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Will we be forced to answer —

# 'What WAS Conservation?'

By Kris Elin, Editor  
 Education Officer

It's Saturday evening, about 5:30 p.m.; Bill Smith is sitting on the back steps busily cleaning a mess of bluegill and bass he caught that day. Five-year-old Bill junior stands inches away, watching Dad at work, requesting a step-by-step explanation of what's happening.

Last weekend Mr. and Mrs. Smith took Bill Jr., four-year-old Mary, and eight-year-old John to a state park. They hiked on the trails, finding many of nature's indications that spring was here once again.

"How does a flower grow?" "What does a rabbit eat?" "Where does Smokey the Bear live?" "What is conservation?" How come . . . ? Where . . . ? Why . . . ?

Mr. and Mrs. Smith and thousands of parents like them are faced with countless questions about nature and conservation every time a child "discovers" an animal, flower, tree, or other part of nature. Teachers are confronted with similar queries on an even larger scale during their classroom work in nature study.

Many of these questions can be answered quite simply; some requests do not require the specific information that only trained specialists would know. But, inevitably, both the teacher and parent will eventually be asked to supply an answer to a child's question which has no simple explanation.

"What is conservation?" is one of these general questions which, at first, appears to be easily answerable, but actually is very complex.

Too often the curiosity and interest of a child will be squelched by an inadequate, half-answer, or by an excuse for no answer at all.

People in natural resource work are becoming more and more aware of the need for increased emphasis in **conservation education**. Certainly, this need is not limited to just classroom activity,

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Teachers who emphasize conservation through classroom projects, like this terrarium, spark children's interest in nature study. By promoting this interest and awareness in early years, classroom teachers provide the impetus for future study in natural resource management.



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**COMMISSION MINUTES**

State Conservation Commission  
Meeting held in Des Moines, Iowa  
January 7, 1969

The following project was approved for submission to the BOR for federal cost sharing: City of Davenport—Duck Creek Parkway—Development.

The following conservation board land acquisition projects were approved: Davis County—Pulaski County Park—2 acres.

Palo Alto County—Gisch Wildlife area—23.10 acres.

Polk County—Saylor Recreation Center—4.89 acres.

The Ringgold County Conservation Board development plan for Poe Hollow Park was approved.

The following land acquisition options were approved:

Two options in Stevens State Forest, Lucas County, totaling 600 acres. One option, Shimek State Forest, Lee County, 89 acres.

The following contracts were awarded: Nine Eagles State Park, Decatur County, beach facilities.

Mississippi River Fairport Station, Muscatine County, Construction of service building.

Lake Anita State Park, Cass County, Construction of picnic road and water line.

The following increase in the fees charged in State Parks for the use of enclosed shelters, family cabins, and group camps were approved:

Cabins: Check in time—4 p.m.—Saturday. Check out time—2 p.m.—Saturday (4 people). \$10 per day—\$50 per week.

Stone cabins at Palisades—Kepler State Park (8 people): \$12 per day—\$60 per week. (\$10.00 deposit required on cabin reservations).

Group camp rates (organized youth groups): \$1.50 per person—\$25 minimum. (\$10 per meeting room at Springbrook).

**Our Readers Write . . .**

Dear Sir:

Your magazine is interesting and has good articles and pictures. But PLEASE, can't you add a "by-line" on the pictures giving the location shown, or names of people in the picture.

It would add to reader interest.

Thank you,  
A. T. Farley  
Lake City, Iowa

Dear Sir:

About your article in the December issue of IOWA CONSERVATIONIST entitled "A Symbol of Manhood". I agree that when a boy receives his first gun it gives him a certain feeling of maturity—a feeling that his parents have finally realized that he is no longer a little boy.

But we must very carefully guide this newly emerged young man. He must be taught proper gun safety. He must realize that he no longer has a toy, but a weapon that can kill.

An excellent way to learn about gun safety is to join a local gun club. If there is no gun club available, then it is up to the father to see to it that his son gets the proper instruction.

Don't just turn him loose with a lethal weapon. We lose too many of these young men because they are just "turned loose." I hope all parents will realize this.

I enjoy reading the IOWA CONSERVATIONIST *very much*. That is about the best spent dollar I can account for.

Sincerely yours,  
Dick Wilson  
Ames, Iowa

Dear Sir:

I lived in Davenport, Iowa, before being drafted into the army. I am serving in Germany at the present time.

In the October issue of the CONSERVATIONIST, you mentioned some of the damage done by hunters.

Being a "farm boy" from little on, and a hunter, my father gave me the job of fixing fences and patching water troughs that gun happy hunters shot holes in or tramped down.

I have an article that is enclosed and would like to have you print.

It would show hunters just how lucky they are to be able to carry a gun to the field.

Sincerely yours,  
PFC Kenneth Schaefer  
APO New York

Editor's Note: When space permits, we will print the article Mr. Schaefer shared with us.

Other groups: \$7 per cabin plus \$25 per day for kitchen and mess hall.

Lake Keomah youth camp: \$1.50 per person (includes use of shelter—minimum of \$10) organized youth group. Other groups \$.50 per person, plus \$25 for shelter.

Enclosed shelters: Bellevue, \$10-\$15; A. A. Call, \$5-\$10; Clear Lake, \$12.50-\$25; Dolliver-Central Lodge, \$7-\$10; Dolliver-South Lodge, \$7-\$10; Dolliver-North Lodge, \$3-\$5; Fort Defiance, \$7-\$10; Heery Woods, \$8.50-\$10.

Lake Ahquabi, \$10-\$25; Lake Keomah, \$12.50-\$25; Lacey Keosauqua, \$10-\$15; Lewis and Clark, \$8.50-\$15; Mill Creek, \$8.50-\$10; Palisades-Kepler, \$15-\$25; Pammel, \$4-\$10; Pine Lake, \$10-\$15; Stone, \$15-\$25; Walnut Woods, \$15-\$25; Wapsipinicon, \$6-\$10; Maquoketa Caves, \$.00-\$5.00.

Above rates are for from 1 to 100 people—  
all rates double for 100 people and up.

**PLEASE NOTE!**

The February CONSERVATIONIST featured an article which outlined the 1969 fishing regulations. It contained a rule pertaining to the spearing of rough fish which needs clarification.

Rough fish (carp, buffalo, dogfish, gar, sheepshead, and quillback) may be taken in Iowa waters by spear or bow and arrow the year round from sunrise to sunset.

The ONLY EXCEPTION to this law is on the Minnesota-Iowa boundary lakes: Little Spirit Lake, Dickinson County; Iowa and Tuttle (Okamanpedan) lakes, Emmett County; Burt (Swag) Lake, Kossuth County; and Iowa Lake, Osceola County. IN THESE WATERS the season for taking rough fish by spear and bow and arrow is from May 1, 1969, through February 15, 1970, both dates inclusive.



**EDITORIAL**

**Still A Step Child**

It is a nice thing to go fishing. It is pleasant to go into the fields with rod and gun. But there is something of deeper significance which has been entirely ignored. It is time to emphasize the fundamental economic factors which bear upon the relation of wildlife resources to our material prosperity.

Wealth will continue to exist on this continent only so long as the natural resources of our soil and water continue to yield up their riches. When these are gone, prosperity, standards of living, and happiness among our people will vanish with them.

Devices of civilization, machines, money, and credit require a constant flow of raw materials from the land or they cease to function. To place all our bets on our industrial genius alone, without covering the real source of wealth—natural resources—is to bet on the jockey and leave the horse entirely out of our calculations.

Our carelessness and apathy toward these basic facts have been notorious on this continent, and among our rich endowment of natural resources no element has been so completely ignored and so heedlessly allowed to vanish as our wealth in the wild-life field.

It has been the neglected step-child of our family circle, forced to live on the crumbs from an opulent table, the servant of all and the responsibility of none, undernourished and exhausted by the universal demands placed upon it and subsisting on incidental charity.

Nature's rich storehouses have been gutted. Man can no longer turn to it for the necessities of life when his self-generated hysteria threw the ingenious substitutes of money, banks and industry out of gear. Nature's cushion was no longer there to break the fall when our artificial structures crashed. If nature's pantry had been wisely guarded the relief rolls would have been a fraction of their present astonishing magnitude.

We might not be so critical of industrial exploitation if it would give some evidence of weighing the value of wildlife resources against the profits of random industrial promotion. We might be reconciled to bidding farewell to the wildlife resources if we could be shown that by its elimination the public received a greater profit.

We can lay no claim to the title of "conservationists" or even Yankee intelligence if in trading off our endowment of natural resources we make a bad bargain.

Over-capitalization of drainage, power and irrigation projects has cost this country a pretty penny. We have cried to Heaven over the iniquities of the promoter who foisted watered stock on the unsuspecting public, but we have remained apathetic and silent to the fact that probably the greatest loss of all was the destruction of natural resources in the area of development.

Putting out honey cups for the humming birds and suet for the wintering cardinals is a laudable and pleasant contribution; passing fervent resolutions protesting against the non-existence of fish in our streams and birds in our upland; buying a hunting license and subscribing to an outdoor magazine are all desirable in their way, but they do not entitle anyone to a medal for distinguished service as a conservationist. We have been doing all these things for a generation and according ourselves honorary mention as good citizens.

*The above words are just as true today as they were when the late Jay "Ding" Darling spoke them to the first meeting of the North American Wildlife Conference in 1936. We must devote more serious thought and action to the wise use of our natural resources.*

**IOWA CONSERVATIONIST  
SUBSCRIPTION FORM**

YOUR NAME \_\_\_\_\_  
 Address \_\_\_\_\_  
 City/State \_\_\_\_\_  
 Zip Code \_\_\_\_\_



The beginning of spring seems to be a little early to start thinking about meals to satisfy the appetite of a hungry camper. But time has a way of slipping away from us, so get a headstart on planning your camping excursion by beginning to collect savory campside recipes to make your family outing that much more enjoyable.

Perhaps it might be worth your while to prepare some foods in advance that keep well for a substantial amount of time. One suggestion worth mentioning is cornbread. This quick bread is a delightful companion to any campside dish you may wish to prepare. Cornbread goes well with a pot of stew or chili and turns an ordinary meal of beans and bacon or pork into something extra special.

**PERFECT CORNBREAD**

- 1 cup sifted enriched flour
- 1/4 cup sugar
- 4 tsp. baking soda
- 3/4 tsp. salt
- 1 cup yellow corn meal
- 2 eggs
- 1 cup milk
- 1/4 cup soft shortening

Sift together flour, sugar, baking powder, and salt; stir in corn meal. Add eggs, milk and shortening. Beat with rotary or electric beater till just smooth, about 1 minute (do not overbeat.)

Pour batter into greased 9x9x2-inch pan. Bake in hot oven (425°) 20 to 25 minutes.

For a tasty variation, top batter with bits of crumbled bacon before baking.

You may wish to try this particular recipe on your family well in advance of your camping trip. If they react favorably, you'll know you have a "perfect cornbread" to give your vacation meals a well-appreciated lift.

**ATTENTION !!!  
SUBSCRIBER**

When you change your address please let us know, well in advance, what the new listing will be. It is IMPORTANT that you send your *old* address too—the best method is to enclose your address mailing label from the CONSERVATIONIST cover.

The post office will not forward your copies unless you pay extra postage. However, we will see that the CONSERVATIONIST reaches you, without interruption, if you notify us *six weeks* in advance of your move. Thank you. Write: IOWA CONSERVATIONIST, 300 4th St., Des Moines, Iowa 50319.





Interested parents mean interested, well-informed children. Here, Dad gives son a lift to see the snake pit in the Travelling Wildlife Exhibit, an education project sponsored by the Iowa Conservation Commission.

## Conservation Education Can Assure Our Future

(Continued from page 17)

but extends to and includes everyone. Too many citizens are "armchair experts" on foreign policy, and at the same time, are totally unaware and usually unconcerned about serious resource problems which exist in their own backyards.

Without national, as well as statewide, interest and concern, we may soon see our great, affluent country slopping down one of our major rivers with the rest of the garbage and waste.

Before it's too late, every one of us should and **must** promote conservation education, which can begin at the ground floor level and work up to concrete, responsible solutions to the problems we now face.

The day-by-day job of managing our natural resources usually lies with government agencies, such as the Iowa Conservation Commission. These organizations are staffed by trained scientists and specialists who oversee and administer public areas, who study problems and solutions for the wisest use of our resources.



Ground-breaking ceremonies for the new Conservation Training Center at Springbrook State Park were held December 11, 1969, at the site. Participating in the program are (left to right): Fred A. Prievert, director, Iowa Conservation Commission; Bernard Clausen, director of the Iowa Teachers Conservation Camp and biology professor at the University of Northern Iowa; Wayne Casey, chairman of the State Soil Conservation Committee; and Vice-Chairman of the Iowa Conservation Commission, Dr. Keith A. McNurlen, who gave the main address.

But these agencies and departments must be supported by all citizens. Many private clubs and organizations, such as the Izaak Walton League, Kiwanian and Rotary groups, garden clubs, Scouts, Campfire, and many other service clubs, are vitally concerned with conservation problems and include projects in their schedules to support and assist government work.

All of these groups fill a need and their efforts must not be ignored. But, compared to the general population totals, the number of people actively working for conservation is really quite small. This minority deserves the attention and help of the majority.

But, what actually can be done now? First, we need an informed public and to have this, we must begin in the schools.

Ideally, a gradual, workbook-style curricula, beginning on the elementary level and continuing through the high schools, would be most beneficial.

For example, a basic background in natural and physical science could begin in the lower grades. As the student progresses to the upper elementary levels, a more sophisticated and detailed series of nature and conservation could be incorporated.

In the junior high and high school, conservation education can be expanded even more to include social science, economics, political science and psychology. When one thinks of "conservation" and natural resource studies, thoughts are channeled and usually limited to biology, ecology, botany, geology, wildlife management, and the physical sciences. Since state and federal governments administer conservation policies, it is only logical that school curricula should include these areas.

If we hope to have an educational program that will effectively teach conservation, that program must be as complete and accurate as possible and include all the factors involved with conservation.

According to the Department of Public Instruction, school districts in Iowa now have no formal or standardized programs to teach conservation, nor are plans being made to initiate such studies.

Nature and conservation subjects are taught as a "part of the integrated course study within the classroom." One could assume, then, that the amount of time spent on conservation, and the degree of emphasis is left to the discretion of the individual teacher.

A classroom teacher who has genuine interest in and concern for conservation





Outdoor classrooms, like this geology class, serve as a conservation education "beginning" for many students. Like this Ft. Dodge School District program, held at Dolliver State Park, the Iowa Conservation Commission cooperates with and assists school districts in making these outdoor schools possible.

atters would place considerable emphasis in this area. And, of course, the reverse is true also.

The latter situation suggests a second factor which can be done RIGHT NOW to promote conservation education. Most likely the teacher who does not emphasize conservation in the classroom is not totally aware of the immediate need for conservation education and resource concern.

It is the responsibility of every parent, teacher, and citizen, who understand the problem and sees the need, to stimulate an interest in others, and to provide the impetus and support for increased education programs and projects.

Some school districts, science departments, and county conservation boards at the state have shown their concern by sponsoring various "outdoor classrooms." Usually aimed toward the upper elementary grades, these outdoor schools are held in state parks or recreation areas in the vicinity, and instruct the students in basic botany, geology, ecology, wildlife management, and general conservation.

Programs like these provide an excellent opportunity for the students to learn about nature by personal experience and involvement — by actually being in the "conservation environment."

These projects are a beginning and they merit the attention of other schools and organizations who are interested in promoting conservation education.

The Iowa Teachers Conservation Camp, held at Springbrook State Park each summer, is another impetus for increased emphasis in conservation. Sponsored by the Iowa Conservation Commission and the University of Northern Iowa, in cooperation with the Department of Public Instruction, the program provides an opportunity for teachers and students to receive college credit for their studies and work at the camp.

Similar to the outdoor classrooms but

on a more technical level, the teachers are instructed in the natural sciences and they, too, "experience" nature by living and studying in the outdoors.

The 62nd General Assembly of the Iowa Legislature appropriated over \$450,000 to begin a new Conservation Training Center at Springbrook, which will house the Teachers Camp now in its 20th year. The new complex will be completed for the 1970 session and will facilitate the teacher-students by providing better and more complete equipment for their studies.

The original appropriation was made for a group of four buildings in the complex, which will require expansion and additional appropriation so the Center can be as adequate and effectual as possible.

Again, we must point out that these programs and projects are only a *beginning*. There is an increased demand for more legislation and more studies to meet the need for conservation education.

No one wants to see our developed resources deteriorate and become useless, and no one can disagree that wise and careful management is essential for the survival of the few, unexploited resources which still remain.

A few government agencies and a relatively small number of private groups and individuals have begun the needed work. But, they must be helped by every individual who can assist by expressing interest and supporting conservation activities in the schools and communities.

Without adequate conservation education, without immediate steps to fill this dangerous void that exists right now, and without genuine concern and active support by every citizen, we may soon see the day when accounts of hunting and fishing trips are paragraphs in a classroom history book, and the day when a Mr. Smith will be forced to answer "What WAS a flower, Dad?" and "What WAS conservation?"

## Spring Brings FIRE Warning

Spring weather promises the arrival of such activities as hikes, picnics and, unfortunately, forest fires.

According to state foresters, nine out of ten rural fires in Iowa are still caused by man's carelessness. Burning of debris is the leading cause of rural fires and, in 1968, 241 (nearly 50 percent of the 526 wild fires) originated by people who let fire escape them while burning on their own property.

A total of 5,428 acres of usable land, as well as fencing materials, buildings, and crops in fields and storage, was destroyed by fires. In comparison, 1967 records show that 264 of the reported fires were started by owners and tenants, and burned 9,561 acres.

When rural lands are protected from fires, Iowa's trees provide lumber for 500 wood-using industries. These industries employ six percent of all industrial workers, with an annual payroll of 43 million dollars. This yields 70 million dollars in wood products per year.

Rural Iowa is largely protected by tax supported fire departments which have expressed concern about the number of fires. Fires often take a great deal of time to extinguish, and whenever volunteer firemen are needed, they must spend hours away from their regular paying jobs.

Additionally, fires destroy wild life and recreational areas, which prohibit greater development of Iowa's tourist industry and its economic return. Erosion becomes a serious threat when fires eliminate proper vegetation, and flood potential and damage is greatly increased.

During the high-risk fire season, fires are often caused by railroad engines without the spark arrestors required in neighboring states. There is also a need to review policies on the use of fuses and flares which are hazardous when carelessly thrown near dry, grassy areas.

Since 1942, Iowa fire departments have increased the use of "Smokey the Bear", symbol of fire prevention, in their activities. Many departments have used a Smokey Bear costume, provided by the Conservation Commission, in school programs, parades, and other fire department projects.

As in past seasons, Iowans are asked to be very cautious in their outdoor recreation activities this year so that the fire threat can be decreased. As "Smokey" always points out, "Only YOU can prevent forest fires."



## Game Managers 'Bag'

# The Manipulation of Habitat

By Bob Barratt  
Superintendent of Game

I am often asked the question, "What is the primary function of a game manager?" The answer is actually rather simple, but the function itself is extremely complicated. The primary duty of a good game manager is habitat manipulation.

Manipulating this habitat on the other hand, becomes an involved process requiring a high degree of skill and an intimate knowledge of the life habits of the various game species.

In Iowa our management for wildlife deals largely with what we term farm game species; namely the pheasant, quail, Hungarian partridge, cottontail, and fox squirrel. Marshes are managed for migratory waterfowl and some timbered areas for deer. We think of farm game as those species which have a relatively short cruising radius during their life span and which have a high requirement for cultivated lands.

Most authorities agree that farm game species need from one-fourth to one-half or more cultivated lands, together with grasslands, brush, and woodlands. A game manager's job is to manipulate these various types in order to provide good interspersions of type requirements and a maximum of what is termed "edge" or the areas where the various types join.

For example, a quarter section of land divided into two parts, with half of its area in corn, and the other half in grass and brushlands, would be fair area for pheasants. On the other hand, a farm which had approximately the same acreage but was broken up into small alternating strips or plots of corn, grass, brush, etc., would be *excellent* pheasant habitat.

Ideally managed waterfowl marshes should contain open water and emergent aquatic vegetation in about equal proportions, but here again, it should be an interspersions rather than solid areas.

First of all we must determine the species for which an area is to be managed. Let us assume that we are managing an upland area in the southern portion of the state for the production of bobwhite quail and rabbits. One of the first duties of a game manager on any area is to make a complete map of the area showing the cover types present. For these species he would then plan a number of small crop fields designed to create the all important edge effect and to provide a good dispersion of food crops.

These crop fields would be located at points where they would not cause serious erosion or other land management prob-

lems. They might consist of small plots on the hilltops or on the bottomlands or they might be small contour strips on the more gentle slopes.

Crop rotations would be designed so that in any given year there would be a good distribution of grain crops to provide winter food as well as brood cover during the summer months. They would also provide for some hay for nesting sites and for use by young rabbits. Hay fields on our game management areas are never mowed before July 1 in order to protect nesting game birds and young wildlife species.

Farming is only one of the many tools used by the modern game manager to maintain wildlife habitat in its best possible condition, so it will provide maximum wildlife production and hunting opportunities. Many people think that setting aside a tract of land and removing it from cultivation will produce wildlife habitat. The common recommendation often is to improve this land simply by planting trees and shrubs.

Depending upon the primary species for which the area is managed, the game manager must do far more than simply idle the land and plant trees if he is to produce a maximum annual wildlife crop. We have already stated the preference of most of our Iowa game species for cultivated lands interspersed with grasslands and brush. To prevent this tract of land from becoming a jungle of brush and trees, many practices must be employed.

Lands, when first set aside, are often productive, but as plant succession occurs, we find that the heavy grass mat becomes unattractive to game birds, then brush chokes the area eliminating ground cover, and eventually mature trees take over, eliminating low growing plants of all types, and the area then becomes a biological desert not suitable for our farm game species or the deer, but only for a very few song birds and other species which can live in a climax forest. Let us consider, then, the possible practices available to the manager for keeping this habitat in optimum condition.

Closely related to the cultivation of lands for wildlife habitat is the practice of grazing. Studies have shown that nesting game birds of all species prefer hayfields or moderately grazed grasslands for nesting sites over undisturbed grasslands. Heavily matted areas with a thick growth of old grasses on the ground make it very difficult for both the adults and the young of game birds to walk about and they regularly avoid these places in favor of areas dotted with clumps of grass with open spaces in between.

Grazing on our state game management areas is usually performed under agreement with some adjacent farmer wherein the number of

animals allowed on the area and the period during which they are allowed to graze is closely controlled by the game manager.

Grasslands may also be improved at times by the use of carefully controlled burning techniques. The burning of small plots of grass removes the heavy duff present on the ground and encourages the growth of new vegetation. It also encourages the growth of such food producing plants as common ragweed and partridge pea.

These and many other annual plants provide an abundance of seed utilized by game birds. Burning is also used at times to control the growth of sprouts and brush over large expanses of our game areas. A slow burning fire will usually kill back the brush and sprouts and is favored over the more costly mowing or chemical treatment. Burning is also used in marsh management to thin out excessively heavy stands of aquatic vegetation.

Mechanical mowing of grass, weeds, or brush is used on most areas to create edge and to open up or thin certain types of vegetation. On marshes we have found that, by lowering the water levels in the fall of the year and mowing cattails on the ice during the winter, we can subsequently kill those portions which were mowed by raising the water level the following spring to a level above the mowed stubbles. This aids in giving us the desired interspersions of aquatic vegetation and open water on our prairie marshes.

In timbered areas, carefully planned thinning and clearing is usually beneficial for most game species. Trees removed in this method are piled to provide cover for rabbits and other small game, while the clearings provide the important edge effect, and if planted to grain crops, provide food.

Chemical herbicides are sometimes used to control undesirable brush or weeds. Occasionally herbicides are used to thin out stands of aquatic vegetation which we find undesirable.

One of the most important tools in managing marshes is the manipulation of water levels. Most marshes have outlet structures so designed that the water elevations can be raised or lowered simply by the addition or removal of planks. In order to achieve optimum waterfowl habitat in marshes, it is often necessary to lower the water levels early in the spring to encourage the sprouting and growth of aquatics.

Water levels are then gradually raised at a later date, corresponding with the plant growth, to create the best habitat during the summer and fall months. It is sometimes necessary to hold water levels at a high elevation throughout the summer in order to thin out the vegetation.

The various species of aquatic vegetation are highly susceptible to changes in water depth. Certain species can be either propagated or killed simply by manipulating the water levels up or down by only a few inches.

Habitat manipulation, then, is seen as the science of planting or introducing desirable species at a given spot on any area, and removing or controlling the undesirable species on a given spot. The complexities of this problem are enormous and only highly trained or exper-

(Continued on page 23)



# Cause and Control Of Water Pollution

By Everett Pierce  
Erosion Control Officer

Over the past several years most of the emphasis on pollution control has been directed toward municipal sewage and industrial wastes as the main source of pollution of our public waters. With the passage of more stringent pollution control laws considerable progress has been made in this direction.

However, the greatest source of pollution of our public waters has always been from surface runoff. It has been estimated that this source, which originates on farmland, roads, highways and development projects, produces up to seven hundred times the solids coming from municipal and industrial sources.

The estimated annual deposit of silt into our nation's public waters has been placed at 850,000 acre feet. This would equal the annual water needs of a city of over five million people.

Surface runoff, when it carries soil with it, does more than reduce the capacity of the reservoir or stream. Nitrate, insecticides, animal wastes, and other undesirable materials are deposited into these waters, destroying beneficial aquatic and marine life.

The scenic and recreational value of these waters is effected also. Yet these losses are negligible when compared with the long-range effect on future generations of this country by the reduced capability of our land to produce the necessary food and fiber.

Surface runoff can and is being controlled as evidenced in our local soil conservation districts over the state. This has been brought about, in part, by new ideas and a new approach to the problem by the local soil districts.

A part of this surface runoff control is located above our state-owned artificial lakes. At this time the Lands and Waters Division has, under its jurisdiction, 19 artificial lakes in serious danger of coming to an untimely end for recreational purposes because of excessive siltation.

These 19 lakes have a total watershed of 15,250 acres; of this total 156,400 acres are subject to excessive erosion which means they are a serious threat to the reservoir below.

Most of these acres are under private ownership and require the cooperation of the landowner to install effective erosion

control measures. This is handled effectively and efficiently by a memorandum of understanding with each County Soil Conservation District whereby the Conservation Commission, in cooperation with the ACP program, assists with cost sharing of surface runoff control practices.

From 1964 through 1968, 28,700 of these acres were properly treated with grassed backslope terraces, silt retention structures, tree plantings, and other permanent practices, and are no longer considered a threat to the lakes below.

If this amount of completed practices were concentrated in the Lake Darling, Pine Lake and Geode watersheds, we could safely say these lakes would be completely free from the threat of further siltation and pollution. And, with proper maintenance of the control measures, they would provide an area with a life expectancy of several hundred years.

So far this program has proved to be economically feasible, completely justifiable, and of the utmost importance to the future development and preservation of our state-owned water oriented recreation areas.

## NATIONAL WILDLIFE WEEK

"Provide Habitat—Places Where Wildlife Live" is the theme for National Wildlife Week 1969. March 16-22 launched a conservation effort to tell all Americans of the need to protect and provide natural areas for animal populations.

Iowa Governor Robert D. Ray signed a proclamation on March 12, 1969, for the observance of the week, showing his support and reminding all Iowans to do their part in establishing adequate cover for the state's wildlife.

### HABITAT . . . (Continued from page 22)

experienced personnel are able to keep our game areas in optimum condition throughout the year.

Many times there are conflicts between the management of the area for one species and the desires of the public to use the area for another species. Lowering the water level in a marsh to induce the growth of aquatic vegetation for migratory waterfowl often results in criticism from fishermen.

However, the area has a primary purpose as a waterfowl marsh and fishing must of necessity play a secondary roll. By the same token, on some natural lakes the aquatic vegetation is removed to benefit the fishermen, the swimmer, and other people who might use this resource, but to the detriment of waterfowl. There is no such thing as an area which is in optimum condition for all uses, or for all species of life.

We have enumerated just a few of the ways the game manager performs his duties in trying to improve wildlife habitat in this state. The next time you visit one of our intensively managed wildlife areas, look closely at the various types of wildlife habitat, the nesting grounds, the brood rearing cover, the winter cover, the available foods. I am sure you will agree that good wildlife habitat just doesn't happen by itself.



Everett Speaker (left), special projects coordinator for the Iowa Conservation Commission, received a special award recognizing his "25 years of outstanding leadership and guidance" in conservation work, during the 25th Annual Meeting of the Upper Mississippi River Conservation Committee, held in Springfield, Illinois.

John Brasch, chairman of the UMRCC and representative from the Wisconsin Department of Natural Resources, presented the award at the banquet session on January 13, 1969.—

Photo by R. Garrett, Illinois Dept. of Conservation.



# Over-abundant Bullhead Is Subject For Control Project in West Okoboji

West Okoboji Lake is a large glacial lake located in northwest Iowa with an acreage of 3,939. High wooded banks and rocky to sandy shorelines provide much recreation and fishing for both local residents and vacationers. West Okoboji has many species of fish, some of which are felt to be in the wrong environment.

The bullhead, of which this report and its contents are based, is one species regarded as excessive in West Okoboji. This report will cover the spring and fall pound net operations which were carried on by the Spirit Lake Fish Management Section during the 1968 season.

The bullhead, though not an early spawner, begins searching for spawning areas during the month of May. West Okoboji is limited as to where bullheads can find suitable spawning areas.

Normally, the shorelines which serve as the approach to the bays or canal areas on the west side of West Okoboji (Miller's Bay, Emerson Bay and the canals) are selected for pound netting operations.

Six pound nets were set on May 16, 1968, and were in continuous operation for the next 53 days (until July 8). The nets were run on alternate days which required

27 crew trips (2 or 3 man crew). The average crew time required was 14 hours. The bullheads removed averaged 1/2 pound (.48) or 125 per 60 pound bushel.

Each net produced on the average of 453 fish per day. The 6 pound nets produced a catch of 2,719 fish or 1305.12 pounds per day. The total catch for the 53 days (May 16 through July 8) was 144,120 fish or 69,277.6 pounds.

During the summer months there is a period of time when the bullheads return to deeper water and the opportunity to catch them by pound net in shallow water is impossible. No attempt is made to catch them at this time. The bullheads appear to come back to the shorelines in the early fall and remain there until about freeze-up time.

The fall specie control program for bullheads was started on Sept. 10th. Again, 6 pound nets were used and, for all practical purposes, they were set in approximately the same areas as in the spring operation. The fall operation was continued for 65 days (until Nov. 14).

It was found that the bullheads had made some growth as they ran 115 per 60 pound bushel and weighed .52 pound or a

little over 1/2 pound each. Each net produced 300 fish per net in 24 hours with a total of 1,800 for the six nets. The crew of 2 to 3 men required 28 crew days or an average of 16 hours and 40 minutes to continue the operation. The total catch for the 65 days was 117,005 fish or 60,842 pounds.

Figures for the bullhead specie control program are as follows: 6 pound nets were set 118 days, 845 crew hours, 55 crew trips averaging 15 hours and 20 minutes each. Each net averaged 376 fish daily or 188 pounds. The total fish caught in 1968 was 261,125 and total pounds amounted to 130,562.

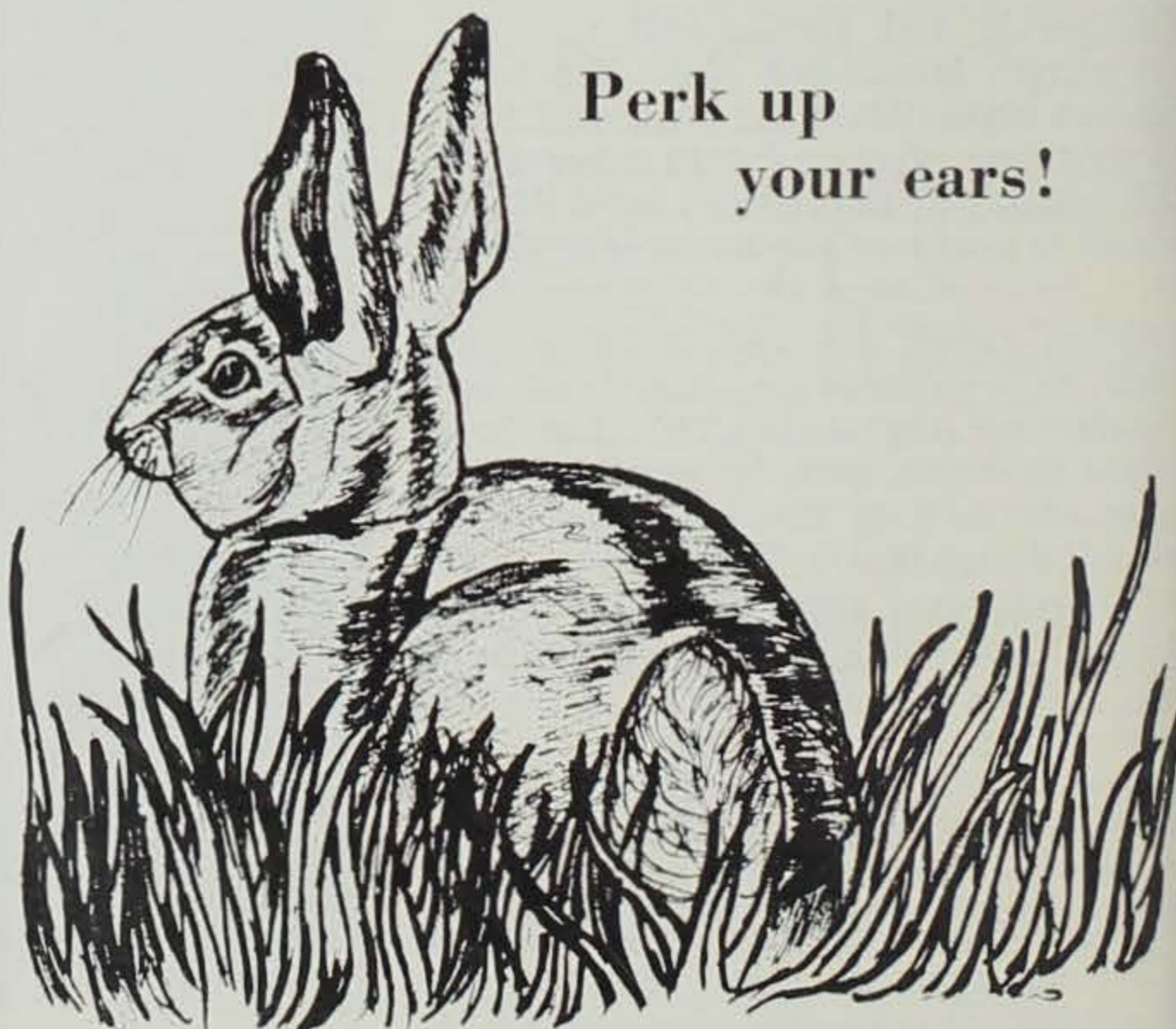
All bullheads were loaded for stocking at the camp site or trucked to hatchery ponds where they were later seined and loaded for stocking in other waters.

Bullheads stocked from the 1968 operation amounted to 288,950. A few of these were taken from the Garlock trap and from the Buffalo run trap on Spirit Lake.

Stocking by districts as follows: District I stocked 2,400; District II stocked 51,500; 135,000 stocked District III; District IV stocked 100,050. Total stockings was 288,950 bullheads or 144,475 pounds.



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