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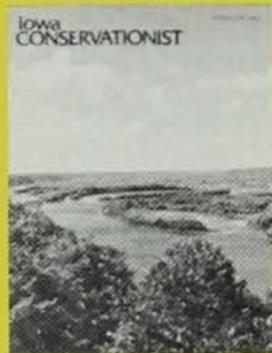
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CONTENTS

- 2 Meandering Along Iowa's Great River Road
- 7 Restoring and Managing Iowa's Prairies
- 10 Shoreline Erosion Cause and Cure
- 12 Stamp Money Buys Land
- 14 Classroom Corner
- 15 Warden's Diary

COVER *View of Mississippi River from Pike's Peak State Park, Clayton County by Ken Formanek*



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Meandering Along Iowa's GREAT RIVER ROAD

by Gary L. Ackerman
FISHERIES BIOLOGIST



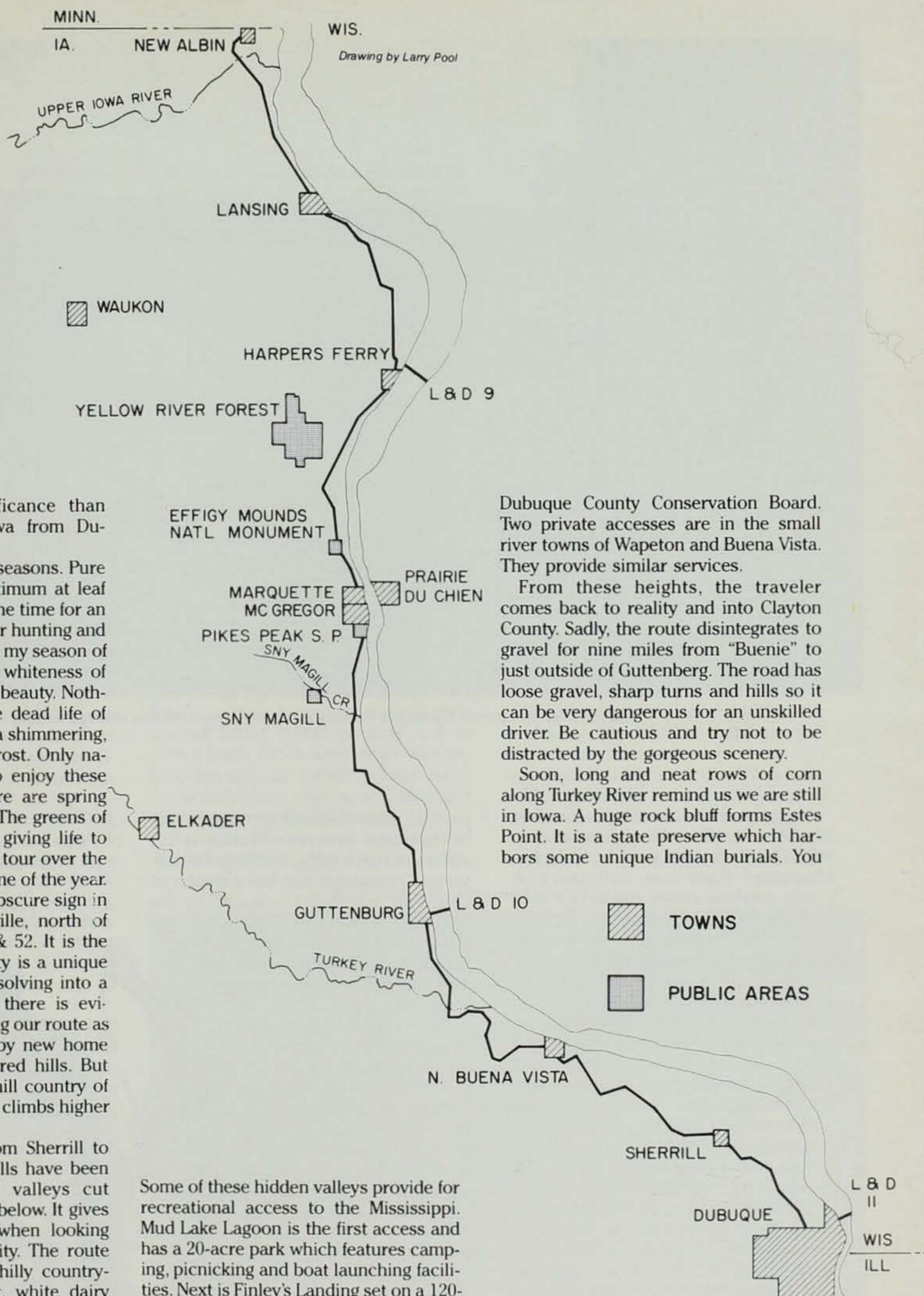
Wexford Shrine, Allamakee County

You will never believe this road exists in Iowa...until you once travel it. It is the gateway to recreation and to the Mississippi River...a scenic delight.

The concept of the Great River Road has been with us for a long, long time. Generally, throughout the United States there are few good quality north-south highways. This road was to connect Canada with the Gulf of Mexico via a parallel roadway along the scenic and historic Mississippi River valley. It was not to become a super highway for high speed and mass transportation of people and products. Rather, it was meant to become a highway of the people and for the people. It was to be constructed from pre-existing roads and trails along the

river for tourist and recreationists, travelers and sightseers, and farmers and urbanites. It was to focus upon the scenic beauty to be found everywhere along its route and the immense recreational opportunities which exist close-at-hand to the river valley. It was to be a highway for the unhurried where one must slow down just to navigate hilly, winding roads through the lush river valley that so closely resemble the Black Forest of Germany and areas along the Rhine.

The immense scenic beauty of the Mississippi River and its valley congeal the Great River Road into a lineal mass of pleasure to the eyes of the beholder. Nowhere along its route is there more



variety or sheer magnificance than through northeastern Iowa from Dubuque to Lansing.

It is truly a road for all seasons. Pure scenic beauty is at its optimum at leaf time in autumn. This is a fine time for an auto tour, the prime time for hunting and the best time for fishing. It's my season of the year. The stark naked whiteness of winter has its own kind of beauty. Nothing can compare with the dead life of winter after it is coated by a shimmering, silver-white coat of hoar frost. Only natives are lucky enough to enjoy these periodic vistas. Then there are spring and summer. Inseparable. The greens of living and growing plants giving life to all. Let's take an imaginary tour over the Great River Road at this time of the year.

Watch carefully for an obscure sign in the tiny hamlet of Sageville, north of Dubuque on Highways 3 & 52. It is the beginning. Dubuque County is a unique blend of a metro-area dissolving into a rural environment. Often there is evidence of urban sprawl along our route as the landscape is spotted by new home sites carved out of timbered hills. But soon we plunge into the hill country of backwoods Iowa. The road climbs higher and higher.

It is a skyline drive from Sherrill to Buena Vista. Seemingly, hills have been stacked upon hills and valleys cut through to the river plain below. It gives one a feeling of power when looking down upon such immensity. The route winds through and over hilly countryside exposing many neat, white dairy farms scattered over a blanket of multi-shaded greenery. Sometimes one can catch a glimpse of the far-away Mississippi, shining like many silver diamonds afoot the deep and dark green valleys leading from the foothills to the river.

Some of these hidden valleys provide for recreational access to the Mississippi. Mud Lake Lagoon is the first access and has a 20-acre park which features camping, picnicking and boat launching facilities. Next is Finley's Landing set on a 120-acre development which has the same facilities but in addition provides hiking trails, marina, concessionaire, and a swimming beach. Both areas are important public accesses to lower Pool 11 and are managed and developed by the

Dubuque County Conservation Board. Two private accesses are in the small river towns of Wapeton and Buena Vista. They provide similar services.

From these heights, the traveler comes back to reality and into Clayton County. Sadly, the route disintegrates to gravel for nine miles from "Buene" to just outside of Guttenberg. The road has loose gravel, sharp turns and hills so it can be very dangerous for an unskilled driver. Be cautious and try not to be distracted by the gorgeous scenery.

Soon, long and neat rows of corn along Turkey River remind us we are still in Iowa. A huge rock bluff forms Estes Point. It is a state preserve which harbors some unique Indian burials. You

will find no developed recreational areas along lower Turkey River, nonetheless, people use its banks for primitive camping and bank fishing to catch the ever-present channel catfish.



Guttenberg, in Clayton County is famous for its scenery and fine walleye fishing

Abruptly we find ourselves ascending another hill, (there is always another hill). Then before us sprawls the Upper Mississippi River and Guttenberg. A scenic overlook allows you to pull over and take in this panoramic view. Look carefully and you can pick out the tell-tale ripple of submerged wing dams; or you might spot a soaring turkey vulture or bald eagle; and scan closely those backwater sloughs for a white American egret feeding on minnows, or you might spy his competitor, the great blue heron hidden in shades of gray. Stop and savor the landscape...the best to be found anywhere along the river with the exception of one other view equally spectacular north of Guttenberg. It makes you wonder if it can always be this beautiful.

The Great River Road diverts through the town of Guttenberg via River Park Drive. Notice the strong German influence of the architecture and the fine examples of early stone masonry. The route parallels the Mississippi traveling along river front park. Stop by for a picnic or just a casual stroll through town. Lock and Dam 10 is most interesting. One can view tow boats locking through the dam on an observation

pavilion where recordings explain the navigational process. Nearby is an aquarium operated by the State Conservation Commission that has a display of most fish and turtles common to the Mississippi River. Strolling down the street one finds businesses, gift shops, fine restaurants and motels which offer food and lodging to the weary traveler.

Recreational opportunity abounds near Guttenberg. Most important are the public and private boat accesses to the Mississippi River which opens up a host of different kinds of recreation for public enjoyment. Boating and fishing are the most important activities. Fine sand bars along the main channel provide for all those allied pursuits associated with boating. Beaches are open to everyone on a first come, first serve basis. Fishing below Lock and Dam 10 provides many walleye and sauger from fall to spring. Fishing the backwaters is productive all year for bluegill, crappie and bass. Outstanding ice fisheries are found in Bussey Lake, Duck Lake, Swift Slough and Frenchtown. Trout fishing is

available in South Cedar and Buck Creeks.

A new highway forms the Great River Road from Guttenberg to McGregor. It abruptly climbs Heitman's Hill to twist and turn through the hilly country paral-



lel to the Mississippi. The route travels through charming farming country occasionally obliterated by dense woods. Hunting forest game species in this area is excellent, however, most of it is on private property. "Ask before you enter" is the rule in Clayton County.

Three river valleys provide recreational accesses to Pool 10. One is private at Willie's Landing, the other two are public accesses managed by the state and county. The town of Clayton provides an access to middle Pool 10. You will find some excellent sport fishing across the river in Bagley Bottoms or immediately upriver in the Sny Magill Bottoms. Another landing is located at Sny Magill for small john boats used largely by hunters, trappers and fishermen.

A unique bike trail was constructed to provide safe travel for bicyclists. Now one can travel from Lansing to Guttenberg by bike with much of the route on off-road bike trails. Someday it will continue to Dubuque.

The first large valley you arrive at is the Sny Magill Wildlife Area. It offers nearly 2,000 acres of primitive and natural upland forests and two major trout streams for hunting and fishing enthusiasts. You will find the area excellent for deer, grouse, wild turkey and squirrel hunting. All-season trout fishing is tops in North Cedar and Sny Magill Creeks. Other uses include cross-country skiing, primitive camping, backpacking, snowmobiling and trail riding. Two private campgrounds are located nearby to provide more sophisticated services for those who desire them.

Nearing McGregor one should stop at Pike's Peak State Park. Here is a scenic view of Prairie du Chien and the confluence of the Wisconsin River with the Mississippi. It is an outdoor splendor that will delight everyone. The park offers a campground, numerous hiking trails and picnicking.

The route passes through McGregor and Marquette, two small river towns bursting with activity in season. Notice the barge fleeting area across the channel where barges wait to be loaded with grain. You may want to observe the barges being loaded from the waterfront grain elevators, soon to be moved by tow boat to New Orleans for shipment abroad. Important grain terminals are located here, at Clayton and Dubuque all of which serve northeastern Iowa farmers.

Both towns cater to recreation and the Mississippi. Public boat ramps provide ample access to the river. Excellent food, lodging and gift shops provide for tourist's needs. The area reeks with history. You may want to make a side trip across the bridge to Prairie du Chien to visit the Villa Louis and historic Fort Crawford.

Leaving the hustle and bustle of the towns behind, the route travels along the main navigation channel of the Mississippi. Steep bluffs form impenetrable fortresses along the west bank. One may observe strange looking flat boats with massive clam bars dredging the river bottoms for freshwater mussel shells; or watch a commercial fisherman casting his nets to catch fish; or see white and mahogany yachts speeding from here to there, or find sluggish tow boats plowing a slow course through muddied waters.

The route soon turns westward into hill country near the mouth of the Yellow River. The National Park Service operates Effigy Mounds which is an archeological site of Indian mound builders of the Oneota culture. Nature trails go through ancient Indian burial grounds and to scenic bluffs which were often selected as burial sites by the early inhabitants. Apparently, they too appreciated the magnificence of the Mississippi.

Going ever deeper into the hills of Allamakee County one gets the feeling

the hills loom higher and the forests become darker, enveloping all. Occasionally pyramidal pines and clumps of white birch reminds the visitor of more northerly places. Century-old rock formations guard the prefaces of hill tops which are capped with hardwoods and ringed below with brush forming secluded and protective habitat for wildlife. Diversity is always apparent as farms dot the valley floor to remind us of the agricultural heritage of Iowa.

Public lands are available for a wide range of recreational activity. One of Iowa's fine examples of a multiple-use area is the Yellow River State Forest, found adjacent to the Great River Road near Waukon Junction. It totals over 6,000 acres of wild and scenic lands as they might have existed in Indian times. Some areas are developed into campgrounds, picnicking areas, scenic overlooks, bridle trails, and hiking and backpacking trails. Those undeveloped areas serve more primitive instincts of man as the entire forest is open to hunting. Deer, wild turkey, grouse, squirrel and other wildlife are plentiful. For additional variety two fine trout streams meander their way through the forest to the Mississippi.

The route again bends easterly toward the Mississippi. Soon we are skirting the banks of the river where Harper's Slough contains one of the largest and most

Northeast Iowa's popular trout fishing





Indian burial site at Effigy Mounds National Monument, Clayton County.



Boating on the Mississippi

diverse clam beds found anywhere in the Mississippi River. It has yielded many thousands of pounds of freshwater mussel shells which were exported to Japan for use in the manufacture of cultured pearls. Sport and commercial fishing abound in the quiet waters of the slough where hungry sportsmen take stringers full of bluegill, crappie, bass and catfish.

Soon we glide through the edge of Harpers Ferry. Take a sharp right and you will be amidst some of the finest sport fishing anywhere. Excellent wall-eye, sauger, white bass and a huge variety of other species are taken year round from the tail water fishery found below the Lynxville Dam, Lock and Dam No. 9. The backwater habitats offer fine pan fishing for bluegills, crappie, catfish and bullheads to live bait fisherman. Action packed casting for northern pike and largemouth bass boost the ego of pro-bass fishermen who invade these sanctuaries with their strange-looking boats. Excellent ice fisheries yield yellow perch, bluegill and crappie.

Again we slowly ascend a long and forested valley. The creek has long ago dried up, plunging into the depths through sink holes to nourish the underground waters. Soon we plummet over the top of a steep hill to rapidly descend into a quiet and peaceful valley. This

creek is alive with trout, nourished by underground springs to keep its waters cool and inhabitable. Along the banks is a small, rural Catholic Church and graveyard. Take some time and stroll through it...feel the peace and tranquility.

Moving on and ever more northward, The Great River Road all too soon ends in Lansing, Iowa. It is a small river town which is perfectly located at the edge of Pool 9. It offers the recreationist everything the Mississippi can provide in quantity.

Just upstream begins one of the largest and most varied backwater systems found anywhere along the river, the Lansing Bottoms. It gives variety and diversity of habitat, thus it is virtually alive with fish, fowl and fur. One can get a fine over-view by taking a short trip up Mount Hosmer, a small park on a bluff atop Lansing. Miles of sandbars line the navigation channel. These dead remnants of channel dredging come alive in summertime. Boating, bathing and beaching are human activities that result in fun for everyone. These areas provide for a multitude of inter-related recreation; primitive camping, boat camping, yachting, canoeing, power boating, water skiing, tubing and just relaxing. All are beneficial uses that people make of sand, water and sunshine.

Downstream begins the impoundment where huge, open expanses are rolled and churned by winds to create a harsh environment infrequented by recreationists. It harbors many thousand pounds of rough fish harvested by rugged commercial fishermen. It annually provides in excess of one-million pounds of commercial food fish for consumption in nearby metro-areas such as Chicago. The impoundment, too, serves as a temporary home for thousands of migrating waterfowl.

Inland near Lansing one finds a different variety of recreation. Several trout streams are found nearby — French, Village, Waterloo, Hickory and Bear Creeks are some of Iowa's finest trout streams. Several state managed wildlife areas provide public hunting, hiking, backpacking, primitive camping, cross-country skiing and nut and berry gathering. Canoeing and smallmouth bass fishing in larger streams like the Upper Iowa and Yellow Rivers are other enjoyable pursuits. Write the State Conservation Commission, I & E Section, Wallace Bldg. Des Moines, Iowa 50319 and ask for guides to trout fishing, wildlife areas and canoeing streams.

You will surely want to make this trip again. Try another season of the year for an entirely different outdoor experience.

Gary Ackerman is a fisheries management biologist stationed at the Guttenberg Fisheries Management Station. He has been employed with the Commission for over 16 years.



Purple coneflower

Restoring and Managing IOWA PRAIRIES

by Steve Lekwa

SKUNK RIVER UNIT RANGER
STORY COUNTY CONSERVATION BOARD

Prairie restoration and management has become an important part of many conservation/recreation agency programs in recent years. It is high time this important ecosystem started receiving some interest. Only a few years ago most conservationists would have been hard pressed to tell the difference between a big bluestem and switchgrass, but today prairie is a topic of study and discussion at conferences and workshops across the Midwest.

The return of the native grasses actually started a number of years ago and was led by the Soil Conservation Service. Ranchers needed a source of high quality forage for their pastures that could produce dependably even in poor growing years and extended drought cycles. The native grasses were a logical choice. Highly nutritious, deep rooted, and naturally adapted to the extremes in climate of the western plains, they appeared ideal. There were problems, though. Seed was not available and even when it was, it couldn't be handled like regular seed. A special drill, the Nisbet, was invented to do what normal grain drills and broadcast seeders couldn't — handle the feathery seeds of the native grasses. Even with that problem

solved, all was not well. The prairie pastures took years to grow and could not be grazed like they were used to. After all, it was their overgrazing that killed out the prairie in the first place. Slowly, as lessons were learned, native grasses gained acceptance. Today this Nisbet is out of production but used models can still be found in fair condition, especially out west. The Truax drill is currently on the market and is designed in much the same way as the Nisbet. Both do a fine job of metering out the expensive seed and placing it in proper contact with the soil for maximum germination. They are even capable of planting through light debris and stubble.

Prairie seeds grow best in a firm seed bed. A fluffy seed bed such as is left by a garden tiller would not be the best. The special seed drills take care of firming the bed right over the seed row by using a narrow packer wheel. The soil between the rows is left soft to help slow down germination of some of the weeds that always seem to be present. Even an old fashioned end gate oat seeder will work, although seeding rates are more difficult to control. It should be followed with a cultipacker to firm the bed and help set the seed.

Weeds will always be one of the biggest problems in starting a new native prairie. The first method used in dealing with them was traditional tillage. This is still used in situations where extra heavy crop residue, such as corn stalks or very heavy turf sod is present. The method involves plowing in the year before seeding and allowing the area to lie fallow all fall and winter. Repeated diskings follow in the spring to break up the sod ribbons and to kill successive generations of new weed sprouts. This is usually followed by a trip over the area with a drag harrow to smooth the ridges and break up clods. The seed is best applied immediately after the last tillage pass in order to give it as much head start as possible over the weeds and grasses which will be coming back in spite of all your tillage. You could even use a herbicide like atrazine as long as no forbs are included in your seed mix.

A relatively new method of dealing with the weed problems involves the use of Roundup herbicide. Roundup is non-selective and kills all growing green plant tissue. The outstanding feature of this product is that it is totally non-residual. You can plant new seed only three days after the spray was applied with no fear of damage.

If the area to be seeded has an existing sod or weed cover, it should be burned in early spring. This removes all the thatch and standing dead material and also stimulates the new plant growth. The faster the new plants are growing, the better the Roundup will work. The chemical is then applied at the recommended rate (extensive directions are supplied with each bottle of Roundup) when the plants reach six to eight inches in height. If you have a Canada thistle problem, it might be wise to mow the area once before spraying. This will allow the thistles to catch up to the early grasses and will make sure they have enough leaf surface up to catch a lethal dose. A hollow cone type nozzle is ideal for applying the spray with no drift. A flooding type nozzle is probably next best. Keep the line pressure low and the droplet size large for best results.

Once you have applied the herbicide, you can go either of two routes. The Roundup will have done its work within a week, though the plants may not show signs of it for two weeks or more. If the site is heavily sodbound or very rough, it may be wise to plow and disk the area before planting. The Roundup will get rid of far more brome and bluegrass than just tillage alone can do. If the sod is not so dense or if the land has a potential for erosion, you can plant directly into the dying stand of grass and weeds. The soil will be firm and undisturbed. You can even follow the seeder with a mower letting the clippings serve as a light mulch over the seed. Then all that is required is a shower or two and lots of patience and you're in the prairie business.

Even the Roundup method does not kill the weed seeds which are part of almost any soil in the state. The weeds will still be appearing along with your new prairies seedlings. A mowing or two in the first season after planting may be necessary to keep the weeds from shading out the seedlings. By the second year the prairie seedlings will be able to hold their own against the weeds. A high mowing may help the area look better but wouldn't be necessary. Expect to see a few of the grasses heading out during the late summer and fall of the second year. A few hardy seedlings of some species can even head out the first year. By the third year the weeds should begin to fade out as the prairie becomes more dominant.

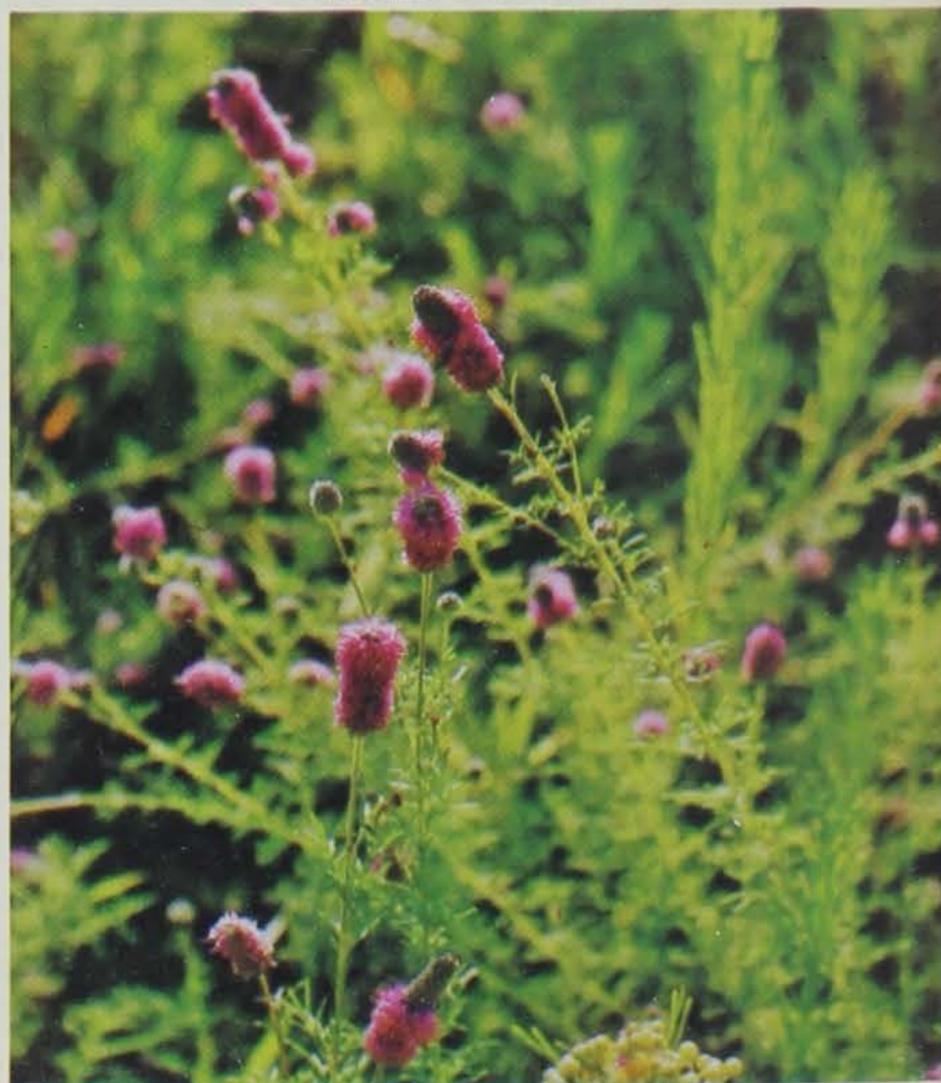
Seed for your prairie project is not cheap, but is becoming more available each year. A number of companies throughout the Midwest can provide bulk quantities of many varieties of native grasses and forbs. Many also provide information on seeding rates and methods. The forbs, or flowering plants, are especially expensive, but can add a great deal to the beauty and authenticity of your finished product.

It is possible to harvest your own forbs if you can find a local source. Small, forgotten corners, railroad rights-of-way, and hillsides often contain rich remnant prairie communities with seed free for the harvesting. Get permission to pick it first, of course. The seed should be dried and stratified (given cold storage treatment) if it's to be kept until the next spring. In some cases it can be hand sown directly into the prairie plots the same fall and lightly raked in. The stored seed is most easily applied by mixing it with the bulk grasses. In any case, avoid heat and moisture during your seed storage.

The species you should buy will vary for a given site and geographic region. Some species have several varieties adapted to different regions. In any case the locally adapted seed, or seed originating as close to you as possible, is preferable. A good mixture for most upland sites in Iowa that aren't overly dry would include big bluestem, little bluestem, Indiangrass, switchgrass, sideoats grama, and possibly a little western wheatgrass or Canada wildrye. The possibilities for forbs are many in that native prairie has the highest degree of species diversity of any North American plant community. Some of the easier ones to find and grow from seed are the purple coneflower, grayheaded coneflower, purple prairie clover, and butterfly milkweed. With the forbs it's truly a case of the more the merrier!

Now you've waited out those rough years while your prairie was growing. You've explained a thousand times to as many different people that "no, that's not a weed patch I've quit mowing to save money" (although prairie does save mowing and spraying expense). You've even gotten a few prairie converts in your flock of park users. Now, just when people are beginning to see that your prairie has something to offer, what are you going to do? That's right, burn it up. Turn all the pretty dry grasses and forbs into ashes. By the end of the third or fourth year your plants will be pretty well established. Some of the forbs may not be flowering and the big bluestem may seem a bit sparse, but a real treat is in store that first year after the fire.

Purple prairie clover



Fire management is the only real effort necessary to maintain an established prairie stand. The need for burning varies, but a plot will benefit from a burn every two to five years. The fire serves as a stimulant to the warm season native grasses by releasing nutrients back to the soil in the form of ashes. The blackness of the charred stubble allows the soil to warm much more rapidly also, which in turn gives the warmth loving prairie natives a head start on the growing season. Flowers that had never appeared before or had been only scattered may bloom beautifully in the year following the first fire. Bluestem will color the prairie a rich shade of reddish purple as it matures late in the summer. The second effect of fire is the control of woody species invasion. If the trees and shrubs are not retarded by fire, they may ultimately start producing enough shade to start killing out your prairie. If the fire is too infrequent, the woody plants may grow too much corky bark, thus enabling them to survive the fire with their all important cambial cells intact.

Before burning your prairie plot, make sure you are prepared. Mow check strips at least eight feet wide around your intended burn. Don't plan to burn more than half of any prairie plot in a given year in order to preserve the old growth for the early nesters and other wildlife that call your prairie home. The check strips should then be raked until they are as free of as much dry fuel for the fire as possible. An early spring burn is probably best as far as wildlife is concerned, but a later burn will help retard the growth of cool season grasses like bluegrass and brome a little better. Be patient and wait for a good day when the winds are favorable. Have your manpower ready and equipped with the proper tools. You'll need rakes, fire swatters, water sprayers, and plenty of extra water. A wet gunny sack will serve as a swatter but isn't quite as handy. Start your fire in the middle of the downwind side and pull it along your check strip slowly with a rake. The swatters and water should keep it from spreading across the strip into areas that aren't to be burned. You will have two fire lines being worked, one going each direction around your burn site. Continue to work into the wind

Specialized planting equipment for large area planting



with your backfire until the two lines meet on the upwind side of the plot. From there your fire can race with the wind just like the fires of old. The only difference is that it is going to stop dead when it hits the charred areas behind the backfire.

With enough people and properly used equipment you can control fires even on fairly breezy days. It is best to be safe rather than sorry when wind is a factor, though. It's embarrassing to call the fire department to bail you out of a fire you set intentionally. Let the area fire departments know what you're doing before you begin, too. A well-meaning passerby may not realize all that smoke is intentional and invite the fire truck when it isn't needed. When they're informed beforehand, they'll be ready to come-a-running if it turns out you really do need them to. Believe me, even the most experienced prairie burners can get into trouble and need help fast!

One of the best ways to prevent public misunderstanding of prairies and prairie management is plenty of good old P.R. This, of course, holds true for all aspects of conservation/recreation programming. Make optimum use of all the media available to you — magazines, papers, radio, and TV. Tell them what you are planning and why. Invite them to come and see it, or even better take part. Nothing will further your program more than a public that feels pride in "their" program.



Grey-headed coneflower

*Slow burning backfire used for safe burning
Rapidly burning front fire is more difficult to control*

SHORELINE EROSION CAUSE A



Riprap —an old but effective means of erosion control.

There are undoubtedly some experts who would say that erosion is the most serious problem that Iowa faces at this time. Millions of tons of soil are lost annually. Some of the most obvious soil losses occur in cultivated fields, along stream banks and lake shores. Shoreline erosion is particularly evident on our flood control reservoirs, such as Rathbun, where a number of access roads have been lost to erosion and others threatened. However, this erosion, in itself, is not a serious detriment to the fish in our lakes. Webster defines erode as, "to eat into; wear away; disintegrate." If erosion were this and nothing more, the effect would primarily be that our lakes would become larger. Obviously the effects of erosion are much more than this and they create serious problems to fish production in those lakes most seriously affected. The major problem associated with shoreline erosion in Iowa lakes and ponds is the turbidity and siltation that results from the transport of soil particles into the lake water. This turbidity and siltation is detrimental to a whole range of aquatic organisms from

the largest predator fish down to the smallest fish-food organism.

The basic cause of shoreline erosion is the force of water moving over or against a shoreline. This article deals with the immediate shoreline and disregards the problem of turbidity and siltation created by the total watershed runoff and erosion along our streams.

The movement of rainwater from the immediate lake shore to the lake itself is not generally a major cause of turbidity and siltation, since most of our lake and pond shores have ground cover sufficient to alleviate this potential problem. An exception to this are our flood control reservoirs where large areas of shoreline can be denuded by a rising water level and left bare as the water level drops; this leaves large shoreline areas subject to erosion by rainfall and snow melt. This type of shoreline erosion is extremely difficult to control, since it is the nature of the water level in flood control reservoirs to fluctuate as dictated by precipitation; and any shoreline stabilization work, short of riprap, is degraded or eliminated as the

water level increases.

Other shoreline areas which can be adversely affected by precipitation runoff include ponds where banks are broken down and stripped of vegetation by livestock activity, and ponds with cultivated land in the immediate area. The solution to this problem is evident.

The most prevalent cause of shoreline erosion is the wave action caused by wind; the wake from power boats also contribute to this problem.

When a new body of water is created by construction of a dam there are generally coves and points on the shoreline as the water level follows the irregularities of the existing land form. The wind through the action of waves immediately starts to eliminate these irregularities. Points projecting out into the lake are in a position to catch more wind and wave than the remainder of shoreline and are eroded more rapidly. This soil as it erodes from the points is washed out into the lake and settles to the bottom. This soil is also swept along the shoreline where it settles in the protected coves filling these areas with

E AND CURE

by Jim Bruce
FISHERIES BIOLOGIST



Top Left: Wave action has caused serious erosion. Means of control include tire reefs (left) and vegetation (above).

silt. The eventual result is a relatively featureless shoreline with little diversity. This lack of diversity reduces the amount and quality of fish habitat present, in addition to the problems of siltation and turbidity previously mentioned.

The speed with which shoreline degradation occurs varies with size and frequency of the waves working on any particular shore area. Factors affecting the size and frequency of waves include the size of the body of water and the amount of protection provided by the surrounding terrain. Logically, the wind will create the largest waves on the larger, unsheltered lakes.

Numerous methods have been utilized to attenuate the force of waves on a shoreline.

Log booms have been anchored just off shore in small lakes and in special areas of larger waters. Booms consist of saw logs tied end to end. These are effective if materials are available and properly maintained. The same principle has been applied in larger lakes and coastal areas using large floating mats of

tires bound together and anchored off shore to break the force of waves moving to shore. These units are expensive to construct and maintain; however, they are reported to be effective when properly applied. Experience at Rathbun indicates that the cost would be prohibitive for protection on large areas of shoreline.

The use of herbaceous and woody plants to protect shoreline is encouraged at all reservoirs. However, the effectiveness of vegetation in protecting shoreline diminishes, as a size of a body of water increases, to the point that even the largest trees cannot withstand the erosive force of the waves generated. Vegetation is also largely ineffective in flood control reservoirs with fluctuating water levels, since vegetation has difficulty becoming established.

Probably one of the oldest and most effective means of controlling shoreline erosion is the use of rock riprap, which is

basically the covering of erodible soil with a blanket of rock to reduce the force of the waves. While riprap is effective and relatively trouble-free, maintenance may be needed to keep this blanket in place and free of holes. Riprap has been utilized by the Iowa Conservation Commission on many of the lakes in the state.

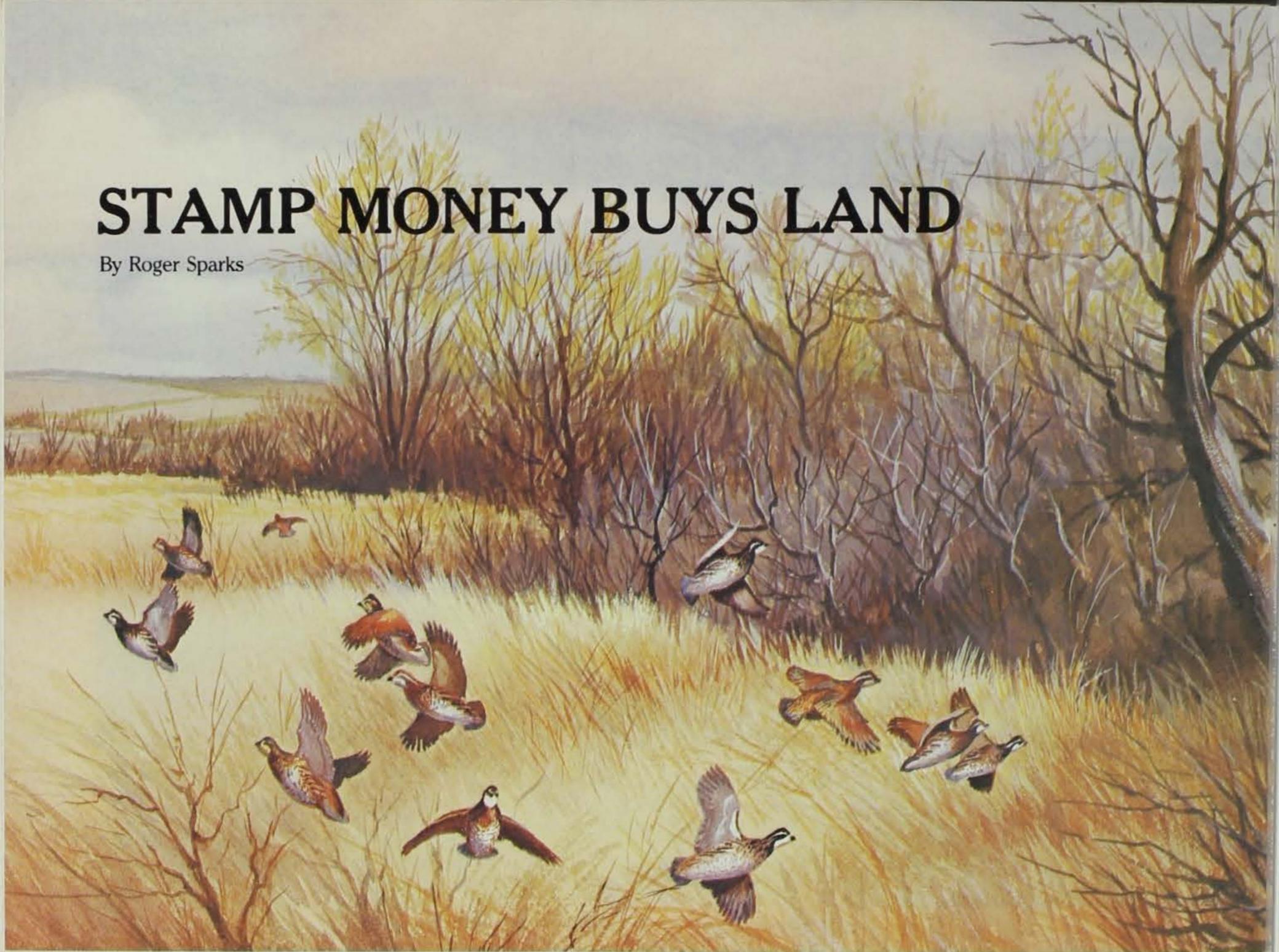
All of the methods mentioned for the alleviation of shoreline erosion are implemented primarily for that reason, but there are other benefits to their installation in our lakes. These structures, while basically designed to protect habitat also create habitat. The logs, tires and rocks all contribute to an increased area and diversity of surface for attachment and production of various aquatic organisms which add to the food chain. They also provide shelter for smaller fish and by so doing create feeding areas for predator fish, and they also serve as a spawning area for various fishes. Any terrestrial vegetation which becomes established also provides shelter and spawning habitat, as well as increasing the available nutrient level in the water as it decomposes.

With all of the benefits considered it is small wonder that many people would like to see more shoreline erosion control work accomplished.

Jim Bruce is a fisheries management biologist stationed at the Rathbun Fish Hatchery. He has been employed with the Commission since 1972.

STAMP MONEY BUYS LAND

By Roger Sparks



1981 Habitat Stamp Design By Maynard Reece

At a time when budget cutbacks have riddled many government programs and scared hell out of most others, the acquisition of wildlife lands by the Iowa Conservation Commission is holding its own. Since July 1, 1979, the Commission has exercised options on some 3,800 acres of land to be managed for wildlife at a total cost of \$3.5 million. The land was acquired with money generated from the sale of Iowa duck and habitat stamps and from federal Pittman-Robertson (PR) funds (revenue from an excise tax on sporting arms and ammunitions). Sportsmen rather than general taxpayers are responsible.

In addition to waterfowl, deer, pheasants, quail and furbearers, the areas will benefit many non-game species. The marshes will be home to black terns, yellow headed blackbirds, marsh wrens and bitterns. Forest and upland areas will feature a full compliment of wildlife species from chipmunks to cardinals.

Like the other 300,000 acres of wildlife management areas in Iowa, hunters and trappers will be present for only a few months. These lands can be enjoyed year round by hikers, bird watchers and others who appreciate the unique beauty of natural areas.

Habitat Stamp

In January of 1979, a law requiring hunters and trappers between the ages of 16 and 65 to purchase a \$3 wildlife habitat stamp became effective. Revenue from this stamp, when combined with federal PR cost-sharing funds, has resulted in the acquisition of over 3,200 acres of wildlife habitat since that time. The intent of the legislature was to provide an immediate means of restoring some of the state's rapidly diminishing habitat, without tying up the funds in salaries, equipment, and administrative functions. The habitat program has successfully followed that intent.

State Duck Stamp

The state duck stamp has been around since 1972 when the fee was set at \$1. In January, 1979, the amount was raised to \$5. All waterfowl hunters 16 years and older are requested to purchase the state duck stamp. Since July 1, 1979 state duck stamp funds have been responsible for the acquisition of 430 acres of wetlands and adjacent nesting habitat in Iowa. Also, \$316,000 in Iowa duck stamp funds has been contributed to Ducks Unlimited projects in Canada. Again, the revenue was intended to be spent strictly on acquisition and development of wetland habitat, not on administration. Wildlife employees throughout the state identified some of the state's top remaining wetlands. Those areas have now become public lands.

In addition to stamp revenue, license money from the Fish and Game Trust Fund was used to purchase several small



Boone Forks area, Hamilton and Webster Counties

tracts of land. Most of these areas were to provide access to rivers and larger public areas or to solve fencing problems. One 45-acre tract of excess property was purchased from the Department of Transportation. These areas total 92

acres at a cost of \$68,000.

Although the purchase of land at this rate is not the answer to curbing the loss of habitat in Iowa, future generations will appreciate the acquisition programs sponsored by today's hunters and trap-

pers. The marshes, forests and grasslands will be maintained as models of Iowa's pristine, unfettered past. They will always be managed for wildlife and for those who enjoy it.

Fox Hills area, Wapello County



HABITAT STAMP PROJECTS

| | <i>Cost</i> |
|--|-------------|
| 1. <i>Hazelbrush Wildlife Area</i> (Carroll County) 72 acres managed for upland and timber species. | \$ 66,960 |
| 2. <i>Elk Creek Marsh</i> (Worth County) 68 acres of upland around impoundments and stream. Excellent habitat for nesting ducks, pheasants and songbirds. | \$135,343 |
| 3. <i>Cardinal Marsh</i> (Winneshiek County) 320 acres of upland next to marsh. Good nesting habitat for ducks and pheasants; marsh expansion, and timber for forest wildlife. | \$383,250 |
| 4. <i>Tuttle Lake Addition</i> (Emmet County) 237 acres of grassland with several potholes. Excellent pheasant, partridge, and waterfowl production area. | \$170,975 |
| 5. <i>Boone Forks Area</i> (Hamilton and Webster Counties) 493 acres of timber - a part of a very large timber tract in north-central Iowa. Deer, turkey, songbird and squirrel habitat. Also, provides fishing access to Boone and Des Moines rivers. | \$340,875 |

| | |
|--|------------|
| 6. <i>Badger Lake</i> (Monona County) 63 acres of upland wildlife habitat next to marsh. | \$126,000 |
| 7. <i>Shimek Forest</i> (Lee County) 91-acre addition to Shimek - timber and croplands managed for quail, deer, turkey, squirrel, and songbirds. | \$148,000 |
| 8. <i>Hawthorn Wildlife Area</i> (Mahaska County) 160-acre addition to outstanding pheasant area. | \$128,000 |
| 9. <i>Fox Hills</i> (Wapello County) 960 acres of grasslands, crop fields, brush, and oak-hickory timber. Beautiful quail, deer, turkey, squirrel and songbird habitat. | \$374,400 |
| 10. <i>Lakin Slough</i> (Guthrie County) 18-acre upland addition to existing area. Good pheasant and duck production area. | \$ 18,000 |
| 11. <i>Kiowa Marsh</i> (Sac County) 285-acre upland area including 50 additional marsh acres. Will provide excellent habitat for pheasants, nesting waterfowl, and wintering deer. | \$547,750 |
| 12. <i>Gabrielson Wildlife Area</i> (Hancock County) 200-acre grassland, wetland, and timber area valuable to pheasants, turkey, deer, and many nongame species. | \$165,000 |
| 13. <i>Sweet Marsh Addition</i> (Bremer County) 317 acres of riverbottom timber, oxbows, and some upland timber. Excellent habitat for pheasants, deer, and wood ducks. | \$166,425 |
| Total | 3284 Acres |

WATERFOWL STAMP PROJECTS

| | Cost |
|---|-----------|
| 1. <i>Green Island Area</i> (Jackson County) 50 acres as a part of a major waterfowl project. | \$ 67,500 |
| 2. <i>Badger Lake</i> (Monona County) 12 acres of wetlands. | \$ 6,000 |
| 3. <i>Bur Oak Lake</i> (Emmet County) 219 acres - was one of largest private wetlands remaining in Iowa. Excellent duck, goose, deer, and pheasant habitat. | \$359,000 |
| 4. <i>Ventura Marsh</i> (Cerro Gordo County) 30-acre addition to large marsh. Good production area. | \$ 35,000 |
| 5. <i>Badger Lake</i> (Monona County) 120 acres of wetlands to secure large wetland area. | \$267,960 |
| Total | 431 Acres |

FISH AND GAME TRUST FUND PROJECTS

| | Cost |
|---|-----------|
| 1. <i>Upper Iowa River</i> (Winneshiek County) 12 acres | \$ 11,350 |
| 2. <i>Mile Long Island</i> (Woodbury County) 10 acres | \$ 21,625 |
| 3. <i>Little Sioux River</i> (Woodbury County) 45 acres | \$ 19,000 |
| 4. <i>Little Storm Lake</i> (Buena Vista County) 1 acre | \$ 100 |
| 5. <i>Tyson Bend</i> (Harrison County) 2.5 acres | \$ 5,000 |
| 6. <i>Upper Iowa River</i> (Winneshiek County) 1.54 acres | \$ 1,500 |
| 7. <i>Upper Iowa River</i> (Winneshiek County) 20 acres | \$ 10,000 |
| Total | 92 Acres |



Dressed in authentic buckskins are Don Peak, Henry County Conservation Board on the left and Mark Wagner, Jasper County Conservation Board.

CLASSROOM CORNER

by Robert Rye

Conservation Education Center Administrator

Photo by Mark Wagner

The stagecoach trail running by the Conservation Education Center is a ready reminder of the importance of history in teaching the foundations of conservation. Mark Wagner, a naturalist with the Jasper County Conservation Board, relies on real life examples of interesting history to reach the students of Jasper County when they come to the Center. Flintlock rifles, Daniel Boone clothing, and survival in the wilds of Iowa 150 years ago will peak any student's interest.

Wagner begins with demonstrations on how to load his authentic flintlock, stressing that proper operation of this tool by pioneers could mean life or death. He explains that black powder draws moisture, causing rust, and that rust will ruin the barrel — an item difficult to replace in the wildlands.

Wagner's own buckskin clothes are laced with lessons as well. The long fringes, he explains, keep water from going down the seams and wetting the wearer. Fringe strings were also used to tie items to the clothing for easier carrying. And, the dangling action of the fringe acts as a horse tail to keep flies away. (Pioneers didn't bathe often and flies could be a problem.)

His fire starter kit — flint, steel, and charcloth — is actually used by students who are told how fire was critical to survival.

All of the history material leads to a discussion of wildlife and a hands-on grab bag in the furcase of mammals. He pulls out a fur and asks questions as a method of relaying information. Predation, food chains, diet, and other environmental facts become fun things to know about and share with others, instead of preachings by a dull professor.

Select your next topic by finding out what kind of interesting tools you can use to drive the points home. The muzzleloader, for example can be used in sessions from history to physical education. Ask a local sportsmans club to help — they may be able to provide some loaner tools for your next session and some valuable information as well.

WARDENS DIARY

RABBIT HUNTING

by Jerry Hoilien,
CONSERVATION OFFICER



Whoever called a beagle hound a nose with a one-track mind certainly knew his rabbit-hunting. A friend of mine from Wisconsin called me on a January evening a few years ago and inquired about coming to Iowa to hunt rabbits. Sounded great to me as we just had a fresh snow. They arrived the next day and out of the trunk jumped two black and white, short-legged, long-eared, sad-eyed, bundles of noise. I'd never hunted around beagles and was anxious to try.

I wasn't prepared for what happened the next couple of days. The weather was perfect with fairly deep, fresh snow, cool enough not to melt, and bright sunshine that coaxed the rabbits out of their holes. The dogs had no more than hit the brush when the rabbits started moving all over the place. All you had to do was get up high on a stump or log and wait. Soon, here would come a rabbit, staying well ahead of the slow, short-legged barking machine behind him. I checked the area and beyond, making sure where my partners and the dogs were and made a good head shot with my 22. The hound came howling up the trail, stopped short, when he saw his quarry, gave it a quick sniff, and bounded off at the same gait, looking for another. It wasn't long before he brought another one around and repeated the performance.

Late season rabbit hunting is almost as traditional as the sport itself. Most hunters do not even consider rabbits until snow is on the ground. I'm sure that's a throw-back from the early days when rabbit fever (Tularamia) swept the country. I'm not aware of an authenticated case in Iowa in many years...as a result when we *do* finally get around to rabbit hunting, our population has already taken its natural decline. This year seems to be a bumper year for rabbits.

Back to my rabbit story...watching those two beagles, bouncing through the trails at a steady pace — not too fast — but fast enough — was a real thrill. As time passed, I got so tickled watching the games being played between the dogs and the rabbits, I sometimes forgot all about shooting. Matter of fact, my sides ached that night as a result.

As we approached the railroad tracks, I explained to my partners it's unlawful to shoot a rifle on, along, or across a railroad track in Iowa. We circled back to the vehicles, carrying our bagged rabbits. The limit is ten per day, but I can't

carry that many, so we quit when we had enough for the game feed we were planning.

The cook's recipe for barbecued rabbit is delicious!

2 cottontail rabbits cut into pieces
1 large onion, sliced
2 or 3 lemon slices
1 cup ketchup
2 cups of water
1 tsp. salt
1 tsp. chili pepper
1-2 dashes of tabasco sauce

Preheat oven to 450°. Place rabbits in baking dish, single-layered; add onions on top. Bake uncovered for 30 minutes. Bring rest of ingredients to boil and pour over rabbit. Add lemon slices and bake in 350° oven one hour or until tender. Baste every 15 minutes.

I don't know which part is more enjoyable...watching the beagles or savoring my wife's good cooking — surrounded both times by good sports and friends.

A Proposal for Park Goers

For many years, Iowans have enjoyed high standards in quality and quantity of our state parks. Over the last few years, the belt-tightening need of state and federal funding has placed these standards in jeopardy. The Conservation Commission views our state parks as one of Iowa's most valuable resources. Because we do not want to see our investment in this resource deteriorate by losing park facilities through lack of maintenance, the Commission is proposing one solution — a new user fee for park goers.

At \$10 per vehicle a year, or \$2 per vehicle for one day's use of a park, we can generate an estimated annual gross income of between \$1.5 and \$2 million. The legislative bill in which the Commission proposes these fees also targets the use of the money for certain programs. Specifically, we want the money to renovate, repair, and make functional such facilities as those beautifully built stone shelters constructed in the 1930s by the CCC camps, or to provide adequate sanitary facilities, and such things as picnic areas, beach

houses, and nature trails.

Iowa is one of only 13 states which currently does not have an annual user fee. We are in an age of obligation. If you feel your park resources are worth keeping, I would hope you could support our efforts to help you help our parks.

Director

