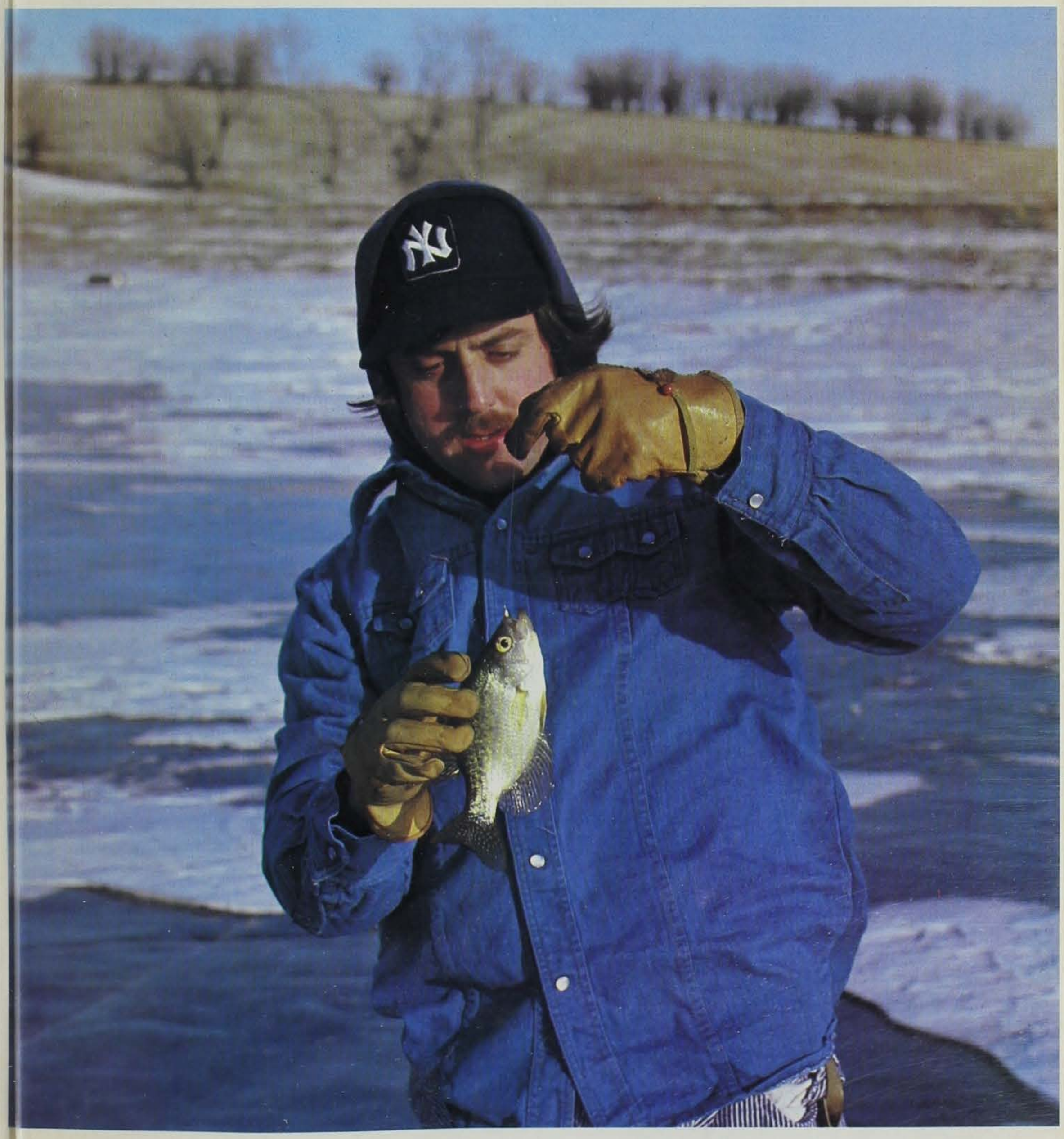
Iowa CONSERVATIONIST

FEBRUARY 1981



Iowa CONSERVATIONIST

MAGAZINE

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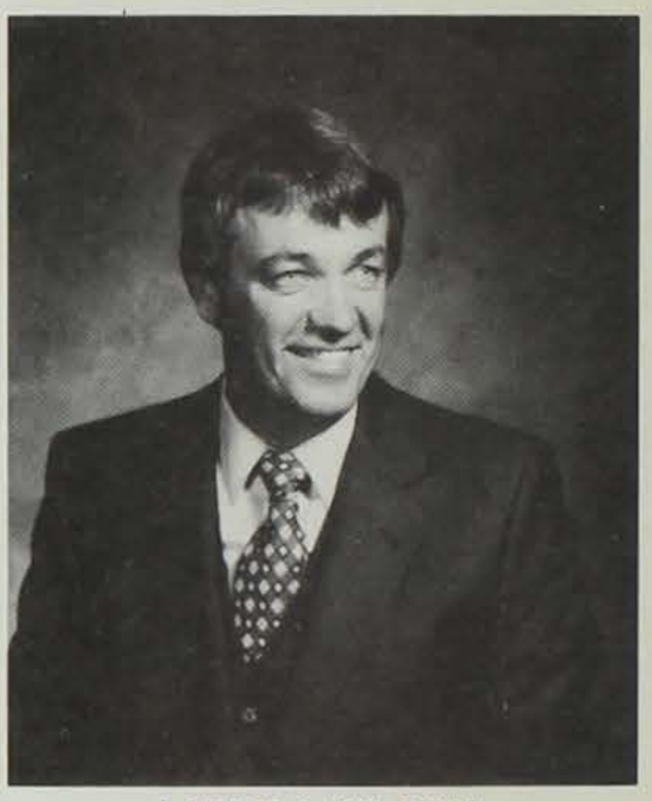
INTRODUCING . . .



LARRY J. WILSON

The Iowa Conservationist is proud to introduce Larry J. Wilson, the new director of the Iowa Conservation Commission.

Mr. Wilson joins us from Utah where he was a regional supervisor for the Utah Wildlife Resources Division. He assumed duties in Iowa January 2, 1981.

As for man, there is little reason to think that he can, in the long run, escape the fate of other creatures, and if there is a biological law of flux and reflux, his situation is now a highly perilous one. During the last ten thousand years his numbers have been on the upgrade in spite of wars, pestilences, and famines. This increase in population has become more and more rapid. Biologically, man has for too long a time been rolling an uninterrupted run of sevens.

Iowa Will Endure

by R. Runge

In tribute to American author George R. Stewart 1895-1980 one of the better writers of this or any other time.

IT IS USUALLY SOME STRANGE AND VIRULENT DISEASE that brings an overpopulated species to its knees. Suppose this finally happens to man and to the last his reign is ended. What would happen to Iowa? For an area on this planet no bigger than it is, Iowa has been heavily influenced by the hand of man. Its drainage system has been tiled, dammed and altered. It is as intensely farmed as any area of its size on the planet. It is ribboned with highways and peppered with cities both large and small. But after the fall would come a quiet and a peace such as the earth has not known in twenty thousand years.

In the first few months things would change very little. The lights would continue to burn illuminating the cities, the small towns and even the farms of Iowa. The water would continue to run from the faucets and gas would continue to feed the pilot lights. The air-conditioning units and then the furnaces would continue their mindless pace assuring a place of comfort should their creators ever return. The nearly automatic machinery would take some time to break down. But break down it would.

The electricity would probably be the first to go. It would take months if not years before the system totally collapsed. The fatal flaw could be the nuclear generator plants which would be programmed to shut down if left unattended. The oil or coal burning plants would cease operating when the fuel ran out, but the water turbines would continue to turn for some time. Or it might be the slow deterioration of the transmission lines as lightining, wind and ice slowly eroded the system. One by one, an area here and then there, soon the last of Edison's dreams would flicker and fade. From the moon, earth would appear no lighter or darker than before, but downtown Des Moines would be dark for the first time in over a century.

The water would last much longer. Some small towns which depend upon wells and pumps would have water only as long as electricity would be there to pump the towers full. This would be done automatically when the level of water reached a certain low point. Once the power had failed, the pumps would be silenced forever. The water would trickle out and finally stop altogether. The cities with reservoirs would have water from their automated systems for perhaps twenty years or more. But the large pipes, which are still made of iron, would slowly rust and spring leaks. The reservoirs would be let down much too low in the summer and soon, as the system decayed, the small lakes would simply move their water only as far as the other side of the dam.

The farm fields would remain well-defined for many years. In the first season one would notice little difference from a distance. Close examination would show, however, that instead of beans and corn the fields were full of foxtail, thistle, and a host of other weeds. For if man cannot exist without beans and corn still less can these exist without man. There would be volunteers for awhile, but soon the fierce weeds would press in to destroy the pampered nurslings of man. Unable to properly shed their seeds, the great grains would vanish. No longer would empires rise and fall on their availability. No longer would a summer rain sway men's fortunes as dust gathered on the floor of the Chicago Board of Trade.

The drain tile would last perhaps a half-century or more, but fifty years is only a wink in the passage of time. Eventually one tile in a system would break or tree roots would plug them and one by one the marshes would return to dot the landscape. Saved the misery of rapid flushing, the streams would slowly cleanse themselves and stabilize allowing vegetation to return to their banks and shallows. The fish and waterfowl would find these changes most welcome.

As time passed much of the land would be claimed by trees which would be able to block the sunlight from the short growing weeds. But even the trees would not be able to hold their ground. The roaring fires would soon return to consume the trees and leave an opening for the only plants which had learned to live with the fire. Blade by blade, mile by mile in a victory march witnessed by no one the long-grass prairie would come to claim its own.

The cities would stand a very long time. The grinding ice of winter would slowly gnaw at the mortor and bricks. There would be the occasional fire. Windows would be broken allowing entry to the probing finders of weather, but the process would be slow. A thousand years would not erase the magnificent caverns. They would be home to the insects, the reptiles, and the flying creatures both bird and bat. The rodents would flourish for a while, but when man's convenient storehouse was empty, many of them would return to the fields and forests. Having depended upon man for so long a time, they would find their new lives harsher and their numbers would suffer.

The other animals would also face many adjustments, especially those closely associated with man. Those unlucky enough to be penned in would soon die *Continued on Page 14*

"In the blindness of hunger, the early settlers, claiming Heaven as their guide, regarded God's trees as only a larger kind of pernicious weed, extremely hard to get rid of."

— John Muir

A Case for Land Ethics

by Timothy Glover

HOW DOES ONE PERSON convince another person of the value of something that cannot be measured in dollars and cents?

It is hard to accurately measure the value of soil lost to erosion, but the gullies in the field can certainly be seen and it is evident something was lost.

It is hard to measure the value of a woodland that provides shelter for your house, a haven for wildlife, wood for fuel and stops wind and water from eroding your fields. But when that woodland has been bulldozed out we notice the wildlife is severely diminished, the sun burns hotter, the wind blows harder and colder, the streams run brown with silt and the landscape isn't as pretty as it was.

It is hard to measure the value of a stream that meanders its way through a valley, taking four miles to travel one, slowing down the water so it will seep into the ground and providing good fish habitat. But when that stream is straightened and channelized we can certainly see that the water flows faster, the channel scours deeper, the springs and wells go dry more often and the youngsters don't catch fish there anymore.

What will our land look like in another fifty years? Will all our streams be straight ditches dissecting a treeless landscape scarred with gullies and devoid of wildlife? It is happening little by little, you know. The gains aren't keeping up with the losses. We all think that our little part in the destruction won't count — but it does. Our clamoring for immediate economic gain regarding the use of our natural resources will turn out to be our future self destruction unless we take steps to preserve those natural resources. How many past civilizations have dwindled and fallen because of an eroding resource base? You may recall the house that was built on the rock and the other on sand. Our rock has already crumbled to pebbles and it will eventually turn into sand unless we stem the tide. It all depends on what we want and if we have the fortitude to accomplish it.

Because preservation of the soil, woodlands and streams is difficult to justify economically we must apply a different rule of thumb if we are to preserve them. And that rule of thumb, my friends, is called ethics. Ethics is knowing and doing the right thing because it is right and not because it will necessarily serve our immediate interests.

The man that bulldozes out ten acres of timber on that 20% side slope so his cattle can have a little more grass in spite of the fact that he has destroyed prime wildlife habitat and opened up the land to erosion does not have ethics. He cares more for his profit from the cattle than he cares for his land. Unfortunately, ethics is something that cannot be successfully forced, ruled or legislated upon others. It must come from within through personal desire and concern.

Ethics is most successfully fostered through education. You tell a man he can't bulldoze out his timber, straighten his stream and farm his field up and down hill and he'll fight you all the way. And even if you win you won't really have succeeded.

A land ethic born by the individual and fostered through education is the most idealistic solution to conserving tur natural resource heritage of soil, woodlands and streams since economic justification — especially short term — is sometimes difficult. The lack of adequate soil, woodland and stream conservation measures is very visible, showing up in many different ways, and resulting in very real long term damage. A land ethic presupposes economic justification — proper conservation measures are taken merely for the sake of the resource involved.

The alternative to an individual land ethic appears to be government regulation to effectuate conservation measures, and government regulation is unpopular among landowners. And unless a law has the support of the people it will not be effective because it can't be enforced. So it appears that an individual land ethic is not only the most idealistic solution but also the most acceptable to both the landowner and society.

An ethic is based on the understanding and concern of the individual. If a man fully understands the consequences of his actions upon the land and knows enough about the land to love it he undoubtedly will take proper care of it if at all possible.

But ethics fostered through education may still not be enough. A man may not be able to carry out conservation measures even if he wants to and knows he should. Since the conservation of natural resources is of concern to society as a whole as well as the landowner, any cost or economic hardship involved should be shared by society. Nothing will break down an individual's land ethic faster than undue economic hardship. For this reason we should consider carrying education a step further by improving existing economic incentives and providing additional economic incentives as "ethics insurance."

Guidelines for the highest and best uses of land and proper conservation measures have already been established through soil conservation districts and other agencies. Educated ethics backed up by adequate economic incentives should help considerably toward adherance to those guidelines. The alternative is unpopular laws which force obedience. Throughout history laws have been the alternative when the honor system fails. It is much more pleasant to do what needs to be done on your own rather than be forced into it. ■

Wayne Lonning

Top soil lost through water and wind erosion is a serious problem.

Ken Formanek

Channelizing a stream seems like a good idea until the damages are weighed.

Ken Formanek

A 30-inch diameter (94-inch circumference) walnut tree ready for harvest.

Forestry

WHAT IS TIMBER STAND IMPROVEMENT?

By Bob Hibbs
DISTRICT FORESTER
Photos by the Author

The woodland owner pondered the forester's question. He thought, then answered, "Well, timber stand improvement means cutting out some of the trees so more grass grows and so you can see and walk through the woods. It makes it look nice and pretty, like a park!"

The forester could tell that he had some explaining to do. "Not really," was his reply. "Timber stand improvement (TSI) consists of forest protection, species manipulation, density control, and quality improvement. It is done to increase tree growth rates, to increase the value of trees, to make firewood and conserve fossil fuels, to improve wildlife habitat, and perhaps to make a little money for the landowner." The forester went on to explain the work called TSI.

Protection

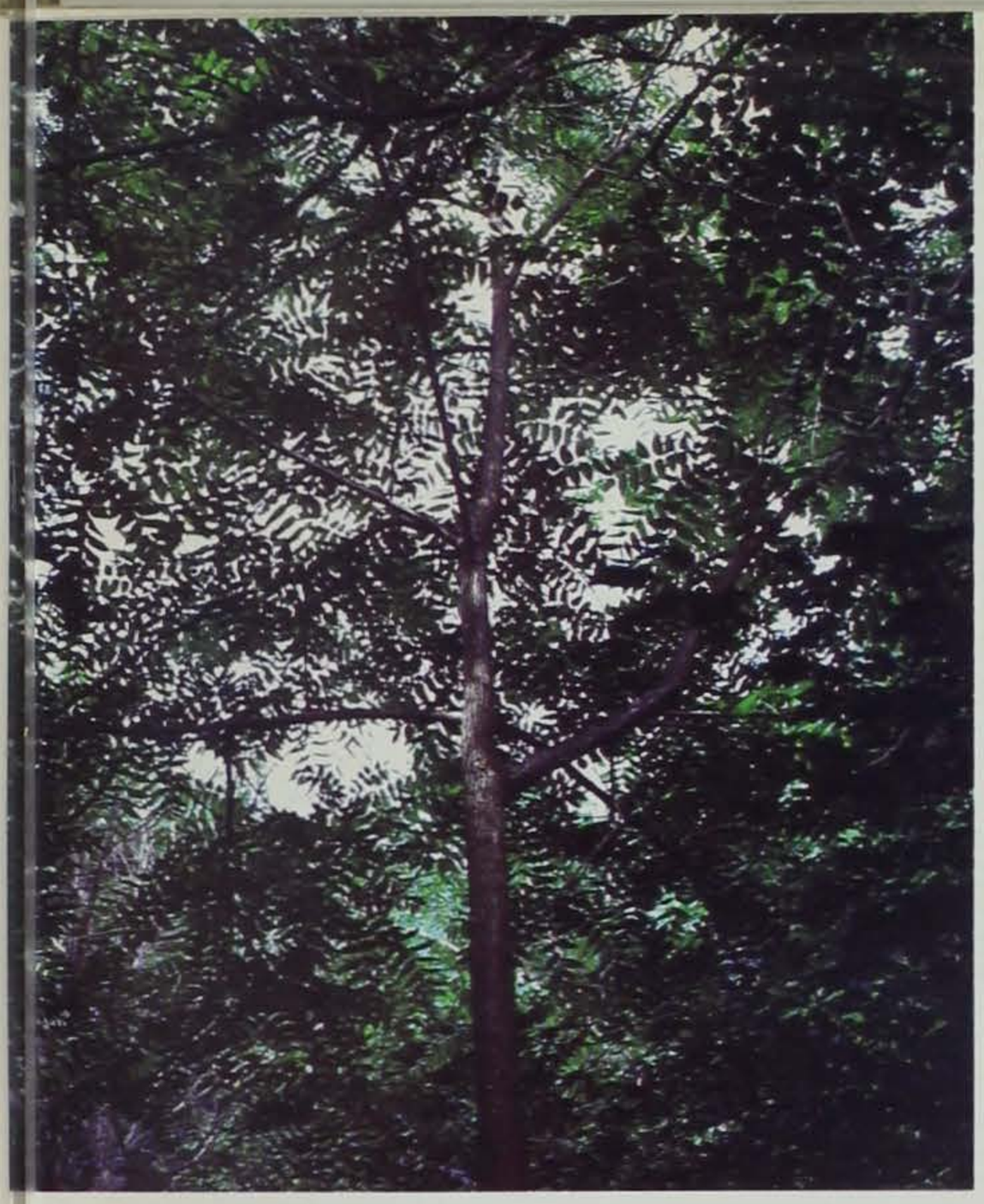
Protection includes protection from fire, insects, disease, or any other destructive agent. Most often protection means nothing more than the exclusion of domestic livestock. Cattle, horses, sheep, goats and hogs kill more trees in Iowa every year than die from all other causes combined. Approximately 80% of all Iowa woodlands are pastured, destroying the young trees necessary to perpetuate the timber. Since livestock eat young oaks, hickory and walnut, pastured woodlands evolve into a stand of honeylocust, multiflora rose, and other thorny species that the livestock will not eat. Soil erosion also increases when livestock are allowed in the timber.

Species Manipulation

Species manipulation consists of removing weed species to favor more desirable trees. Forest "weeds" usually include boxelder, mulberry, honeylocust, ironwood, hawthorn, multiflora rose, prickly ash and perhaps others depending on the landowner's preference. Vines should be cut from all good-growing crop trees. This work can be accomplished by girdling, felling, handaxe frill with chemical injection, spraying, or any combination of these treatments.

Girdling works well for killing trees over 16″ in diameter. Smaller trees are apt to sprout and continue growing. Then, too, trees less than ten inches in diameter can be felled quicker than they can be girdled. Be especially cautious when girdling trees suspected of being hollow!

Felled weed trees will need chemical stump treatment to prevent sprouting. Stubs of vines cut from trees should also be treated to prevent regrowth. Handaxe frill with chemical injection consists of chopping through the bark into the sapwood. Then squirt poison into the cut. Foliar-applied sprays are applied to the plant's leaves; basal sprays are applied to the lower 12 to 18″ of the plant's stems. Plant poisons for TSI work include 2,4-D, Ammate-X, Roundup, Tordon RTU, and Krenite.



Can you see the young walnut in the jungle of trees? Thin around it, giving the crown 4 to 5 feet on at least two sides.

Density Manipulation

Density manipulation (thinning) consists of removing cull trees, wolf trees, and those trees that are too crowded. Cull trees are those live trees that, even though they are a desirable species, are non-marketable. This includes hollow trees, broken or deformed trees, and any tree that has been significantly damaged by wire, nails, lightning or wind. One or two strong trees with hollow cavities should be saved for wildlife on each acre treated. Dead trees can be ignored since they do not compete for light or nutrients. "Wolf" trees are old, open-grown trees with short trunks and large, spreading crowns. Wolf trees should be removed unless they are needed for seed production or for wildlife habitat. If they are unusual or aesthetic, particularly along roadsides, they should be left. Chemical stump treatment is not needed when cutting cull trees or wolf trees. Sprouts from these can develop into good forest trees.

When thinning, work with the best trees first. For example, thinning competing trees away from a young, healthy walnut makes more sense than cutting competition away from a basswood. Always remember that the final crop trees will be about twenty feet apart. You cannot save every tree. Thin from below — cut those trees that are overtopped, leaving the tallest. Make sure the crowns (tops) of your good walnut and white oak have four to five feet of growing space on at least two sides. When thinning multiple-stemmed clumps of trees, pick two or three good stems to leave and cut off the rest. Thinning will be most effective on trees that are fencepost to telephone pole size; old trees will not respond to thinning.

Quality Improvement

Pruning is a cultural practice to improve the quality of growing trees. Like thinning, it should be done when the trees are young and vigorous. Side branches should be removed when they are an inch in diameter. Prune only the anticipated crop trees, and invest your labor in the most desirable tree species. Ten percent interest compounded for fifty years means that every dollar invested in pruning must yield a return of $117.40 when the tree is mature. Altering walnut or white oak from lumber quality to veneer quality will likely fulfill this demand, but pruning pine for a pulpwood market does not make economic sense. As a minimum, you should try to obtain nine feet of clear stem. Seventeen feet would be much better; more than this is generally not practical. For more information on pruning, write to this author for a copy of "Pruning broadleafed trees", Iowa Conservationist, January 1980.

Discussion

If you are interested in improving your timber stand, the first priority is fencing livestock out. Next, cut and kill weed trees, culls, wolf trees, vines, and trees that are interfering with good-growing walnut and white oak. An able-bodied worker can complete one or two acres per day, depending on the condition of the woods. At this point, prior to thinning or pruning desirable trees, contact your District Forester or a paid Consultant Forester to obtain professional advice. Most woodlands that I have seen do not need thinning of desirable species. If you cannot do the work yourself, the ASCS farm cost-share program may allow you to hire a forestry consultant to do the work.

My preference for doing TSI work is to use Tordon RTU in a handaxe frill on tree species, and to use 2,4-D amine in fuel oil as a basal spray on multiflora rose and prickly ash. Tordon RTU can also be applied to cut stumps and vine stubs to prevent sprouting.

When using chemicals, don't just read the label — make certain you *understand* the label. *Follow* the instructions and precautions, and use the minimum amount required. Wear rubber gloves when using chemicals, even if the label does not specify such a need.

With patience and care, you will produce a thirty-inch diameter walnut tree for harvest!

A walnut log cut from a cull tree.

CUSTOMIZE YOUR FISHING BOAT

by Steve Waters
FISHERIES MANAGEMENT SUPERVISOR

Photos by the Author

AS I SEARCHED through the tall weeds I kept up my hopes that I would find my quarry in good shape. There it was, just where we had set her 10 years earlier. The 25 year-old semi-vee aluminum fishing boat was structurally in good shape but needed a complete face lift. That was all right because I was about to transform this aging lady into my customized fishing outfit.

After I had developed a plan of attack it was time to rejuvenate my 14½ foot rig. I had decided to add new seats, a casting deck, false floor, carpeting, electric trolling motor, an anchor system and a new paint job. Although this rig sounds like a "bass boat" my intentions were to develop a comfortable and functional rig that would be ideal for fishing for a variety of species.

Painting

My first mission was to paint the boat. I roughed up the clean surface to provide a better bond for the paint. A wire brush or fine sandpaper does this job very well. I chose a good brand of marine aluminum boat paint. Although these paints come in many vivid colors I chose a traditional dead grass pigment.

False Floor

Step two was to develop the false floor. My 14½ foot, 63 inch wide semi-vee required one sheet of ¾ inch plywood. Marine plywood may be the best material to use; however, I chose a cheaper grade (A/C) of plywood.

After measuring and making a rough cut the floor was trimmed until it fit snugly across the bottom of the boat. Both sides and the edges of the floor were painted with a marine paint.

Carpeting

I decided to completely carpet the interior of my boat with indoor-outdoor carpeting. I chose a budget "Astro-Turf" foam backed carpet that was similar to what is found in expensive bass boats. Not only did the carpet do what it was supposed to do, that is reduce fish scaring boat sounds, but it also made a fishing trip more pleasurable. This carpet dries out rapidly and I've had no problems with mildew or cleanup.

I cut the carpet to fit each section of the boat separately. In all, I had about 15 sections of carpet to affix to the seats, floor and sides. After trimming to allow for proper fit, I applied a latex waterproof adhesive to both the carpet and boat or plywood to get maximum adhesion. I applied one piece of carpet at a time and took my time with this operation. The result was a near perfect fit. If you are applying the carpet directly to the boat bottom do not force the carpet into the rain grooves. The result could be a boatful of water.

If you do not care to use a glue for adhesion try using a double-faced carpet tape or velcro fasteners. Although not as permanent as the glue, these methods work well on the flexible lightweight carpets you should be using.

Carpet can be purchased at either a lumber company or a carpet store. I found the proper glue at a carpet store. Generally I would suggest buying about a square yard of carpet for each foot your boat is long. For a 14 foot boat 14 square yards should be sufficient.

Seats

To the front seat I bolted an adjustable pedestal with a folding back fishing chair. Not only was this extremely comfortable but it worked well with the foot controlled electric trolling motor I attached to the bow. Anyone who has spent a day hunched over a straight bench seat can appreciate a swivel chair with back. I also added smaller, cheaper hinged-back swivel chairs to the other seats.

I would caution the use of a pedestal unit in small fishing boats (12 feet and less). This could upset your boat's center of gravity and cause you to fall overboard or your boat to be upset. A swivel chair can be attached directly to the bench seat, or a box platform with swivel chair can also be attached to your boat's seat. The box platform, if hinged, will also provide needed storage space.

Electric Trolling Motor

Electric trolling motors can add a lot of enjoyment to your fishing. Both stern and bow mounts are handy but I prefer the bow mount with foot controls. The foot controls free both hands for fishing; there is no doubt this has added fish to my creel.

These individuals question the health of this soon to be customized boat.

The finished product - ready for fishing. Note anchor system, trolling motor, battery case chairs, fire extinguisher, storage box, rod holder, lights, casting deck and carpet.

You would be wise to buy the most efficient quality trolling motor ou can afford. If the ratio of the motor's pounds of thrust compared o amp draw on the battery is about one, the motor is efficient. A 12 olt trolling motor that develops 15-18 pounds of thrust should be dequate for a 14-16 foot aluminum boat. If an electric motor is your nly means of power a 24 volt system may be your best bet.

If your bow mount trolling motor does not have a breakaway ystem I would suggest you install a stump jumper to your unit. ither system will prevent severe damage to your unit's shaft, hould you hit a fixed object.

Depth Finder

There are many good depth finder units on the market. You can nstall either a permanent mount or a portable mount. The transducer an either be mounted on the transom or to your bow mount trolling notor. The bow mount unit will show you what is ahead of you, not what you just passed over. For obvious reasons you should never have your bow mount depth finder in the water while the outboard engine is powering the boat. Some companies offer a conversion box that allows the use of both a transom mount and bow mount transducer with one depth finder.

For most fishing a sonar depth finder with a 60 foot scale is adequate since most fishing will be in 20 feet or less of water. Also, the larger 50 foot scale is easier to read and small changes in the bottom are more precisely and dramatically displayed on the dial.

Accessories

Accessory items can be added until you're blue in the face and empty in the pocketbook. I would suggest a good anchor system (anchor mates), boat cover, fire extinguisher (mandatory if motor is greater than 10 horsepower), bearing buddies (wheel bearing protection), paddle, rod holders and bow and stern lights. Please see chart for estimated costs.

The Boat

One item to keep in mind when buying a new or used fishing boat is to buy aluminum! Most aluminum boats are lighter than wood or fiberglass boats. This means you can operate them with smaller motors and trailer them with smaller vehicles. All of this means dollars saved and more fishing trips. I would also suggest purchasing a wide boat. This will give you more room for gear storage and also provide a more stable boat.

A jonboat will give you more floor space and probably will be easier to customize. The semi-vee cuts waves better, thus providing a smoother ride. The new jonboats with modified-vee hulls may be your best bet for comfort and customizing attributes. Whichever model you choose make sure you buy a boat built with heavy gauge aluminum with support ribs.

Trailers

The single most important consideration in buying a trailer is to buy enough trailer for your boat. Buy a trailer with strong frame, hubs and tires large enough to handle the load. For a 14-16 foot customized boat I would suggest a 1200-1600 pound capacity trailer with 12 or 13 inch wheels.

The purpose of this article is to show what can be done to improve the angling ability of the traditional fishing boat. Much of the equipment on my boat was added as I could afford it. By purchasing top quality equipment, repair has been kept to a minimum.

If you customize your fishing rig you will find the job may be time consuming, but rather easy. In the end you'll have an outfit that will catch more fish and be more comfortable and enjoyable to use.

*Cost Information**

Item	Price Range ($)
Carpeting	3 - 5 a sq. yard
Pedestal (adjustable)	38
Seat	12 - 40
Electric motor (foot control)	160 - 300
Stump jumper	35
Depth finder	110 - 180
Anchor mates	22 - 32
Fire extinguisher	10
Boat cover	30 - 50
Bearing buddies	14
Rod holders	7

**Approximate*

Sediment Problems in the Upper Mississippi River Basin

by Dean Beck

Photos by Ken Formanek

The Upper Mississippi River System, with its network of backwater sloughs, side channels, lakes, and ponds, is a unique and very productive wildlife domain. Slackwater areas with abundant vegetation provide nursery habitat for fish and aquatic invertebrates; nesting and resting sites for waterfowl; and homes to aquatic furbearers. More than 270 species of birds, 50 species of mammals, 139 species of fish, and 35 species of reptiles and amphibians occur along the Upper Mississippi River.

These fragile, slow-moving backwaters face an immediate threat from siltation. Sediments eroded from farmland and streambanks are rapidly filling the Mississippi River's most productive areas.

Completion of the lock and dam system in the late 1930's created a series of 26 navigation pools. Dam construction slowed current velocity in the pools allowing fine sediments to deposit in slackwater areas. Approximately 25% of the open water created when the lock and dam system was completed has become marshland. Lake Pepin near Red Wing, Minnesota, is filling in at a rate of one foot of sediment each decade.

Effects of sedimentation on backwater ecosystems vary. Siltation raises the sediment bed allowing vegetation growth within the light penetration zone. Excessive vegetation depletes the dissolved oxygen supply in the water through respiration and decay, resulting in stagnation.

Siltation covers important fish

spawning sites, often smothering eggs or larval fish. Mussel populations decline as gill membranes become clogged and beds are covered.

Tubidity or cloudiness of the water increases due to sediment resuspension caused by wave action. Turbidity kills or conceals food sources of predatory gamefish and interferes with plant photosynthesis. The aesthetic quality of the river as a water supply or recreational area decreases as turbidity increases.

Runoff of agri-chemicals changes the water chemistry of backwaters. Fertilizers increase nutrient levels of the water resulting in increased plant growth. Pesticides settle out in slackwater areas, are transported through the food chain, and are deposited in the fatty tissues of fish. Heavy rains soon after chemical application to cropland often results in fish kills in low flow areas.

As the water shallows, fish are forced out and even denied access to deeper pools because of silted side channels. Waterfowl, furbearers, and fish are stranded as backwaters eventually dry up during low water periods.

The primary source of fine soil sediments is sheet erosion from upland farm ground. The Upper Mississippi River Basin drains an area of about 188,000 square miles, encompassing 300 counties in 7 states, including Illinois, Indiana, Iowa, Minnesota, Missouri, South Dakota, and Wisconsin. Fifty-seven percent of this approximate 3,000,000 acres is cropland.

Records from 1970 indicate sediment yields from the northern end of the basin, which is primarily forest, to average 10 tons of sediment annually for each square mile. The greatest sediment yield from a small region of Illinois averages 6,000 tons of sediment annually for each square mile. Sediment yields in Iowa range from 50 tons per square mile in the north to 2,000 tons per square mile in southern Iowa.

Coarse sediment, predominately sand, also creates a problem in the Mississippi River. Heavier particles, primarily from streambank erosion in tributary streams, settle into the main channel necessitating dredging to maintain a 9 foot navigation channel. The Army Corps of Engineers annually dredges approximately 1,421,000 cubic yards of sandy sediment from the main channel of the Mississippi River at a cost of over $2,000,000. Most of this dredged material is redeposited along the river channel or on existing islands only to be washed back into the river, and in some extreme cases, filling in backwater areas.

Sediment damage to the Upper Mississippi River Basin is estimated at $25,000,000 annually. Immediate control measures are necessary to ease this damage to the Mississippi River, its many tributaries, and flood control reservoirs.

Erosion Control

Physical control measures include terracing, contour strip farming, grass waterways, no-till farming, and construction of stabilizing structures such as gully dams, ponds, and detention basins. Other measures include stabilizing slopes, road construction sites, streambanks, and dredge spoil sites with rip-rap, brush, or vegetation; all of which act to break up raindrops and slow runoff. It may be necessary to dike off backwaters to protect critical wildlife areas from sedimentation.

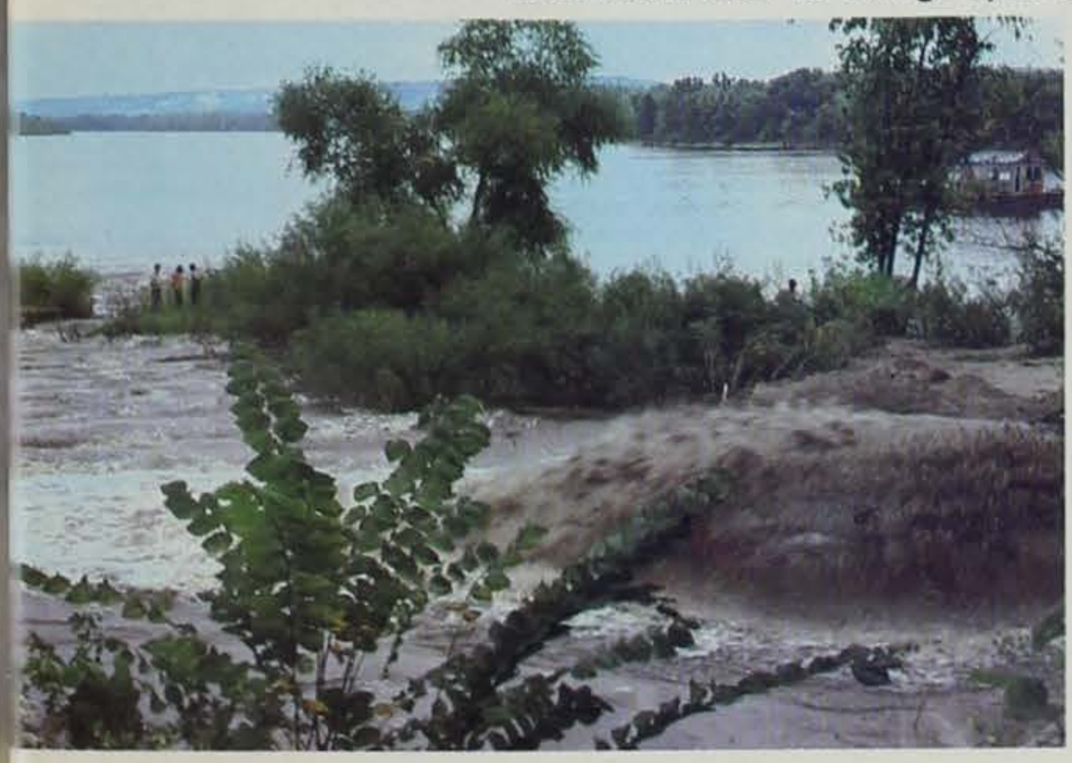
Legislation is necessary to label sediment as a pollutant and therefore subject to federal and state action.

It is imperative to the life of the Upper Mississippi River that Iowans become aware of existing and potential erosion problems and become involved in federal, state, and local soil and water conservation programs. Only 46% of the Upper Mississippi River Basin is considered adequately protected from erosion.

Without sediment control measures and standards, the Mississippi River; so important to wildlife, recreation, and commerce will eventually die a lingering and catostrophic death from sedimentation.

80' high spoil pile at Reed's Landing

Before and after as dredge spoil is pumped into a marshy low area



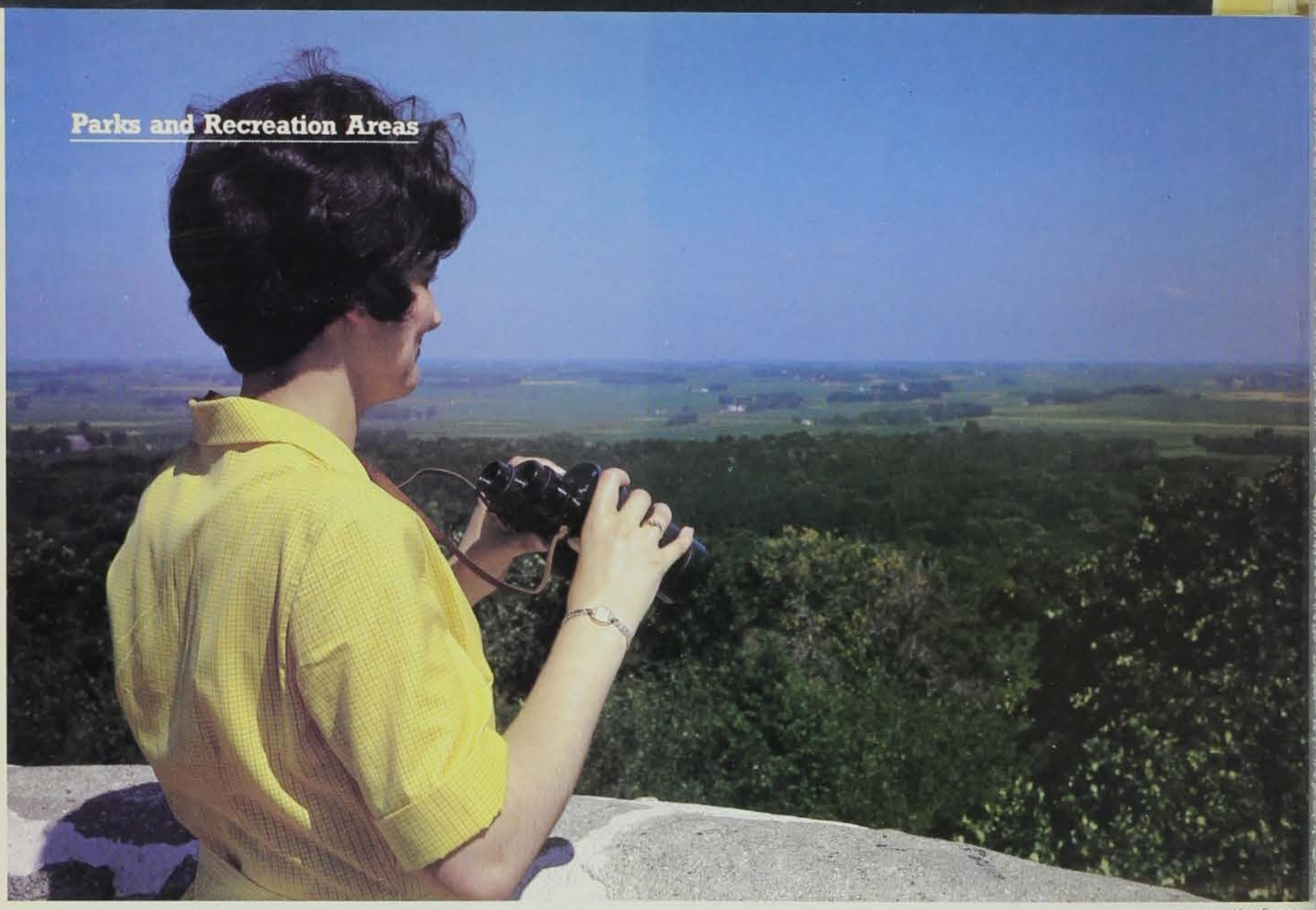


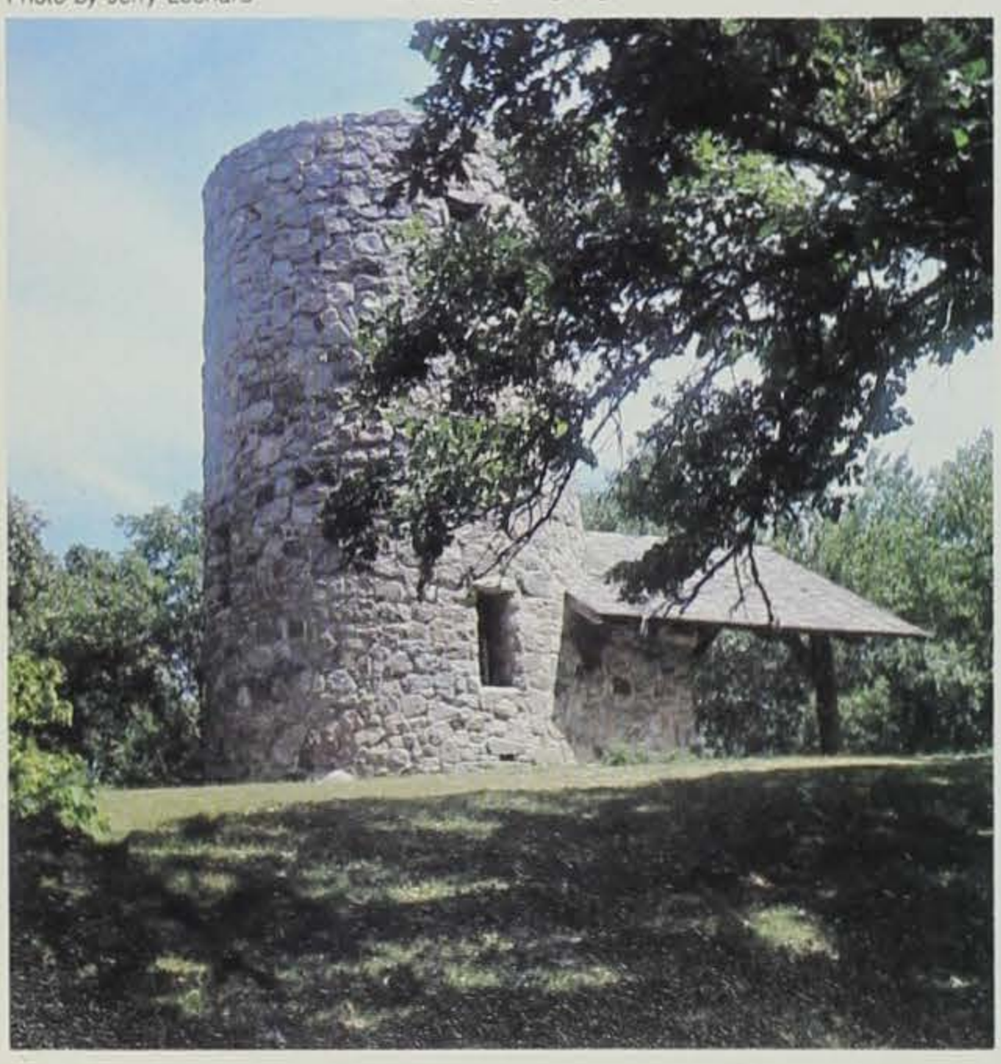
Photo by Ken Formant

PILOT KNOB STATE PARK

"A high point in Iowa"

Photo by Jerry Leonard

Lookout Tower



NOTE: *This is a companion article to the Pilot Knob feature (Aug. 80) which explained the work done by the C.C.C. in the park.*

By Craig Jackson
PARK RANGER

Did you ever wonder how our state parks became state parks? In the case of Pilot Knob, concerned citizens took upon themselves the task of asking for donations for a particularly beautiful area in order to save it for future generations and to show at least a sample of what Iowa was in its wild state: A beautiful flower bedecked prairie with pure and sparkling streams and lakes, lofty hills and pleasant valleys. In August, 1920 a public meeting was held in Forest City for the purpose of discussing ways to acquire the area known as "Pilot Mound" and to make it a state park. Individuals were asked to "buy" the land by making donations to the fund which was collected. A quarter section belonging to Robert Plummer, together with 133 acres more in the surrounding area, were purchased for $70.00 per acre. A total of 67 people contributed $70.00 each to purchase one acre of land and 91 contributed $35.00 each toward one-half acre purchases. The state matched the money which was raised locally, and in 1921, the Executive Council of the State of Iowa approved the setting aside of the area as Pilot Knob State Park. In 1924, Pilot Knob State Park, located 4 miles east of Forest City in northern Hancock county, was officially dedicated.

The park derives its name from the high moranic mound situated in the east end of the park. The summit of the knob is nearly 300 feet above the waters of the Winnebago river at its base, and is 1450 feet above sea level. It is the highest of a number of similar mounds in the region and the second highest point in Iowa. The Wisconsin glacier which shaped the great mounds of Pilot Knob was not the first of a series, but rather the last. The terrain of the knob and vicinity is characteristic of land forms that resulted from this last glacial advance to affect Iowa, 13,000 to 14,000 years ago. When the glaciers began to retreat, they usually did so at a fairly uniform rate, as the climate became milder. However, geologists theorize that an unusually cold or snowy winter or cool summer, or a succession of such events, stopped this regular retreat and put new life into the glacier. In such cases, the glacier's margin stood in the same general region for some time, and then formed a great range of irregular hills and hollows, stretching for miles across the country. This is how Pilot Knob was formed.

Dead Man's Lake is one of the rarest and most interesting water bodies in Iowa. The small lake of about eight acres occupies the southwest corner of Pilot Knob State Park. Nearly half of the lake is composed of a floating bog. Its shape is slightly like a figure eight, one loop being open water and the other containing the island-like sphagum mat surrounded by marsh vegetation. Due to the acidity of the bog and of the lake, several species of plants are present that are otherwise rare in Iowa. The highly acid water supports only the species of plants and invertebrates that are adapted to such conditions. Thus fish are non-existent there. One of the rarest plants within the bog is a rooted carnivore, the round-leaved sundew. This small plant attracts, catches and eats insects. Many hair like red stalks cover each leaf and at the end of the stalks are droplets of clear sticky gelatin that glisten in the sunlight. Enticed insects alight, become trapped in the artificial dew, and after they die the remains are digested by the plant. The sundew is a low grower about three-eighths of a inch long and has a pink fringe. They flower in late summer either August or September. There are seven species found in the United States and only one found in Iowa at Pilot Knob. Pilot Knob was dedicated as a state preserve in 1968 and Dead Man's Lake was one of the primary concerns of the state preserves board. The bog is so sensitive to individual disturbance that people are only allowed on the mat by special permit, principally for scientific study.

The name of the lake is another item that has aroused considerable interest. One story tells of an early pioneer traveling to an unknown destination who passed by and drove his oxen out on the ice to let them drink. The ice gave way and oxen, wagon, and man sank to a spongy coffin. Truth gives credence to the following. One of the first homesteaders followed the meandering Winnebago river to a point just south of the high knob and climbed it to get a better view of the vast wilderness around him. From the height of his lookout he discovered the small lake in the hills and wondered at its elevation above the surrounding plain. When he walked down to visit the lake he made a further discovery — a lone Indian who permanently resided there. The Indian, an old man at that time, had been an aspiring politico in his youth, but was either defeated or betrayed by his friends and soured of life in the tribe. Failure to be head shaman (medicine man) led him to quit mingling with his fellows and sometime later, when the tribe moved on, he stayed behind. He ceased wandering and spent the rest of his solitary life at this seldom visited retreat. Here was his home when white men came. When the Indian died years later, his tribesmen buried him there. So his tribemen called the area "Lake of the Dead Man."

With approximately 25 different species of trees, the park is both diverse and spectacular during peak fall color periods. The predominant species is oak, however, many other species are found in large quantities. In 1934, the Civilian Conservation Corp came to Pilot Knob and constructed a rock look-out tower, shelter, entrance portals, and an outdoor amphitheater. The commission is presently renovating the amphitheater to its original state. All the rocks for the construction of the structures were obtained from the surrounding farm land. All the work was completed in just 4 months of the summer. The park also has four miles of bridle trails, just recently reopened, and four miles of hiking trails. These trails are also used as cross country ski trails for winter activity. The main road through the park is closed during the winter months and serves as the snowmobile trail through the park. Three picnic areas are available with running water and facilities nearby. A modern camp area with 80 sites is also available throughout the year as long as weather permits. There are no overnight facilities for campers with horses. Fishing is restricted to the two acre artificial lake which was recently stocked with large-mouth bass, bluegill, and also northern pike. The area is loaded with wildflowers which rival those of any area in the state. A nature hike provides both scenic beauty and scientific enrichment. The history and scientific aspects of Pilot Knob State Park make it one of the most unique and educational in the state. For the true naturalist, it is a paradise. For the average Iowan, it is a good quiet spot to just look, walk and enjoy your day and your park.

Floating bog

IOWA WILL ENDURE

Continued from Page 3 of thirst. Dogs such as the terriers and mongrels would get along quite nicely. But the delicate show breeds would die off quickly, unable to adapt to a world without a loving master. Cross-breeding among those left would likely produce a wild dog, rather small but strong and quick.

Cats are a different story. Having never really cared too much about man, they would scarcely miss him. Soon the cats would become very serious about hunting birds, mice, and rabbits and very secretive about where they had their young. After perhaps a hundred years both dogs and cats would be reduced to small and scattered populations mostly around the old cities. The fields and woods would once again belong to the wolf and fox, the bobcat and even the cougar.

The swine would probably be more inconvenienced than threatened. They would move to the lowlands by the streams, grow long of hair and long of tusk. The fierce boars would drive off even the most formidable of enemies. After the first few winters take their toll, it is safe to say the pigs would do quite well, especially towards the southeast.

The cattle would paw their way from the pastures and would be hard pressed to survive. They would need many generations to breed themselves back from being a meat and milk animal to being a fierce prairie ungulate able to defend its own. When they could at last stand up to the wolf and wildcat they would meet a challenge which would turn them aside. From scattered populations here and there the bison would slowly build the numbers to rule the plains again. Safer in the forest, it is there the cattle would live.

The horses would survive, but slowly drift towards the short-grass prairie and for the most part out of the state. The sheep would flourish for a time. Their flocks would grow until the predators returned to scatter them. Pressed from all sides, and without a shepherd to guide them, the sheep would soon be gone.

The wild animals would enter a golden era. Safe at last from the great hunter, the animals would move in a comfort unknown to them in thousands of years. But more importantly, man would no longer be there to mow the nesting areas, harvest the winter cover and tear down the woodland shelters. There would be great rises and falls for their numbers as they jostled for dominance. One of the more interesting might be between the pheasant and the prairie chicken as it moved back to conquer its old range. The ringneck would be tough and adaptable, but would soon accept a secondary role as the true prairie favored its old friend the booming chicken.

Man's great highways will be in evidence for ages. Without the constant wear of heavy traffic, the concrete would hold its grasp on mother earth quite well. But, like in so many other cases, it would be the little things that proved most worrisome. The weeds would flourish in the cracks and spread them open for winter's ice. Slowly and grudgingly the concrete would crumble. But even then the roadways would retain their grade. As the paths of the Romans exist today so shall the mighty interstates exist two thousand years after man has passed. Covered with vegetation, the long flat ribbons of land would show an unusual content of silica and lime.

Suppose for a moment when man has passed there was one to write his epitaph. Perhaps it would say man had been a friend to mother earth. He had made mistakes, but also he had sometimes done the right thing, as always — at least in general — he had tried to do. All that has gone to build civilization has been his, slavery and conquest — war and oppression. But also his was kindness and love, especially for his earth. No man lives long enough to see his land's mysteries unfolded, for this is the road that no man finishes traveling. This is the river so long that no voyager finds the sea. This is the path winding among the hills and still winding. This is the bridge that no man crosses wholly — lucky is he who through the mists and rain clouds sees, or even believes he dimly sees the farther shore. Oh, the great chapters man has written. But when the ink has turned to dust and when the last man is gone, Iowa will endure.

Bob Rye

CLASSROOM CORNER

HAVE YOU EVER THOUGHT ABOUT living in your own miniature environment? It's like taking a space capsule and going to the moon, or like the boy who had to live in a sterile bubble because of his health. These examples are easy to imagine because there is a definite differentiation with a separating shield between the two environments.

Since a trip to the moon is out of our price range, we can examine miniature environments by making our own. These small environments will show how nature provides the very specific conditions required to support various forms of plant and animal life, and how the processes of nature renew these elements so that each form of life is sustained and healthy.

The sum total of the relationships of all elements and processes affecting a plant or animal is known as an ecosystem. The study of ecosystems is called ecology.

It is possible to design and build a wide variety of miniature environments which contain all of the elements needed for keeping living things in a soundly balanced ecosystem. Using materials and equipment which have been developed for other uses, low-cost nature worlds-under-a-dome may be made. They can be canning jars, cake covers, fish bowls, or even plastic drinking glasses. Designs and sizes should fit the space available.

When a trip is made to the out-of-doors, the separations of ecosystems are often missed. If each person in a group makes his own miniature ecosystem, comparisons may then be made to others in the group.

Miniature environments can become living environments. Then students may discover, by personal contact, the workings of environments they are less familiar with. This also helps to direct the students to observe differences present. The environments can be, for example, water, dry land, or combinations in-between.

Many small house plants thrive in a sufficiently humid climate in an enclosure with a source of incidental light for energy, and an occasional mist watering with an atomizer or spray bottle to replace lost moisture when the system is opened. This container presents a complete life support system — an ecosystem.

It should be noted that the domed world created must be kept from long exposure to direct sunlight. The plants can be cooked, as the covering magnifies and holds the heat.

After construction, growth, comparisons, and evaluation of the miniature environment, go see the different ecosystems nature provides. Walk through a park. Can you now see an environment on top of a hill? It is different from that at the bottom — it is even different along side the trail. As the trail extends, you might notice that the hilltops differ from one to another.

You have the opportunity to walk a distance to another hill. The rock by your feet might be in different surroundings than any you have yet found. It is a miniature environment like the ones you built — just without a dome.

Through these tools of teaching and interpretation, you may introduce young people to the many facets and processes of the environment.

A little practice makes it easier to see separate environments. We must realize that all things have a place. Study them and try to use them wisely so those in the future can do the same.

Lookin' Back

Ten Years Ago

the Iowa Conservationist featured a story on record fish taken by anglers in 1970. Heading the list was Paul Bergund's whopper largemouth bass. Bergund of Fort Madison caught the 10 lb. 5 oz. fish in a Lee County farm pond. The record still stands.

The year was a good one for anglers as records were also shattered for white bass, buffalo and norhtern pike. These records have since been broken.

Twenty Years Ago

the magazine was encouraging farmers to leave wildlife cover along fencerows and in odd areas whenever possible. It was only a year or two later that government sponsored set-aside programs were ended and even more ground fell under the plow. Not only did fencerow cover disappear but also the fences. Wildlife cover is even more critical today.

There are thirteen species of oak native to Iowa. These are divided into two groups — white oaks and red oaks.

Thirty Years Ago

the Conservationist ran an article on geology in our state parks. Some people may not realize that locations for many of our state parks were selected because of unusual geological formations or scenic terrain. Iowa offers many beautiful areas which have been preserved for future generations.

Iowa's largest snake, according to records in 1951, was the pilot black snake which was nine inches longer than the largest bull snake.

Rex Emerson

FROM THE WARDEN'S DIARY

AS USUAL THE DAY started with phone calls. The first one this morning was from a lady wanting to know why a law had been passed to have a hunting season on crows. She wanted to know who the irresponsible person was who got the law changed so there would be an open hunting season on this beneficial bird.

With this, I said, *"Whoa! Wait a minute. You, and a lot of other people have the wrong information about the crow law. Before this law was passed there was absolutely* ***no*** *state law protecting the crow. The season was open the year round. Oh, sure, the federal law protected crows unless they were doing damage, or about to do damage, whatever that means. Now, since the first of January, the state law protects the crow and for the first time that I can remember, it is in violation of the state law to shoot a crow. This law makes it possible for the State Conservation Commission to have an open season on crows under the guidelines set out by the federal government. Until that time the crow season* ***is closed*** *in Iowa."*

She didn't believe me. She had been to some meeting and had been told that this law opened the season, and she went on, and on and ***on.***

I tried to break into the conversation with, *"Ma'am. Ma'am, oh ma'am."*

When she took a deep breath, I told her, *"The crow season is closed, and if you have good proof that a particular individual has shot a crow, and if I don't get the person prosecuted in court, I will eat the crow!"*

Knowing some of the magistrates around this part of the country, that probably wasn't the most ingelligent thing I ever said. Maybe someone will send me a good crow recipe.

While eating breakfast I was fascinated by the antics of the birds at the feeders in our back yard. The feeders are always filled in the evening because most of those birds are early risers, and they expect breakfast to be ready.

Occasionally I get a complaint about a redheaded woodpecker pecking on the metal of the rooftop of someone's house. They do this about daybreak, and not just once — it's *every* morning. It would be like being awakened by a jackhammer. A woodpecker is usually pecking for bugs to eat, but on the metal part of the roof —? Maybe someone will write and tell me why they do this. I really dont' know, unless his brains are frozen.

The season is open through February on cottontail rabbits (not on jack rabbits). I got a call on the radio that someone had reported some hunters from the city were hunting deer. Too many people think the worst when they see someone from any city out enjoying the sport of hunting. When I arrived at the reported location the hunters were just returning to their vehicle.

My first comment was, *"I had a report you men were hunting deer!"*

One man said, *"Take a look at us and our car. Where would we haul a deer?"*

Looking around, I could see his point. There were five men, all wider than average, and three beagle hounds, all supposed to fit into a compact car.

The hunter continued, *"I don't think we even have room for this rabbit."*

Their licenses were checked and everything was legal. It was just the fact that they were from the city that had made people suspicious.

I wonder? When we go into a store in the big city do they automatically think we are all "shoplifters" just because we came from the country? I doubt it.

So many people have asked about my old friend who lives down by the river. He went to the doctor for a physical checkup. The doctor told him he was in pretty good shape for an eighty year old man. Then the doctor asked about his bowels.

The old man said, *"They move every morning at 6:00 a.m."*

The doctor said, *"That's good."*

The old man said, *"No, not really. I don't get up until eight."*