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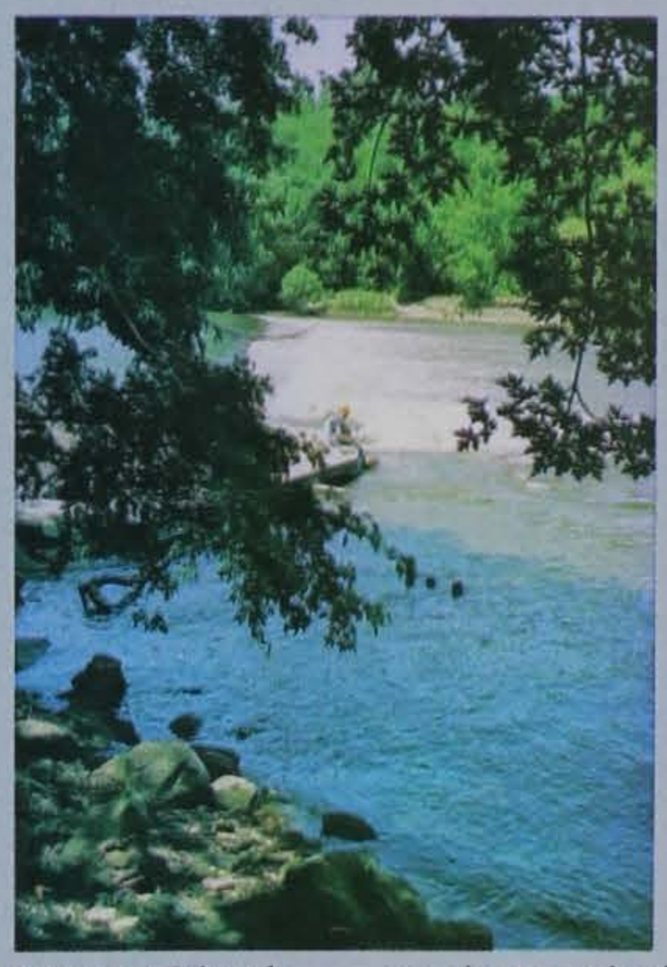
MID-IOWA GETAWAY!

Tom Putnam
FISH MANAGEMENT BIOLOGIST

A beaver smacks his tail on the surface issuing the alarm that strangers approach. A doe and accompanying fawn streak from nearby underbrush as you pass, offering a glimpse of white-flagged tails. Hundreds of bird calls, many unfamiliar, clutter the breeze. A hawk soundlessly circles overhead in search of a rodent destined to be dinner.



Although these experiences sound like the encounters of a vacation "up north," they can also be enjoyed during a leisurely float trip down the Des Moines River in central Iowa.

A favorite launching spot is at Kalo in Webster County, six and one half miles southeast of Ft. Dodge. It can be reached by car by proceeding four miles south from Hwy 20 on Hwy 169, and three miles east through Otho. The river is easily accessible at Kalo on the north bank, just below the highway bridge.

The stretch of stream from Kalo to Lehigh is about ten miles in length, an easy five and one quarter hour canoe trip. This stretch is characterized by sandstone cliffs as several deeply cut feeder streams join the river. About one hour below Kalo is the Wildcat Cave, a series of shallow chambers carved out of the soft sandstone along the west wall.

Float time from the Wildcat Cave to Dolliver State Park is about three hours. Along this stretch are numerous gravel and rock-rubble areas that provide attractive habitat for smallmouth and walleye. Of scenic interest is Woodman's Hollow State Preserve situated in a side valley about an hour's float below Wildcat Cave. This region is rich in Indian lore, with several woodland Indian burial mounds of archaeological interest on top of the bluffs in this vicinity.

Another two hours journey through this scenic sandstone bluff area and the canoeist arrives at Dolliver Park situated along the west bank of the river. A convenient stop-over place for the canoeist is near the shelter house and public camping grounds which can be seen from the river.

History buffs will take special interest in Boneyard Hollow, located a few hundred yards upstream from the landing spot. This deep ravine is fairly wide at its entrance near the river but as it runs back it narrows into a canyon-like gorge and fans out into several smaller ravines. Abrupt sandstone ledges rise 50 to 75 feet on either side.

Legend says that in early days the Indians drove buffalo, deer and elk over these cliffs from the adjacent prairies. Great quantities of animal bones, Indian arrowheads, axes and other weapons and implements have been unearthed in the hollow by early settlers.

The Copperas Beds are another must in the canoeist's visit to this interesting park. These are found in a sandstone bluff 150 feet high and several hundred feet long a short distance from the river. This is an unusual deposit of various mineral substances, such as copperas (sulphate or iron, magnesia and sulphur,) with many petrified plants ex-

posed. Legend tells us that the Indians used the multicolored copperas powder for war paint and the early pioneers colored the cloth for their clothing from these minerals.

Resuming the trip, the stretch to Lehigh Bridge can be traveled in about an hour and a quarter. Upstream for a mile and a half from Lehigh, the river has been backed up and the water level of the stream raised about five feet by a low head rock dam built across the river just above the bridge. This dam is of unusual interest as it was constructed over a seven-year period as a community project by a group of Lehigh residents to assist in maintaining the water level upstream for improved fishing and boating.

Fishing is also good in this stretch at the mouths of several small tributaries including Prairie Creek at Dolliver Park. Expect to creel smallmouth, walleye and catfish in these areas. Another good fishing area, Flake's Riffle, is evident about ¾ mile south of Dolliver. Try for walleye and smallmouth here. Between this riffle and the rock dam at Lehigh is some of the better flathead catfish angling in the region. Below the rock dam is also a locally popular spot for all the aforementioned species.

An easy two hour paddle downstream is another major fishing "hotspot," Brushy Creek. Fish the creek itself for smallmouth bass and the confluence for bass and walleye. Another popular catfish hole is a half hour float beyond Brushy Creek where the canoeist enters an area of log snags. Save some angling time for the end of this segment also as the Boone River and its confluence with the Des Moines offers excellent fishing at times for smallmouth and walleye. An adequate takeout point can be reached by traveling up the Boone River 300 yards to the first bridge crossing.

The segment of stream west of Stratford from the Boone River Bridge to Norton's Ford in Boone County is a stream distance of 11½ miles; float time six hours. During this trip a canoeist will have a better chance to check his bearings while passing under two highway bridges, the Bellville Bridge about one mile below the Boone River mouth and, five miles further, Highway 175 Bridge just west of Stratford and the halfway point of this stretch. A ¾ hour float from there is the Carlson Recreation Area, a Webster County Conservation Board area on the west bank of the river. This is a good rest stop with camping, picnicking and restroom facilities all conveniently located near the river. A canoe may be taken out here although during periods of low river flow a large sandbar may hamper these efforts.

The trip to Norton's Ford is three and one half miles, less than two hours away from the Carlson area.

Fishing along the Boone River-Norton's Ford stretch can be very productive if the angler pays special attention to log jams and cut bank holes where catfish find refuge. Be prepared for good walleye fishing also as this species has recently gained in importance in the creel and is providing some excellent catches during low flow periods in the spring and fall.

Upon entering Boone County, the Des Moines River offers an environment for boating, canoeing and fishing recreation as well as areas of scenic and historic interest. The northern-most boat ramp in Boone County is located one mile east and one and one half mile north of Pilot Mound on the west side of the river at Norton's Ford. A float by canoe to the next gravel ramp, at the east end of the old Fraser Power Plant dam, is a distance of four and one fourth miles (two hours).

The only bridge crossing the river in this segment is the E-18 bridge about one and one third miles (one half hour) downstream, which spans the stream near Pilot Mound.

At normal mid-summer river water levels, seven good snag areas will be encountered offering good channel catfishing. This area also supports one of the better flathead catfish fisheries in the upper Des Moines River system. A natural rock riffle outcropping ⅓ mile (ten minutes) above the dam is a good place to try for smallmouth bass.

Continued ▶

Panoramic view of Des Moines River Valley, Boone County.

The Fraser Dam was built in 1916 to impound water for the operation of a large steam generated power plant on the west bank of the river. The power plant was constructed by the Ft. Dodge, Des Moines and Southern Railroad to provide electricity to run its electric train system between Ft. Dodge and Des Moines. It has since been razed, but the dam is still intact and offers good angling throughout the year, especially during the spring and fall. The dam concentrates several species including walleye, channel catfish, crappie, smallmouth bass, northern pike and carp.

The stretch of stream from Fraser Dam to Boone Waterworks Dam is a distance of six and three fourths stream miles (three hours float time) and offers some of the area's better fishing habitat. A canoe or small boat can be launched at the east end of the Fraser Dam. The first riffle area is located just below the Fraser Bridge which is ¾ miles (15 minutes) downstream from the dam.

Two miles (45 minutes) further is the "Big Eddy," a popular area for catfish and walleye fishing. Canoeists also will enjoy the area with its rapid currents offering a little more excitement when maneuvering the riffles. A concrete boat ramp is located in the "Big Eddy" area on the northeast side of the river. This ramp is very steep and is probably not suitable for trailer use.

A few 100 yards downstream is the "Little Eddy" another good walleye-catfish spot. It is located directly below the Ft. Dodge, Des Moines and Southern Railway Bridge.

A few minutes downstream from the eddy area is an island that offers a good stopping place for a picnic. This is approximately the ½ way point for this stretch of stream.

Continuing downstream, two additional riffles and several log snags are evenly distributed over the remaining 1 hour of the trip. The next bridge encountered, E-26 crossing at Waterworks Park, is about a quarter mile above the Waterworks Dam. This lowhead dam, constructed to insure a constant supply of water to the Boone city wells located immediately upstream, is another favorite haunt of local anglers. Again, several popular species, including channel catfish, flathead catfish, walleye, smallmouth bass, crappie and carp are readily taken here when the "water is right."

Two boat ramps, a steel grate ramp located on the east bank immediately above the dam and a concrete ramp on the east bank immediately below, offer easy accessibility. A small campground is maintained by the city of Boone 300 yards above the dam on the east bank.

The stretch of river from the Waterworks Dam to Ledges State Park covers 12 miles (five and one half hours) and is an area saturated with history. Immediately below the Waterworks ramp on the east bank, coal slag piles are starkly evident. These and other shale piles in the surrounding area were formed from debris hauled up out of the many shaft coal mines operated in the Coal Bank area between the mid 1860's to the early 1940's.

About one and one half miles (30 minutes) downstream is an area called "Tilley's Hole," a favorite catfishing spot. Just downstream is a natural rock riffle which yields an occasional walleye or smallmouth. Below the riffle on the east bank, evidence of an archaeological dig is apparent.

A bridge crossing, the old Wagon Wheel Bridge, built in 1910, is the next item of interest about ¾ miles (15 minutes) downstream. This is also the site of the first release of wild turkey in 1973 to re-establish the population in Boone County. An early spring morning float trip may be rewarded by a fleeting glimpse of one of these wily birds along the river bank. Also stay alert for the distinctive male gobbling call heard that time of year. Immediately above the bridge is the mouth of Bluff Creek, whose rock delta can at times provide good smallmouth fishing.

About one half mile (15 minutes) downstream stands the Boone Viaduct or "High Bridge," still billed as the longest and highest double track railway bridge in the world. Completed in 1901 this Chicago and Northwestern bridge spans a length of 2,686 feet and stands 185 feet above the river.

One of the better riffles for fishing in this area is located two and three fourths miles (one hour) downstream from the "High Bridge." Named Bennett's Rock, it is about one half mile (15 minutes) above the old Hwy 30 bridge.

Ten minutes below this bridge on the west bank of the river is the Riverbend Access with its concrete ramp. Float time from the Waterworks Dam to this ramp is about two and three fourths hours (six and one fourth miles). A few hundred yards below this ramp is the new U.S. Highway 30 bridge.

A good stopping place for a picnic is about one and one fourth miles (30 minutes) down-

Canoe camping along Des Moines River.

stream at the apex of the big river bend. Across from the bend, adjacent to Coal Valley, are several rocky areas that provide good fishing for several species.

The remains of another site of historical interest, the bridge abutments of the Kate Shelley Bridge, are still visible one and one half miles (45 minutes) downstream. It was on this bridge, located directly east of Moingona, that Kate Shelley crawled that stormy night in July 1881, to warn an oncoming passenger train of the bridge washout at Honey Creek near her home.

Approximately two and one half miles (one hour 15 minutes) further is Ledges Park with a canoe ramp on the east bank of the river. Directly upstream is one of the best fishing snag areas of the trip with submerged trees adjacent to the bank for 200 yards. Fish for catfish and carp here. Just below the ramp is a deep hole, another popular angling spot because of the easy access by vehicle. Fish here for catfish, carp, bullhead and an occasional walleye or northern pike. A rock riffle area extending the entire breadth of the river just below the "deep hole" is another good spot to try for walleye or smallmouth bass.

While at the Ledges a short hike up Pease Creek will reveal the limestone outcropping area the park is famous for. Picnicking is available close to the ramp and a primitive park campground is available three miles from the river.

The stretch of stream from Ledges to the Laurie Access at Madrid spans a distance of 11½ stream miles (five hours). The first one half mile from Pease Creek mouth to a rocky overlook called Sentinel Rock, contains some of the best fishing for catfish with log snags and deep holes throughout.

About two and one half miles (one hour) below Ledges is Dogwood Access, with its concrete ramp. It is located on the east bank just upstream from the E-57 bridge, four miles west of Luther. This is the only bridge crossing in this stretch.

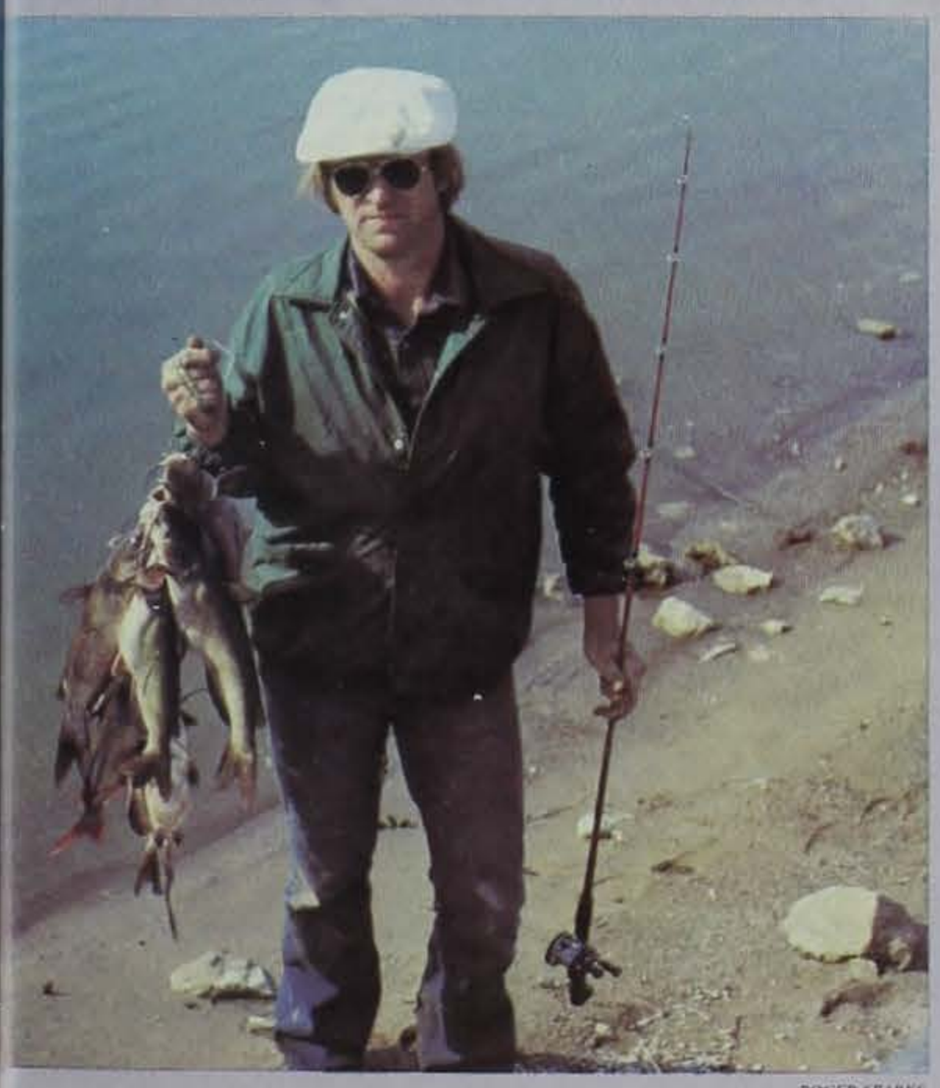
Sportsman's Landing is the next access area encountered three and one half miles (one and one half hours) below Luther Bridge. The concrete ramp is on the east bank and is frequently utilized by catfish anglers fishing the snags and deep water one half mile distance upstream at Sulfur Springs.

The segment between Sportsman's Ramp and Laurie Access at Madrid is a distance of five and one half miles (two and one half hours). Although snags and riffle areas are not as prevalent in this stretch, there are several evenly spaced along the route.

Two of the best fishing areas are the "Blue Hole" starting one half mile below Sportsman's Landing and running downstream for about one half mile, and the riffle at the old Salvation Army Camp.

The chances to enjoy a peaceful outdoor encounter with nature in the setting of a leisurely meandering stream are closer than many realize. To help you plan a Des Moines River float trip, write the Conservation Commission for a free brochure containing the information presented in this article. ■

A nice stringer of Des Moines River channel cat.



ROGER SPARKS

Crappies taken below Fraser Dam, Boone County.

RON JOHNSON

A Message From The Director of The Iowa Conservation Commission

SINCE TAKING THE POSITION of Director of the Conservation Commission, it has been one of my primary objectives to clearly define and bring to the forefront the Conservation and Outdoor Recreation issues which confront Iowans, in order that policies and programs can be better directed toward these major areas of concern.

In defining the issues it has become apparent that the most critical and widely impacting concerns of our day relate to our outdoor resource base; or what some refer to as our resource heritage. We are losing our resource heritage in Iowa at an alarming rate.

Woodlands once covering nearly 20 percent of Iowa are now reduced to only 4 percent. With expansion of ag-production, the trend toward wood for fuel, and other development pressures, the *prognosis* of the forest and its associated environment is bleak.

Iowa was once 85 percent prairie environment (totaling 30 million acres). Now, only several thousand acres remain with less than 3,000 acres under any type of protection.

Iowa's six million acres of wetlands have been reduced to a remnant of 70,000 acres.

More than 5,000 miles of natural stream has been eliminated or impacted by straightening.

Through soil erosion, Iowa's topsoil has been reduced from an average of 12-16 inches to an average of 6-8 inches.

Throughout the state, flora and fauna are declining. Certain birds, fish, animals, plants, and ecological communities are already gone forever from our state.

Iowa's irreplaceable archaeological resources have been drastically reduced through land development and use; destroying our only link with the prehistoric human element of our natural world.

This may sound like a lesson in history, but in actuality, it is a lesson of things to come, as all of these resources are continuing to decline and at an increasing rate.

We are at a critical point in time. It is really a "now or never" situation. We must ask ourselves some rather hard questions —

Do we currently have an adequate system of public parks, preserves, wildlife areas, and forests to provide for the resource needs of all Iowans, present and future?

Are there sufficient natural habitats being set aside for flora and fauna to provide for the aesthetic and ecological needs of future Iowans?

Are we content to accept that those few areas we now have under public protection may be the only resource heritage we pass on to future generations?

My answer to these is: *I Do Not Think So.*

Iowans have enjoyed an unusually high standard of living due mainly to our rich natural resource base. We should care enough to ensure an equal standard of living for future Iowans. Ensuring this future is a major challenge for all Iowans; one which we must come to grips with in the 80's.

In past years, the State of Iowa has devoted much of its resource production efforts to the acquisition of significant resource areas; many being purchased for specific recreation use needs. These acquisition efforts while significant have to date brought a total of less than one percent of our land base under public domain. It can be readily seen that a land acquisition program alone falls far short of meeting the long-range resource needs of Iowans. It is the Commission's stated mission "to assure Iowan's availability of an *enduring* and *quality resource heritage* not just for today's needs, but for future generations". Because this goal cannot be met through acquisition alone, the Commission has in recent years devoted increased program emphasis to the general protection of resource systems on private lands.

There appear to be several crucial aspects which must be dealt with in the 80's if we are to successfully conserve our resource heritage on a statewide basis.

The will of the people seems to be the major key in dealing with resource depletion. Without the will of society to conserve, all of our planning, legislation, and other incentives will be only academic. One of the biggest questions is how do we instill this will or conservation ethic. No one really knows for sure, but the answer must include the education and value shaping of our young people. In a sense, our children are probably our most critical resource for the future.

Land use planning is a term we are all familiar with, but to date Iowa has no comprehensive land-use plan or control. As I have said, laws and regulations alone will not be effective without the desire of Iowans to have it work; but we must all agree that a comprehensive approach to planning our use of the land is necessary to assure that the actions of individuals are understood in relation to the larger system they impact. As an example, the clearing of one acre of trees by one farmer seems a minor thing, but if we multiply this one acre by the 131,000 individual farms in Iowa, you can see that these perceived "minor acts" when put together, drastically affect our resources base.

The land-use concern is further complicated by the absence of a comprehensive *inventory of our state's resource systems.* Iowa at this time has no complete and readily-usable inventory of those remaining critical resource features; and, as a result, our program directions are not always perfectly clear. A more complete and comprehensive knowledge of our resource systems is needed before sound land-use policies and actions can be made.

The depressed economy is, of course, also a major concern. Just as we have seen in the depression of the 30's, a depressed economy places severe pressures on our environment both from agricultural and other industry as they try to increase production, often sacrificing environmental conditions in order to keep ahead of inflation as a result of our economy. The 80's appear to be shaping up as a decade of scarce public funds. This will affect conservation and resource programs. On the optimistic side, however, we at the Conservation Commission do not feel that the lack of funds means that our program efforts must be halted. In fact, it is quite the opposite. This period of scarce monies allows us the time we need to catch our breath and to develop better plans for the future. Much of our efforts will be redirected during this period from that of recreation development to that of resource protection. We will be seeing an increased role by the private sector with regard to resource protection and management. The Commission will be working more with volunteers and private donations for the purchase of lands and to provide resource services not possible through public funding. While we at the Commission are assessing the long-range outlook for conservation outdoor recreation, we are also finding that there is much that can be done now even with limited funding. We are now:

Developing better public relations to gain increased understanding of resource concerns and to build support for conservation programs.

Working to develop interpretation and public education programs; utilizing many of our existing people and resources.

Initiating a natural areas inventory of the entire state, utilizing funding sources provided through a private foundation. This inventory is a major step in working toward the much-needed resource base data for land-use planning.

Developing a protected waters area program which is directed at protecting our significant rivers, streams, lakes, and wetlands; relying heavily on landowner and local initiatives.

Working with landowners to develop and enhance wildlife habitat and timber resources on private lands.

Continuing to acquire significant resource areas as funding permits. With reduced state appropriations, we are now relying heavily on those funds being provided by the resource users through the purchase of habitat, duck, and trout stamps, and Marine Fuel Tax.

Continuing to look for additional funding sources such as the income tax check-off and we are supporting legislation which deals positively with resource and land-use matters. There are many types of landowner tas incentives which can aid conservation.

Also devoting greater emphasis to the total management of those resources now presently under the public domain. Our public lands are too precious to not understand and manage fully the complete range of cultural and natural resources they possess. Resources which are given greater scrutiny today include our nongame wildlife and fish species, archaeological and historic resources, and native plant communities.

In summary, we at the Conservation Commission are trying to do our part, but a major challenge and responsibility falls on each Iowan. You have a very significant role to play through every decision and action you make which affects our resource heritage. Through the commitment of all Iowans we can assure there will be a resource future which is worth passing on. ■

1981 Iowa Hunting — Trapping Seasons and Limits

Hunting Seasons

Game	Season Dates	Shooting Hours	Daily Bag Limit	Possession Limit
RABBIT				
(cottontail)	Sept. 5-Feb. 28	Sunrise to Sunset	10	20
(jackrabbit)	Nov. 7-Jan. 3	Sunrise to Sunset	3	6
SQUIRREL				
(fox and gray)	Sept. 5-Jan. 3	None	6	12
DEER (bow)	Oct. 10-Dec. 4	½ hr. before sunrise ½ hr. after Sunset	1	1
***DEER** (shotgun)				
All zones, 2 seasons	Dec. 5-Dec. 8	Sunrise to Sunset	1	1
	or Dec. 12-Dec. 18	Sunrise to Sunset		
***TURKEY** (gun)	Oct. 21-Nov. 1	½ hr. before Sunrise to Sunset	1	1
***TURKEY** (Bow)	Nov. 2-Dec. 4	½ hr. before Sunrise ½ hr. after Sunset	1	1
***GROUSE** (ruffed)	Oct. 10-Jan. 31	Sunrise to Sunset	3	6
**Check Regulations For Open Areas*				
CROWS	Jan. 2-Feb. 25	½ hr. before Sunrise to Sunset	None	None
RAILS				
(Sora & Virginia)	Sept. 5-Nov. 13	Sunrise to Sunset	15	25
SNIPE				
(Wilson's-Jack)	Sept. 5-Dec. 20	Sunrise to Sunset	8	16
WOODCOCK	Sept. 19-Nov. 22	Sunrise to Sunset	5	10
RACCOON & OPOSSUM	Nov. 7-Jan. 3	Opens 8 a.m. 1st day	None	None
FOX				
(red and gray)	Nov. 14-Jan. 24	Opens 8 a.m. 1st day	None	None
WOODCHUCK	June 15-Oct. 31	None	None	None
COYOTE	Continuous Open	None	None	None

PHEASANT	Tentative Nov. 7-Jan. 3
QUAIL	Tentative Nov. 7-Jan. 31
PARTRIDGE (gray)	Tentative Nov. 7-Jan. 31
GEESE	Oct. 3-Dec. 11
DUCKS (Split Season)	Sept. 19-23 (2nd part of season to be set)
COOT	(same as ducks)

REMAINDER OF
LIMITS, HOURS, SEASONS
TO BE SET IN LATE AUGUST

Trapping Seasons

MINK, MUSKRAT, RACCOON, STRIPED SKUNK OPPOSUM, BADGER, AND WEASEL	8 a.m. Nov. 7 through Jan. 3, 1982.
FOX (red and gray)	8 a.m. Nov. 14 through Jan. 24, 1982.
BEAVER	8 a.m. Nov. 7 through March 28, 1982.

except for the federal Upper Mississippi River Wildlife and Fish Refuge. In this area, the open season will be from 12:00 noon Dec. 26-Feb. 28, 1982.

OTTER AND SPOTTED SKUNK	No Open Season
COYOTE	Continuous Open Season

IOWA TIMBER:

A RENEWABLE RESOURCE

PHOTO COURTESY EXTENSION FORRESTER, IOWA STATE UNIVERSITY

Log splitting serves to reduce the drying time.

by Lynn Thompson

Iowa is not in the position to boast about its vast amount of forested land. However, under proper management, every five to ten acres of forested land it does have could by used to heat a home for an indefinite period of time.

Home Heating

More and more people are turning to wood as a home heating fuel because of the increasing costs, and in some cases, current or projected shortages of other fuels. Fuelwood production may offer an economic incentive toward more desirable cultural practices for the landowner. The production of firewood from existing woodlots is good forest managment often resulting in better utilization of the wood product.

Periodic thinnings to provide adequate growing space for sawlog trees can produce material desirable for firewood. Undesirable and diseased species can be removed during the fuelwood thinnings, also. Dead trees should be cut as soon after dying as possible to minimize deterioration caused by decay.

Another source of fuelwood is "wolf trees." These are the largest trees in the stand considering crown width and take up a large amount of growing space. It is beneficial for the landowner to remove these trees in order to promote the growth of the younger trees. A large volume of wood can be obtained from "wolf trees."

Bare Land to Energy Plantation

Fuelwood can be produced starting from bare land by planting species best suited to fuelwood production. The term "energy plantation" has come to mean a planting of selected species with the main objective being firewood production.

Based on yields of one-half to two cords per acre per year after establishment and the need of the average home during a heating season of 5 to 10 cords, the fuelwood plantation should be 5 to 10 acres. After the initial period of five to seven years to establish production, a good site can supply a continuous, renewable supply of heat for the wood burning stove. Wood offers the major advantage of being a renewable energy source. In order to maintain this resource, proper management is vital.

Full tree cover is important in order to optimize quality production. A mixture of different species is also a vital part of good management.

Faster-growing species typically are less dense and perhaps less desirable for fuelwood because of the greater volume required to heat the home. But in the long run, heat per acre per year from fast growing trees (such as cottonwood or silver-maple) will often be greater from slower-growing species such as oak or hickory.

Hardwood and Heat Values

Iowa's forests are made up almost exclusively of deciduous (broad leafed) trees. The heat value from an air-dried standard cord of several native trees (such as hickory and oak) when burned in efficient wood burning units, is equal to nearly 130 gallons of No. 2 fuel oil.

The heat values, most generally, are dependent on the percent of moisture and the weight of the wood. Greater density woods have a higher heat value. However, burning characteristics vary with the species of tree. It is typical of the elm to burn slowly with little or no flame, while white birch and pine burn quickly with much crackling and spark throwing. Green wood of any type will not burn efficiently in ordinary wood burning stoves.

From Tree to Firewood

Proper drying of firewood is very important, yet many times overlooked. Properly seasoned firewood has higher heat value per pound than greenwood; it is easier to ignite and maintain; it is less likely to pop and throw sparks and it is less likely to promote creosote formation during burning.

Firewood dries most rapidly during the late spring, summer and fall than during other months of the year. There are 180 effective drying days in the seven months between April 1 and October 31 in Iowa. On the average, fuelwood in four-foot lengths requires 9 to 12 months to become thoroughly air-dry. Wood will become lighter as it loses water and severe end checking usually develops during drying.

Cutting of the trees should be done at least six to nine months prior to burning. Keeping the leaves on summer-cut trees until they wither helps remove a large amount of moisture from the wood.

Log splitting is easiest when the log is still green. Typically, hardwoods are relatively easy to split. Some of the more difficult hardwood species to split are the black locust, elm, ironwood, and sycamore. Splitting serves to reduce the drying time and also makes for better combustion in logs with a larger diameter. Firewood more than six to eight inches in diameter should be split before burning.

To dry the wood, stack it loosely in an open area where there is good air movement. The object is to promote air circulation throughout the stack. Cover the stack or keep it in a shed. Rapid drying reduces the possibility of deterioration of the firewood. Green firewood should be air-dried or seasoned one year before burning.

Fuelwood is sold by weight, or the load, or the stack. The standard measurement is a cord and may be defined as a pile four feet high and eight feet long, made up of sticks four feet in length. This should not be confused with the face cord in which the firewood is cut into lengths shorter than four feet, but still piled four feet high and eight feet long. Wood dealers often choose to sell wood by the load or the weight. The buyer should bear in mind that a "truck-load" to one dealer may be a totally different measurement to another.

PHOTOS BY SONNY SATRE

Above: Examples of weather checking.

Below: Loose stacking speeds up drying.

Wood Burning Stoves

In order to understand the concept behind wood burning stoves, the three phases of wood burning need to be mentioned. In the first phase, heat drives water from the wood. In the second, charcoal and volatile gasses are formed. The gasses can produce 50 to 69 percent of the heat value of the wood but must be heated to about 1100 degrees farenheit and mixed with sufficient oxygen in order to burn. It is after the release of volatile gasses (those relatively vaporizable at a fairly low temperature) that the charcoal burns. These phases do not occur separately but overlap, all occurring at the same time.

Heat derived from the combustion of wood depends on the concentration of wood materials, resins, ash, and water. Generally, the heaviest woods (hickories, oaks, and locusts) when seasoned, have the greatest heating value per cord. Lighter woods (aspen, basswood, and willow) give about the same heat value per cord because they are less dense.

Wood is a relatively clean fuel, producing about one percent of ash by weight. It also produces very small amounts of chemical air pollution. There are disadvantages of using wood for home heating, however. For one thing, the wood must be well-seasoned to be efficient, and this takes a considerable amount of time. Wood also burns very rapidly, making frequent refueling mandatory. Wood burning stoves pose the threat of a fire-hazard and special precautions must be taken. With proper installation and maintenance there should be few problems encountered with the use of a wood burning stove.

Safety Precautions

Most fires are caused when combustibles are too close to a hot stove, by the escape of hot gasses or flames through a crack in the chimney, by conduction heat from the stovepipe or stove to combustible material, or by sparks or coals escaping from stoves. Chimney fires are caused by a build-up of creosote in the stovepipe or chimney. Creosote is caused by unburned gasses found in wood smoke which condensed on cool surfaces. Steps that can be taken to reduce this build-up are: (1) keep chimney clean (2) run hot fire once a day, and (3) burn dry hardwood.

In order for wood to be valuable as an alternate or supplemental fuel, the supply must be there. By creating a supply, better timber management results. With better management comes a larger supply, economically available to more and more people as the cycle grows. The use of a renewable resource such as wood is a step forward during this period of energy shortages and conservation. ■

RON JOHNSON

Lake of Three Fires State Park

By Harry Hunter
PARK RANGER

A TRIP TO SOUTHWEST IOWA would not be complete without a visit to beautiful Lake of Three Fires State Park. The park, one of Iowa's older ones, is located in Taylor County on State Highway #49, three miles north of Bedford.

The area was built during the mid-30's by the U.S. Civilian Conservation Corp (CCC). Planning and construction was under the direction of the Department of the Interior and National Park Service. The project was a cooperative effort between the Park Service, the Southwest Iowa Lake Improvement Association, Bedford Community Club, Bedford Lions Club, and the State of Iowa, plus the efforts of many interested local people. Work took approximately three years to complete. Although the original tract was smaller, it now totals approximately 700 acres. The original lake was 125 acres, but has shrunk to under 100 acres during recent years due to erosion and siltation from the watershed.

Many years ago, before settlement by the white man, Indians roamed the country side, and legend has it that great council meetings were held in what is now Taylor County. The area was a favorite hunting area for these native people. When meetings were planned, runners were sent out to spread the word far and wide. The exact location of these meetings was marked by the smoke from three fires. The smoke was said to signify "This is where it's going to be held". The fires were built on the highest hills or rises in the vicinity of what is now the park. The Conservation Commission took into consideration this early history of the area and in 1937, named the park "Lake of Three Fires".

In addition to the lake and erosion control measures, the CCC built the park's interior roads. A water system was built, complete with water lines to all areas. Water was taken from the lake for treatment and public use. This method is still being used, although the water treatment facility has been improved. Sewer lines were constructed in the area along with a bathhouse and beach facility located near the dam area. This is a favorite spot for many. The picnic area was built in an area blessed with many large oak trees as well as other species. A rustic stone and wood shelter, and two latrines were constructed and designed in keeping with the theme of the bathhouse. Six family cabins were built in a wooded area near the lakeshore. The cabins are rented during the summer months for vacationers. The theme of the park buildings was continued in the construction of the park rangers residence and service building. Many trees and shrubs were also planted by the CCC workers.

During more recent years, many improvements have been made to meet changing needs as funds permitted. The early trails and foot bridges have been expanded. Two campgrounds have been built, each area has modern toilet and shower buildings. These

RON JOHNSON

JERRY LEONARD

Far Left — Primitive campsite; Left — Lakeside picnic area. Above: State park cabin rentals provide low cost vacation; Below: Boat paddling and swimming are popular at Three Fires.

JERRY LEONARD

campgrounds boast 160 sites, 32 of which have electrical hookups. A sewer dump is available to self contained camping units. An additional shelter was also built in the picnic area. These structures are a welcome site to a long planned family reunion. They are available on a first-come basis. The foot trails have been extended to circle the lake. The trails also serve a multipurpose as horseback riding and snowmobile trails, when snow is adequate. They are currently being upgraded.

The lake was drained in 1980 for the purpose of building fishing jetties along the shoreline and to improve the fishing. By 1983, the lake should offer some very good fishing as this is the history of other renovated lakes. The lake has been restocked with crappie, bluegill, largemouth bass, channel cat and bullhead. Areas along the jetties and shore have been deepened. They will offer good fishing without the need for a boat.

The spring rains and warm sun bring many wild flowers and songbirds. During spring and summer, the park abounds with mushroom hunters, heading for their favorite spot. Picnicking among the stately oaks can be enjoyed every day from early spring, until late fall. Occasionally, the hale and hardy can be seen having a picnic on a sunny winter day. An occasional wedding may be observed as some people prefer an outdoor ceremony. A walk on the trails may bring a glimpse of one or more deer moving about the area. Small game is always present. The squirrel becomes quite bold, as well as rabbits, bobwhite, and even an pheasant on occasion. The park is also a temporary home for both summer and winter songbirds. Heron may be seen in the backwaters of the lake. Ducks and geese may rest there on their migration routes. Viewing and picture taking only are permitted, as the refuge area is closed to hunting. The park is open year-round.

The beauty of Iowa's older state parks is unsurpassed, and Lake of Three Fires State Park is no exception. The citizens of Iowa can be proud of their parks. They offer many hours of outdoor pleasure and enjoyment. Plan now to visit and enjoy Lake of Three Fires in the near future. ■

Why Do Some Fishermen Have All the Luck?

by Bruce Adair
FISH MANAGEMENT BIOLOGIST

PHOTOS BY SONNY SATRE

Left: Walleyes from the Des Moines River, Sycamore Access, Polk County.

IT HAS BEEN STATED, by some anonymous philosopher, that 10 percent of the fishermen catch 90 percent of the fish. That might be an exaggeration — or maybe not.

What is it about that lucky 10 percent? Do they really possess some secret technique or sophisticated tackle that is unavailable to the rest of the hapless fishing public? I think not. Sure, we all know a guy in town who spends every third paycheck for the latest in electronic fish-finding gadgetry, boron rods, reels, boats, trailers, motors, tackle boxes as big as foot lockers filled with lures that lunker bass have only dreamed of eating. Forget about him. He's probably in that elite 10 percent, but he bought his way in.

With a little common sense, we less fortunates can catch our share as well. Our management district in southwest Iowa covers nine counties with 40 public lakes ranging in size from two acres to 800 acres. We come in contact with a lot of anglers each year. Some of them rave about the fishing. Others complain — and they're all fishing the same waters.

Here are some observations from a fisheries biologist and part-time fisherman, on some very basic things the average Iowa angler should do to shorten the time between bites.

Fish for whats there.

Learn what species of fish are found in the lakes and streams in your area and concentrate on them. The *"Iowa Fishing Guide"* available from our department can be very helpful. It's updated each year and lists all the major and minor species of fish in public waters throughout the state.

Fishermen tend to crave what they don't have. I enjoy fishing for smallmouth bass, walleye, and white bass, but I fish almost exclusively for crappie and bluegill because they are plentiful and easy to catch in my area. The small, artificial lakes throughout Iowa, and especially the southern regions of the state, are naturals for largemouth bass, bluegill, and channel catfish. If this is the type of water you have readily available, learn to fish for these species and purchase your fishing tackle accordingly. If you live near good walleye or perch water, the same thing applies. What's the sense in driving 200 miles every time you want to fish. In fact, who can afford it?

Match your tackle to the fish you're after.

In general, fishermen in Iowa use tackle that is too heavy for the fish they are catching or attempting to catch. Granted, if your prey is lunker bass or catfish or pike you may need the stiff rod and heavy line. This is fine. Otherwise — lighten up.

The thrills that an 8 inch bluegill will provide on an ultra-light rod and reel loaded with 2-4 pound line are unbelievable until you try it. With this same tackle you can cast the tiniest of lures with ease and present them naturally to your target. This way you can get rid of all those heavy leaders, lead sinkers, snap swivels, etc. that you used to heave into the water. You'll catch more fish and have more fun doing it.

Get 'em while they're hot.

There are certain times of the year in Iowa when you can't help but catch fish and with a minimum of effort. There is probably no easier time to catch large numbers of bluegill than through the ice in the middle of the winter. If this doesn't appeal to you, try those same fish in June in shallow water when they're spawning. Present a bite size bait naturally over those spawning beds and you absolutely have to catch fish.

If you have a good crappie lake in your area, don't pass up the month of May. When these fish move into shallow water to spawn, anyone can load up a stringer in a hurry on the simplest of gear. You may spend more time cleaning all the fish than you did catching them.

Many limits of yellow perch are cranked out of the depths of the natural lakes in northwest Iowa each fall. With the leaves turning on the trees, its a beautiful time of the year to fish this area and very rewarding.

Drift a nightcrawler naturally through a deep hole or below a riffle in any of our prairie streams during midsummer and there is no reason why you shouldn't tie into a scrappy channel catfish more times than not.

Keep abreast of the fishing in your area.

Get to know the fisheries biologist and conservation officer in your locality. They're usually aware of the current fishing conditions. Follow the fishing reports in the newspapers and on local radio stations. These reports originate from field biologists throughout the state and can at least get you directed toward the best lake or stream for the upcoming weekend.

Stop wishing — go fishing.

Last and maybe the most important of all — go often. If it comes down to deciding between going fishing or mowing that lawn again — don't give it a second thought. Grab your kid and take him fishing. □

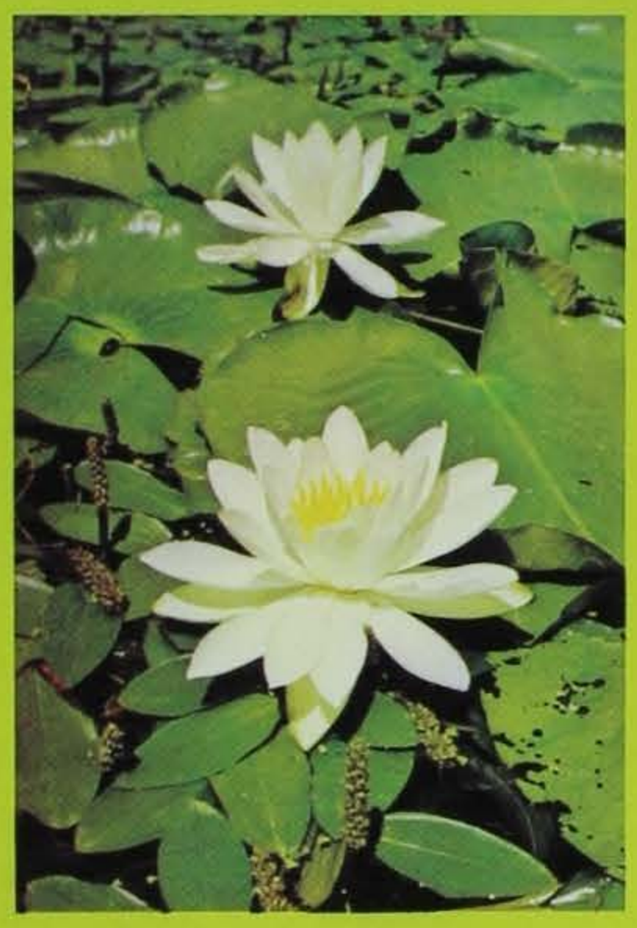
White bass.

WILDFLOWERS OF THE MONTH

TWO WATERLILIES

by Dean M. Roosa and Sylvan T. Runkel

PHOTOS BY DEAN ROOSA



Iowa wetlands are unforgettable places — unforgettable because of the abundant wildlife that occurs there — unforgettable because they can be a very uncomfortable, hot, mosquito-infested place — or unforgettable because of the quiet solitude one finds there at sunset. Something that adds a lasting impression is finding a surprisingly large and pretty flower floating in the water. In the Midwest, you may find two such large, pretty flowers in many permanent marshes; these go by the general name of waterlillies, although neither are lilies.

The white waterlily *(Nymphaea tuberosa)* is perhaps the most showy flower that occurs in Iowa wetlands. It goes by other names, such as pond lily or water nymph, and does much to add an aesthetic quality to our marshes. Found in many northern Iowa marshes, its flowers are up to six inches across and its leaves are nearly round and may exceed a foot in diameter. The flowers tend to open at a particular time for several consecutive days after which they bend or coil down so the seeds can ripen under water. After several weeks the seeds are released and float to the surface where they are dispersed by wind currents. Indian legend has it this flower was created by a falling star — a tribute to the showy beauty.

The yellow water lily, *(Nuphar luteum)*, also called Spatterdock, cow lily, and beaver root, is found throughout Iowa in permanent wetlands. The flower is small, only about three inches across and the leaves are oval, with a deep notch and a prominent midrib and flattened petioles. A prominent feature of this species is the presence of a thick perennial rhizome, three or four inches thick and several feet long. This rhizome has been used as a food by being roasted or boiled with meat, or used as a powder to arrest external bleeding. The seeds have been used for food by being parched or ground into flour. This plant is excellent for wildlife — as food or shelter.

Both of these showy species are found in many Iowa marshes: Goose Lake near Jewell and Cheever Lake near Estherville are good places to observe them. The length of the petiole in both species depends on the depth of water in which they grow; in dry years the petiole may be a few inches long or may grow to lengths of nearly 10 feet in deep, clear water.

Take time from your busy schedule to appreciate the singular beauty of Iowa's wetlands; see if you agree with us that they are unforgettable places. ■

TO BE LANDSCAPE PLANNERS — this was the job set before Jan Anderson's fifth grade class last April. The class attended school a few blocks from Hartman Reserve Nature Center, an area owned and operated by the Black Hawk County Conservation Board. Frequent visits to the Center were a part of Mrs. Anderson's teaching. Who better than they to assist in an improvement project at the Nature Center?

An old swimming pool on the grounds had been converted to a pond but the area surrounding it remained bare and weedy. Though we could have allowed it to succeed naturally, we felt it could serve to display plants available for habitat plantings.

To the fifth graders was given the task of studying the site, designing a planting plan, and planting the seedlings. They would not merely aid in planting trees and shrubs; they would decide where each would go.

The project idea was presented to eager grins and nods. The first phase was to visit the project site and map everything within the roped-off boundaries. The pond and existing trees had to be properly situated on the map. Note had also to be made of any special considerations such as wet or dry spots. Meter sticks and trundle wheels, pencils and clipboards were the tools of ''mapping'' day.

A few days after mapping, another tool was introduced — the list and description of available trees and shrubs. Most of the plant material would come from the state nursery and the descriptions were those in the Iowa Conservation Commission's flye *Attracting Backyard Wildlife*. The children would have available to them amur and tatarian honeysuckles, Russian olive, autumn olive, wild plum, red-twig dogwood, and ninebark. In addition to these available last year from the

PLANNING AND PLANTING

by Mary Duritsa
NATURALIST BLACK HAWK COUNTY CONSERVATION BOARD

PHOTOS BY AUTHOR

RS – Commission we also had some redbud, h bush cranberry and nannyberry.

Arnold Webster, a long-time, local rseryman joined the project group and nt over each of the species, talking out its site requirements, shape, flower l fruit color, and potential for wildlife d. He concluded this classroom session h an explanation of the rudiments of dscape planning.

Mr. Webster and I returned to the class veek later to see how the landscape nners were faring. We were greeted by arge, blank, master map pinned to the ll and a color coded map in front of ch child. Each had drawn a plan. With r. Webster at the helm, the students ntributed their ideas to the master plan. olored bits of paper represented the rious species, and over the class period ruly beautiful and well balanced ndscape design was melded.

Tree planting day came none too soon. e kids were divided into small groups d each given a section of the plan. nce on the site, they placed surveyor gs at each planting spot. Mr. Webster monstrated the proper way to plant the re-root seedlings. With the help of two others and various Nature Center ends, the fifth graders gave well chosen mes to 90 seedlings.

Several kids went home from the hool via the Nature Center the evening tree planting day to see how "their" es were doing.

It has been said many times that a rtain pride and awe is inspired within a rson who plants a tree. To the adults volved in this project, this feeling was ngendered not only by the act of tree anting but in our being in the presence earnest and caring children. Many of ese children live close to the Nature enter and will be able to watch "their ees" grow up as they do. □

Two fifth graders measuring the site with a trundle wheel.

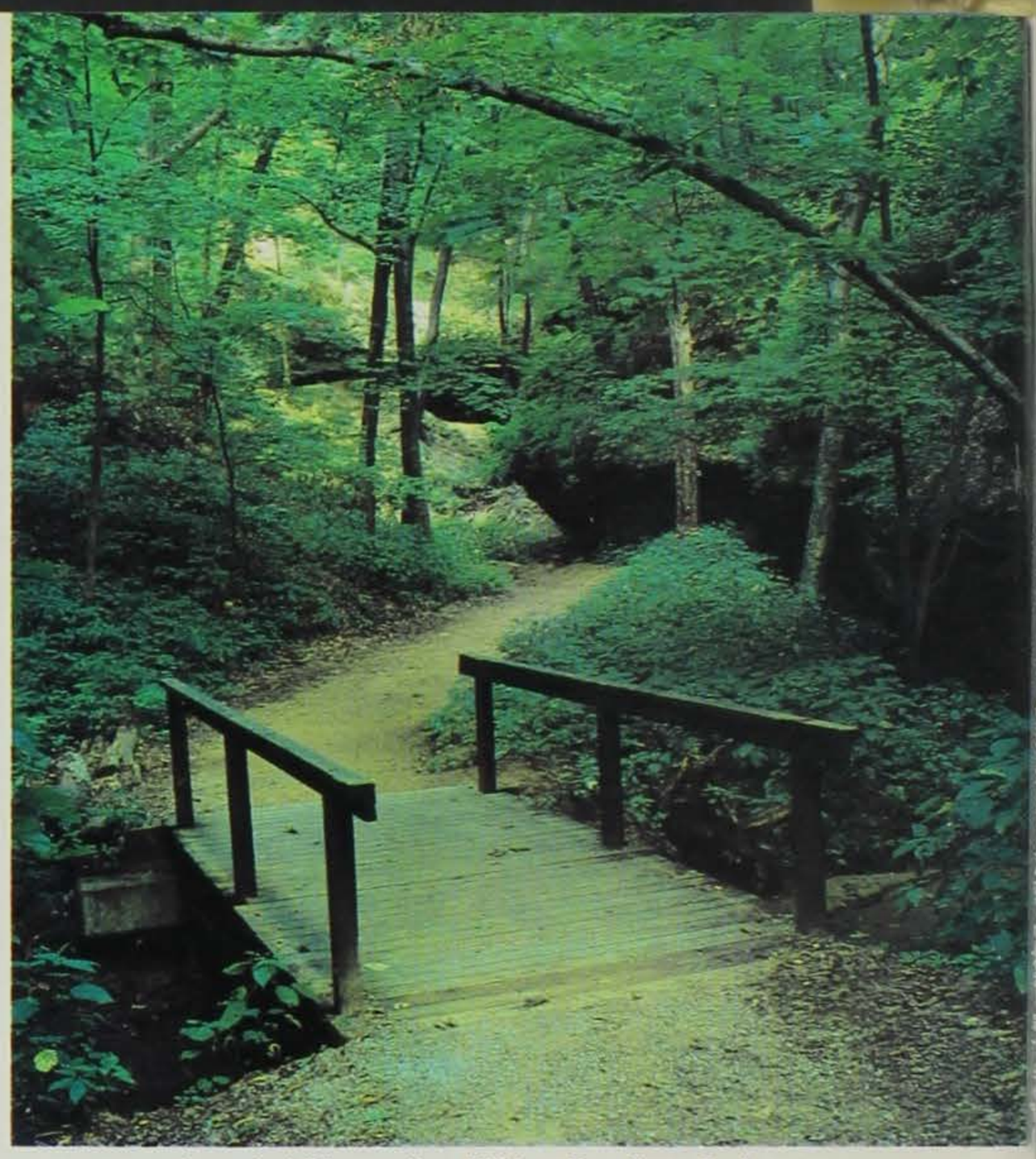
Students marking their site map.

Planting day — small groups go to work on their sections of the site. White flags mark locations for seedlings.

PHOTOS BY RON JOHNSON

Wildcat Den State Park

by Gary Galliart



A scenic hiking trail at Wildcat Den State Park.

WILDCAT DEN is located in Muscatine County, 12 miles east of Muscatine and 18 miles west of Davenport, Iowa on Highway 22. There were interesting circumstances which led to the name "Wildcat Den" being given to this tract of land that is now a State Park. There was a den of wild cats on one of the steep bluffs in late 1856. At that time there were few fences, so cattle were not confined. Each herd had a bell that was peculiar to a particular owner. It was the boys' chore to take their ponys and bring the cattle home each night. One of the local boys drove his heard past the den one day. A wild cat crouching on a limb of a tree sprang on to the back of the pony. Pony, boy and cat rolled down the hill, but in a flash the boy was on the pony's back and galloped away before the cat could attack again. For some time after that the boys were shy about spending much time in this spot. They then and there named the place Wildcat Den and it has been called by that name ever since.

Long before the area known as Wildcat Den was acquired as a State Park, it was popular as a picnic ground. However its value as a haunt for many varieties of trees and flowers was unappreciated by most of its visitors, except occasionally by a botanist or a geologist who brought classes to study the flora and geological formations. A survey of the area made a number of years before the park was established reveals the ages of some of the old trees in the area. White pines as old as 145 years and red oak 120 years old were found. White Ash were 100 years and black oak 135 years old. Some of these trees may still be seen in the park. The area was purchased in 1905 by two sisters, Emma and Clara Brant, who admired the area and wanted to preserve it. They even maintained a watchman to keep an eye on the area. In 1927, the Brant sisters gave the state 67 acres to establish the park. The state then added another 141 acres which included historic Pine Creek Mill. The mill was built in 1848 at a cost of $10,000 by Benjamin Nye. One of the first settlers in Muscatine County. This building was partly restored during the 1930's by work projects and the Civilian Conservation Corps. The park was dedicated on Sept. 27, 1935 and now totals 417 acres.

The mill was enjoyed by many visitors over the years during which it was open. Today the mill is no longer open to the public. Further restoration has been started to save the mill for future generations. The project is being done a little at a time as funds can be found. At this rate it may be several years before the public can again enjoy the history inside the mill and view the machines which are still intact. The mill was placed on the Register of Historic Sites in 1980. □

Pine Creek Mill.

"All You Need Is Love" Tiger Salamander Larvae

by Michael Lannoo
GRADUATE STUDENT, ANIMAL ECOLOGY,
IOWA STATE UNIVERSITY

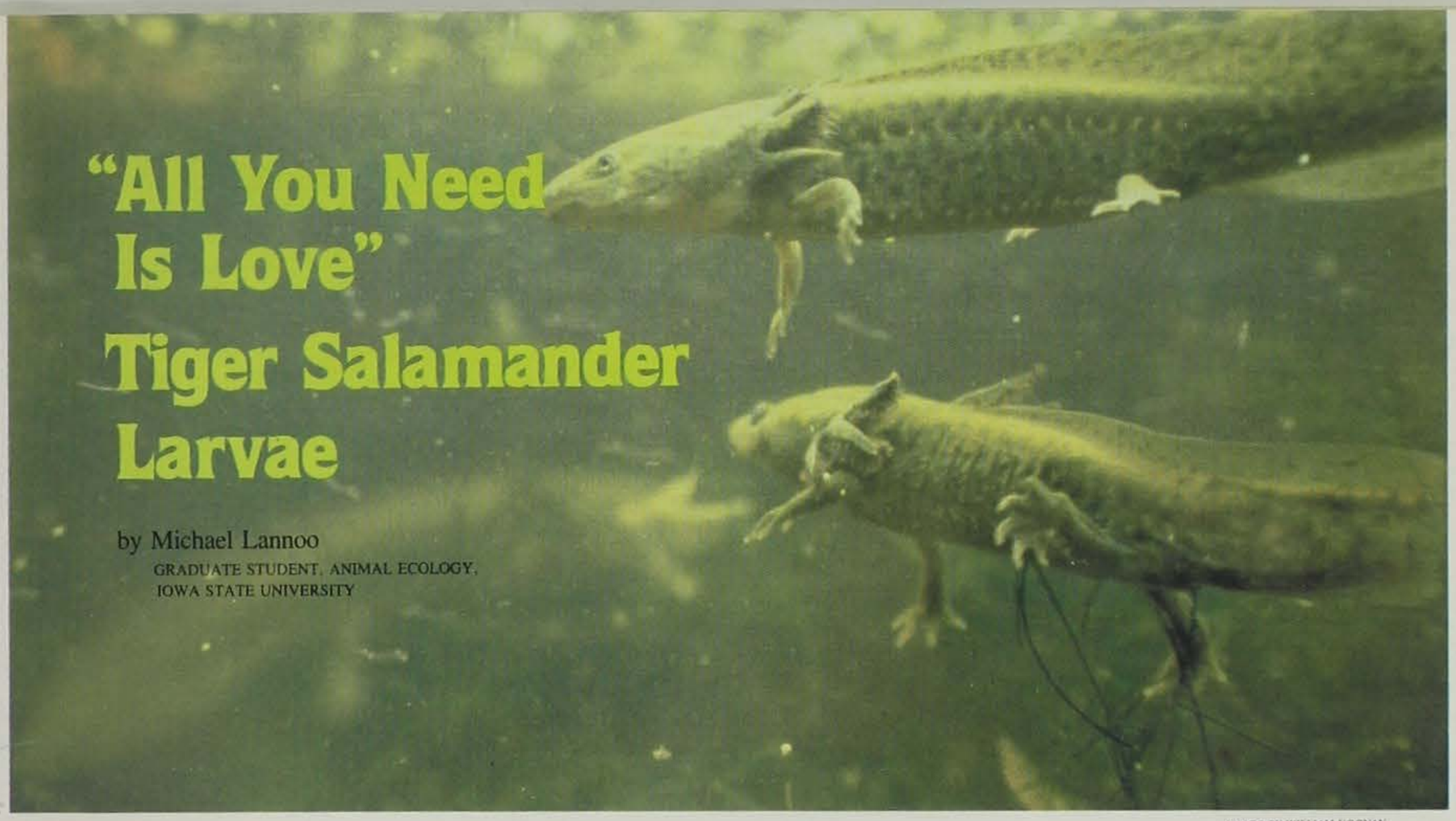


PHOTO BY WILLIAM NOONAN

NEXT TO MOSQUITOES, tiger salamander larvae could possibly be the most unloved animals in Iowa. This is true not only as far as people and biologists are concerned, but as far as Mother Nature and probably the larvae themselves are concerned.

The problem seems to lie within the essence of these larvae, or their "larvae-ness". It has been said that the two great motivations of any animal are eating and reproducing, and since by definition, larvae cannot reproduce, they eat. In fact, they eat so voraciously that it seems they are taking out the frustrations of celibacy on their prey. Sometimes they even eat each other!

In the spring, shortly after ice is out, the terrestrial adult salamanders migrate to shallow ponds and marshes to breed and lay their eggs. About one month later, the aquatic larvae hatch to spend their summer in these ponds. When they hatch, these larvae are less than a ½ inch (~1 cm) long and have no limbs. They breathe through three paired gills which are located along the sides and back of their head. Over the course of the summer, the larvae develop first front and then hind limbs, and grow in size, reaching 4-6 inches (10-15 cm) before reabsorbing their gills and metamorphosing to the adult form in late July or early August.

In more permanent marshes, some larvae never metamorphose. They overwinter under the ice where they become (perhaps gratefully) sexually mature. These individuals may, over several years, get quite large. Spirit Lake Hatchery biologists recently seined an incredible specimen, 11½ inches (29 cm) long, out of a pond in Dickinson County. This specimen is thought to be the largest larvae on record, although larger, unrecorded specimens have probably existed in the past.

In ponds where they occur, tiger salamander larvae are the top aquatic carnivores. This is exactly the same role that predatory fish play where they occur, and for this reason, fish and salamander larvae usually are not found together. Historically, however, when togetherness has occurred, the slower, smaller salamanders almost inevitably lost out and became fish food. Today, natural selection has favored only those salamander adults which migrate to wetlands that do not contain fish. These wetlands are usually ephemeral or temporary marshes.

There are at least two reasons why fish do not occupy these wetlands. Temporary marshes tend to dry up in late summer, which causes fish great trouble. These marshes also usually contain large amounts of submergent vegetation which rob the water of oxygen directly during summer nights through respiration and indirectly under the ice in the winter through decomposition. When fish die as a result of these anoxic conditions, it is called summerkill or winterkill, respectively.

The drying conditions, however, do not bother salamanders, because by the time the ponds dry in mid-summer, the larvae can metamorphose into adults and assume a terrestrial existence. In fact, many studies have shown that drying conditions actually speed up metamorphosis in these animals.

Low dissolved oxygen levels also do not have a great effect on salamander larvae. They can absorb oxygen from the water using both their gills and their skin, and also have the ability to "gulp" atmospheric oxygen. Preliminary observations indicate that these larvae "air gulp" quite often when active and feeding.

By allowing tiger salamanders these unique adaptations, Mother Nature seems to have compensated them despite giving fish the preferred habitats of lakes and deep ponds and giving the larvae the marshy leftovers. But salamander larvae are apparently still not satisfied, especially in their dealings with people. Like many other biological groups, they would like their own identity. They would like to be recognized for what they are — salamander larvae — and not tadpoles or mudpuppies, which they are not and probably would not want to be, given a choice. Tadpoles develop hind limbs before front limbs, do not have external gills, and metamorphose into frogs and toads, while mudpuppies are often found in rivers, not marshes in Iowa, and do not have a terrestrial adult stage.

In the beginning, the statement was made that both mosquitoes and salamander larvae are unloved. There is a fundamental difference between these two "unloveds" which should be clarified. While mosquitoes are unloved because they are hated, Tiger Salamander larvae are unloved just because they are unknown. Nevertheless, the casual citizen might shrug his or her shoulders, say something about both salamander and mosquito larvae living in marshes, and resolve "let's just keep them there". But the salamanders would point out that mosquitoes do not breed very successfully in marshes in Iowa, they find tire ruts and other casual water much more to their liking. They would also be quick to point out that if mosquitoes did breed in shallow marshes which contain salamanders, there would be a lot fewer mosquitoes around, and a lot more big, fat, happy, but still unloved, salamander larvae. □

IOWA'S SWITCHGRASS COST-SHARING PROGRAM

by James B. Wooley and Ronnie R. George
WILDLIFE RESEARCH BIOLOGISTS
PHOTO BY RON GEORGE

IN 1979, Iowa hunters and trappers purchased their first Wildlife Habitat Stamps, providing funds which were earmarked for the acquisition, development and enhancement of wildlife habitat. The Iowa Conservation Commission's Switchgrass Cost-Sharing Program is an outgrowth of funding made available through the sale of Habitat Stamps. It is an attempt to deal with the problem of habitat loss on private lands by providing cost-share assistance to landowners for the establishment of switchgrass, a warm-season native grass which provides both excellent livestock forage and undisturbed wildlife nesting cover. Since we are now in the second year of this program it is a good idea to evaluate our progress to date, but first let's examine switchgrass from both a livestock and wildlife standpoint.

Warm Season Forage

Switchgrass is a tall (3-5 foot) warm-season native prairie grass once common in Iowa. It can supply excellent forage for cattle during the hot summer months when cool-season grasses such as bluegrass, orchardgrass and fescue are dormant. A good stand of switchgrass may require a year or more to become well established, but once established, it will last indefinitely if properly managed. While other native grasses such as big bluestem and Indian grass also provide good forage, switch-grass is currently the most popular with Iowa cattlemen.

Switchgrass can be extremely valuable as warm-season livestock forage. A pasture rotation system that incorporates both cool-season forage and switchgrass is very efficient. Cattle can be removed from exhausted cool-season pastures in late June and placed on switchgrass during July for continuous grazing through the growing season. In Nebraska, steers rotated between cool-season pastures and warm-season native grass showed a net advantage of 74 pounds per steer over animals that grazed on cool-season grasses only.

In Iowa, switchgrass produced dry matter yields that greatly exceeded bromegrass while having only slightly lower crude protein and digestibility values.

Wildlife Considerations

The Iowa Conservation Commission and Iowa sportsmen are interested in developing a program that will be beneficial to both cattlemen and wildlife. Much of Iowa's upland wildlife is produced on privately-owned agricultural lands. Recent declines in pheasants and other wildlife have been associated with agricultural land-use changes. Increased corn and soybean production, removal of fencerows, declining oat and hayfield acreage, increased use of fall plowing, over grazing and wetland drainage have all contributed to loss of wildlife nesting and winter cover.

Early June cutting of alfalfa meadows for hay (a preferred pheasant nesting cover) results in excessive nest destruction and hen mortality. In order to remedy this situation, an agricultural crop that is both economically desirable to the private landowner and beneficial to nesting wildlife is needed.

Studies by Commission biologists in Southern Iowa have shown that switchgrass pastures are readily accepted as nesting cover by pheasants and songbirds. Correctly managed switchgrass is not pastured until July, after most nesting has been completed.

Table 1. Comparison of brome-grass and switchgrass forage at the Shelby-Grundy Experimental Farm in Ringgold County, Iowa (Schaller and Murdock 1974)

		First cutting[a]		Annual yield (1974)	Average yield (1973-74)
	Nitrogen lbs/acre	Digestibility %	Crude protein %	Tons/acre	Tons/acre
Brome-grass	0	63.7	12.5	0.47	1.30
	120	67.8	19.0	1.83	2.69
	240	67.4	20.3	2.34	3.23
Switchgrass	0	58.1	9.7	1.80	3.00
	120	62.8	18.4	3.69	4.59
	240	62.8	18.3	3.94	4.66

[a]May 31, 1974: brome-grass
June 19, 1974: switchgrass

Program Details

During the next 10 years, the Iowa Conservation Commission plans to spend approximately $1 million derived from the sale of Wildlife Habitat Stamps to cost-share the establishment of switchgrass on private land. If the program is initially successful, it will eventually be expanded to most counties in Southern Iowa.

Cattlemen in seven counties (Adair, Clarke, Lucas, Madison, Ringgold, Union and Warren) were eligible for cost-sharing assistance in 1980. A total of 845 acres was established in 1980 at a cost of approximately $42,000. These same counties plus six others (Adams, Cass, Decatur, Marion, Taylor and Wayne) are enrolled in the Program in 1981. Cost-share assistance was requested on approximately 1,400 acres in the 13 county area in 1981. Individual counties will be allowed to participate in the program for 2 years. After that period, cooperators will be expected to continue with their contracts, but no new cooperators will be signed up.

Cost-share to private landowners during the switchgrass establishment year is 50 percent of the cost of seed, agricultural lime, phosphorus and potassium fertilizer, atrazine, seedbed preparation, seeding, rolling and chemical application not to exceed $50 per acre.

Cost-sharing to private landowners during the first year after establishment is 50 percent of the cost of nitrogen fertilizer, atrazine and chemical application not to exceed $15 per acre.

Management

In exchange for cost-sharing payments, landowners are required to sign a 5-year contract covering management of the switchgrass planting.

1. During the establishment year, no grazing is allowed, but the cooperating landowner has the following options: (a) Switchgrass may be clipped for weed control anytime during July or August. At no time can it be cut closer than 8 inches above the ground. (b) Switchgrass seed may be harvested anytime upon maturity. (c) Switchgrass may be left unharvested.

2. During the 4 years following the establishment year, the cooperating landowner has the following options: (a) Switchgrass may be cut for hay anytime during July or August. At no time can it be cut closer than 8 inches above the ground. (b) Switchgrass may be grazed anytime during July or August, but at no time will it be grazed closer than 8-10 inches above the ground. (c) Switchgrass seed may be harvested anytime upon maturity. (d) Switchgrass may be left unharvested.

Except as specified above, no other use will be made of the switchgrass during the 5-year period covered by the contract.

The cooperating landowner will be encouraged but not required to allow hunting on lands covered by contract.

Further Information

If you would like further information on the switchgrass cost-sharing program, seed sources, or planting methods, contact your local U.S. Soil Conservation Service District conservationist or Iowa Conservation Commission wildlife biologist:

County	Biolgist	Telephone
Adiar, Audubon, Cass Dallas, Guthrie, Madison	George Cox	515/747-2278
Adams, Clarke, Decatur Ringgold, Taylor, Union	Melvin Moe	515/464-2220
Appanoose, Lucas, Monroe Wayne	Jack Coffey	515/774-4918
Jasper, Polk, Marion Warren	Charles Kakac	515/961-2587
Crawford, Harrison, Monona Shelby, Woodbury	Neil Heiser	712/423-2426
Fremont, Mills, Montgomery Page, Pottawattamie	Bob Moore	712/624-9063
Carroll, Ida, Sac	Bob Dolan	712/297-7824
Davis, Jefferson, Keokuk Mahaska, Wapello	Chuck Steffen	515/682-3552
Henry, Louisa	Art Roseland	319/523-8319
Cedar, Johnson, Washington	Don Pfeiffer	319/354-1074
Iowa, Poweshiek	Bob Kurtt	515/484-3752

Cost-sharing is available to private landowners in selected Iowa counties who would like to plant switchgrass. New applications will be accepted in each county during the years indicated below:

1980-81

Adair, Clarke
Lucas, Madison
Ringgold, Union
Warren

1981-82

Adams, Cass
Decatur, Marion
Taylor, Wayne

1982-83

Appanoose, Audubon
Guthrie, Mahaska
Monroe, Montgomery
Page

1983-84

Davis, Fremont
Keokuk, Mills
Pottawattamie, Wapello

1984-1985

Crawford, Harrison, Henry,
Jefferson, Shelby, Washington

In addition, several County Conservation Boards have either established switchgrass cost-sharing programs, or are in the process of considering such programs and setting them up. Van Buren and Muscatine counties will have switchgrass cost-sharing programs in 1981. Additional funding for establishment of warm-season pasture may also be available as an ASCS cost-share practice in some counties. Check with your local ASCS Office. □

A typical stand of switchgrass.

CLASSROOM CORNER

ADMINISTRATOR, CONSERVATION EDUCATION CENTER

Have you ever worked with a group and wondered if you had any effect on the individuals within that group? The people could be scout troops, church groups, school classes or a gathering from the neighborhood. The effect could have been to irritate the members, lull them to sleep, or to stimulate them to act in favor of your presentation.

I did find out, by accident, about one young individual. He had participated in a couple of programs given by me and spent a year with a very conservation-aware teacher. His father was walking in his yard looking at the trees as I went by. I asked, "What are you looking for?" He responded that he was considering cutting the trees down and that his son kept telling why he shouldn't. His son said that the trees improve the air, provide homes for animals, save energy with shade and, lastly, provide firewood. The son may not have won any battles but he had the information and was passing it on.

Conservation education as evidenced by the young boy's efforts with his father, is much like the oak — the state tree of Iowa.

The oak is a symbol of rugged strength, supreme grandeur, and majesty. The oak is long-lived, some have been aged at over 430 years. It also grows to a large size, often up to 70 feet tall.

A good-size oak may have 700,000 leaves. During one season this tree will give off about 120 tons of water. All this moisture is drawn up from the ground by the roots and travels to the very tips of the trees by the process of osmosis.

Conservation education is the wise use of natural resources. Education takes the information from the researchers and makes it applicable to the receivers. The oak takes carbon dioxide and sunlight in the green leaves and makes sugars applicable and available to the rest of the tree. Instead of leaves we find 700,000 students and information instead of moisture.

Have you planned your fall activities? Many experiences are within your grasp — walks in town, camping in parks, or tours of wildlife preserves and areas. The Education Center is available for conservation education and the oak trees are present for your group.

There are many species of oak. We divide these into two groups. The white oak group which has the lobes of its leaves rounded and the black oak group which has pointed lobes.

In fall, white oak leaves turn a rich, purplish-wine color; the burr oak leaves turn yellow. These leaves cling to the tree into the winter.

Variation in activities we do when we use our natural resources can be more dramatic than leaf shapes and colors. Conservation education makes the difference between using wisely or abusing our resources.

An acorn is the fruit of the oak. No other tree has a fruit so peculiar in style. A small cap with the nut neatly fitting inside, each type of oak has an unique cap part. The burr oak is frequently compared to a stocking cap with hair sticking out around the bottom. The fruits of education are positive activities by the participants — this is also unique.

The boy's father we talked about did go ahead and cut some of the trees, piled and burned them. The start is made (he didn't cut them all down) — it needs to be continued. Contact groups and have them make commitments to do something positive regarding our natural resources. Your action can be the start of wise use of our natural resources.

WARDEN'S DIARY

by Jerry Hoilien

I remember my first shock at what it meant to be a game warden. We had just received word to report to Des Moines for my appointment as a conservation officer. Excited, I rushed over to my hunting partner's house to tell him the good news. He and his wife were pleased, but just then in came his father-in-law. Fred knew a lot about game wardens — he'd been chased home by them enough times! Looking me straight in the eye with a grim set jaw, he spit on the ground and said, *"you joined 'em?"* and turned and left. That was over twenty years ago, and I don't think Fred ever forgave me.

Poachin' to Fred, was a way of life. God put those things out there for him and no #*!@#*!@ no-account game warden was going to stop him. Fred never gave a thought of the purpose of game management. *"Anybody with a lick-o-sense could see there's a-plenty,"* he would say. *"Besides, when you shoot ducks in the spring that leaves a few cripples around and they'll mate right here rather than have to fly so far up north or wherever they go. With all those birds, who's gonna miss a few, more or less? Keeps 'em wild, too!"* Fred could go on for hours expanding his philosopy on the "critters". There weren't many like him there on the Missouri River bottoms. The river was wild, and so were those who were on it. I didn't realize it then, but I was walking among giants and they've become legends. I had the privilege of having known and hunted with men like Bogg Jones, Doc Deering, Hoppy Myrland, the Stanger Brothers, Herb Sager, George Stevenson, and others who could call a duck or goose out of the sky so high they were hardly specks.

Some have gone on now, like the wild Missouri, but I can still remember them. I can't show you a wild river there any more. It's gone, we lost it! Today, it runs fast between sets of piling and rocks — straight and narrow — no sandbars, no sloughs or cuts, no backwater areas, or huge stands of cottonwoods standing on sandy knolls for miles on either side of the river. We *had* one of the seven wonders of the world stretching along our whole western border, but it's gone. I feel a loss. I can't take my son or daughters down our wild Missouri where it was "a mile wide and an inch deep", rich in fish and wildlife, scenic beauty that would take your breath away. Truly, it was a fabulous and rare place. They've tamed the river, straightened its curves, filled it's backwaters, drained the sloughs, cut away its sandbars, lined its banks with stone and piling, taken away its trees — and where did the wildlife go? Fred didn't shoot them. It's gone and I feel a loss!

Maybe it's best the old timers like Fred and Doc and some of the old "river rats" are gone. They wouldn't like what has happened. The young ones don't understand what they've lost because they don't know what it was like. I'm sorry I can't show you my old wild Missouri. It's gone — I'm sorry. Somehow it got away. It's gone and I feel a loss.

Maybe Mother Nature can forgive those who destroyed our river — I can't.

SEPTEMBER SQUIRRELS

by Sonny Satre

PHOTOS BY ROGER SPARKS

SEPTEMBER is a busy month for people who love the outdoors. For those who enjoy the excitement and color of high school and college football games — it begins in September. The autumn display of colorful foliage begins in September. Teal, woodducks and other early migrating ducks begin to bunch up for their trip south in September. The early duck hunting season begins in September. Rabbit hunting opens in September. But perhaps the favorite hunting season of all for the month of September is for fox and gray squirrels.

Squirrel hunting is a popular sport in Iowa. In 1980, 845,000 bushytails were harvested which ranks second for total number of game taken. Pheasants rank number one with 1,400,000 birds taken in 1980. This means Iowa hunters took more squirrels than rabbits, quail, gray partridge, ruffed grouse or raccoon. Although squirrels rank second in game taken, Commission biologists say they are the most under harvested and plentiful game animal Iowa has to offer.

Wherever you see trees you'll find squirrels. Experienced squirrel hunters prefer hunting in stands of hickory and black walnut. This is where you will find top-notch shooting. A .22 rifle is the favorite gun for most hunters. Some prefer the scattergun ranging from the .410 to the 12 gauge.

Fox squirrels are larger than their cousin the gray and are found throughout the state. They are the dominant species in central, north central, northwest, northern and western counties while gray squirrels are found in good numbers in northeast and southern counties and along the Mississippi River.

Here are some helpful tips for the September squirrel hunter to make your outing more enjoyable. Use insect repellent to ward off mosquitoes and other pesky insects. Bring a cooler along packed with some ice for the game you bag. A sharp knife is a necessity to field dress your squirrels. Place them in plastic bags and put them in the cooler. This will assure the squirrel meat of staying fresh. Last but not least — always receive permission from the landowner before you hunt.

The daily bag limit is six squirrels with a possession limit of 12 permitted. The 1981 season opens September 5 with no specific shooting hours. Most hunters like to arrive at the woods at sunrise as squirrels are usually very active. Another good time to hunt is toward dusk or late afternoon.

The last time I went squirrel hunting in 1981, my partner and I dressed our squirrels and fried them in a skillet for a late morning breakfast in a beautiful outdoor setting. Squirrel meat is delicious and a very clean type of meat. Squirrels diet mainly on nuts, corn and other vegetative matter. There are a number of ways to prepare squirrel meat. Anyway you prepare chicken will work for squirrel and the meat tastes very similar.

The Iowa Conservation Commission manages over 300,000 acres of public hunting areas with a number of these areas offering fine squirrel timber. For a copy of *Iowa's Public Hunting Areas*, write to the *Iowa Conservation Commission, Wallace State Office Building, Des Moines, Iowa 50319.* □

Campfire fried squirrel.

A successful hunter with a gray squirrel bagged from a Winneshiek County Public Hunting Area.

How About That September Duck Season?

By Roger Sparks

THE EARLY DUCK SEASON of 1981 marks the third and final phase of an experiment to determine if September waterfowl hunting can work in Iowa. While final analysis is pending, much information about the success of the early season is available now and Iowa biologists are pleased with this data. It would appear the September season is allowing Iowa hunters to harvest the early migrating blue-winged teal as well as other ducks like mallards, wood ducks, pintails, and widgeon without negative side effects.

The great marsh region of the Dakotas, Minnesota and northern Iowa created by the Wisconsin glacier once constituted a duck factory exceeded in quality only by the Canadian prairies. While more than 95% of her marshes have been drained, Iowa still possesses many fine wetlands where thousands of blue-winged teal, mallards and wood ducks nest.

In the late 1960's when breeding pair surveys were conducted on Iowa marshes, as many as 30,000 pairs of bluewings and 10,000 mallard pairs were counted. Management of these areas has been primarily for the bluewing, the most numerous nesting duck in Iowa but migration data shows most of the teal are gone from Iowa before October, the traditional early season opening. Blue-winged teal, in fact, migrate from mid August through early October, with peak movements in Iowa occurring from the middle to the third week of September.

Conventional waterfowl hunting regulations handed down by the U.S. Fish and Wildlife Service for the Mississippi Flyway allow states including Iowa to select dates between October 1 and January 20. In the past, Iowa has opted for a split season starting in early October and running from four to eight days, then closing until late Octo-

ber for the second season which continues through November. The early season was aimed at early migrating species while the second segment was geared toward the late migrants, primarily mallards.

While this season structure covered the migration of most ducks, the early October opening often missed the major blue-winged teal flight. During some years, large numbers of teal were in Iowa prior to October 1, but early cool snaps pushed the birds south of Iowa before the season opening. When this occurred, hunters found few teal available and concentrated their hunting on wood ducks and mallards. It was this fact that led biologists to believe that a September season would not only help Iowa sportsmen harvest more teal, but also would buffer the take of the carefully managed wood duck.

The blue-winged teal has long been recognized as a species that could stand additional hunting, due to its low rate of harvest and high natural mortality. Special teal seasons were tried in 1965, 1966, 1967 and again in 1969. These seasons were very successful except where other duck species were plentiful. Duck breeding states like Wisconsin, Minnesota, Michigan and Iowa experienced illegal shooting of species other than teal. Also, some biologists feared over-harvest of local breeding populations of bluewings might occur. Consequently, Iowa was not allowed to engage in additional teal-only seasons. Iowa biologists believe the September season governed by the point system is a better idea.

Information collected on the 1979 and 1980 seasons indicates that Iowa's September seasons have been successful. The illegal shooting of protected species was almost eliminated while seasons permitted Iowa hunters to take more blue-winged teal without increasing the harvest of other major duck species. Results of bag checks on 23 areas were similar. Compared to the early portion of the 1975 season, the percentage of blue-winged teal taken increased significantly and decreased significantly for greenwings, while the slight decreases for mallards and wood ducks were not significant. According to 1979 federal data, blue-winged teal made up 41 percent of the harvest during the first part of the split season, as compared to 15 - 34 percent of the harvest during the first part of the split seasons from 1972 through 1978. The percent species composition for green-winged teal was lower than in any of the previous seven years for the first season. Species composition for wood ducks and mallards were about equal to the median for 1972 through 1978. In some parts of the state, such as along the Mississippi River, quite a few woodies were shot during the September season, but the percent of wood ducks was no greater and in some cases it was lower. (In spite of heavy rains and flooded banding sites in many parts of Iowa, 1,529 wood ducks were banded prior to the 1979 hunting season. Returns from these will provide more information on mortality and movements of this species.) Similar harvests occurred in 1980.

Meanwhile, many favorable comments have been received from Iowa hunters concerning the September waterfowl season. They are apparently pleased to be able to have an opportunity to shoot blue-winged teal and are looking forward to another similar season. ■