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Department of Natural Resources

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COVER: Springtime violets. Photo by Ken Formanek.

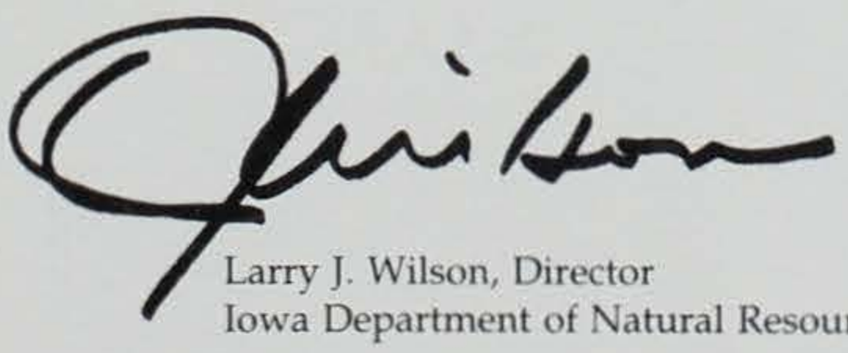
EDITORIAL

In the waning days of the Reagan administration, a part of the budget proposal included a cap on federal aid for wildlife restoration (Pittman-Robertson) and sport fish restoration (Wallop-Breaux) accounts. The proposed cap would limit each account to $100 million. The balance of these funds were then proposed to be used to offset federal expenditures for other activities within the Department of Interior. On March 9, 1989, the White House released a statement from President Bush on these proposed caps. The President said, "As a supporter of Wallop-Breaux, my position is clear: these funds should be used for the purpose intended, to develop and restore our fish habitats and fishing environments." However, Congressional action through the Senate and House Budget Committees is still needed to remove these caps. The cap on the P-R program would amount to a loss of $29 million, and the cap on Wallop-Breaux would amount to a loss of $92 million to the states. This means that the Iowa Department of Natural Resources would lose approximately 45 to 50 percent of fisheries federal aid funds and a significant amount of wildlife restoration funds. I urge all Iowans to take action to see that these caps are removed.

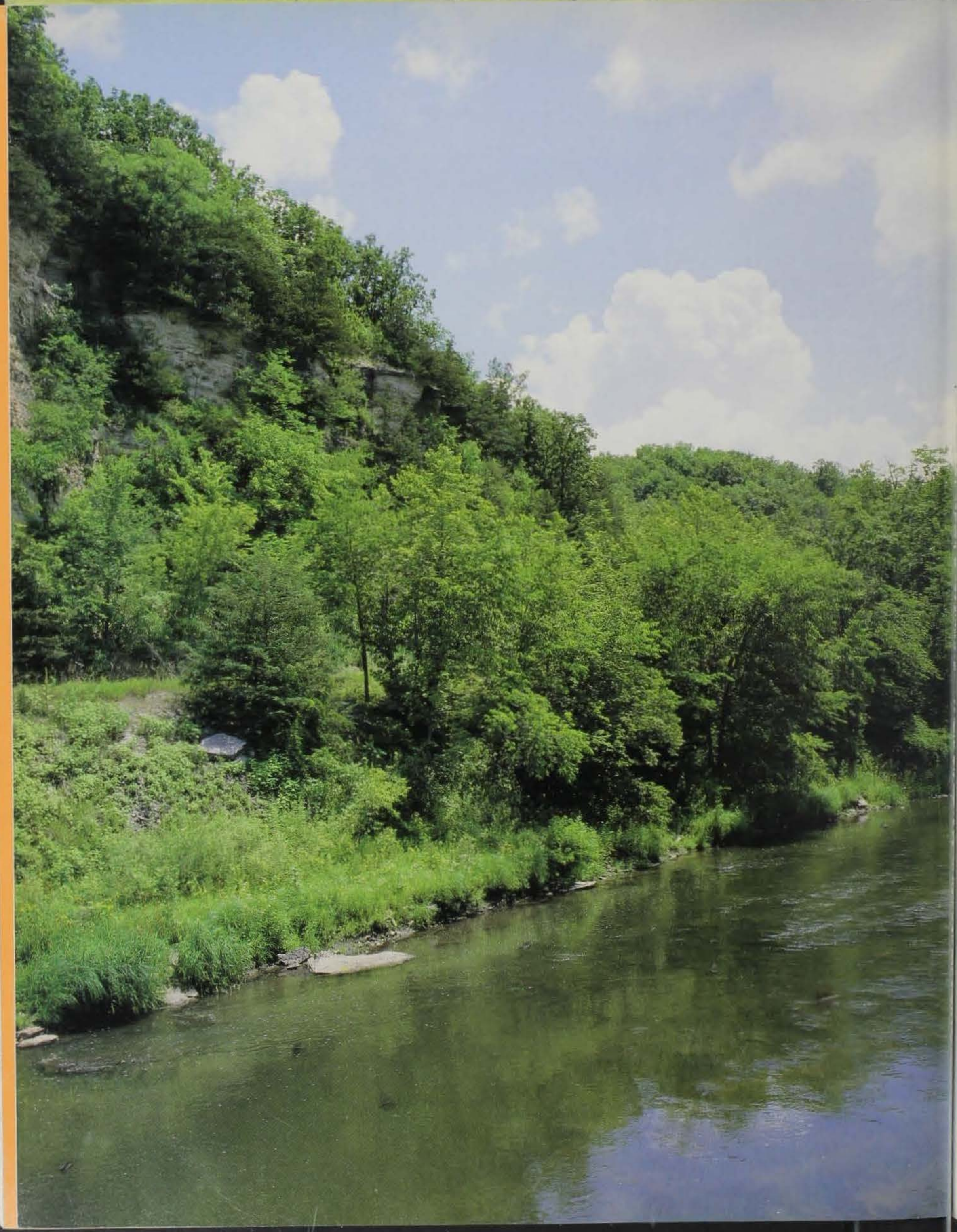
RON JOHNSON

These fish and wildlife restoration funds are important to the protection, enhancement and development of natural resources and facilities for Iowa recreationists. Fisheries federal aid funds are used to develop new fishing lakes, acquire public fishing accesses, construct fishing piers and jetties, install aeration systems in lakes to prevent winter fishkill, and a host of other activities that ultimately provide angling opportunities for Iowans. Likewise, the loss of the wildlife federal aid funds would impact our ability to provide quality wildlife management and recreation areas for Iowa hunters and trappers.

The Wallop-Breaux and Pittman-Robertson Programs were established with the clear intention of using these excise taxes to provide funds to the states for projects within the states, and were never intended to be used as a mechanism to balance the federal budget by providing funds for the Department of Interior. Please join me in urging members of Congress to take appropriate action to remove these proposed caps from the administration's budget. These proposed caps pose serious threats to funding for state fish and wildlife management programs, and consequently the future of our fish and wildlife resources.



Larry J. Wilson, Director
Iowa Department of Natural Resources



Catfishing on the Upper Iowa

A Scenic Setting

by Gaige Wunder

Located in the far northeast corner of the state, the Upper Iowa River is known more for its smallmouth bass and trout fishing than for channel catfish. But "ol' whiskers" is there and is every bit as fun to catch as in any traditional catfish stream in the Midwest with one big plus — the scenery is great.

Channel catfish are found in large numbers in most larger streams and lakes in the state. The species is very adaptable and prospers in all but the most deteriorated habitat. The quantities of this fish in a typical Iowa stream can boggle the mind with estimates running from as little as 500 to over 5,000 pounds of catfish per mile. These statistics show channel catfish to be an excellent choice for angling in any Iowa stream including the Upper Iowa. And because of this tremendous production, the daily and possession limits on catfish in inland streams has been increased to 15 and 30, respectively. With this in mind, let's hit the river.

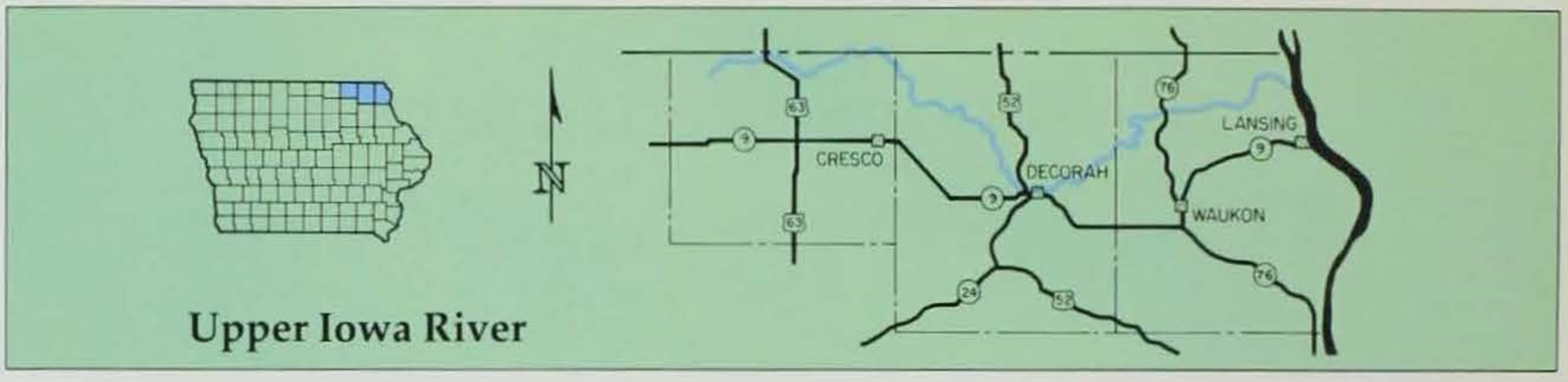
Rising in southeastern Minnesota, the Upper Iowa enters our state in Howard County near the town of Chester. The river in this area is typically fast-flowing, shallow and hard-bottomed, hardly the features of a typical Iowa catfish stream. Rather, here is found the vigorous smallmouth bass fishery for which the Upper Iowa is probably most famous. It is downstream through Winneshiek County, past Decorah, below the upper and lower dams, where the Upper Iowa finally slows and deepens, that we find real channel catfish habitat.

Access to this lower river segment is more difficult than in the upper sections. A majority of the surrounding landscape is private property and not open for public access without permission from the landowner. Much of the floodplain is narrow, the valley walls often rising three to four hundred feet from the streambed. It is pretty but makes access on foot close to impossible.

KEN FORMANEK

The answer, of course, is to fish by canoe, allowing the angler a leisurely pace and a pause at every nook and cranny where the catfish might be hiding. A good second choice would be to opt for a pair of hip boots or tennis shoes and to wade the river near bridge sites or on one of the public access areas along these river segments. However, wading does not have the potential to be found in fishing from a canoe and can result in a trespass violation. A few spots to check out for wading include the public access areas at the lower dam, the mouth of Canoe Creek or at Iverson Bridge. Access for a canoe

With hundreds, even thousands, of pounds of catfish per mile of river in Iowa, a float down most any stream will prove successful. But a trip down the Upper Iowa River in northeast Iowa offers a little more.



Upper Iowa River

is also available at these points and at the remaining bridge sites through the counties. A private access area is available just above Highway 76 north of Waukon and offers a good take-out point and such amenities as camping and canoe rental.

Many tried-and-true catfish angling techniques are perfectly applicable to the Upper Iowa and should not be ignored simply because the scenery or travel mode is different.

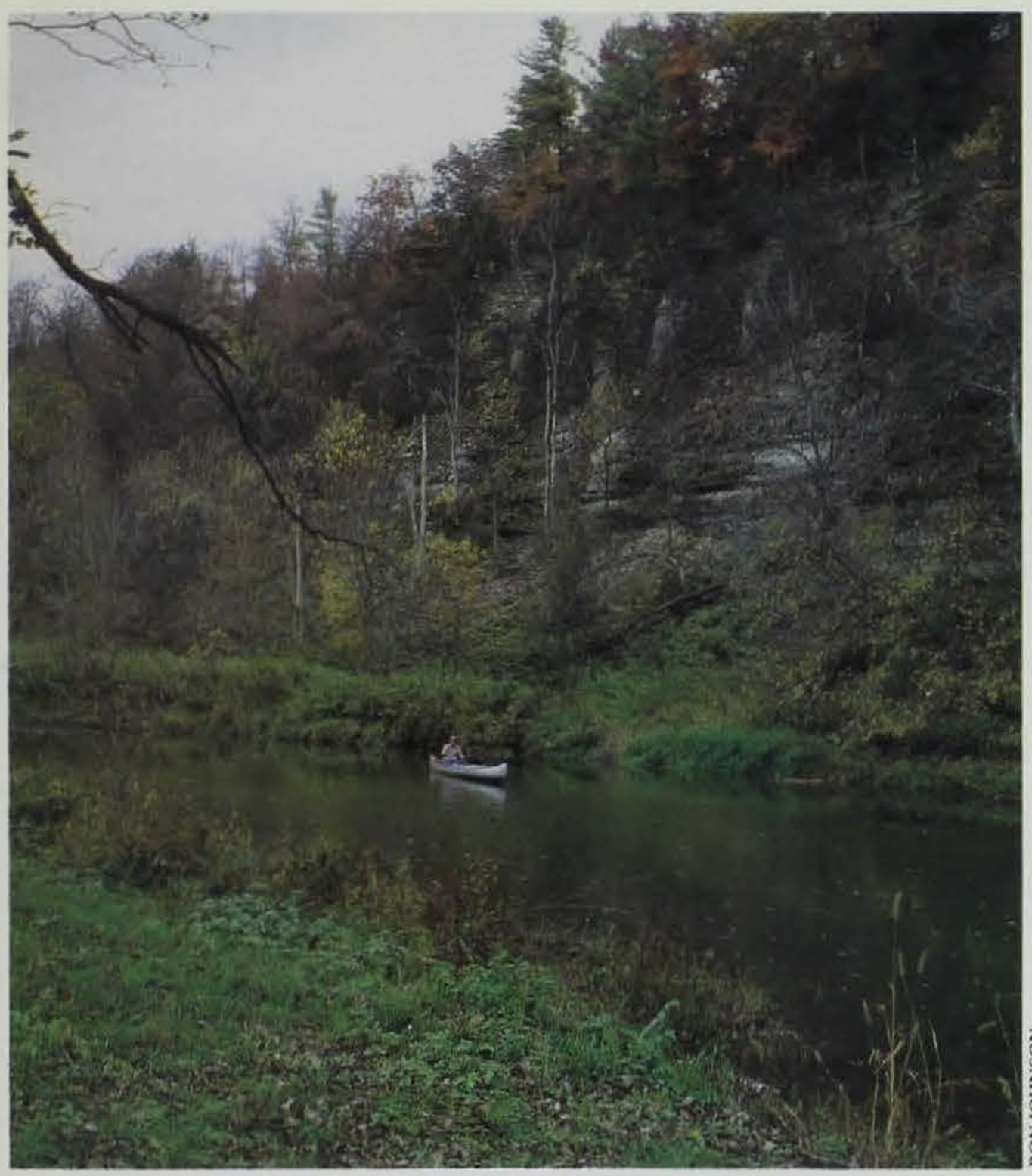
KEN FORMANEK

The channel catfish is a very efficient predator in this river, and it will eat almost anything — animal or vegetable, dead or alive. Because the fish's potential dinner smells a little and looks like it might have been a day or two since it last moved does not mean the catfish will hesitate for one second before it inhales the morsel. The catfish is one of many fish species that uses both its sense of smell and taste to locate a meal. In fact, the smellier and tastier the meal, the easier it is for the catfish to locate it. This is doubly important for the angler since the catfish feeds most often in low light conditions where his sense of sight cannot be used to locate the bait. We will use this fact to our advantage when we bait up.

Most channel catfish taken from the Upper Iowa are from 14 to 22 inches long. This size cat will feed mainly on fish and, to a lesser extent, on other organic items, both animal and vegetable. Water temperature plays a role in bait selection and is very important in the Upper Iowa where it is usually slower to rise than in warmer Iowa streams. During these periods when the water temperature is less than 60°F and the catfish are primarily scavengers, partially spoiled fish or sour mussels (freshwater clams) are best. Later in the season when the water warms to 70°F and above, most anglers will add prepared stink baits, congealed blood, frogs, mice, crayfish, grasshoppers, cheese, cut fish and even soap to their arsenal for the catfish.

Channel cats in the Upper Iowa are respectable in size, but you will not encounter the "tackle busters" found in larger, deeper rivers in the state. Therefore, the tackle choices should be sturdy but not intimidating. We want to sample the catfish but still have fun doing it. Any

KEN FORMANEK



RON JOHNSON

combination of spinning or bait-casting tackle of medium heft, with 6- to 12-pound test line will be adequate. With short casts, this tackle will present the bait and still have the backbone to set the hook or pull out of small snags.

Terminal tackle should include single or treble bait-holder hooks with small slip sinkers on the line to hold the bait low but not restrict the fish from picking it up. Some anglers add a small float near the bait to hold it up off the bottom and prevent it from being knocked off by rocks. Check your hooks often for sharpness, as the rocky river bottom will quickly dull them. A small landing net is good insurance, and do not forget a stringer to fill. There is a 12-inch size limit for small-mouth bass on the Upper Iowa, so do not forget to immediately release the smaller ones back to the water. This may require cutting a line rather than trying to remove a deep hook.

Choosing a spot to fish and bait presentation go hand-in-hand on the Upper Iowa. Channel catfish like deep, dark waters during the day, but will venture out during the twilight hours. Channel boundaries along the edges of faster-moving water are excellent choices. Fish can pick up food items rolling along the stream bottom and yet stay out of the faster current. Another good bet on this river is below riffle areas in the moderate depths just above a deep hole. Any of the traditional catfish haunts such as fallen trees and eddies below rocks or other stream obstructions should not be passed up. Whichever you choose, the bait should be presented carefully to avoid noise and water disruption. If you are in a canoe, keep things quiet. A couple of small carpet pieces underfoot helps quiet that dropped sinker. Fish the stream bottom with a loose but attentive line. You want the catfish to have sufficient time to pick up the bait but not steal it. Stay awake and be prepared to set the hook — it's easy to daydream on this river.

The answer is to fish by canoe, allowing the angler a leisurely pace and a pause at every nook and cranny where catfish might be hiding... Late May to late September is best for channel catfishing on the Upper Iowa.

Late May to late September is best for channel catfishing on the Upper Iowa. The fish are most active, river water levels are relatively stable, and the scenery is quite outstanding during this time. High water levels can curtail catfishing in the Upper Iowa, particularly in May and June, but these high flows are usually of short duration. Check with one of the area DNR facilities if you plan to come from a significant distance and are concerned about local conditions. You may also want to pick up an *Iowa Trout Fishing Guide* which will serve as a handy map while you are challenging Iowa's scenic catfish stream.

Gaige Wunder is a fisheries research biologist located in Decorah.

Moss
The Invisible Plant?

Story and photos by Allan J. Bertelsen

Mosses are some of the most inconspicuous, little known, misunderstood and ignored members of the plant kingdom. They are often overlooked and taken for granted. Mosses are short, small and usually concealed under the cover of larger plants. Often, mosses escape our notice because they blend in so well with all the other greenery of spring and summer. They seem invisible.

However, these unseen plants deserve more attention than they get. They are in a world by themselves, survivors from the past. Mosses are special plants that play an important role in the environment.

The plants are ancient, with ancestors dating back more than 300 million years. They are mostly terrestrial, but some are aquatic. They frequent slopes and stream banks hidden from the sun. Mosses occur on soil, tree trunks and rocks. They are usually associated with shade and moisture. Drought can cause mosses to become shriveled, brown and almost dead in appearance, but many recover and bounce back after a rain. And although some mosses are resistant to considerable drought, all require moisture for growth and reproduction.

Mosses are considered lower plants in the plant kingdom. Mosses have no flowers or seeds, but rather reproduce by spores. They have simple stems and leaves. They are less advanced, on the evolutionary scale, because they have no vascular system to transport minerals, nutrients and water to different parts of the plant. This is why mosses grow close to the ground as they cannot transport food and water to any significant height. They also lack any kind of strong, internal structure to support a tall plant.

Broom moss

The mosses have few modern economic or commercial uses. In the past, mosses were used to make brushes and door mats. Some were made into ropes and blankets or for stuffing pillows and mattresses. Because of their absorbency, they were used as bandages, lamp wicks, and as a caulking material between wood planks. The American Indians would grind moss into a paste and apply it as a poultice to treat burns and bruises.

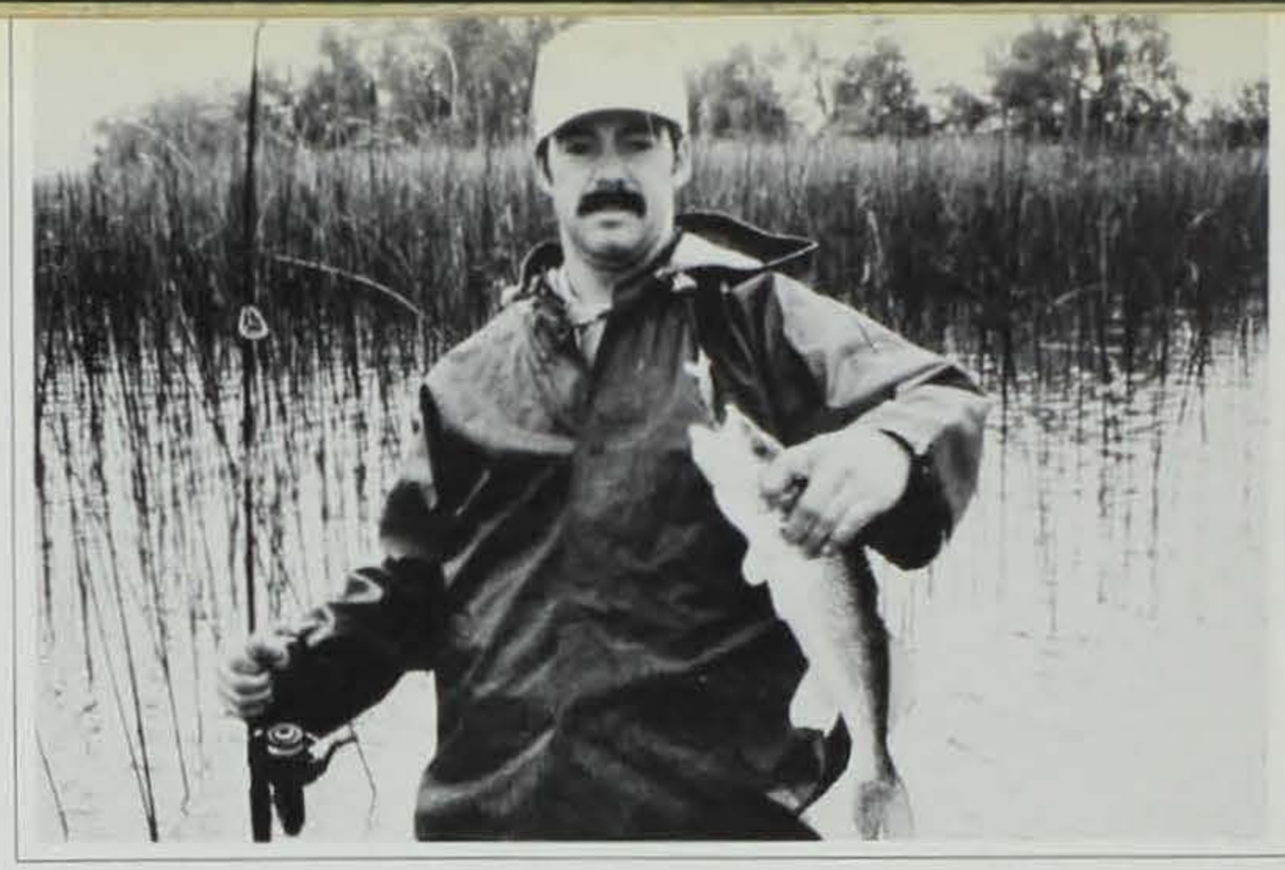
Today, the major use of moss is in floral arrangements and holiday decorations. The most well-known moss is *Sphagnum*, a genus not common in Iowa. It is used for packing fruits and vegetables and is mixed with potting soil to hold water. In Ireland it is used as a fuel in the form of a low-grade coal known as peat.

Mosses have also been proven useful in the insect and animal worlds. Some birds and small mammals incorporate moss into their nests. Mosses are homes for many small organisms, such as rotifers, nematodes, amoebae and flies, and provide a shelter and camouflage from predators. Some predators, such as aphids, fly larvae, caterpillars, grasshoppers, slugs, snails and mites use the moss as a hunting ground.

Mosses are unique plants that are often neglected because they do not grab our attention. They are very adaptable plants that have stood the test of time, and their perseverance is a tribute to their existence. They have established themselves in nature's design and will be around for a long time to come. The next time you are in the woods, stop and take a closer look at the mosses. They may be short, small and hard to see, but they are not invisible.

Allan J. Bertelsen is the park attendant at Springbrook State Park.

Moss is an ancient plant that dates back more than 300 million years. It has been used for such items as bandages and lamp wicks and has been made into ropes and blankets. Today, the most popular uses of moss is in floral arrangements and holiday decorations. Two species commonly found in Iowa include the Juniper moss (above) and the cushion moss (left).



DNR PHOTO

Where the Fish Are

WEEDS

by Jim Wahl

Fish, like all animals, require food and shelter in order to survive. Many aquatic habitats provide these essential requirements, but none are more important than vegetation. Aquatic vegetation, or "weeds," are frequently cursed by swimmers, boaters and even anglers, but the knowledgeable angler has learned to utilize weeds to their advantage.

The four major types of aquatic plants include: algae, free-floating, submergent and emergent. They all provide food and cover; however, some are more useful to fish than others. Anglers should learn which types are productive for different species of fish at certain times of the year and direct their efforts accordingly.

Let's take a closer look at the role vegetation plays as a food source for fish. Weeds attract a large variety of aquatic insects, crustaceans and invertebrates that utilize the plant for attachment and cover. Baitfish and panfish move into the vegetation in search of these small organisms for food. Hiding within the weeds are predatory fish which ambush unsuspecting minnows and panfish. Thus, the food chain is complete, with the exception of the ultimate predators -- people -- waiting to catch the aggressive fish with rod and reel.

Vegetation also provides shelter for fish. A study recently completed on Spirit Lake, by Mike Bryan from Iowa State University revealed a much higher diversity of young sportfish were found in vegetated areas compared to nonvegetated. The importance of vegetation as escape cover for these fish within the natural lakes of northwest and north-central Iowa cannot be stressed enough. Granted, there are times when excessive vegetation can result in stunted fish populations because prey are not readily available to predators. This problem most frequently occurs in small ponds and artificial lakes and can be improved with grass carp stockings or chemical treatment.

AL WINSOR

Cover may also come in the form of shade or cooler water temperatures. The water temperatures in weeds may be as much as 5 to 10 degrees cooler than elsewhere in the shallows. This is particularly important during the summer months when fish seek out cooler water. I can remember as a youngster, while fishing on Spirit Lake for walleye, we always headed for the deepest portion of the lake during the heat of the summer. That was until an ultrasonic tracking study conducted by state fisheries biologists showed many walleye were in shallow

AL WINSOR

water covered by weeds. It makes sense now, they had the best of both worlds — a cool environment and an abundant food supply.

At this point, hopefully I have you convinced that vegetation is beneficial to the lake or stream you fish. But you are still frustrated. How do you catch fish out of the weeds?

No single group of anglers have perfected the technique of fishing weeds better than the bass angler. This has probably developed out of necessity because of the strong preference bass have for weedy habitat. Areas to look for bass in shallow weeds are along distinct edges and pockets. Bass prefer edges over a thick solid mass of weeds. Do not overlook the inside edge of a weed bed. These areas may hold as many bass as the outside edge. In deep water, largemouth will school along the weedline and around points of weeds that extend out farther than the rest of the weedline.

There are a large variety of lures that will catch bass in the weeds, but they must be weedless. Texas-rigged plastic worms, spinner baits, weedless spoons, buzz baits, poppers and weedguard jigs are among the most popular and effective for bass. Surface plugs can be fabricated to be more weedless by cutting off the leading hook from each treble.

Most bass anglers prefer to use a stiff rod with fairly heavy line, 12- to 17-pound test, to muscle bass out of the weeds. Once a fish is hooked, hold the rod tip up and keep pressure on the fish. This will force the head up and does not allow the fish to dive deep into heavy cover.

Again, if you are a walleye angler, do not overlook the weeds. The old adage that walleyes are only caught over hard, clean substrates just does not hold true. Largemouth bass anglers can testify to that, having pulled numerous walleyes from weed beds with spinner baits or crank baits.

Not all weeds will attract walleye. Broadleaf weeds, frequently known to anglers as cabbage, are among the best, particularly when they are located in or near deep water. Walleye will move into these weeds during the summer, when large schools of young-of-the-year fish are also utilizing the weeds for cover.

The easiest approach for fishing the weeds for walleye is by trolling or casting along the edge. A variety of plugs (to go deeper, use a larger "lipped" plug) or a slip sinker rig will work fine for this approach. Stay as close to the weeds as possible without continually hanging up.

When the fish are buried in the middle of the weeds, fishing is more difficult, but not impossible. A slip-bobber rig is a good option when walleyes are in heavy cover. Fish in pockets near the bottom or adjust the float so you are fishing just above the tops of the weeds. Walleyes will frequently come up out of cover for the bait. A floating rig can also be used in weeds by trolling at a slow speed and keeping the bait above the weed tops.

Walleyes will move into shallow emergent vegetation, such as bulrush, during low light conditions. Fishing the edge or pockets within the rush beds can be extremely effective. Shallow-running plugs or jigs are good producers, but you better be able to pinpoint cast because there is not much room for error.

Weeds can also be prime fishing spots for panfish, as well as predatory fish. Bluegills and crappies are frequently taken from or near vegetation throughout the open water season. Look for spawning panfish near emergent weeds. Bulrushes grow primarily on sandy bottoms, and most panfish prefer to nest on this type of hard bottom.

Following the spring and early summer spawning period, submerged or floating weeds offer optimum panfish habitat. Much the same approach as described earlier can be used for panfish — fishing irregularities, edges and pockets. Tackle and equipment, however, are different. Make use of lightweight gear. A small float and night crawler or leech is an excellent bait for sunfish, while a similar rig tipped with a small minnow is irresistible to crappies. Artificial jigs (1/32 to 1/64 ounce for sunfish and 1/16 to 1/32 ounce for crappies) will also work if live bait is not available.

Obviously, there are other species of fish, most notably northern pike and muskellunge, that show a strong association for vegetation. Regardless of the species, learning to take advantage of fish within the weeds will mean more fish in the boat. It will not always be the easiest fishing; and no matter what the technique or tackle, removing bits of weeds from your hook is a constant battle. Give fishing the weeds a try this year — I think you will find the rewards will far outweigh the inconveniences.

Jim Wahl is a fisheries management biologist located at Clear Lake.

The Hazards Facing Hardwoods

by Roy Hatcher

DNR PHOTO

JERRY LEONARD

DNR PHOTO

Pictured from top to bottom are examples of an anthracnose-afflicted sycamore, tent caterpillars and yellow dieback.

According to the U.S. Forest Service surveys, Iowa loses an estimated 26,000 board feet of timber annually to diseases, weather and insects. With an awaremess of the possible perils facing Iowa's native timberlands, maybe we can minimize the loss of this valuable natural resource.

Disease Damage

Probably the two most important hardwood diseases that have made an impact on the forest cover in Iowa have been oak wilt and Dutch elm disease. We have had oak wilt since the mid-1930s and Dutch elm disease since the mid-1950s. Both of these are wilt diseases that begin to show dieback in the crown of the trees, usually in mid- to late summer. Death can occur within six to eight weeks in both oaks and elms, depending on which species is involved. Although there are many symptoms that indicate the presence of the disease, laboratory culture is needed to definitely identify these diseases.

Another disease starting to show up in the forest cover is affecting ash trees. It is called ash yellows and can be fatal to the tree. Yellow dieback of the branches is one symptom of this disease. It is very difficult to diagnose and there is no known cure for it. There are also many other types of diebacks affecting our major hardwoods -- oak, maple, butternut and walnut. Diebacks result from a variety of causes including site location and stress brought on by drought or other weather conditions.

Another common disease is anthracnose, which is a fungus affecting a variety of our native hardwood trees. It results from excess rains in the spring of the year. Oaks, maples, ashes, sycamores, walnuts and poplars are among the many trees affected. Anthracnose usually causes premature leaf drop. However, since it usually occurs early in the growing season, many trees will re-leaf and not be killed. Repeated years of defoliation will reduce the tree's vigor and leave it susceptible to other pest problems.

There are many other diseases found in the woodlands, such as stem cankers, root rots, leaf spots and leaf wilts.

Insect Damage

A large number of insects found in Iowa woodlands feed on native trees. Some are leaf feeders and others are stem borers. Others do not directly injure the tree, but due to their feeding activity can transmit diseases which kill the tree. Two good examples are Dutch elm disease and oak wilt.

At the present time, we do not have what would be considered a major insect problem that is killing our Iowa native woodlands. However, we do have a potential problem with an insect called the gypsy moth. This insect is a defoliator in its larval stage. This pest will eat the foliage of most any tree, but prefers oak. This insect has been

migrating from the East Coast since 1933. The gypsy moth has been in Iowa since 1973. However, until 1987 the male moth was the only stage and sex caught. In 1987, an egg mass of the gypsy moth was found in addition to several male moths in Clinton, Iowa. An infestation is established when two or more life stages of the insect are found; therefore, Iowa has had its first infestation. In the spring of 1988 the larval stage was found in this same area, and in the summer, additional male moths were caught. We will most likely continue to find the gypsy moth in Iowa. It is a definite threat to Iowa's native woodlands where oak is a major species and control measures are being taken this year.

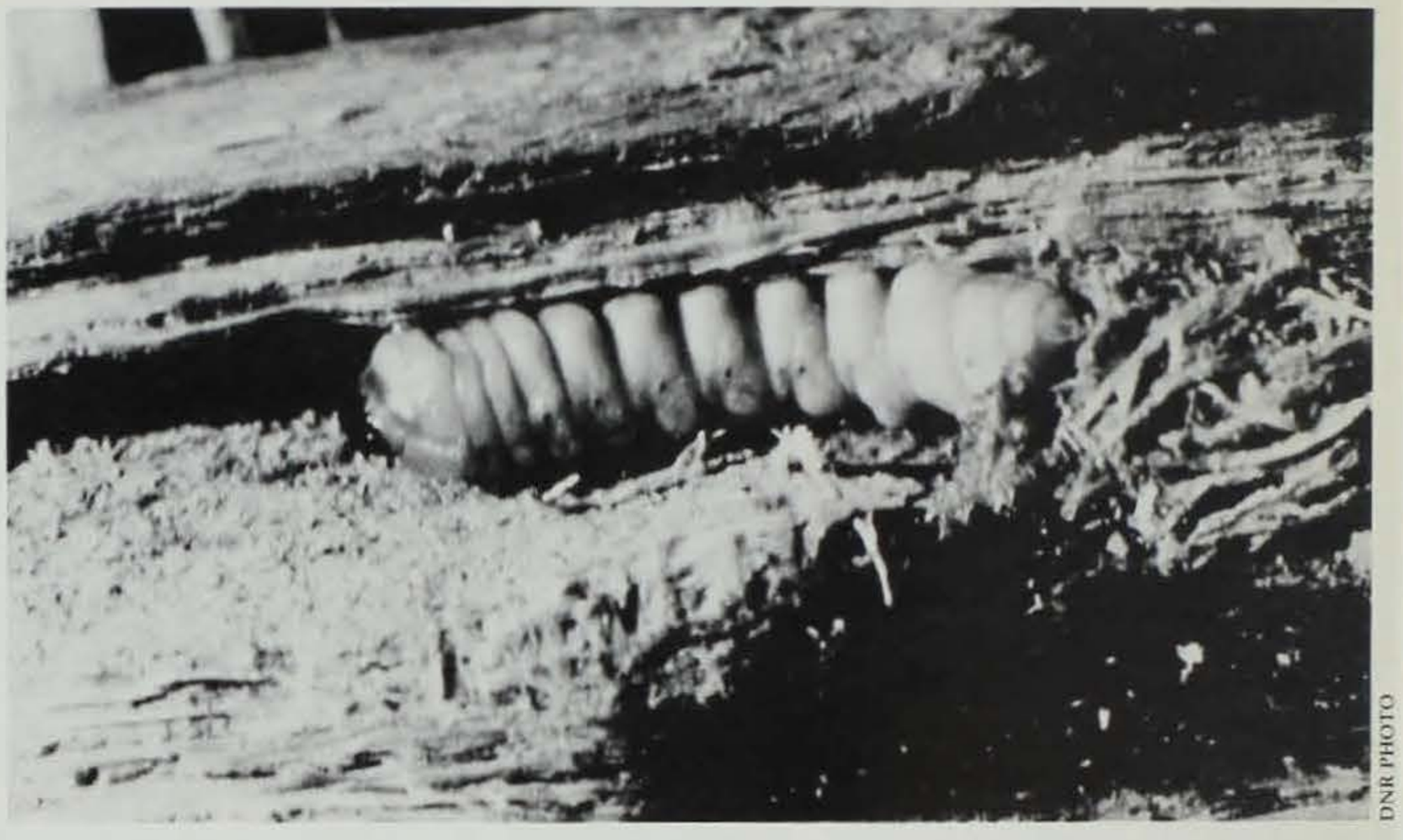
There are several other hardwood defoliators commonly found in Iowa. The spring and fall cankerworm is quite common. The larval stage ("inchworms") skeletonizes new leaves of host trees. The preferred host trees are apple and elm but stands of ash, hickory, maple, basswood, boxelder, cherry and oak have been severly defoli-

DNR PHOTO

Gypsy moth larvae, left and herbicide damage, below.

Humans are responsible for several kinds of damage to the forest resources in Iowa. Probably most notable is chemical damage through the misuse of herbicides.

DNR PHOTO



DNR PHOTO

Oak wood borer

ated. Both insect species are similar except for their overwintering stages; fall cankerworms overwinter as adults and eggs, while spring cankerworms overwinter as pupae. Tree mortality may occur after three consecutive years of defoliation.

The eastern tent caterpillar is commonly found in Iowa every spring. It is quite noticeable from the webbing produced on the trees. The preferred host trees are wild cherry and apple trees, but the insect may also attack other forest and fruit trees. The damage is mostly aesthetic rather than fatal.

The fall webworm, which is quite noticeable in the fall of the year, attacks primarily ash, hickory, walnut and oak. Because defoliation occurs late in the year, the insect does not cause permanent damage or death.

Several kinds of wood borers attack the hardwood forests of Iowa. Borers will usually move into trees weakened by other stress factors such as drought and poor growing conditions. The damage reduces the value of the timber log quality. The red and white oak borers and two-lined chestnut borers are commonly found in the oak species in Iowa. Death can occur when trees are severely attacked.

Air Pollution

Several air pollutants can injure trees. Oxidants, sulfur oxides and fluorides are the most common. Most of the oxidants resulting from use of internal combustion engines originate in urban areas, but the wind may carry them to remote rural areas. Lightning may create ozone. Sulfur oxides, fluorides and

. . . domestic animals, such as cattle, hogs and horses can do extensive damage to a native woodland by destroying the protective ground cover and understory necessary to prevent erosion problems.

DNR PHOTO

some particulates may come from various manufacturing plants.

Oxidant injury to hardwood trees is distributed uniformly. A mottled or blotched appearance and bronzing or shiny undersurfaces on some leaves are typical symptoms. Damage from salts, fluoride and sulfur dioxides is normally confined to sharply defined areas. In the case of sulfur dioxide, injury is usually between the veins of leaves. For some salts and fluoride, injury occurs along the leaf margins.

The susceptibility of trees to air pollutants may vary within tree species depending upon genetic and environmental factors. Some hardwood species susceptible to sulfur dioxide are elm, apple and Lombardy poplar. Those sensitive to ozone are ash, aspen, honey locust, white oak, pin oak and sycamore.

Animal Damage

A variety of animals can damage or destroy hardwoods in both seedling plantations and established stands of timber. Deer, rabbits, pocket gophers, mice, birds and squirrels are the most common of the wild animals. However, domestic animals, such as cattle, hogs and horses, can do extensive damage to a native woodland by destroying the protective ground cover and understory necessary to prevent erosion problems.

Weather Damage

Many factors of weather can cause damage to the hardwood forests, including drought, hail, frost, wind, winter injury and scorch. Leaf scorch results when a tree loses more water through transpiration than it takes in through the roots. All hardwood trees are susceptible, but maples and oaks are affected more often than other species. Scorch symptoms vary from browning along leaf margins or veins to wilting and browning of the entire leaf.

Human Damage

Humans are responsible for several kinds of damage to forest resources in Iowa. Probably most notable is chemical damage through the misuse of herbicides. The most common symptom of herbicide injury is the curling, cupping and wilting of the leaves. The problem occurs with use of the wrong mixture, wind drift or run-off from adjacent areas.

The application of salt in the winter for snow and ice removal causes damage as well. Some hardwood species highly susceptible to salt damage are sugar maple, cottonwood, aspen, basswood and black walnut.

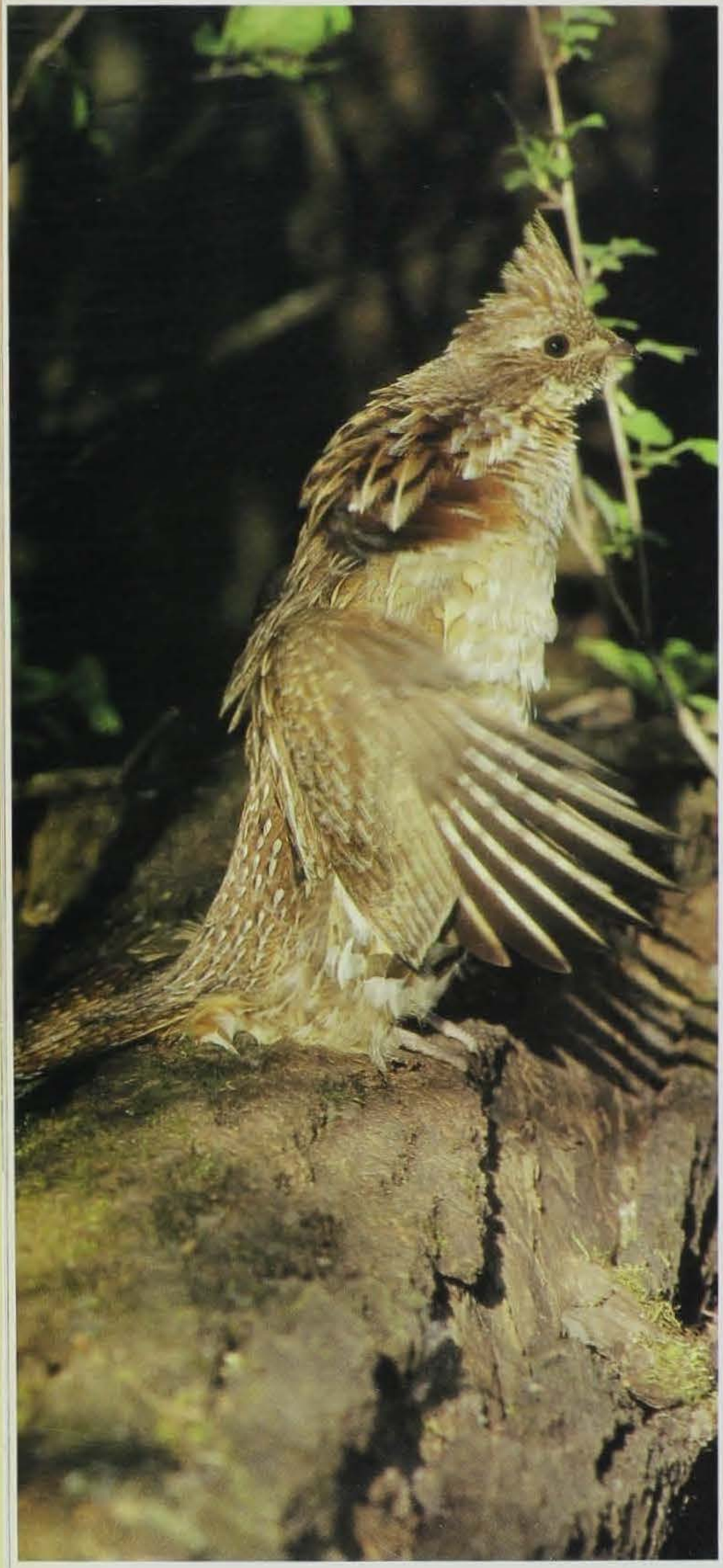
The misuse of fire can destroy the new seedling and sapling crop of trees, as well as destroy the duff litter which helps protect the soil from erosion. If a fire gets too hot, it can also kill existing pole- and saw timber-sized trees each year.

These are just a few of the common hazards facing Iowa's woodlands. For further information on specific pest problems, contact a local district forester or county extension agent. They can answer questions and give on-site assistance.

Roy Hatcher is the department's protection forester located in Ames.

DNR PHOTO

Fall webworms on a walnut (above). Bark damage, possibly from deer (left).



IOWA'S LITTLE DRUMMER

Story and photos
by Lowell Washburn

There are many ways we mark the arrival of spring — the first flock of geese, the sighting of a robin, or perhaps the date when the ice finally melts from our favorite fishing hole.

But for those who are fortunate enough to live near the woodlands of Iowa's rugged northeastern corner, the change of seasons is marked by the sound of one of nature's most amazing rituals. That phenomenon is the spring drumming of the ruffed grouse.

By the time the steep hillsides are free of snow, male grouse will have established the territories where they will spend the remainder of their lives. It is from within these areas that the birds will select their drumming logs. And from atop these sites, Iowa's "Little Drummer" will announce that spring is here.

Perching upright and at right angles to his log, the grouse leans back against his half-fanned tail and pumps his wings in three or four well-spaced beats. Each beat produces a unique, muffled sound. The tempo quickens until the wings beat back and forth in a blur too rapid for the human eye to follow. The result is a long hollow roll akin to that of a distant drum.

A trout fishing friend once aptly described the sound as the heartbeat of the forest. Others have compared the drumming to the sound of an old-time John Deere tractor pulling a heavy load uphill. It is a point well taken, for another friend, who upon hearing the sound for the very first time, *did* believe it was a tractor. But, however a person chooses to describe it, one thing is certain — once heard, the throbbing beat is never forgotten.

Drumming sites may actually be logs, or they may be stumps, boulders, or even a discarded five-gallon pail. Once the territories are established, an individual bird

may select several logs from which to drum. But although the grouse may utilize a half-dozen different locations, most of the activity will center around a favorite log.

Ruffed grouse seem to sense exactly which vantage points will allow their drumming to carry the greatest distances. Logs that are situated in particularly desirable locations may be used by several successive generations of birds. I knew one such log in Clayton County that was so well used it sported an area some nine inches in diameter that had the look and feel of wood that had endured several lengthy sessions with a power sander. In addition to being smooth as glass, the ancient drumming post also exhibited an obvious depression as the result of countless hours of abrasion from the feet and feathers of what must have been a long lineage of drummers. With the exception of this single small area, the remainder of the log was undisturbed and bore a covering of rotting bark and moss. Unfortunately, this monument to "grousedom" was destroyed by natural forces some time during the winter of 1987.

Grouse drumming has a dual purpose, designed to both defend the territory and to attract females. Once the sound has attracted a female of the species, the male displays his finery by puffing his dark neck ruffs, lowering his wings, and fanning his magnificent barred tail. The cock then struts back and forth atop the log like some bantam-sized gobbler.

But spring drumming may attract more than females, and predators such as coyotes, foxes or goshawks are quick to key on the sound.

Grouse are nervous birds throughout the year, but during the spring they are doubly so, and observing them is profoundly difficult. To photograph drumming grouse requires the use of a portable blind, plenty of coffee and ample patience. But the opportunity to watch these birds conduct their marvelous spring ritual from a distance of mere feet makes the reward well worth the effort.

A Secret Source of Free Gasoline

Or How Outrageous Headlines Can Make You Read This

by R. Runge

Everybody knows when you need gasoline you drive to the service station and buy some. No big deal. But did you ever wonder where the service station got the gasoline, or where it came from before that? You have probably seen a tank truck delivering gasoline to a service station and figured that there is a large distributor somewhere and you are right.

Iowa is served by the Williams Pipeline Company, who has several terminals located throughout Iowa. This company manages a distribution pipeline which comes underground all the way from Tulsa. From here other pipelines run to Minneapolis and Chicago.

A variety of refiners and wholesalers use the pipeline to transport their products from Oklahoma to their customers throughout Iowa. The Williams Company receives a fee for this transportation service. At different times, the pipeline is used to transport gasoline, aviation gasoline, diesel fuel and liquid petroleum. Each shipment is picked up directly by the distributor or stored for later use.

Now let us go one step further. Where did the crude oil come from to make these products? Texas and Oklahoma are home to most of the refineries which manufacture products destined for Iowa. These companies purchase crude oil from a variety of sources. Last November for instance, the source breakdown on this oil destined for us in the Midwest was as follows:

Arab OPEC	**48,547***
Other OPEC	**20,953**
Non OPEC	**62,218**
Total Imports	*131,718*
Total U.S.	*138,696*

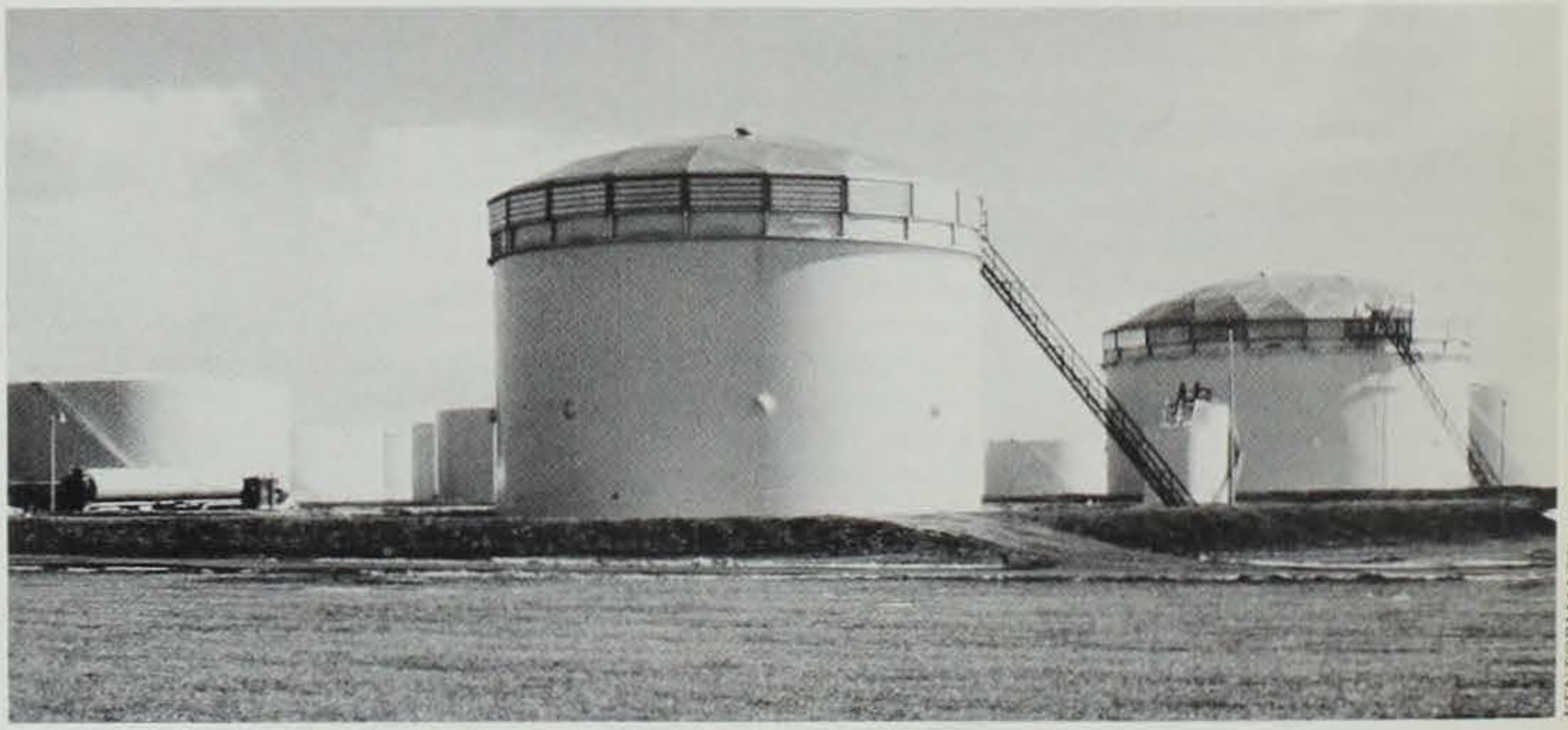
* thousands of barrels

Last November, we were still producing more than we bought from outside sources. But, early this year, total imports exceeded U.S. production for the first time in ten years.

Now let us take a look at these foreign suppliers and see who they are. Once again, these sources are for products used in the Midwest in thousands of barrels.

Arab OPEC	
Algeria	5,148
Iraq	11,493
Kuwait	6,087
Saudi Arabia	25,819
Total	*48,547*
Other OPEC	
Equador	777
Gabon	674
Indonesia	987
Nigeria	7,571
Venezula	10,944
Total	*20,953*

Williams Pipeline Company in Des Moines



KEN FORMANEK

Non OPEC	
Angola	1,952
Australia	1,860
Cameroon	734
Canada	19,051
China	1,620
Colombia	3,384
India	4,112
Malaysia	1,132
Mexico	19,662
Trinadad & Tobago	1,486
United Kingdom	2,895
U.S.S.R.	800
Yemen	2,575
Zaire	955
Total	*62,218*

So, it is conceivable that while you are reading this your son or daughter is out burning the gasoline you bought all the way from Cameroon.

As for domestic production, about 85 percent of the oil used for products consumed in the Midwest comes from Louisiana and Texas while the remaining 15 percent comes from Oklahoma, Kansas and Michigan.

Although the drilling rig in Carroll County drew a lot attention the last couple of years, no gusher of oil blackened the surrounding corn fields and Iowa remains an energy importer by a massive amount. There are a few hydro-electric generating plants and some Iowa coal, municipal solid waste and ethanol is also used, but Iowa imports 97 to 98 percent of its energy needs. Naturally we export dollars for energy, nearly $4 billion in 1986, -- not really an enviable position.

There are several ways to recoup some of this energy-related financial drain, among them more ethanol production, energy conservation and improved efficiency, and waste-burning generating plants. But we may as well face it, unless the midcontinent rift zone, which runs through Iowa, gives up its secret oil reserves or gasoline substitues are devloped, we are stuck buying our gasoline and oil from somewhere else.

I do not have any hard feelings toward Kuwait, Yemen or even Kansas for that matter, so I guess I will keep on buying gasoline and the pipeline will keep on bringing it up here. I just wish they would wash my windshield like they used to, or maybe hand out a free set of glasses or a balloon for the kids.

R. Runge is an information specialist for the department and is located in Des Moines.

KEN FORMANEK

DNR PHOTO

Oil Spill Costs Iowans $11 Million

The aftershocks of the oil spill in Valdez, Alaska, will cost Iowa consumers an extra $11 million in gasoline and diesel fuel costs, according to Department of Natural Resources officials.

"Even though Iowa does not receive any Alaskan oil, the tightening of gasoline supplies on the West Coast and related market speculation combined with increases in the world price of crude oil has driven the price of gasoline and diesel fuel up substantially in Iowa. Increases of nine cents in the price of gasoline and four cents in the price of diesel fuel can be directly attributed to the oil spill," said Larry Dombrowski, energy analyst for the DNR.

"The Iowa economy is particularly vulnerable to petroleum price shocks," said Dombrowski. "The $11 million added expense of the oil spill to Iowa consumers will directly flow to oil companies and refiners outside of Iowa." Stronger energy prices influence all sectors of the Iowa economy. "For each penny increase in the price of gasoline and diesel fuel, Iowa consumers will pay more than $21 million per year," said Dombrowski. "There are very few commodities like petroleum, where a small rise in prices will have such an adverse effect on our economy."

The rise in petroleum prices has come at a critical time for Iowa farmers. With spring planting, the agricultural sector feels the full effect of higher prices. Farmers will pay approximately $8 million more for fuel this April than in April 1988.

RON JOHNSON

LOWELL WASHBURN

Catch-and-Release Fishing

A Concept Worth Using

by Lowell Washburn

I arrived at the fishing hole just in time to see a lone angler standing at the shoreline doing battle with a largemouth bass. No, on second thought, he was *playing with* rather than *battling* the fish since the bass would probably measure no more than 9 or 10 inches.

Being the sport that he was, the man had played the fish to a state of total exhaustion. Now listing on its side, the bass had ceased to challenge the fishing rod and swam in an aimless circle.

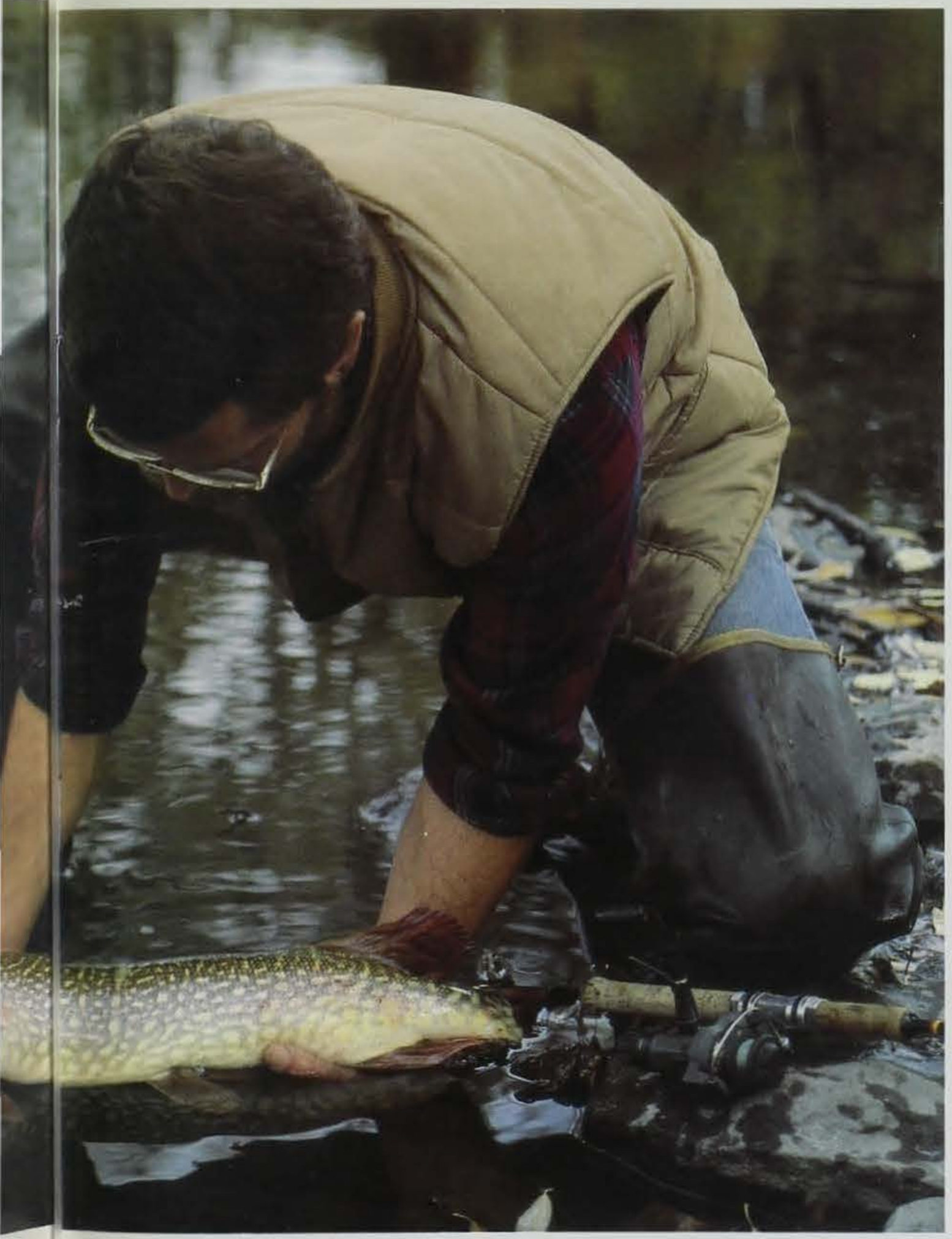
Sensing that the fun was over, the angler rapidly winched the creature to the bank. When the fish reached shore, the angler made no effort to lift it from the water. Instead he continued to crank in line, dragging the bass through an accumulation of floating debris and loose sand which soon coated the fish's scales. The end result resembled a weakly flopping corndog with fins.

The man dropped his gear and pounced on the fish like a fox on a mouse. The hook was wrestled from the fish's mouth, and it was summarily returned to the water with what could only be described as an underhand pitch. Glancing in the general direction of where the fish had splashed down, the angler called a cheery, "Maybe another day little buddy!"

Another day? Not likely for that fish. In fact, it stood about as much chance for survival as I do of becoming a millionaire.

Because of length limit restrictions, daily limits or a new sense of fishing ethic, few anglers can or should keep everything they catch. Consequently, the "live to fight another day" concept is rapidly gaining an unprecedented acceptance among Iowa's fishing fraternity. But catch-and-release is only worth doing if it is done right. The following are four basic tips to help the system be more successful.

- Never fight a fish to exhaustion. As a fish fights your tackle, it converts protein into a waste called lactic acid. This toxin is frequently



Because of length limit restrictions, daily limits or a new sense of fishing ethic, few anglers can or should keep everything they catch. Consequently, the "live to fight another day" concept is rapidly gaining an unprecedented acceptance among Iowa's fishing fraternity.

lethal, and even though a played-out fish may win off, it could die within hours due to lactic acid poisoning.

● Fish hooked in the lip or jaw have a better chance of survival than those hooked in the gullet, roof of the mouth, or tongue. Bleeding fish also have a greatly decreased chance of surviving. Release deep-hooked, undersized fish by leaving the hook in place and cutting the line. The hook will eventually dissolve.

● How a fish is handled is one of the most critical aspects of the catch-and-release system. Fish rely on water pressure to keep organs and even some muscles in place. If possible, release the fish while it is still in the water. If not, handle the fish gently.

● Freshwater fish have no immune system and are protected by a mucous membrane. When a portion of this membrane is damaged, it opens the fish to bacterial infections and other parasites. Gill filaments are also extremely fragile, and a fish should always be grasped above rather than behind the gill covers.

When dealing with predator fish such as bass, walleye, musky or trout, there is no question that catch-and-release fishing can improve the quality of the resource. As with most endeavors, common sense goes a long way. And putting forth a little extra effort can determine whether or not our "little buddy" does indeed live to fight another day.

CONSERVATION UPDATE

Roadsides For Wildlife

by Rob Bouta, roadside management specialist, Lee County Conservation Board

We are a nation of people slowly awakening to the importance of protecting our environment. Yet, in our everyday lives, we destroy what our hearts would tell our minds to protect. This we do out of tradition and convenience, and no better example exists than roadside mowing.

Roadsides that have been mowed hold little value for wildlife. Mowing removes concealing cover from bird nests, making them more detectable and increasing the chance for nest predation by species such as crows, raccoons and skunks.

We have traditionally found manicured grasslands, including roadsides, appealing to the eye. It is a tradition more deeply entrenched than Thanksgiving, for its origin dates back to ancestral England.

In those days, social status was conferred by ownership of livestock. The upper class had the most livestock — and consequently the shortest grass. Short grass, therefore, became associated with high social status. To this very day, parents instruct their children to mow the lawn before such prestigious occasions as holidays and family reunions. The tradition lives on and wildlife does not.

Biologists in Illinois and Minnesota have launched a campaign to curb roadside mowing. Their campaigns are part of a program they call "Roadsides for Wildlife." The program is the fruit of scientific research based on more than seven studies in as many Midwestern states. These studies showed that roadsides produce 25 to 50 percent of the pheasants and roughly 80 percent of the gray partridge, yet account for only one or two percent of the land. One study was conducted in Ford County, Illinois, where biologists found 90 percent of the pheasants hatched by August 1. The sad part is that 70 percent of the roadsides were mowed by July 1.

As the pheasants go, so go the meadowlarks, the dickcissels and the grasshopper sparrows. Pheasants take the spotlight because their large size and distinctive calls make them easy to count. Their requirement for grassy nesting and brood-rearing cover makes them good indicators of habitat quality. Many species too small or inconspicuous to tally in routine surveys, reside in grassland habitats along with pheasants.

Mammals, from meadow voles and ground squirrels to foxes and skunks, also make their homes in roadsides. As a boy in Minnesota, I watched a litter of red fox pups frolicking outside the culvert where they were born. The county road brought me this rare visual treat. But soon after the pups emerged from the den the adult foxed moved the litter to a more secure location.

Some officials fear that improving roadsides for wildlife will jeopardize the safety of motorists. Studies in Illinois and North Dakota, however, failed to detect a difference in the number of roadkills along mowed and unmowed roadsides. Biologists point to surrounding land use and time of year as the main factors influencing roadkill numbers.

White-tailed deer, creating the most damage to highway motorists, are generally wary of wide open spaces. They usually cross roads near heavy cover like timber or marshes. Deer roadkills occur most frequently during the fall, while the bucks are in rut and during twilight hours, when deer move between feeding and resting areas. Studies show right of way management will not change deer movement patterns.

Pheasants may cause serious damage if they strike against a windshield. But in most cases, pheasants are already airborne when they enter the road right of way and they usually fly above the level of passenger cars.

I have nothing against

Biologists estimate that 80 percent of the gray (Hungarian) partridge are produced in roadsides. A pheasant had stopped to dump an egg in this gray partridge nest.

mowing roadsides for reasons of traffic safety. Mowing the shoulder and the fore-slope near the road can help improve driving visibility and may reduce snow accumulation on the road surface. The Iowa Department of Transportation maintains a policy of mowing 15 feet back from the shoulder each fall to reduce snow accumulation on highways. Too often though, habits and tradition enter in, and that 15-foot mark moves back to the fence.

Some folks may argue that roadsides are no place for wildlife. Yet, wildlife warms our hearts and brings smiles to the faces of our children. A study conducted by the U.S. Fish and Wildlife Service and the Bureau of the Census brought the facts home. This 1980 National Survey of Fishing, Hunting and Wildlife-Associated Recreation told us that the number of Midwesterners who participate in wildlife-related recreation is greater than anywhere else in the nation.

Despite wildlife interests, we set aside few of the 35.8 million acres in Iowa for wildlife. The Iowa Department of Natural Resources and all of Iowa's county conservation boards manage only 314,000 acres, less than one percent of Iowa's total acres. Iowa's roadsides cover about 564,000 acres — more land than the state and counties currently manage for wildlife resource benefits. Under optimum conditions with densities of one to four nests per acre, Iowa roadsides could support more than two million nesting birds annually.

In the future, roadsides may help bridge the gap between localized islands of habitat. The alternative would entail restricting wildlife management to isolated preserves, saving a fragmented legacy that includes only the species capable of adapting to habitat remnants. Aldo Leopold, the celebrated father of wildlife management, born and raised in Burlington, Iowa, once wrote: ". . . relegating grizzlies to Alaska is like relegating happiness to heaven; one may never get there." The same notion now applies to wildlife on developed landscapes. Relegating wildlife to preserves will detach the resource from our daily lives, and wildlife species will continue to vanish from the earth forever.

A few simple guidelines can help convert roadsides to produce wildlife habitat. Delaying mowing until August 1 will allow most bird nests to hatch. Leaving grass at least 10 inches tall when mowing during the fall will ensure early spring nesting cover for many species. Realizing the potential roadsides hold for wildlife will help ensure wildlife observation opportunities for future generations.

June Is Rivers Month

Iowa is blessed with many beautiful rivers that enhance the quality of life for Iowans. The importance of Iowa's rivers can be seen through the numerous programs, issues and actions the state is taking to protect them. Governor Terry Branstad has proclaimed June 1989 as Iowa Rivers Month. This is the eighth year the value of rivers has been officially recognized in Iowa and across the nation. Proclaiming June as Rivers Month coincides with American Rivers Month where river-related activities and celebrations are held across the United States, bringing the importance of rivers to the forefront.

During the month, the Office of the Governor, the Department of Natural Resources, the City of Boone and the Boone County Conservation Board will cosponsor the "Governor's Invitational Canoe Trip" on the Des Moines River. The Governor's Canoe Trip gives Iowa's decision-makers at the state, county and municipal levels the opportunity to personally experience the scenic and recreational qualities Iowa's rivers provide.

Many county conservation boards, cities and organizations are sponsoring river-oriented events around the state in celebration of Rivers Month. For more information on Rivers Month and to find out what activities are taking place in your area, contact your county conservation board or Tom Anderson, Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034, (515)281-8673.

Enter Potential Record Fish In "Big Fish Registry"

Anglers are reminded to enter any large fish or potential record fish caught in Iowa in the Department of Natural Resources' "Big Fish Records Registry." Fish meeting minimum weight or length requirements are eligible for entry, and anglers will receive a certificate and shoulder patch for each fish entered.

Extra care should be given to possible new state record fish. "Lack of knowledge about the state records program often spells the difference between a new record and just another big fish," said Marion Conover, fisheries management supervisor for the DNR. "Sometimes several hours or even days go by between the time a fish is caught and the time it's officially weighed. In some cases, this doesn't make much difference, but under certain conditions, a fish will lose a substantial amount of weight."

The official rules for submitting potential record fish and large fish are as follows:

- The fish must have been legally caught in Iowa's public fishing waters.
- New all-time record fish must be examined and verified by DNR personnel.
- One witness must attest to the length or weight of the fish to the nearest ounce on scales legal for trade. Length is measured from the tip of the snout to the tip of the tail (total length).

If there is some doubt in species identification, the angler should contact the nearest DNR fisheries representative in the area for verification.

An entry blank, found in the 1989 Iowa Fishing Regulations brochure, should be filled out and mailed with a color slide or photo to Fish Records, Iowa Department of Natural Resources, Wallace State Office Building, Des Moines, Iowa 50319-0034.

The top 10 fish, caught or caught and released, of each species as well as all-time records will be listed in a spring issue of the *Iowa CONSERVATIONIST* magazine.

Fish meeting minimum weight or length requirements are eligible for entry in the DNR's big fish awards program. Anglers will receive a shoulder patch and certificate for each eligible fish.

Free Fishing Days, June 9-11

For the third consecutive year, sport fishing license requirements have been waived for residents of Iowa on Friday, Saturday and Sunday, June 9-11. This three-day period of free fishing has been set aside by the Department of Natural Resources in recognition of both National and State Fishing Week, June 5-11, 1989.

All laws regarding size limits, bag limits, etc., must be followed. Beginning anglers should familiarize themselves with the laws pertaining to sport fishing by obtaining a copy of the 1989 Iowa Fishing Regulations brochure available from all fishing license outlets such as county recorders, sporting goods stores and DNR offices.

An itchy dish: Anyone who spends time outdoors knows to steer clear of poison ivy. A brush with this plant can keep you scratching for days. But International Wildlife *magazine reports that for many animals, poison ivy is not an irritant but a nutrient. Dozens of birds like pheasant and grouse feast on the seed clusters. Bears, muskrats and cottontail rabbits prefer the plant's foliage and buds.*

Firearm Hunting Accidents Increase During 1988

Iowa hunters were involved in 46 firearm hunting accidents resulting in three deaths in 1988, up from 1987 when 35 accidents and one death occurred. The 1988 total is the highest since 1983 when 51 accidents resulted in three deaths.

According to Sonny Satre, recreational safety coordinator for the Iowa Department of Natural Resources, the increase in hunting accidents were partly a result of the record number of deer licenses issued. "Because of the high

deer population in the state, more than 112,000 licenses were issued. More hunters in the field resulted in more accidents. Because of the high number of deer and record number of any-sex licenses issued, there were more opportunities to shoot." Satre said other possible factors for the increase include more hunters per party and more inexperienced hunters.

Of the 46 accidents, 12 non-fatal and two fatal occurred while hunting deer. It was not determined what game was being hunted that resulted in the third fatality. Other game hunted and number of non-fatal accidents include: pheasant, 15; rabbit, 4; squirrel, 3; raccoon, 2; quail, turkey, predators and partridge, 1 each.

Before Iowa's hunter safety education course became mandatory in 1983, an average of nearly 100 accidents occurred each year. To date, more than 270,000 individuals have passed the course.

According to Satre, contributing factors to the firearm accidents include: victim covered by shooter swinging on game; victim out of site of shooter; victim mistaken for game; victim moved or in line of fire; loading/unloading firearm; firearm fell from insecure rest; and trigger caught on object.

Pollution fighters: In cities around the world, there is a growing appreciation for the role of trees as the guardians of fresh air. National Wildlife *magazine reports that a healthy urban forest has awesome air scrubbing potential. Researchers estimate a single acre of sycamore trees could help capture 15 tons of pollutants a year.*

Activating Activists

Anyone who wants to know how to make a difference when it comes to congressional action on environmental issues can learn how from the National Wildlife Federation's new "Activist Kit." The kit includes three booklets on how to contact congress, federal agencies and the media. It contains a complete list of congress members' addresses and phone numbers, plus the phone numbers of the key committees on which they serve. The federation created the kit in response to inquiries from NWF members and the general public on how to get involved in environmental and conservation policy. The kit costs $5.95, and also gives details on how to become a member of the federation's national activist network, the Resource Conservation Alliance. To order the kit, write National Wildlife Federation, 1400 Sixteenth Street, N.W., Washington, D.C. 20036-2266.

Simply recovering the print run of one Sunday edition of the New York Times *and recycling the paper would leave 75,000 trees standing.*

Classroom Corner

by Robert P. Rye

Reptiles are a group of animals that are often misunderstood. They do not fit into the classic group of warm, fuzzy, or furry animals. Reptiles are very special in that they supply a form of chemical-free rodent control. How much do you know about reptiles?

1. Which reptiles are found farthest from the equator?
   a) alligators b) lizards c) snakes d) turtles

2. Which reptiles in the United States have the greatest number of species?
   a) alligators b) lizards c) snakes d) turtles

3. Which reptiles lack teeth?
   a) alligators b) lizards c) snakes d) turtles

4. Which reptiles loose their tails and grow new ones?
   a) alligators b) lizards c) snakes d) turtles

5. Lizards differ from salamanders and have . . .
   a) claws or toenails. b) long bodies. c) no poison glands. d) short legs.

6. Iowa's largest turtle is the . . .
   a) box turtle. b) map turtle. c) snapping turtle. d) stink pot turtle.

7. Which Iowa snake may hiss loudly, puff itself up, flatten its head and neck, and roll over and play dead?
   a) hog-nose snake b) milk snake c) red-bellied snake d) ribbon snake

8. Which is Iowa's most common snake?
   a) milk snake b) garter snake c) ring-neck snake d) red-bellied snake

9. Which reptile can destroy swimming waterfowl by pulling them under the water to drown?
   a) water snake b) snapping turtle c) mud puppy d) bullfrog

10. Which turtle has a bright yellow throat and chin?
    a) ornate box turtle b) three-toed box turtle c) Blanding's turtle d) map turtle

ANSWERS:

1. d 2. c 3. d 4. b 5. a 6. c 7. a 8. b 9. b 10. c

COUNTY CONSERVATION BOARD FEATURE

Innovative Park Developments by James Liechty

Handicapped accessible facilities have become normal operating procedures for county and state park designers. This was not the case just a few years ago. At that time there was concern about added costs required in providing special facilities.

Advocates of physically handicapped persons, however, persisted to see that the needs of handicapped people were addressed. Changes began in 1968 when the U.S. Congress provided incentives for states to address the needs of physically handicapped people by passing the Architectural Barriers Act. This legislation established a federal policy requiring that all buildings and facilities intended for public use and financed in whole or part by a federal grant or loan must be designed and constructed to ensure accessibility and useability by physically handicapped persons. Chapter 104A of the Code of Iowa outlines similar policies.

In time park professionals realized handicapped persons were indeed park users and would become frequent park users when provided with accessible facilities. Initial fears about escalating costs to design special facilities were quickly dispelled. Additional expenses, especially for newly-planned facilities where the handicapped designs could be drawn into the original construction plans, proved to be minimal or nonexistent.

One important lesson learned was that handicapped requirements forced better planning and resulted in better use of available space. This, in turn, resulted in increased usage of park facilities by all segments of the population.

For example, properly designed ramps are less obtrusive than rustic steps. Hard-surfaced trails lend themselves better to all-weather conditions and result in less long-term maintenance. Wider doors, extra square footage and handrails aid individuals of all ages and physical capabilities. These features provide easier maintenance with no significant cost increases.

What started out as a requirement dictated to apprehensive park managers has become, through experience, a self-imposed priority for most park departments. Entire parks are now designed specifically as handicapped parks or villages, benefitting, not only handicapped visitors, but other segments of our society, especially senior citizens.

A number of innovative and specialized facilities are appearing in Iowa parks. The Story County Conservation Board was one of the first county boards to design and construct a

RON JOHNSON

At Middle River County Park in Madison County, a quarter-mile, hard-surfaced trail with more than 200 feet of foot bridges was completed.

RON JOHNSON

Numerous facilities, accessible by everyone, have been constructed in Iowa parks. These projects have included an outdoor amphitheater, fishing docks and various hard-surfaced trails.

hard-surfaced trail to attract handicapped visitors to McFarland Park, north of Ames. The Story County trail ties into a number of areas within the park, including a deck extending out over the lake and an outdoor amphitheater.

A quarter-mile, hard-surfaced trail with more than 200 feet of foot bridges was completed at Middle River County Park in Madison County in 1987. In 1988, a two-level handicapped accessible shelter was constructed and tied into the existing handicapped trail system.

Cerro Gordo County Conservation Board recently completed construction of a half-mile trail system near its Lime Creek Nature Center. The trail provides numerous rest areas along the route, with shelters located at each end of the trail.

Wooden fishing docks and fish houses are becoming popular handicapped accessible facilities. Scott County Conservation Board built such a structure at West Lake Park, and Muscatine County Conservation Board recently added a similar facility at Saulsbury Park. The most elaborate facility of this type was recently completed at Swan Lake Park in Carroll County. The completely enclosed fishing dock at Swan Lake is designed to provide year-round fishing. The newest handicapped accessible fishing facility was completed by the state during major renovation at Lake Icaria in Adams County. A huge wooden fishing pier was built with fish habitat structures placed around the pier to draw fish to the site.

These facilities and many more like them are found around the state in increasing numbers. What is most encouraging is that we have only scratched the surface in creatively meeting the needs of handicapped visitors. In the future, the public will undoubtedly enjoy facilities that address the needs of visually and hearing-impaired visitors.

James Liechty is the director of the Madison County Conservation Board.

CALENDAR

JUNE 4

Folk Arts in the Forest Festival. Hands-on activities for visitors include horse-drawn wagons, woodcarving and shooting muzzleloaders. Also, live music and craft exhibits. East Lake Park. For more information, contact John Klein, Clarke County Conservation Board, Courthouse, Osceola, Iowa 50213, (515)342-3960.

JUNE 9-10-11

Lewis and Clark Festival. Lewis and Clark State Park is the location for early 1800s trades, foods, crafts, history and games. Also, demonstrations of the keelboat, "Discovery." Park user fee not required. For more information, contact Ron Williams, Lewis and Clark State Park, Onawa, Iowa 51040, (712)423-2829.

JUNE 10-17

State Park Week. Special events, including interpretive activities, fishing contests, movies and drawings for prizes at individual state parks. Also, pay for six nights of camping and receive the seventh night free. Register at any state park to win 30 days of free camping (20 names will be drawn). Park user fee is waived in all state parks, June 10-11. For more information, contact individual state parks.

JUNE 17

Great Annual Springbrook Bike Ride. A 40-mile bike ride beginning and ending at Springbrook State Park, Guthrie County. For more information, contact David Hebrank, Springbrook State Park, Route 1, Box 142, Guthrie Center, Iowa 50115, (515)747-3591.

Taking Stock In Giant Canada Geese

by James L. Hansen

DNR PHOTO

Because of restoration efforts, giant Canada geese are once again producing young in Iowa.

The children of an Iowa farm family discovered a pair of Canada geese nesting on an island in a farm pond. They had never seen a goose on the pond before, and now they had something new for "show and tell" at school the next day . . .

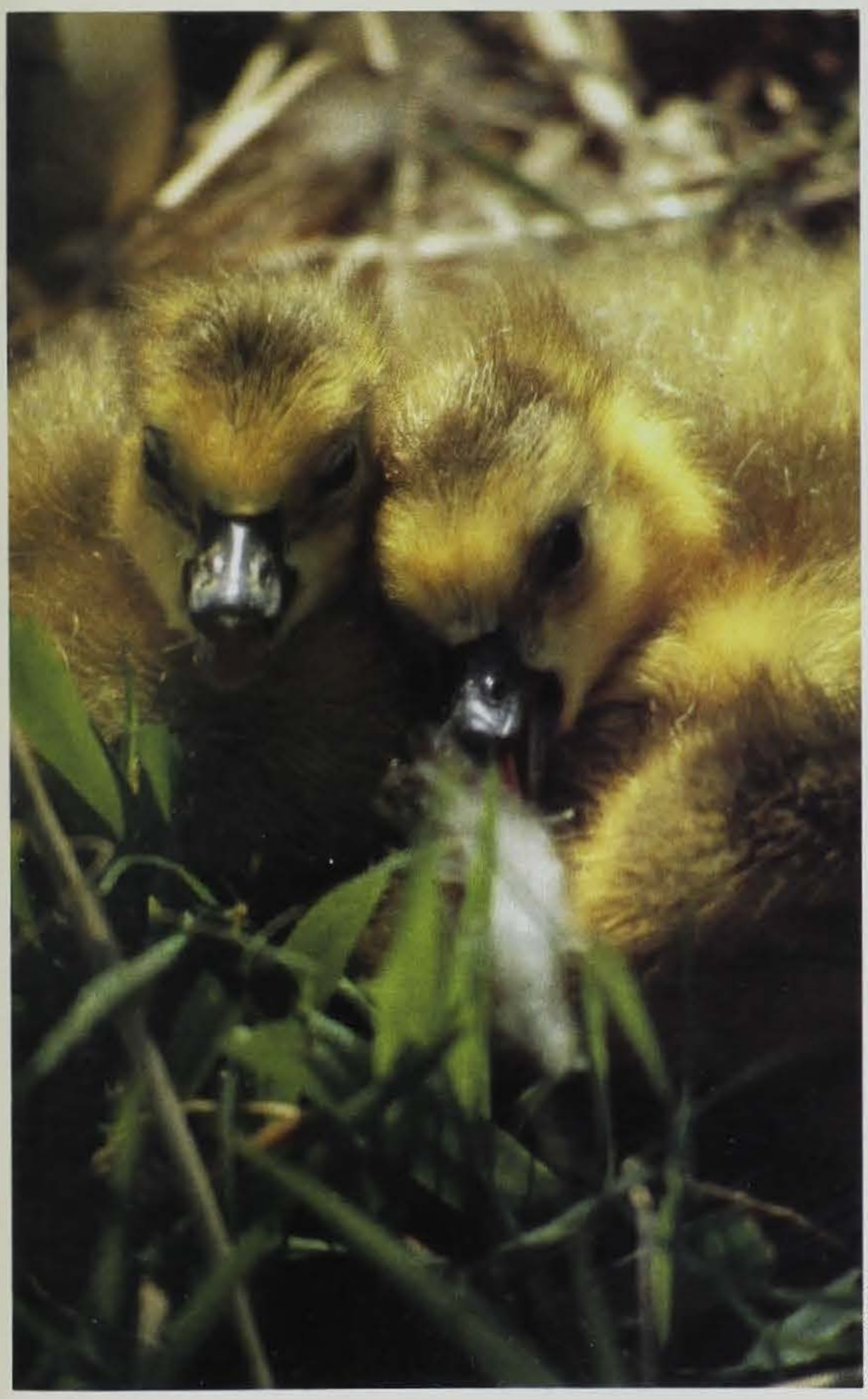
This scene is quite possible in Iowa today, but would not have occurred 20 years ago. The return of nesting giant Canada geese to Iowa and many other parts of North America is a wildlife management story. The restoration of these magnificent birds by the Iowa Department of Natural Resources is an important part of the Canada goose management program in Iowa, but it is only part of the story.

The Canada geese that are seen in Iowa are of two types: geese that nest and are raised here, or those that simply migrate through the state. Migrating and nesting geese are both considered in the DNR's Canada goose management program. Canada geese in Iowa are of several subspecies that differ in size and origin. Giant Canada geese weigh 10 to 14 pounds and may nest in Iowa or in many other areas north or south of Iowa. Medium-sized Canada geese (six to nine pounds) do not nest in Iowa, but instead nest near Hudson Bay and migrate through. These include two populations: the Eastern Prairie Population (EPP) winters mainly in Missouri, and the Mississippi Valley Population (MVP) winters mainly in southern Illinois. Still smaller Canada geese weighing only three to four pounds, the Richardson's Canada geese or "hutchies," as many hunters call them, migrate through Iowa to winter primarily in Texas.

Local Giant Canada Geese

Giant Canada geese originally nested in Iowa, but due to loss of habitat and unrestricted hunting, wild nesting Canadas no longer existed in the state by about 1907. The DNR began reestablishing giant Canadas in 1964 by acquiring flightless adult pairs and placing them in a pen at Ingham Lake in Emmet County. A Canada goose refuge of 120 square miles around Ingham provided protection for their offspring. Similar flocks were started in the early 1970s at three other northern Iowa locations: Ruthven, Spirit Lake and Rice Lake. The pen-and-refuge method was used to start new flocks from 1976 to 1981 at Rathbun Reservoir, Green Valley Lake, Bays Branch, Lake Icaria and Red Rock Reservoir. The Green Valley refuge was only left in effect for three years. In 1985, a pen with a small refuge was used to start a flock at Green Island in Jackson County. The newest pen-and-refuge area was started in 1987 at Badger Lake, Monona County, in western Iowa.

All of these Canada goose refuges were established with two purposes in mind, establishing a nesting flock of giant Canadas that would grow and spread, and attracting migrating Canada geese during the fall. Thus far, nearly all of these efforts have been successful or have at least showed promise in establishing nesting geese. The four flocks in northern Iowa each produced more



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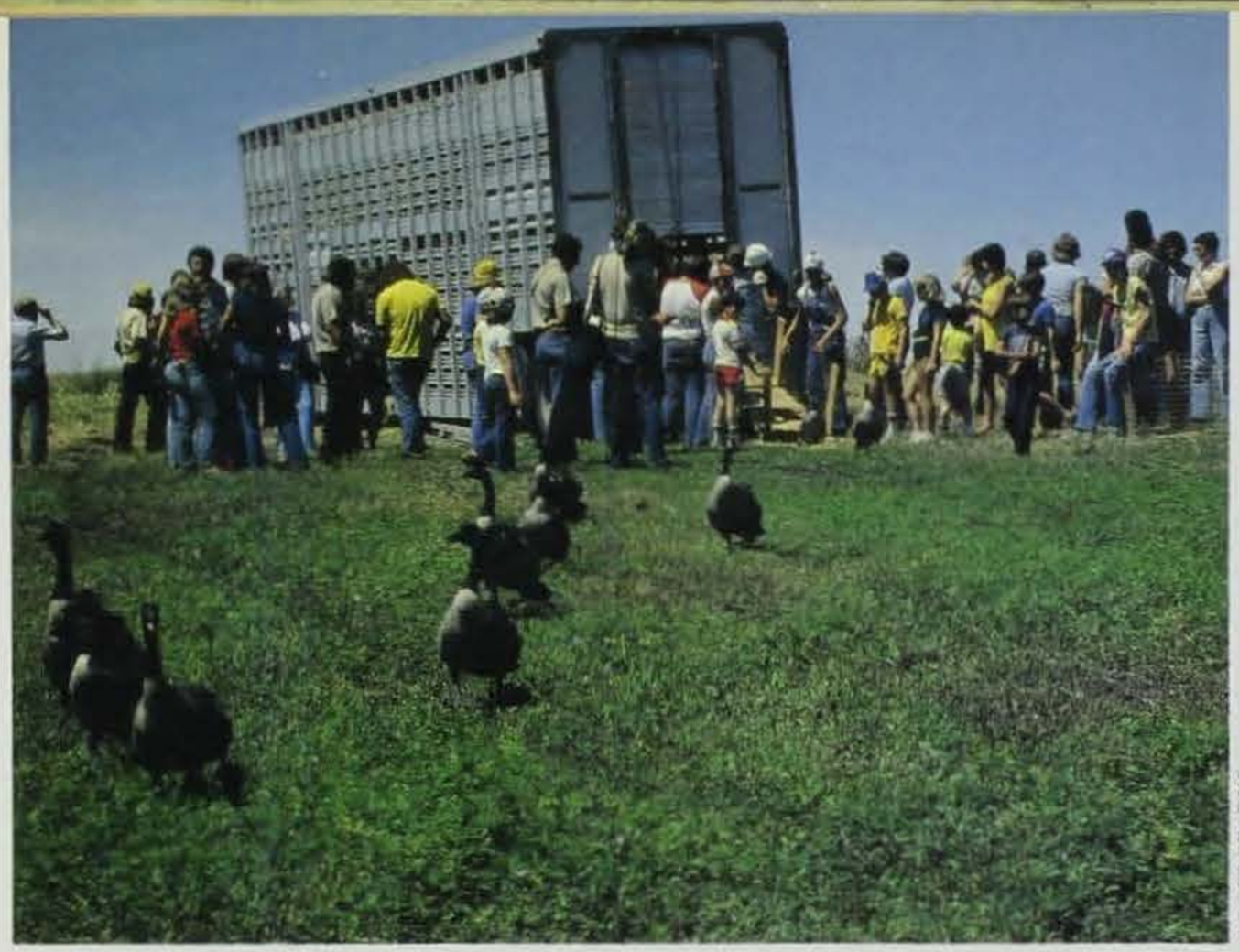
than 1,200 geese in 1988, topped by an estimated 2,300 in the Ingham Unit. The Rathbun and Bays Branch flocks each produced between 400 and 500 young in 1988.

After the success of the pen-and-refuge technique in several areas, a new, less labor-intensive method was tried beginning in 1983 at Ventura Marsh in Cerro Gordo County. Flightless goslings, with a few adults, were moved from Rice Lake to Ventura Marsh, about 75 each year for three years. The goslings become imprinted to where they learn to fly, so the females should return to or near the release site when they reach two or three years of age. Observations of nesting neck-collared geese showed that the Ventura transplant program worked as planned and the flock continues to grow.

Based on the initial success of the Ventura Marsh transplants, releases have been made at several other locations from 1985 through 1988. These include: Brown's Lake, Snyder Bend, DeSoto National Wildlife Refuge, Prairie Rose Lake, Lake Anita and Kiowa Marsh in western Iowa; Pool Slough in Allamakee County, Louisa National Wildlife Refuge, and Pool 19 of the Mississippi River near Fort Madison in eastern Iowa; and Otter Creek, Sweet Marsh and Dunbar Slough in central Iowa. In southern Iowa, geese were transplanted to Little River Reservoir in Decatur County. Since the transplants were started, more than 2,500 Canada geese have been moved to new homes. The transplants are already paying off, as nesting geese are reported in many of these areas that never had them before. Additional transplants will be scheduled in the coming years to places where unoccupied suitable habitat exists.

DNR biologists estimated that in 1988 about 10,000 giant Canada geese were raised to flight stage in Iowa. Including adults and subadults, Iowa's giant Canada flock now numbers about 19,000.

With the success of the giant Canada goose program in Iowa, there have been some complaints of crop depredation, especially in northern Iowa. This occurs primarily from May through July when adult geese take their flightless goslings from marshes and lakes to adjacent private land where they feed on young corn and soybean plants. The complaints have been successfully dealt with in a number of ways. In some cases, the DNR has purchased land from willing sellers so browsing can be provided for on public land. Fencing has been used successfully to keep geese off private land, and propane exploders have been used in other cases. In areas prone to crop depredation, nest structures are no longer used to increase goose production. Transplanting geese from "problem" areas in recent years has helped to reduce goose numbers temporarily.



ROGER SPARKS

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At Rathbun Reservoir the pen-and-refuge method was used to start nesting flocks in the late 1970s and early 1980s. In the summer of 1981 more than 2,000 Canada geese were transplanted from Toronto by semi to the reservoir. Today, Rathbun flocks produce between 400 and 500 young each year.

The problems that arise are things that can be and are being dealt with, and are indicative of the success of the program.

Migrating Canada Geese

Transplants without refuges will establish nesting flocks, but they will not attract migrants like the refuges will. The four refuges in northern Iowa, plus Rathbun and Bays Branch, all attract a few thousand Canadas in the fall. Rathbun has previously reached a peak of 12,000 Canadas; and in the fall of 1988, Rice Lake jumped to a peak of 12,600 after a previous high of only 7,000. Ingham reached 10,000 Canada geese in 1986 and 1987, and in 1988 reached a new record peak of 11,400 Canadas.

Some of Iowa's refuges do provide a significant amount of food for Canada geese. Most notable is Louisa National Wildlife Refuge which has been providing strips of corn and green browse on its uplands. Rathbun does some farming for geese on its uplands, while Red Rock raises some corn and green browse along with nearly 2,000 acres of moist-soil plants for waterfowl.

Most of the other Canada goose refuges have little in the way of state-owned uplands to provide goose food. Instead, they provide undisturbed feeding areas in the form of waste corn on private land within refuges that range in size from 17.5 to 150 square miles.

An effort has been made in recent years to identify the sources and destinations of migrant Canada geese using Iowa refuges. Canadas have been neck-collared on many areas in the flyway with individually numbered collars. DNR and U.S. Fish and Wildlife Service (USFWS) personnel have worked to read collars during the fall migration to see where the Iowa areas "fit in" in providing for the stewardship of this international resource.

Harvest Regulations

The setting of goose hunting regulations is more complex than for resident species such as pheasants or rabbits because geese are migratory. They are shared with other countries, provinces and states, and the responsibility for regulations in this country falls to the USFWS. The USFWS sets a "framework" specifying season length, bag limits, and earliest opening and closing dates, within which Iowa and other states can select their regulations.

The USFWS makes the framework decision in the case of ducks, but for Canada geese in the Mississippi Flyway, a lot of authority is given to states in the Mississippi Flyway Council. A group of states sharing a particular population of

Canada geese is allowed to recommend Canada goose regulations based on current populations, population objectives and production forecasts. The EPP Canada goose population was considered below the objective level a couple of years ago, so Iowa was forced to have a shorter season (50 days rather than 70) even though we are not a major EPP harvest state.

Within the framework, Iowa may select its season dates. We generally open our Canada goose season as early as possible to harvest local giant Canadas and to allow hunters a chance at what is often a major migration around October 1.

Harvest Management

Much of Iowa's Canada goose hunting opportunity, for both local giant Canadas and migrating Canadas, occurs near the Canada goose refuges. Most of these refuges were initially very large, up to 150 square miles, but they have been reduced in size as numbers of local and migrating Canada geese have increased. Goose harvest can be affected by the changes made in a refuge. The initial large refuge size in some cases insured there would be essentially no geese killed. That was appropriate at the time because a steady growth in goose numbers was desired.

Peak fall goose population objectives will be set for each refuge, and that objective will be considered in making any further changes in refuge boundaries. In making changes that will permit a larger Canada goose harvest around the refuges, an effort will be made to maintain a high-quality hunt that will provide an opportunity to kill a goose for a large number of people. Some type of controlled Canada goose hunting will be considered in the future on an area or two if it appears necessary to maintain quality hunting or to control the harvest.

The Future

I see a bright future for Canada geese in Iowa. Nesting giant Canadas should continue to spread to new parts of the state until essentially all suitable habitat is occupied. With the restoration program and the series of refuges, geese will continue to spread around the state, rather than concentrate in one place, as is the case in some states. This will make the geese widely available for both goose hunters and goose viewers.

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In the future, we should see even more Canada goose habitat in Iowa. More areas for nesting and migrating geese will be provided by acquisition and development under the North American Waterfowl Management Plan. Ducks Unlimited is a major partner in this effort; and in Iowa, additional funding will come from the DU Marsh program and other major donor programs, organizations such as Wetlands for Iowa and Pheasants Forever, and state and federal waterfowl stamps. Wetland restoration by the DNR and the USFWS in northern Iowa will provide additional nesting sites. Habitat losses will continue to occur in many parts of the country, but geese are not affected by these losses as much as ducks.

Iowa had a record high Canada goose harvest estimate of 17,200 in 1986. With the increased interest in Canada goose hunting, the increase in Iowa's goose production and our refuges attracting more migrant geese, Iowa's goose harvest should continue to increase.

One of the brightest spots lies in the attitudes of Iowans toward wildlife. As people discover that Canada geese are enjoyable to have around, they may care more about saving a place for Canada geese and other wildlife and follow through by supporting programs and organizations that are providing the habitat that is needed.

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James L. Hansen is a nongame biologist located at Clear Lake. Prior to his current position, he was a waterfowl research biologist for the department.