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Iowa CONSERVATIONIST

July 1986

Iowa CONSERVATIONIST

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FRONT COVER: Des Moines River, Dolliver State Park. Photo by Jerry Leonard.

BACK COVER: Fox Squirrel. Photo by Roger W. Burdette.

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Scenic Playgrounds

By Paul Kirpes

As we grow older, it seems increasingly difficult to recapture the excitement, idealism and sense of wonder we felt during our youthful playtime hours. Many Iowa parks, however, can provide us a glimpse of our youth and fill us again with a sense of wonder and excitement.

Each of Iowa's parks has tales, legends, or a history that can inspire a sense of wonder in any age group, and thus they are great for family fun, as well as economical places to spend playtime hours. Three of these state areas — Dolliver Memorial State Park, Brushy Creek Recreation Area and Woodman Hollow Wildlife Preserve — near Fort Dodge are within 15 miles of each other. The following is a focus on each of these areas, and some examples of what I found there.

Dolliver Memorial Park

To drive down into this 600-acre park is to pass through time and space. As Prairie Creek finds its way to the Des Moines River, it has uncovered the bed of an ancient river. The sandstone bluffs towering up to 100 feet above the valley floor were deposited 250 million years ago by the river.

The park is an oasis. One leaves the miles of flat rowcropped fields of north-central Iowa and enters a cool oasis through a tunnel of oak, maple and basswood trees. During the first five minutes of my visit, I saw a northern oriole, a goldfinch and a red-headed woodpecker. At the same time, dozens of sixth graders were being lead through the park and its stream by enthusiastic teachers and naturalists — teaching about tree growth, stream ecology, soil fertility and geology. The kids' expressions ranged from serious engrossment and contemplation to wild-eyed laughter.

Farther down in the park, I met several families of week-long campers, a group of fishermen, a young couple out birdwatching and a group having a family reunion.

Dolliver easily accommodates this variety of groups. The park has 42 camping units with electric hook-ups as well as flush toilets and shower facilities available for those who prefer the modern touch. There are also two four-bed family cabins that rent for \$12 per night, two group lodges which hold 70-100 people, have fireplaces, pianos and tables. These lodges are often used for company picnics, civic group meetings, weddings and reunions. In addition, hundreds of picnic tables and grills and two outdoor shelters are available, as well as a group camp — a grassy village all its own — consisting of 10 cabins with a combined total of 100 beds and its own mess hall. This group camp is often used by YMCA, church and scout groups.

Now venturing out on the trail system, I began to discover yet another aspect of the park — the quiet passing of history. I found myself on a rock in the creek in Boneyard Hollow. This narrow ravine running between rock walls was given its name by early settlers who reportedly found buffalo bones in the canyon. It is possible that the area's first inhabitants, the Woodland Indians who left several earthen mounds in the area around 1100 AD, drove herds of buffalo from the prairie over the precipice or drove them into the canyon and slaughtered them for food.

It was there on the rock that I realized I had become part of the flow of people, who, like the flow of the stream at the base of the cliff, creates an endless history.

In 1912, a family picnicking in the area found a lead tablet at the mouth of the creek in which I stood. It was inscribed in Latin. The tablet was translated and stated that it was deposited there in 1701 by Father Hennepin, a French explorer credited with discovering the Des Moines River. The tablet was a hoax, a practical joke by two local residents. The Latin grammar was bad, and Father Hennepin was a noted Latin scholar.

However, the tablet can be credited with sparking the interest that led to the area becoming a state park. Edgar Harlan, then curator of the state ar-

chives, wanted to see the site where the tablet was found and became so entranced with the beauty of the area that he contacted Dr. L. H. Pammel of the botany department of Iowa State College (now Iowa State University). His interest and that of local citizens resulted in a petition to the State Conservation Board in 1915 for the property to be purchased.

After petitions, investigations and discussions, the original 457 acres was acquired in 1920, funded by the Iowa legislature and the Jonathan P. Dolliver Memorial Fund. Jonathan Dolliver arrived in the Fort Dodge area in 1878 at the age of 21, as a young lawyer. Before his death in 1910, he was to become a U. S. Congressman and Senator, and was known as an excellent orator.

The park was officially dedicated on June 28, 1925 with a crowd of over 13,500 on hand. At the base of the bluff, a memorial plaque by noted sculptor Loreda Taft was unveiled.

The chapters have been many since the bluffs formed, and the area at their base has always been a place to play. Indians, settlers and picnickers, as well as birds, minnows, waterbugs and I have all gathered there to "play." And today, people still gather at the base to read the memorial plaque, to watch the minnows, to wade in the stream, to picnic, camp or fish, or to holler and splash water like the young boys farther down the valley. Indeed, Dolliver State Park is a place to play, to dream and to become part of the story.

Brushy Creek Recreation Area

Brushy Creek is known for several things including in its status of having the only park ranger on horseback and its attractiveness to equestrian enthusiasts. The area has been acquired over the last 20 years, and is a recreation area with a different emphasis than a state park. A controversy — whether or not to build a lake on the area — has kindled much discussion in recent years. However, pushing this aside, I focused on the diversity of habitats and things to do there today. The 4,200-acre area, located four miles east of Lehigh in Webster County, offers a year-round recreation.

Brushy's mix of fields, timberland and stream valley provide excellent opportunities for the nature lover and trail user. The area features 50 miles of equestrian and 16 miles of snowmobile trails. Cross-country skiers also find plenty of opportunity to enjoy the beauty of the area in winter.

Brushy Creek offers plenty of primitive picnicking and camping. Camping at the area is popular, although no shower facilities or electricity are available. In addition, camping facilities are available for horseback riders.

Brushy Creek, a tributary of the Des Moines River offers good fishing, as well as wading and swimming. The entire area except the campgrounds is open to public hunting. Favorite game species include pheasant, squirrel, rabbit, deer, turkey, gray partridge and quail.

Woodman Hollow Wildlife Preserve

While in the area, I stopped at Woodman Hollow, a 20-acre tract of land also along the Des Moines River.

After a short walk through a grassy corridor lined with wild roses and king birds, I slipped through a thicket of grapevines and plum trees into a shaded, white-oak woodland with a grass-carpet floor dotted with wood anemones, jack-in-the-pulpits, and gooseberry bushes.

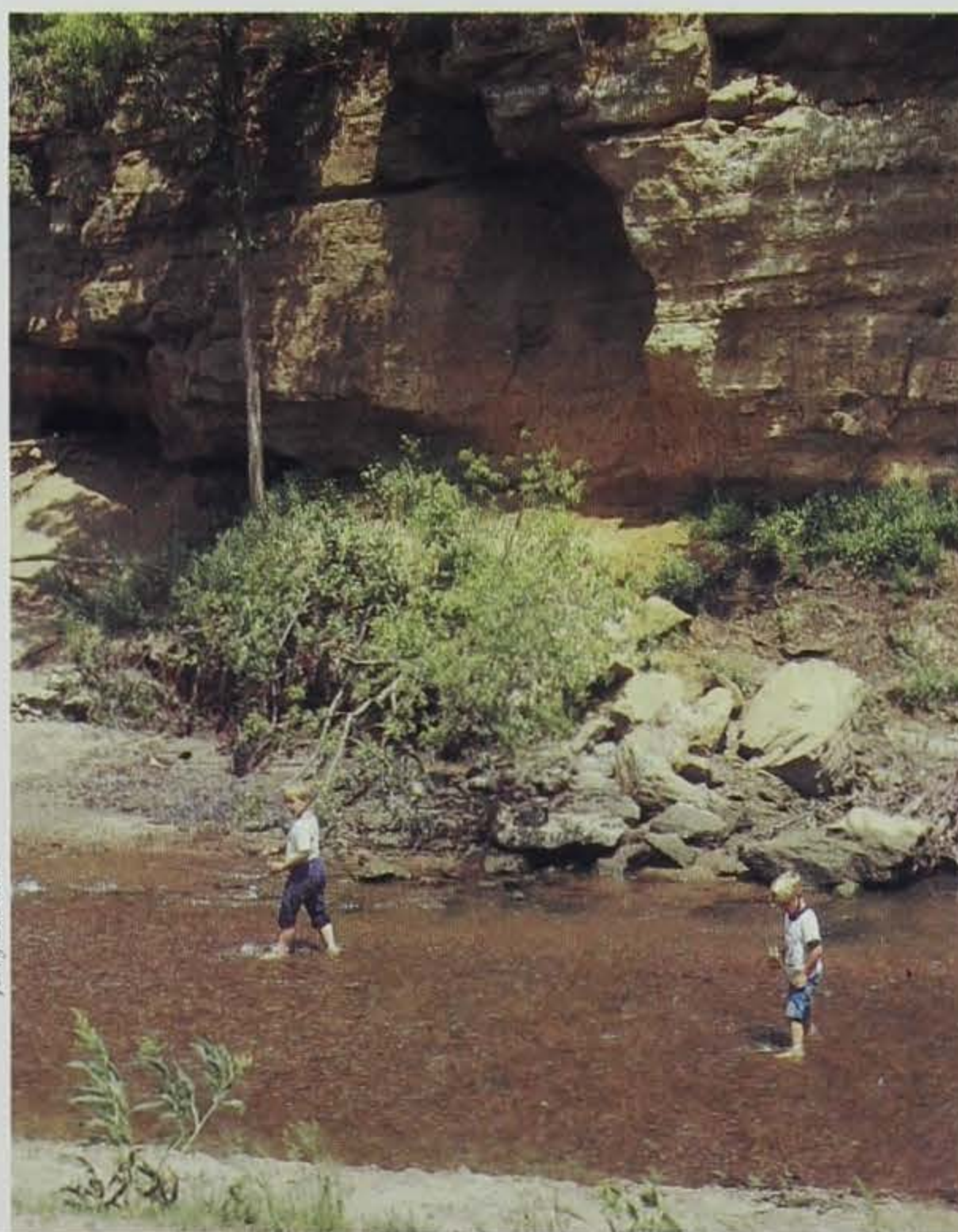
Following the quiet trail to the right into the small valley, I began to wonder whether I was discovering the woodland, or it was discovering me. From behind logs, trees and moss-covered rocks, birds, squirrels and even deer appeared. They seemed as interested in me as I was in them. I soon discovered a 12-foot waterfall, spilling into a clear, shallow pool; the cool air engulfing me with refreshing pureness on a hot summer day.

Returning to the entrance, I took the trail along the ridge and discovered several goat prairies loaded with purple coneflowers, lead plants, little bluestem, and kettles of hawks and turkey vultures overhead. The view over the Des Moines River is awesome.

At spots, the trails were steep and challenging, but well worth the trip, just like a trip to any of these three wooded wonderlands is expected to be.

Take my advice and spend at least part of your vacation this summer at a state area. Have fun playing in the park and rekindle that childlike sense of wonder these beautiful areas can offer.

Paul Kirpes is a student at Iowa State University majoring in animal ecology and political science. He is currently serving an internship with the Commission.



The waters of Dolliver State Park's Prairie Creek offer cool relief on a hot summer day.

Jerry Leonard

LONG- LEGGED WADERS

By Lowell Washburn

From his downstream vantage point, a conservation officer watched as a lone fisherman slowly stalked the river's edge. Suddenly, the angler froze and slowly lifted a slender, straw-colored spear. Poised, he patiently waited, carefully studying the waters below. Without warning he made his move, thrusting the spear downward in one fluid motion. The strike was swift, accurate and above all deadly, producing what, through binoculars, appeared to be a wildly struggling 10-inch smallmouth bass.

But whatever the fish's actual length may have been, the officer knew it would fall short of the 12-inch minimum length limit imposed on smallmouth bass on Iowa's interior streams. He also knew, of course, that the spearing of gamefish of any size is illegal.

However, despite these facts, the conservation officer was not about to issue a citation. For in this case the angler was not a human but rather one of our most magnificent bird species — the great blue heron.

In Iowa, the great blue is just one of several varieties of wading birds that are seasonal inhabitants of our state's wetland environments. And although the individual members of this interesting group may come in a wide range of shapes and sizes, they do share a number of common characteristics that allow them to survive among the watery habitats of our lakes, rivers and marshes. Among the more obvious of the wading

Lowell Washburn



David Menke



Great blue heron, above. Black-crowned night heron, right.

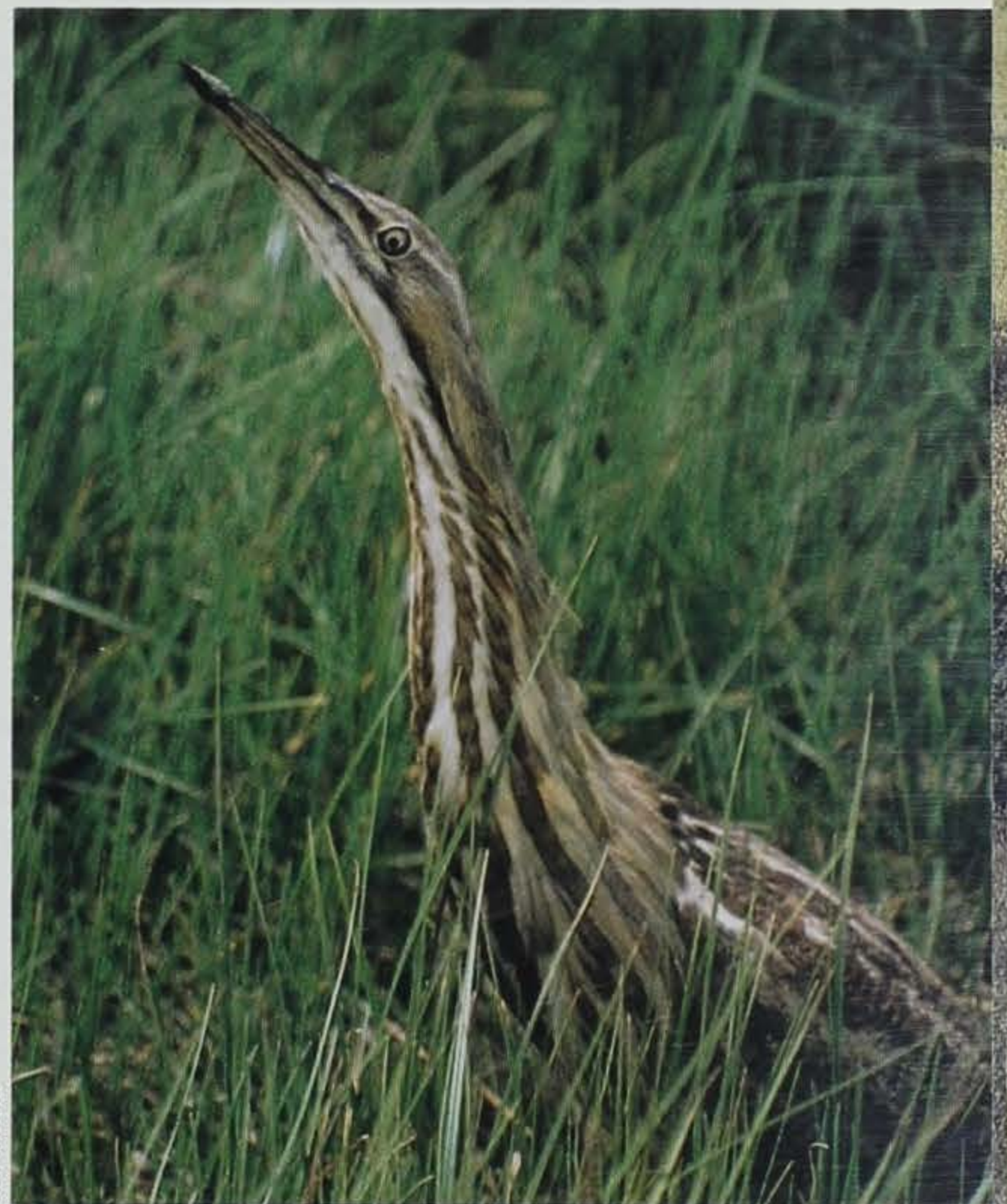


Ken Formanick

*Green heron nestlings, left.
American bittern, below.*



Lowell Washburn



Ken Varland

Although this shot was taken in Nebraska, Iowans may see cattle egret rookeries soon. Increased sightings of cattle egrets during the summer suggests that they may soon nest in Iowa.

birds' specializations are long, stick-like legs, stiletto-shaped bills and long necks.

Their long legs allow them to enter the aquatic habitats where their food, fish and frogs, live. Their limber neck and spear-like bill does the rest.

Wading birds employ a variety of strategies in the food gathering process. Some, like the great blue heron, stalk their prey. Others, like the tiny and colorful green heron, engage in a more spectacular method called canopy feeding. This tactic seems to be most successful during the warm summer months when canopy feeders locate themselves in the open

water of shallow ponds or marsh potholes. Once the wader finds what it surmises is just the right spot, it stops, arches its body, and then throws its wings forward. The result is a position similar to that of a human swimmer preparing for a dive. Motionless as a park statue, the heron waits until a nearby school of minnows, associating the bird's shadow with the security of overhead cover, makes the fatal mistake of swimming under the canopy.

Most wading birds nest in colonies commonly referred to as rookeries. The nests are large, sturdy platforms of sticks that, although sloppy in

appearance, are usually well made. During the nesting season most waders prove to be extremely vulnerable and rather intolerant of human disturbances. Too much activity can even cause adults to leave the colony which may result in chilled eggs or expose chicks to predation. As a rule, those who wish to observe rookery activities should do so at a safe distance.

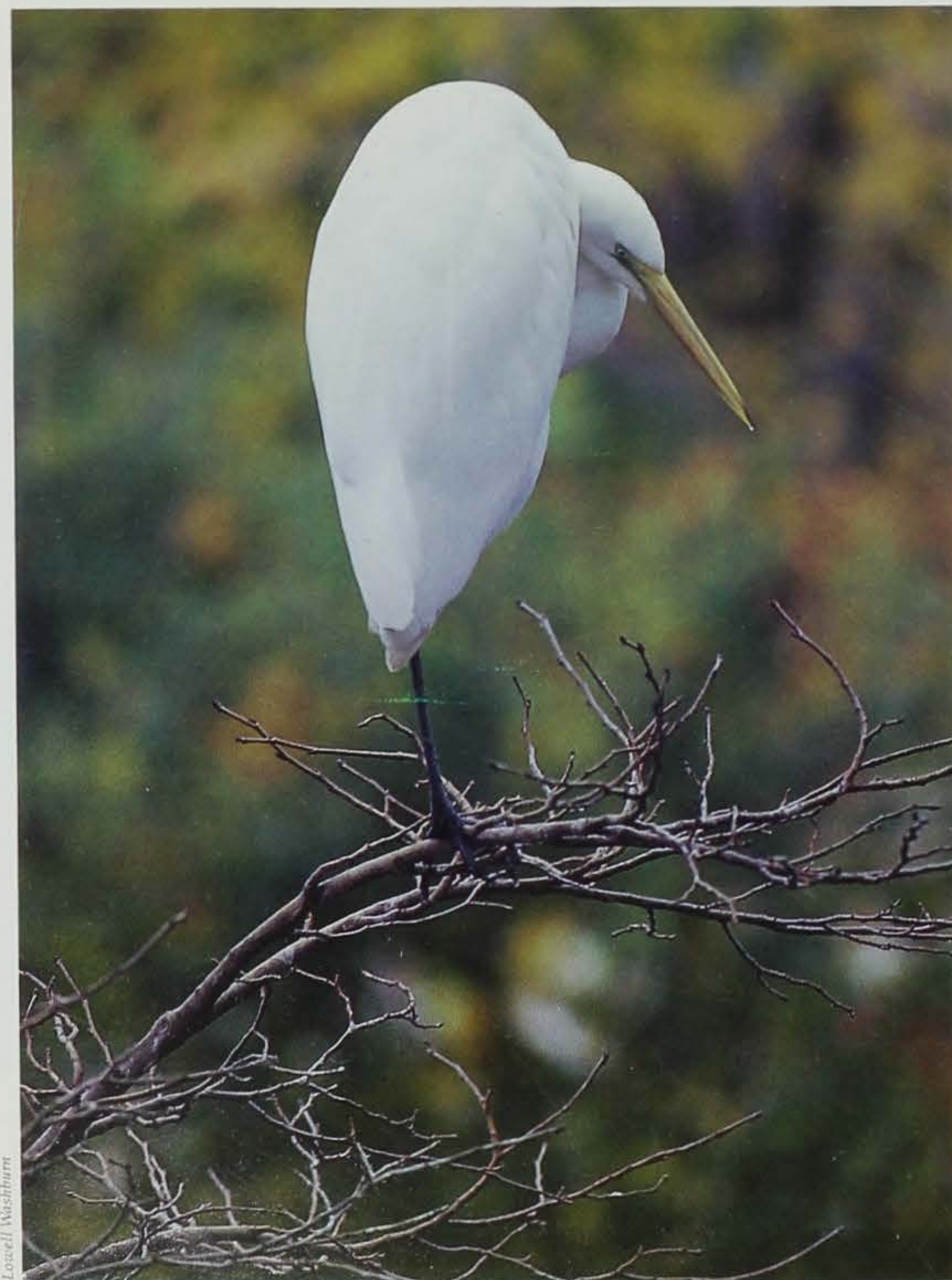
In most cases, the plumage of Iowa's wading birds is both elegant and colorful. But perhaps the most stunning of all is the great egret. Standing nearly 3 feet tall this glistening, snow white beauty is only slightly smaller than the great blue; and whether seen perched atop a snag or cleaving its way through a blue sky — the sighting of this regal creature is never to be forgotten.

Iowa marsh watchers may also encounter another snow-white wading bird which, although closely resembling the great egret in both color and shape, stands only slightly more than a foot in height. This bird is not a "baby" great egret as some folks assume, but is rather an unusual bird known as a cattle egret.

Interestingly enough, the cattle egret is an exotic species whose native home range lies on the African continent. But unlike other foreign species, such as the pheasant or starling, the cattle egret was not introduced here by man. Instead it has arrived in the U.S. through a somewhat natural and completely unaided immigration process — first flying to South America and then slowly venturing northward. Today, the bird can be found as far north as southern Canada and is still expanding its range.

In Iowa, the continued existence of all our wading birds is dependent upon some type of natural wetland. Each individual species, whether large or small, represents a unique and interesting product of these watery ecosystems. Maintaining the integrity of these wetlands must become a priority if future generations of Iowans are to enjoy viewing these magnificent fishermen.

Lowell Washburn is an information specialist located in Clear Lake. He joined the Commission in 1984.



Lowell Washburn

Great egret

My Sixty Years of Walleye Fishing

By Max Seely

Max Seely, 70, worked a number of years for the Iowa Conservation Commission at the Spirit Lake Hatchery. He retired in 1981, but still works a few weeks each spring netting walleyes for hatchery brood stock. Seely is well known among lakes-area anglers for his walleye fishing. Here are some of his thoughts.

Most of the fishermen in the Iowa Great Lakes region know me and a few wished they didn't. I caught my first walleye when I was 10 years old. I've been hooked on walleye fishing ever since.

A walleye is one of the most unpredictable fish that swims. It is able to go for a long time without food. It feeds on what is most available, including its relatives. It prefers minnows, night crawlers, leeches and frogs. I use and prefer a leadhead dressed with live bait. I've caught a lot of walleye with a straight leadhead, but I doubled my fishing when I started to use live bait on it. The big difference is the way you fish it. When fishing with a straight leadhead and you feel anything move, you try to set the hook. When you fish it tipped with live bait and you feel any resistance, you stop and wait to decide what it's doing. That's what is hard to figure out, whether it picked it up or got your bait. I believe and preach to other fishermen that that is the big difference in fishing for the walleye.

Most fishermen go by what the so-called professionals preach, which is backtrolling and drifting. The only time I resort to that is when I'm looking for good walleye fishing in a strange lake. When I locate the walleye, I get down to serious fishing, which is anchoring a boat from the back when possible. In other words, I want to be working from a fixed position.

My method includes using a good rod and spinning reel with a leadhead. I've been a rod collector all my life. I think I've had about every rod that Berkley has made. I prefer the Parametric rod in 7-foot lengths. I now have ultralights, but still prefer lengths of 6-1/2 feet and wished they

were 7 feet. The graphite rod and combo graphite and fiberglass rods are by far the best.

I prefer the 1/8-ounce leadhead. I buy blank leadheads and use shad and twister tails, also Mini-Jig tails. If I fish deeper water or have rough water, I do add split shot #6 or #7.

The reason I talk about my equipment is because I do all my fishing casting. The reason is walleye school up when feeding. What's a better way than to put your lure back in the same place you picked up the first fish? That's my big gripe about trolling or drifting. They drag your bait away from the fish before they know what's going on. If fish are feeding, trolling or drifting catches fish. When fish are feeding light, then retrieving by casting is far superior. To make my point, how can a trolling or drifting fisherman know exactly where he picked his fish up? Also, how long does it take him to get back to it? A good caster can have his limit of fish before the troller can get back to the spot, if ever. I realize that drift fishing and trolling have their places, too. First, it sells more equipment. Secondly, a boatload of people or professional guides have to fish that way. It also is the safest way to use artificial lures, such as musky plugs and spoon plugs. I have to add that a good fisherman who knows the time of year and places to use them can do wonders with lures. My favorite is the shad rappala. My prime time for fishing is when the night lights come on and when they go off, or any other time that I can get away, except for night fishing.

I find a lot of unsportsmanlike fishermen trying to get on top of the place I'm picking up my fish. I usually try to explain to them that they wouldn't do that to a person fishing on a dock or on shore. I usually get the answer, "you don't own the lake!" I try to explain to them how many acres there are in the lake. I figure if I'm there first, I have the right to fish that spot. I have one set rule — I never move in on another walleye fisherman. I'd rather pick another spot. I think good sports-



manship is what fishing is all about. One big advantage I have is that I know the fish are there. I worked with the fisheries long enough to know that a lot of fishermen figure if they can't catch them, there aren't very many in the lake, but that's not true.

Gill netting is a lot like fishing. I guess that's why I love to do it. The fish are there, but sometimes you can't catch them. The fish have to travel in the areas you have your net set. Also, you catch a small percent of the fish that are in the area. The good years at the hatchery are the years the ice goes out late. The perfect time is about the second week of April. To give you an example of this, in 1954, I worked 28 nights to try to fill the hatching jars, but we failed to do so. Also, we only had about one-fourth of the capacity that we do now, but we were using the same operation with about the same number of gill netters. When you hear people talk about all the fish we used to have, it makes you wonder. As I remember, the ice went out the first week of March. So much for the gill netting operation that year!

I also am a dedicated ice fisherman. I use artificial lures — Castmasters, Swedish Pimple and, in later years, the Jigging Rappala. I now prefer the #7 silver Jigging Rappala, without any bait. It makes you cry a little when you lose one because they are high priced, but I believe any money spent on fishing is well spent.

I hope the people who read this have as much enjoyment with the walleye as I have.



Rates Increase Last Chance For Current Subscribers To Save!

Save Up To \$2!

If you are a current subscriber to the *Iowa Conservationist*, you can take advantage of a last-chance offer. On July 1, the subscription rates for the magazine became \$6 for one year, and \$12 for three years. However, you as a current subscriber can renew BEFORE AUGUST 1, 1986, at our old rates of \$5 for one year and \$10 for three years. Just fill out one of the coupons below and mail it to us before August 1, and we will tack on the appropriate number of years to the end of your current subscription.

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More pages will be added to the new *Conservationist*. More stories and more photos will make the magazine better than ever.

While improvements cost a little more, printing and mailing charges have also continued to rise. Even so, our loyal subscribers, now totaling more than 60,000, have continued to help us cover these costs.

We hope you continue to support the *Iowa Conservationist* and take advantage of this savings as a small but special thanks from us.

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THREE-DAY FISHING LICENSE FEE

Effective July 1, 1986, the cost for a three-day fishing license will be \$5.50 for both residents and nonresidents.

Prior to July 1, the three-day licenses were issued to residents for \$4.50 and

to nonresidents for \$5.50.

To help cut printing costs, the nonresident three-day fishing licenses currently available will be issued to residents and nonresidents.

WILDLIFE OPEN HOUSE IN IOWA'S STATE PARKS

By Gale G. Goranson
Park Ranger, Yellow River State Forest

Conversion of timber to farmland and increased firewood cutting has greatly reduced the availability of natural den trees for wildlife nesting. Thus, the building artificial houses (or boxes) for cavity-nesting birds and animals is becoming an important way to help wildlife. For example, over 30 species of Iowa's birds must nest in tree cavities in addition to mammals such as raccoons, bats, red squirrels and flying squirrels who also use these cavities.

Captain Harold Wood, officer in charge of Anamosa's Luster Heights minimum-security facility, and Gale Goranson, state park ranger for the Iowa Conservation Commission at Yellow River State Forest, are working together to manufacture wildlife houses.

With Anamosa using available prison labor and the Iowa Conservation Commission providing lumber from the state forest mill, the project has been conducted at no added cost to either agen-

cy. So far, there have been over 600 wildlife houses constructed. They are being placed on various state properties. This cooperative effort is improving nesting opportunities for wildlife as well as enhancing Iowa's state parks. As for Anamosa, the experience has provided inmates with a meaningful job experience, contributed to a sense of accomplishment and improved morale.

Building nesting houses on your own can be fun and interesting. Houses must be built to certain specifications as to size, material used and diameter of the entrance hole. This information is essential when determining which species will be attracted to the house. In addition, the houses must be cleaned and cared for annually.

Plans for nesting boxes to accommodate a variety of wildlife species are available at your local library, or write the Iowa Conservation Commission, Wallace State Office building, Des Moines, Iowa 50319-0034.



1986 LEGISLATION

LARGE MOTOR RULE BEGINS JULY 1

Beginning July 1, larger outboard motors will be allowed on a number of Iowa's man-made lakes, formerly restricted to 10-horsepower motors.

Specifically, the new rule will allow a boat equipped with any size motor to be operated at no-wake speeds on lakes of more than 100 acres under custody of the Iowa Conservation Commission. Big Creek Lake in Polk County and Lake Macbride in Johnson County are exceptions. On those two lakes, the 10-horsepower rule will still be in effect from the Friday before Memorial Day through Labor Day each year. The Commission may adopt a rule allowing unrestricted motor sizes and no-wake operation during the remainder of the year on those two areas.

Lakes affected by this large motor rule include:

Lake	County
Beeds	Franklin
Badger Creek	Madison
Ahquabi	Warren
Anita	Cass
Prairie Rose	Shelby
Rock Creek	Jasper
Viking	Montgomery
Hawthorn	Mahaska
Darling	Washington
Geode	Henry
Miami	Monroe
Wapello	Davis
Pleasant Creek	Linn
Union Grove	Tama
Volga	Fayette
Twelve Mile	Union

Large motor rules already in effect at Green Valley Lake (Union County) and Lake Icaria (Adams County) remain the same.

Several conservation-related bills were passed by the 1986 Session of the Iowa Legislature. Those of particular interest are as follows:

H.F. 2032 — Hunting, Fishing and Trapping License: This bill provides for a new license by which a person can legally hunt, fish and trap in Iowa on one license rather than buying three separate licenses. The fee for this privilege will be \$28.50, which is several dollars cheaper than the licenses bought individually. This license will be available at regular depositaries beginning July 1.

S.F. 166 — Pigeons: This bill gives the Commission the authority to set rules for the taking of pigeons. At the present time, free-flying wild pigeons are protected by law. This bill would be especially welcome in cities and towns where the removal of pigeons from certain areas is needed.

H.F. 2078 — Diving Flag Distance: This bill provides that a diving flag left by scuba divers must be respected by boat operators and others, and a distance of 50 feet must be maintained from such flag.

DUPLICATE HUNTER SAFETY CHARGE



Effective July 1, 1986, duplicate hunter safety certificates will cost \$3 each. Prior to July 1, no fee had been charged for duplicates issued.

The Commission will continue to issue the original certificates at no charge.

Donations

Pella Screen Company, Pella	600 board feet of lumber for kestrel, barn owl and bluebird boxes, valued at \$126.	Pamida, Inc. Indianola	622 styrofoam cups and 3 rods and reels valued at \$66 for Lake Ahquabi State Park's 50th Anniversary open house.	Sam Hildreth Des Moines	10 kestrel boxes valued at \$100.
VFW Post 8998 Villisca	\$50 for playground equipment at Viking Lake State Park.	Vanderhaags, Inc. Des Moines	21 truck rims valued at \$420 for fireplace construction at Lake Ahquabi State Park.	Herb Larson Pleasant Hill	8 kestrel boxes valued at \$80.
Des Moines Alternative Education Class	240 hours of labor to build 40 barn owl nest boxes valued at \$804.	Aid Association for Lutherans, Branch 2000 Ventura	materials valued at \$1,000 for playground equipment construction at McIntosh Woods State Park.	Heien Jansen Oskaloosa	24 compartment aluminum martin house with pole valued at \$125 for Lake Keomah State Park.
Robert King Des Moines	40+ precut bluebird boxes valued at \$280.	Bernhard and Gertraud Riepl, Grunwald, West Germany	battery charger and various small tools and supplies valued at \$172 for Pilot Knob State Park.	William Agee Oskaloosa	17 compartment martin house valued at \$85 for Lake Keomah State Park.
Henry Staubus Indianola	1 8-foot concolor pine, 1 10-foot hawthorn valued at \$50 for Lake Ahquabi State Park.	Forest City High School, FFA Class	donation and installation of 8 wood duck houses valued at \$100 for Pilot Knob State Park.	Gary Wallace Oskaloosa	use of power trencher valued at \$55 for Lake Keomah State Park.
Central Paving Corp., Ready-Mix Division Indianola	2-1/4 cubic yards of cement valued at \$99 for Lake Ahquabi State Park.	Saxton, Inc. Leon	1 10-foot bicycle rack valued at \$180 for Nine Eagles State Park.	Mrs. Carleton Powers Oskaloosa	basketball backboard, net and pole valued at \$160 for Lake Keomah State Park.
Youngs Nursery Landscaping Des Moines	42 ash trees valued at \$420 for Lake Ahquabi State Park.	Strawberry Acres Landscaping, Marion	15 willow trees valued at \$166 for Pleasant Creek State Recreation Area.	Bob Bernstein Oskaloosa	pipe, scrap metal and tubing valued at \$55 for playground equipment construction at Lake Keomah State Park.
G. W. Howe Sanitation Spencer	2-1/2 weeks of portable toilet use valued at \$250 at Mini-Wakan State Park and Crandall's Beach.	Anonymous	drapery material for cabin curtains valued at \$240 for Springbrook State Park.	Boy Scout Troup 334 Eldora	donation and installation of 5 wood duck houses valued at \$50 for Pine Lake State Park.
Mike Davis Chariton	3 hours use of backhoe and operator for waterline repair at Red Haw State Park.	Anonymous	sewing of cabin curtains for Springbrook State Park.	American Freight System, Eldora	96 pallets for fish habitat at Pine Lake State Park.
Anamosa Lumber Company, Anamosa	2 hours use of fork lift valued at \$80 for picnic shelter construction at Wapsipinicon State Park.	Sentinel Press Maquoketa	electric typewriter valued at \$100 for Maquoketa Caves State Park.	McNeilly Steel Building Service, Shenandoah	40 steel rods valued at \$80 for fireplace construction at Waubesa State Park.
Ralston Well Drilling Cedar Rapids	440 feet of 1-1/2" pipe valued at \$220 for fireplace construction at Wapsipinicon State Park.	Agriland FS Harlan	one gallon "Roundup" herbicide valued at \$80 for Prairie Rose State Park.	G. A. Finley Harlan	rock crusher grate for fireplace construction at Waubesa State Park.
Anamosa Ready-Mix Anamosa	yard of cement valued at \$50 for picnic shelter construction at Wapsipinicon State Park.	Vermeer Manufacturing Pella	525 hours of labor and equipment usage values at \$9,800 for Elk Rock State Park.	Youngs Nursery Landscaping Des Moines	20 ash trees valued at \$200 for Walnut Woods State Park.
Edens Standard Anamosa	6 truck rims valued at \$150 for fireplace construction at Wapsipinicon State Park.	Printing and Lithograph Indianola	copying of pictures valued at \$55 for Lake Ahquabi State Park.	VFW Post 8998 Villisca	\$50 for playground equipment at Viking Lake State Park.
Anonymous	52 timbers valued at \$970 for picnic shelter construction at Wapsipinicon State Park.	Wark Tree Farm Indianola	2 10-foot maples, 4 8-foot Scotch pines valued at \$250 for Lake Ahquabi State Park.	Carmen Vetter, Carroll, Linda Perkins, Jefferson, Lyle Jansen, Oskaloosa	Kodak 16mm movie projector valued at \$450 for interpretive program at Lake Keomah Park.
Randy's Taxidermy Marion	mounting of two birds valued at \$90 for interpretive program at Wapsipinicon State Park.	Anonymous	clean out 150 feet of concrete culvert valued at \$150 at East Okoboji Beach Access.	Earl Cannon Mason City	80 truck rims valued at \$1,600 for fireplace construction at Clear Lake State Park.
				Anonymous	2 loads of black dirt valued at \$80 for Pilot Knob State Park.

IOWA GAME FAIR AND OUTDOOR RECREATION SHOW

By Steve Finegan

Executive Director, Black Hawk County Conservation Board

The Black Hawk County Conservation Board will be holding the first Iowa Game Fair and Outdoor Recreation Show Friday, August 22 through Sunday, August 24, at Black Hawk Park, located northwest of Cedar Falls along the Cedar River.

The Iowa Game Fair will be an annual outdoor event in which you can personally participate in sporting events, experience the pleasures of the outdoors, learn about outdoor sports and have fun. The Iowa Game Fair will be a fun-filled gathering for everyone in the family. Its purpose is to share knowledge and demonstrate and practice skills.

At the Iowa Game Fair, you will find outdoor recreation equipment, air rifle, muzzleloader, shotgun, handgun and small-bore rifle shooting, dog fun-trials, wildlife art, and outdoorsmen's flea market, boats, recreational vehicles, sporting experts, and much, much more. It is an opportunity to prepare your equipment, purchase more, prepare your dog and sharpen your skills for the upcoming seasons in the field and on the water.

A wide range of products of interest to outdoor enthusiasts will be on display. A special effort is being made to showcase Iowa products. New products will be featured as well as those which have proven themselves for many seasons.

A tail-gate flea market will be a highlight on Saturday. You can buy, sell

or trade. Call now for space to exhibit or sell.

Be prepared for nonstop activity and lots of fun. Come prepared to do, not just to watch. The various shooting and dog events will be sponsored by area sportsmen's clubs. Experience first-hand what you may be missing, or learn how to do better what you already like to do.

Along with an opportunity to learn one on one, the Iowa Game Fair will feature special educational seminars and demonstrations covering a broad range of topics. Selected experts will share their secrets.

Young boys and girls can take part in the Iowa Game Fair. Special events include an air rifle shoot and a fishing tank as well as opportunity to participate in the other activities. A special hunter safety class will be held.

Camping facilities are available at the park. Fees will be charged for admission and for some of the events. The hours will be 3:00-7:30 p.m. on Friday, 11:00 a.m.-7:30 p.m. on Saturday, and 11:00 a.m.-6:30 p.m. on Sunday. Food and refreshments will be available on the grounds.

Autumn is a special time of the year. It is a time when the call of the Canada goose beckons outdoor lovers afield. In preparation for this special season, bring your favorite bow, shootin' iron, dog and the entire family to the first Iowa Game Fair and Outdoor Recreation Show. For further information, call 319/266-6813.

Classroom Corner

By Robert P. Rye

Groups at the Conservation Education Center after taking a hike often exclaim excitedly that they saw a deer with twins or triplets, a raccoon with four young, or a pheasant with eight young. It is interesting to note the variance in the number of young that a specific type of animal has and how long the young survive.

A deer is expected to have one to three young. These stay with the adult for almost a year and will live 10 to 15 years. Deer take care of their young, contributing to the fact that they survive a relatively long time.

Insects lay thousands of eggs to insure their species continues. Normally, these are left by the adult to survive on their own. Most of the hatched young will not make it a full life cycle, and therefore will not reproduce. In other words, they do not survive long.

See if you can match the adult species with their young:

Adult	Young
1. Deer	A. Eaglet
2. Duck	B. Pup
3. Frog	C. Fawn
4. Coyote	D. Calf
5. Insect	E. Duckling
6. Fish	F. Gosling
7. Turkey	G. Tadpole
8. Fox/Beaver/Rabbit	H. Owlet
9. Eagle	I. Larvae
10. Goose	J. Fry
11. Owl	K. Poult
12. Buffalo	L. Kit



Mallards

Answers:

1. C, 2. E, 3. G, 4. B, 5. I, 6. J, 7. K, 8. L, 9. A, 10. F, 11. H, 12. D





The Vanishing Fencerow

By Brian DeVore

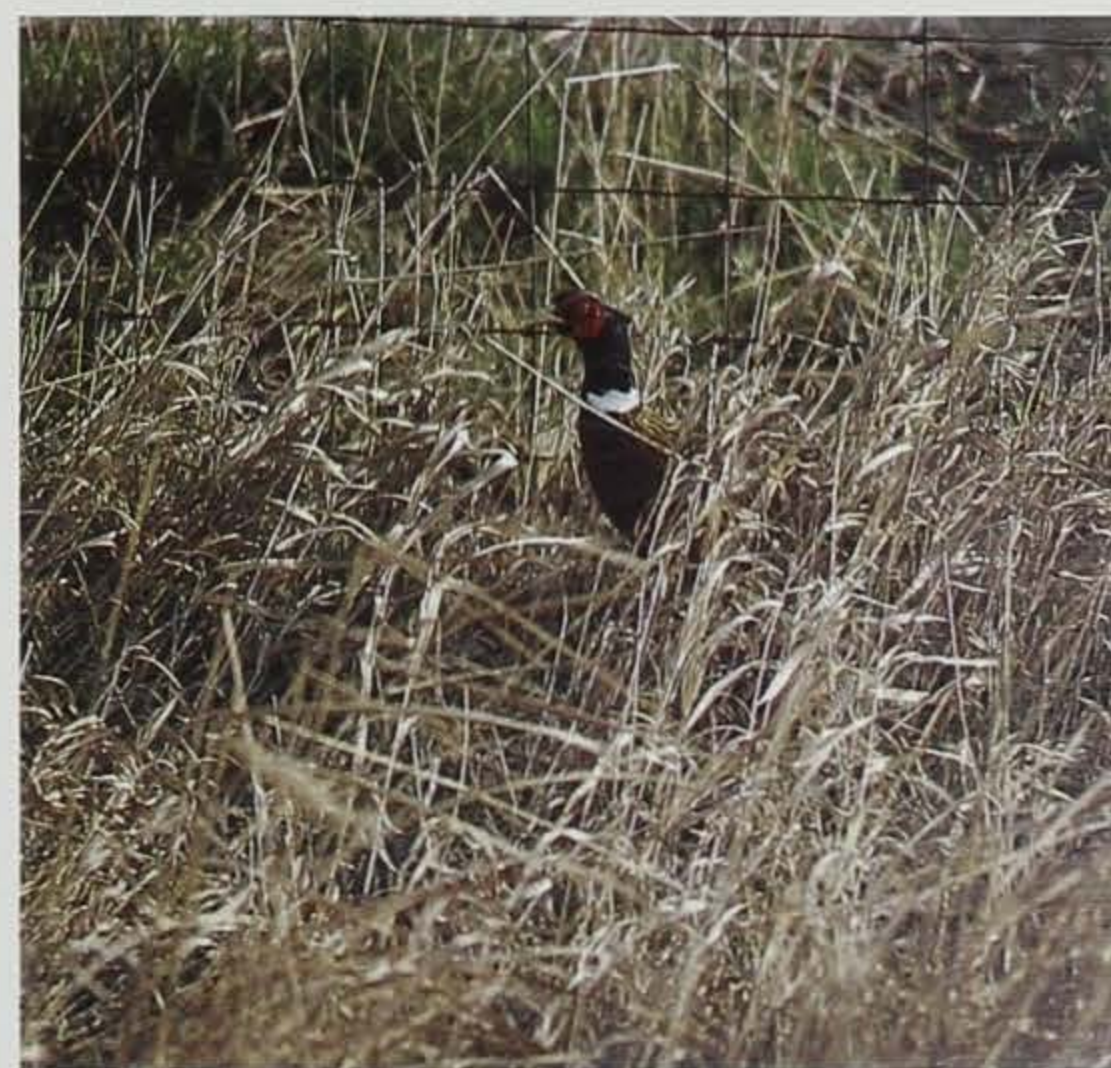
Misinformation and tradition threaten a valuable friend of wildlife and soil. Perhaps no single part of the Iowa landscape does so much good for so little a price and is so misunderstood. The fencerow conserves soil and provides cover for wildlife, but a combination of misinformation and traditional farming practices has all but doomed this valuable piece of real estate.

"It causes me a lot of headaches, it takes land out of production and it does me no good, so why keep it?" This comment reflects the attitude of a lot of farmers concerning fencerows, according to Louis Best, pro-

fessor of animal ecology at Iowa State University. "Fencerows are a maintenance requirement that many farmers look at as an annoyance," he adds.

However, fencerows do have a lot of value, especially in terms of wildlife cover. But even farmers that care about wildlife and have some knowledge of the importance of habitat "don't seem to appreciate the number of birds and other animals that use fencerows," Best says.

Best conducted a study in 1978 and 1979 on some typical fencerows in central Iowa. He considered three types — total herbaceous (grassy)



Iowa fencerows are rapidly giving way to modern agricultural practices. Pheasants and many beneficial wildlife species suffer.

fencerows; fencerows with herbaceous cover interspersed with woody plants; and fencerows with continuous shrubs and trees.

During the study, Best found 62 different species of birds used all types of fencerows in the area. The vast majority of the birds were non-game species with bobwhite quail and ring-necked pheasant being the only game birds observed.

Woody fencerows proved to be far superior habitat with four times as many bird species using them as utilized the herbaceous fencerows. Best says this is no surprise because previous studies have shown woody fencerows to be much wider than herbaceous ones, and wider strips of habitat are preferred by more wildlife. However, since woody fencerows are harder to maintain "neatly," they are found less often in Iowa than herbaceous fencerows, which can be kept narrow and neat with much less effort and expense.

Despite the vegetation type, all fencerows can be valuable to wildlife. This is especially true in Iowa where monoculture farming has left wildlife with little choice when it comes to cover.

"Wildlife may have all the food they would ever need in the winter, but they're not going to survive when there's nowhere to go during inclement weather," Best says.

One fact gleaned from the study — that nongame birds vastly outnumber game species in the utilization of fencerows — helps explain why many landowners don't realize the value of this type of habitat. Although several different types of birds as well as mammals may be using a particular area, people will usually notice only the more "visible" game species such as pheasant or deer, he says, adding that this often results in a misconception that a particular fencerow does not harbor much wildlife.

Landowners often look at the disadvantages fencerows present to a farm. These disadvantages include such things as depleting moisture levels and shading crops along field edges, as well as getting in the way of turning machinery.

However, Best says woody fencerows can often be made better neighbors to croplands by using a root

pruner to prune the roots, thus controlling the growth of the trees and shrubs. He says this type of device has been used in Kansas with great success. One other way to deal with the problem of vegetation getting in the way of farm machinery and competing with crops is to not plant up to the fencerow, he says.

"I question that farmers are gaining that much in the last two rows of the field when compared to the benefits gained from the increased wildlife cover and soil protection a fencerow provides," Best adds.

One other bad count against fencerows is that many farmers fear they harbor insect pests that prey upon crops. However, Best says this is not a valid concern and in many cases the opposite is true.

"The more woody the fencerow, the less likely it will harbor insect pests," he says, explaining that the types of insects found among trees and shrubs are different than those found around corn and soybeans. In fact, fencerows may actually help reduce crop losses to insect pests since they provide cover for more insect-eating birds.

"All songbirds feed their young insects," Best says. "The more birds you have in the fencerow, the more mouths you have going out into the fields to feed."

But no matter how much detailed information on the value of fencerows is provided to landowners, one reason for eliminating these vegetated areas will always overshadow even economic motives — tradition. And according to Best, methods of farm management that are practiced just because "that is the way it has always been done" are the most difficult to change.

Many farmers eliminate woody fencerows simply because they think they are a sign of a poorly managed farm. Best says this attitude toward brushy fencelines stems from methods practiced the last several decades when, "unless you had a clean farm, you weren't respectable." Society is slowly moving away from the concept that to be a good farmer, a person must eliminate all woody vegetation along cropfields. However, economic motives and peer pressure still account for the loss of a lot of habitat in this state, Best adds.

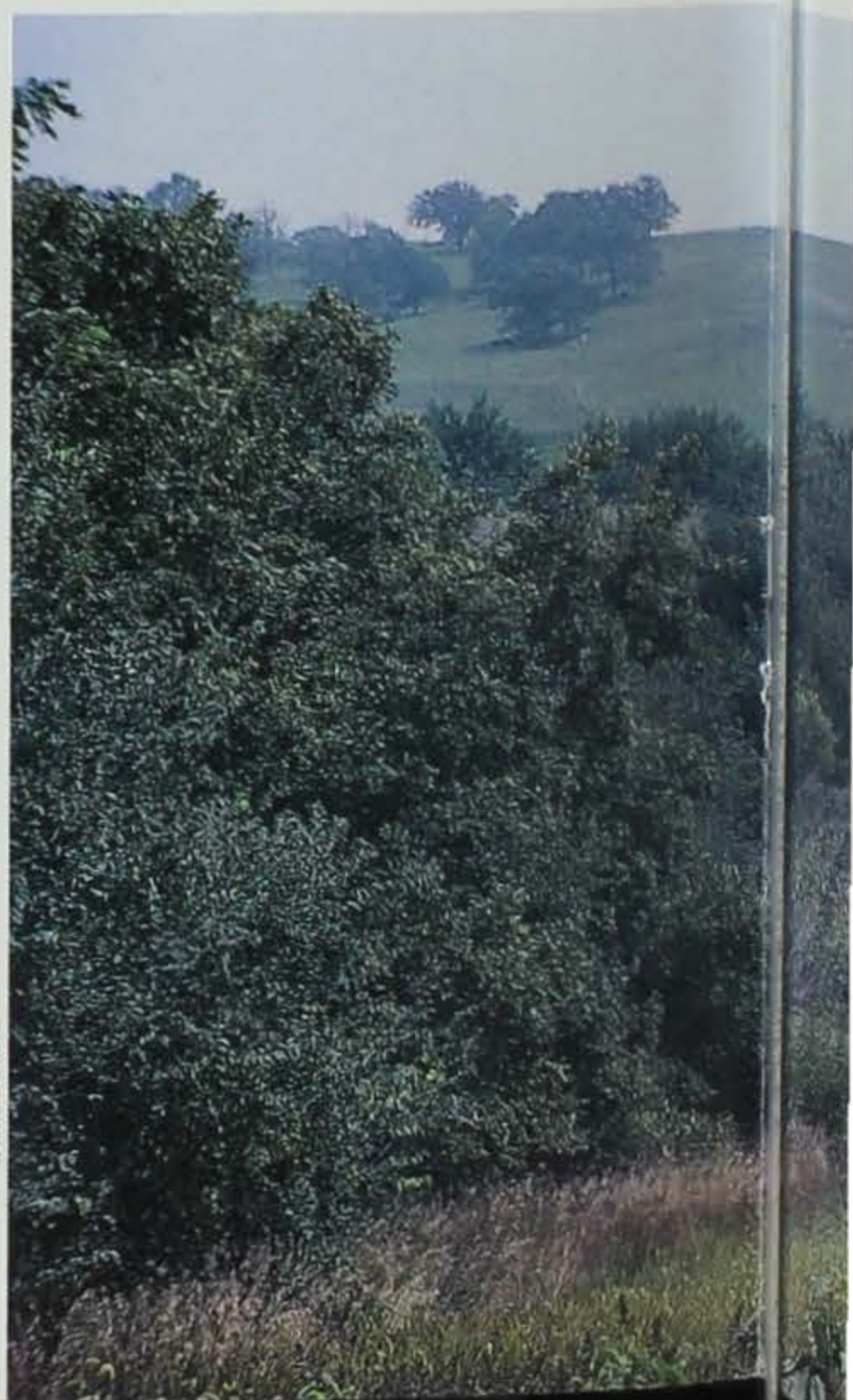
"Right now, we're dealing with a philosophy that must be overcome," he says. "The best hope is to get land operators used to seeing shrubs and trees along the fencelines. Wouldn't it be wonderful if a farmer got on his neighbor's case for eliminating a snag from a fencerow?"

Best says more scientific studies verifying the importance of fencerows are not needed, but rather the next step should be an intense effort to convince landowners to maintain fencerows that cannot be done solely on the basis of saving wildlife, but must also include soil and water conservation as incentives, Best says. In

Wooded fencerows, like the one below, harbor pest-eating songbirds, such as the house wren.



Jerry Leonard



Brian DeVore

addition, economic incentives are needed to convince farmers to change their management of these areas.

Working with rather than against the landowner is the key to stemming the rapid decline of fencerows, he says. It is important to leave fencerows as a type of demonstration to other landowners. "It takes a few brave souls to go out and do it," he says. "I've seen it done with minimum till."

Best says he doubts landowners will ever actually go out and plant fencerows. He hopes this valuable habitat can be tolerated to the point where existing fencerows will be allowed to remain standing. But, even a small change in attitude towards fencerows could take a very long time, and time is one thing Iowa's wildlife and soil do not have.

At the staggering rate fencerows are now being lost in this state, Best says there is no way to tabulate how much of this habitat is left. "You'd have to revise that estimate almost weekly."

Brian DeVore of Cumberland is a graduate of Iowa State University and served an internship with the staff of the Iowa Conservationist. He now is employed by the Des Moines Register.

CHANGES

By Jeff Schadle

Winter was finally beginning to give way to spring, and the warm rays of the sun felt good after fighting the bitter cold of the north wind. The year was 1850, the location was somewhere in eastern Iowa.

The log cabin the settlers had built from the nearby oak-hickory timber had provided them meager protection during the winter months.

It had been three years now that they had been here. Each year was a victory — another year of conquering prairie fires, whooping cough, tornadoes, bitter cold and loneliness on the prairie. The seeds they had brought from home and planted around their new homestead did well after three years and were now stiff, spiny plants almost ten feet tall.

Twenty years later . . .

The wind whispered through the thick windbreak as it blew out of the south on that summer evening. As the family sat on the porch of their cabin, the father thought back to the day when he and his three sons had planted the trees around their new home. That was back before the two oldest brothers were killed at the battle of Bull Run and before President Lincoln had been assassinated. A tear came to his eye.

Yes, the people and the prairie had changed much. Small settlements were springing up everywhere since the arrival of the railroad. As steam engines came to the prairie, farm families were working together in thrashing crews to harvest larger fields than before. Working together helped strengthen the bonds of friendship. They were dependent upon each other. This made him smile.

He looked at the trees again. They had stood unchanged by all these events.

As he got up from his chair, the sun was setting far in the west. He wondered about the future and what was in store for the land and people. Would Iowa always be rich with the sounds of booming prairie chickens and her marshes full of ducks and geese? Would black bears and bobcats always haunt her woodlands?

Would a man still be able to watch the playful river otter slide down the creek bank into the clear cold spring water? How would the people change Iowa?

He put his pipe into his shirt pocket and went back into the cabin.

One hundred and fifteen years later . . .

Rain was slightly hitting the windshield of the Chevy as the farmer drove towards home. The weather had held out just long enough to get the last load of corn out of the field yesterday.

He listened as the ten o'clock markets came over the radio. Not much good news today. Low prices and another farm sale. These were tough times, no doubt about it.

As he glanced out into the fields, he noticed one of his neighbors getting ready to fall plow a field of cornstalks. That made him think about his own farm. Sure he had a little more foxtail and smartweed, but he also had a little more topsoil and a few more pheasants around.

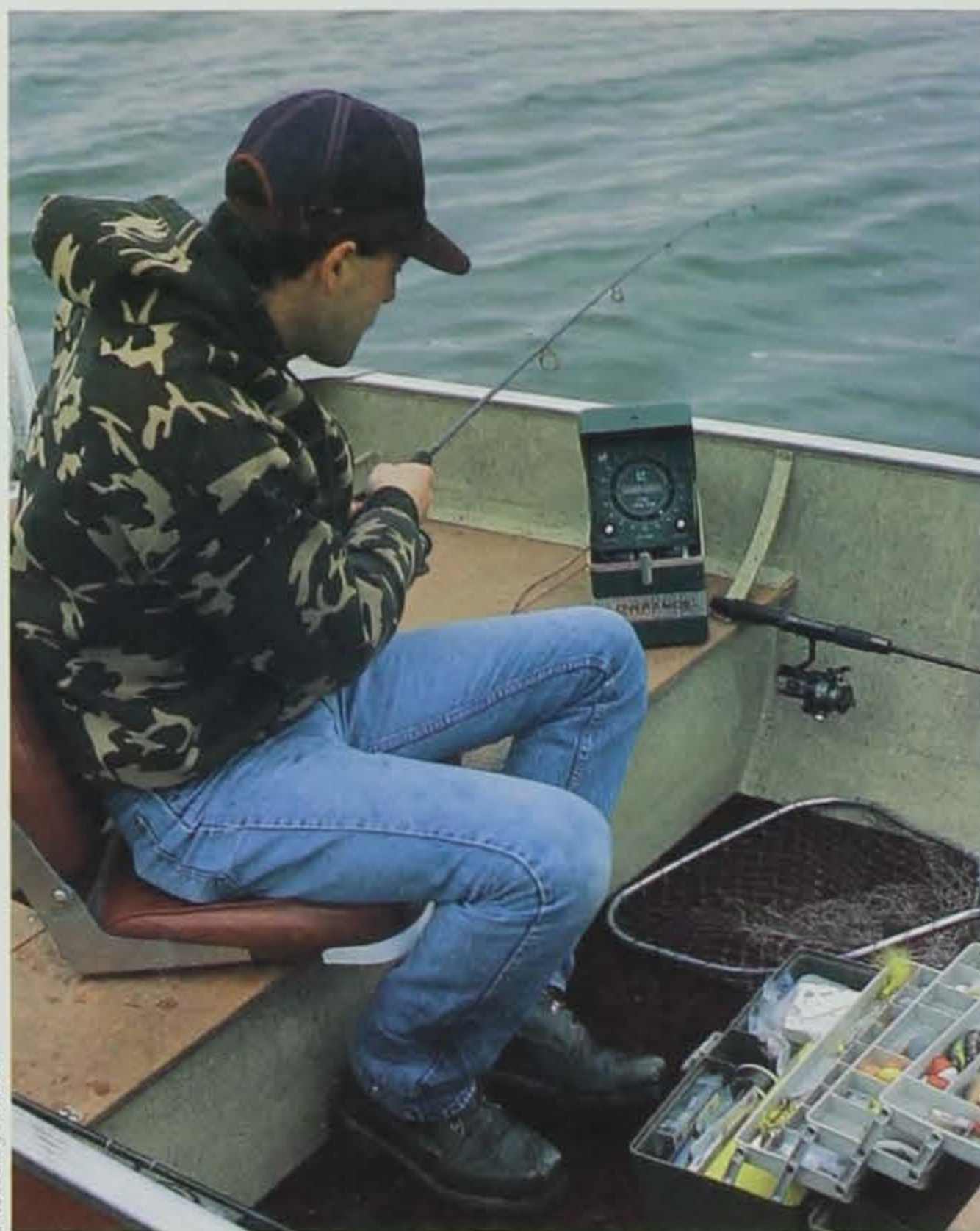
As he went down the road, he passed a creek that had recently been straightened. He thought about the minnows he had seined from it to take bass fishing, and the mink and muskrat he had taken from it while trapping. It seemed that those days were gone. A tear came to his eye.

As he turned off the blacktop and onto the gravel road, a Caterpillar was pushing down a row of osage orange trees at an old farmstead. The old windbreak had seemed to have been there forever, he thought. He shook his head and wondered about those trees. What had they seen in their life, and what changes had they endured? What would our forefathers think? As he pulled into the driveway of his farm, the sun was beginning to set in the west. As he stepped out of his pickup, he thought about all he had seen today. What would lie in store for the land and people of Iowa?

He tapped the burnt tobacco out of his pipe, put it in his coat pocket and slowly walked to the house.

Jeff Schadle is a park ranger for the Benton County Conservation Board. He holds a B.S. degree from Kirkwood Community College.





Photos By Author

ELECTRONIC FISHING

By Jim Wahl

Whatever happened to the wooden fishing boats equipped with only a pair of oars? Those rather primitive pieces of equipment have long been replaced by aluminum boats with gas-powered outboard motors.

But that's only the beginning. Within the past twenty years, the electronic revolution has made its influence felt on the sport fishing community. Today, there are more electronic gadgets available than most anglers care to keep track of. Is all that fancy equipment really necessary to catch fish? The answer is no; however, few would argue that when used properly, electronic equipment can provide a distinct advantage.

Probably the first piece of electronic gear utilized by sport fishermen is the depth finder or sonar. Sonar was developed as a means of tracking enemy submarines during World War II and was made available to fishermen in the late 1950's. Elec-

trical impulses are converted into a cone-shaped sound waves and transmitted through the water. When the echo returns, the transducer picks it up and converts it back into electrical energy. A calibrated dial indicates the distance between the transducer and the obstacle returning the echo. In this manner, water depth and bottom type can be traced, or with some practice, fish located. With improved technology, the prototype flasher depth finder has been refined to include a graph recorder, providing the angler with a permanent printout of the world below him. Newly developed graph depth finders have the ability to "block up" a section of water, much like an enlargement of a photograph. For instance, if fish are located at 15 feet, the scale can be set to record only the 10- to 20-foot range. Although these devices are not magical, fishermen who understand how to interpret the signals they project certainly have an edge.

Electric trolling motors have also been available to fishermen for a number of years. The electric motor allows a quiet approach to shallow water and fish that might otherwise be spooked by noisy outboards. In addition, they enable the operator to move the boat slowly and cover areas more thoroughly.

Water temperatures and dissolved oxygen go hand-in-hand and modern technology provides meters to measure both. Fishermen have long realized that these factors influence daily and seasonal fish location and activity. Deep-bodied lakes often stratify into three layers during the summer months. During this time, water below the thermocline (middle layer) contains inadequate oxygen to support fish life. The thermocline can also be located by a sudden change in water temperatures. Using a sophisticated oxygen or temperature meter

Graph recorder, trolling motor, and depth finder — tools of today's angler.



equipped with a sensor probe and cable, a digital readout can be produced and the thermocline located, thus providing the angler information about what depths to fish and not to fish.

When temperature is suitable and oxygen adequate, fish seek out an optimum pH environment. The pH monitor was first made available to fishermen about five years ago and is a measure of acidity or alkalinity. Values range from zero to 14, with 7 being neutral. Most fishing waters range from slightly acidic 6.5 to alkaline 9.0. Freshwater fish generally prefer alkaline water. Developers of the pH monitor recommend looking for an abrupt change in pH to locate fish, rather than a distinct pH

preference zone. It is felt that fish congregate around these areas of sudden change.

The electronic instruments discussed so far have all been aids in locating fish, however, the most recent advances are geared towards catching fish. The Color-C-Lector developed by Dr. Loren Hill (also the developer of the pH monitor for fishermen) provides information on the selection of lure color. Initially, water clarity is determined as either muddy, stained, or clear. A light-sensitive probe is then lowered to the desired fishing depth which relays a light transmission reading. The reading selects the primary and secondary colors to choose from, based on the appropriate water visibility. Most predator fish are sight feeders, so presenting the most visible lure should increase success.

Computerized reels are now available to fishermen because of the advancement of the microcomputer. Information such as casting distance, amount of the line released for trolling, speed of retrieve and depth and distance of the last strike are all functions of the electronic reel.

In the years ahead, there will be additional products available to fishermen. What impact will the "electronic angler" have on our fisheries? Can fishery agencies produce enough fish to keep up with the more effective and efficient angler of the future? These are questions fishery biologists are asking all over the United States. The question remains unanswered; however, the future may bring more restrictive harvest regulations, and there has already been an increasing trend towards catch-and-release.

There is no doubt the electronic revolution has influenced all forms of businesses including the sport fishing industry. However, fishing still remains a sport where enjoyment, relaxation and success can be achieved with a minimum amount of equipment. After all, that's what makes fishing attractive to so many of us.

Jim Wahl is a fisheries biologist located at Clear Lake. He has an M.S. degree from South Dakota State University and has been with the Commission for four years.

CALENDAR

July-August, 1986

July - August	Free camping at Chichaqua Wildlife Area Nonelectric, 2-week limit	Polk County 515/967-2596	July 19	Games For Campers 10:00 a.m. - 5:00 p.m.	McFarlane Park Black Hawk County 319/277-2187
July - October 15	Bentonsport Craft and Antique Shops 10:00 a.m. - 5:00 p.m.	Bentonsport Riverside Park Van Buren County 319/592-3579	July 19	Creek Cutters 2:00 p.m.	Soper's Mill Story County 515/377-2229
July 1-31	Iowa's Woodland Heritage and Forest Communities Photo Exhibit	Jackson County 319/652-3783	July 20	Hayden Prairie Hike 1:00 p.m.	Howard County 712/732-5204
July 1-31	Iowa's Wild Places Photo Exhibit	Palo Alto County 712/837-4866	July 23	Iowa Wetlands 7:00 p.m.	Thorpe Park Hancock County 515/582-5322
July 2, 16, 30	Wednesday Heritage Evening Explorations W.H.E.E. 7:00 p.m.	Hamilton County 515/832-1994	July 25 - August 2	Backpacking Leadership Certification Course	Iowa 4-H Camping Center and Isle Royale National Park 515/294-6148
July 3, 17, 31	"Flickers and Fritters" Bird Hike 6:30 a.m.	Webster County 515/576-4258	July 26	Park Interpretation Programs 2:00 - 7:00 p.m.	Hickory Hills Black Hawk County 319/277-2187
July 4	Heritage Day Celebration 11:00 a.m. - 5:00 p.m.	Hickory Grove Park Story County 515/377-2229	July 26-28	Palo Alto County Fair	Fairgrounds Emmetsburg
July 4	Discover 100 Year Old Trees of Thomas Mitchell Park Hike - 10:00 a.m.	Polk County 515/967-4889	July 27	Sunset Hike 7:00 p.m.	Five Ridge Prairie Preserve Plymouth County 712/947-4270
July 4	History of Yellow Banks Park Hike - 2:00 p.m.	Polk County 515/266-1563	July 27-30	Wright County Fair	Fairgrounds Eagle Grove
July 5 - August 8	Star Party 9:00 p.m.	McFarlane Park Story County 515/377-2229	August 1-21	Iowa's Woodland Heritage and Forest Communities Photo Exhibit	Kossuth County 515/295-2138
July 5	Films and Popcorn 8:00 - 10:00 p.m.	McFarlane Park Black Hawk County 319/277-2187	August 1-31	Iowa's Wild Places Photo Exhibit	Pocahontas County 712/335-4395
July 6, 20 August 3, 17, 31	Wagaman Mill Tours 2:00 - 4:30 p.m.	Lynnville Jasper County 515/792-9780	August 2	Water Carnival 2:00 - 7:00 p.m.	Black Hawk Park Black Hawk County 319/277-2187
July 9	Bike Ride With A Ranger 1:00 - 4:00 p.m.	Cedar Valley Nature Trail McFarlane Park Black Hawk County 319/277-2187	August 2-3	Jakway Jamboree Country Music and Crafts Festival 1:00-10:00 p.m. Saturday, 1:00-6:00 p.m. Sunday	Jakway Forest Area Buchanan County 319/636-2617
July 11, 25 August 8	Friday Night At The Movies	Lake Cornelia Park Wright County 515/532-3185	August 4-5	Silk Screen Workshop	Motor Mill Historic Site Clayton County 319/245-1516
July 11	Summer Stargazing 9:00 p.m.	Elred Sherwood Park Hancock County 515/582-5322	August 8-16	Canoeing Leadership Certification Course	Iowa 4-H Camping Center and Boundary Waters Canoe Area 515/294-6148
July 11	Sky Watch (dusk)	Swan Lake Park Carroll County 712/792-4614	August 9	Water Carnival 2:00 - 7:00 p.m.	Hickory Hills Park Black Hawk County 319/277-2187
July 12 August 9	Seasons of a Woodland Hike 1:00 - 3:00 p.m.	Basswood Recreation Area Palo Alto County 712/837-4866	August 9	Five-Mile Trek	Five Ridge Prairie Preserve Plymouth County 712/947-4270
July 12	Native Prairie Field Trip 10:00 a.m.	Hillview Recreation Area Plymouth County 712/947-4270	August 11	Meteor Watch 11:00 p.m.	Swan Lake Park Carroll County 712/792-4614
July 12	Heritage Day 2:00 - 7:00 p.m.	Hickory Hills Park Black Hawk County 319/277-2187	August 12	Tallgrass Prairie Workshop 8:00 a.m. - 5:00 p.m.	Lakeland AEA Building Palo Alto County 712/837-4866
July 13 August 10 and 22	Canoe Trips	Indian Creek Nature Center Cedar Rapids 319/362-0664	August 15	Summer Stargazing 8:30 p.m.	Pilot Knob State Park Hancock County 515/582-5322
July 14-17	Youth Conservation/Leadership Program	Iowa 4-H Camping Center 515/294-6148	August 16	Sweet Corn Feed	McFarlane Park Black Hawk County 319/277-2187
July 15-18	Summer Naturalists Program Grades 4-6	Indian Creek Nature Center Cedar Rapids 319/362-0664	August 17	Archery Shoot - Black Hawk Archery Club	Hickory Hills Park Black Hawk County 319/342-3350
July 15	Art Alive - Blacksmithing	Lake Cornelia Park Wright County 515/532-3185	August 17	Prairie Program	Swan Lake Park Carroll County 712/792-4614
July 15	Nature Night at the Movies 7:00 p.m.	Kennedy Park - Fort Dodge Webster County 515/576-4258	August 17	Honey, Honey - A Look At The Honey Bee	Mitchell County 712/732-5204
July 16	Canoeing the Cedar 1:00 - 5:00 p.m.	Gilbertville Boat Ramp McFarlane Park Black Hawk County 319/277-2187	August 19	Tuesday Night at the Movies plus A Moonlit Walk to the Marsh	Lake Cornelia Park Wright County 515/532-3185
July 17 August 21	Prairie Walk 7:00 p.m.	Doolittle Prairie Story County 515/377-2229	August 22, 23, 24	Iowa Game Fair	Black Hawk Park Black Hawk County 319/266-6813
July 19	Morning Bird Hike 7:00 a.m.	Eagle Lake State Park Hancock County 515/582-5322	August 22, 23, 24	Country and Old Time Music Festival	Marion County Park Knoxville 515/828-2214
July 19	Prairie Ponderings	Liska-Stanek Prairie Webster County 515/576-4258	August 23	Morning Bird Hike 7:00 a.m.	Thorpe Park Hancock County 515/582-5322
July 19	Park Interpretation Programs 2:00 - 7:00 p.m.	Black Hawk Park Black Hawk County 319/277-2187	August 23-24	Open House at Motor Mill	Clayton County 319/245-1516
			August 24	Landscaping For Wildlife 2:00 p.m.	Ambrosen Park Hancock County 515/582-5322
			August 24	Dragonflies Up Close	Hillview Recreation Area Plymouth County 712/947-4270
			August 31	Rededication of Froelich Historic Site	Clayton County 319/245-1516

County Conservation Board Feature

Kossuth and Palo Alto Counties *By Miriam Pfeiff, Naturalist, Palo Alto County Conservation Board.*

Our Sod House Heritage

Located in the heart of the tallgrass prairie region, Kossuth and Palo Alto Counties have a rich history of sod houses and the people who lived in them. The sod house era in north-west Iowa only lasted 30 years — from the 1850's to 1880's, yet these sod dwellings were an important part of Iowa's history. They showed the early pioneers' ability to adapt to the environment and draw on that environment for all of their needs. Local records show that homes, schools, churches, and even taverns were constructed out of sod. But why use sod?

The Homestead Act of 1862 was a great incentive for people to move westward and settle. An aspiring landowner could claim a quarter section of public land, pay a \$10 filing fee, and then live on it for five years after filing the claim. The land claim office required building improvements that included a roof, door, floor and window.

Imagine traveling for 1,000 miles or more to make a new start. The pioneer had a wagon drawn by two horses, a few supplies, an ax, a plow, a shovel, a wife and three kids. With this, he had to build a home. There was not a tree in sight. In fact, none had been seen for three days. There was nothing but sky and grass.

The sod house provided a quick, inexpensive and comfortable solution. Its thick walls and roof were good insulation against the heat of summers and cold of winters. Like all homes, sod houses varied greatly depending on the builder — his skill, need and financial resources.

The best time to build was in the fall when native prairie grasses had become woody and the roots tough. Once the site was chosen and the floor plan decided upon, stakes were set and the digging started. Sod was cut with a plow and a sod cutter,

which was similar to a corn planter except the knives were straight iron bars sharpened in the front. Oxen were preferred for pulling the plow because they pulled more slowly than horses. The sod was cut so that it could be handled easily by the workers — 4 to 6 inches thick, 1 to 1-1/2 feet wide, and 2 to 3 feet long. The moisture in the soil was important in holding the block together while handling and laying. Therefore, only enough sod was cut each morning to last for that day's work. It took about one acre of sod to complete a standard 12'x14' house which could be built in a week.

The sod bricks were always laid with the grass side down. The walls were two or three sods thick, and the sods were staggered. This helped keep out the wind, bugs, mice and snakes. Every third or fourth layer of sod was laid crosswise to hold the inner and outer walls firmly together. The inner walls were allowed to settle for five to six weeks before they were plastered to prevent cracking and peeling. A fine clay mixed with water and fine sand or ashes was painted onto the walls.

Although sod houses were inexpensive to build, prices varied greatly according to the amount of materials bought commercially. If the lumber

for door frames and windows had to be purchased from a mill, the cost of a home could be quite high. Frame houses were even more expensive. In 1865, the lumber for William Cook's frame house in Monona County (24' square) cost about \$600. In contrast, a sod home cost between fifteen and thirty dollars. The dugout belonging to the Seine Menning family in Sioux County cost \$26.50. Elder Oscar Babock, a minister in North Loup, Nebraska, paid only \$2.78-1/2 to build his 14' square dugout in 1872. He itemized the cost:

One window	\$1.25
18 feet of lumber	
for front door	.54
Latch and hanging	.50
Length of pipe to	
go through roof	.30
3 lbs. of nails	.19-1/2
Total	\$1.78-1/2

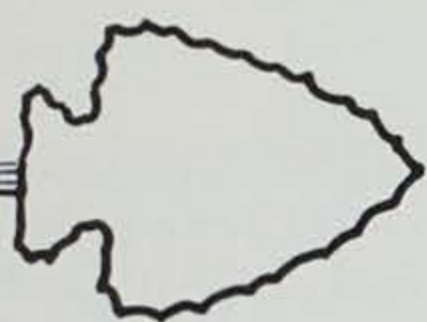
Life in a sod house was a series of problems. Families continually worried about leaky roofs, prairie fires, and snakes dropping into the soup kettle. Yet fiddles were played, holidays were celebrated, and memories made in sod houses.

The sod house era in Iowa ended with the northwest expansion of the railroad which made lumber more readily available and less expensive. This era in our history portrays a spirit of determination of the people who settled Iowa soil. To better understand this unique local history, people in Kossuth and Palo Alto

A sod house, typical of those found throughout the prairie region.



Courtesy of Iowa State Historical Society - Special Collections



WARDEN'S DIARY

MY KID'S LIMIT

By Jerry Hoilien

Counties are joining together to reconstruct a sod house. The purpose of the project is to teach ourselves and others about the importance of the prairie ecosystem, and the impact the prairie had on those who settled it. By understanding this perspective, we can better guide our actions on, and with, the land today.

Begun by the county conservation boards and soil conservation districts of both Kossuth and Palo Alto Counties, the Sod House Heritage Project now includes many organizations and individuals from the two counties. The community of West Bend deserves special recognition for their support and enthusiasm. Because of the interest and commitment of the West Bend Historical Society, the sod house will be built on their land next to a one-room country schoolhouse.

Special committees have been set up to allow each participant to work in his or her area of interest or expertise. Those on the historical documentations committee are collecting local history on the sod house era. They have taped several interviews with community members who grew up in sod houses. These oral histories are a good source of information. It is important to get these valuable memories recorded before they slip away from us.

The committee on design and construction is preparing to build. The Department of Transportation has given permission for the group to cut prairie sod near an overpass on Highway 18 between Ruthven and Emmetsburg that will be taken out in the spring of 1987. Other committees include education and interpretation, publicity and interior furnishings.

The sod house is scheduled to be built August 25-30. It will be ready for a grand opening during Prairie Heritage Week, September 1-6. This project is a way for northwest Iowa communities to preserve some local history for generations to come. Hopefully, it will bring Iowans closer to the land — its past, its present and its future.

I have received a lot of calls lately about "my kid's limit. If he is with me, is he entitled to "his" fish or game; or does it apply on my limit?"

I am sure what started much of this was the new law on trout fishing. Let's talk about fishing first. A resident of the state under sixteen years of age or a nonresident of the state under fourteen years of age is *not* required to have a license to fish; however, residents under sixteen and nonresidents under fourteen must possess a valid trout stamp to possess trout or they must fish for trout with a licensed adult who possesses a valid trout stamp and limit their combined catch to the daily limit for one.

This does not apply to hunting. The law states all hunters must have a license; however, residents under the age of sixteen (all nonresidents must have a license regardless of age) in the company of a parent or guardian, or a competent adult with the parent's or guardian's permission, who has a valid license, may hunt without a license and take a limit. For close supervision, the law requires one licensed adult for each unlicensed youngster. At any rate, the youngster is entitled to his or her own limit, provided he or she is the one who takes it.

The law also provides that a landowner or tenant of the land and their children may hunt, fish or trap on such lands without a license, with the exception of deer or turkey. On these, a transportation tag is necessary; therefore, they must apply for a free license if they wish to hunt.

I checked some duck hunters this fall. Oh, yes — you need signed state and federal duck stamps to hunt waterfowl once you have reached your sixteenth birthday. One of the fellows had all his sons with him. When I checked his license, all four boys produced a hunting license and both stamps signed and pasted on the back. When I explained the laws to them, the father said, "Yes, Warden, I know what the law says, but we are teaching our sons to *pay their own way!* You can't beat people like that!"

Last but not least, let's cover the hunter safety requirement. All persons born after January 1, 1967 must complete a hunter safety course in order to purchase a regular hunting license. This applies to resident and nonresident alike, and we do accept the registered course of another state or province, just as they will ours. It is a good system, and the accident records bear proof of its success.

Each time I try to explain all the technical details of the law, I am reminded of the story of the young couple who were trying to get married back a few years ago. Seems after getting their license at the county seat's Clerk of Court, they were directed to the Justice of the Peace at the end of the hall. The old gentleman peered through his spectacles, cleared his throat and began to read their marriage license. "I see your name is John C. Jones."

The nervous young man replied, "Well, Your Honor, my name is really Charles, but everyone calls me John, so I go by John C."

I am sorry, you will have to have that changed," the old judge grumbled, and he sent them back up the hall. Soon they returned and he continued his reading. When he came to the blushing young bride, he said, "I see you live in Harpers Ferry."

"Well," she stammered, "I really live in Waterville, but we are going to live in Harpers Ferry."

"You'll have to have that corrected," he barked sending them scampering back to the clerk.

As time wore on, they finally got everything to the judge's satisfaction, and he said, "I know you young people are in a hurry, and I don't blame you; but let me explain something to you. This is a very important document. If it is not exactly correct, and I marry you, you could technically not be married. And what is worse, if you had a child, it could be a technical bastard!"

The young man looked at him and said, "You know, that's just what the Clerk of Court said you were!"

NATURE TALE FOR KIDS



Icty, the Faithful Oriole

By Dean M. Roosa

Many favorite memories about birds involve the oriole. The bird's bright plumage, its clear, loud song and its basket-shaped nest that is often built near a house at the end of a drooping tree branch, are familiar to many Iowans.

This bird became a favorite of many of us in the days when it was called the Baltimore oriole, named because it was a favorite of Lord Baltimore, whose colors were black and orange. For biological reasons, the species has been renamed the northern oriole. It maintains its scientific name, *Icterus galbula*, however, and it doesn't care a bit what humans call it.

Our story begins in an ancient American elm a few yards from a west-central Iowa house that was teeming with kids.

The female northern oriole had just completed the incredibly com-

plex task of weaving a bag-shaped nest in the end twigs of an American elm that had somehow escaped the Dutch elm disease. Her plumage, as with most female birds, was subdued, being dull yellow beneath, and olive-yellow on the back. This contrasted sharply with the male, who had the brightest orange and the blackest black feathers imaginable. The male was singing his loud song from the edges of their territory, announcing to all other orioles "no trespassing." The female, her nest complete, was content to feed, loaf and relax for a short time before she began her clutch of eggs and the serious business of raising a family.

Living in the house were five of the most curious youngsters Iowa has ever known. Their mother encouraged them, not minding frogs and toads brought into the house, even gamely smiling when a garter

snake was brought home, only to escape in the living room. After a brief period of pandemonium, the snake was located and taken back to the pasture where it was found. So, she was not surprised when one youngster took her to the attic window where they could watch the female oriole weaving the nest with string, hair, and plant fibers.

The female oriole soon had a clutch of four eggs and the children would often watch her incubating in the nest that rocked gently in the wind. Some encyclopedia work finally helped the youngsters realize the brightly colored bird singing nearby was the other half of the oriole pair. They also realized why the female was so much more drably colored; thus, an early natural history lesson was learned. Outside the window, the female patiently swayed in the nest, the male sang continuously from dawn to dusk. Behind the window, the youngsters were keeping close watch on this budding oriole family.

Two weeks after the clutch of eggs was complete, the eggs hatched. This event went unnoticed by the watchful youngsters, but soon they saw the parents bringing insects to the nest. They also noticed the male no longer sang his incessant song from the treetops.

About two weeks later, the young orioles simply outgrew the nest and were seen clinging to the branches in the elm, still being fed by the parents. Three were normal-plumaged youngsters, with the same drab colors of their mother. One, however, had a bright white spot of feathers on one side of his throat. This did not go unnoticed by the youngsters in the house. They immediately went to their books to try to come up with a name for this little oriole that was a little different. After much arguing, they finally settled on "Icty," a shortened version of its Latin name.

They watched as the little oriole learned to fly, to feed on insects in the treetops and to make its loud hunger calls when the supply of insects became scarce. The summer passed with one young family keeping close watch on another.

In late August, the curious youngsters could find no trace of the oriole family, so back to the books they went, to learn that orioles had probably yielded to the urge to migrate to southern Mexico into Central America. And they discussed the possibility of the same orioles returning to their yard the following spring.

May 6 of the following year, the youngsters were glad to hear the familiar loud oriole call from the treetops. It was a few days before they got a good enough view of the bird to realize it had a bright white spot in its throat. This was exciting stuff; their little Icty had returned to the exact yard where he had hatched. They again watched a new oriole family hatch, grow up, and leave, and they watched this brilliant songster with a white throat patch sing beautifully in their yard.

Late in the summer, the ancient elm began to show dried, brown leaves in the top. Soon the entire tree was brown, and it was a sad day when the crew came to cut down this ancient monarch. That summer, no orioles graced the yard of this curious family. With five growing youngsters, however, the house began to bulge, like the nest of the orioles, and the family decided a bigger house was a necessity. A week of searching led to a large old house in a grove of trees about a block from their present home. And so, sadly, the youngsters left their house and moved into their new home just before Christmas.

The new house was close to a creek and an old abandoned field — just what a young family needed. Many happy hours were spent there in early spring. A year passed with no sign of orioles. Then, on May 7 of the following year, they heard a familiar oriole song from the cottonwoods near the creek. After a couple of days of looking, they finally got a good look at the male oriole. Excitement quickly spread through the house as they realized this oriole had a bright white spot of feathers on his throat. Icty had returned from Central America to the yard of the family that had given him his name.



Ken Formanek

Wildflower of the Month

Gayfeather (*Liatris pycnostachya*)

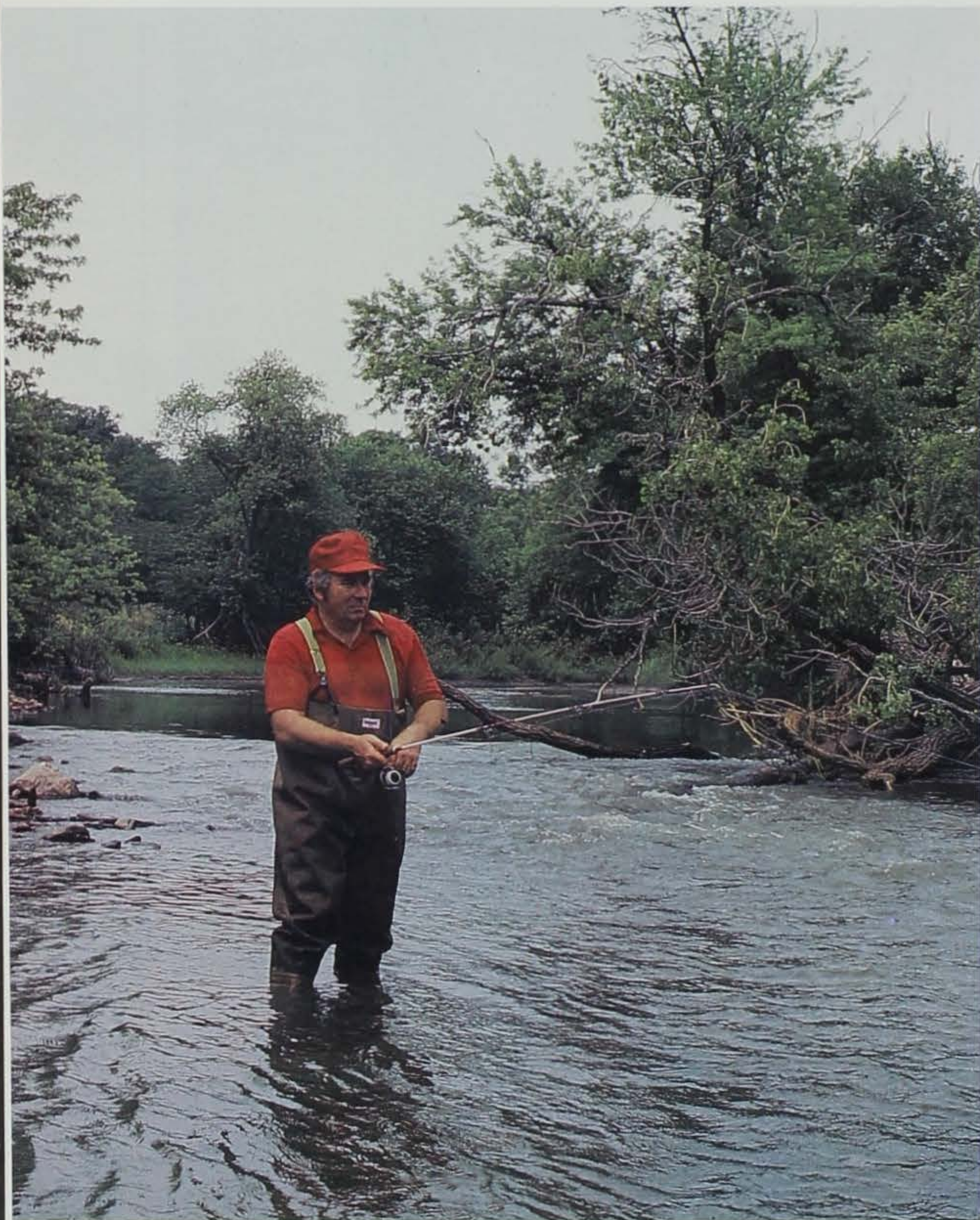
By Dean M. Roosa

The tallgrass prairie landscape begins to take on a more colorful appearance beginning in mid-July. Leading the way in this change is this month's featured flower, gayfeather (*Liatris pycnostachya*), a member of the Aster family Asteraceae. One of the more conspicuous prairie inhabitants, it grows erect and unbranched to a height of five feet. The lower two-thirds of the plant is crowded with narrow leaves that are closely alternate. The lower leaves are larger, and grow to a length of four inches long and a half-inch wide. The top one-third of the plant is a spike of rose-purple flowers which have a fuzzy appearance due to the extended pistils and stamens. Each tubular flowerhead has a mass of five to twelve tubular florets. Flowering begins at the top of the spike and moves progressively downward.

Another common name for this, as well as other members of the genus is blazing star.

Such a colorful member of the prairie flora caught the native Americans' and settlers' attention. This, and related species, were used for medicinal purposes such as a diuretic, tonic, stimulant, treatment for kidney trouble, gonorrhea and uterine diseases. It has also been used as a garden ornamental by prairie enthusiasts. This species, and related species in the genus, benefit from a prairie burn and are on occasion found in great abundance in mid-summer after a burn in April.

There are at least six species of this genus which grace Iowa prairies; all are colorful and worth seeking out. Perhaps this is the year you should get acquainted with these attractive and interesting plants.



Ken Formanek

Reading a River for Smallmouth Bass

By Arlin Schalekamp

From my vantage point, I could see the angler slowly working his way upstream. In a few minutes, he would be at the road and I would get a chance to talk to him about his fishing success.

As he got closer, I could see he was carrying a stringer of fish. What were they? Channel catfish, bullhead, carp? No, as it turned out, this angler had a beautiful limit of one- to three-pound smallmouth bass.

"What's your secret?", I asked.

"No secret to it, you just got to learn to fish the river," was his reply. That, as it turned out, was a profound statement.

This chance encounter happened to me several years ago on one of Iowa's smallmouth streams. It made me think about my lack of success and what I could do to turn it around. My personal fishing experience and creel survey results lead me to believe that the majority of stream bass are caught by a select group of fishermen.

What this old river rat was trying to tell me several years ago was that you must learn how to read the water. How does one actually read the water? Through visual observation and interpretation, the angler can get a quick and easy survey of what and where to look for the bronzeback.

Most good smallmouth streams have an abundance of gravel, rock, cobble, or boulder habitat. Smallies love crayfish. Rocky areas where crayfish live are best. Good smallmouth streams will have shallow riffles alternating with deeper pools. The riffles typically are gravel-cobble areas while pools may contain rock, gravel, cobble, sand or a combination of these. Pool depth should be at least three feet.

Smallies are creatures of the current's edge. Rarely will they be found in the fast current for any appreciable amount of time; however, they will move into the current to capture prey.

I think the key to reading a river is to think of current as structure. Typically, smallies will be found in holding areas adjacent to areas of faster current.

Anything that breaks the current and produces an area of relatively calm water will hold bass. Irregularly

shaped rocks create a calm water pocket just above and below the rock itself. As water breaks over the rock, it creates a wave or boil on the water's surface. This is a good indicator that some type of obstruction exists and a current break is present. Smallmouth often rest on the downstream side of these breaks waiting for food to drift by, while escaping the strenuous effects of fighting the current.

Another example of current as structure exists just upstream from riffles or rapids. These breaks are called slick areas and can be identified by noting very smooth-looking surface water just before it breaks into fast-moving rapids.

Bass may be found at the edge of the downstream side of stream slicks. The key is to find a "bump" at the slick end just before it breaks into fast water. Often, the largest smallmouth in an area will be found at the end of a slick.

Eddies form on the downstream side of any protrusion in a river, such as wingdams, fallen trees and points of an irregular shoreline. As water flows around or over these protrusions, an eddy will form on the downstream side, forcing water toward the shore and back upstream. A slick will form on the upper and lower end of each eddy. Smallmouth will be found at the lower and upper ends of these slicks lying close to the turbulent eddy.

Bridge abutments and mouths of tributary streams are favorite haunts of bronzebacks. For smallmouths to use abutments, a proper water depth of at least three feet should be present. Some type of hard bottom and a moderate water velocity should also exist.

Again, search for smallies on the downstream side in slack water. It's not uncommon for a number of fish to stack up there. During warm sunny days, some abutments will be in the sun and some will be in the shade of the bridge. Most of the fish will be found in the shade.

During the low water flows of summertime, the mouths of tributary streams can produce good fishing for smallmouth. When a tributary stream enters a river, a slack water area forms to the side and just downstream of the main flow. Smallmouth

will be found lurking on the edge of this slack water. Usually, they will be facing upstream ready to engulf any food item that may drift by.

Uprooted trees or log jams require a little more patience and persistence to fish. These structures can hold lunkers. Getting them out is another story. Smallmouth may be found under the largest log or root system in the water, facing upstream. If any current break is present, the fish will be on the edge of fast and slack water. Once a large smallie starts running and jumping though, the chance of landing it around these snags is slim.

The pool below a riffle can produce some exciting fishing, if a proper water depth and substrate exist. Generally, more larger fish can be found as the depth of the pool increases. The largest fish in any pool will be found at the downstream end. Smallies will school to a certain extent in these deeper pools. From here, they move up to feeding stations during daylight hours. These feeding stations might be flat areas near the pool, a series of large rocks or nearby eddies. Usually, the larger, dominant fish will select the most productive feeding stations.

Undercut banks are natural areas for smallmouth because they provide security and offer ambush sites for feeding. Undercuts are formed on the outside bends of rivers, where the velocity of water determines the extent of the undercut. Deeper undercuts will hold more fish; however, currents are usually strong and lure presentation can be a problem.

Access to the better areas of smallmouth streams can be gained by wading or canoe. Floating a stream gives the canoeist a pretty good idea

of what the river has to offer. By watching for habitat, the canoeist can determine if a stretch of river might harbor smallmouth bass. If the area looks good, the angler can beach the canoe and begin wading.

Since most smallmouth face the current, casting should be upstream or across the current. The retrieve should be downstream. A smallmouth's natural food usually comes from upstream, thus the lure will resemble their natural forage.

Casting upstream and retrieving downstream is the most productive and most difficult method to learn. It is very important to retrieve the lure at the same speed as the bottom current. The fastest water occurs at the surface, so keeping the slack out while maintaining the proper lure speed can be difficult. Using light line and a reel with high gear ratio helps maintain a tight line. Lots of practice on the water will bring success.

Another productive approach is to cast up and across the current. Using this quartering technique also requires a quick retrieve.

Stream smallmouth bass are one of Iowa's most exciting gamefish. Finding a stream with the proper conditions can truly lead to some fantastic smallmouth fishing.

An accomplished smallmouth bass fisherman can read the water and present the right lure in the proper manner. Above all, the accomplished angler practices the art.

Arlin Schalekamp currently works as a fisheries specialist for the Minnesota Department of Natural Resources. He worked for the Iowa Conservation Commission as a fisheries technician from 1975-84. He holds a B.S. degree from Iowa State University.



Ron Johnson

Once hooked, smallmouth bass provide exciting action.



Jerry Leonard

A stabilized stream bank provides protection of soil and quality fish habitat.

STREAMBANK STABILIZATION

By Gaige Wunder

Streambank stabilization can halt most soil erosion occurring along the banks of Iowa's small rivers and streams. And while it is economically important to stop soil erosion along the water's edge, the healing process also improves the aquatic habitat which, in turn, provides more numerous and diverse fish species living and thriving in our streams.

A stream is a very fragile and dynamic feature of the Iowa landscape. Rains in the watershed can bring stream levels up rapidly to

chew away the soil along stream margins. If adequate permanent vegetation has not been maintained along the stream corridor (i.e. due to improper construction or tilling techniques), the soil will be even easier to erode. Excessive numbers of livestock watering, grazing, or loafing on these banks can cut and trample streamside vegetation and further hasten the degradation. Meanders in the stream, while acting as a natural brake on the water velocity, tend to focus the stream's erosive forces. A

once-stable bank can be cut to a vertical wall of raw soil during just one intense rainstorm. Finally, excessive erosion along the banks contributes silt and sand to fill in and suffocate the stream's aquatic life.

Before we look for specific solutions to the bank-erosion problem, a few basic assumptions should be noted. The natural forces contributing to bank erosion are both powerful and persistent and are responsible for most of the meandering of streams and rivers. The process is ongoing and never-ending. Accelerating the process is easy; slowing it down is the tricky part. The solution lies in working with nature's processes rather than trying to overwhelm them.

Controlling these powerful forces through streambank stabilization requires sturdy materials and accompanying structures combined with some commitment of time and money. However, stabilization projects need not be grandiose budget-busters. Rather, they must be well-planned and supported by timely maintenance. Proper stabilization of a problem streambank requires that it be inspected and repaired as often as once a year. It is much better to involve a small investment in time each year for maintenance than to lose many feet of streambank to uncontrolled erosion.

There is no specific fix that can be applied to all bank erosion problems. The combination of water flow patterns and velocities, soil types, construction techniques and runoff make each streambank rehabilitation unique. Most are successful, but a few will fail. Six inches of rain the evening after a project is completed will do little to assure its successful end. Persistence is the key.

In any case, it is worthwhile to repair eroded streambanks. Alternatives such as channelization of the stream section is much more expensive, may require a special permit, most often causes additional problems for downstream property owners from higher water volumes and velocities, and worst of all, creates a biological "desert" in the new stream corridor due to the disruption of the stream habitat. Stabilizing the existing bank eliminates the erosion problem, retains the natural braking effect

on the water flowing through the stream meanders and enhances the existing aquatic habitat.

The fisheries section of the Iowa Conservation Commission has experienced many bank erosion problems and has developed a successful streambank stabilization program that is cost effective and acceptable to even the tightest budgets. While it should not be considered a cure-all for every bank erosion problem, the method has been used to cure many of the problems on state-owned properties and can serve as a pattern on privately owned streambanks. As added benefits, the stream's fishery is improved, aquatic insect and forage fish production is increased, overhead cover is expanded, the habitat is made more diverse for more species of fish, and the stream segment becomes much more aesthetically pleasing.

Initially, the troublesome bank must be revegetated. Therefore, the slope must be graded back to an angle of 45 to 60 degrees. Any flatter angle can cause the corridor to become excessively wide, and a steeper slope will not provide a sufficiently flat seedbed to start the new vegetation and control the erosion. The slope preparation work is best accomplished with a backhoe, but can be done by hand on smaller banks or where costs must be strictly controlled. The significant disadvantage with hand labor save for the actual time and labor involved, is that the soil displaced in sloping the bank, falls directly into the stream.

This adds to the silt load in the stream while forming a very loose, unconsolidated base for the remaining work on the lower portion of the bank.

The water must then be prevented from eroding away the lower reach of the newly sloped bank. Riprap or fieldstone weighing 25 pounds or more should be used as it is large enough to resist movement by the water, can be maneuvered by hand, and yet provides the many nooks and crannies necessary to protect small fish and food organisms. Do not use graded material. Smaller rocks will act as filler between the larger chunks and provide better erosion control. Particularly difficult banks should be trenched along the base of the slope to allow for installation of additional rock. Some hand placement may be necessary to get even coverage. Temporary mulch or soil coverings should also be considered higher over the entire bank to provide additional erosion protection.

Remember that six-inch rain? The disturbed area should be seeded with native grasses as soon as possible to establish a protective root web over the exposed soil. Additional seeding of long-stemmed grasses along the water's edge will be beneficial in providing important overhead cover for the fish. Canary grass is good.

Livestock must be denied access to these project areas. The grazing and watering activities will cut and loosen even established sod and disrupt streambank integrity. Maintain a

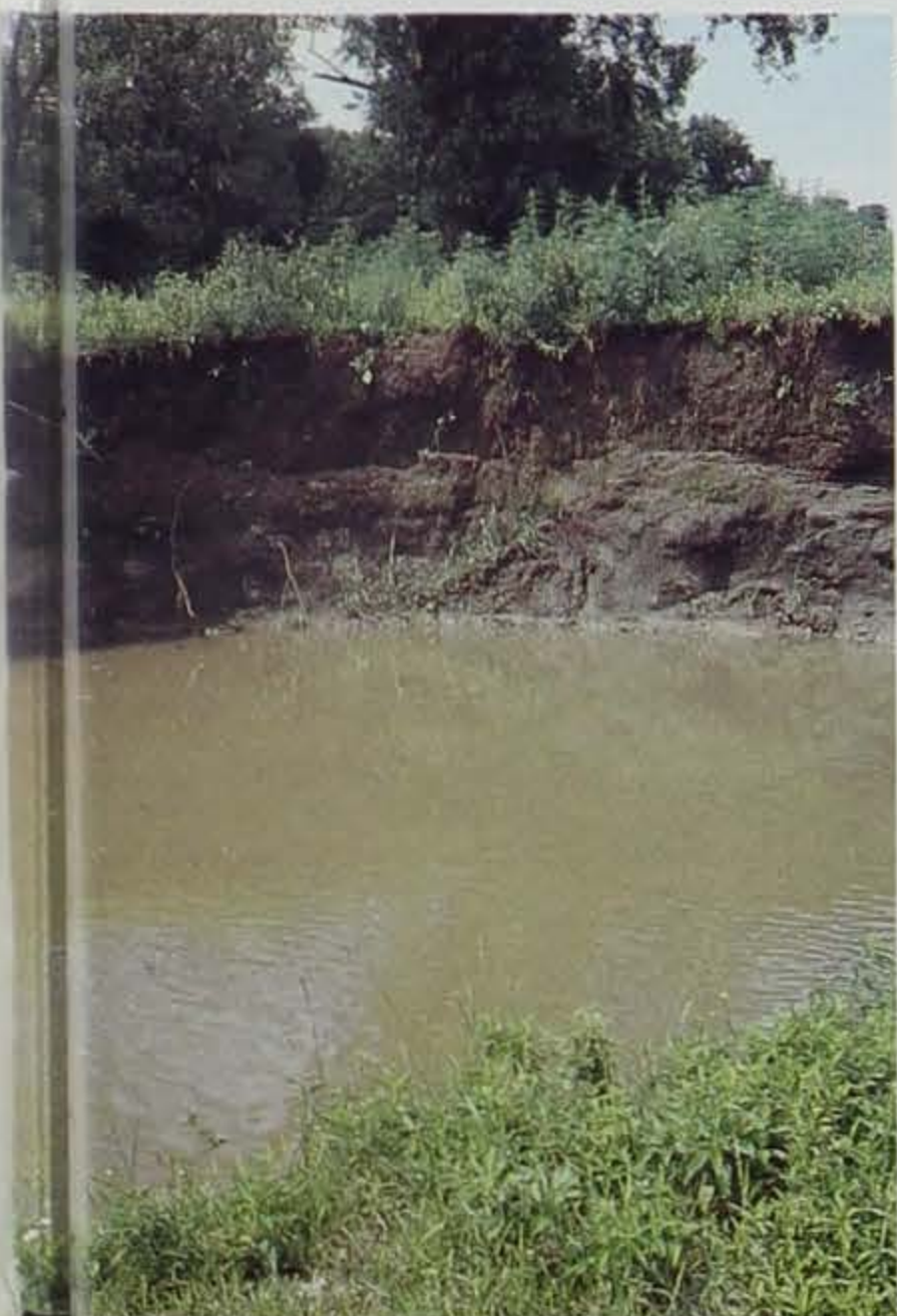
water access for animals on another portion of the stream where the banks are low and not as erodible.

Finally, maintain the cropfield margins at least 20 feet away from the streambank to allow for development of a buffer strip of natural vegetation to secure the banks with a stable root system. Tilling within a foot or two of the streambank is costly to a farmer's long term income because the heavy machinery loosens the soil during each pass and promotes erosion of the bank.

Streambank stabilization makes an excellent project for sportsmen groups and clubs. It requires little monetary investment, can utilize vast amounts of hand labor, can be an excellent public relations venture, and can help to revitalize Iowa's stream fisheries.

Additional technical assistance with streambank stabilization projects is available from your local Conservation Commission fisheries or wildlife biologists. Also, personnel with the Department of Water, Air and Waste Management, Wallace State Office Building, Des Moines, Iowa 50319 can provide technical advice as well as send you a helpful booklet entitled "How To Control Streambank Erosion."

Gaige Wunder is a fisheries management biologist at Decorah. He holds a B.S. degree from Iowa State University and has worked for the Commission since 1969.



Gaige Wunder



Gaige Wunder

An unprotected bank promotes erosion and creates poor quality water. Riprap protects the bank and soon becomes vegetated.

