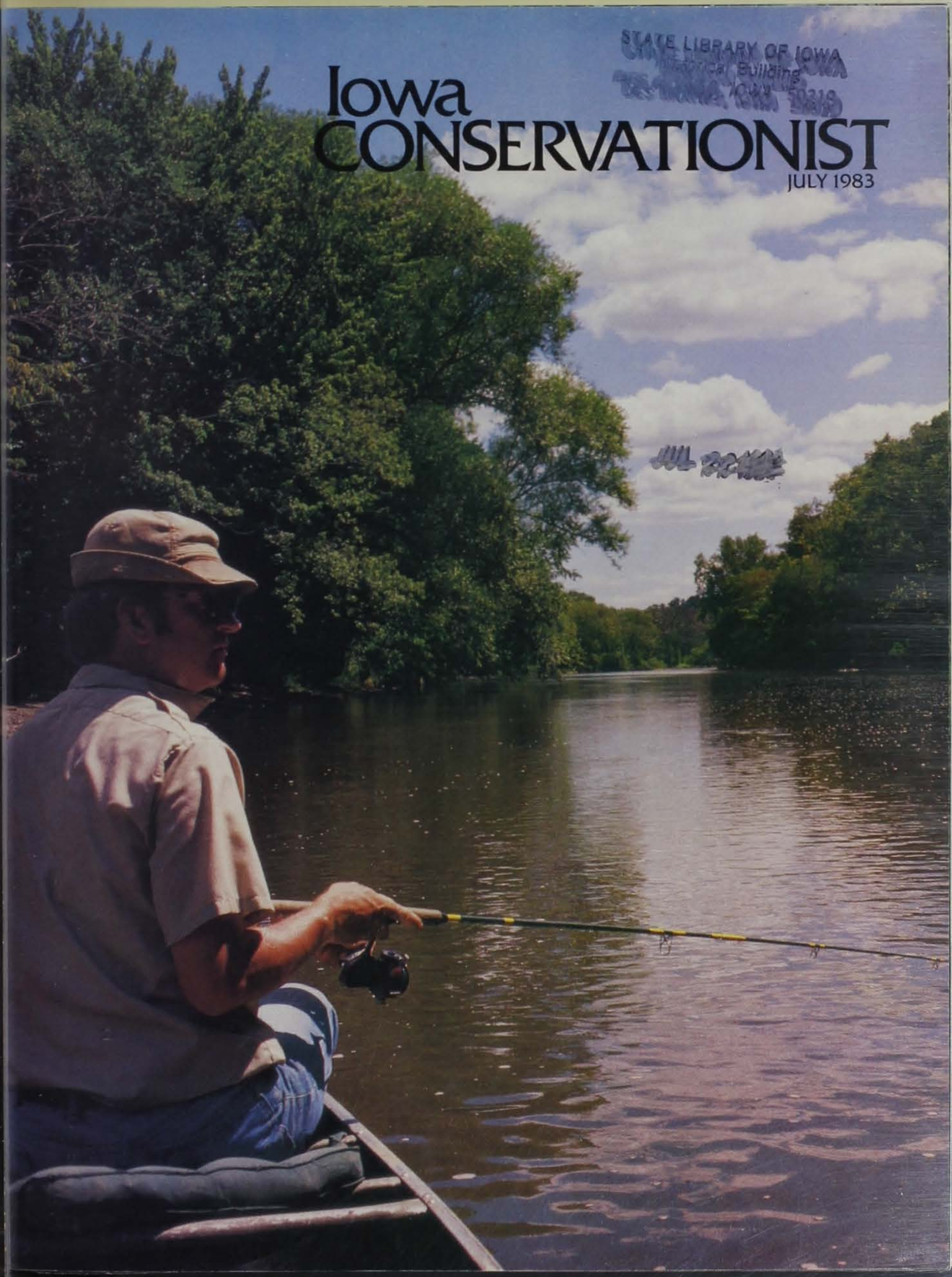
Iowa CONSERVATIONIST

JULY 1983



Iowa CONSERVATIONIST

Volume 42 No. 7 • July 1983

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FRONT COVER: *The Cedar River in Mitchell and Floyd Counties is an excellent canoeing stream and provides topnotch fishing.*

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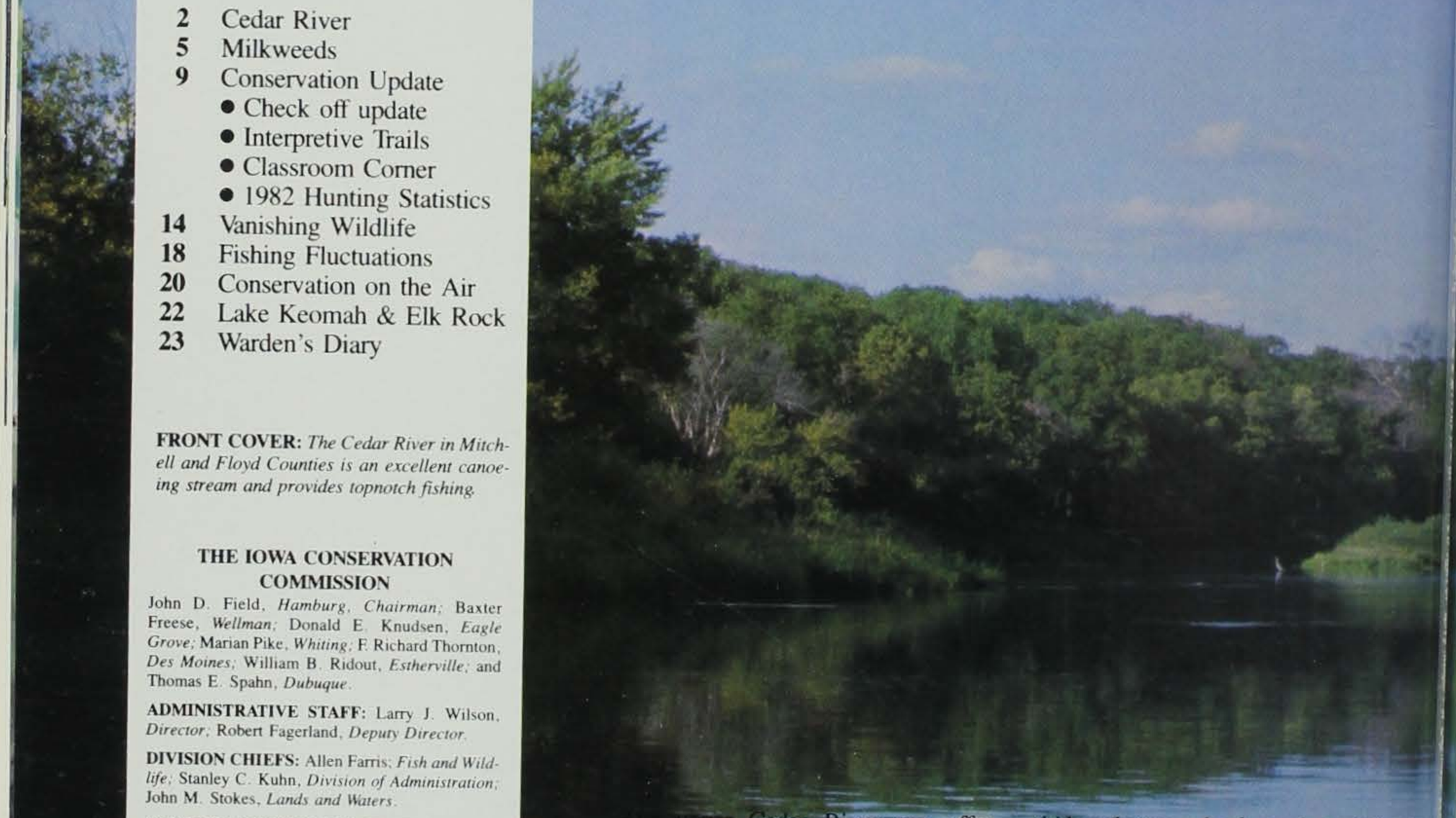
FLOATING AN FIS
UPPER CEDAR R



...upper Cedar River can offer ... a rare look at what many of our ...eams used to be — clean rock bot...m, wooded stream banks and rooted ...egetation growing in the stream bed. Known as the Red Cedar by many locals, this river has its beginnings in Dodge County, Minnesota and is a respectable size stream by the time it enters Iowa. Over three hundred miles later it finally joins the Mississippi in Louisa County in southeast Iowa. Because of this formidable length, we'll only float and fish the Cedar in Mitchell and Floyd counties and save the rest for other trips.

The upper Cedar in Mitchell County is characterized by low limestone bluffs, timbered stream banks and a relatively silt-free flow. The stream gradient is moderate in the free-flowing sections. Several old hydroelectric power dams near St. Ansgar, Mitchell, Charles City and Nashua impede the flow to form small impoundments along the river's course. The topography levels out somewhat in the southern part of Floyd County and stream flows become more sluggish causing the Cedar to take on a slower, more casual demeanor.

Float trips by canoe can be fun anytime, anyplace, but become a real exception on the Cedar. The ride is not fast nor particularly thrilling, but the fishing, the scenery and the quiet solitude of this river all combine to make it

Continued on page 4

Gaige Wa... located at ... Decorah. ... from Iowa ... been with ... mission si...

NISHING THE
R RIVER

Gaige Wunder is a fisheries biologist located at the State Fish Hatchery in Decorah. He earned a B.S. degree from Iowa State University and has been with the Iowa Conservation Commission since 1969.

the premier Iowa stream to float and fish. So oil up your reel, grab your camera and let's get going.

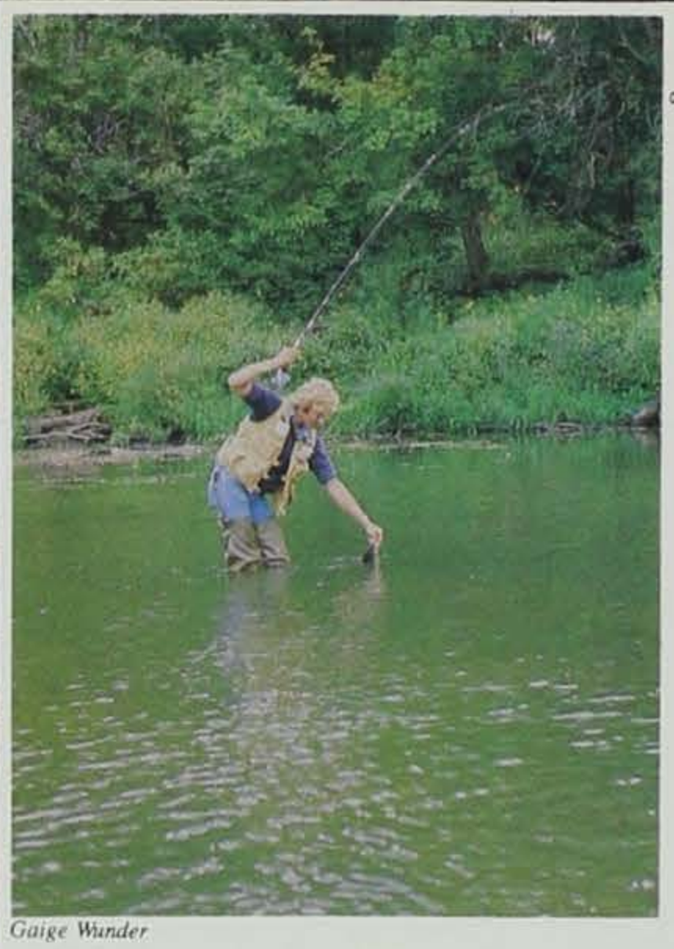
A few suggestions are necessary for you to enjoy the most from your trip down the Cedar. Some access points are on private property as is the great majority of the streambed and banks. Get permission first before you land your canoe and treat the property as if it were your own. Be safety conscious and remember that landowners having property and livestock on both sides of the river usually fence across it. Stay alert for barbed wire. Make sure your equipment is up to the trip and take and wear approved flotation devices. Avoid taking chances around the old impoundments where snags and fast, deep water are common.

Access points abound on the Cedar, so it's a matter of tailoring the length and type of fishing you're after into your float trip. This information is listed in the accompanying table.

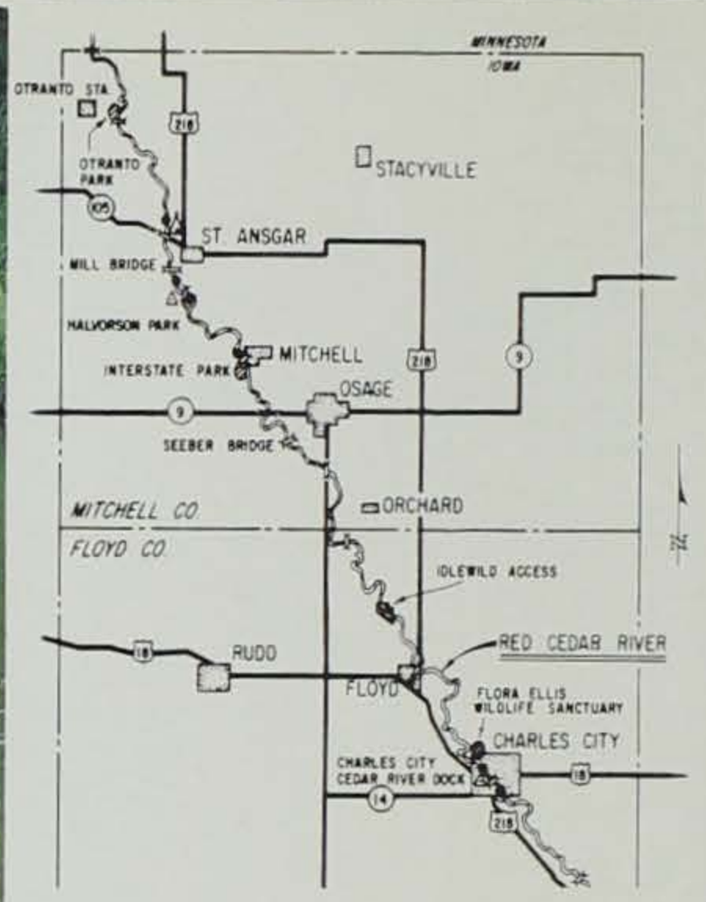
Fishing the Cedar involves a choice between two habitat types — the flowing stream where smallmouth bass, northern pike, crappie, rock bass, walleye and channel catfish are found, or the lake-like environment behind the impoundments where largemouth bass, northern pike and lesser numbers of channel catfish are present. Angling for smallmouth bass is best from Otrano to St. Ansgar and from Mitchell to the Floyd area. Traditional methods such as spinning or casting tackle with artificial lures are most popular. Techniques using live baits such as drifting nightcrawlers, soft-shell crayfish or small chubs can also be killers for the old bronze beauties. Canoeing is more satisfying there too, where the natural flow is pushing you toward your destination.

While you're there, why not throw in a second rod and try your luck catfishing. It's excellent just below the old mill dam at St. Ansgar, from below the Mitchell impoundment to the Spring Park access and from Osage to the Floyd area. Again, the old tried and true methods are probably best. The more the bait smells, the better it works. Prepared baits are good, but don't hesitate to try chicken liver, dead minnows, congealed blood or freshwater mussles. Drift the bait under and around the brush piles or try wading the riffles and drifting the bait down through the deep holes.

Angling for largemouth bass is best above the Mitchell dam along and under the numerous brush piles. Fishing techniques are the same as for smallmouth.



Gaige Wunder



Segment Name	Time Elapsed	Fishery: Species	Fishery: Habitat	Fishery: Points of Interest
Otrano to St. Ansgar	2:55	SMB, No & RB, Cr	Limestone rubble w/sand	Hwy 105 Deer Creek Turtle Creek Mill Dam
St. Ansgar (Mill Dam) to Mitchell	2:30	Cr, SMB & C Cat to park C Cat & LMB, No below	Rubble & sand to park Silt/sand below	Halverson Park Mitchell Impoundment
Mitchell to Hwy T38	4:05	SMB, Wal, No & C Cat	Lg. rocks & rubble	Spring Park Hwy T-38
Hwy T-38 to Floyd	4:50	SMB & C Cat	Rubble w/silt	Spring Creek Rock Creek
Floyd to Charles City	4:15	C Cat	Sand/ silt	
Charles City to Nashua	3:25	C Cat	Sand/ silt	

SMB — Smallmouth Bass, Cr — Crappie, No — Northern, RB — Rock Bass, Wal — Walleye, C Cat — Channel Catfish, LMB — Largemouth Bass

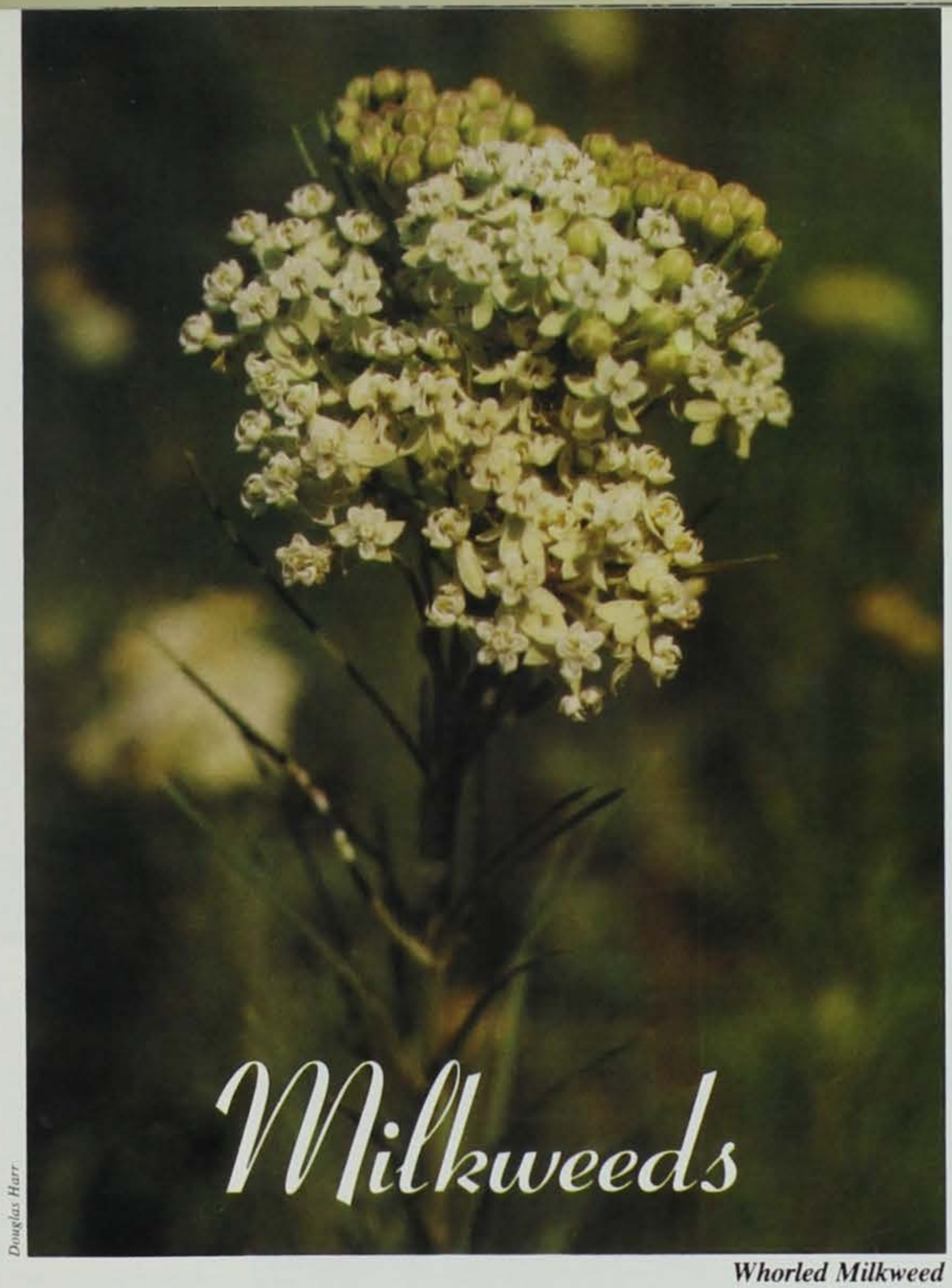
A few highlights should be noted for your trip down the Cedar. From Otrano to St. Ansgar there is excellent fishing below both old dams. Go slow and make several casts at the mouth of Deer Creek, an excellent smallmouth bass nursery stream and Turtle Creek, a stocked trout stream. Take special care through the old power dam as the current is swift and the bends are sharp.

From St. Ansgar to Mitchell is quiet water, suitable even for small power boats. Fishing is excellent immediately below the Mitchell Dam with an occasional walleye appearing in the creel.

Beyond the Mitchell impoundment to the Floyd access, is typical stream habitat. Spring Creek, another stocked trout stream, has its confluence with the Cedar in this segment below Osage. Rock Creek, another smallmouth nursery stream immediately downstream is also worth a look.

From Floyd to Nashua the river begins a slow, subtle change to low dirt banks and a silty sand bottom. The current is noticeably slower with dams at both Charles City and Nashua slowing the flow. Some smallmouth, northern pike and possible walleye fishing is available immediately below the dams. Good catfishing is available just above the quiet water of the Nashua impoundment (Cedar Lake). Angling in the impoundment is restricted to bullhead and carp because of the extremely shallow water condition.

This takes us to the Floyd County line and another trip. Why not grab your tackle and canoe and give the Cedar a try yourself.



Douglas Harr

Whorled Milkweed

Iowa's Surprising Wildflowers

By Douglas Harr

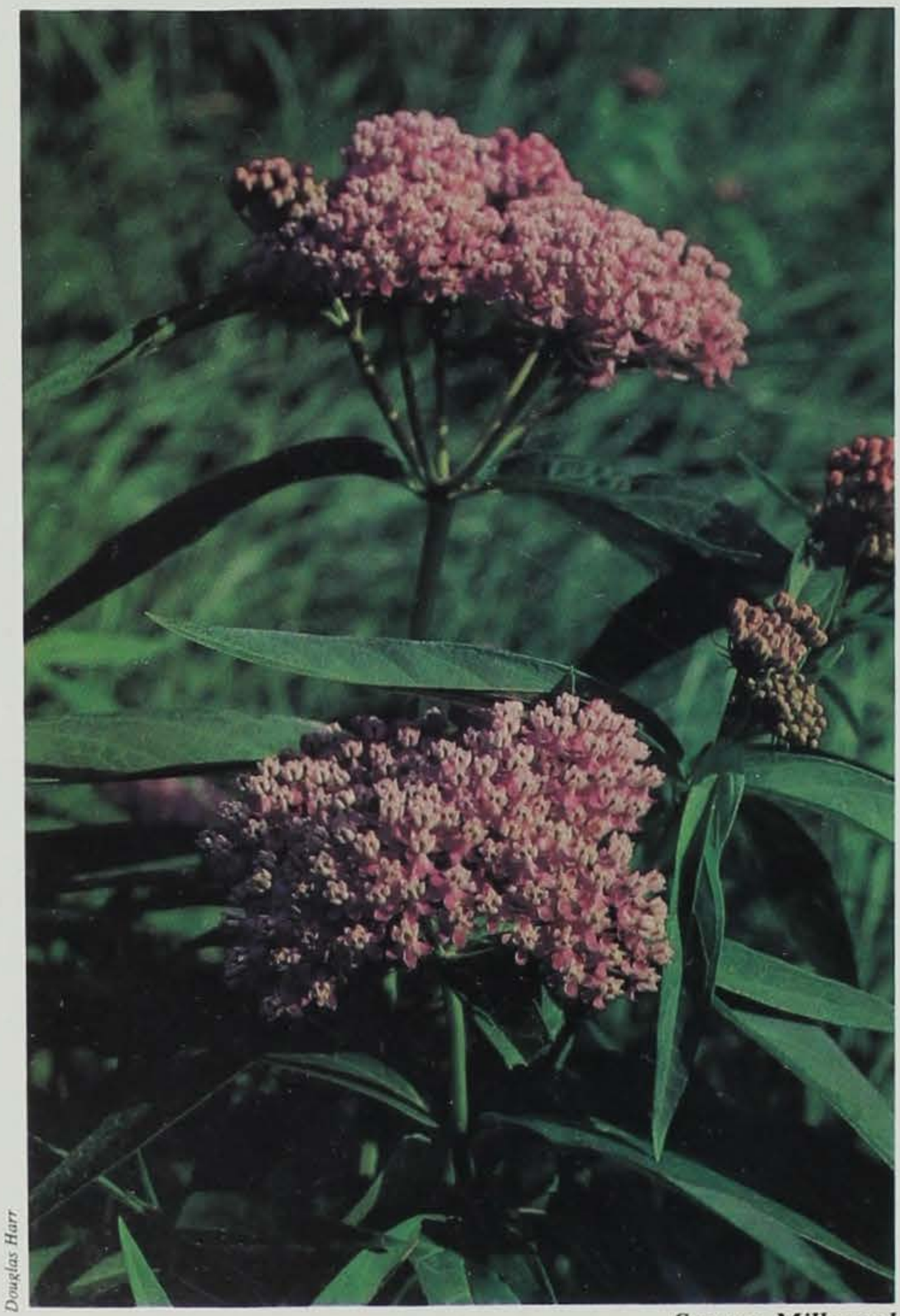
Walking through a remnant patch of native prairie you can almost forget summer's suffocating heat and humidity. Around your feet bloom wildflowers of every possible shape and color. There are the white dunce-caps of Culver's root, purple pom-poms of prairie clovers, colonies of waxy yellow Coreopsis, and the graceful magenta plumes of various blazing stars.

All at once your nose may be touched by a waft of sweetness filtering through the otherwise sage-scented prairie air. What is the source of this scent? A short search, using your nose like a bloodhound's, will likely lead you to a most unexpected fragrant find — a patch of lowly, common milkweeds.

Milkweeds? Those bothersome plants that seem to defy weed sprays in farmers' fields? The plants which glue the hands of many a youth earning a little summer spending money by walking soybeans? The very same.

Of our numerous unheralded wildflowers, milkweeds remain to many people among the least glamorous — even obscure — native plants. Some varieties are plentiful, the problem is that we tend to readily overlook, or more frequently just ignore, anything called a "weed." Therefore, a milkweed could not be worthy of our attention. Or could it? In my opinion, milkweeds are not only deserving of our attention, but some outright appreciation as well. Although common milkweed *(Asclepias syriaca)* is as common as its name suggests, there

Common Milkweed



Douglas Harr

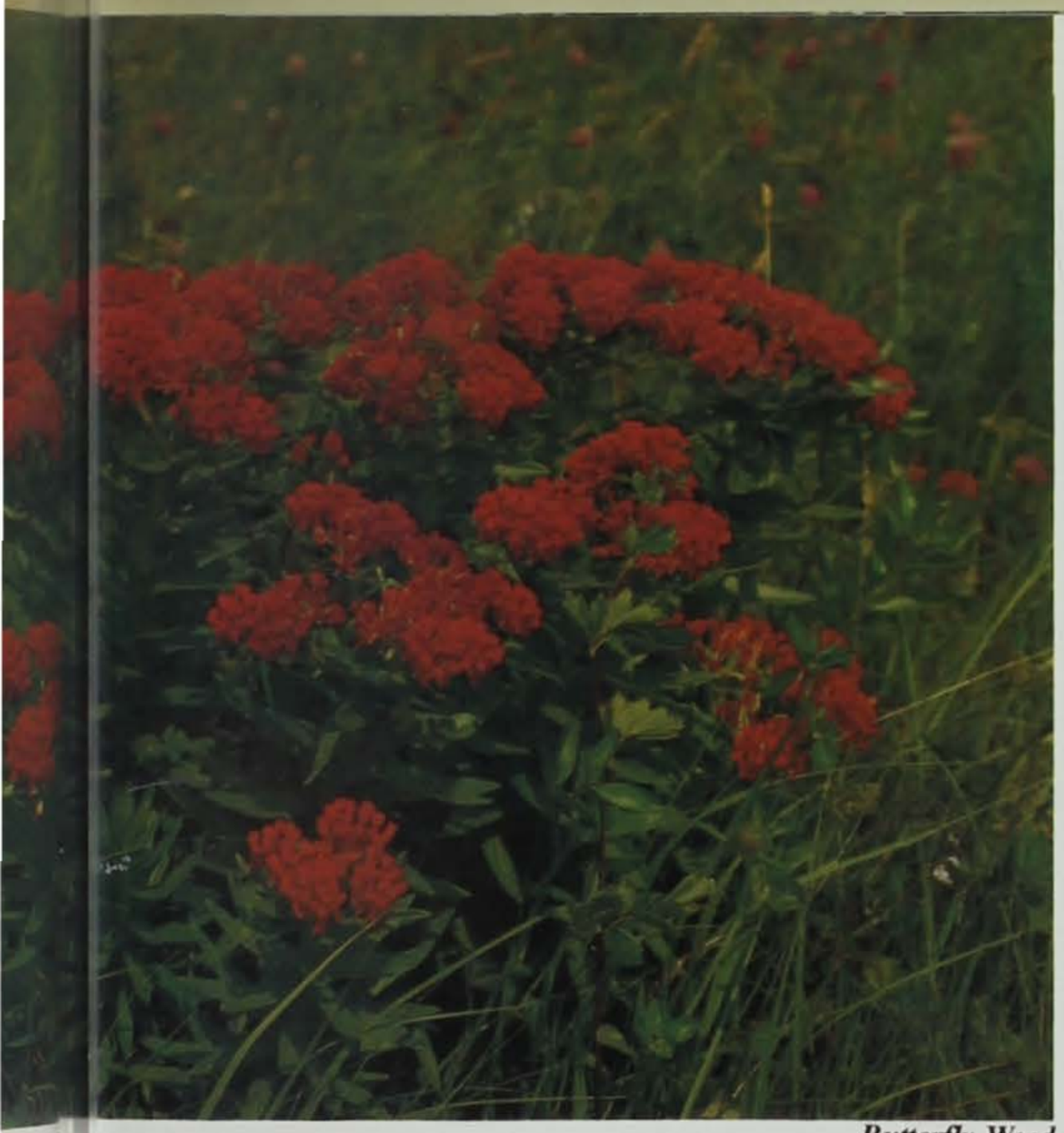
Swamp Milkweed

Douglas Harr

are several other species of native Iowa milkweeds. Within some of these, lie great beauties. Some are plentiful, others are threatened or endangered. All are interesting and beautiful in their own ways. We should not lightly pass them off as just "weeds" because of their unfortunate names.

Iowa's milkweeds are members of a large plant family known to botanists as Asclepiadaceae. There are nearly 2,000 species worldwide, most of which are tropical or subtropical. All varieties native to Iowa are of the genus *Asclepias*. This scientific name refers to the ancient mythological god of healing, Aesculapius. According to legend, Aesculapius became so adept at healing, that he learned to revive the dead. The god Jupiter, or Zeus, became so jealous of this power that he killed Aesculapius. Milkweeds are given the genus name *Asclepias* because at least one type, the butterfly weed, was frequently used by pioneers as an herbal medicine widely known as "pleurisy root." Thus, a connection can be made between the reputed god of healing and at least one milkweed.

Most milkweed flowers grow in a spherical or flat-topped cluster called an umbel. To really appreciate milkweeds' beauty, one must closely examine the small, individual flowers which com-



Butterfly Weed

Douglas Harr

Sullivant's Milkweed

Doug Harr is a wildlife management biologist for the Big Sioux Unit in Northwest Iowa. He received a B.S. and M.S. degree from South Dakota State and has been with the commission for 11 years.

prise these clusters. A hand lens or magnifying glass can make the job a little easier. It may then be seen that each tiny flower is nearly perfect in symmetry, having five of most flower parts arranged in a neat circle.

One unusual feature of these flowers is a structure which regulates pollination. An insect's legs must brush little pollen sacs, snag them, and remove them from the stamen. Next, these must be inserted into a very narrow opening on the flower's crown — all done unknowingly by the insect, of course. If this is not done properly and precisely, the flower is wasted and the familiar milkweed pod will not develop. This explains why many milkweed plants are found without so much as a single seed pod.

Flowers of some milkweeds are among the most delightfully fragrant of North American wildflowers. Anyone appreciating nature's works must smell the aroma of a milkweed flower cluster, taking care to first brush away bees or ants, and breathe deeply an incomparable sweetness.

Common milkweed, mentioned earlier, is the variety usually found growing in abundance along roadside ditches, field edges or in low-lying crop ground. Its flowers range from purple-green to greenish-brown. The familiar dried pods are sometimes collected for dried flower bouquets each autumn and were used during World War II in providing downy material to fill military life-jackets. Although the plant is filled with a bitter, milky fluid, young plant parts may be boiled three or four times, disposing of the water each time, and eaten much like asparagus. A little more complete description of common milkweed may be found in the January, 1983, issue of the CONSERVATIONIST.

Another often-seen plant is swamp milkweed *(Asclepias incarnata)*. It grows at marsh and stream edges or other wet areas. Leaves are somewhat more lance-shaped than those of common milkweed, and its flower color tends to be a shade of rose-purple. Some differences of opinion might exist over just what the fragrance is, but to me it is reminiscent of vanilla.

Butterfly weed *(Asclepias tuberosa)*, is a brilliant, fiery orange, the most colorful of all North American milkweeds. It was once a popular garden plant in colonial days. Its native habitat in Iowa is generally a dry or sandy area, especially in undisturbed prairies. This particular milkweed is now experiencing a resurgence in popularity among flower gardeners. Many seed catalogues and garden centers sell a cultivated variety, often given a more palatable name such as butterfly plant or orange glory flower. This apparently attracts buyers who might not otherwise purchase a "milkweed."

Showy milkweed *(Asclepias speciosa)* has the largest flowers of any local species, at least twice as large as those of common milkweed. They appear almost star-like when viewed straight on. Flower color is similar to common milkweed's. It should not be confused with common milkweed because showy milkweed is on Iowa's list of threatened plants. This plant should never be disturbed when discovered.

Sullivant's milkweed *(Asclepias sullivantii)* is not rare, but neither is it common. It also resides on virgin prairies and may be readily identified by its somewhat crinkled leaf margins and fewer flowers in the umbel than other family members. Sullivant's color is generally pink and the flower has a pleasant fragrance.

An infrequent prairie species is green milkweed *(Asclepias viridiflora)* having, as its name reveals, a greenish flower. Another very rare prairie species is Mead's milkweed *(Asclepias meadii)*, an endangered Iowa species located on very dry sites.

Amateurs at plant identification might not even recognize whorled milkweed *(Asclepias verticillata)* as being a milk-

weed at first glance. Found most frequently in pastures, this species seldom exceeds a foot in height. The confusing appearance of this small, white-flowered plant is probably caused by its leaves. Unlike many milkweeds its leaves are numerous and narrow — almost needle-like — and are whorled around an erect, thin stem. Flowers, however, are similar to other species, though relatively smaller in size. Whorled milkweed is poisonous to sheep and humans.

These are a few of the more easily identifiable milkweeds in Iowa. Some of the additional native varieties are considerably more difficult to find and properly identify. A couple of years ago, I happened upon a most unusual species on a prairie hillside in western Lyon County. My tentative field identification of the plant was *Asclepias auriculata*, a milkweed having no common name but which roughly translates into "eared milkweed." If that was a correct identification, it would have marked the first time the species had been found in Iowa since last seen in Harrison County during the early 1950's. I photographed the living plant and later that fall collected some dried plant parts, but positive identification is still unsure. We'll never know what it really was. Last year the landowner sprayed this plant's little two acre prairie home, fenced off the area and turned cattle into it. Not a trace of the specimen appears to remain.

This illustrates a most important message. We must do everything within our means to protect Iowa's endangered species, be they milkweeds or some other equally rare plant or animal. Some people might find animals a more attractive subject for preservation, but our rare plants are every bit as important to the ecosystem. In fact, some endangered animal species might be so dependent upon a rare plant that should the plant disappear, the animal faces certain demise.

If you find what you believe to be a threatened or endangered species, do not disturb it. Instead, report it to the nearest Conservation Commission personnel, or directly to the Iowa Natural Areas Inventory, Wallace Office Building, Des Moines. It might then be possible for specialists to work with the landowner in finding a suitable means of protecting the habitat of the species in question.

Until you discover an endangered milkweed, pay more attention to the common ones. Milkweeds are among our most surprising, beautiful and underrated wildflowers. Besides their beauty, these plants are important to the life cycle of many butterflies, most notably the monarch. Not many larger animals feed on milkweeds in Iowa, but farther west some species of big game are known to utilize milkweeds in their diets.

The name "weed" has led to an undeserved lowly status for this interesting plant family, but when you closely examine their exquisite flowers, breathe in their varied and sweet aromas, or consider their importance to the ecosystem, you'll surely overlook the milkweeds' unfortunate label. In so doing you may become more acutely aware of the wildflower and wildlife heritage we Iowans must strive to preserve.

Douglas Harr

Showy Milkweed

Douglas Harr

Asclepias auriculata

CHICKADEE CHECKOFF TALLY
A pleasant surprise

	First Year	Total $ Donated	No. of Donators	% of Persons Donating	Avg. Donation
Indiana	1982	$ 89,000	—	2.0	—
Iowa	1982	227,000	41,500	6.8	5.48
Kansas	1980	129,000	21,800	3.6	4.87
Kentucky	1980	85,000	13,600	1.2	6.29
Minnesota	1980	569,000	170,200	9.8	3.39
Oklahoma	1981	160,000	33,600	4.8	5.05

Iowa state income tax payers have outperformed those in most other states in giving part of their tax refund to support nongame conservation programs.

"It is obvious that Iowans care about our nongame wildlife resources," pointed out Ross Harrison, superintendent of information and education for the Conservation Commission. "It is also reassuring that there are a lot of people who are willing to voluntarily fund programs that will help guarantee a brighter future for nongame species."

Following is a table showing how Iowa's first year compared to other midwestern states which have a similar chickadee checkoff on their tax forms:

Harrison explained that all the Iowa checkoff contributions will be devoted to nongame programs. General program activities call for buying critical habitats, monitoring population status of certain nongame species, restoration of some extripated species, public education and participation activities.

Several people, not receiving refunds, have donated cash to be used in the nongame programs. The Commission wishes to acknowledge and thank these people.

Francis Greene Harcourt	$50
Alice Ochetree Mason City	$50
D.F. Lamb Sioux City	$25
H. Peterson	$25
Jeff Puffer	$11
Martha Clewell Iowa City	$10
Harry Harrison Madrid	$10
R. Holscher Dubuque	$10
Barbara Johnson Red Oak	$10
Stella Kirkendall Milbourne	$10
E.M. Rogers Iowa City	$10
William Steinbeck	$10
D. Yoran	$10
Eugene Engel Brighton	$5
Martin Moses Manchester	$5
Preston Garden Club	$5
Carl Schade Cedar Rapids	$5
Marnin Moeller Boone	$5
R.W. Whiney Dallas Center	$5
Ruth Morrison Salem	$2
James Williams	$2

There are more elk and deer in the U.S. today than there were in 1900.

* * *

Invertebrates, the spineless members of the animal kingdom, are never caught napping. Although most spiders, insects and other invertebrates do have daily rest periods, they never actually sleep.

* * *

Through its leaves, a large oak tree can lose up to 3200 quarts of water into the air every day.

DONATIONS

The Commission would like to recognize and thank the following people for their recent donations:

$500 worth of corn seed fertilizer and herbicide	Forest City Sportsmen Club
502 bags of grain sorghum	Pioneer Hi-Bred International
$75 worth of plant materials	Northern Iowa Prairie Lakes Audubon Chapter
National Geographic Subscription for Springbrook Education Center	Iowa City Womens Club.

OFFICER APPRECIATION

The duties of the conservation officer are not always popular, however occasionally they are appreciated, as characterized by this letter to the commission's director, Larry Wilson.

Dear Mr. Wilson:

I am pleased to write you concerning actions of your enforcement officers serving Lake Rathbun during the recent Memorial Day Holiday weekend. On Saturday, May 28, a severe storm descended on the Lake in the late afternoon hours. The officers on the Lake, in anticipation of the storm's arrival, made a very thorough coverage of the Lake warning all boaters of the approach of the storm and its forecasted intensity.

Supervising Officer Mike Runyan and Officers Ed Nelson and Ray Seay were on the Lake at the time the warning was issued.

Perhaps such activity is no more than the daily routine of the enforcement officers. Nevertheless, it is greatly appreciated by those of us who use the Lake regularly. Of particular note was the speed, efficiency, and accuracy with which the warning was spread to all boaters on the Lake. Being one of those who reached his mooring in the nick of time, I can tell you the warning was most appreciated.

Sincerely,

K. Sigurd E. Jaastad
Vice Commodore
Cruising Fleet of Iowa

WINNERS ANNOUNCED CONSERVATION POSTER CONTEST

Katherine Eller* (center), *first place winner in the third annual Water Safety Poster Contest, and third place winner, Jeanne Cuthberson, witness the signing of Iowa's safe boating proclamation by Governor Terry Branstad.

Winners of the Water and Boating Safety Committee of Iowa's third annual water safety poster contest were chosen in March.

Katherine Eller, a fourth grade student from Denison Elementary School, won first place with her design of two ducks swimming with a catchy slogan "Don't Duck Safety — Never Swim Alone". Eller is the daughter of Mr. and Mrs. Thomas Eller of Denison. In addition to winning a $100 savings bond and a plaque, Katherine was invited to meet Governor Branstad and witness the signing of Iowa's safe boating proclamation in May.

Savings bond awards and plaques, provided by IMT Insurance, were given to the following second and third place winners: second place ($75 savings bond) to Joel Bennett of Harvey, a fourth grader from Lincoln Elementary School in Pella; third place ($50 savings bond) to Jeanne Cuthbertson, a sixth grader from Milford School in Milford. Honorable mention certificates were mailed to 14 additional students whose drawings were selected by the judging panel.

IMT Insurance will print a quantity of the winning poster for distribution throughout the state. Cosponsors of the annual program are the Iowa Conservation Commission, U.S. Coast Guard Auxiliary, Des Moines Power Squadron, and the Iowa Chapter of the American Red Cross.

A FISHY STORY

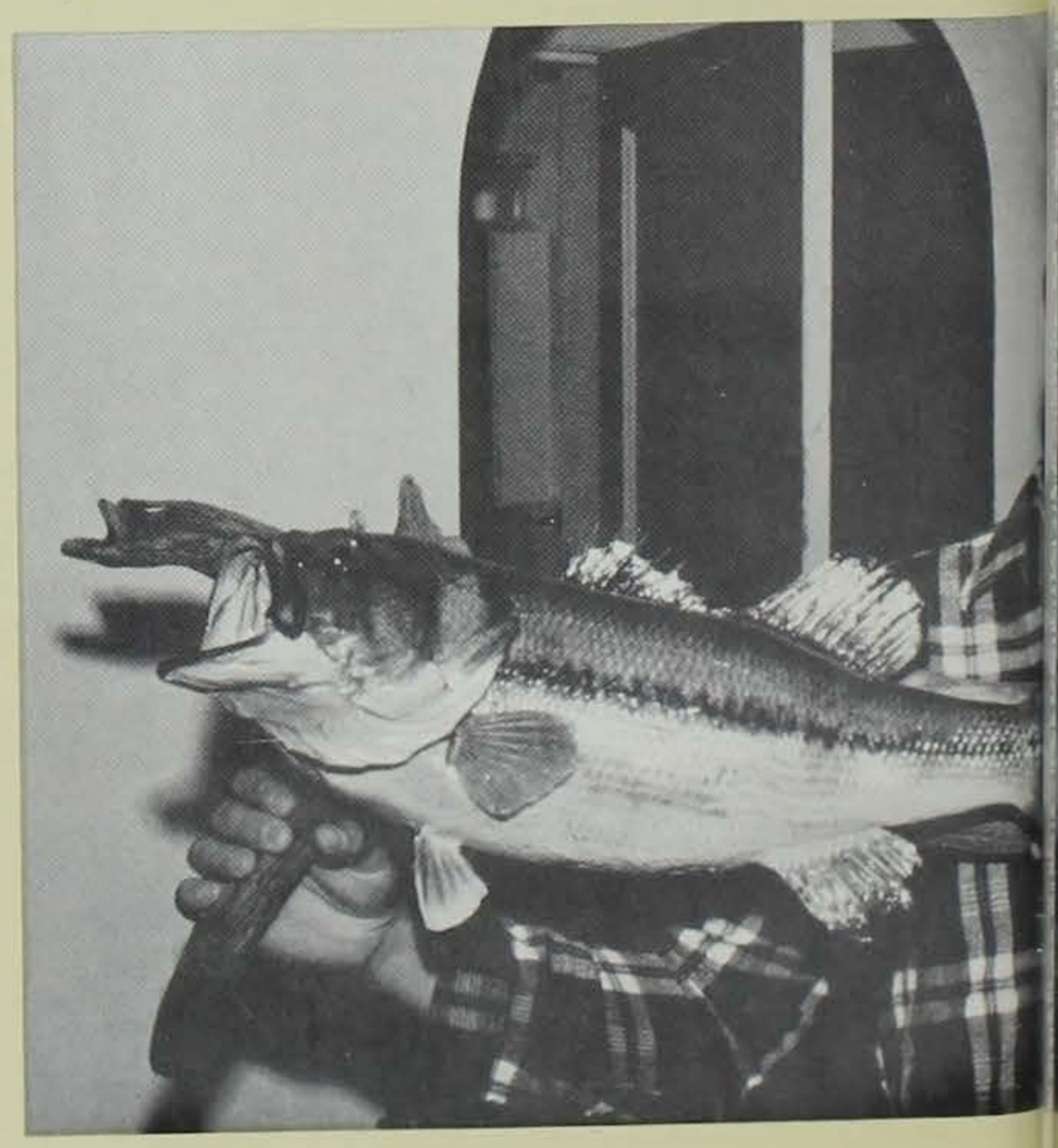
WOW! This is a lunker bass; I wonder how old it is. This is a common question in the minds of anglers when relaxing after having caught that unusual fish. Age of fish can be estimated by careful microscopic observation of growth rings hidden in cross sections of bony parts of sealess fish or scales of other fish.

The unusual happened last spring to Bob Stapleford while fishing Big Creek Lake. On this trip, Bob caught a trophy largemouth bass that tipped the scales at approximately 9 pounds. The fish measured 24 inches in length and had a girt of 16¾ inches. The fish was obviously a giant among its kind, but how old was it? Guestimates ran from 6 to 12 years; however, this fish was very unique and it was only a matter of time before Bob would determine the exact age of his trophy.

News of the trophy traveled fast among fish gossip circles, and within a few days of the catch, the author got wind of the catch and became interested in talking to the lucky angler. Tales passed through bait shops and bass fisherman indicated the fish was carrying a numbered tag.

A little investigation found Bob and his fish, and yes, it was carrying a yellow tag, numbered A143. Let's take a look at the history of this unique fish that now hangs on the living room wall of one very proud Bob Stapleford.

Largemouth bass, reared at the Lake Wapello and Mt.



Ayr Fish Hatcheries, were first stocked in Big Creek Lake in 1972. Bob's fish, A143, was among these fish. The newly stocked fish grew very rapidly and a length limit of 14 inches was placed on the bass to prevent overharvest. Fisheries biologists captured, weighed, measured, and tagged bass to determine the benefits of the 14-inch length limit. Electrofishing was used to capture bass and on April 3, 1975, a bass weighing 2.4 pounds and measuring 15.6 inches in length was tagged with a yellow anchor tag with the distinctive number of A143. Fisheries biologists tagged over 800 largemouth bass in the spring of 1975 and A143 was the sixth largest. The fish was captured in the upper portion of the lake and was in excellent condition. Old A143 grew rapidly and unlike most of his brothers and sisters survived the intense angling pressure of Big Creek Lake, grew to trophy size and was caught at the ripe age of 10 years.

IOWA'S SECOND FALL TURKEY SEASON A SUCCESS

Fall turkey hunters had another successful season in 1982. Shotgun hunters were allowed to hunt in two zones in southern Iowa, each with a quota of 1,000 hunters. Unlimited archery permits were available, and archers were allowed to hunt in all areas open to spring hunting in 1982. Turkeys of either sex were legal for both gun and archery hunters.

Just 1,950 shotgun and 353 archery permits were sold. Shotgun hunters bagged 769 turkeys (42 percent success rate for those who actually hunted), and archers bagged 10 turkeys (3.5 percent success rate). Landowners obtaining guaranteed licenses to hunt on their own land accounted for 22 turkeys in the shotgun harvest.

Both the harvest and success rates for shotgun hunters were slightly down from the 808 birds bagged and 47 percent success rate recorded in 1981. Two consecutive years of poor turkey production caused by extremely wet weather during the critical May-July nesting and brood rearing months have substantially reduced turkey populations in southern Iowa. Fall hunters did quite well in spite of this; success rates for spring hunters in Iowa seldom exceed 30 percent and both spring and fall success rates are usually much lower in other states.

Archery success rates are comparable to those from other regions of the country. Archers have particular difficulty calling sharp-eyed turkeys within 20 yards and drawing the bow without being spotted. Turkeys also present a much smaller target than the white-tailed deer, the traditional quarry for Iowa bowhunters. As a result, archery success rates seldom exceed 5 percent.

Some problems developed because hunters tended to concentrate on publicly owned forest lands. State forests and other public hunting areas composed just 8 percent of the total forest land opened to fall hunting, yet they sustained nearly one third of the hunting pressure and harvest. As a result, interference between hunters was more common on public hunting areas and success rates were lower. Hunter concentrations also create potential safety hazards since any turkey is legal game in the fall. The Commission urges turkey hunters to seek out less crowded, privately owned forest lands to hunt. Turkey populations are just as high on private land, and the absence of other hunters will increase the satisfaction of the hunt, as well as reduce safety hazards.

Fall, any-sex turkey seasons were begun in 1981 as a three-year experiment to take advantage of extremely high turkey densities in southern Iowa's forest lands. Results of the first two years show that fall hunts can be managed to provide many hours of safe, enjoyable recreation for hunters seeking a new hunting experience. What remains to be demonstrated is the ultimate effects of fall, any-sex hunting on turkey populations. Removing a portion of the turkey population in the fall in advance of natural mortality which would have occurred anyway through the fall and winter is a biologically sound method of population management which has been used for decades on ringnecked pheasants, bobwhite quail, white-tailed deer and many other wildlife species. What remains to be determined is the percentage of a turkey population that can be harvested without causing turkey numbers to decline. The Commission has been carefully monitoring annual fluctuations in turkey populations, survival and productivity for the past five years at Stephens State Forest in Lucas County. Stephens Forest was chosen because it has high turkey densities and sustains the greatest hunting pressure of any comparable area in Iowa. Consequently, the effects of fall hunting should be most readily apparent there. This project will be continued through the third year of evaluation. The overall effects of any-sex hunting will be carefully examined by Commission biologists and staff before fall seasons are expanded to other areas of the state.

BOOK REVIEWS

The Complete Book of Canoe Camping
by J. Wayne Fears

256 pages.
Illustrated with photographs and drawings.
Published by Winchester Press, 220 Old New Brunswick Road, Piscataway, New Jersey 08854; 1981
Price $12.95

This volume is a practical guide for all canoe campers. Wherever you live, it will show how to find canoe trails near home, how to hold expenses down, and how to assure a safe, healthy, fun-filled outdoor experience.

For those who are newcomers to the sport, there is a chapter on learning to canoe. The tips, diagrams, and photos in this chapter will be of great help to intermediate canoeists as well as beginners. But the author stresses that no book can, by itself, teach canoeing, and he tells how to find local instructors and canoeing courses.

For experienced canoeists as well as novices, there are detailed chapters on: selecting canoe and camping equipment; planning trips; choosing campsites; streamside cooking; canoe fishing and hunting; and canoe camping with children.

Geology of Iowa: Over Two Billion Years of Change
by Wayne I. Anderson

Published by Iowa State University Press, Ames, Iowa 50010

Richly illustrated and highly informative, this book is written for the teacher, student geologist, or interested layperson. It is unique in that it is the first book to present an overall summary of the state's geologic past.

STATE PARKS INTERPRETIVE EFFORT

A total of 20 self-guided nature trails are now available for visitor enjoyment as a part of the Iowa Conservation Commission interpretive program. In 1982, state park interpretive trails hosted nearly 50,000 walkers.

The purpose of the interpretive program is to help make the park visitor more aware of the significant natural and historical features found in Iowa's many state parks and recreational areas. Each trail employs a brochure with a list of points of interest keyed to numbered posts along the trail. The trails are designed to make the visitor more knowledgeable of the park's significant natural plant communities and other features, and at the same time provide an enjoyable recreational experience.

Trail efforts have been completed to date at Gull Point, Palisaides-Kepler, Lake Macbride, Backbone, Bob White, Waubonsie, McIntosh Woods, Stone, Pleasant Creek, Lake Ahquabi, Wilson Island, Lake Keomah, George Wyth, Volga River, Elk Rock, Walnut Woods, Pine Lake, Wapsipinicon and Springbrook.

"The trails have been very successful," says Jim Scheffler, associate parks superintendent. "People enjoy their walks and at the same time learn from them. Further self-guided trail projects are now underway."

State park interpretive efforts also included a large number of campground programs. These slide, movie and/or speaker efforts were attended by over 8,300 individuals in 1982. "We feel the campground program is a natural," says Scheffler. "Campers provide a ready audience, eager to attend programs." Programs were held at 20 parks in 1982. According to Scheffler, the commission will try to expand the effort, if possible, in 1983.

Scheffler says it is not enough to simply provide lands, waters and facilities for public recreation. "The park visitor should also have an opportunity to learn about the park's natural communities — its trees, plants and wildlife, as well as geological and historical features. Through such knowledge, the visitor can begin to understand and appreciate how the natural system of the parks functions."

Scheffler feels this knowledge can also result in a greater appreciation of the park environment. "Many people inadvertently damage their parks through ignorance," says Scheffler. "The park visitor who drives his or her car off the roadway or damages a tree or rock formation may not realize the full effects of their actions. Improved knowledge of the park environment can help to minimize thoughtless acts."

"So far, our interpretive program has been done on a limited funding basis," says Scheffler. "No additional budget or manpower has been necessary for these activities. They have been conducted with existing resources. The state parks staff is hopeful that, in the future, full-time and seasonal interpretive personnel will be available. In the meantime, we will continue to do all that we can to offer a variety of interpretive experiences for the visiting public."

Information about the state park system is available from your state park ranger, or by writing the Iowa Conservation Commission, Wallace State Office Building, Des Moines, Iowa 50319.

TREMENDOUS SUCCESS FOR SWITCHGRASS PROGRAM

Iowa Conservation Commission officials report a tremendous response from Iowa landowners requesting assistance through the switchgrass cost-share program.

During the application period, which ended in April, 176 applications totaling 3,502 acres were received and reviewed. A total of 2,128 acres, 133 applications, were approved for cost-sharing, obligating the entire $100,000 the commission had to spend for cost-sharing. Commission officials are encouraged by the response from Iowa landowners and believe the PIK program had a positive influence on the number of applications received.

The switchgrass program is a demonstration program designed to establish wildlife habitat which is economical to farmers. Switchgrass is a warm-season grass which provides excellent cattle forage during the hot summer months as well as excellent wildlife habitat.

The commission will be spending $100,000 annually on the switchgrass program through the year 1986. For more information, interested landowners should contact their local wildlife biologists or Soil Conservation Service district conservationists.

1982 GAME HARVEST DOWN

The figures are in on the 1982 small game harvest, and the estimated take of most species was down.

According to Iowa Conservation Commission surveys, only ducks and raccoons showed an increased kill over 1981. The gray partridge kill was down from the previous season, but still above the ten-year average. The pheasant harvest was 33% lower; the cottontail rabbit take was down 37%; and quail hunters killed some 46% fewer bobwhites last season.

Richard Bishop, wildlife research supervisor for the commission, said the decreased harvest was no surprise as small game population surveys conducted during 1982 showed significant declines.

"The cold, snowy winter of 1981-82 followed by a cool, wet spring spelled trouble for wildlife," Bishop said. "Heavy rains during June and July topped off an extremely poor nesting and breeding season. Thus, the hunting season last fall resulted in a significantly lower kill in most areas."

According to Bishop, cool wet weather can cause nesting hen quail, turkeys and pheasants to abandon nests. He said newly-hatched chicks also experience higher mortality under those conditions. He added that heavy rains in June and July then caused nests to be washed out, and many young birds and rabbits drowned.

Bishop noted that after experiencing a mild winter, sufficient brood stock now exists for all species to recover to normal levels. However, the weather conditions during June and July will be critical to this year's production of upland game.

"We have a potential for producing excellent numbers of upland game species this year." Bishop said. "The PIK program will provide additional nesting acres; and if heavy rains do not occur during the production season, nesting results could be good."

NEW WATERSKIING RULES IN EFFECT THIS YEAR

The Iowa Conservation Commission reminds waterskiers of two new rules that are in effect this year.

Waterskiing will now be permitted from sunrise to one-half hour after sunset. Previously, sunrise to sunset skiing was allowed. A U.S. Coast Guard-approved personal flotation device (PFD), Type I, II or III, must now be worn by everyone engaged in waterskiing, surfboarding or a similar activity. Under the old rule, skiers could wear a ski belt that was not Coast Guard approved.

To make waterskiing safer and more enjoyable for everyone, people are required to observe five basic rules:

1. The operater and/or skier should not operate in a manner endangering the safety of persons or property.
2. A wearable U.S. Coast Guard-approved PFD must be worn by the skier.
3. Another person must be on board as an observer in addition to the operator.
4. Skiing hours are from sunrise to one-half hour after sunset only.
5. Operation should not take place under the influence of intoxicating liquor, narcotic drugs, barbituates or marijuana.

ART IN PARKS

Several state parks will feature something a little different this summer. An "Artists in the Parks" program, sponsored by the Iowa Conservation Commission and the Iowa Arts Council, should provide some special interest to visitors.

Painters, musicians, dancers, photographers, sculptors and other artists will incorporate themes of nature and wildlife into their work while spending a few days in a state park. Original artwork will be created for permanent display in some parks. Theatrical performances will be staged in others. Several interpretive programs and workshops are also planned. Visitors are encouraged to talk with the artists, enjoy their work and become involved in the programs.

The first program will feature David Garrison, a sand painter, at Lake of Three Fires State Park in Taylor County, June 29 through July 17. Garrison, who creates sand drawings and paintings with historical content will undertake a project involving visitor participation.

Other artists scheduled include:

George Taylor, photographer — Springbrook State Park, Guthrie County — July 9-10

Carolee Knutson, quilter — Springbrook — July 16-August 6

Corinne Whitlatch, stained glass artist — Springbrook — August 20-September 5

Craig Mosher, woodworker and sculptor — Backbone State Park, Delaware County — August 27-September 10

Duane Hutchinson, storyteller — Lake of Three Fires, Taylor County — September 3-September 24

AVOID COLLISIONS — KNOW BOATING RULES

Most serious boating accidents occur while a boat is underway and usually include a collision according to Iowa Conservation Commission officials. Most of these accidents, they point out, can be prevented by knowing things to look for, such as other boats, boulders, stumps, docks and reefs.

In a crossing situation or when meeting head-on, it is important that both boat operators know which craft has the right-of-way and that each follows the rules of the road.

The right-of-way rules are:

1. When passing another vessel from the rear, pass to the other vessel's left (port).
2. Passing when approaching a boat head-on — pass to the left of the oncoming craft (port to port), just as you would do when passing on a two-lane highway.
3. When passing at right angles, the vessel on the right always has the right-of-way.
4. Manually-propelled vessels have the right-of-way over all other vessels.
5. Sailboats have the right-of-way over all motor-driven vessels. Motorboats, when meeting or overtaking sailboats, should always pass on the sailboat's leeward (downwind) side.
6. All craft backing from a landing have the right-of-way over incoming vessels.

CLASSROOM CORNER

Perhaps the most important and basic of all principles applied in the science of fish and wildlife management is the concept of carrying capacity. Roughly defined, it is the number of living organisms that any area of land or water can provide with the essentials and support until the next breeding season.

Every unit of land or water has a limited amount of the basic necessities for survival — food, water, shelter, and space. The quantity and quality of these set the upper limits of any population. An area of land or water will usually have a variety of carrying capacities; one for each different species that lives there.

Carrying capacity varies with the season. Most of us are accustomed to thinking of it at least in winter, when the food and shelter are minimal in many areas. But for fish minimum carrying capacity occurs in summer when the water is scarce and the temperature rises.

The lowest carrying capacity reached during the year often sets the population level for wildlife. Despite man, disease, predation and accidents, the lowest carrying capacity during the year usually has the most impact on both high and low population levels. Many species do not have sufficient reproductive ability to reach carrying capacity when at low population levels. They do produce more than can live through the time when carrying capacity is most limited. Thus it is the low level that really governs population size.

In Iowa, a large concern is the loss of timber lands and its affect on the statewide carrying capacity. The following conservation quiz provided by Bill Farris, assistant state forester, presents more information on Iowa's forestry.

"Forestry Questions"

1. How many acres of properly managed woodland are needed to produce a continuous supply of firewood for heating the average home?
   A. 2-3 acres B. 5-6 acres C. 10-11 acres
2. What is Iowa's state tree?
   A. Cottonwood B. Hickory C. Oak
3. What is the largest tree in Iowa?
   A. Cottonwood B. Silver Maple C, Bur Oak
4. How many acres of woodland are there in Iowa?
   1850 A. 4-5 Million B. 10-11 Million C. 6-7 Million
   1977 A. 1-2 Million B. 3- 4 Million C. 5-6 Million
5. What are the dimensions of a cord of wood?
   A. 2′x4′x8′ B. 4′x4′x4′ C. 4′x4′x8′
6. How many seedlings are produced annually at the State Nursery?
   A. ¾-1½ Million B. 4-6 Million C. Over 8 Million
7. The most common cause of wildfires in Iowa is?
   A. Careless Campers B. Lightning C. Debris burning
8. Dutch Elm disease no longer threatens Iowa's elm trees.
   True or False
9. Oak Wilt is caused by:
   A. Bark Beetle B. Fungus C. Both
10. The forest resource in Iowa is not affected by air pollution.
    True or False
11. Fires are being used in Iowa to improve wildlife habitat and native prairies.
    True or False

ANSWERS: 1. B 2. C 3. A 4. C & A 5. C 6. B 7. C 8. False 9. B 10. False 11. True

Part 2 of a 3 part series

IOWA'S VANISHING WOODLAND WILDLIFE

Disappearing Creatures of our Wooded Streams and Bottomlands

By Jewel K. Bennett

Illustrations by Rex Heer

The original Iowa forest covered 19 percent of the state, much of it filling remote riverbottoms or as corridors of timber outlining watersheds. These wet forests probably fared better than the upland forests when the pioneers removed over half of the state's timber by the late 1800's. But recent land use practices such as stream channelization, road construction, and clearing floodplains for crops has encroached on even our wet woodlands. Forested areas have now been reduced to only four percent of the state. Excessive soil erosion and run off has virtually eliminated clear, clean streams, affecting the basis of many wet woodland communities.

Such great changes in amount and quality of our riparian habitats has had a negative effect on wildlife. Many species, like the wood turtle, have become *endangered*, and have perilously few breeding populations left in the state. Others, like the evening bat are *threatened* and may soon become endangered if proper steps are not taken.

Many of the species described here also suffer from a "recognition problem." For instance, the western earth

"Like winds and sunsets, wild things were taken for granted until progress began to do away with them. Now we face the question whether a still higher 'standard of living' is worth its cost in things natural, wild, and free."

— Aldo Leopold
A Sand County Almanac, 1949

snake is so uncommon and secretive that few people even know it exists. It could easily vanish from our state without notice. Another serious problem is our lack of knowledge concerning many of these species. Some creatures may disappear before we even know enough about them to help!

Species accounts are accompanied by maps that indicate an animal's general distribution. In most cases the species only occupies small areas within that potential range.

Iowa's Rare Bats

Bats are often feared by humans, but they are actually beneficial creatures with marvelous adaptations for night activity. They are the only mammal to have conquered true flight; their fingers have become greatly elongated into supports for their flight membranes, so that they literally have "winged hands." Bats are the night-time counterparts of insect-eating birds, with a highly developed sense of sonar to detect flying insects in the dark. Very efficient hunters, bats can easily consume half their weight in insects each night.

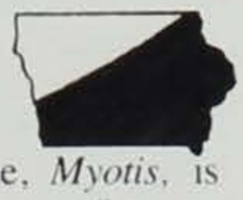
Three species of bats are now rare summer residents in our state: Indiana bat, Keen's myotis, and evening bat. Iowa forms the northern edge of the U.S. range for all three species. They are all small bats, weighing less than one-third of an ounce. Each may be found in the woods near streams, but they also feed and rest in upland forests. Hollow trees are needed by all three species for daytime roosts and as places to rear their young. As true for most bats, they have a low birth rate, with usually only one young born per female per year. But that single young is very large, often weighing a quarter of its mother's weight. That would be comparable to a newborn human weighing 30 pounds! Adolescence is short for the baby bats, as they are flying after a month and reach adult size in only two months.

INDIANA BAT
Myotis sodalis
Endangered

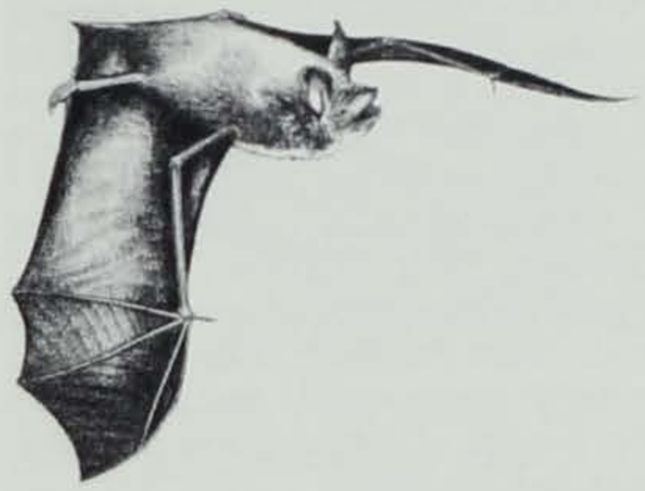
This small, dark gray bat is receiving extra attention because it is not only an endangered species in Iowa, but in the nation as well. Portions of the Indiana bat population spend the summer and raise their young in Iowa. Its young are raised in maternity colonies located in hollow trees or under loose bark of dead trees; such trees are a critical summer habitat need for the Indiana bat. This species of bat rarely enters buildings, but forages over wooded areas for moths, a favorite food.

The Indiana bat's survival is most threatened by loss of suitable hibernation habitat. The entire species winters in a few caves in Indiana, Kentucky, and Missouri that have suitable temperature and humidity.

KEEN'S MYOTIS
Myotis keenii
Threatened



Part of this bat's name, *Myotis*, is from a Greek word that means "mouse ear," referring to its tall, naked ears. Keen's myotis looks much like the Indiana bat, except for longer ears and yellowish-brown fur. This species forages for insects while flying under the crowns of trees and in forest openings. Young are born and raised in small maternity colonies in wooded areas.



This bat hibernates from October to March and tends to return to the same cave each winter. Keen's myotis is considered threatened in Iowa and destruction of wooded areas jeopardizes its summer habitat.

EVENING BAT
Nycticeius humeralis
Threatened

The scientific name, *Nycticeius*, means "belonging to the night," and the common name refers to the time these bats fly about and feed. Evening bats have dark brown fur with black face and wings. Hollow trees are most frequently

used for roosting, but this species will also use old buildings or attics. Its winter habits remain a mystery, and it is not known if this species migrates or winters in our state. Evening bats are fairly common in the southeastern U.S., but are declining at the edge of its range.

RIVER OTTER
Lutra canadensis
Endangered

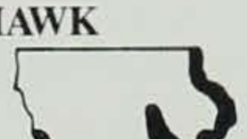
River otters are actually large members of the weasel family, designed to make a living in the water. They may easily weigh 20-25 pounds with a long, heavy tail for a rudder. Their toes are webbed, and their ears and nose can

close tightly when underwater. River otters swim in icy waters insulated by heavy layers of body fat and dense, oily fur. Fish and crayfish are favorite foods, but frogs, turtles and snakes might also be taken. Otters eat fish in a mannerly fashion: the head is eaten first, then the spiny tail is discarded. The meal is finished when the otters rub their face and whiskers clean.

Otters are sometimes criticized for damaging sport fisheries. However, it should be remembered that otter also eat their share of rough fish, and it is actually stream quality that determines the amount of fish available to fishermen, not the otters.

Probably most of Iowa's streams and rivers were visited by otters before the state was settled. Otter families may travel a 100-mile circuit of shoreline each year, a habit that prevents them from over-fishing a particular stretch of stream. When otters move into an area, they use old muskrat or beaver homes for their dens. The once-widespread distribution of otter in Iowa has been reduced to a few areas along the Mississippi or Missouri rivers. The steady decline of stream quality and productivity has resulted in few watershed that can support otter families.

RED-SHOULDERED HAWK
Buteo lineatus
Endangered

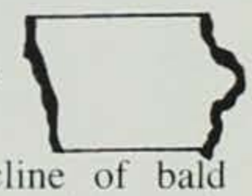


The red-shoulder is a shy hawk that dwells in the seclusion of low riverbottom woodlands. There, a pair will build a nest in a tall tree and hunt the backwater marshes. For its size, the redshoulder has relatively small talons and weak feet. This limits the hawk to catching small marsh animals such as insects, frogs and mice. Neither can it easily defend itself against its competitors, so it usually avoids the open country frequented by its cousin, the more powerful red-tailed hawk.

The status of the red-shouldered hawk is of particular concern because it is endangered in Iowa and threatened over much of eastern United States. Research on this hawk in Iowa has shown that a pair needs large unbroken tracts of meandering bottomland forest, perhaps up to one square mile, in order to successfully raise their young. A

1977 survey for nesting red-shouldered hawks concluded that as few as 19 pairs were breeding in Iowa. Timber clearing, stream channelization, road building and urbanization have taken their toll on red-shouldered hawk habitat.

BALD EAGLE
Haliaeetus leucocephalus
Endangered

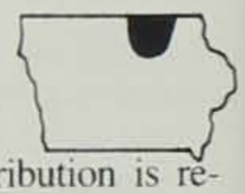


The nation-wide decline of bald eagles was apparently caused by their consuming high levels of the insecticide DDT through the food chain. The chemical contaminant caused the birds to lay thin-shelled eggs that often broke under the weight of an incubating eagle, drastically slowing the emergence of new eagles into the population. The bald eagle is considered an endangered species in Iowa and is also listed as threatened in the lower 48 states.

Bald eagles are closely associated with rivers or large lakes surrounded by timber. Fish form the bulk of their diets. Nesting by this species is an uncommon event in Iowa, currently restricted to the Mississippi Valley. However, bald eagles frequently visit Iowa during the winter. Up to 200 eagles regularly move into our state with cold weather, forming concentrations near open water below dams or at power plants. There they feed on fish and crippled ducks, caught in the water or scavenged from shore. An important habitat need for eagle wintering in Iowa appears to be forested glades that provide protected roosting areas.

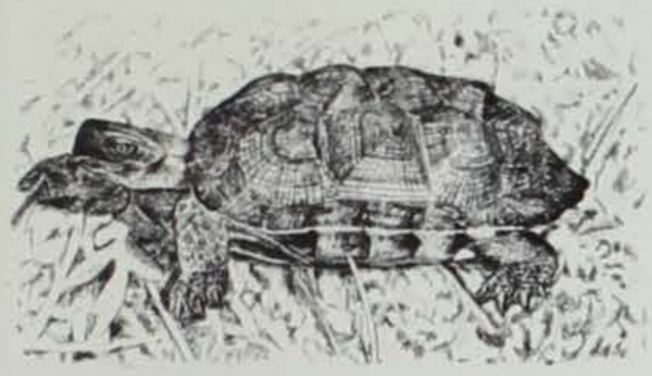
Bald eagles are apparently slowly recovering since the ban of DDT. They may become more common nesters along the Mississippi River in the future.

WOOD TURTLE
Clemmys insculpta
Endangered



The wood turtle's distribution is restricted to only a few counties along the Cedar River in northeastern Iowa, and it is also very rare in nearby states. Its scientific name offers a good description of its habits and appearance. The genus *Clemmys* means it belongs to the "pond turtle" group, and indeed the wood turtle always lives near pools or streams, but also spends a great deal of time in the surrounding woodlands. Its species name, *insculpta*, refers to its beautiful shell that appears to be an arrangement of many low pyramids carved out of wood. Probably because of its attractive appearance, the wood turtle was often collected for a pet, only to die in captivity, or not be allowed to return to a stream to reproduce. A wood turtle matures slowly, growing to only six or eight inches in length, but it may live over 50 years in the wild. A captive specimen, however, usually survives less than a year before becoming a victim to improper diet. An omnivore, it feeds on insects and mollusks in the

water, but when on land a wood turtle eats berries, green plants and may even nibble on mushrooms.



Breeding occurs during the fall or spring, usually in clear, clean streams. During this time, a female lays a small clutch of eggs in a communal nest dug in sand bars or gravel beds. There the eggs will incubate warmed by sunshine until hatching at the end of summer. Wood turtles congregate in autumn and hibernate over winter in community burrows along stream banks. The presence of the wood turtle in Iowa is doubly threatened by its restricted distribution and the continued loss of clean woodland pond and stream habitat.

BLUE-SPOTTED SALAMANDER

Ambystoma laterale
Endangered

Researchers only recently discovered blue-spotted salamanders living in Iowa. It was previously believed this species was found only in the moist forests surrounding the Great Lakes and southern Canada. It is thought the range of the blue-spotted salamander slowly expanded into eastern Iowa ahead of the advancing ice sheets and cooling climate of the Wisconsin glacial period. As the glaciers retreated, a population of blue-spotted salamanders was left behind in the wet woodland habitat of eastern Iowa. Only two groups of this endangered salamander have been located, one at Behrens Pond and Woodland State Preserve, and another at George Wyth Memorial State Park. It is possible that more groups may also survive tucked away in some quiet hollows of that area.

Blue-spotted salamanders grow to five inches in length and have smooth black-gray skin flecked with sky-blue spots along their sides. Like all salamanders, they must live in moist areas to prevent dehydration. Eggs are laid in small ponds during early spring, and while the larvae develop, adults move into the surrounding woodlands. There they forage for insects, land snails, and earthworms among moss and litter on the forest floor.

CENTRAL NEWT

Notophthalmus viridescens
Endangered

Central newts are tiny salamanders, reaching only four inches in length, with a brown colored body, a bright yellow belly, and peppered all over by small black dots. They dwell in quiet woodland ponds, and cannot survive for long out of a moist environment. Central newts walk slowly among the underwater plants foraging for worms, mosquito larvae and frog eggs. If there is danger, they tuck their legs and swim quickly for cover using their tails.

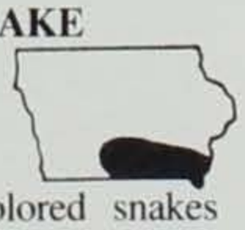
Their eggs are laid under water in gelatinous clusters and take a month to hatch. The larval newts breathe through lacy gills at the sides of its neck. By late summer, the larvae transform into adults that breathe with lungs.

Central newts have poison glands along their backs that give them a foul taste. This defense usually deters raccoons and birds from feeding on them, but turtles, frogs and fish don't seem to mind the flavor. For this reason, central newts are not common in large ponds or lakes that have many fish. Instead, the quiet woodland pond is the most favorable habitat for these little creatures.

Newts have the ability to regenerate toes, legs and tails, should they be lost by accident or to a predator. Perhaps these amazing recuperative abilities are what made "the eye of a newt" an ingredient of witchs' brew!

WESTERN EARTH SNAKE

Virginia valeriae
Threatened



These harmless tan-colored snakes are found only in the lower Des Moines and Chariton River drainages of Iowa. They inhabit rocky, timbered streamsides. Earth snakes seek seclusion under rocks during the day, and become active at night when they search the moist ground for earthworms — their favorite food. Insects and larvae are items that are also eaten.

Earth snakes are slender, have a pointy nose, and seldom grow over a foot long. They are one of the snakes that give birth instead of laying eggs; a half-dozen two-inch earth snake young are born in late summer. The earth snakes of western Iowa are thought to be the northernmost location of this species in the nation. They are more common in warmer states with suitable habitat. The distribution of western earth snakes in Iowa could be further restricted by deforestation of riparian habitat.

BLACK RAT SNAKES

Elaphe obsoleta
Threatened

When young, these snakes have a blotchy color pattern, but adults are nearly solid black and can reach lengths of five or six feet. Black rat snakes inhabit moist woodlands, frequently timbered bluffs along rivers. Black rats are arboreal, taking to the trees to sun themselves, to find refuge in a tree cavity, or to raid a squirrel or bird nest. On the ground, moist logs are used as hibernation dens and for egg laying. Each female may lay 20 eggs and communal nests may contain the eggs of several females.

Black rat snakes that take up residence near a farmyard can be very beneficial. Although encountering such a large snake can be hair-raising, their presence should be tolerated. Rat snakes live up to their name by feeding on the rodents around corn cribs. They even climb barn rafters to pursue mice and sparrows.

POPULATION FLUCTUATIONS
IN THE IOWA GREAT LAKES

By Jim Christianson

"Hey, Joe, I was on the lake the other day. Wow, what an experience! Our old walleye hotspot that let me down the last couple of years really produced." Most fishermen have experienced the ups and downs of fishing. Fluctuations in angling success may be a function of luck (skill?) or a variety of weather and environmental conditions, but the majority of times they are caused by biological and ecological factors.

Fish populations are dynamic and constantly reacting to changes in their environment. Biological processes have a pronounced effect on fish harvest. Simply stated, if the fish are present and conditions right, the chances for a successful fishing trip are enhanced. What causes fish population fluctuations? This question is complex and dependent on many of "Mother Nature's" variables. Major factors providing the foundation for any fisherman's resource are reproduction and survival. The variability of these two components determines fish year class strength. The stronger the year class, the more fish potentially available for harvest and subsequent propagation.

REPRODUCTION

A significant cause of reproductive failure in the "Iowa Great Lakes" is water level fluctuation. When water levels are low, some spawning grounds are left high and dry. Water level fluctuations also influence density and location of weed beds which are vital to successful reproduction of many species and to the survival of many young-of-the-year fish.

Reproductive success is often significantly influenced by available habitat. Habitat degradation through siltation accumulation has rendered many spawning sites ineffective. Pollution in the form of nutrient enrichment has also altered weed bed growth and generally diminished water quality. Cultural activities have adversely impacted both littoral emergent and submergent aquatic vegetation.

Brood stock condition and density may affect production of a particular species. This condition is the exception rather than the rule since a relatively small number of brood fish may readily repopulate a body of water under favorable conditions.

Competition for food or other limiting resources between closely related species may lead to success of one while limiting the other. This situation exists in Spirit, East, and West Okoboji Lakes with northern pike and musky since both species have similar ecological requirements. Northern pike spawn before the muskellunge. Newly-hatched northern, having a head start, will successfully compete with young muskie for food as well as prey upon them, thereby virtually ensuring a lack of spawning success and survival of young muskie. This phenomena exists throughout the North American range of these species.

SURVIVAL

Survival is the key factor in the establishment of strength. An important element for survival is an adequate and timely source of food. Many variables contribute to this determinant; however, the most significant, especially for larval fish, is weather conditions and their subsequent impact upon zooplankton production. Following this precarious start on microscopic organisms, predatory species like walleye, northern pike, and bass need an adequate forage supply for survival throughout their life.

Predation is yet another important dimension to the survival spectrum. Predation takes place on eggs, fry and larger fish of all species. The most

Wayne Lonning

In Iowa's natural lakes, walleye and yellow perch numbers vary considerably from year to year. The key to good angling is to fish for those species at the peak of their cycle.

influential predation usually occurs on fry and fingerlings of most species.

FISH YIELD

The "Iowa Great Lakes" fishery has shown dramatic fluctuations over the years (Table 1). The estimated harvest of bullheads from Spirit Lake has ranged from 13,000 (1963) to 380,000 (1972). Fluctuations in harvest have been attributed to short-term climatic and environmental conditions; however, the most significant source of variation has been reproductive success, which in turn is most heavily influenced by fluctuating water levels. When water levels are low, spawning habitat is decreased. Adjacent marsh habitat is not accessible and reproductive success is diminished.

Creel estimates for walleyes harvested from Spirit Lake range from 5,700 (1969) to 43,000 (1960). The mean annual harvest is approximately 24,000 fish. Some of the ups and downs in fishing may be attributed to weather and environmental conditions during peak harvest periods. Unlike the bullhead, major fluctuations are more often due to survival. Walleye are stocked annually; therefore, reproduction is not the major factor. Survival is the key.

Yellow perch harvest estimates from Spirit Lake have ranged from 6,000 (1961) to 109,306 (1971) with an average yield of approximately 50,000 individuals. This fluctuation has been attributed to both reproduction and survival. Water levels have had a pronounced effect on year-class strength. Years of low water decrease spawning and nursery area for yellow perch.

Those components necessary for survival are many and varied. Food, density, spatial relationships, inter- and intraspecific competition, niche segregation, predation, and habitat partioning are just a few whose impacts must be assessed.

The West Okoboji fish harvest has also demonstrated rather dramatic fluctuations. Walleye harvest has ranged from 1,800 (1960) to 17,000 (1961). This harvest fluctuation is due mainly to density and survival of stocked fish. Harvest of yellow perch has ranged from 79,000 (1981) to 273,000 (1966). The bluegill fishery of West Okoboji has also provided a wide range of harvest opportunities to the angler. In 1968, approximately 10,000 bluegill were harvested and in 1981, an estimated 83,000 were creeled. This fluctuation is the result of reproduction and survival. Bluegill reproductive success is a function of environmental conditions, water levels, temperature and wind. Survival of bluegill in West Okoboji is a function of food supply but to a greater extent predation. Bluegills provide forage for a number of predators in West Okoboji. Predation by walleye and yellow perch is particularly important.

There are numerous and interrelated actions determining the fishery yield of a particular body of water. One year harvest for a particular species may be down and the next year excellent. Often when fishing success for one species is below expectations, success for another species will be good. This often happens in the "Iowa Great Lakes." Fortunately, we are blessed with a large diversity of fish species to choose from.

Just remember, when planning your fishing, be flexible and more often than not, you will be successful.

Jim Christianson is a fisheries biologist at Spirit Lake. He has been with the commission since 1969 and holds a B.S. degree from Iowa State University.

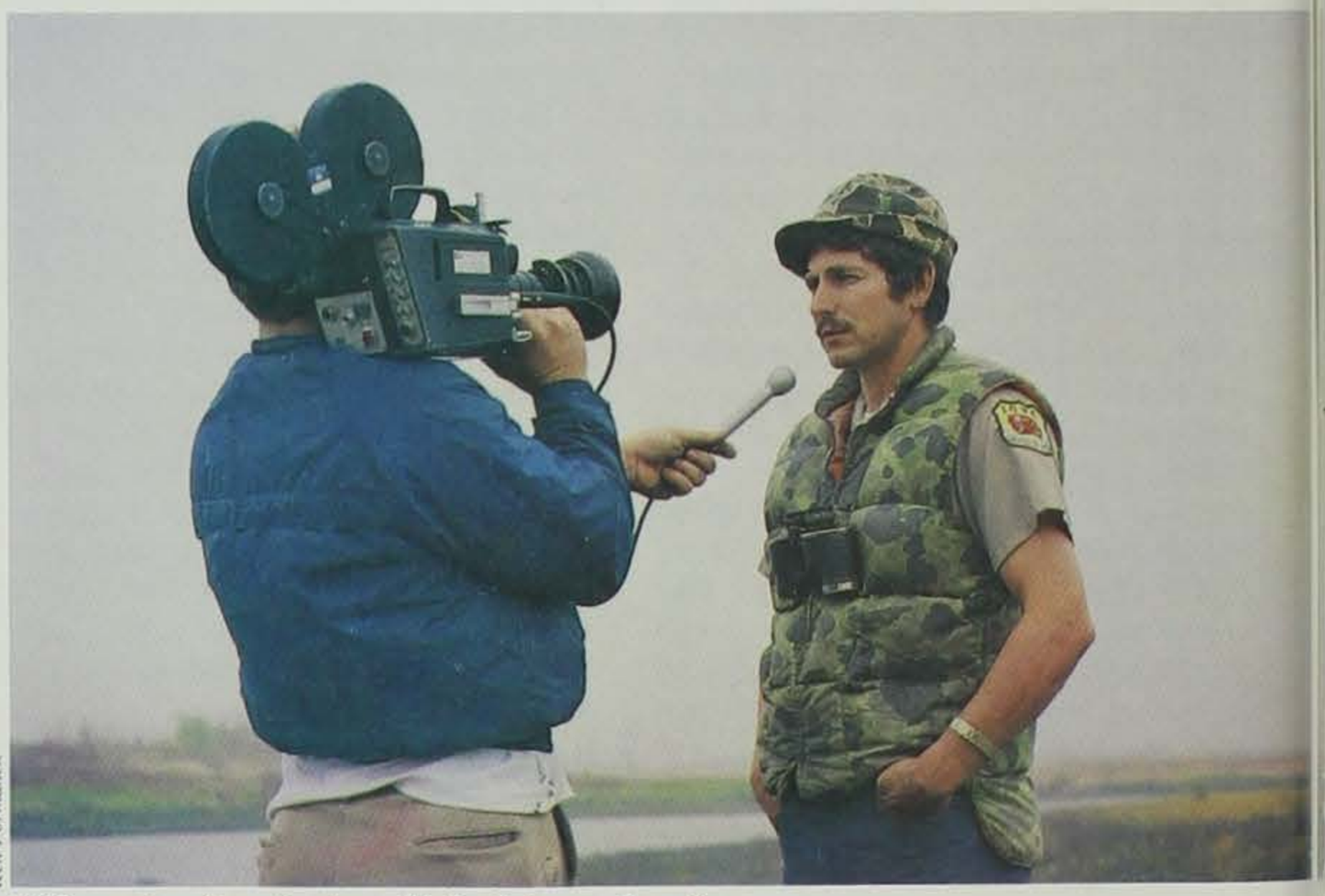
ble 1. Estimated harvest ranges and years creeled in parenthesis from Spirit and West Okoboji Lakes.

KE	SPECIES							
	Walleye		Yellow Perch		Bullhead		Bluegill	
irit ke	5,700 — 43,000 (1969)	(1960)	6,000 — 109,000 (1961)	(1971)	13,000 — 380,000 (1963)	(1972)		
st oboji	1,800 — 17,000 (1960)	(1961)	79,000 — 273,000 (1981)	(1966)			10,000 — 83,000 (1968)	(1981)

Ken Formanek

Ken Formanek

CONSERVATION ON THE AIR



Ken Formanek

T.V. spots often feature biologists on location.

By Larry Davis

Conservation "on the air" has its roots in the 1950's.

"Mark Trail," a program based on the Ed Dodd comic strip, was heard on the Mutual Radio Network in 1950 as a three-times-a-week 30-minute adventure program. It portrayed Mark Trail as a man of the woods, an outdoorsman whose greatest enemies were those who wasted or abused our natural environment.

In 1951, the series became a five-times-a-week 15-minute serial on the ABC Network, leaving the air waves entirely in 1952. The program is perhaps best remembered for its opening by the announcer:

"Battling the raging elements
Fighting the savage wilderness!
Striking at the enemies of man and nature!
One man's name resounds from snow-capped mountains down across the sun-baked plains...
MAAARRRKKK TRAIL!
Guardian of the forests!
Protector of wildlife!
Champion of man and nature!
MAAARRRKKK TRAIL!

It was in the early 1950's that the Iowa Conservation Commission went on the air with Jim Harlan and WHO's Jim Zabel on a weekly radio program called "Sportsman's Corner." Jim Harlan, then superintendent of public relations, would reply to questions sent in by listeners and sometimes invited other commission personnel to appear on the program.

April 12, 1954, marked a milestone in conservation education as the Conservation Commission released the first in a series of television programs to every television station transmitting to Iowa viewers. The 13-week series entitled "Outdoor Shop Talk" was produced by Jim Harlan and other Commission personnel and was the first of its kind in the nation. Each of the programs was 15 minutes long and consisted of a short studio interview followed by a specially prepared telefilm on outdoor Iowa. The spring program series included an Introduction to the Series, The Spring Goose Flight, The Traveling Exhibit, Trout Hatcheries, Conservation School, The Game Warden, The Man in the Park, Stream Fishing, Lake Fishing, State Park System, Water Safety, Kids' Fish Days and a Conclusion to the Series.

The series was seen on the following stations:

WOI-TV, Ames
WMT-TV, Cedar Rapids (now KGAN-TV)
KG-TV, Des Moines (no longer on the air)
KQ-TV, Fort Dodge (no longer on the air)
KV-TV, Sioux City
KWWL-TV, Waterloo
KCRI-TV, Cedar Rapids (now KCRG-TV)
WOC-TV, Davenport
KGLO-TV, Mason City (now KIMT-TV)
WHBF-TV, Rock Island, Illinois
WOW-TV, Omaha, Nebraska
KMMT-TV, Austin, Minnesota
WHO-TV, Des Moines

The impact on the viewers was felt immediately. At the conclusion of the spring series, the television stations were unanimous in their request for additional programs. A fall series of 10 new films were promptly accepted when made available.

It is impossible to tell how many people saw each of the 23 shows. The area blanketed contained well over 6 million people. Nationwide, 60 percent of the homes had one or more television sets. Good time slots were scheduled on most stations and, because of staggered schedules and overlapping of station ranges, programs had from two to four shots at the television audiences.

The first in a new series of commission television programs was released May 1, 1957. Thirteen 15-minute programs on fishing, parks, birds, wildflowers, camping and other outdoor subjects were made available to all Iowa stations and out-of-state stations with Iowa audiences. The programs were

Keith Kirkpatrick interviews a conservation officer for WHO of Des Moines.

released weekly and were requested by eight Iowa stations and five stations in adjacent states.

The series was the fourth produced by the Conservation Commission after 1954. Filmed in black and white, the programs included material photographed in the field and studio interviews with guest experts.

In the 1960's, Keith Kirkpatrick of WHO, Des Moines, was on the air with a 15-minute radio program one night each week. It featured commission personnel talking about a variety of conservation subjects. For the past 15 years, the program, now called "Speaking of People," has been a weekly 5-minute conservation feature on Sundays at various times. In the program, Kirkpatrick interviews commission personnel who explain various commission programs and offer up-to-date information of interest to outdoor recreationists. Kirkpatrick was named the nation's top Outdoor Broadcaster of the Year in 1978 by the Outdoor Writers Association of America.

A program called "Sportsman's Notebook," with WHO's Radio News Director Bob Wilbanks, made its debut in 1977. It featured Jerry Conley, then superintendent of fisheries and other commission personnel who talked about fishing and hunting activity and provided other timely commission program information. The program is heard Wednesday evenings from 6:30 to 8:00 p.m. and follows a phone-in talk show format.

A survey completed in 1981 by the information and education section showed that field personnel around the state are being heard regularly on radio stations in their areas. Some have radio programs of their own, some appear regularly as guests on station programs and still others share program appearances with other field personnel in the area. The survey also revealed that while some personnel do not appear on radio regularly, many do appear on a seasonal basis and when contacted by a radio station.

As a result of the survey, a pilot program for an anticipated taped radio series was sent October 30, 1981, to radio stations in 27 Iowa communities where no regular appearances were being aired. The planned series would be provided to only one radio station in a community on a first-come-first-served basis and would not compete with programs in which personnel are now participating.

From the acceptance by 18 stations of the initial pilot, the series has been developed. The program, called "Conservation Capsule," consists of an interview-type format with Larry Davis as host, and a different topic and guest on each program. It is currently being sent to 42 radio stations, including a station in Prairie du Chien, Wisconsin. Most stations air the program on Saturdays but times vary with each station.

Unlike the 1950's, recent years have not found commission-produced television programs on the air. Personnel have appeared on local programs around the state but program time slots and production and equipment funds have not been plentiful.

In the 1980's, however, things are changing.

With the acquisition of its own television cameras and recorders, the commission is producing short news features and sending them to television stations throughout the state. And stations are using them.

The commission's 42-station weekly radio series, plus local programs by field personnel and commission-produced news features provided to TV stations statewide, assure that conservation is still "on the air." The only difference is that its format has changed to fit the pronounced changes of the broadcast media.

Wayne Lonning

Scenic view of Elk Rock State Park, (left) ***and lodge at Keomah State Park*** (inset).

John Hayes is a summer employee for Walnut Woods State Park. He is a graduate of Simpson College.

A State Park Weekend

By John Hayes

Summertime was in full swing and I had not been out in the sun yet! Oh sure, there were a few parties in the backyards of friends, but I wanted something different. Where could I go to escape the music of todays Top 40's? The answer to my problem was clear — I needed to see more of the Iowa countryside and July would be the perfect month.

I got away. My backpack and tent had been smashed into the trunk of my car and I was off. There was no particular place I was heading as long as it had water and a place to swim. I remembered there was a lake with a state park right outside of Oskaloosa. It has a funny sounding name, "Keomah", I thought. I reasoned it was probably Indian. Great! An Indian lake with arrowheads all over the place! I headed for Oskaloosa.

I found the park and its campground with ease. Registration went smooth. It was really easy to self-register, even for a first-timer like me. After setting up my tent, I saw the ranger and asked about the park. He supplied me with a brochure and some helpful suggestions for conquering the fitness trail which runs around the lake. I skimmed through the brochure and my heart broke. Lake Keomah was named after the two counties, Keokuk and Mahaska, which helped finance construction of the lake. There was no Indian influence to be found. Oh well, it was still a nice lake.

The trail system was easy to reach from the campground. A rocked trail near the back of the camping area lead across the road to the start of the fitness trail. The trail was scenic, quiet, and led me on a three-mile long stroll featuring seven exercise stations. Each station had been set up to challenge different parts of the body. While I did not workout at each station, I did take time to sit and enjoy some of the scenery and quietness of the area. Not surprisingly, I did not miss my loud parties or rushed schedule of work. The trail eventually led me around to the beach area. It had ample room for swimmers but it was a cool day and I figured I could always swim tomorrow.

Lake Keomah has a beautiful lodge with a magnificent view of the lake. As I sat there soaking up the sun and scenery, I reasoned that Indians may have used this lookout, with good access to the creek, which is now the lake, below. After I snapped out of my daydream, I continued on the trail, through damp, wooded areas and pretty overlooks.

Finally, I found my way back to the campground. After hiking the park's interpretive trail, which is short and easy to follow, I headed for the lake. One seasoned angler told me he had pulled some crappies, bluegills, and good-sized bass out of the lake since renovation in 1980. His stringer of panfish told me he was having fair success on that day. I watched the sunset from the tent and fell asleep.

The next morning promised to be warmer. After a wonderfully quiet night, I packed and headed back home via another lake — Red Rock. The state park there, Elk Rock, had all the accommodations for the boater and camper. The thing that was surprising to me was there were only two people in the park. Elk Rock is a nice area that is begging to be used and I vowed to return to this area on my next camping trip.

Around Red Rock there are many other recreation areas and camping grounds. Just down the road east from the north segment of Elk Rock is Roberts Creek County Park. This area has an excellent beach that I found very pleasant on this warm, summer day.

As I reflect on my short weekend visit to these two parks, I am glad I happened to see them. They provided a visitor a place to relax and enjoy nature. They also let me see that there is more to life than backyard parties.

WARDEN'S DIARY

Fishermen

By Jerry Hoilien

Fishermen. Some fish *all* the time — night and day, spring, summer, fall and winter. I have just one quarrel with them — I wish I could too! A biologist told me once that ten percent of the fishermen catch ninety percent of the fish. It must be partly true because they spend that much more time at it.

One thing about it, fishing has enough variety in it that there's something for everyone — suckers on the riffles in the spring, bluegills in the weedbeds, bass in the stumps and walleyes on the wing dams. Fish don't care whose hook they bite on. If there is any partiality, it seems to be towards little kids, but I go along with that.

I remember the time I was checking fishing licenses below one of the dams, climbing along the large riprap to get to the water's edge. I had looked ahead to see who was fishing (old warden's trick) and I noticed several young men about a block downstream who were pretty actively snagging. They could legally snag only rough fish (carp, buffalo, quillback, gar, sheepshead, dogfish and paddlefish), but no game fish.

I was interested to see just what they were taking when suddenly a voice below me boomed out — "Young man, don't you *dare* pass by me. I've been buying these licenses for 25 years now and I've finally got a chance to show one!" The old man was sitting between two big rocks under a small tree and I hadn't really noticed him. Climbing down, I checked his license and listened to his tales of yesteryear, thinking strongly he was taking a few liberties with the truth. We visited for quite awhile and when I finally got ready to leave he suggested I check the cooler those young men had stashed back in the rocks.

He had better eyes than I thought! Sure enough they had a cooler full of "snagged" game fish. They said they didn't know the law. No wonder, not one of them had bothered to buy a license either. That's life.

• • •

One thing I'd like to mention is simple and can save your life — always, *always* wade upstream. From a fishing standpoint, you don't muddy up the water in front of you, but most importantly consider the safety standpoint. If you step in a hole going downstream, the current will hit you in the back pushing you on into the hole. Wading upstream, the current will hit you in the chest, pushing you back out of the deep water. If I could impress this on everyone's mind, we could save lives each year. Would you take a minute and tell this to your kids and maybe a friend too? I like to see you alive out there.

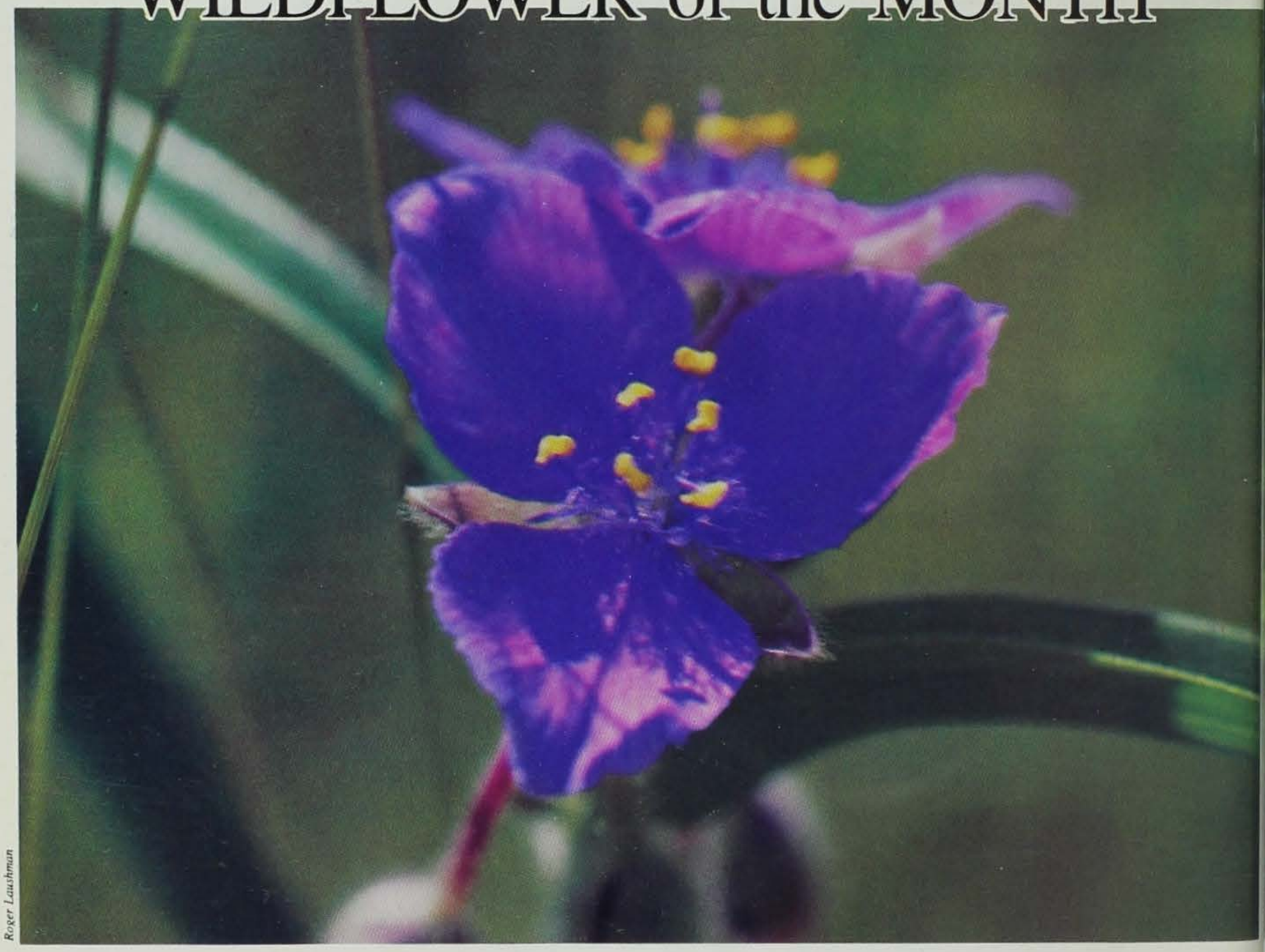
One of the hardest jobs I've ever had was cutting the back pocket from a body in the river and identifying him by the citation I'd given him several weeks earlier for failure to carry proper life jackets in his boat. Please be careful out there!

Did I ever tell you about the two characters on the river who ran out of outboard gas right at dark? Panic overtook one and he cried out to his friend, "My gosh, what are we going to do?"

"Start fishin'," responded his buddy. "Just catch *one* fish over your limit and that game warden will show up right now!"

Ken Formanek

WILDFLOWER of the MONTH



Roger Laushman

SPIDERWORT
(*Tradescantia* species)

By Dean M. Roosa and Mary Jean Huston

Midsummer in Iowa! Travelers on Iowa roads may see an intense blue flower along the roadside; prairie vistiors may see a magenta bloom on a sandy ridge. They have discovered one of the spiderworts, a common roadside and prairie flower.

Spiderworts, members of the Commelina family, are close relatives of the tiny blue dayflower. The flowers, borne in dense clusters at the tip of the stem, blossom during July and August. Each morning, one flower of the cluster opens and lasts for one day. Flower color may vary from deep bluish-purple to magenta to nearly white, depending on soil conditions. Each flower has three oval petals, varying from ¼ to ¾ of an inch in length. Six golden anthers on deep blue filaments accent the petals. Three green leaf-like sepals are below the petals; longer, leaf-like bracts beneath the flower are at right-angles to the stem.

There are four species of spiderwort found in Iowa — two very rare, and two fairly widespread. Spiderwort can tolerate poor conditions; they are often seen on railroad embankments as well as along roadsides and on prairie remnants. A number of closely related plants have been successfully cultivated in flower gardens.

A variety of common names have been given to spiderwort. It has been suggested that the angular growth of the leaves suggest a squatting spider, hence this common name. Other common names include blue jackets, cow slobber, Job's tears and widow's tears. The generic name honors John Tradescant, a botanist and gardener for Charles I of England.

It's midsummer — the peak for spiderworts in Iowa. Check them out next time you are out for a hike or a drive.

Dean M. Roosa has worked as state ecologist for the Conservation Commission and State Preserves Board since 1975. He has a Ph.D. in botany from Iowa State University.

Mary Jean Huston is a data manager for the Iowa Natural Areas Inventory, a cooperative program between the Iowa Conservation Commission and The Nature Conservancy. She holds a B.S. degree in biology from Grinnell College.