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HIGH WATERS AND THE CATFISH COMEBACK

Harry Harrison
Fisheries Biologist

Iowa streams have carried unusually large amounts of water since the fall of 1959. Rain and heavy winter snows soaked the ground so that much of the spring rainfall entered our streams as runoff. This resulted in much high water and considerable flooding. There is a lot of loose opinion on the subject of what high water and flooding does to fish. But, like many opinions, fancy and sentiment are apt to creep in and the real truth of the matter may be

such things as how a fish sees high waters; what they do to or for the fisherman; how they affect fishing; and what they do to or for the stream come in for their share of discussion.

Let us take a look at a good old—in the case of fish and fisherman—they are good—and see what answers are to these questions. How does a fish see a flood? Probably much the same as you I view bad weather. We seek shelter during a storm—so does the fish during high water. Outside a little inconvenience, neither fish nor man suffer. Fish have been subjected to floods for eons of time, just since the white man introduced the plow and ax as some people believe. Proof of this is in the fact that our river bottoms are floored with a thick layer of soil called alluvium. This type has been deposited by running water and usually during floods. By the amounts of alluvium present, it has indicated that thousands of years were required for this accumulation. So, along with a little high water, who could care less than a fish?

Question number two. What does high water do to or for the fisherman? To answer the first part of the question, it simply affords his wife a marvelous opportunity of getting a little home work done such as mowing the yard, cleaning out the basement garage, etc. Ah—but what does high water do for the fisherman? Herein, the answers get a little subtle and these same answers go a long way in answering



Jim Sherman Photo. The measure of a good catfisherman is by no means one of age, but rather how well he knows his water and his sport. These youngsters on the Des Moines River look as though they've found a pretty good place to seek out bre'er cat. This year's high water is doing a lot to bring catfishing back to its former high rank of fishin' fun.

our remaining questions about the effect upon the fishing and the river or stream itself.

The one very important thing that high water accomplishes is to scour and clean the main channel. If flows were stable in Iowa streams, it would only be a short time before all deep water areas would be filled with silt and sand. Our streams would then become wide and shallow and our better fish species could not exist. High water then cleans out cover areas for fish by moving the sand back on the bars and the fine silty material is redeposited on the river bottoms when streams overtop their banks.

A second beneficial effect coming along with the process of cleaning up is that the river is shaped-up for fishing. Quite nat-

urally, fish pick the suitable areas in which to live. The adept fisherman soon learns to recognize these spots and he can get the bait closer to a fish in less time than if it were necessary to fish the length and breadth of the stream.

Additionally, the scouring process exposes the richer food producing areas and more food becomes available.

In the case of the channel catfish, our research has shown that from 70 to 80 per cent of their yearly growth takes place while our streams are in a swollen condition. It seems that their growth is in some way connected with the amount of water available. In fisheries biology this is referred to as a space factor. It is something not too well understood but

the effects are readily apparent. Within certain limits, whenever we get an increase in volume of water fish growth speeds up and growing fish always bite better than those that are not. Were it not for the growth that channel catfish make during high water, they would nearly all die of old age before getting big enough to catch.

And speaking of catching them, increased catfish movement invariably goes hand in hand with stream rises, and fishing for them at that time usually results in better catches, for it is then that old man catfish is out hustling for food. The turbid waters that accompany floods offer a certain measure of protection from exposure to too much light. Bre'er Catfish wants to be second to no neighbor when it comes to the pick of the wide variety of terrestrial delicacies that are being washed into the stream with the flood. Also, during high water, catfish are often found feeding in submerged grassy areas. These grassy areas act as a strainer, catching and holding all manner of choice bits of food to suit the epicurean fancies of the catfish.

During periods of clear water, channel catfish feed largely at night, the heaviest feeding period coming with evening dusk as Mr. Catfish, hungry from a day spent in the seclusion of his favorite shelter, sallies forth in search for food. He will continue to feed intermittently and move over wide areas of the stream all night. With the coming of daylight he will again fill his belly before retiring for the day.

For the most part, feeding during the twilight hours will be confined to the channel and in deep water. But as darkness sets in, he will invade the shallower water, and individuals weighing as much as six to eight pounds may be caught feeding in water barely deep enough to cover their backs.

Daytime feeding is taboo in the best of catfish society. However, a choice bit of bait offered under a snag or in other shelters during daylight hours, frequently meets

(Continued on page 52)

HUNTERS DON'T GET THEM ALL

Accidents and Poaching in 1959
May Have Claimed Your
Deer in '60

Eldie W. Mustard
Game Biologist

Last year Iowa deer hunters legally harvested 2,731 deer during the course of the open season. During 1959, decimating factors, other than legal hunting, accounted for an estimated 508 additional deer. This amounts to almost 16 per cent of the legal harvest, and represents a tremendous recreational loss to the sportsmen of the state.

Since 1951, when the Conservation Commission initiated a deer report system in which all deer killed and dead are reported by the conservation officers, a total of 37 deer are known to have been killed by accidents, illegal hunting and dogs. A total as large as this in itself is astounding, but if all the facts were known the figure may well be many times greater. It states having almost infinite numbers of deer our losses due to accidents other than legal hunting may seem trivial, but here, with a relatively small deer population, it is not—each individual deer is important both for recreational and aesthetic values.

Now let us take a closer look at some of the factors which are a constant drain on the Iowa deer herd and some possible solutions.

Traffic Accidents—According to the dead deer reports filed by the conservation officers, more deer are killed by traffic accidents than by any other single cause except illegal hunting. Most of the deaths attributed to traffic are the result of autos and trucks hitting deer, although each year a few run afoul of trains.

In 1959, 403 deer were killed by traffic, with the autos involved suffering damages estimated in excess of \$34,000. So far as is known no human fatalities resulted from these auto-deer collisions.

The conservation officer in any of our counties which has a fair deer population, and a busy highway, can point out areas where deer and autos frequently intersect each other. Deer seem to frequent certain trails, and where these cross over major highways there is always the potential chance for a deer and a car to meet.

Our data further indicates that, while deer-auto accidents can happen any month of the year, there are certain times of the year when they are more frequent. The two peak periods are in the spring and the fall. These periods are undoubtedly associated with deer movements that occur during the rutting period in the spring and the rutting period in the fall of the year. Practically speaking, it behooves drivers to be especially alert for deer at these times of the year.

Now comes the difficult part. What can be done to decrease

auto-deer accidents?

Some have advocated that "Deer Crossing" signs be placed at points on the highways where deer frequently cross. The primary purpose of these signs is to acquaint drivers of the potential danger so they may be more alert. Other states have done this, but whether or not they help I can't say.

In some areas it may be feasible to put up drift fences to more or less "force" deer to cross the highways in places where they can be better seen by the driver before it is too late. These drift fences would, at best, however, have rather limited application.

One obvious question, "What shall I do if I hit a deer?" is probably best answered as follows. Don't approach the animal to see how badly it is hurt because the flailing hoofs of a wounded deer can cause serious injuries. Simply note the location and report it to the nearest police station or conservation officer who will see to it that the animal is put out of its misery and, if the meat is edible, will salvage the carcass for donation to some charitable or educational institution.

Deer-traffic accidents are unfortunate because they are truly accidents, with no one actually responsible. I have personally experienced the shock of suddenly seeing deer in my headlight beams, and can vouch for the long sigh of relief and the trembling knees when the deer chose not to cross my path of travel.

Illegal Hunting—The conservation officers reported 44 known illegal deer kills in 1959, but I feel, and I'm sure most readers do, too, that this falls far short of the actual number killed because some persons choose to disregard the law. Each year our officers are able to apprehend and prosecute a number of deer poachers, but still the problem remains.

Some say that we need more officers, but this in itself does not seem to offer the complete solution to poaching although it may help.

Others say we need stiffer fines, jail terms, and the confiscation of equipment used in poaching if the offender is apprehended. When I hear of these sterner measures I am reminded of a situation which reportedly took place in Europe a couple of centuries ago where pickpockets, if caught, were publicly executed as an example to other would-be pickpocket artists. This worked fine until the authorities discovered that other pickpockets were plying their trade in the crowds that gathered to watch the executions.

Recently a sportsmen's club in Allamakee County took the initiative in combatting illegal deer hunters. This club went on record as offering a \$25 reward for information leading to the arrest and conviction of illegal deer hunters. To advertise their stand the club printed posters which one can see prominently displayed in all parts of the county.

Does it work? Thus far they have had no one claim the reward, but Conservation Officer George Kaufman said he has heard of no recent complaints of illegal deer hunting, so perhaps it does.

I'm not sure the reward is necessary, but I am certainly in favor of the spirit which prompted this action. What it amounts to is an ultimatum from an aroused citizenry announcing that they intend to cooperate fully with our conservation officers in the enforcement of our conservation laws. No law, no matter how sound or logical, will serve its intent unless the majority of the citizens are willing to back it up. The apathetic attitude of "Let George do it" simply won't curb illegal hunting.

Dogs—The common domestic dog, in the opinion of some deer authorities, is probably the most

serious predator over much of our deer territory in the United States. Biologically, predators usually don't exert much of an influence over game populations if the habitat is adequate, but, as stated above, much of Iowa can't be classified as top deer habitat.

Last year dogs were known to have caused the death of 12 deer, but one officer reported that in one county he had found 41 deer carcasses and attributed most of them to dogs. Others undoubtedly were cut down by the dogs, but were not found or reported.

Miscellaneous Causes—This is a catch-all category which includes deer getting hung up in fences, agricultural accidents, wounding during the legal seasons, disease, and death from unknown causes. In 1959, 49 deer were known to have died because of these causes.

Most of these accidents are unavoidable, so little can be done to decrease the toll. Disease, while mentioned, is apparently relatively unimportant as a decimating factor in the Iowa deer herd. It is thought that our hunting seasons, which take a portion of the annual increment each year, and tend to keep the deer fairly well distributed, are a big factor in preventing disease in our herd.

A few will say that 508 deer aren't very many, but there are a couple of things to remember before you go along with this conclusion.

First, the 508 deer were those known to have fallen victim to one of the above mentioned factors. What the actual toll is we can't say for certain, but a bit of calculating suggests it may exceed 3,000 deer per year!

Second, those deer which are claimed by accidents and illegal hunting are lost forever to our sportsmen. When one stops to realize that Iowa bowhunters spent an average of 250 hours hunting for each deer they bagged in 1959 he can see the loss of a lot of potential sport and recreation that is tied in with every deer which is killed by accidents or taken illegally.

Accidents will happen and there may be little we can do about these losses. Illegal hunting is another matter, however, and the losses due to this one factor can be greatly reduced if you, the sportsmen and nature lovers of Iowa, will get on board the "conservation wagon" and cooperate with the Conservation Commission's enforcement program which is designed to protect your interests by protecting your wildlife. Every citizen has a share and a responsibility in the never-ending battle against the game thieves which we politely call poachers.

Are you doing your bit?

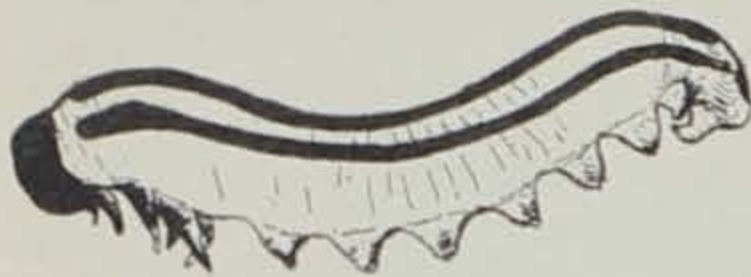
A snake's teeth are pointed backward to prevent escape of animals captured for food.



Jim Sherman Photo.

Here's one young doe deer killed by fast moving traffic on U. S. 35 south of Des Moines that will never thrill a hunter or grace his table. Road kills and poaching make extensive inroads into our deer population effectively reducing the number to be harvested and therefore the number of licenses that may be sold for this game.

SAWFLIES IN OUR PINES



European Pine Sawfly Larva

Less given to publicity than the famous Dutch Elm Disease and Oak-wilt, the European sawfly imposes a serious threat to Iowa's pine plantations. At present the scotch and red pines are most affected, but the sawfly isn't snobbish and will attack all varieties of needled trees. Found three years ago in the Shimek Forest near Farmington, the sawfly is now fairly well under control there though it keeps popping up in new areas. So far, its activity has been limited to concentrations of pines such as found in plantations.

It attacks the old needles of previous years' growth, so seldom kills the first season, but after two or three years the affected trees begin to die. The focal point of their damage is to the leader for the current year and when this is defoliated they move from one branch to another, stripping the tree.

Description

The larvae are the destroyers, eating the needles as they do. Gray-green with black heads and black or deep green stripes down the middle of the back and on either side with a length of one-half to one inch. After feeding, the larvae drop to the ground and make a tough yellow-brown cocoon, usually some time in June, and emerge as adults in September and October. Once mated, the females lay their eggs in slits in pine needles of the current year. Nearly 100 eggs are deposited by each female, though only from one to ten in each needle. Hatching comes the following May, completing the cycle.

Control

The most effective measures of control are DDT and a virus disease of the sawfly. The only time for application, however, is when all larvae have hatched and are feeding. The timing is very important. Leaders on red pines should be between three and five inches long and scotch pine about the same at the time of treatment. The virus is extremely effective, needing only a teaspoonful to a gallon of water and sprayed on the foliage at the rate of one gallon per acre of ten foot trees.

Importance

If unchecked, the insect stunts and kills trees. Besides this, the defoliation of mature trees makes them an easy victim of the bark beetle and also susceptible to drouth. Further information may be obtained from the Entomology Department, Extension Service, Iowa State University, Ames, Iowa.—M. K. J.



These seven men are standing on one of the new type plastic foam floating docks constructed at Lake Odessa. Notice that even with more than half a ton bearing on them, the docks are not noticeably depressed. They'll rent for \$2 per week, \$5 per month and \$20 per season. Many are already taken.

WHAT'S NEW

At Lake Odessa the latest in floating docks is being constructed for use by the general public. Supported by "stryfoam" blocks seven inches high, 20 inches wide, and nine feet four inches long, the three section docks have room for ten boats each. A total of 16 docks will be built to supplement the existing public and commercial structures. As the whole shoreline of Lake Odessa is leased by the Conservation Department from the federal government, no private dock permits are allowed. Under conditions of the lease no special privileges are given to individuals so that all docks other than commercial ones must be open for public use.

Each section of dock is pinned together so that they can be easily installed and removed each summer. They are made by department personnel at the Odessa

Game Management Unit and, according to comments of the boys making them, "They're the stables floating dock we ever stood on."

Renting costs are: \$2.00 per week, \$5.00 per month, and \$20 per season.

MUSKIES ARRIVE SAFELY

(See Photos Next Page)

Some 1,535 muskellunge fry were delivered to the Decorah trout hatchery June 7 by pilot-officer Bob Rollins. In their new home in specially prepared rearing ponds the young savages will be hand fed with suckers and shiner-minnows a little smaller than the muskies. Later on (they really grow fast) brood minnows will be put in with them to supply fresh food. By the end of the summer they'll be six to nine inches long and ready for stocking in larger waters. Results in Ohio, whose waters are similar to ours, indicate a fair chance of success for



Prairie Rose Lake in the making. By this time next year residents of nearby Harlan and other Shelby County enthusiasts should be able to spend some time afloat here.

our experimental program. In any event, the muskies take three years to mature and reproduce. If all goes well it will be several years before the Commission could ask the state legislature to put the muskellunge on the list of game species.

CONSTRUCTION BEGINS AT PRAIRIE ROSE LAKE

Prairie Rose Lake is fast becoming a reality. After working only five days last year the crew had to quit on account of weather with only 40,000 yards of waste materials moved. Resumption began in April of this year and so far the dam is about one-fifth done. The sluiceway is installed and the spillway is being excavated.

With a reasonable amount of fair weather this summer the dam should be completed early in October. The lake level will then be brought up gradually and drawn down several times to stabilize the base of the dam. The subsoil of the area is such that it demands careful treatment to insure successful impoundment. The final filling is planned for early next summer. Once the lake has been filled, development of the park and recreation areas will proceed.

CATFISH—

(Continued from page 49)

with success. Eating while in shelter area is not customary with catfish, but is not unlike getting out of bed to eat a midnight snack. In the examination of the visceral contents of more than 1,200 channel catfish very few were found to be feeding on a wide variety of foods at any one time. When they were eating insect little else was found in the stomachs. When plant materials were consumed other foods were conspicuous by their absence. When fish were eaten, plants and other animals appeared in limited amounts. So if you fail to catch catfish on chicken guts, cheese baits, asafetida, essence of soy clam, tincture of toad, or passion bait, do not be quick to conclude that the catfish is off feed or that there are no fish in the stream. The fault may lie in the fact that the old man catfish isn't eating your kind of bait that day.

Yes, high water makes our fishing in Iowa streams. We hope that the next time you are doing the chores around the house because the river is too high to fish you will be doing them knowing full well that high water is necessary for good fishing and that the longer they last, the bigger and better the fishing will be.

We have had good stream flow since September of 1959. The outlook is bright for the stream fisherman for the remainder of 1960.

Bass feed almost constantly, but early morning and evening hours are usually considered the best times for angling.

Mail muskies were delivered and rearing. Two bags with suckers to

Before the muskies and suckers come to the same temper

COMMISSION MINUTES

(June, 1960)

GENERAL

Travel authorization was approved for Chairman Jeck and Director Powers to attend the Boy Scout Golden Jubilee at Yankton, South Dakota, July 22-24; also for Superintendent of Biology Everett Speaker and Waterfowl Biologist Jim Sieh to travel to St. Louis, August 3-5, for the Mississippi Flyway Council.

A four man delegation from Emmetsburg met with the Commission to discuss renewing the lease at Kearny State Park. The outcome was a 25 year care and management agreement with the City of Emmetsburg.

A report on a preliminary survey of possible systems for statewide two-way radio communication was given by Superintendent of Public Relations, Jim Sherman.

Based on the request of the City of Storm Lake, the Commission will recommend to the state legislature that a small area of lake bed of Storm Lake be conveyed to the city to be used for a public swimming pool.

Director Mel Steen of the Nebraska Fish and Game Department in a letter asked the Commission to reciprocate with Nebraska in allowing boats of either state to ply the waters of the other for a limited time without requiring an out-of-state license. This question will be referred to the Coast Guard for clarification of what the federal law will allow.

Travel was authorized for Ellerhoff and Stokes to attend a forester's meeting at Shawano, Wisconsin.

Assistant Director Les Faber reported on plans for the prospective Missouri River boat trip, undertaken to show members of the Commission and candidates for the Iowa legislature the areas and opportunities for expanded recreation facilities on the river. He also informed the Commission on the progress of the state-wide recreational survey as regards the classification of streams and water impoundments not owned by the state.

FISH AND GAME

A request for a helicopter docking area on Spirit Lake was referred to the Attorney General and Aeronautics Commission for clearance.

Several fish and game officers have been assigned to assist in lake patrol work on week-ends and holidays. The effectiveness of this program was demonstrated during the Memorial Day week-end.

Permission was granted to take up the option on 358 acres of land in Otter Creek Marsh in Tama County for \$27,000.

Permission was granted to buy the 128 acre Dudgeon Lake area on the Cedar River in Benton County for \$6,107.

Permission was granted to purchase the Quarry Access of 19 acres in Marshall County for \$660.

DeSoto Bend Refuge Report: With the Missouri River rechanneled, there will be approximately 9,500 acres of land and between 600 and 900 acres of water area in the multiple use federally owned project. Fishing and picnicking will be allowed except during the migration of waterfowl.

In a report on the Coralville Reservoir, it was said that the U. S. Bureau of the Budget has approved construction of a bridge replacing the Mehaffey Bridge for a cost of \$100,000.

A study for the control of forest rodents has been established.

The five year deer research program is going ahead with plans for use of a rifle firing anesthetic charges to give biologists more time for tagging and physical examination of deer.

The Commission decided to discontinue dove banding assistance rendered by Iowa fish and game officers to the Fish and Wildlife Service.

WATERS

The United Brethren Church asked permission to dredge out a lagoon area and cut a channel into East Okoboji. To be examined and decided at the next meeting.

Water skiing regulations were discussed to alleviate the discord between water skiers and fishermen. One recommendation was that of zoning the major lakes. More study will be given to this problem.

Further study will be given to the request by the Southwest Power Coop at Creston to put in a power line 900 feet long over the north end of Green Valley Lake.

The condition of Fort Atkinson was reported by the Superintendent of Parks. He recommended that, with so much of the restoration completed, a man should be hired to assemble and organize the artifacts from the area into a museum.

FORESTRY

An agreement with the State Board of Control regarding the use and costs of operating the mobile prison units was approved. The Superintendent of Forests said that the selected site for the first operation is located in the Yellow River Forest Area, of 500 acres, three miles from the working area and will be closed off from the public by a gate. Prisoners will start about July 1 on projects which include road widening, enlargement of parking and picnic sites, building access roads for foresters and game managers and an all weather access road to Little Paint Creek.

The goby fish, which lives in inland lakes in the Philippines, is the smallest known fish. When full grown they're less than a half-inch long.



Jim Sherman Photo.

mail muskies were delivered to the Decorah trout hatchery early in June for expert rearing. Two bags of fish were sent, one containing the muskies and the other with suckers to feed them. Next fall they'll be stocked in lakes.



Jim Sherman Photo.

Before the muskies and suckers are released, the water in the plastic bags is allowed to come to the same temperature as that of the rearing pond. This cuts mortality.

STARTING FROM SCRATCH (with an empty stringer)

Bill Tate
Fisheries Biologist

Between hunting and fishing there lies one basic difference; a fish must be enticed into taking a bait or lure to be caught while a pheasant is always the ungrateful recipient of a load of chilled 6's. Due to this point, fishing success depends upon a number of factors. Some of these are controlled or influenced by the fisherman, others are physical and chemical factors imposed by the weather, topography and geology of the watershed in which the fish reside. Each fish must decide whether to take or reject your offering and the decision is based on the lure's hunger appeal or its ability to produce anger or curiosity in the fish.

Surprisingly or not, fish aren't the sage critters they're reputed to be. We have all heard tales of the wise old trout or bass and the "big ol cat" that always wraps your line around the cottonwood root. A fish's escape pattern is purely instinctive and when he frees himself it is because there are obstacles between his hangout and his "hide." He doesn't intentionally wrap the line around those roots, but struggling to escape he entangles the line and lives to add to his legend of invincibility. Most times when a lunker is caught it is accidental; the proper bait or lure is placed before them at the right time by a beginner who hasn't had time to form fishing habits (most fishing habits are bad). Slam! Splash! The tussle is on. With a fair amount of luck and artery busting excitement the whopper is landed; the novice happy and proud. The exception to this is the experienced angler with outstanding ability for whom the big ones are an obsession, his aim in life is to locate and land the monsters.

Going fishing many of us leave home with a limit of big ones already caught. This "limit" is considered par and catching less is cause for disappointment. Such an attitude can certainly take the keen edge off from the enjoyment that is the true angler's. Mr. Average at the streamside catches fish, but I know of no one who successfully catches a limit every time he goes out.

Over-optimism is probably the greatest enemy of consistent fishing success. Great wonders are assured by the makers of rods, reels, lines and lures and quite naturally, since they're out to sell a product. But lacking education in the graphic arts, the fish don't give a hang for advertising or trademarks nor are these details responsible for the fish caught. The aspects of tackle most important to the fisherman such as beauty, utility and durability are also unthought of by the fish who's merely after some dinner.

Yes, sir, the "red blooper" is the answer today. With unshakable faith in a "sure fire" lure, we spend hours trying to force the fish to take it rather than trying to find something that really appeals to him. We dump every species into the same bag and go after them all, but none in particular, at the same time. Walleye, catfish, bass and trout have different habits and tastes, and these, too, vary throughout the season. When you go, know where you're going and what you're going after—it helps. Except for rare instances, fish are caught one at a time and the only time to consider filling a limit is when you have one more to go.

The recreational value, rather than the possession of a limit of fish should be our goal in fishing. When you have reached the point in your fishing career that you can liberate a large one to be caught again, a new concept of angling and new rewards will await you.



Patience, skill and inexpensive tackle can take the emptiness from your creel. Knowing your favorite streams, their fish and feeding habits all count in the joy of angling.

Jim Sherman Photo.

BIOLOGIST'S



CORNER

ANOTHER ANGLE ON PREDATOR-PREY RELATIONSHIPS

Paul D. Kline
Game Biologist

Met an old-timer some time ago. These fellows interest me. They've lived longer than I, and they know more. Seems the longer you live the more you learn. Anyhow, this old fellow had a few stories of hunting from a couple generations ago. Nothing unusual about them. They had their usual enchantment of game abundance (more variety, too) and lots of room to roam. No trespass signs, and game limits were unknown. Made me wish I'd lived back in those days. But what really made me sit up and take notice was his ideas on foxes and rabbits, and skunks and quail eggs. He had a new angle which I'll try to relate to you as he gave it to me.

The ways of life are varied and complex. All the whys and what-fors of nature will never be understood completely by any one man, or by a combination of the brilliance of all men, for that matter. Who can say with certainty why the deer and beaver came back to Iowa? Yes, they were stocked and protected, but is that the complete answer? Do pheasants actually run before the hunter more than they did 20 years ago? If so, why? Too bad each of us doesn't live a few thousand years. We could then get a better view of these changes and understand the relationships involved.

There are certain basic facts of life which can be observed daily and are understood by even the most naive. We view life and death, sometimes with emotion, but usually with acceptance. All living objects perish in time, only to be replaced by others, sometimes of different form, sometimes not. Because they do not live forever, all living species must produce their own kind, else they face extinction. Every living thing must obtain nutrients so as to obtain sufficient energy to permit normal life functions. For animals we call the source of nutrients, food.

Food is all-important. Its abundance determines how much animal life can occur. No food, no life; much food, much life; it's really very simple. Deserts produce little food—they support little animal life. Our Iowa farms produce much food and, therefore, support much life. Fishery technicians tell us pounds of fish in a pond will be directly proportional to the amount of nutrients available. Every farm-

er knows he can grow hogs, chickens, or cattle only in number relative to the amount of food he can provide. That food control animal abundance is beyond challenge; it's a fact of life. Of course other factors help in determination of abundance, but let's stick with food.

How does the relationship of food and abundance apply to predator-prey relationships? Take foxes and rabbits and mice: Everyone knows foxes eat mice and rabbits. All the food habit studies prove this. Sure, they eat plums and chickens, and nesting birds, too. Lots of other things for the matter. But, for the purpose of our old-timer's thought, let's stick with foxes, mice and rabbits.

Let us assume they eat nothing else. When there are lots of rabbits, and mice crawl all over the place, then it follows that foxes have a whee of a time. They'll be fat and saucy. Should be many of them, too. Remember, plenty food—plenty live! But when rabbits are scarce and mice few, what happens to the foxes? Few rabbits and few mice provide food for few foxes.

Then, as far as these predator-prey relationships go, why do we keep insisting that rabbits are scarce because of the foxes? It would be more proper to say foxes are few because rabbits and mice are scarce. By golly! Now, isn't that right? I believe this old-timer sees the problem right-side-to. We've been looking at it wrong-side-out.

Someone will surely point out the fact that fox populations do seem to vary with rabbit numbers here in Iowa. Actually, why should they? Rabbits and mice don't synchronize their respective ups and downs. Some years mice are abundant and rabbits scarce, vice versa. Also, as mentioned before, foxes eat a host of other things, both animal and vegetable. Then we have the disease problem. Foxes die of mange, encephalitis, distemper, rabies, and other diseases less well known. Some years these diseases are more prevalent than others. However, these facts are beside the point. Let's get this "rabbits are scarce 'cause foxes ate them" binge. It's contrary to one of the basic facts of life.

POOR INSURANCE RISK

Only about half of the rabbits born each year live past their first birthday.

A recent study by the West Virginia Department reveals that every 100 juvenile rabbits alive during the summer, 52 were dead by the second fall; 92 were dead by their third fall and nearly all were dead by the fourth year. The average longevity for cottontails in the wild has been computed 1.1 years.

HISTORICALLY SPEAKING



By

Stan Widney

SALMON IN IOWA WATERS?

Yes—in 1876

F. Shaw, Iowa's first paid Commissioner, certainly knew fish, of that there can be no doubt. His enthusiasm in regard to carp is understandable. Iowans at that time were looking for any fish to grow, quick to mature fish on their farm and "town" ponds and lakes. He found it for them and gave specific instructions that, followed, would have made carp acceptable today as it was in the 1870's. (See *History, CONSERVATIONIST* for January, 1960)

However, in an effort to provide Iowans with game fish that would keep us in Iowa forever, Mr. Shaw made a couple of errors in judgment, much worse than the introduction for which he is remembered. He is the man who tried to plant salmon and lake trout in Iowa lakes.

Penobscot, or Atlantic Salmon
In the Second Biennial Report to Governor, he says, of Penobscot, or Atlantic Salmon: "Our Commission received 90,000 of this variety of salmon eggs, March 24, 1876, through the kindness of the U. S. fish commissioner from Portland, Maine.

"They were successfully hatched but a small loss, and finally distributed in the northwestern part of the state, principally in the lakes of that section. . . . Some fine ones have already been caught in one of our lakes . . . where the water is deep enough to be cool year, probably from the lot distributed two years ago. I hardly think our rivers would support this as a migratory one because of the high temperatures (in this he is so right). That they will thrive wonderfully in cool water, even in confinement, is a proven fact. Mr. Ruble of North McGregor has about seven hundred in a small pond only two and a half years old that will weigh from 2½ to 7 pounds each. In view of this successful domestication of them, and their unparalleled growth, it is, we think, a fair presumption that they could be valuable fish in any of the lakes from which they could migrate."

California Salmon

. . . 25,000 of the California salmon, after hatching, were distributed to our lakes, and to

private parties for one dollar per thousand. Those heretofore distributed seem to be doing well in our waters and many reports of their capture in different parts of the state are coming to our notice."

Lake Trout

"We have now in the hatching house 800,000 lake trout eggs far enough developed so that their eyes are perceptible. . . . Those raised last season at our hatching house were mixed with the California salmon and distributed with them and no separate account of their distribution was made. They are, when caught in good clear water, an excellent table-fish, and are very gamey."

Land Locked Salmon

"A few thousand spawn of these very highly valued fish were obtained in 1876 . . . and were sent, after hatching, to Mr. Ruble of North McGregor . . . they are now doing well in his ponds."

What Happened to Them

In the Sixth Biennial Report of State Fish Commissioner, A. W. Aldrich, to his excellency, Governor Sherman, the following account is given after almost seven years of silence on the matter:

" . . . heretofore nearly the whole energy of the Fish Commission has been expended upon a course of experiments to determine whether certain kinds of fish have thrived in Iowa waters when their spawn is placed there or artificially propagated.

"These experiments, though pursued with vigor and patience, should have resulted in success but in actual truth, with the exception of German carp, there is absolutely nothing to show for all the time and money spent on this venture."

So ended a dream—and it was a jim dandy! Think of catching salmon and lake trout in Iowa's Great Lakes—or in deep, cool quarries and farm ponds. They say Iowa soil is the best growing land in the world. What a pity our waters are kind to no foreigners but carp. Still, we have the natives—like black bass, crappie,

THE ANSWER TO INSECTS

Nova Nash

Most farmers agree that multiflora rose, properly cultivated and developed, makes a good fence. But a retired college professor who operates a farm in central Missouri goes a step further—he thinks it may be at least part of the answer to the farmer's unending battle against crop-destroying insects.

Tucker P. Smith operates a 240 acre farm about five miles north-east of Perry, Missouri, and on that 240 acres he has 11 miles of multiflora rose fence with about another mile and a half coming on.

With that much rose about, you would think that fencing is Smith's prime objective. He agrees it does make a good fence, in fact, just about the best fence going, as far as he's concerned. But that isn't what comes first in order of importance with him.

Smith doesn't think that insecticides are the final answer to the farmer's insect problem. He recalled that when they were first introduced and used on a big scale, they helped—for a time. Then the insects became more or less immune to the poisons and more powerful ones had to be developed. He thinks the cycle could create a super-race of insects. He also mentioned the possible effect the super-poisons may have on the insects' natural enemies—birds.

That brings us to the first reason Smith likes multiflora rose for fencing. He says he wants to provide lots of "bird houses" to attract birds to his farm. He believes that lots of nest room will attract more birds and therefore help reduce the insect population.

The second reason he lists in favor of rose is beauty. He has

bluegill, cat and bullheads—that are as fine eating as any salmon—in a can or out; and rainbow and brown trout have done very well in the streams of northeastern Iowa. What's in a dream anyway?



"Oh, I was just hoping you'd come along so I could buy a fishing license from you!"

24 fields laid out on his farm, their borders of multiflora rose certainly enhance the beauty of it. Commented Smith, "A farmer who cannot see beauty on his farm had better leave it and go into some other business."

And third he listed fencing. Smith raises hogs on his farm and he tells of a boar that tore down and went through a 54-inch woven wire fence that was supposedly hog-proof. He said the fence hardly slowed down the boar. Smith then put the boar in a field fenced with multiflora rose that had been planted three years before. "That stopped him," Smith explained. In fields he plans to have hogs, Smith plants the seedlings in double rows, four inches apart, instead of the recommended five inches. Also, when the canes grow long enough, they reach the ground and he tamps some dirt over the shoot a few inches from the end. It takes root and starts to grow and he has another row. Smith likes the fencing about three feet thick.

"If you go about it right," he says, "there's no more work involved in building a multiflora rose fence than putting up hog-tight wire fencing." A year before he is ready to plant, he begins deep cultivation. At intervals he keeps working the ground and by the time he's ready to plant in the spring, the ground has been cultivated until it's almost a fine powder. In some soils, he says, you must be careful about putting too much nitrogen in the soil.

Another problem is to keep stock away from the young shoots of rose until they've had a chance to grow and mature. A cheap fence, with posts widely spaced, is the answer, he thinks. Use cheap wire and just let the rose take the fence, he advises.

So far as cost is concerned, Smith says he has made a cash outlay of about \$750 for the 11 miles of multiflora rose fence. He says a good hog-tight fence would have cost him about \$900 a mile. Another thing he's done with multiflora is to round the corners of his fields, which makes it easier for him to operate his equipment in the field. In one field, he says, where he had an erosion problem because of the slope, the rose fence has stopped the soil.

Smith is firmly convinced that multiflora rose helps control insects on his farm, adds beauty to it, and makes him good, economical fences.—*Missouri Conservationist*.

Very few people know that the lion has an extra claw. It is concealed in the hair near the tip of his tail.

It is quite doubtful that camels, as many suppose, can go without water for a week without great discomfort or physical danger. Two or three days is believed to be the limit.



George Tovey Photo.
Iowa's first reported wolverine in recent times. Ted Mitchell of near Reinbeck shot the 22 pound 34 1/2-inch female in his pasture after a wild chase on a pickup truck.

AN UNWELCOME VISITOR

Iowa is quite well known as a friendly state except in rare instances. One of these occasions occurred recently when a visitor (probably a hitch-hiker) dropped in from the far north. Not knowing what they were after, two farmers from Reinbeck chased the 22 pound vagrant at speeds up to 30 miles per hour across a pasture in their pickup. Finally one of them stopped the critter with a load from his 20 gauge, came closer and finished it off with another blast.

Not recognizing their strange quarry, they called conservation officer Bill Boswell who was just as surprised as they were when he decided it must be a wolverine. After checking into the literature, it became apparent that this "demon of north woods" must have had a tremendous case of wanderlust—the closest natural range for the species is several hundred miles north of the Canadian border. The question of how it got here and when will probably never be answered. Three ticks common to dogs were found on the hide, but the ticks are reported over a wide range, east of the Rockies between Canada and Mexico.

Dr. Arnold S. Haugen, leader of the wildlife research unit at Iowa State University at Ames says, "I'll guess that she didn't walk down here, but more than that I can't say." The possible explanations for her migration into this

area are countless. Only one paw was undamaged by traps which may have severely handicapped her hunting ability. The traps commonly used in these parts for fox and coyote wouldn't have taken off toes and ends of her feet so she must have tangled with a gang set of fairly substantial traps.

Wolverines are the largest member of the musteline family to which belong the more familiar weasels, badgers, otters, minks and skunks. Today their primary range is the northern coniferous forests of countries around the north pole. Unlike most beasts of prey in the far north, their territory has decreased very little in recent times, having been driven but slightly from areas in southern Canada and the U. S.

Extremely muscular, the 50 pound males can be an enemy of mean proportions. Though their diet varies widely from berries and wasp larvae in the summer and carrion all year long; come winter's snow cover and the lumbering wolverine is in his best element. Wide feet allow him to travel over the softest snow with greatest ease and it's during this season that the moose and lynx are not uncommon prey.

Most people in these parts are probably pretty happy that the wolverine confines himself to lands far away. Officer Boswell says that he's still looking for the moose that led our ambitious female this far south.—M. K. J.

Iowa's State Parks— PILOT KNOB

The men who made the original survey of this region for the government called the highest peak "Pilot Knob." Its altitude is about 1,500 feet, with approximately 300 feet above the surrounding lowland.

It is not the highest point in Iowa, but commands a view in every direction that is unsurpassed anywhere in the state.

Standing on top of the tower on Pilot Knob makes you feel that you are on the very top of Iowa, and according to geological lore, this is literally true. This pile of clay, gravel and boulders is said to be a part of the eastern moraine of the Wisconsin drift. Evidently the glacier that leveled the prairies of north central Iowa brought some material from the Hudson's Bay region when it shoved out laterally and left the mounds and peaks that are now Pilot Knob.

A larger area of fertile land may be seen from the tower than from anywhere else on this earth, it has been said. The varying colors and shades caused by the different crops at different times of the year make the view enjoyable at all seasons. Dozens of towns can be located by their water towers. Groves of trees planted around farms for windbreaks, and around country churches, all contribute to the beauty of the scene.

The foreground, from the tower, is also a study in colors, particularly in autumn when the park is a mecca for color camera enthusiasts.

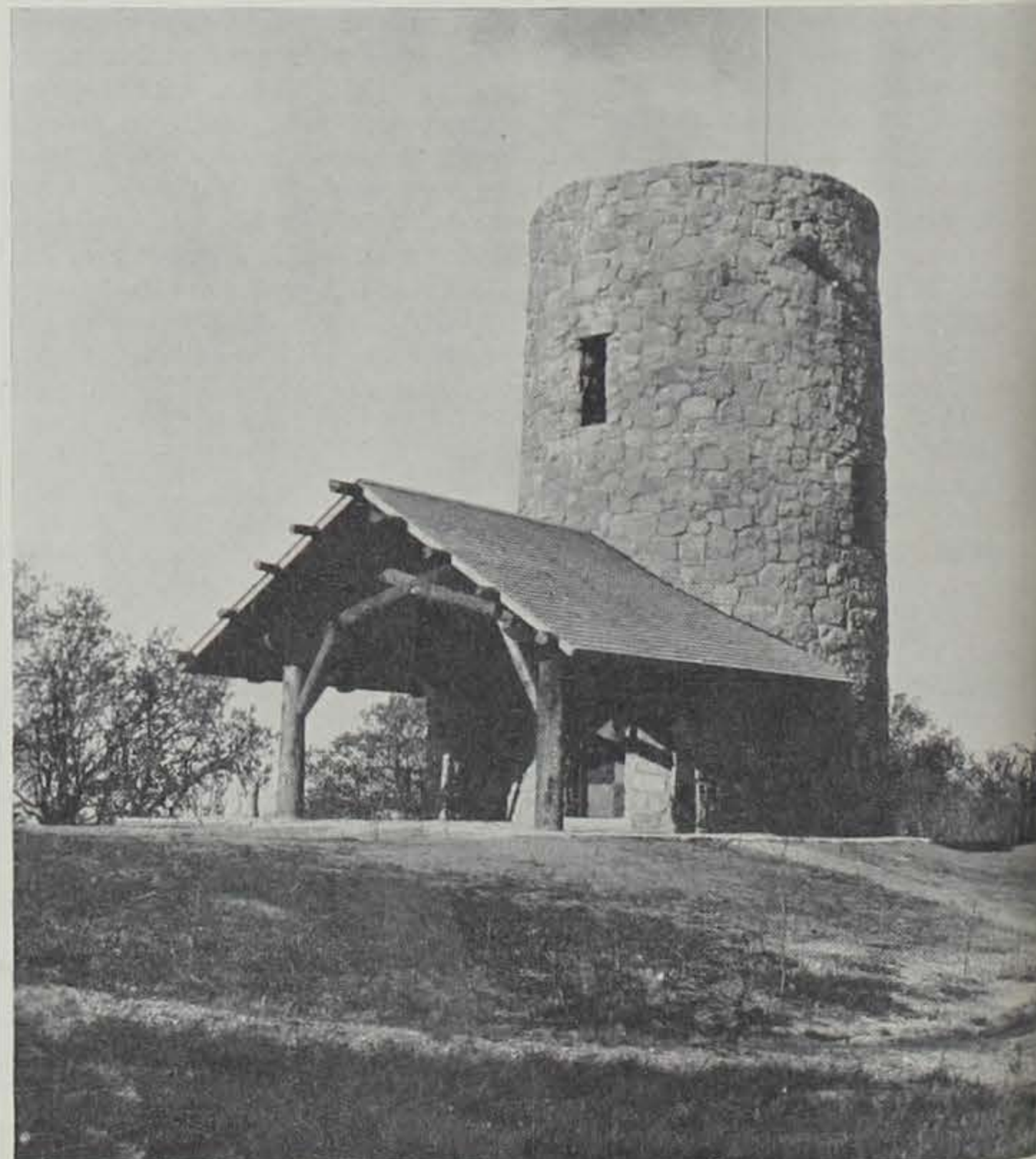
asts. Every kind of tree and bush has its individual shade of dress when in leaf. It is a bird's eye view from terra firma.

Within the park area of Pilot Knob there are other mounds of less altitude and among them a small lake nestles so like a brooding bird in its nest that, if a road did not go right to its shore, you might not find it. It has abrupt banks nearly the whole distance around, and no outlet unless the water is very high. It is called Dead Man's Lake and many are the legends surrounding its name. The park custodian or visitors who camp here regularly each summer will be glad to tell you of these legends.

The lake is bordered by all kinds of native trees, shrubs, and flowering plants; and aquatic fowl feed and breed in the tall grasses nearby. In the waters of Dead Man's Lake grow three species of pond lilies, one of which is said to be found nowhere else in Iowa. Botanists favor the place in search of rare specimens of plants and shells. Dead Man's Lake is a gem in Nature's diadem that will linger in the memory of all who visit here.

Among the many varieties of native trees to be found in the park are walnut, ash, basswood, wild cherry, burr oak, Jack-oak, red-oak and others. In spring, summer and fall, blossoms and leaves of all kinds lend beauty to the scene as the undergrowth changes with the seasons.

There are hundreds of picnic tables and dozens of fireplaces in nicely shaded areas with plenty of parking places.—S. A. W.



Lookout Tower at Pilot Knob State Park