names. Information given for each plant includes habitat requirements, mature plant size, flowering time and color, propagation techniques, suggested companion planting schemes and many helpful and interesting comments. The book also contains a color photo section. Unfortunately, the photo quality does not do the plants justice. The quality of the rest of the book, however, more than compensates for the poor photographic quality.

This book is a valuable aid to anyone interested in natural landscaping.

The Prairie Garden is available in paperback for \$9.95 (including postage and handling) by mail from the University of Wisconsin Press, 114 North Murray Street, Madison, Wisconsin 53715.



Iowa Hunter Safety Education Program

Sign Up Now!

There are around 30 states that have mandatory hunter safety laws. The Iowa legislature passed a mandatory hunter safety bill this spring that becomes effective July 1, 1983. This new law will require all people born **after January 1, 1967**, who wish to purchase a hunting license, be required to successfully complete a hunter safety course. Each individual who completes the course will be issued a certification card. This card will be shown to the license vendor when he or she buys a hunting license. The minimum age to take this course is 12 years. A lot of emphasis in the hunter safety course is put on hunter ethics, and respecting landowners, hunting laws, fellow hunters, and wildlife.

It is anticipated that the new law will affect about 25,000 to 30,000 youngsters the first year. Persons born after July 1, 1967 are urged to sign up for the hunter safety course this fall or winter instead of waiting until after July 1, 1983. This will help tremendously. To reduce possible last minute training requests prospective students should plan on taking the course as soon as possible to beat the rush.

Voluntary hunter education instructors who have been certified by the Conservation Commission will teach this course.

Any school or responsible private organization may sponsor hunter education training. The minimum length of the course is eight hours.

All training materials such as manuals, shoulder patches, and certification cards are furnished to the voluntary instructors free of charge. Teaching aids such as 16mm movies, and 35mm slides are available to the instructor on a loan basis. All of the materials may be ordered by the instructor through the local conservation officer or the Conservation Commission's central office in Des Moines, Iowa.

Instructor certification is done by the local conservation officer. Instructor certification consists of four hours of training on how to set up and teach hunter education classes and what training aids are available.

For more information on the hunter education program, contact the State Conservation Commission, Wallace Building, Des Moines, Iowa 50319 — Attention Charles Olofson, Hunter Safety Coordinator.



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Adult's Sizes (\$5): small (34-36), medium (38-40), large (42-44), x-large (46-48).

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ENVIRONMENTAL EDUCATION

The State of Iowa with the Iowa Natural Heritage Foundation began in June, 1982 to develop Iowa's Environmental Education Enrichment materials. The Department of Public Instruction is coordinating a project directed by a staff of University of Northern Iowa professors where the materials are being developed and written.

The writing team consists of teachers who teach in grades K-12, a principal, and a talented specialist. The writing team is divided into four segments: K through grade 2; grades 3 through 5; grades 6 through 8; and grades 9 through 12. Area Education Agency personnel, college instructors, and DPI specialist and an Iowa Conservation Commission representative are editors.

This project has been designed with the input of the various resource agencies so that the units written cover eleven topic areas which are important to Iowans. Air, soil, water, habitats and populations are examples of these topic areas.

After the writing of the units has been completed, the materials will be tested and evaluated in selected Iowa schools. By next summer, the materials will be available so many teachers may enrich their curriculums in the fall.

WARDEN'S DIARY

— A Boy Grows Up —

By Jerry Hoilien

Seems like yesterday when my boy, Jerry, took his first Canada Goose. A friend had called to tell us some geese had landed on his farm pond. Jerry wasn't very old, but beamed at the chance to go hunting. He had carried an empty gun the whole year before, learning the fundamentals of safe gun handling; aiming, leading, etc.

The sun was shining bright as we arrived at the farm. Sure enough, from the house we could see a dozen Canada Geese loafing on the pond. It didn't take long to walk around and approach from below the dam.

Jerry had his twenty gauge double checked and ready as we started up the incline. It was steep and I took hold of him in the middle of his back. Literally picking him up, I set him up in front of me within a few yards of those magnificent Canada Geese. As they took off, spreading those huge wings, I watched him swing his gun up on the largest bird and touch off the shot. I was standing directly behind him, literally looking down the

sights as the big bird buckled and fell. Jerry was twelve years old. The excitement in his eyes as he turned to look at me I will remember all my life. It was an introduction into the world of a hunter, that would remain with him the rest of his life.

Years pass quickly and my young son grew fast; he's 6 feet tall now. One day I stopped by the school and suggested he hurry home afterwards as there were five Canada Geese sitting among his decoys on the pond.

Wasn't long before he ran home, beaming and eager to go as usual. As we approached the lower side of the dam, below his blind, he looked at me and said, "*this is one dam you won't have to help me over — huh Dad?*" We checked our guns and I cautioned; "*Remember, two each is the limit... and there are five geese.*"

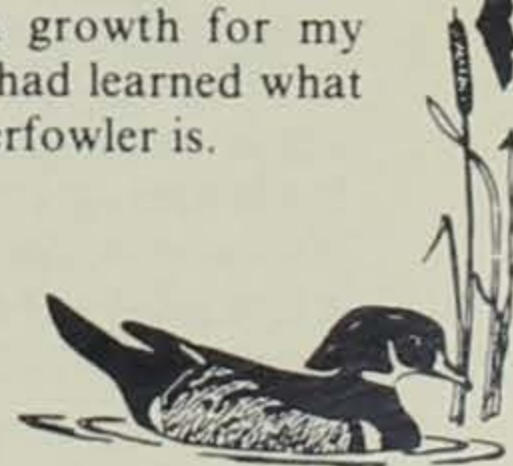
When we stepped up, the birds reacted and up they went. I heard his gun bark and a goose came down, again and another faltered. I pulled on the cripple and down it came. Three birds

on the water. Two birds swung strongly away. Jerry beamed a big smile and started to pull off his boots for a retrieve. "*Look north,*" I said as I noticed the two swing back towards us, "*Down*". We jumped into Jerry's blind and watched as the two came around. They came straight on as Jerry asked, "*Are they going to be low enough?*" "*Yes,*" I replied "*But remember only one, that's the limit!*"

As they came on, winging strongly, approaching from the north, they would pass directly over us.

I watched the birds approach us over the water. "*Now — now's the time, Jerry.*" I watched him aim and tighten for the recoil... then lower his gun. Watching the birds pass, he said, "*Maybe we should let two go south together, Dad.*"

The years had brought more than growth for my son; Jerry had learned what a true waterfowler is.





A BETTER PORTABLE TREE STAND

By Jerry Kemperman and Bob Hibbs

As Conservation Commission foresters assisting landowners with forest management, we see some people get mighty upset when they find a deer hunting stand and steps nailed to one of their trees. They have good reason to be angry. Just one spike in a venerable log could reduce its value from several hundred dollars to almost nothing. Even small trees having considerable potential are ruined by spikes. This problem is serious enough that some states, such as Pennsylvania, have laws prohibiting the construction of tree stands and steps without specific landowner permission. In Iowa, the law states that anyone willfully injuring a tree shall pay treble damages to the landowner.

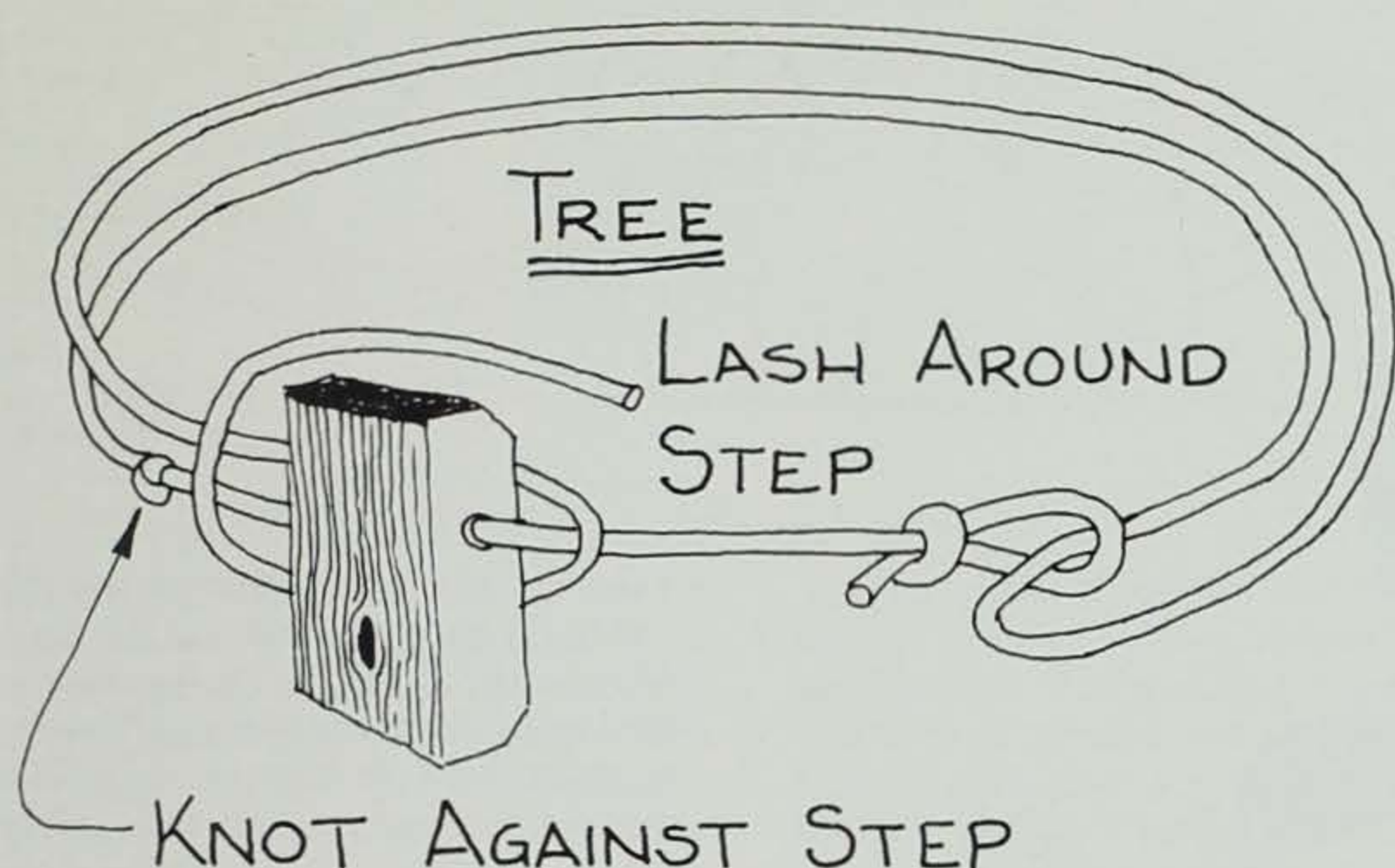
Most hunters constructing tree stands do not realize the damage they are causing. *"After all, the woods are full of trees. A few for stands cannot hurt much."* This is not the case. Individual trees can be very valuable and any intentional damage to private or public property is illegal. Some landowners have become so irate upon finding tree stands that they have closed their land to hunters.

Fortunately, it is relatively easy for the conscientious hunter to use tree stands without damaging valuable trees. First, a hunter can learn to recognize trees with little or no commercial value and get the landowner's permission to use them for stand construction. Second, a hunter can buy or

build a portable stand and steps that do not injure trees.

CONSTRUCT STANDS IN "WORTHLESS" TREES

Actually, no tree is worthless. Even if a tree has no commercial value, it may produce wildlife food and shelter, help control erosion, be a seed source for a future generation of trees, or have use as firewood. The presence of a tree stand may not significantly reduce these noncommercial values. In general, a hunter should first try to select tree species with little or no commercial value such as boxelder, ironwood, and mulberry. Trees of other species that are excessively crooked, forked, or damaged (lightning or logging wounds)



may also be noncommercial and suitable for constructing tree stands. For specific information on the characteristics of noncommercial trees, contact your local district forester (address and phone number can be obtained from the State Forester, Iowa Conservation Commission, Wallace State Office Building, Des Moines, IA 50319 or call 515-281-5629).

PORTABLE STANDS AND STEPS

The use of a portable stand and steps is the least damaging way to hunt from a tree. Some portable stands are "self-climbing" so neither steps nor ladders are needed. If steps are used, they should be tied to the tree trunk with rope instead of nailing. Never use wire! There are many designs of commercial portable stands available, costing from \$25 to over \$50. Use care in selecting self-climbing stands, as some are designed to punch or cut into the tree. These leave wounds susceptible to insect and disease attack. When using self-climbing stands, avoid trees like sugar maple with thin, easily damaged bark. Other species such as bur oak have thick rough bark and are less easily damaged.

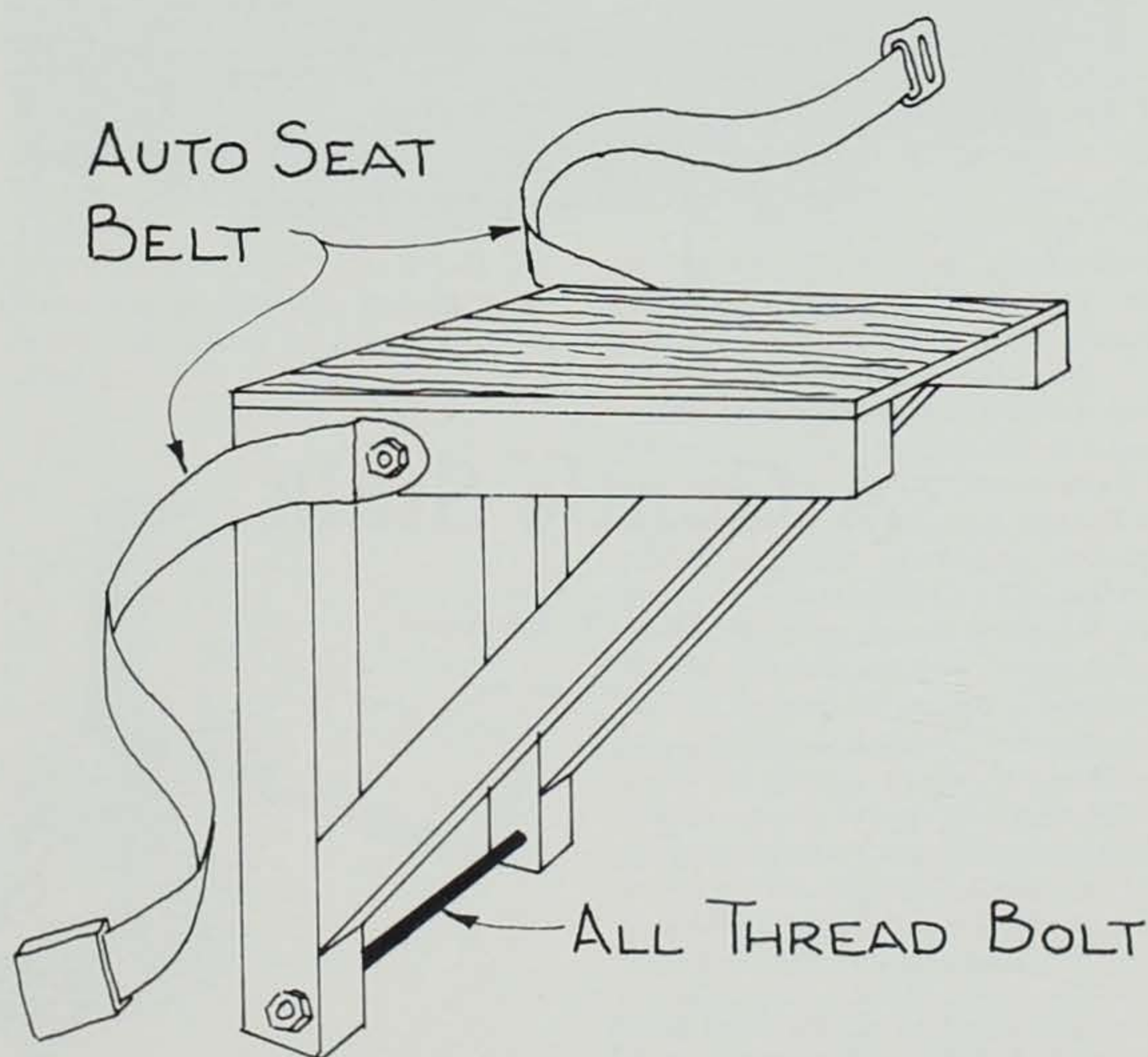
You can also make effective and relatively safe portable stands and steps. One example is Perry's Portable Perch (designed by Ken Perry, Missouri Conservation Department). This stand "...costs less than \$10, takes less than an hour to assemble, weighs about 10 pounds and will support up to 300 pounds". With this system, you can hunt deer from almost any tree with as little as fifteen minutes of mounting time for stand and steps. The general design for the portable stand and steps is illustrated here. This

design can be modified to satisfy the needs of individual deer hunters.

Iowa has some fine deer hunting, and much of it involves the use of tree stands. Be considerate of the landowner's property, ask permission, and learn how to use tree stands without damaging valuable trees. The future of your hunting a favorite woodlot may depend on it.

Bob Hibbs has been employed as a district forester for the Commission since 1970. Currently he is the district forester for a nine-county area with his headquarters located in Marshalltown.

Jerry Kemperman is the district forester for a four-county area in northeast Iowa with his headquarters at Elkader. He has been with the Commission since 1977.





A Gentle Stalk

By Frank W. Strathman

Artwork by Larry Pool

George cautiously steered the car over to the grassy shoulder of the road. He was careful not to edge too close to the sloping ditch. Last year, getting the car stuck had cost him twenty dollars and an afternoon's outing then, and he had learned from his mistake.

The November air cut through his flannel shirt as he stepped from the car. He was lucky he had remembered his down vest. He slipped out of his old boots and slowly edged his way into a pair of cold chest waders. "Have to remember to store these in the basement rather than the garage," he thought as he fastened the snap on the suspenders.

He always had a feeling of anticipation whenever he hunted, and the threat of snow today only heightened the emotion. George snuggled into his hunting coat, stuffed about a dozen number fours into his pockets, grabbed the decoy bag, slammed the car door, and started toward the third ditch.

"Season closes at 4:40. Should have a good two hours of shooting time when I finally get set up," he thought, as he started down the grassy ditch. Plodding down the bank he remembered how he used to walk much faster when his son went with him, but now he took his time, because time was much more precious. Over the seasons, he had come to enjoy the sounds and smells of the marsh. Now, the walk had as much meaning to him as the hunt itself. Dozens of migrating robins flitted through the underbrush ahead. A jay gave his alarm call. Feeling like the old red fox he had watched last year, George realized that the predator never receives a warm reception from the prey.

Having left the grassy knoll of the third ditch, he edged his way toward a patch of corn. He found it much easier to make his way through the stand of corn than through the dense slough grass. The time spent on the mile walk passed quickly and soon he arrived at his favorite spot. The muskrat trappers kept the secret of this pothole's loca-

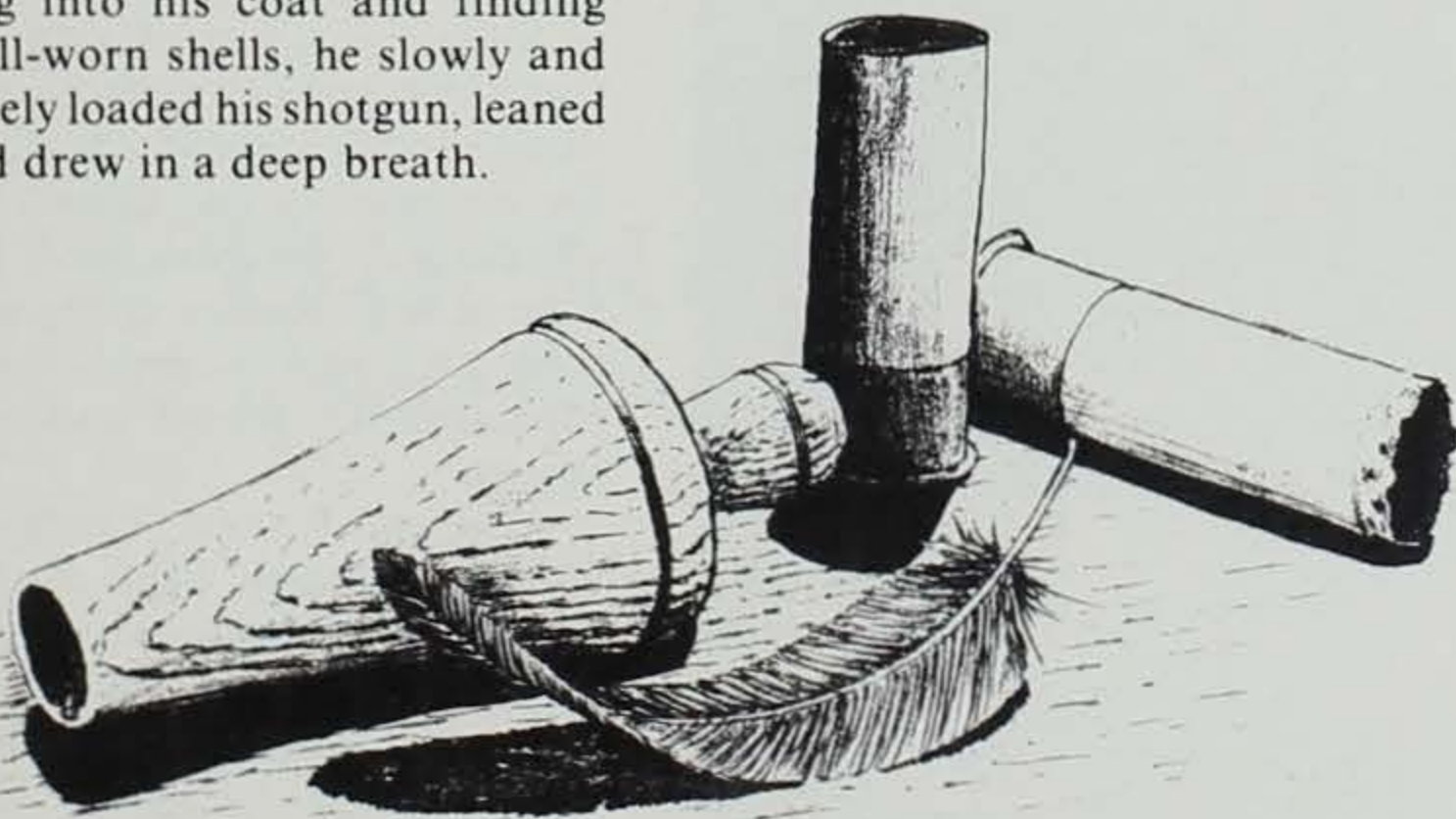
tion, so he wasn't surprised to find he had the whole puddle to himself. A duck boat droned its way up the fourth ditch about 300 yards to the east. "*Bet his butt's cold,*" George laughed to himself. His own clothes were damp with warm perspiration from the long walk in.

With little effort, his waders broke through the thin layer of ice skimming the puddle. Thin sheets of broken ice slid over the frozen surface. George dropped the decoy bag on the water and untied the drawstrings. He used to carry nearly a dozen decoys, but he found now that it was much easier to tote an even six. It is often more difficult to carry out only six decoys and an empty game pouch, than to lug out twelve decoys and a full limit. But George was used to going home empty handed.

Once the decoys had been set in place, he kicked water over the frozen pond making it look like open water and then returned to the shore. The stench of swamp gas grew stronger with each step. George inhaled deeply and cracked a pleasant smile as he headed for a cluster of five paper birches about thirty yards from the edge of the pond. "*I am here,*" he announced, as he clumsily dropped himself down on an old muskrat hutch. Reaching into his coat and finding three well-worn shells, he slowly and deliberately loaded his shotgun, leaned back and drew in a deep breath.

After about a half an hour's wait, George caught a sudden movement on the horizon. The goldeneye sped by like a child peeling out on his trike. George grinned and gave a quack on his call. The duck responded, made a sharp turn, and dropped into the decoys. Without a nod of approval from his new "*friends*", he flipped bottoms up and began to feed on the plankton lying on the bottom of the shallow pond. Enjoying the show, George leaned back and reached for a cigar.

The sun began its descent toward the bluffs of Green Island. A redwing appeared with little notice. The first redwing always seemed to fly oh-so-slowly, as though exhausted from the daily marathon from feeding area to marsh roost. The flocks that followed numbered in the fifties, hundreds, and thousands. They were all daredevil jet aces flying at tree-toip height until they reached the flatlands of the marsh. Continuing to fly at breakneck speed, they then swooped to within inches of the tops of the six-foot tall sedge grass. The quiet of the marsh was gone. Thousands, now hundreds of thousands of redwings wanted to be heard, all flying and squawking in unison.



George liked to face south and watch them fly toward him, some only inches from his head, like a black blanket of thick soot ever moving overhead.

Above the lifeless trees he caught the slow deliberate wingbeat of larger birds flying at right angles to the migrating redwings. "*Have to be greenheads,*" George thought. He blew a methodical plea on his call. The mallards began a wide turn and edged their way over toward the pot-hole. Three ducks pulled away from the group and started a gradual descent; the rest continued a course toward the bigger water of Densmore. George changed the rhythm of his call, this time almost begging the three to take a closer look. The feeder call confirmed their choice. He crouched lower in the reeds and watched the big northern ducks beat closer. The circle drew smaller, their wingbeats less frequent. They hunched their wings and began to drop toward the decoys. A single shot rang out. A drake splashed into the water. The redwings vanished and, again, the marsh was ever so quiet. The only sound was the rasping of the dead blades of sedge grass across one another. George, sober faced, waded into the water to retrieve his prey.

The Sunday afternoon had faded all too quickly. George spent the remaining time perched on the muskrat's hutch chewing on his unlit cigar. The tide of redwings was easing, and the moan of outboard motors signaled the close of another season's day. He unloaded his shotgun and slowly made his way toward the decoys. The decoy bag was cold and wet to his touch. All color was gone from the marsh. As he angled his way toward the third ditch, the heavy drake slapped his thigh with each step. His steps were measured, his shoulders stooped; shivering he left the warmth of the marsh behind.

Frank W. Strathman of Maquoketa wrote this article in memory of George Totto, an avid sportsman and long-time resident of eastern Iowa.

RECIPE FOR RESTORATION

Pilot Knob Project A Success

By Larry Davis

Take the desire of a park ranger to restore an historic landmark to its original appearance, add the hard work and equal interest of park attendants and summer workers, season with less than \$400.00 worth of materials, and garnish with just the right amount of neatly trimmed trees and plant life; that is the recipe for the restoration of the amphitheatre at Pilot Knob State Park.

But unlike a "warmed-over" serving, Pilot Knob's restored amphitheatre has become not only what it once was but has the added ingredient of improved construction techniques that should keep it much longer-lasting.

The amphitheatre was originally built in 1934 by the Civilian Conservation Corps (CCC) during a four-month work session at the park. Located on a wooded hillside, the site consisted of

hundreds of wooden plank benches which were firmly bolted to 200 rock piers, constructed in a natural bowl 100 yards off the present loop picnic area in the east end of the park.

While at Pilot Knob the CCC workers constructed, in addition to the amphitheatre, a lookout tower, four miles of foot trails, two park entrance gates consisting of four rock portals, and an open shelter house. With the exception of the amphitheatre, these are all being used today.

Unlike the park's other monuments, the corps' amphitheatre did not survive the test of time. Exposed to the constant force of the elements, its wooden benches began to split and rot away. By 1950, the facility had deteriorated to the point that it was no longer used. Soon, only the rock piers remained, and the site had been reclaimed by the forest.

One day while surveying the remains of the once popular site, Park Ranger Craig Jackson was struck with the idea of restoring the old amphitheatre to its original state. He believed the area held historical value and began working on the site during his spare time.

It soon became apparent that the restoration project would require more than one man's part-time effort, and by 1981 park workers Jim Hill, Ken Hynman, and Russ Korte became involved along with senior citizens Green Thumb workers Bob Haan and Roy Hanson. According to Ranger Jackson, it was mainly the concern and hard work of these five people that made the project a success.

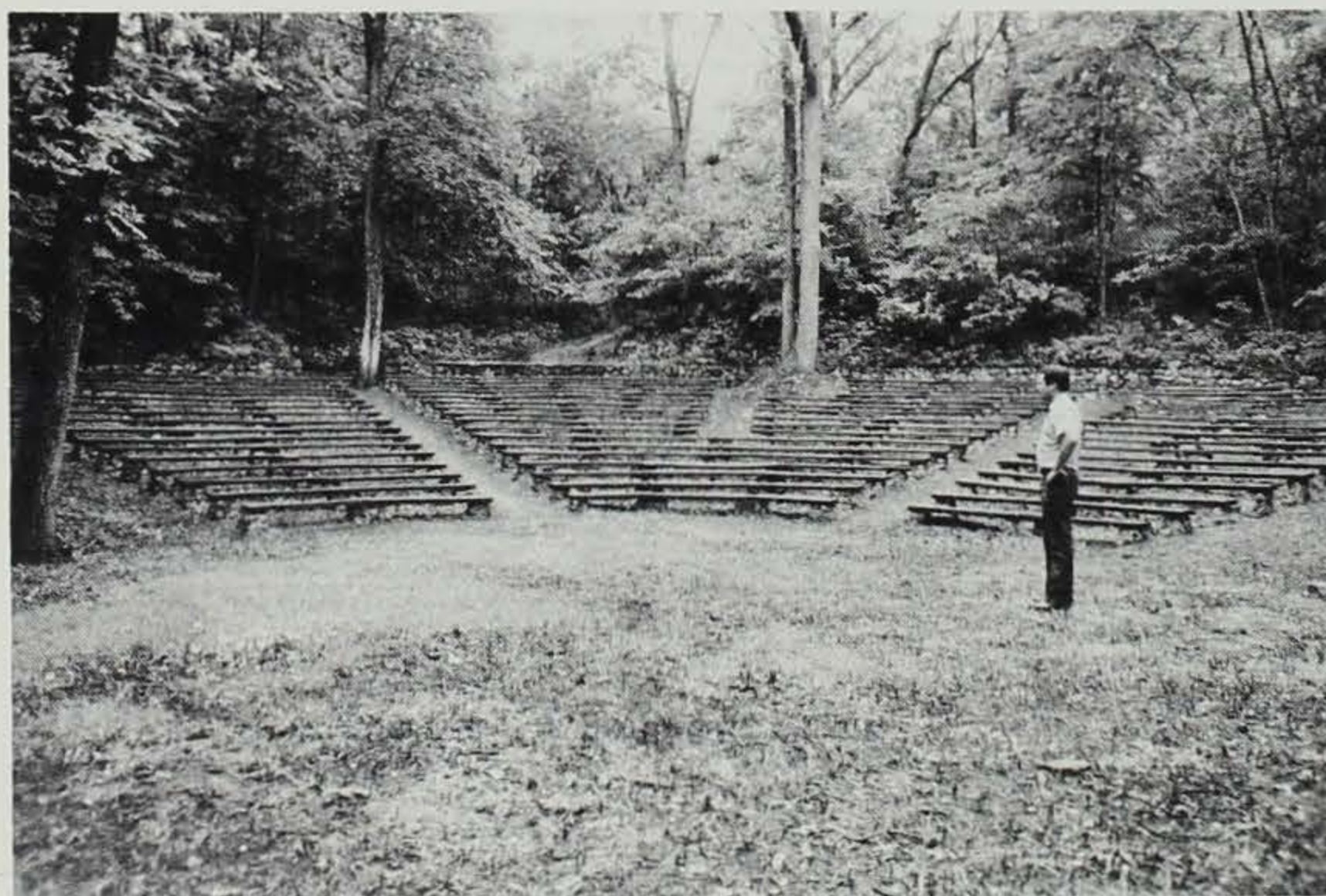
Although all of the original benches had disappeared from the site, all but nine of the 200 rock piers had been found intact. These anchor points were tapped for new bolts, and the material needed to construct new oak benches was secured from the sawmill at Yellow River State Forest.

Utilizing old photographs, the workers have attempted to reproduce an exact replica of the original structure. Roy Hanson, who used the site as a Boy Scout in 1935, says the place looks just the way he remembers it then.

But today's Pilot Knob amphitheatre features some differences from the one of the 1930's. This time the wooden benches' bolt plugs have been filled with fiberglass to keep out moisture, and the white oak bench planks have been treated with a mixture of linseed oil and burnt umber to withstand Iowa's rugged storms and to prevent deterioration — better able to stand up to Father Time and Mother Nature.

And so the "restoration recipe" has been accurately followed. The result is a completed amphitheatre that will seat 1,000 persons in front of an elevated earthen stage — a perfect setting for dramatic plays, church services, weddings — ready to serve the same type of activities as in the past. The facility will also be open to interpretive programs for school and older age groups.

As Park Ranger Craig Jackson would conclude, Pilot Knob State Park, rich in historical interest from the 1930's and offering clean and accessible picnic facilities with enjoyable camping at 80 sites, now can again offer the use of the park's amphitheatre — a restored landmark that is truly an impressive site to see.





Leo Kofoot's 32½ lb. musky taken from West Okoboji in 1975. State record is 38 lb. from the same lake.

THE MUSKY

A Not-So-Rare Trophy

by Jim Christianson

"Fishing for muskellunge is like writing love letters that are never mailed. Your chances of success are limited but there is pleasure in the ritual — Nelson Bryant."

This quote may be appropriate when considering a musky fishery but your chances of success in selected Iowa waters has been greatly enhanced through the efforts of the fishery

section of the Iowa Conservation Commission.

The muskellunge (*Esox masquinongy*) is one of the largest members of the pike family. Musky, once commercially exploited in its native range because of its desirable palatability, has been restricted to strictly a sport species. This restriction has been attributed to water pollution, habitat changes, and distribution and encroachment of this highly competitive species.

One may wonder, what species could compete with a musky? It has been repeatedly shown that crappie, for instance, compete severely with young muskies for food. Also, the closely related northern pike shares similar food and habitat requirements. From the beginning, the northern has the edge; spawning before the musky, the young pike have easy pickings foraging on the smaller musky fry. For this reason, seldom is there a naturally reproducing musky population in an area where northern pike are present. Because of this, larger fingerlings are required for stocking to successfully recruit muskies into the fishery.

The declining condition of the continent-wide musky fishery was noted as early as 100 years ago; consequently, as early as 1888 initial steps, to forego the obvious, were taken with the construction of a hatchery at Lake Chautauqua, New York. Iowa's program as they say "has come a long way, baby" in the last 20 years. From the program's initiation in the early '60's until 1972, Iowa obtained musky eggs from Wisconsin, New York and Pennsylvania. The eggs were shipped air freight to the former Lansing hatchery for incubation and hatching; then, distributed to rearing facilities at Decorah, Clear Lake and Spirit Lake to be grown to fingerlings (4"-8") for stocking.

Also making a contribution to the early Iowa musky program was a privately organized sportsman's group established as the "Musky Club" which now has evolved into the "Iowa Great Lakes Fishing Club." The initial intent of the club was to purchase and stock as many fingerling muskies as their funds would allow.

In 1972, Iowa collected a limited number of eggs, still not enough to sustain a stocking program but indications were good that the future would provide a self-sustaining culture program.

Jim Christianson is a fisheries management biologist stationed at the Spirit Lake Fish Hatchery. He has been employed with the Commission for over 12 years. He is a graduate of Iowa State University.

Presently, those past indications have become a reality with the commission's hatchery branch propagating muskies to a desirable stocking size.

Management

Since muskellunge are highly valued and never become as densely populated as northern pike or walleye, restrictive harvest regulations are a beneficial management tool. At present, statewide harvest regulations permit a daily catch and possession limit of one fish — provided that fish is at least 30 inches long and caught between the dates set out by the Conservation Commission. These restrictions also apply to the hybrid northern pike-muskellunge cross. These restrictive regulations are necessary to provide a trophy fishery and maintain a harvestable population.

The trophy fishery is maintained through an annual stocking of 6"-8"

fingerlings which is necessary to sustain the non-reproducing populations. These stockings are restricted to West Okoboji, Spirit Lake and Clear Lake. Stocking density is one fish per 2-4 surface acres of water.

The Fish

The mighty musky, trophy fish of many northern lakes does have its problems. As noted earlier, when muskies are stocked onto an existing northern pike population, little or no reproduction occurs. This situation has been very vividly illustrated in the Iowa musky program with no natural reproduction found after numerous sample seine hauls; indicating that the stocking program is the life blood of sustaining fishery.

Aging and tagging investigations indicate that growth rates of muskies in Iowa exceed those of Minnesota

and Wisconsin but are less than Missouri's (Table 1). This differential growth is a factor of latitude. Adult fish generally gain from two to three pounds yearly (Table 1).

Table 1. Age and growth of muskellunge.

Total Length (inches)

Age	Iowa	Missouri	Minn.	Wisc.	Weight (lbs.)
1	13	12	7	8	
2	22	22	13	17	
3	28	29	17	23	6
4	33	35	22	29	9
5	36	40	26	32	12
6	38	42	29	36	14
7	39	46	33	39	15

Sexual maturity can be expected in both male and female fish between four and six years. Following the attainment of sexual maturity, females are usually larger at corresponding ages than males.

Native musky waters in Minnesota and Wisconsin contain densities of .5 -1 adult fish per surface area. This low density is rather typical of musky fisheries. This leads us to important and generally misunderstood aspects of musky fisheries, those of density and mortality.

Muskies have been stocked into West Okoboji since 1960, so let's look at this particular lake. To date, 17,000 muskies of various sizes have been planted in West Okoboji. With no evidence of reproduction and an annual mortality that averages about 30-35%, the number of muskies estimated remaining in the lake is 2-3,000 or about .6 fish per surface acre of water. This density per surface acre shrinks further if East Okoboji acreage is included (0.4 fish/acre). At this point one may think what is total



A large, sturdy reel capable of handling 20-30 lb. test line is recommended.

Typical lures are large and strong.

On opposite page, large fingerlings being stocked.

annual mortality? Surprisingly to some, fish do die of natural causes like disease, old age and predation. This mortality (natural) plus angler harvest (exploitation) equals total annual mortality, which varies depending upon the size of fish and environmental conditions. Fish mortality is always a tough concept to grasp because direct visual observation is practically non-existent. Let's logically think about it and we can see that if no mortality occurred in a fish population there would be as many big fish as small fish — which obviously is not the case. This natural decrease in a fish population is Mother Nature's way of regulating populations.

Additional misconceptions surrounding the musky fishery are those of diet and consumption rates. What kind of forage do muskies eat? Muskies, like most predatory fish are opportunistic and usually take what is available. The pike family, musky included, prefer the soft-rayed fishes, for example, white sucker and chubs. One of the most common food items in the musky diet in Iowa and Minnesota is the freshwater drum or sheepshead. Consumption for maintenance and growth varies from 2%-7% of the body weight.

Now that we have mentioned a bit about the fish and its management, let's briefly look at the sport of angling for musky. **ANGLING**

The first step is to acquire the right equipment. This step is not a necessity but does improve one's chances for success. A good stiff rod from 4-6' is a definite asset to landing a trophy fish. The shorter stiffer rods are usually used for trolling while the longer rods are used for casting. The type of reel is



a very personal preference but be it spinning or level wind a fairly large sturdy reel capable of handling 20 to 30 lb. test line is recommended. The action end or terminal tackle varies with the fishing conditions. The usual lures include large spoons, bucktails of various colors, and plugs of different shapes and actions. The use of a leader is very important, although it may take a little action away from your lure; however, compared to the loss of a plug or even worse, that once-in-a-lifetime trophy this loss of action is warranted. Live bait is not used very extensively but is gaining popularity especially for late season deep running fish.

The musky, like most species is harvested seasonally with the majority of fish creel in June, August and September. The general fishing techni-

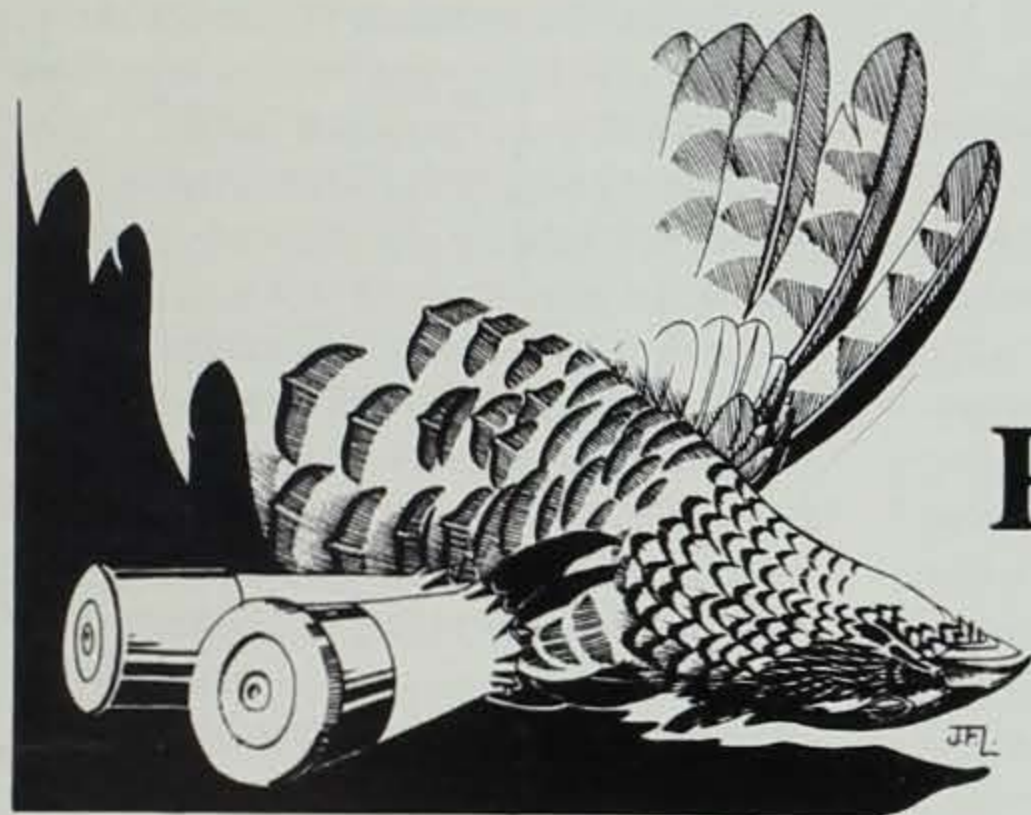
que usually involves trolling or casting (which seems split about 50-50 among musky anglers) in and around weed beds. A general rule-of-thumb when considering what terminal tackle to use is start small (bucktails, small plugs 3-4") in the spring and get larger as the water warms. Again as with most aspects of angling, best times of day to fish are up to debate. Typical peak predator fish activity has been dawn and dusk but within the last couple of years good success has been had fishing muskies after dark.

A good plan of attack for the beginner musky angler would be to talk with some experienced anglers of a particular lake and then get some experience for yourself.

Just remember, when considering a musky fishery, it is not always the musky that gets hooked...



J.F. LANDENBERGER



The Woodland Classic

RUFFED GROUSE

By Terry Little

Artwork by James F. Landenberger

Terry Little is a wildlife biologist stationed at the Commission's wildlife research station near Boone. He has been employed with the Commission since 1975.

The ruffed grouse (*Bonasa umbellus*) may be Iowa's least known and appreciated upland game bird. A cousin to the prairie chicken, sharptail grouse, spruce and blue grouse, this medium-sized, forest-dwelling grouse is one of North America's most widely distributed game birds. Ruffed grouse are found throughout the Appalachian Mountains north of the Carolinas, in the Sierra chain north of northern California, all across Alaska and Canada, and in the Midwest north of the Ohio River. Their current range in Iowa is restricted to the northeast corner of the state, and, because they spend little time in open habitats, they are virtually unknown except to a few dedicated hunters. But it has not always been so.

Ruffed grouse were found statewide when Iowa was first settled in the mid 19th century. Iowa's early forests covered nearly 7 million acres, and, as today, timber was restricted primarily to rough lands associated with major drainage systems. Relatively level uplands between the rivers were native prairie, and this interspersed forest and grasslands produced a maximum amount of "edge." Edges, or forest borders, permitted light to penetrate the forest canopy and resulted in the abundant shrub growth that is an essential component of ruffed grouse habitat. Prairie fires also kept some of the primitive forest stands in the early

growth stages that favored these grouse.

Trends in ruffed grouse hunting seasons reveal some insight into the abundance of primitive grouse populations (Table 1). Ruffed grouse were a readily available food source for early hunters and no restrictions were placed on subsistence hunting until 1856. Hunting seasons were intermittently shortened and bag limits were introduced between 1856 and 1923 to protect an ever-dwindling resource. One hunter was still able to bag 20 grouse in a single day in Linn County as late as 1903, which places early grouse populations in some perspective. Faced with what appeared to be the imminent disappearance of ruffed grouse from Iowa, the Fortieth General Assembly instituted a year-long closed season in 1923 that was to remain in effect for 45 years.

Clearing forest lands for agricultural purposes and eliminating the dense shrub understory from much of the remaining forest by severe overgrazing, were the primary factors which led to the historic decline in grouse numbers. Decreased hunting opportunity resulted from deterioration in the quality of forest habitats; hunting was not the primary cause of dwindling grouse populations. Ruffs were last seen in southwest Iowa about 1900, in the southern and east-central regions in the 1920's, and were restricted to six counties in northeast Iowa by 1930.

The current distribution of ruffed grouse in Iowa is limited to the forested portions of Allamakee, Winneshiek, Clayton, Dubuque, Fayette and Delaware Counties. Recent experimental introductions have been made in Shimek State Forest in Lee County, Stephens State Forest in Lucas County,

Table 1. History of ruffed grouse hunting in Iowa.

Year	Season dates	No. days	Bag ¹ limits	Shooting hours
Pre-1856	Continuously open	365	None	None
1856-1878	16 July-31 January	200	None	None
1878-1904	16 July-31 January	200	25/none ²	None
1904-1923	1 November-15 December	45	25/none	None
1924-1967	**Continuously closed**	0	—	—
1968	1 November-17 November	17	2/4	8:00 a.m.-4:30 p.m.
1969	31 October-29 November	30	2/4	8:00 a.m.-4:30 p.m.
1970	31 October-29 November	30	2/4	8:00 a.m.-4:30 p.m.
1971	30 October-28 November	30	2/4	8:00 a.m.-4:30 p.m.
1972	21 October- 1 December	42	2/4	8:00 a.m.-4:30 p.m.
1973	20 October-25 November	37	2/4	Sunrise-Sunset
1974	12 October- 6 December	56	3/6	Sunrise-Sunset
1975	11 October 1975-4 January 1976	86	3/6	Sunrise-Sunset
1976	9 October 1976-1 January 1978	86	3/6	Sunrise-Sunset
1977	8 October 1977-1 January 1978	86	3/6	Sunrise-Sunset
1978	14 October 1978-8 January 1979	87	3/6	Sunrise-Sunset
1979	13 October 1979-6 January 1980	86	3/6	Sunrise-Sunset

¹Daily bag/possession limits.

²No bag limit was in effect for hunting on one's own land.

and portions of Jackson County, in an attempt to extend their range into formerly occupied habitats.

BEHAVIOR

In the spring, male ruffed grouse establish territories of 10-100 acres which they defend against other males and within which they will spend most of their remaining life. Within this territory they select one or more logs as display sites, and on these logs they perform one of the more unusual mating and defense rituals seen in the animal kingdom. In March and April, males perch upright on their log(s) and "drum"—beat their wings back and forth rapidly as if flying—all the while remaining stationary. This "drumming" produces a hollow, muffled sound much like the beating of a distant drum. Drumming serves to attract hens to the male and repels potential male competitors. Although drumming is most common in the spring, a brief resurgence in activity occurs in the fall and many males will visit their drumming logs sporadically throughout the year.

Hens visit males at their drumming logs, mate and leave immediately and permanently. Males play no role in nesting or brood rearing.

Broods break up from late August to early October and young grouse may wander several miles in search of suitable unoccupied habitat. Some young males may challenge established males for territories in the fall, but most will not claim a drumming log until the following spring.

The erratic behavior of grouse during the fall dispersal period is legendary. Grouse may fly into windows, attack automobiles or wander unconcerned through towns. These "Crazy flights" are often thought to result from grouse eating fermented wild berries, but more often probably represent the reactions of young, inexperienced grouse to unfamiliar surroundings.

POPULATIONS

Throughout most of their range, ruffed grouse populations exhibit cyclic fluctuations. Peaks in abundance occur every 9-11 years. Low populations may have densities just 25% as great as those found during peaks. Similar or somewhat shorter cycles are seen in northern populations of snowshoe hares, lemmings, lynx and other predators. These fluctuations are most pronounced in the far northern grouse ranges of Alaska and Canada, and in the Great Lakes States, from Minne-

sota to New England. Cycles seem to begin in the northwest and proceed toward the southeast of each affected species' range, and seem to decrease in severity from north to south. Causes of population cycles have not been conclusively proven, but the severity of winter weather, disease, sun spots, vegetation and predator-prey interactions have been implicated.

Breeding grouse populations in Iowa are censused by counting the number of "drums" heard during the morning in April and May along permanent, roadside drumming routes. Counts begin ½ hour before sunrise and continue for about 2½ hours until counts have been made at 15, 4-minute listening stops spaced about 1 mile apart. The number of drums heard per stop is then averaged over several routes to provide a region-wide index to annual changes in breeding populations.

Compared to northern grouse ranges, ruffed grouse populations in northeast Iowa appear to have been fairly stable over the past 20 years. They have exhibited only moderate tendencies to cycle and seldom increase or decrease more than 25% annually. Long-term mean population levels in northeast Iowa are only slightly lower than the average of widely divergent peak and low populations observed in northern states. Iowa's relatively benign climate may result in less winter mortality and prevent the boom or bust years commonly seen further north. Best guess estimates place Iowa's grouse population at about 20,000 birds.

Ruffed grouse hens will lay from 9-11 eggs in May or June and raise perhaps half that many young to adult size in the fall. Because of their more secretive nature, the percentage of hens which nest successfully and the rate of laying second clutches, should the first nest be lost, are unknown.

The period of the "fall shuffle" is a major period for mortality of grouse. After leaf fall and through the winter, ruffs are particularly vulnerable to predators. Hawks and owls are the primary culprits although a fox or coyote may take a grouse if the opportunity presents itself.

Winter weather can be a major mortality factor if snowfall is inadequate. Grouse have thick body feathering and their lower legs are covered by feathers which insulate them against the cold. Their greatest adaptation to

cold weather is their ability to burrow in soft, powdery snow, thereby insulating themselves against subzero temperatures and from predators. Major overwinter losses occur in northern grouse ranges when snow is heavily crusted or is less than 10 inches deep, both of which prevent burrowing. Over a period of years, annual grouse losses will average 45-55% of the adult population whether or not they are hunted.

One of the most interesting aspects of ruffed grouse biology is the occurrence of different tail colors among otherwise similarly colored grouse. Grouse tails come in a variety of colors, ranging from gray to red and with all possible intergradations. They are commonly lumped into two color phases, red and gray. Birds with either tail color can be found in most local populations, but gray phase grouse tend to be more common in northern grouse ranges and red phase birds most numerous in the south. The cause for differences in tail colors is not known. Some biologists feel it relates to cryptic coloration—leaf litter in northern grouse habitats is predominantly light (aspen, birch) and in southern habitats is mostly reddish (oak). Others feel gray birds are better adapted to colder climates and so are found in greater numbers farther north.

HABITAT

Ruffed grouse are birds of the forest, but have very specialized habitat needs which require proper forest management to maintain. Because of their small size — 12 inches tall and 1.5 lbs. — they are vulnerable to a wide variety of predators. For this reason they survive well only in young timber stands with dense shrub growths. Drumming males select drumming logs which elevate them from the forest floor and which have good shrub stem densities in the immediate vicinity. This allows them to see approaching ground predators, yet be protected from overhead attacks by raptors. While a wide variety of log types are suitable, the protection from predation provided by dense shrub growth is the key factor in the suitability of a potential drumming site. Early successional stages, 10-30 years following timber harvest, provide the best breeding habitat.

Hens select areas with a relatively open forest floor for nest sites and usually position the nest so they can sit with their back against a tree. This allows the hen to keep surveillance of all predators which might see the nest.

Her protective coloration blends well with the forest floor, making her nearly invisible. Middle successional stages characterized by 30-70 year-old pole sized timber provide the best nesting habitat.

Grouse chicks require abundant insects and seeds during the first critical weeks after hatching to attain rapid growth and development. Insects and low, seed-producing, herbaceous plants are most abundant where sunlight easily reaches the forest floor. Forest-field edges and recent cutover areas 0-10 years after timber harvest provide the maximum food availability for chicks, and provide the low, dense growth which protects them from predators.

Fall and winter habitats must provide shelter and sufficient food resources to carry grouse through the winter. Adult grouse survive in Iowa's oak-hickory forests on acorns, buds, seeds and fruits of a wide variety of herbaceous and woody plants; and to a lesser extent on corn, where it is available. Mature and pole stage stands of oak-hickory forest produce maximum amounts of mast and are utilized for feeding. When winter snows are inadequate for roosting, grouse may concentrate in evergreen thickets for shelter from cold temperatures. Native eastern red cedar and introduced-plantations of various low-growing pine and spruce species may harbor 20 or more grouse during cold periods if otherwise suitable habitat is not available. Once conifers grow into the high tree stage, they provide excellent hunting cover for avian predators and become detrimental to grouse survival.

Because grouse use different habitats at different stages of their annual life cycle, management of forests must emphasize interspersion of various age classes of timber within the normal home range of a grouse. This requires harvesting timber in small cuts in a checkerboard fashion to maximize the number of forest age classes available in a 40-acre block. If interspersed age classes are not available, grouse may survive at lower densities along the margins of mature stands where light penetration has produced an "edge effect" — lush shrub and herbaceous growth more typical of younger forest age classes.

For assistance in setting up timber management schemes for ruffed grouse, contact: Wildlife Biologist, Upper Iowa Unit, ASCS Bldg., 911 Mill Street,

Decorah 52101; Wildlife Biologist, Maquoketa Unit, Pershing Road E, Maquoketa 52060; District Forester, Box 662, Elkader 52043; Yellow River State Forest, Box 115, McGregor 52157.

HUNTING

Iowa's first, modern ruffed grouse hunting season was held in 1968. Population surveys instituted in 1961 indicated northeast Iowa still harbored grouse populations comparable to surrounding states and that a limited season was feasible. The passage of successful hunting seasons has resulted in a gradual liberalization of bag limits and season length (Table 1). By 1980, Iowa had seasons comparable to the more prominent ruffed grouse hunting states around the Great Lakes.

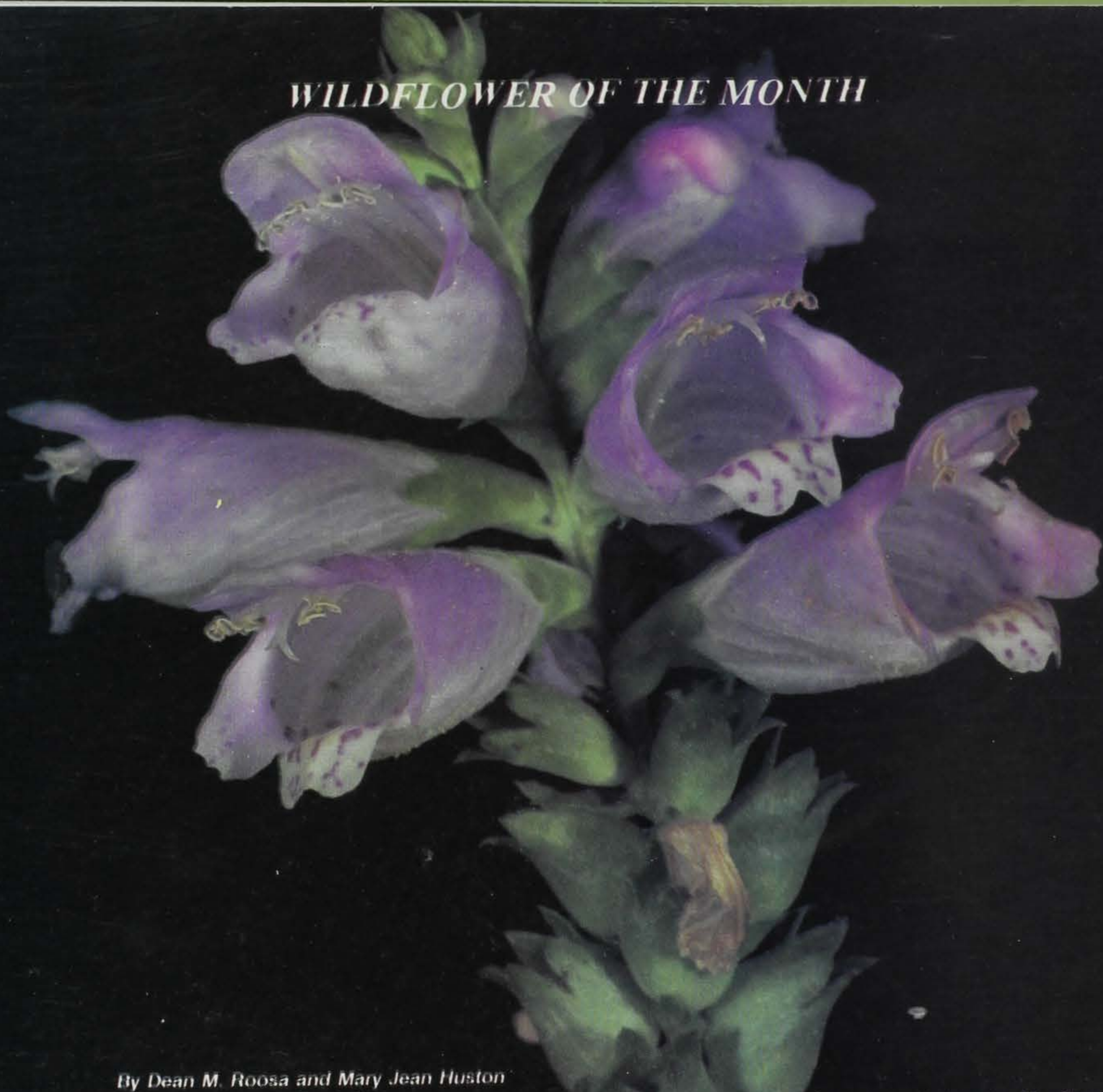
In spite of liberal seasons, ruffed grouse hunting has not proved to be a popular sport for Iowans. Grouse range is isolated from Iowa's major human population centers, and the steep hills of northeast Iowa present a tough physical challenge for all but the most fit hunter. The bird itself presents perhaps the toughest wing shooting opportunity available to the Iowa hunter. Ruffs explode in a flurry of feathers and disappear rapidly in

twisting, dodging flight among trees and branches. Only a split second is available for snap shots. Opportunities for smooth, easy shotgun swings are few, which is reflected by the fact that only 1 in 5 flushes produces a bird in the bag. For a combination of these reasons, fewer than 3% of Iowa's 300,000+ small game hunters hunt grouse annually and the maximum harvest probably never exceeds 10,000 birds.

Information gathered from hunters indicates that the average party of three hunters hunts just 2.5 times per year, daily hunting trips are 4.2 hours. 12 grouse (2.6 grouse per hour) are flushed, 2.4 grouse (1 grouse per 2 hours of hunting) are bagged, or slightly less than 1 bird per hunter per hunt. Parties hunting with dogs flush and bag more grouse than dogless parties. Grouse hunting nearly ends each year when pheasant and quail seasons open and hunters switch to the more accessible ring-neck and bobwhite. Ruffed grouse are truly an underutilized hunting resource; they represent a trophy hunt for most hunters who are unwilling to devote more than a limited amount of their hunting time to this most difficult game bird.



WILDFLOWER OF THE MONTH



By Dean M. Roosa and Mary Jean Huston

Photo by Randall Maas

A plant in the mint family (*Lamiaceae* or *Labiatae*) can usually be recognized by a square stem, opposite leaves, irregular flowers and a distinctive odor when the leaves are crushed. Iowa has many plants in this family; one of the most attractive is False Dragonhead (*Physostegia virginiana*).

Like many species in the mint family, False Dragonhead prefers moist sites, and often occurs in dense colonies. It grows throughout the state in woodlands, blooming from June into late fall. It may grow to heights of four feet, and may be branched toward the top of the plant. Lance-shaped leaves from two to five inches in length are arranged oppositely along the stem, with upper leaves much smaller than lower ones.

The attractive flower of False Dragonhead occurs in a terminal spike four to eight inches long. Individual flowers are about an inch in length and cluster in

vertical rows; most are pale purple in color. The flower is shaped something like a snapdragon; the upper lip is arching and hood-like; the lower lip is three lobed, lighter colored and often spotted with darker purple. Because of its beauty, this species has often been used in flower gardens.

The fanciful names for this plant have varied origins. The common title "dragonhead" is literal for the Latin name "Dracocephalum." When pushed out of its usual vertical row along the spike, the flower remains in its new location for quite some time. This characteristic gave it the common name "obedient plant." The scientific name *Physostegia* means "bladder covering" in Greek, and refers to the inflated appearance of the flower.

Whatever you choose to call it, *Physostegia virginiana* is one of Iowa's late summer woodland beauties. The wildflower show is still going on; check out the woodland closest to you today!