



OCTOBER 1975

conservationist





conservationist

VOLUME 34, No. 10 October, 1975

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Published monthly by the Iowa Conservation Commission, State Office Building, 300 4th Street, Des Moines, Iowa 50319. Address all mail (subscriptions, change of address, Form 3579, manuscripts, mail items) to the above address. Subscription price: one year at \$1.00; two years at \$2.00; four years at \$3.50. Second class postage paid at Des Moines, Iowa and other points. (No rights reserved).



by Jerry Leonard

The ODESSA Wildlife

by Art R. Wildlife

THE ODESSA Wildlife Unit, including Mu Henry and Le southeast cor Unit derives where the Un might very we The Mississip border of the Iowa, Cedar, along its cour The river sv and provide habitat and r upland platea agricultural, production of the upland di rough woodla valleys. The size an generally incre forests are typ basswood co Although muc grazed, or oth the best timbe acres of other or Park lands 8,000 timbere Lee County is Lakes and outdoor resou lakes Geode complemente provided by Wetlands suc and portions key habitat species. Sever many floodpl the wetland r This varie associated h species to interspersio that many gar quail) can b numbers with are several in Pheasant quite varied i

The ODESSA Wildlife Unit

by Art Roseland
Wildlife Biologist

THE ODESSA WILDLIFE UNIT, including Muscatine, Louisa, Des Moines, Henry and Lee Counties, lies in the extreme southeast corner of the state. Although the Unit derives its name from Lake Odessa, where the Unit headquarters are located, it might very well be called the "big rivers" unit. The Mississippi wanders the entire eastern border of the Unit, melding the waters of the Iowa, Cedar, Skunk and Des Moines rivers along its course.

The river systems dominate the landscape, and provide a blend of rough, timbered habitat and river valleys, with broad, fertile upland plateaus. Primary land use is of course agricultural, and varies from intensive production of row crops on the fertile soils of the upland divides, to timber management on rough woodlands found adjacent to the river valleys.

The size and occurrence of the woodland generally increases from north to south. These forests are typical of the oak-hickory, maple-basswood communities of eastern Iowa. Although much timber on private land is being grazed, or otherwise not properly managed for the best timber and wildlife production, many acres of other private woodland State Forest or Park lands are in excellent condition. The 8,000 timbered acres of Shimek State Forest in Lee County is a good example.

Lakes and marshes add to the variety of outdoor resources within the Unit. State Park lakes Geode and Darling, for example, are complemented by several smaller lakes provided by County Conservation Boards. Wetlands such as Cone Marsh, Lake Odessa and portions of the Mississippi River provide key habitat so necessary for many wildlife species. Several other public wetlands, and many floodplain ponds and sloughs, add to the wetland resource and its wildlife.

This variety of land forms with their associated habitats, allow many wildlife species to exist within the Unit. The interspersed habitat types is great enough that many game species (deer, squirrel, rabbit, quail) can be found in fair to excellent numbers within any region in the Unit. There are several important exceptions however.

Pheasant populations for example, are quite varied in the Unit, primarily from north

to south. Pheasant numbers in Muscatine and northern Louisa Counties are good, but numbers drop rapidly as you progress south through southern Louisa and Des Moines County. Recent introduction of pheasants into the western and southwestern areas of the Unit have improved that population, but pheasant density is still relatively light. That portion of the Unit south of Highway 34 has been closed to pheasant hunting in past years.

Quail occurrence is nearly opposite of the situation described for pheasants. The good quail populations in Lee, Henry and portions of Des Moines County drop rapidly as we approach northern Louisa and Muscatine County. Wherever good habitat is found however, there will also be quail. Rabbit population density generally follows quail numbers.

Range of the wild turkey is restricted within the Unit, but excellent populations exist in parts of their range in Lee County. Recent introduction into Des Moines County and plans for further stocking, offer good potential for expansion of the turkey range within the Unit.

Private lands are an essential ingredient to hunting within the Unit. In fact, if a hunter follows proper rules of conduct by receiving permission and respecting property rights, all of our game species are available on this private land. Of all the game species in Iowa, only waterfowl may be hunted as much on public wetlands as on the family farm or private waters.

Farmland hunting has its greatest potential for small game species including pheasant, quail and rabbit, as these species are adapted to a farm type environment. Farms which include a variety of crops such as corn, hay and small grains, offer the best hunting potential. Other key habitats to look for include well vegetated ditch banks, hedgerows or brushy fence lines, small uncultivated areas and timber borders. Farms of this type are more often found in rolling terrain, or as you approach the river valleys, than on the level farmlands of the broad uplands.

Deer are located on private lands throughout the Unit, but reach the greatest densities in habitat adjacent to the rivers, where the greatest interspersed of cropland

and timber exists. The wild turkey has habitat requirements similar to deer, but the turkey is much more restricted to large blocks of well managed timber, ungrazed, and which includes some mature stands of hardwoods.

One species which has been largely overlooked on private lands, as well as on our public areas, is the woodcock, which has been available to Iowa hunters since 1972. This timber bird migrates through eastern Iowa and is occasionally found as a summer resident. Knowledgeable hunters will search for this bird in timber and thickets, especially on moist sites. A good bird dog is important.

Although much waterfowl hunting is associated with public wetlands, private areas, including the inland rivers and streams, offer good potential. Waterfowl hunting on private lands may be especially productive on those areas in the vicinity of important waterfowl concentration sites. Many of the more productive private land areas are well-known to local residents, have a hunting tradition which dates back of the settlement period, and are not available to the "late-comer". Inland rivers and streams, farm ponds, and field shooting can provide good hunting however, especially for the person who cares enough about waterfowling to put in time and effort. Jump shooting can often be productive on these areas, but the wise hunter will not overlook field, stream, or pond set-ups, which, on the right day, could provide the finest in waterfowl hunting, without the completion of near-by hunters. In wet years, observant hunters may even locate low areas in farm fields or bottomland timber, which can be extremely attractive to waterfowl.

Public Game Management Areas within the Odessa Unit provide hunters and other wildlife enthusiasts fine potential for wildlife oriented outdoor activities. Red Cedar Wildlife Area and Weise Slough are two important Game Management Areas in Muscatine County. Red Cedar, 733 acres located four miles southeast of Nichols, includes Cedar River floodplain timber, uplands and a bog area. Primary game includes pheasant, quail, rabbit, squirrel, deer, raccoon and waterfowl. Weise Slough is a large, 1550 acre area, bisected by the Cedar River. Floodplain timber, old fields, cultivated land, shallow lake and oxbows, combine to provide habitat for a variety of species. Squirrel and deer are plentiful, but pheasant and other upland game, waterfowl, and many non-game species are also found. This is a good area for a family outing of hiking or bird watching, especially on the roadless area east of the river.

The state owned wetlands in Louisa County are an important dimension of the wildlife resources within the Unit. Dominated by Lake Odessa, 4,100 acres of flooded Mississippi River bottomland near Wapello, the wetlands also include Cone Marsh just west of Conesville, and Klum Lake near Grandview. Also, Louisa Division of the Mark Twain National Wildlife Refuge is located adjacent to Lake Odessa, and provides secure migrational habitat for waterfowl. Although waterfowl management is most important on these areas, other game is available. Cone

(Continued on Page 22)

Return to the Prairies

Photos by the Author

by **Bob Barratt,**
Wildlife Superintendent

EACH SPRING millions of ducks and countless numbers of other species of birds return to the "prairies" to nest and rear their young. The "prairies" are the glaciated, pothole studded portions of the north central United States and southern Canada. The true prairie area was originally a nearly treeless land of various grassland types. It comprises much of the best farmland of the region today. The southern extension of the northern forest edges into the grasslands and, as a result of settlement and protection from wildfire, has created the area known as the Aspen Parklands. These are clumps of aspen, willows, and other woody growth often bordering potholes. Though the prairie and parkland areas comprise only about ten percent of the total duck breeding habitat in North America, they produce more than half of all ducks raised annually.

The author first visited the prairies more than 20 years ago, and has observed conditions there off and on since then. In late June of this year he again toured the pothole country to take a first-hand look at the present status of these duck production areas.

Water conditions were excellent and equalled the outstanding years in the mid-50's. Breeding duck numbers, though not equal to those of 20 years ago, are above the ten-year average of 1964-74. A casual observer would predict a bumper crop of birds for this fall.

A closer examination, however, reveals some subtle changes which have occurred in the two decades. Like their counterparts south of the border, Canadian farmers in recent years have been blessed with high prices for their grain crops. Also like American farmers, they have acquired larger and more efficient farm machinery. Consequently they have intensified their grain farming with a subsequent reduction in undisturbed grasslands for nesting ducks. Since most of our important ducks species nest on dry land and some distance from water, this reduction in safe nesting cover is serious.

Ducks returned to the prairies about two to the three weeks later than normal this spring due to a late ice breakup on the ponds and marshes. Upon their arrival, however, the weather turned good and before long the farmers were busily planting their spring wheat. Their huge tillage implements destroyed many early nests of pintails and mallards in last year's stubble fields. These birds were forced to re-nest,

often in the remaining stubble not planted this year. As soon as wheat planting was complete, farmers began to till these summer-fallow fields—a practice designed to conserve moisture for next year's crop. Here many hens lost their second attempt to nest. Some will try again in the little habitat remaining but others will probably abandon the effort for this year.

Bands of vegetation surrounding the potholes have always been valuable nesting habitat. These are shrinking since the wider implements behind the bigger tractors make it possible to farm closer to the water edge. In the parklands many of the bands of trees around the ponds have been bulldozed into the water to gain additional farmland. This not only erases more nesting habitat but often hurts the water level since the trees stopped the drifting snows which subsequently melted to fill the ponds.

Drainage is also taking place in the duck factory. Though not as obvious as the sophisticated systems of Iowa's prairies, they nevertheless take their toll of wetlands. New roads with high grades make it possible and profitable for farmers to drain nearby ponds into the new road barrow ditches. Often too, several small potholes will be drained into one larger, more permanent pond.

Burning pond edges to speed up ground drying, using ponds for sanitary landfills, filling marshes for urban development, and other subtle changes in the landscape are all taking place and result in the destruction of waterfowl habitat.

One of the bright spots is the excellent nesting habitat for such species as canvasbacks and redheads which nest in dense vegetation over water. Coots, nesting in the same habitat, are also prospering.

The prairies, revisited, show many changes. Gone is much of the prime nesting cover so vital to mallards, pintails, and other species. Drainage, burning and the big farm machinery are also doing their damage. Given the present water conditions twenty years ago, I would have predicted a bumper crop coming down the flyways this fall. Today with the changing environment on the prairies I would predict a slightly better than normal fall flight. With current conditions, it appears unlikely that we will ever see another real boom year. But who knows? The world economy could change, wheat could become worth much less, and the nesting habitat could come back. Perhaps one day, just maybe, we will again see the fantastic production that sends the myriads of ducks down the flyways to quicken the waterfowler's heartbeat and cause him to remember the good old days. □

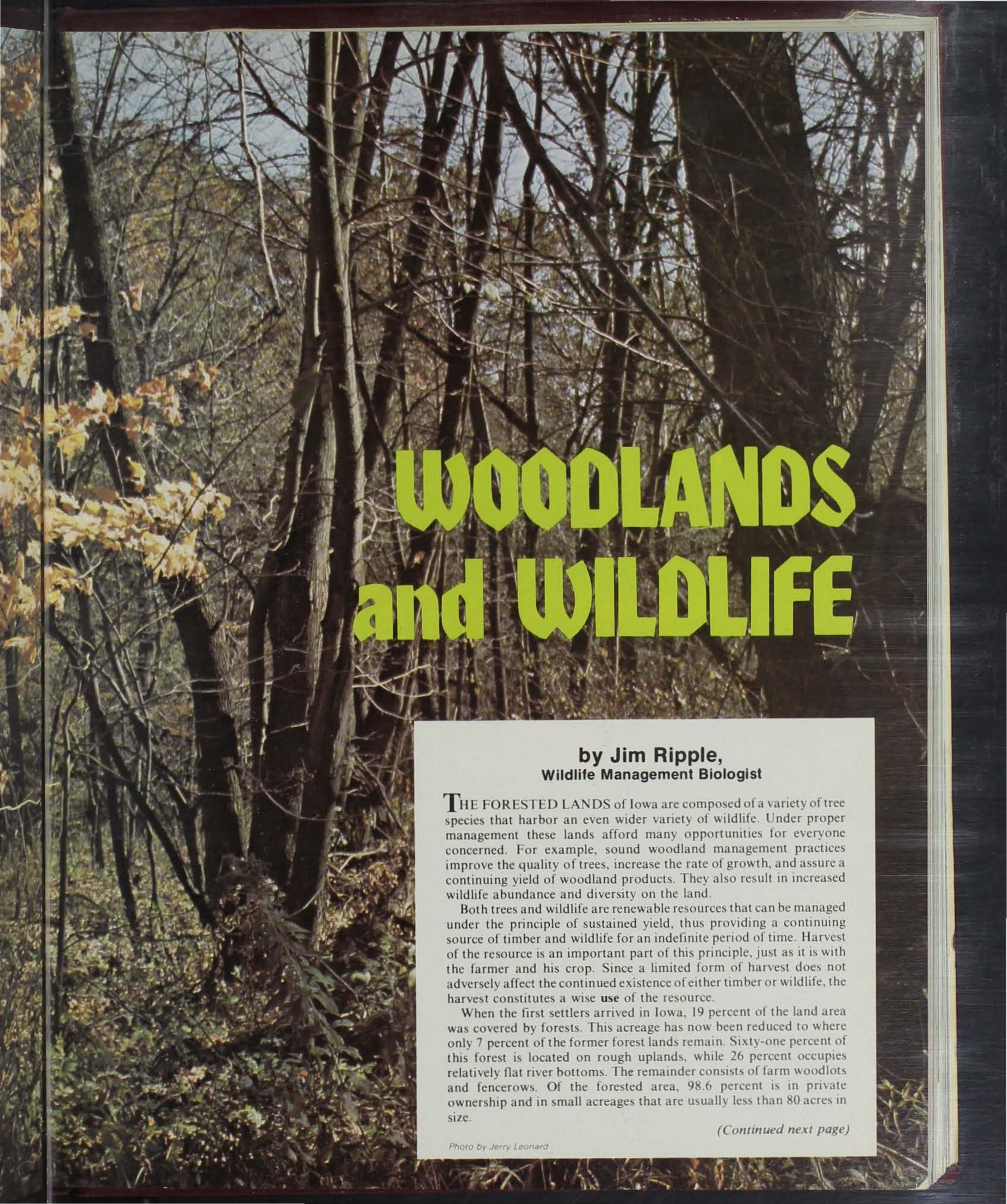




Burning, grazing and plowing shoreline cover are reducing nesting area on Canadian marshes.







WOODLANDS and WILDLIFE

by Jim Ripple,
Wildlife Management Biologist

THE FORESTED LANDS of Iowa are composed of a variety of tree species that harbor an even wider variety of wildlife. Under proper management these lands afford many opportunities for everyone concerned. For example, sound woodland management practices improve the quality of trees, increase the rate of growth, and assure a continuing yield of woodland products. They also result in increased wildlife abundance and diversity on the land.

Both trees and wildlife are renewable resources that can be managed under the principle of sustained yield, thus providing a continuing source of timber and wildlife for an indefinite period of time. Harvest of the resource is an important part of this principle, just as it is with the farmer and his crop. Since a limited form of harvest does not adversely affect the continued existence of either timber or wildlife, the harvest constitutes a wise **use** of the resource.

When the first settlers arrived in Iowa, 19 percent of the land area was covered by forests. This acreage has now been reduced to where only 7 percent of the former forest lands remain. Sixty-one percent of this forest is located on rough uplands, while 26 percent occupies relatively flat river bottoms. The remainder consists of farm woodlots and fencerows. Of the forested area, 98.6 percent is in private ownership and in small acreages that are usually less than 80 acres in size.

(Continued next page)

Reduction in forest quality may actually have a greater effect on wildlife populations than the reduction in forest acreages. Mismanagement and abuse is responsible for these private holdings producing from one-third to one-half of the timber yield of which they are capable. The significance of this mismanagement in terms of wildlife habitat abuse is equally as great.

The wildlife habitat aspect of a timber-wildlife management plan is a matter of manipulating natural vegetation. Thus, landowners have a unique opportunity to provide quality habitat for many wildlife species through a well planned, sustained yield timber-wildlife management program. Food, water, and cover are essential habitat requirements of every wildlife species, and a well managed woodland can play an important role in supplying these basic needs.

The white-tailed deer is the most popular and abundant big game animal in Iowa. While the deer is generally thought to be a product of heavily forested areas it usually maintains higher densities and productivity where cropland, grassland and second growth woodlands are well distributed. Contrary to common belief, deer do not travel any great distances. Thus food and cover requirements must be met within a relatively small area. Food preferences vary with the season and regions. Deer probably sample every plant species in their home range



Photo by Ken Formanek

Conservation Commission Photo



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Gray and fo species of squ showing a dist squirrel pref

The gray s arrived, but d decline in pop essential to his

The fox s surrounded b sprinkling of important fact

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Wild turkey species that are for their surviv food through protection from the early succ harvest.

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Protection f are danger pe year. Forest uncontrolled t value of the fo the sun and dr

Scenery all pro

at one time of the year or another, with good quality browse being a necessity. Recent studies indicate that a deer weighing 150 pounds needs at least 10 to 12 pounds of good browse daily to satisfy growth requirements; 8 to 10 pounds for maintenance. Opening of the forest canopy through a planned timber harvest allows the sunlight to reach the forest floor and produce a wide variety of high quality browse.

Gray and fox squirrels occupy the same range as deer in Iowa. Both species of squirrel require a wooded habitat, with the fox squirrel showing a distinct preference for the woodland borders and the gray squirrel preferring the unbroken forest interior.

The gray squirrel was an abundant resident when the first settlers arrived, but declining habitat has brought about a corresponding decline in population. A consistent food supply of nuts and acorns is essential to his well being.

The fox squirrel, an edge dweller, prefers small woodlands surrounded by cornfields and brushy fencerows with a plentiful sprinkling of nut trees. A consistent food supply is also a very important factor in the fox squirrel's existence.

The best assurance of a good food supply for squirrels is the presence of a wide variety of mast producing trees in a given area. Then if one seed crop should fail, another will perhaps provide the necessary food for survival. Ample sunlight from a timber harvest allows trees to develop broad crowns and bear large crops of fruit. Maintaining a healthy oak forest can only be accomplished by a well planned timber harvest program that encourages a balanced population of white oaks and black oaks, with their associated annual and biennial production of acorns.

Wild turkeys and ruffed grouse are other forest-dwelling wildlife species that are dependent on sound woodland management practices for their survival. Turkeys need a plentiful supply of acorns to provide food through the winter months, and forest cover that provides protection from predators. Ruffed grouse are particularly attracted to the early successional stages of forest growth that follows timber harvest.

In reference to the particular needs of the aforementioned wildlife species, it is quite evident that a specific management program must be initiated. For the most part, this timber-wildlife management program will consist of protecting woodlands from uncontrolled fire, avoiding grazing, and providing for a systematic harvest of timber.

Protection from fire is not a major problem in Iowa. However, there are danger periods that sometimes occur in the spring and fall of the year. Forest fires damage both young and old trees when an uncontrolled burn takes place. The fire also destroys the protective value of the forest floor. When humus and ground cover are burned, the sun and drying winds absorb moisture needed for tree and shrub

growth. Fires may also affect wildlife populations more directly, through the loss of individual birds and animals, their nests, and home sites.

Fire is not always a destroyer, however. It can be used as a management tool to aid wildlife populations if it is used wisely and under controlled conditions. For example, prescribed burning is a management practice that is sometimes used for slash removal after a clear cut has been conducted. This burning operation removes unwanted litter and tends to recycle nutrients into the ground, stimulating sapling growth. It can also serve to retard conifer regrowth where this particular form of management is desirable.

Intense grazing of forested areas causes more damage to woodlands and wildlife than fire, disease and insects combined. Livestock browse on the leaves and shoots of small trees and trample them underfoot. The trampling damages the surface feeding roots and compacts the soil, thus reducing the tree's water absorptive capacity. A reduction of water absorptive capacity not only limits tree growth, but it contributes to soil erosion. Ungrazed, unburned woodland has long been recognized as the form of land use best suited to the conservation of soil and water on sloping lands. In general, the farmer uses woodlands for pasture at a loss to himself and to his livestock, because efficient livestock production requires better forage than our woodlands will provide. The landowner is better advised to improve his open pasture for livestock use and allow his woodlands to produce timber and wildlife.

Timber products may be harvested as sawlogs, pulpwood, veneer logs, stave bolts or other products. The value depends on species, size, quality, and available markets. The benefits derived from a sound woodland management program are: an expanded and sustained income for the landowner, increased wildlife usage, and the betterment of the total environment.

In Iowa, the State Conservation Commission employs professional foresters to provide free technical assistance to landowners interested in managing their woodland resources. Wildlife Management Biologists are also available for providing woodland management assistance with emphasis on wildlife needs and uses.

There are no sound physical or economic reasons why woodland management principles cannot be integrated with the management of cropland, pastures, and livestock in Iowa. An accurate determination of land capabilities can delineate lands best suited for cultivated crops, pasture, and woodland management. When the landowner finally gains an appreciation for proper land use, and he takes the same degree of interest in his woodlands that he does in the rest of his agricultural holdings, sound management of our woodlands and wildlife resources will have become a reality. □

*Scenery, wildlife and lumber . . .
all products of a well managed
forest.*



Conservation Commission Photo

WINNEBAGO

"Acres for Wildlife"

Program

Rock Bridges,
Wildlife Management Biologist
Iowa Conservation Commission



Jim Allen,
District Conservationist
Soil Conservation Service

Photos courtesy Soil Conservation Service

WINNEBAGO COUNTY lies in extreme north-central Iowa. It's topography is fairly typical of the cash grain region of the state. Flat to gently rolling, the land lends itself to easy cultivation of the rich soils.

A generation ago this was some of the state's finest pheasant country. The irregular timbered and grassy landscape with frequent ponds, marshes, and diverse agriculture supported pheasant populations close to 400 birds per section. Along with pheasants, other game such as rabbits and waterfowl flourished.

The change to intensive row crop agriculture during the past 20 years has resulted in dramatic changes of appearance in the landscape. The fence rows and farm windbreaks are disappearing at an alarming rate. Some timbers have been cleared and many wet areas are drained. Oats, which once provided secure nesting cover for wildlife is no longer present in large acreages. The steady disappearance of wildlife habitat has had a corresponding influence on wildlife numbers.

Recognizing the need for restoring wildlife habitat, a group of professionals initiated a county-wide program. Acting through the Rural Development Committee and utilizing the combined talents of several agencies, a program was developed to encourage establishment of new wildlife habitat in Winnebago County.

The Winnebago Rural Development Committee is composed of Federal, State and County Agencies. This group includes representatives from the County Conservation Board, Agricultural Stabilization and Conservation Service, Iowa Conservation Commission, Extension Service, Rural Electric Cooperative, and Soil Conservation Service. The committee meets regularly and has the broad charge of promoting activities which would benefit the county. The agencies on the committee have a strong interest in wildlife conservation.

It is widely recognized that it's not possible to provide enough public areas to maintain desired levels of upland wildlife populations. This means the major effort must be made on private land. The R.D. Committee felt if it could provide trees and shrubs for planting, it would have an incentive to encourage landowners to provide land for planting sites.

The committee accepted the challenge and started initial planning during January. One of the first obstacles confronting the group was money for planting stock. Winnebago Industries of Forest City was glad to help, and donated 20,000 conifer transplants valued at over \$3,000. The conifers included scotch pine, red pine, Norway spruce, black spruce, and douglas fir.

To provide for all species of wildlife and various soil conditions, the R.D. Committee decided to plant a balanced mixture of trees and shrubs some of which would provide food and cover. The committee sought cash contributions from private businesses, banks, civic organizations, and individuals. Almost \$1,400.00 was donated allowing for the purchase of 52,000 trees and shrubs from the Iowa

Conservation Commission's State Forest Nursery in Ames.

During this same period, all landowners in the county were notified of the program. They were asked to donate land and to protect these areas from fire and grazing after planting. The committee needed a name for the project and "Acres for Wildlife" seemed to sum up its goal. The landowner response to the program was terrific. The areas donated were all inspected by conservation agencies and screened to select the ones with the most potential. Those areas selected were then designed with a planting which would best benefit wildlife.

In all, 80 different tracts distributed across Winnebago County were accepted. The total area involved 118 acres, including tracts ranging from a tenth of an acre to 16 acres. Property owners donated land including steep hillsides, corners cut off by railroads, open ungrazed woodlands, land near ponds, marshy areas, and land along drainage ditches. In certain cases prime farmland was donated by concerned wildlife enthusiasts.

The next step was the actual planting of the 80 sites. Volunteer labor from 4-H Clubs, FFA Chapters, scouts, school groups and civic groups was used as an integral part of the project. Along with the volunteer help, the Winnebago County Conservation Board obtained Federal Public Employment Program funds to hire six people to work from April through June. Their work involved planting, chemical weed control, and watering where necessary. Supplementing this effort the Iowa Conservation Commission and Winnebago County Conservation Board each provided two mechanical tree planters.

The total effort resulted in 72,000 trees and shrubs planted this spring on 80 tracts of land, as the initial step in providing an important element of the much-needed habitat for wildlife.

The R.D. Committee realizes that providing winter cover is only one important aspect of the necessary requirements of wildlife in the cash grain region of the state. This winter cover requirement was underscored this year with the January blizzard which caused substantial wildlife losses. The other limiting factor of nesting cover must also be met to restore wildlife numbers. Additional nesting cover will be provided if and when small grains, hayland or diverted acres are again a significant part of the farm picture. With secure nesting cover, increased wildlife populations would need additional winter cover. However, Winnebago County, with its "Acres for Wildlife" program will be one step ahead of the game with many acres of winter cover already established.

The real success of this program is not that of the committee's accomplishments. It is the spirit of involvement; of gaining support from business and individuals; in utilizing volunteers for planting; and of getting landowners to donate tracts of land for a cause which many of us thought had lost its appeal. The success is measured in the interest shown by both urban and rural people and the involvement of both young and old in providing for future populations of wildlife. □

Intensive far
Youth grou

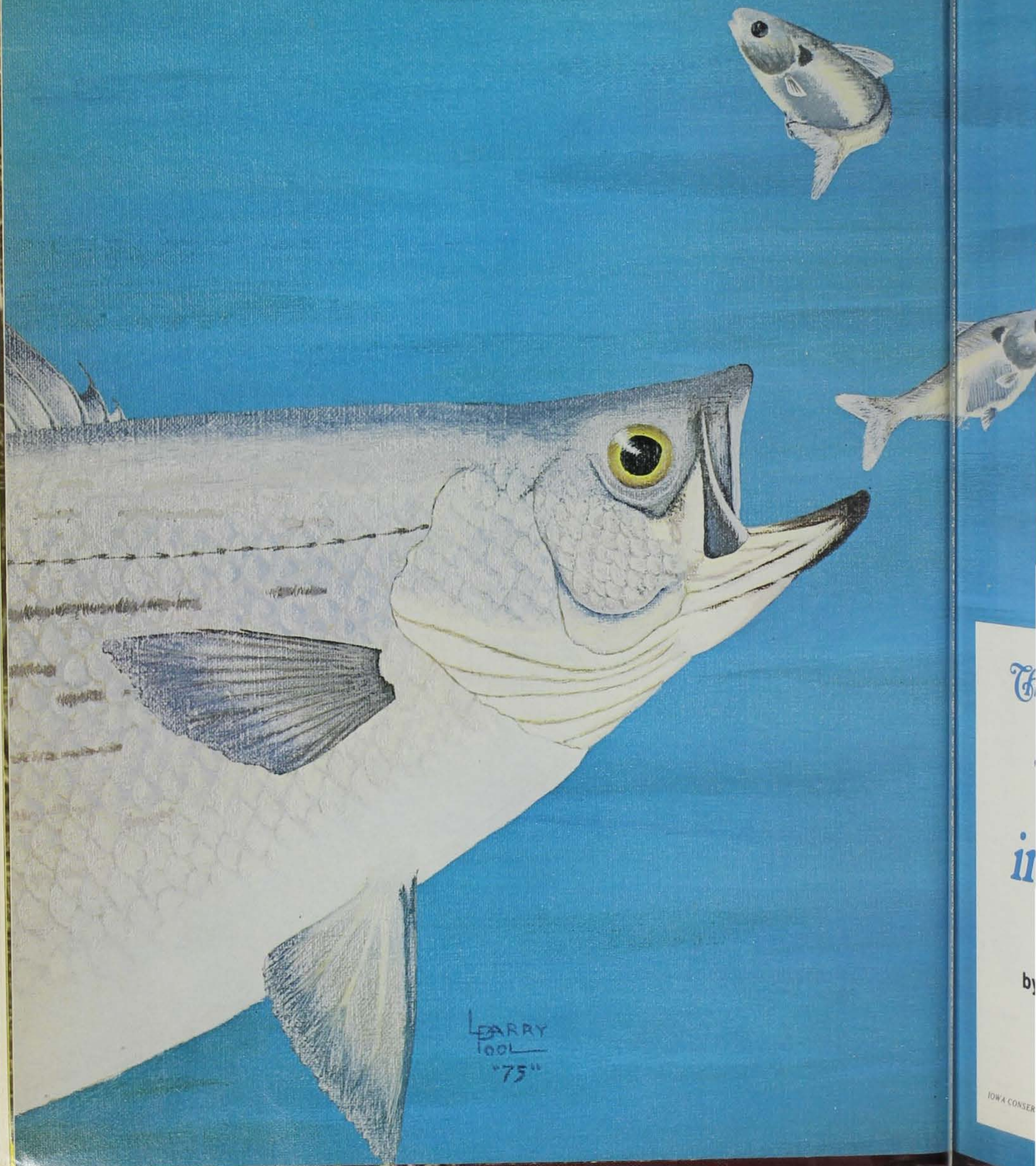




Intensive farming leaves little room for wildlife.

Youth group volunteers and conservation agencies worked together to restore wildlife habitat.





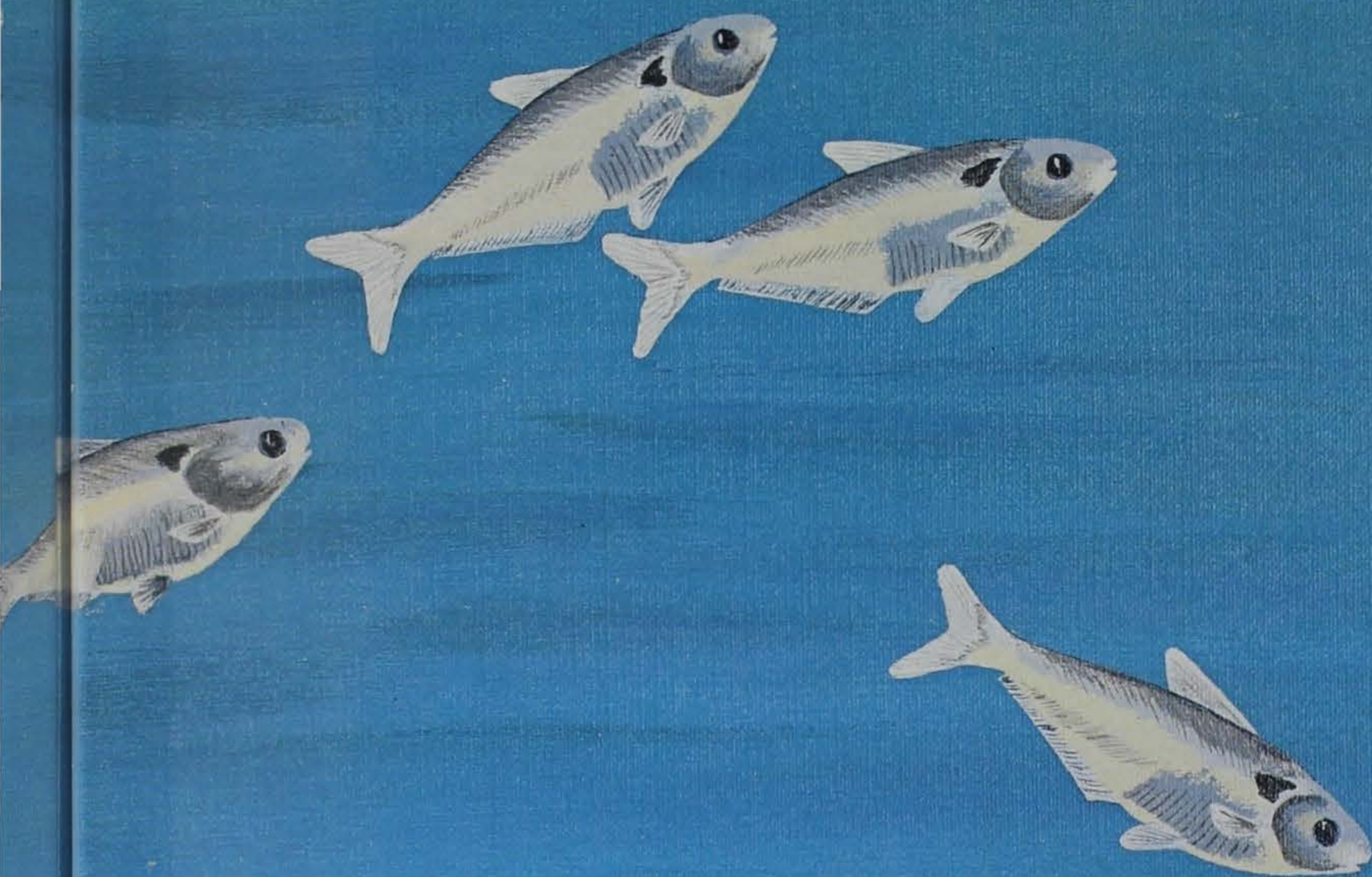
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The Gizzard Shad in Iowa Lakes

by **Steve Waters**
Fisheries Biologist

Illustration by Larry Pool

MANY PEOPLE think of the gizzard shad as an unnecessary nuisance or strictly a rough fish. Would it surprise you if these "worthless" creatures were largely responsible for some of the finest fishing in Iowa? Before we get into the role the gizzard shad plays in Iowa lakes, let's take a brief look at the history of this super forage fish.

The gizzard shad was first introduced into certain southern United State's reservoirs several years ago and did an outstanding job of adding to the predator fish's food base. Other fish and game departments noticed the effectiveness of this forage fish and in turn introduced them to their areas. Over the years the shad gradually migrated north and finally made his way into Iowa waters. In Iowa the gizzard shad has been stocked in Storm Lake (Buena Vista), North Twin Lake (Calhoun County), Black Hawk Lake (Sac County), Red Rock Reservoir (Marion County), Coralville Reservoir (Johnson County), and Rathbun Reservoir (Appanoose County). Shad can also be found in oxbow lakes along the Missouri and Mississippi Rivers.

The gizzard shad is a member of the herring family. It is a flat, compressed, silvery colored fish. Its mouth is located on the lower side of the head and the last ray of the dorsal (top) fin is considerably longer than the others. Also look for a black spot on the gill operculum (cheek area) when identifying the shad.

The shad feeds largely on microscopic plants and animals called plankton by biologists, but they are occasionally caught by anglers using small jigs. It has no table fare value.

The gizzard shad spawn in shallow water in May and the young grow from two to four inches by fall. The fish matures in its second or third year of life and may reach 10 to 12 inches in length.

The role of the shad is strictly one of a forage fish. He provides food for our predator fishes. Walleye, white bass, yellow bass, largemouth

(Continued on Page 21)

CHOOSE YOUR OWN 1975 DEER HUNT

BY LEE GLADFELTER,
Wildlife Biologist

THE APPLICATION DEADLINE for the 1975 deer season is past but the arguments over which hunting season will be the best still linger on. A new challenge exists for the deer hunters of Iowa thanks to successful deer management practices by the Conservation Commission and the cooperation of the hunters and landowners of the state. In 1975 deer hunters can choose the season in which they want to



Photo by the Author

hunt and for the
deer license will
November 22-
have two seasons
the field during
the limited deer
pressure and a
season concept
definite plan

The only effective
regulations is with
management of
segment of the
how many does
growing population
issued to paid
license quota for
Zone 2-1, 900;
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bucks-only license
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Let's get back
going to be the
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time of year is very
same for the first
second season.

How about the
deer available for
second season is
between the seasons
normal habitat.
second season a
There are many
the individual hunter
which he wants
important aspect

The 1975 bow
season dates are
December 5. This
a late season

197

A quick look
Iowa resulted in
opened in 1953.
11,500 bow hunters
shotgun bucks-
any-sex hunters
shotgun hunter
respectively. Bow
shotgun hunter
which totals up

The 1975 hunt
40,000 deer will
proper application
seasons, hunting
interference from
and place they
weather cooperation
for another year

hunt and for the first time in many years everyone who applies for a deer license will receive one. The first open deer season this year will be November 22-25 with the second season open December 6-12. Why have two seasons? In 1974 there were about 45,000 shotgun hunters in the field during the deer season, which is very high hunting pressure for the limited deer habitat in the state. In an attempt to split the hunting pressure and allow everyone a chance to hunt, the pick your own deer season concept was authorized. Hunting groups can now make definite plans as to who will be hunting and where they wish to hunt.

The only element of chance that remains in the deer season regulations is who will receive the limited number of doe licenses. The management of the Iowa deer herd focuses mainly on the female segment of the deer population so there must still be restrictions on how many does can be harvested from the herd to maintain a healthy, growing population. There will be a total of 8,040 any-sex permits issued to paid shotgun hunters this year. The paid shotgun any-sex license quota for each season and in each hunting zone is: Zone 1-900; Zone 2-1, 900; Zone 3-390; Zone 4-490; Zone 5-340. All other hunters not drawing an any-sex license in the random selection received a bucks-only license. Since there are many excess bucks in the deer population they can withstand higher harvest rates. It was not known beforehand how many people would apply for each hunting zone or season so the ratio of bucks-only to any-sex licenses could not be predetermined. However, after this ratio was fixed for paid shotgun hunters the free landowner licenses were issued at the same ratio in the zone for which they applied.

Let's get back to our original argument over which hunting season is going to be the best since there are many pro's and con's to each season. The first season is in late November and these hunters will have the first crack at the deer. However, the season will only be 4 days long and there will probably be more standing corn for deer escape cover than in the second season. What will the weather be like? The weather at this time of year is very unpredictable but the chances of snow are about the same for the two seasons with temperature being a little colder by the second season.

How about that second season? For one thing, there will be fewer deer available because of the harvest during the first season but the second season is longer (7 days). Because of the two weeks separation between the seasons the deer should be settled down and living in their normal habitat. The weather may be better for hunting deer during the second season and most of the corn will be harvested by this time. There are many different ideas as to which season will be the best but the individual hunter had a chance to pick the circumstances under which he wants to participate in the sport and this is the most important aspect of the 1975 deer season.

The 1975 bow hunting season is nearly the same as in 1974. The season dates are October 11 to November 21 and November 26 to December 5. This provides bow hunters with both an early season and a late season.

1974 HUNTING SEASON RESULTS

A quick look to last year tells us that the 1974 deer hunting season in Iowa resulted in the highest deer harvest since the deer season was opened in 1953. Over 45,000 shotgun hunters bagged 15,817 deer while 11,500 bow hunters accounted for an additional 2,173. The paid shotgun bucks-only hunters averaged around 29% success with the any-sex hunters recording a 64% success rate. The landowner-tenant shotgun hunters were slightly lower with 27% and 48% success respectively. Bow hunter success averaged around 19%. The average shotgun hunter spent over 20 hours in the field during the 5 day season which totals up to 130,000 days of recreation for Iowa deer hunters.

1975 OUTLOOK

The 1975 hunting season should be another great one. Around 40,000 deer will be awaiting the hunter this fall. Everyone making proper application has received a license and with two separate seasons, hunting pressure should be reduced which means less interference from other hunters. Hunters were able to pick the time and place they wanted to hunt without confining zone quotas. If weather cooperates and corn harvest is normal prospects for 1975 are for another year of great deer hunting. □

Warden's diary

By Rex Emerson,
Law Enforcement Supervisor

Good Days and Bad Days

EARLY AND LATE SHOOTING during the waterfowl season is always a problem for the officer. One officer working a duck marsh can only get to a few of the hunters who shoot early or late. The majority of the people out there usually hunt legally and they complain if you don't catch all the illegal ones.

This morning six of us, dressed like hunters, moved in on a marsh that has been a problem area in the past. Each officer had a predetermined part of the marsh to work. We were all in position an hour before shooting time. The only sounds were decoys splashing in the water as they were being tossed out by the hopeful duck hunters. Some very unconcerned coots (mud hens) were swimming around the edge of the open water, and a frightened muskrat headed for its den.

This is a relatively small marsh so far as Iowa marshes go. Most of the hunting is from the shore, with a few small boats in one area. About a half hour before shooting time, the wood ducks and teal were beginning to leave their roosting places and fly around. Some of the hunters were sitting in little groups in the tall vegetation drinking coffee. Others were scanning the sky with shotgun in hand. The latter group were the ones we were interested in. I had worked into a vantage spot on a little point of land. The other officers were no doubt doing the same thing in the areas assigned to them.

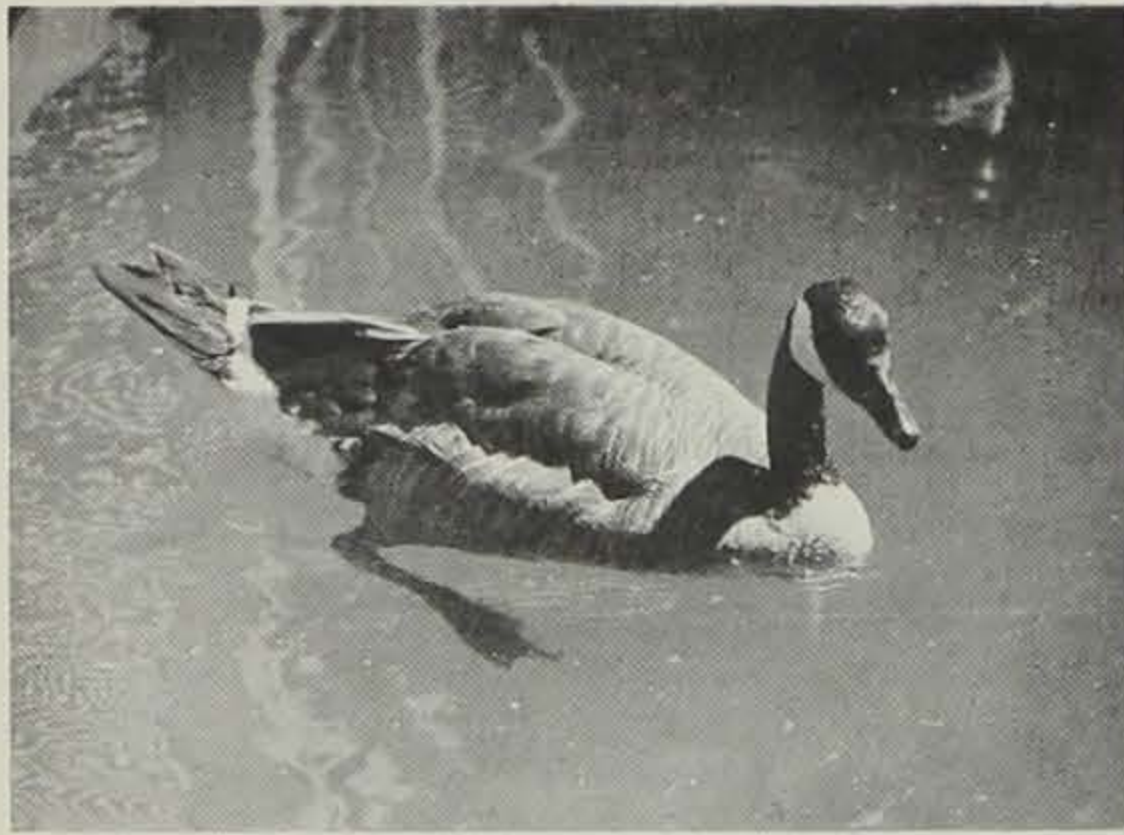
Twenty-four minutes before shooting time a shot was fired at the far end of the marsh. That shot caused all the ducks to become airborne and the sky scanners all started shooting. The legal hunters, still drinking coffee, hollered some uncomplimentary words at the ones who were spoiling the hunting for them. The words mostly fell on deaf ears as the excited early hunters continued to shoot. With note pad in hand I jotted down the time of the shots, with a description of each early shooter in my area. Also each spot the early shooting was coming from was named, such as "little tree", "big bush", "point" and "red cap". One of the hunters actually had on a red cap. That is something you don't often see on a duck marsh.

Five minutes before shooting time I started down the line collecting hunting licenses from the early shooters and any ducks they might have. Referring to my notes, the earliest time they had shot was noted on the back of each license, and they were each told to meet me over by a certain tree that was well back from the hunting area.

When I got to the tree I had eight hunting licenses in one hand and three ducks in the other. They were not very good shots. This was a very comfortable place to sit and leisurely make out the court citations. A couple of the fellows started to complain about the season being open now, and they weren't getting to shoot. When they started the complaining I stopped writing and just sat there looking at them. Shortly one hunter said, "If you guys don't shut up we never will get back to duck hunting". They got the picture then and the citations were completed. Oh yes, the one with the red cap didn't have his gun plugged so that it wouldn't hold more than three shells as required by law, and he didn't have a state duck stamp. He couldn't seem to do anything right. The rest of the duck hunters in my area were checked before I went to meet the other officers in the parking lot. We evidently had apprehended nearly every early shooter on the marsh, and the hunters were all checked for license, Federal stamp, State stamp and gun plug. They surely knew the game warden was here this morning. Maybe this will hold down the early shooting here for awhile. We would like to do this same thing on other marshes. However, because of the Officer Section's limited personnel, such efforts must be held to a minimum.

Before we all scattered to other duck marshes one of the officers said he had always wanted to catch the guy who shoots first and consequently starts off the early shooting all over the marsh. He told us this was the day. He was standing about twenty feet from the man who fired the first shot. His jaw sagged then, and he looked down at the ground as he said, "The guy's gun went off while he was loading it. I saw it happen."

Don't get the idea that every day is like this. Some days are good days. That is when everyone is legal. □



Conservation Commission Photo

1975 Waterfowl Hunting Regulations and Populations

By Richard Bishop,
Waterfowl Research Biologist

AS YOU SCAN THE NEW REGULATIONS and look for the inevitable changes in point values, shooting hours, and season dates may these comments ease your questions and sooth the rise in your blood pressure. To paint a brief picture of the waterfowl situation in somewhat less glorious terms than you may have read recently, I offer the following:

Water conditions were excellent in the duck production areas of the United States and Canada. Mallard breeding populations were up slightly from 1974; however, somewhat lower reproduction was reported. Pintails and gadwalls had about the same breeding populations, while blue-winged teal, redheads, and canvasbacks showed good increases and widgeon and green-winged teal declined. Overall production was about as good or slightly better than 1974 with the fall flight of mallards similar to that of last year.

Iowa hunting will depend upon weather conditions, food and available water plus the right type of migration. Even in years of good duck numbers, large over-flights occur and hunting can be poor. The final test is the number of wings over decoys and the individual hunter will have to decide for himself.

Why the change in shooting hours? Your Conservation Commission believes that sunrise shooting is more realistic for point system hunting, but the true value of the point system is that you do not have to identify the duck in the air. So, if you shoot when you are not sure, you may be forced to retire for the day after you have the bird in hand. Another reason for changing the hours to one-half hour before sunrise was to avoid serious problems with border states along the Mississippi and Missouri Rivers. All adjoining states are shooting one-half hour before sunrise. If you do not like the earlier shooting hours, please inform us of your feelings.

This brings us to point values. It is believed, by your dedicated spokesman, that the mallard population cannot stand additional hunting in the Mississippi Flyway so the point values remain the same. For all practical purposes, we desired the same point values as in 1974. We oppose the ten point category. This was apparently changed at the Secretary of Interior level against state administrators' and biologists' recommendations. Can anyone justify a possible ten duck limit in this day and age? We question it, but politics do play a small part in waterfowl regulations as we found out this year. We must live with it and try to influence things differently in the future.

The last item on ducks is the season dates. The split is almost mandatory if we are to allow the northern Iowa hunters the opportunity of harvesting teal and other early migrating ducks and also provide hunting of the later flights of mallards and diving ducks. Data collected from our hunters checked during the 1974 hunting seasons indicate that teal and wood ducks are the second and third most important ducks in the hunter's bag. These species are for the most part early migrators. Even with early October seasons, many teal are south of Iowa on opening day. The daily duck bag per hunter drops off after early October and does not increase until the first week of November when the big mallard flights arrive. These data strongly suggest that the best dates for duck hunting in Iowa are late September through early October and again during the month of November. The mid-October period seems to provide lower harvest potential on a statewide basis. I am sure individuals in certain areas could argue this, but it varies from one locality to the next and the type of area hunted. Dates must be selected to optimize hunting opportunity for the entire hunting public in Iowa.

Goose hunting this year should be very favorable. Canada goose populations (the eastern prairie population) have reached a modern time high, and with the excellent production of this year we will have a record fall flight. Because of this, the bag limit was increased from one to two Canada geese daily. Snow geese also experienced good production and there would be a large number of snow geese with lots of young birds. The goose flight will be very good, but remember migration conditions, food, and water govern our harvest to a large extent. Let's hope for the best and I hope you enjoy some fine waterfowling this season. □

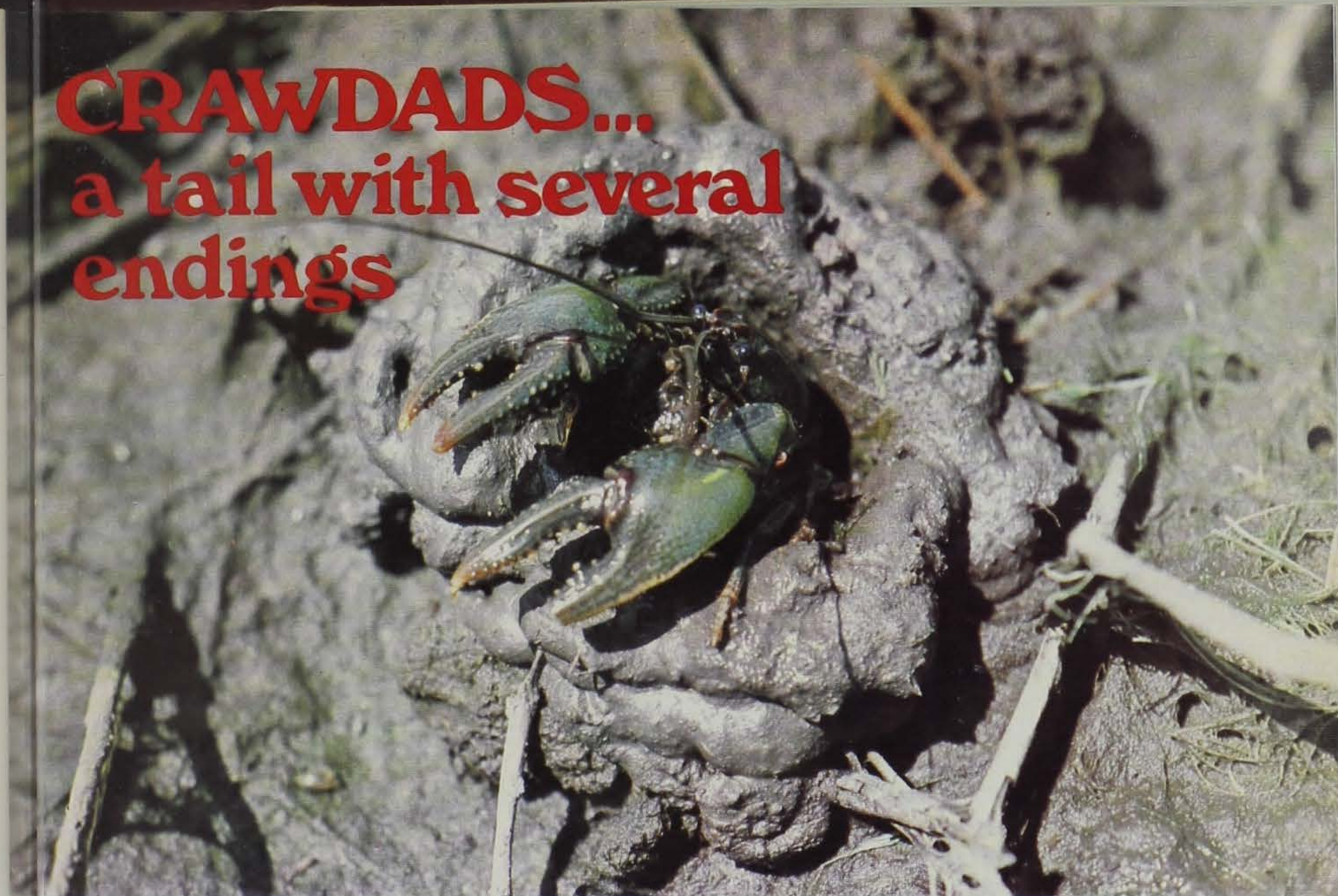
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CRAWDADS... a tail with several endings



**By Vaughn L. Paragamian,
Fisheries Research Biologist**

AS I WANDERED along the meandering creek bank I noticed some small chimney-like mud mounds. I had seen them before but never really paid much attention. The mounds were uniformly textured, unevenly spaced, rising several inches above the ground and in the center of each was a tunnel. As I peered down the entrance an inquisitive impulse overcame me. What could have built these mounds? I decided to wait for the mound dweller to return or exit.

Female crawfish carrying eggs.

Photos by the Author



Dusk found me still waiting when suddenly two hair-like antennae appeared from within the entrance.

To my surprise a crawdad emerged from the opening carrying a mud pellet. It seems that while many crawdads hide under rocks and debris in streams, others are tunnel builders and material deposited at entrances form the chimney. Tunnels may be up to ten feet deep and contain one or two passageways. Each burrow has one occupant except during the breeding season.

Crawdads are in the animal phylum arthropoda (animals with jointed legs) and are further classified as crustaceans, as are lobsters and crabs. There are about five species of crawdads found in Iowa, all closely related to the well known lobster and crab.

Crawdads, a name commonly used in Iowa, are frequently called crayfish but in other parts of the country they may be called crawfish, crabs or mudbugs. They vary greatly in size and habitat around the world. The smallest is a one inch long dwarf crayfish of the southern United States while an Australian relative reaches nearly a foot in length. Some crayfish live in streams, marshes, or wet meadows while others have been found to depths of 104 feet in lakes.

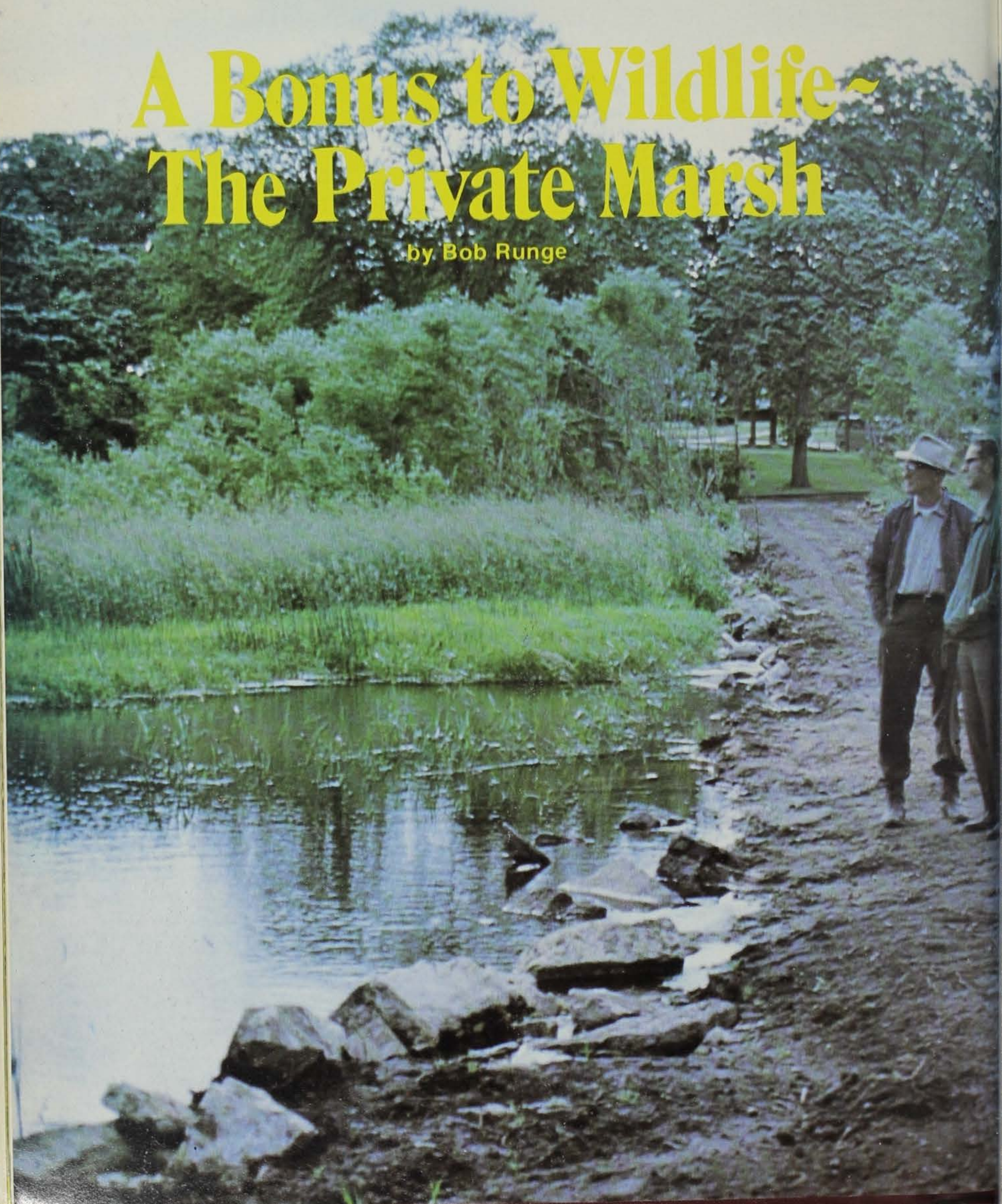
Let's cover a little of the life history of a crawdad. Most are omnivorous, eating both plant and animal material. They eat living and dead material and you might say they belong to nature's sanitation crew. Crayfish mate anytime between April and late autumn. Females lay eggs soon afterward or may delay for several months. Eggs are cemented to the small leg-like structures located on her tail and hatch in a week or two. Young crayfish spend an additional week attached to the female, then drop off to begin a life on their own. As young crawdads grow they must shed their hard outer shell several times to make room for their greater body size. Growth depends on available food, temperature and water hardness.

Crayfish are well equipped for life as a scavenger. They have five pair of legs, four are used in creeping over, around and between rocks plus one pair of large claws to help in collecting food and in defense. But, the best defense is a quick retreat from a potential enemy. With a rapid down and forward sweep of his powerful tail a crawdad can scurry for

(Continued on Page 21)

A Bonus to Wildlife~ The Private Marsh

by Bob Runge



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THE WHOLE STORY really began back in 1933. A group of gentlemen who lived in and around the town of Manchester decided to form a club devoted to saving wildlife in Delaware county. It was the prevailing thought during those days that all wildlife needed was protection. Since then, scientific study has led us to the conclusion that management and habitat is the name of the game. The members of the Delaware County Fish and Game Protective Association, Inc., have realized this over the years and have made it the ambition of the club to provide wildlife the kind of protection it really needs - habitat. Beginning many years ago the club became involved in wildlife plantings. After finding suitable areas in the county and obtaining the necessary cooperation of land owners, the club went in and planted hedges, trees and bushes to provide birds and animals nesting and winter cover. They have continued this work over the years in all sorts of areas from the odd field corners, deserted railroad rights-of-way to the ground around REC transformer

stations. These areas are beautiful sites for wildlife enthusiasts to behold. Some sportsman's clubs turn out to be merely social groups, but the Delaware Fish and Game Club is truly a group of action and a model for anyone forming a new club.

In December of 1973, one of this club's largest scale ideas was born. On the north edge of Manchester between their clubhouse and the town was a wet backwater area of the Maquoketa River. Although it was fed by three springs, the lack of any control on its water level caused it to fluctuate from marsh to dry area over a typical year.

Fay Ashline, a member of the board of directors of the club, had a bold idea. If the club could gain control over the land a water control structure could be built between the area and the river and a permanent marsh would be the result. Fay talked over the idea with friends Tom Allyn and Marv Snyder. Together they sold the other members on the idea and the project began one year later in December, 1974.

The men knew from their previous wildlife work that the job must be properly done to have any chance at success. Fay Ashline and his friends touched all the bases. The most important part of the job was achieved when three local land owners donated their portions of the land to the club for the purpose of building the marsh. Then the planning began.

The Iowa Natural Resources Council was contacted for the official nod that the club could proceed. The Conservation Commission was contacted for ideas and Tri-State Engineers designed the plans for constructing the dam. It happened that an old church was being torn down in Manchester. The Ed Guetzke Construction Company, which was handling the demolition, donated the time and equipment to haul this heavenly rubble to the marsh and the control structure was taking shape.

At the same time other people began donating to the project. Cash donations totaled over \$2500. Lawn sod was donated, value \$500.00. Various labor and material, \$1,000. Value of the engineering, \$500.00. Value of construction services, \$1000. The club also donated \$1000 of its funds for the project. When all of this is added to the value of the land, a total tag of \$12,040.00 can be assigned this project.

Early this year the dam was in and the Delaware County Fish and Game Club eagerly awaited the chance to fill their marsh. Now their holdings consisted of about 65 acres of which about half would be marsh.

In the meantime, however, they were not idle. The members constructed and set up several wood duck nesting boxes around the area. There have always been a few wood ducks using the timber along the river but the new boxes would hopefully encourage more nesting.

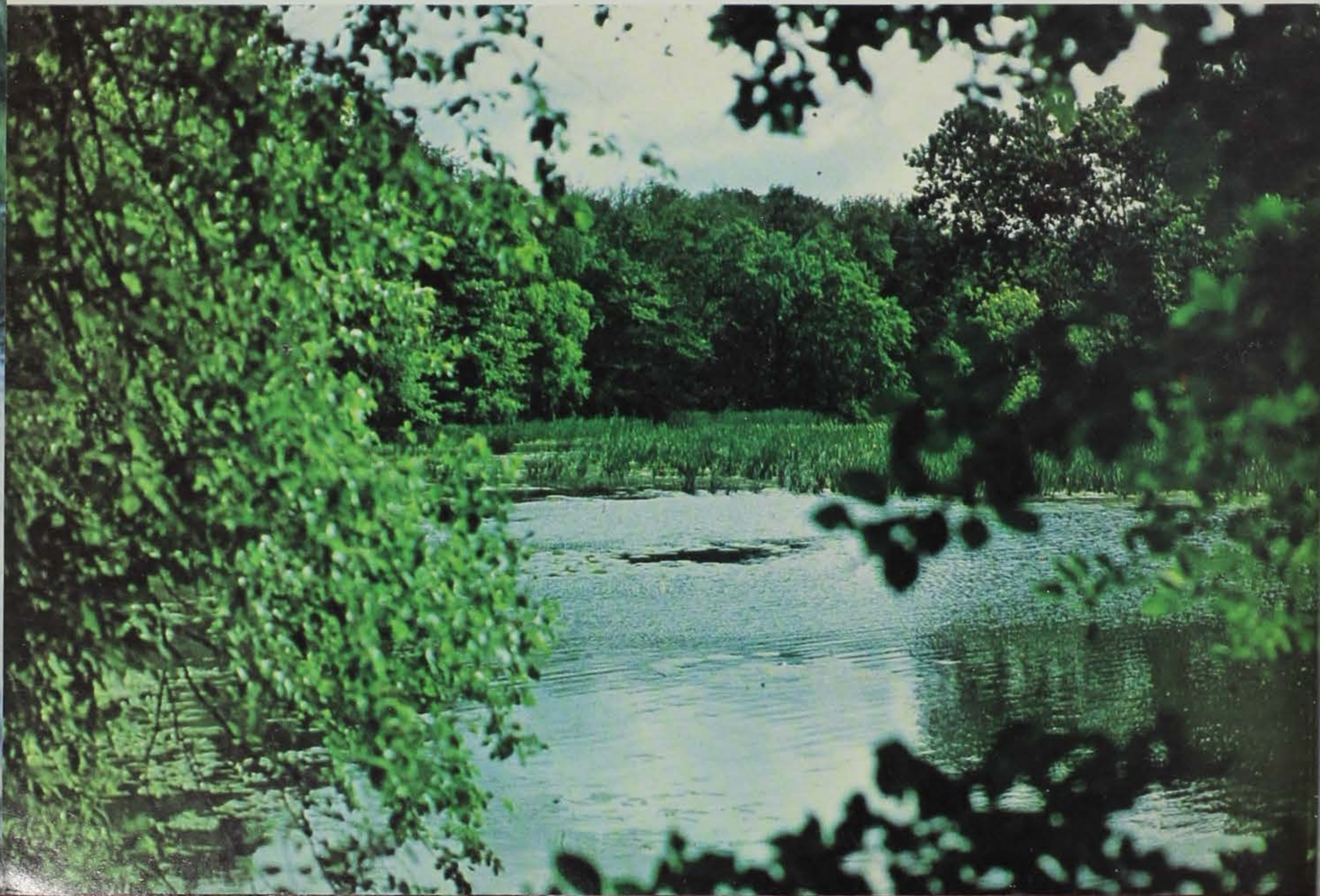
Then spring came and the marsh filled. It was perfect. The canary grass, pond weed, bullrushes, lillies and other marsh vegetation, which has been there in limited quantities before, spread throughout the area. By early summer, the open water-vegetation interspersion was in a classic marsh ratio. In short, the project was a great success.



Since most of the area is within the Manchester city limits, the project is closed to hunting but the marsh will raise many ducks, a portion of which will be harvested by hunters as they move to different areas. Other uses will be nature study for school classes, canoeing, and scenic enjoyment. The marsh lies adjacent to the city park and a new blacktop bicycle-walking trail runs along its edge. In addition, some trapping will be allowed during the regular season.

So there it is, a beautiful marsh completed for the benefit of many kinds of wildlife. For red-winged and yellow-headed blackbirds, marsh wrens, wood ducks and teal; for muskrats, frogs, flowers and turtles. This marsh is a testimony to men with ideas and the desire to see them come true. □

Photos By The Author



GIZZARD

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IOWA CONSERVATION

GIZZARD SHAD

(Continued from Page 13)

bass, northern pike and crappie readily feed on the shad. Shad also provide ample forage for scavenger fish. Gizzard shad are sensitive to sudden changes in temperature (for example, that period after ice is out) and sudden decreases in oxygen concentrations (often termed summer kill). During these periods large numbers of shad may die. Scavengers such as channel catfish, flathead catfish, blue catfish or bullheads feed readily on these decomposing fish. It is at this time that fishing for these fish may be at a frenzy. Naturally cut shad or sour fish of any kind would be the best baits.

The primary function of any forage fish is to supply ample food for other fish to grow fast. In large bodies of water, the gizzard shad does just this. Our natural lakes, being extremely productive, seem to produce shad in large numbers offering predator and scavenger fish an easy meal. The result is a fast growing, plump fish to add to the angler's stringer. Storm Lake, located in Buena Vista County, is the best example of this. Each year many large walleye, crappie, white bass and channel catfish are taken by hook and line. The gizzard shad is also responsible for the fine trophy northern pike fishery. Other natural and man-made lakes, offering gizzard shad as a forage fish, produce similar growth rates for predator and scavenger fish.

The gizzard shad must be effectively managed if he is expected to do the job he is here for. The most effective shad population is one which has many smaller individuals and only a few intermediate and large fish. To accomplish this the fishery biologist must establish a good predator-prey relationship. That is, there must be several different predator species and sizes present in good numbers to keep the shad population from over exploding. Perhaps this can be explained through the use of an actual lake case history.

Black Hawk Lake (Sac County) is a natural lake that winter killed severely this past winter. A fish survey showed most predator fish and their prey were lacking in this lake. The management plan was to restock gizzard shad and predator fish that were raised in our hatcheries. Walleye, crappie, white bass, largemouth bass and northern pike were stocked to feed on the shad. These predator fish species fill every available niche in the lake, that is, they'll be found near the shoreline, in the open water, on the lake bottom and near the lakes surface. Wherever the gizzard shad goes, some predator fish will be ready for a tasty supper. Of course, the final goal is to produce a large game fish in a shorter period of time. This means better fishing for the angler.

If a gizzard shad population is out of balance there are remedial measures that can be taken. A partial renovation (kill) of shad can be undertaken when they are congregated. Often this is followed with a corrective stocking of predator fishes. The idea is to improve the predator-prey relationship.

The full potential of this invaluable forage fish may not be reached as of yet. They are a proven contributor to large natural lakes and manmade reservoirs but what about smaller bodies of water? Several southern states are involved with gizzard shad research in small and intermediate sized impoundments. Biologists are looking to see if the introduction of shad in these waters will improve growth and increase numbers of largemouth bass. If they perform satisfactorily, it is possible we may see them in some of our smaller impoundments in future years.

Whether we are talking about today's lakes or tomorrow's possibilities, remember that the gizzard shad is an important forage fish that adds a great deal to our game fish populations. He may be ugly and he may not smell pleasant when large die-offs occur, but his presence in Iowa lakes can reduce the time between bites and that fish on your line is bound to be larger—maybe even a state record. □

CRAWDADS

(Continued from Page 17)

cover. This motion is completed several times to cover greater distances.

Adult crayfish forage mostly at night while young individuals may be active anytime of the day. Wandering crayfish may even come out onto land. Chimneys of burrowing species are sometimes found in moist meadows or areas where the water table is near the surface.

Reports of crayfish taking strolls over lawns and gardens during evening hours are not uncommon.

Although crayfish appear well armored, the period in which they shed their old suit renders them nearly defenseless. Often referred to as softshell crawdads, at this stage the body is pliable and unusually vulnerable to predators. During this period they are a favorite of experienced bait fishermen. Soft shell and even hard shell crayfish make good bait for smallmouth bass, largemouth bass, walleye and catfish. Peeled tails can be used for bluegill, crappie, perch, bullhead and carp fishing. Two to three inch crayfish are the best size for whole bait while larger crayfish should be used for peeled tails.

Live crawdads should be fished on a light line (4-8 lbs test), free swimming or with a small split shot. This allows them to move freely or to drift with the current. Dead crawdads can be drifted slowly or retrieved with short, light jerks to give them a life-like motion. Peeled tails can be floated off the bottom with a bobber or fished on the bottom with a sinker.

Crayfish are edible. In fact, some believe the quality of meat is so fine as to rival that of shrimp. Crayfish cookery can be very simple. Bring a salted pot of water to boil, drop in live crayfish and heat until they turn red. If you're squeemish, bribe a friend or close your eyes when you drop them in the water. After they're cooked, peel the tails and claws, dip the meat in warm butter and chow down. Crayfish can also be cooked in commercial crab boil that is available in most grocery stores. Several other recipes are listed at the end of this story.

Crayfish can be caught by several methods. Seine nets are the most popular means but must comply with regulations, 15 feet or less common sense seines are legal. These nets work well in streams and ponds that have unobstructed bottoms. Baited lines work well also, but do not catch as many crayfish for the amount of time devoted. Lines can be baited with chunks of liver, beef or fish and do not need to be hooked. Generally, bait lines are fished from shore. Care must be taken when retrieving the lines, although crawdads have a stubborn personality and will hang onto the bait, unnecessary jerking will cause them to release the bait. Crayfish traps can be made in a variety of shapes and sizes. Usually the traps are constructed of ¼ inch to ½ inch wire mesh, have two or more entrances and a door to put bait in through or to remove crayfish. The same baits used for lines can be used in traps.

Keeping live crawdads is usually simple. However, some species die easily in captivity. A large galvanized washtub works well but do not overcrowd your crawdads, 25 to 30 at the most. Keep the tub in a cool place, feed them lightly and permit water from a faucet or hose to drip in.

Try ending your crawdad "tale" with a scrappy smallmouth at the end of a fishing line or a peeled tail at the end of a fork. They're both hard to beat.

CRAWDAD BISQUE

1 tablespoon shortening	6 allspice
1 large onion, minced	2 cloves of garlic, minced
2 tablespoons chopped chives	2 tablespoons chopped clery, minced
¼ cup butter	1 bay leaf
¼ cup flour	1 tablespoon minced parsley
1 can (6 oz) tomato paste	1 teaspoon thyme
1 can (No. 2) tomatoes	salt and pepper to taste
1-1½ lbs crawdad meat	
5 cloves	

Heat shortening, brown chives and onion in a saucepan. Add butter, flour, tomatoes and paste; simmer for 5 minutes. Add crawdad meat then salt and pepper to taste. Add 2 quarts of water; simmer one hour, stirring occasionally. Bisque should be the consistency of thick cream.

STUFFED CRAWDAD SHELLS

1 cup bread, or 1 cup cooked rice	2 tablespoons chopped parsley
1-1½ lbs crawdad meat	Crawdads shells
1 teaspoon thyme	

Brown onion in butter. Squeeze out cup of bread soaked in water, or cup of rice and add to crawdad meat, seasoned with salt, pepper, parsley and thyme. Stuff the shells. Dot each head with butter and bake in 350° oven 10 minutes, or until brown. When ready to serve, drop stuffed heads into bisque and heat for 10 minutes. Serve hot with cooked rice. Can serve up to 6. □

CLASSROOM CORNER

by Robert Rye
Administrator, Conservation Education Center

THIS TIME OF YEAR is special to everyone. What are your interests? They vary from person to person and from time to time. There is something in Iowa for everyone in which to become involved.

The forests have a new look; leaves are changing their colors — a prime time for those who enjoy just soaking up beauty. For hikers, every trip provides some new "find". Many come to the realization that the forest is made of trees. Did you know that a tree keeps growing all year round? If it ever stops it is because it is dead.

Many trees which bear edible nuts have done their work. The wildlife is already eating this year's crop. It is also available to those of us who are not so wild.

Park rangers are still working in their areas and people are awakening to the crisp morning air—many to start their day of hunting in one of the various game seasons. Biologists have worked hard, using various wildlife management programs, to provide an opportunity for the hunter. The hunter does his part in conservation by making his license fee available to the game managers. Thus making sure that

game will be available for harvest in years to come. Conservation officers are out making sure it isn't overharvested.

For those of us who are looking ahead to the holidays, now is the time to collect dried plants. Plants like milkweed, cattail and goats beard are in their prime and ready to be made into decorative arrangements.

If you are out hiking or hunting or otherwise enjoying nature, use your time wisely. Look for evidence that someone has been there before you. This evidence is everywhere. Some of it should be collected and used.

Glass is the substance to be collected. It comes in many colors — green, white, blue, brown and red. You can collect only one or many colors.

In a short period of time you should be able to collect 10-15 pounds of glass in your desired color. This glass can be reused. It can be made into a lamp, ash tray, flower vase, or any particular object that fits your needs.

Place your glass findings in a heavy canvas bag or several heavy duty grocery bags. **Great care** must be taken at all times with the glass. Break it with a rubber mallet. A regular hammer with its head wrapped in old rags can be used.

Obtain some epoxy or polyester resin and hardners from your local hardware store. A plastic bag is also necessary.

Take the small pieces of glass and place them in the plastic bag. Your glass can be sorted to size using 1/4-inch hardware cloth. Rubber gloves are advisable for this operation.

Follow directions on your binding material (either epoxy or polyester) and add it to the glass in the plastic bag. Mix well and shape in to the desired form. You may place your plastic bag in or on a mold for a particular shape. Finally, allow this mixture to dry.

You now have a piece of art work. A permanent memory of this time of year and what Iowa meant to you. You also made Iowa more beautiful for the next person who follows in your footsteps.

ODESSA WILDLIFE UNIT

(Continued from Page 2)

Marsh, for example, is an excellent pheasant area. Deer and squirrel populations on Odessa and Klum Lake, also provide good hunting opportunities. Annual concentrations of waterfowl, shore birds and birds of prey are available to the wildlife observer, including the majestic bald eagle and the rare osprey.

The greatest expanse of publically owned wildlife habitat within the Unit is found on the Mississippi River and its environments. The river itself, and many of the islands and island complexes in Pools 16, 17, and 18 are an important resource, available for public use and visitation. Hunting opportunities include many species such as waterfowl, deer, squirrel and raccoon. High interest wildlife phenomenon on the river includes the winter concentration of eagles. These birds may sometimes be found literally by the dozen, especially in the vicinity of locks and dams. Pool 19 is an especially important concentration area for diving ducks including redheads and canvasbacks. Diving ducks "raft" on the river by the thousand, attracted there by the fingernail clams that inhabit the river's bed. In fact, on any day in November, half of the entire continental population of canvasbacks may be found on the pool.

Other Unit wetlands include Allen Green Refuge in northern Des Moines County and Green Bay, south of Wever. Allen Green is a small refuge where hunting is prohibited, and Green Bay is a marsh area located in drained river bottom but its use is restricted by access problems.

Shimek State Forest in southwest Lee and in Van Buren Counties, is approximately 8,000 acres of upland timber. Public hunting is available with primary species including wild turkey, deer, squirrel, rabbit and quail. These timbered hills and valleys are ideal for the person who enjoys hunting or other activities in beautiful, quiet and uncluttered surroundings.

Each of these Game Management Areas is managed with wildlife as the number one priority. The hunter's dollar is here invested in wildlife habitat, the one most important ingredient necessary for wildlife populations to thrive. On wetlands, dams and control structures may be developed and operated to insure high-quality marsh areas with sufficient interspersions of water and vegetation to attract marsh wildlife. Upland areas are

provided with annual and perennial food and cover plantings which may range from cultivated crops like corn and alfalfa, to trees and shrubs. Timber areas are planted, harvested, and selectively managed to supply all of those different timber habitats needed to maintain a variety of wildlife species. All management techniques are designed to meet the areas potential for wildlife populations.

Activities of the Odessa Wildlife Unit are coordinated through the Unit's main office in Wapello, and the work unit headquarters at Lake Odessa. Unit personnel are responsible for development, management and maintenance of the public Game Management Areas and are ready to provide technical assistance for wildlife habitat development on private lands. □

The Odessa area



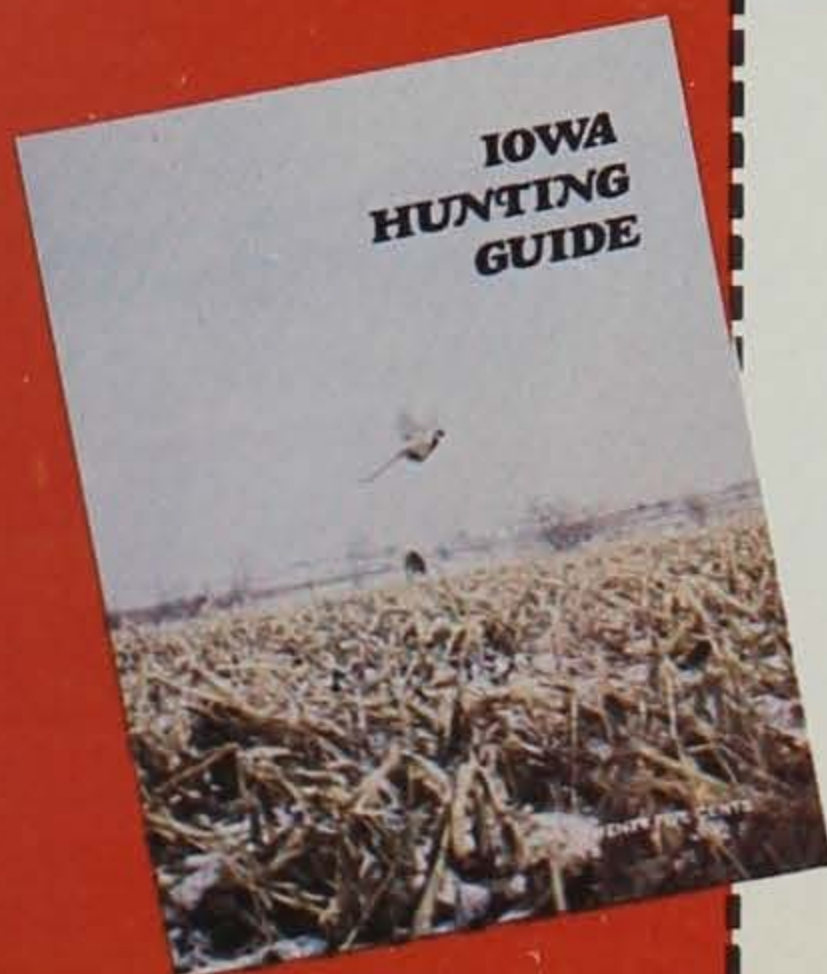
Photo by Ken Formanek



Photo by Sonny Satre

Now for the first time, the Iowa Conservation Commission has published a complete guide to hunting in our state. The guide breaks the state down into twenty wildlife management units of about five-county size. It then describes each unit including the types of hunting available. The guide also has a section which lists all of the state-owned public hunting areas of importance on a county-to-county basis.

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BITTERSWEET Photograph by Jerry Leonard

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