IOWA CONSERVATIONIST

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Upland Game Bird Survey Reveals Interesting Facts

By GEORGE O. HENDRICKSON and EARL R. PETERSON

Fremont County was one of the 16 central and southwest counties without an open upland game bird season in 1942. In 1943 interest stronger than in previous years developed among sportsmen who wanted to enjoy this sport. The Conservation Commission recommended a continuance of the quail program in which birds are stocked in suitable environment where there is a need for seedstock.

In order to obtain factual information on which to base a game bird program, the Waubonsie Conservation League of Fremont County decided to conduct by postal card a farmer opinion survey into the quail and pheasant situation of the county. The return postal card carried questions about (1) the farmer's liking for quail, (2) the number of quail on the farm, (3) the availability of water, food and shelter, (4) the room available for more birds, and (5) the number of pheasants on the farm. And space was left on the card for additional remarks.

A card was sent to one farmer, preferably a landowner, in each section of the county, exclusive of a few uninhabited fractional and whole sections along the Missouri River and fractional sections along the southern county border. In all, 450 cards were mailed, and by the first week of July 136 were returned, of which 130 replies were complete enough to be considered.

The return of such a high percentage of the cards, about 30 percent, was in itself encouraging and showed a high degree of interest in the bob-white on the

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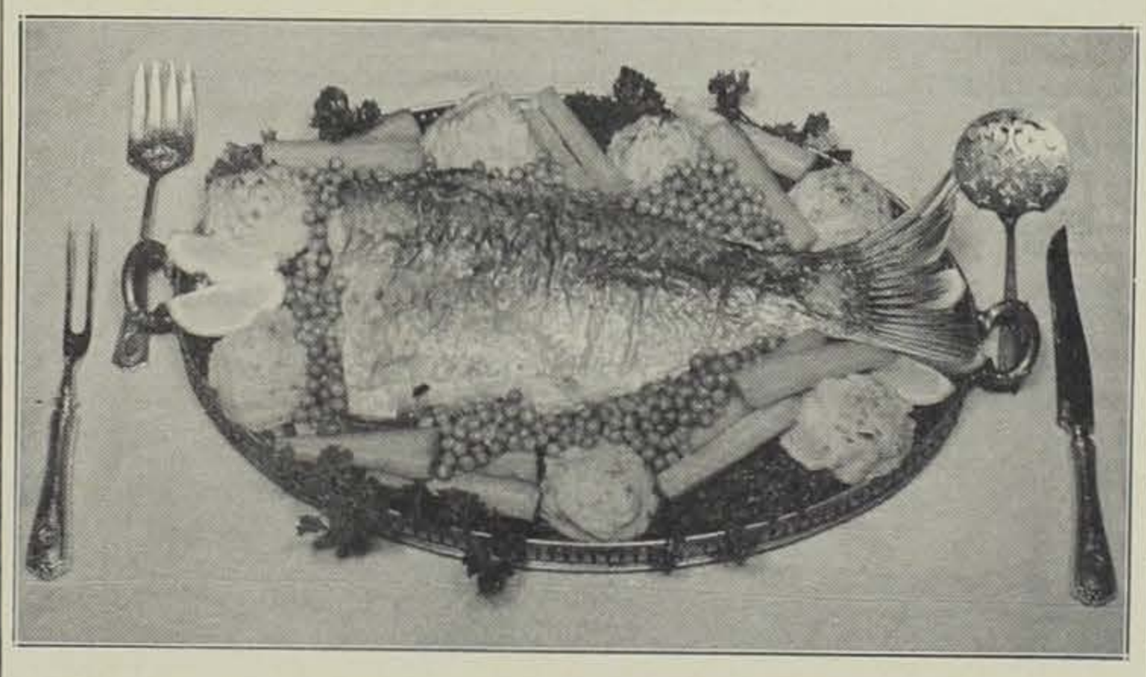
Many Native Fish, High in Food Value, Find Scant Favor with Iowans



Buffalo fish or carp, boned for ease in serving. Baked until nicely browned on well-seasoned hardwood plank, soaked in water, oiled and preheated. An oven-glass platter (with no direct contact with flame), a metal platter or shallow baking pan can be used. Potato rosettes browned right on the plank or on a pan and transferred to plank. Hot, well-seasoned, colorful vegetables arranged simply around fish, in regular repeats or as space permits—not too crowded. Garnished with sprigs of parsley and lemon slices. Attractive vegetable combinations are many.—Iowa State College Photo.

Buffalo, Carp and Sheepshead Make Tempting Dishes

By ANNA MARGRETHA OLSEN

Compared with other nations, the people of the United States are poor fish eaters. Americans average little more than one-fourth of a pound of fish per week with choice of fish limited to very few kinds. In New England, for instance, 10 out of a possible 80 or more of the different kinds of edible fish and shellfish which are brought into the local ports are eaten extensively by the New Englanders. A typical shore dinner usually includes fish such as haddock, cod, mackerel or herring, lobster or clams. How many Midwesterners, including Iowans, know and eat the 30 or more different kinds of freshwater food fish that are native to this region? There is need for pioneering with native fish in every section of the country. A Gallup poll survey on the consumption of native fish in the Midwest would show trends common to every section. While many native food fish find little favor with home folks, they are, nevertheless, high in food value. Iowa's commercial food fish, particularly the buffalo fish, carp and sheepshead, fall into this group of neglected home fish.

Old World Favorites for Centuries, Yet New to Many Iowans

There is nothing new about Iowa's commercial fish, the carp, buffalo fish and freshwater sheepshead. All three types with strong nomadic traits have immigrated to inland waters, thrived

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The Starling Has Completed Conquest of the United States

By JACK MUSGROVE

The year 1890 held an invasion day—a D-Day for the invasion of starlings of the United States. Only a small company of 100 birds started their invasion in New York City, where they were liberated in Central Park, there establishing themselves as breeding birds. It was through the efforts of Eugene Schieffin that the starling was brought to the United States.

For a period of six years these birds did not breed beyond the limits of New York City but, like all invaders of a new continent, the fifth column moved slowly and its activities were not evident. By 1916 starlings had extended their range to New Hampshire and Vermont on the north, Virginia on the south and westward into Pennsylvania and across the Allegheny Mountains.

The first starling recorded in Iowa was a single bird taken during December of 1922 at Lamoni, Decatur county. From then on no more were seen until 1928 when a few were noted in John-

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Native Fish

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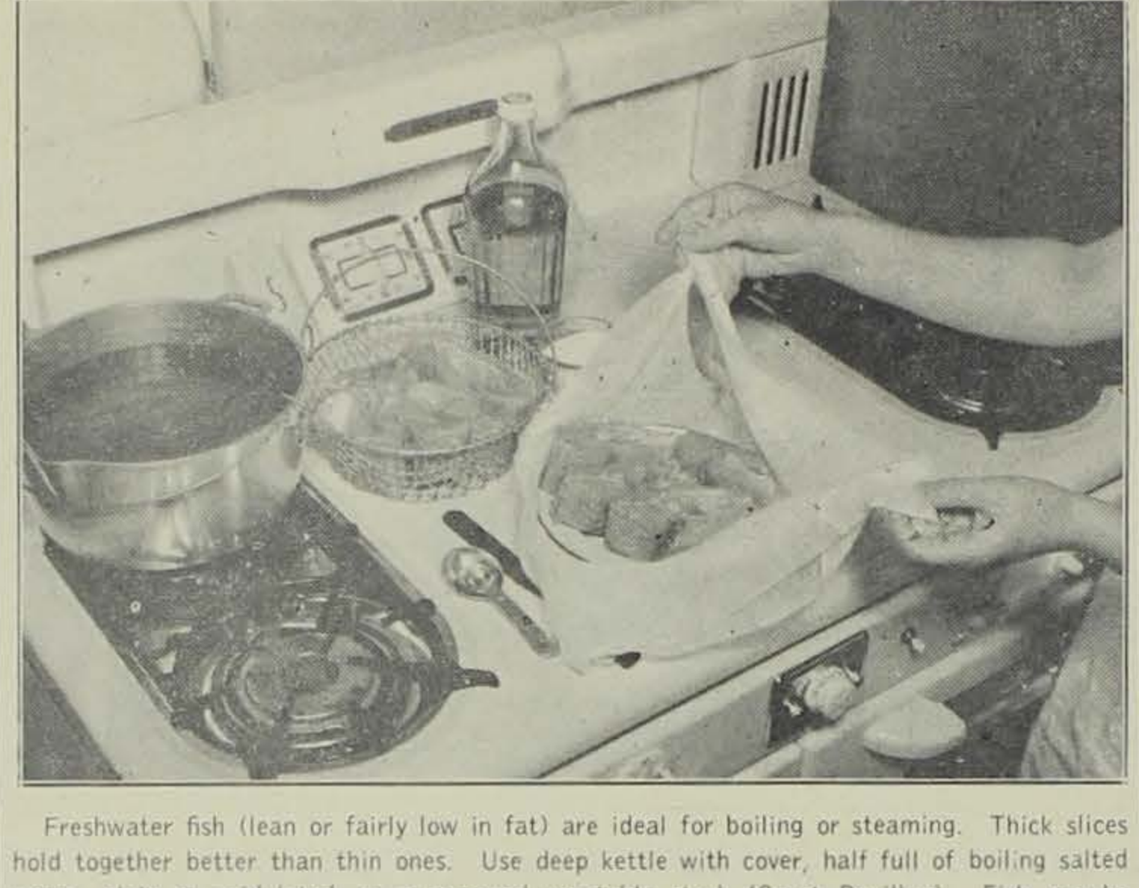
and multiplied. The carp, a prized food with the Chinese from earliest times, and a delicacy with Northern Europeans for centuries, were planted in Iowa as early as 1876 and quickly found their way into all state waters. The freshwater sheepshead, a lone representative of the drum family and a close relative of the marine drums and croakers, followed the streams of the Hudson Bay drainage system and landed in many lakes and larger streams. They have established themselves in the Great Lakes and most of the larger streams and lakes of the Midwest and migrated southward into Texas and Louisiana. In the South they rate among the prized fish.



Freshwater fish (lean or fairly low in fat) are ideal for boiling or steaming. Thick slices hold together better than thin ones. Use deep kettle with cover, half full of boiling salted water, plain or acidulated, or a seasoned vegetable stock (Court Bouillon). Fish can be lowered easily into and removed from the kettle if placed in wire basket or on plate tied in cheesecloth. Cook only until flesh leaves bone easily. Serve boiled fish with a rich colorful sauce; with parsley buttered potatoes, peas and tomatoes, or any other attractive vegetable conbination.—Iowa State College Photo

Iowa Has a Wealth of Fish

Iowa's boundary rivers with their tributaries and the large and small lakes within the state yield about three and one-half million pounds of commercial food fish per year. The greater part of this poundage consists of non-game fish, largely carp, buffalo fish and sheepshead. Our State Conservation Commission assures us that this sizable annual catch can be greatly increased without endangering the supply; and, in fact, the increased removal of these non-game fish would have a beneficial effect on Iowa's prized game fish, much coveted by anglers.

Only a small amount of Iowa's commercial fish is sold in local markets in our larger cities and near the fishing centers. The bulk is shipped to Chicago and Eastern markets, where the fish are in demand and bring reasonable returns. National, state and local efforts the country over are being made to increase fish consumption in general and to promote the use of native food fish by home folks. An active and persistent demand for Iowa fish will make it profitable for commercial fishermen to market more of their catches at home. They know what fish are seasonal and when the quality of these varies. They know the best fishing grounds. Reliable markets will carry native fish, at their prime as to size, flavor and texture. The hot summer months are off-seasons for buffalo fish and carp. The sheepshead, on the other hand, are likely to be abundant from March through June, with a gradual falling off through the fall months. Sheepshead feed largely on mussel beds. The young mussels in their early or larval stages of life live as parasites on the sheepshead.

Fish Are An Excellent Protein Food

What Americans lack in their fish consumption they more than compensate for in their liking for meats, shifting their rank among nations, from the bottom as fish consumers to the top or near the top as meat eaters. Nutritionally fish deserve a more prominent place in the American diet. All food fish are excellent sources of animal protein; in quality of protein they are on a par with meats, poultry and game. Fish supply all of the essential amino acids and in the quantities that are necessary for health and growth. By weight about one-fifth of a fish fillet is protein; four ounces or an average serving will supply from one-fourth to one-third of the total protein needed for the day for an average adult. Our National Nutrition Committee has arranged all foods into seven basic groups; one or several foods from each group must be eaten daily for better health. One of these groups consist of meat, fish, poultry and eggs. Additional data are needed on the mineral elements found in freshwater fish and the vitamin content of these fish to correctly evaluate them as sources for minerals and vitamins.

Iowa's Commercial Fish Are Palatable

Food fish offer a greater variety of flavors than any other type of animal food. Just why different kinds of freshwater food fish, game or non-game, living in the same waters, feeding on the same kinds of plant and animal foods, living under the same conditions, should taste so differently presents problems yet to be solved. Whether based on a discriminating sense of taste, or largely on prejudice and preconceived ideas, we have our preferences and express freely our likes and dislikes. These flavor preferences are personal and difficult to dispute. Some prefer fat or medium fat fish, others lean fish. Some like a delicately flavored fish, others prefer a rich, smooth, full-flavored fish. Some like a firm, fine-flaked fish, others a fish that offers less resistance and flakes easily. The thrill that anglers experience in landing game fish naturally influences their choice, and they are more likely to look with disdain on the non-game fish. The channel catfish are probably the most popular of Iowa's game fish.

The non-game fish, carp, buffalo and sheepshead, taken right out of cold, fresh, clean waters, well-conditioned and properly cooked, can vie with other freshwater fish in delicacy and flavor. That muddy, disagreeable flavor often attributed to carp and buffalo fish when taken out of warm, sluggish and roily streams with mud bottoms during the hot summer, is not peculiar to these fish alone, but common to all freshwater fish living under similar conditions. Many of these fish are bottom feeders, and most of them are at their best in cold

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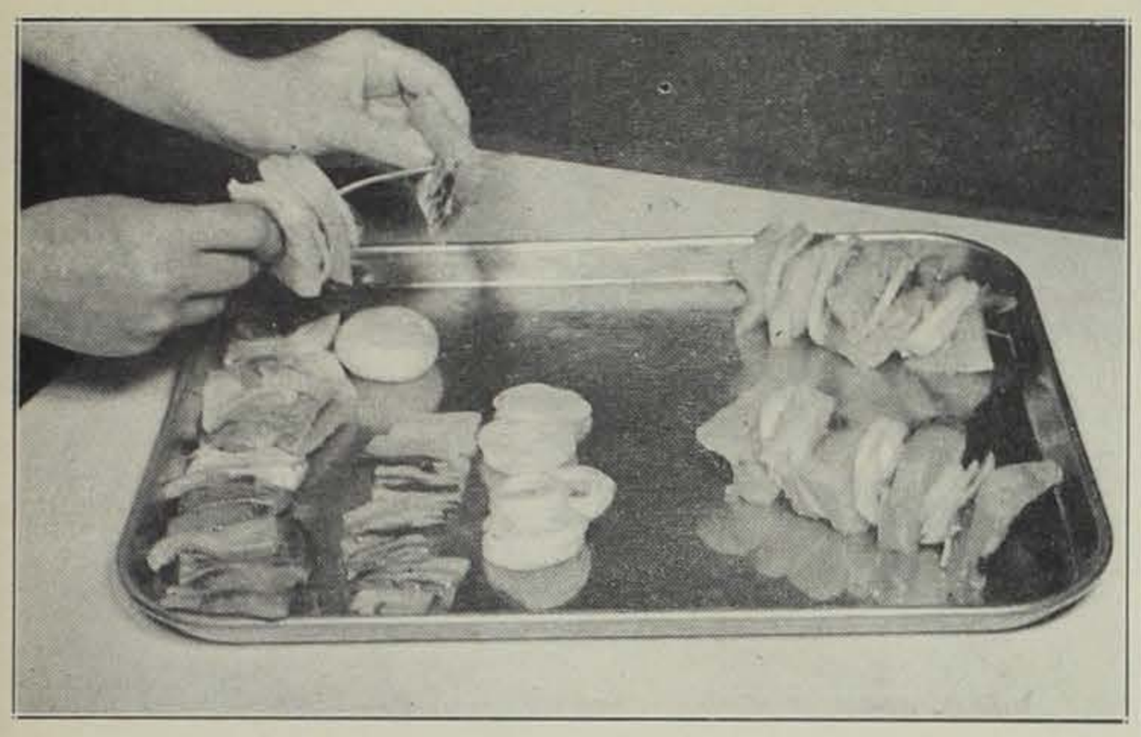
A buffalo fish, weighing about five pounds, was stuffed and baked for this dinner about to be served to six guests. Next time bake a carp, and should the whole or round fish contain the roe, parboil the two sections, then broil them and serve them with the fish. They will add to the interest, flavor, and food value of your dinner. — Iowa State College Photo.



Barbecued Fish Kabobs, super good when broiled in the out-of-doors over an open fire. Skin left on fillets helps to hold tender fish together. Alternate the pieces of fish, onion or tomato, and bacon on skewers, pointed sticks, or long forks. String loosely, turn often, spreading pieces to crisp the bacon. Barbecue sauce bastings add zest.—Iowa State College Photo.

Native Fish

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weather. However, the nutritive value of these off-flavored fish is not impaired, and the flavor and texture can be improved by placing the live fish in cold, clear, clean waters for some weeks, or by soaking the cleaned fish in strong brine or highly seasoned brine or marinade before cooking. That fishy odor which many object to is not apparent in the strictly fresh fish; it is said that strictly fresh fish are without fishy odor during cooking, and that they leave no after-taste on eating. Those who have reveled in fish fries and fish bakes on the river banks can vouch for these claims.

Size and age are factors that modify the quality and flavor of the fish. Small to medium-sized buffalo fish and carp weighing from three to six pounds are preferable to the very small fish weighing one to two pounds, or the large or jumbo fish weighing six to 10 pounds and more. They have smaller flakes, they are sweeter and more delicately flavored than the large fish. They are often likened to the cod in flavor and size of flakes. In the very small carp and buffalo fish the small or nuisance bones are more difficult to remove. The small sheepshead, on the other hand, weighing from three-fourths to three pounds, are finer grained and choicer in flavor than the larger fish, which are likely to have a peculiar shark-like flavor and to be unpleasantly tough. The nuisance bones are attached to the large fins and are removed when the fins are pulled out.

There Is Nothing Difficult About Cooking Fish

Most of Iowa's commercial fish are marketed whole or round, thoroughly iced but not frozen. The retail dealer draws, gills, usually fleeces (flenses or scarfs) the large scaled fish such as the buffalo fish and carp, and scales the small scaled fish such as the sheepshead, and prepares the fish in one of the usual retail forms as the trade demands. The fish used for baking whole are drawn and ordinarily fleeced or scaled. The head, tail and fins may or may not be removed. Such fish require thorough scrubbing and washing to remove all blood collected in the hollows of the backbone, the kidneys, any viscera and membrane lining. The buffalo fish has a black membrane lining the abdominal cavity. A dark or red streak of softer flesh along each entire side is common to both the buffalo fish and the carp and is apparent when these fish are skinned. These streaks, deep-seated and spreading, are likely to turn darker on cooking, detracting from the appearance and sometimes from the flavor of the fish, especially in the poor-conditioned fish. When the streaks are removed, the fillets are divided into several pieces. Darker strips along the lateral lines are common to other fish; in quality fish it should not be necessary to remove these streaks.

No food responds more satisfactorily to proper cooking than fish. Fish are tender protein foods that should neither be cooked at too high a temperature nor overcooked. Fish are best when cooked just long enough to flake the flesh and to separate it easily from the large bones; at this stage the natural flavor of the fish is developed or preserved and the flesh is tender and moist. Overcooking spoils most foods and toughens and dries the fish. Some fish are fat, others medium fat or lean. When fat is added to the lean fish, they can be cooked according to any of the conventional methods. Fat fish, with little or no additional fat, are excellent for broiling, baking, or planking.

Buffalo fish and carp are fairly low in fat, sheepshead are slightly fatter. All three types can be fried, broiled, baked, planked, boiled or poached, steamed and stewed or braised. Any one of the fishes so prepared will appeal to all real fish lovers. Who would not be proud to serve a four- to six-pound buffalo fish or carp, stuffed with a favorite dressing, then baked to a fine golden brown turn? Such a fish, transferred to a heated platter, garnished simply with crisp curly endive, water cress, parsley or other tender leaves, and with tomato, lemon, lime or orange wedges, celery or carrot curls or radish roses, for accent and flavor, will bring acclaim from even the most fastidious. Plenty of hot melted butter, lemon butter or a rich, tart sauce, boiled potatoes, a green or yellow vegetable, and a crisp green salad complete the dinner. Some fish enthusiasts consider boiling or poaching or steaming the only methods for cooking fish. Lean fish are firm and dry and ideal for steaming or poaching. Served with lemon sauce, with parsley buttered potatoes, spinach, tomatoes or any butter or a rich, colorful and tart other attractive vegetable combination, the boiled thick slices of carp, buffalo fish or sheepshead are not only good to look at but delicious to eat. Any left-over boiled fish will make an excellent salad. In fact, left-overs of most cooked fish can be made into many palatable dishes.

There are those who are less fond of fish, who tire of them quickly, who limit their choice to one or two different kinds, or who are prejudiced and will not eat any freshwater non-game fish at all. Many modifications are possible under each basic method for cooking fish. By skillful handling, the flavor of fish may be enhanced or pointed up, supplemented or subdued, partly disguised or even covered up. A bit of adventuring with seasonings, condiments, spices, herbs and vegetables may pay big dividends. One or two additions at a time to the fish, at first in small amounts, may transform the fish dish to please the individual. Fish soup or chowder, for instance, may respond to one or several of the following: a dash of allspice, cloves, mace, nutmeg, cayenne, paprika or mustard; a bit of bay leaf, chervil, marjoram, sage, summer savory, tarragon or thyme; a few seeds of caraway, celery or dill, or a few capers from that imported bottle; a sprinkling of minced chives, green pepper or parsley; or even scraping of the lowly onion or garlic. Sauces, relishes, garnishes and vegetable combinations are most important in the field of adventuring, in bringing flavor, color, texture, shape, interest and additional food value to every fish dish.

The following recipe for Barbecued Fish Kabobs as pictured is an example of what an easily made, highly seasoned sauce can do to the flavor of fish. The fun of cooking and eating the kabobs in the out-of-doors, especially, might contribute materially toward the flavor of the fish with the non-fish lovers.

Barbecued Fish Kabobs

Dressed Fish
Barbecue Sauce:
1/3 cup cooking oil or other fat
2 tablespoons lemon juice or vinegar
1 teaspoon salt
Pepper, paprika
¼ cup ketchup
1 teaspoon scraped onion
Bacon slices, cut in squares
Onion, thin slices, or tomatoes sliced crosswise
Salt, pepper

1. Clean and wash fish; fillet without removing skin; cut in 2-inch squares.
2. Marinate in Barbecue Sauce made by combining all ingredients listed under sauce, or in French dressing, for 1 to 2 hours; do not discard sauce or dressing.
3. Thread pieces, skin side down, on skewers or sharpened green twigs, with slice of onion or tomato and square of bacon between each two pieces. Use

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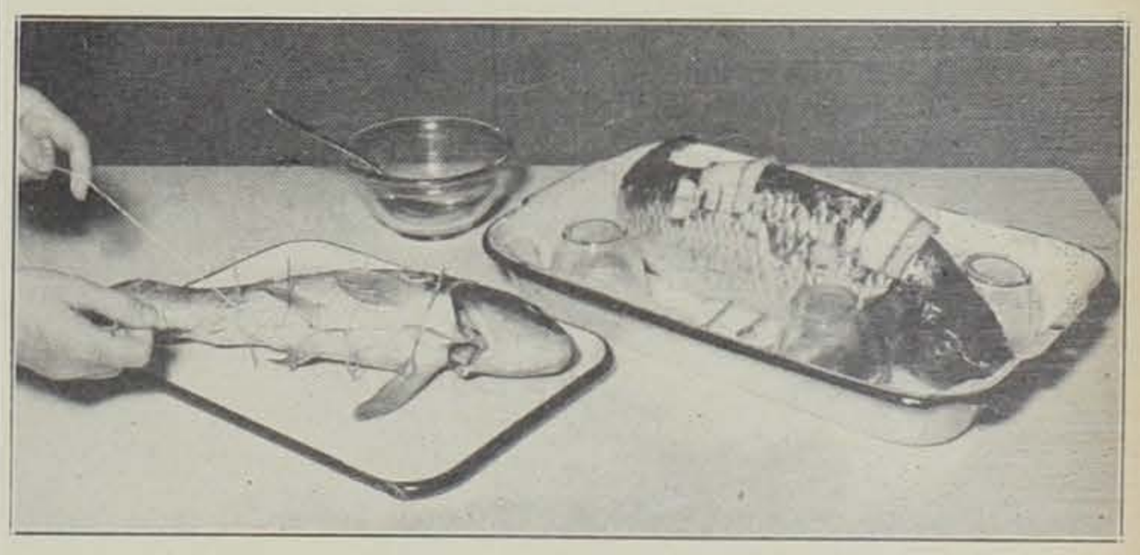


Buffalo fish or carp—with head, tail, and small fins for looks. Stuffed with savory bread dressing, held together with small skewers or sturdy toothpicks and laced string. Resting on cheesecloth in well-greased baking pan, brushed with fat and larded generously on top and in gashes cut along sides, propped with custard cups, the fish is ready for that moderately hot oven. When baked until browned and flesh leaves bone, tender and juicy, the fish with simple garnish will be set for that final test.—Iowa State College Photo.

Almost as popular as fly tying, renovating plugs and spoons is a fascinating off-season hobby for hundreds of "pluggers", and many of the rebuilt baits turn out to be "killers" when the season rolls around.

Some Paint, a Feather or Two, and Presto, You Have a New Lure

By E. B. SPEAKER
Superintendent of Fisheries

Don't throw away that old plug just because it looks tough—put a new party dress on it. A little paint can do as much for a battle-scarred plug as it can for a Hollywood pin-up girl! My tackle box is as full of worthless junk as the next guy's, but tucked away in its dark recesses are a number of priceless little gems—masterpieces of the craftsman's art. These rejuvenated baits look like "ugly ducklings" to my wife, but to me they are objects of great affection. Their beauty may be a matter of conjecture, but their ability to take fish is unquestioned even by their most severe critics.

The practice of lifting the faces of old baits is nothing new, but it has gained momentum by the scarcity of new baits and may also have been influenced by the wartime emphasis on making things last longer. They who indulge in this hobby derive so much enjoyment from it we believe a few suggestions might lead to new converts.

Remember that old dare-devil you smacked against the rocks, knocking off most of the paint? Scrape off the rest and we will start from there. Take off the triple hook, swivel, and other removable accessories and give the convex side of the spoon a base coat of enamel. Do not cover the concave side of the spoon. You may use white, black, red, or any other color that strikes your fancy. Allow this first coat of paint to dry for at least 24 hours. If you prefer, you may repaint the bait as it was originally. If, however, you feel a creative urge, and have a bit of time and energy to expend, you may achieve an effect which will become the envy of all your fishing pals. The only limitations are the imagination of the artisan—and, of course, the patience of his wife in cleaning up the mess!

If you have saved some duck or pheasant feathers from your last year's hunting forays, dig deep and extract a few teal breast feathers. These make an ideal foundation for the plastic surgery to follow.

Select a few nicely marked feathers—the number and size of these depending on the size of bait you wish to cover. Only the tip of the feathers are suitable for this purpose, so discard the downy portion. Fit the feathers to the bait and make sure it will be well-covered before proceeding further. Keep these near at hand as the next step requires fast work. Apply a thin coat of varnish, lacquer, or shellac to the painted surface of the lure, allowing it to dry until it becomes tacky or sticky.

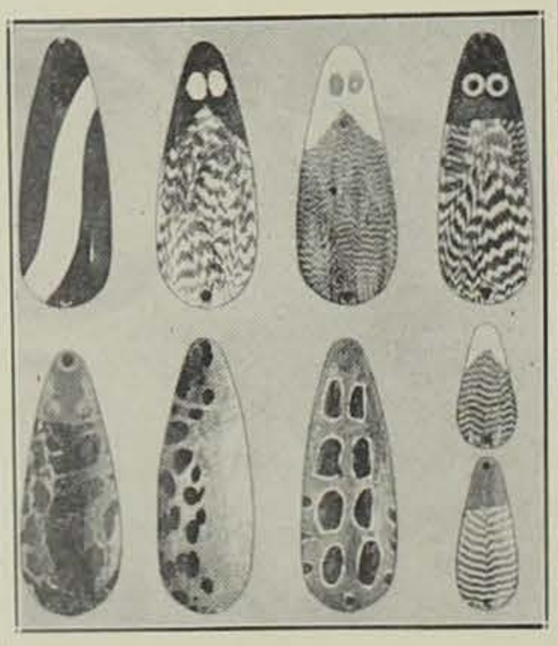
Place the tip of a feather at the base of the spoon, spreading it out so it will cover as much of the surface as possible. Add additional feathers, each slightly over-lapping the preceding one like the scales of a fish, until the entire spoon is covered. Give this feather-bedecked surface a thin coat of shellac or varnish. If you want to dress it up a bit more, add a row of small pheasant neck feathers up the center, fish scale fashion, paint a pair of eyes and give it another coat or two of varnish. Give the triple hook that came on it to some good catfisherman, replace it with a white bucktail streamer fly, and you will have a bait that will take walleyes, silver, largemouth and smallmouth bass with the best of them.

Maybe you prefer frogs for fall fishing. This can easily be arranged, too. If you are inclined to be a bit on the lazy side, simply skin a leopard frog, stretch it tightly over the convex surface of the spoon and allow it to dry. Trim the surplus skin from the edge of the spoon with scissors. Apply a couple of coats of good shellac or varnish and the job is complete.

If you are a little more ambitious and want a brighter color pattern, try this one. Capture a live frog and place it in a jar where you can study it for a model. The coloration of frogs will vary widely, but a bright green one makes a more appealing bait in the tackle box regardless of what the fish thinks of it. Give the spoon a base coat of enamel or lacquer simulating the background color of the live frog. Observe the model closely, and then with a pencil sketch in the spots on the painted surface of your own creation. With an artist's brush and oil colors, paint on the overmarkings. Allow this to dry for several days, then apply a thin coat of silk flyrod color preservative. After the preservative has thoroughly dried, apply a coat of clear varnish. A pair of green bucktail streamer flies, serving as legs, will complete the lure.

Perhaps you like a scale-finished lure. In this case proceed as follows: Cover the convex side of the spoon with a coat of aluminum, gold, white, copper, or most any color lacquer or enamel. Let it dry at least 24 hours. Tightly wrap a small piece of fine mesh bobinette over the spoon and tie it firmly so it will not slip. Spray a contrasting coat of thin, rapid-drying lacquer over the center and side portions of the spoon, leaving an edge of at least a quarter of an inch where no "scales" are added. Small mouth sprays or an atomizer should be used in preference to a brush for this operation. The lacquer will dry very rapidly, and the bobinette may be removed, care being taken to avoid smearing. A final coat of colorless lacquer completes the job.

The dare-devil type lure has been used for explanatory purposes because of the ease with which it can be rejuvenated, and the fact that nearly everyone has an assortment of them, many much the worse for the wear. The same principals can be applied to a host of lures. You may not be able to turn out a "factory finish" the first or even the last attempt, but I'll wager you will have fun trying, and get a tremendous bang out of the first fish you land with your rebuilt lure.



Don't throw away that old plug or spoon. Put a new party dress on it and see for yourself that a little paint can do as much for a fish bait as it can for a pine-up girl.

Native Fish

(Continued from Page 59)

four or five squares of fish and three to four onion or tomato slices and bacon squares; sprinkle lightly with salt and pepper.

4. Arrange skewers on well-greased rack of broiler pan, spreading pieces slightly to cook and crisp bacon. Place in hot, preheated broiler, about two inches from source of heat, basting several times with sauce left from marinating fish, and turning frequently to brown all sides. Allow 20 minutes for broiling. Or broil over moderately hot coals out-of-doors, turning often to brown all sides.
5. Place kabobs on heated platter and serve hot. Or serve, picnic style, with toasted buns and coleslaw. Barbecue Sauce will marinate about two pounds fish fillets or six to eight kabobs.

Carp Roe

Unknown to many, the roe of the carp is a nutritious and delicious food, worthy of comparison with the highly prized black sturgeon caviar. The carp roe may weigh as much as one-fourth of the total weight of the fish. When the roe or fish eggs of the carp are discarded, a possible half million or even a million pounds of a superior protein food containing appreciable amounts of minerals and vitamins are

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Starlings, in company with blackbirds, are often seen in large flocks feeding in pastures. In this state the starling has been found to destroy immense numbers of grasshoppers, weevils, caterpillars, and ground beetles.—Register & Tribune Photo.

The Starling

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son county. During 1929 it was reported in Polk, Chickasaw, and Johnson counties. The invasion became widespread in 1931 and 1932. By 1933 the starling was a fairly numerous breeding bird in the eastern half of the state but, however, was an uncommon winter resident. By that time it had extended its range westward through Bremer, Black Hawk, Story, and Boone counties, and there were reports of starlings in all counties south and east of this line.

The first starlings noted caused considerable interest among bird students, and I recall vividly the many miles I tramped in the fields to secure the first specimen for my collection at that time. At first we all thought it a beautiful bird. It was a highly prized specimen of that day. Little did I believe at that time that in the following year I would be able to secure as many as 17 with one shot. At the present time the starlings have about completed their conquest of the entire United States. The ground the invaders have taken has been firmly held. Only mopping-up operations remain.

The starling in its native home, which occupies all but the northern parts of Europe and the corresponding latitudes in the western two-thirds of Siberia, is generally encouraged and admired. It is met with a rather indifferent welcome or open opposition in this country. It prefers to live in close proximity to man's establishments and cultivated areas. Its rapid spread, noisy and gregarious habits have caused Americans to look upon this bird as they have been forced to do upon other European forms of animal life imported into this country, such as the Norway rat and the English sparrow.

Starlings have much in common with these other foreign invaders of our country. Like the sparrow, the bulky nests with their accumulation of filth are to be found beneath the eaves of barns and crevices in buildings. Almost any cavity is suitable for their nesting, but their preference is for cavities in trees and has caused them to take over the sites of many of the native hole-nesting species such as the bluebirds, woodpeckers, and martins.

The fact that starlings raise two, three, or even four broods of six young each has aided their phenomenal spread and increase. The young leave the nest and gather into large flocks, flying through the cities and parks, roosting in trees of residential areas; and their noise and filth have caused them to be hated in many areas as no other bird.

The fact that the starling is omnivorous gives it an advantage over many of our native birds where competition for food is great, and the starling is sure to win out. Its food habits, generally speaking, are beneficial, however, a great portion of the food consumed by them during the spring and summer months being insects and weed seeds harmful to agriculture. To some extent this bird does damage to small fruit but, being rather shy, is easily frightened away, and much of the fruit taken is of a wild origin. In Iowa the starling has been found to destroy immense numbers of grasshoppers, caterpillars, ground beetles, and weevils. And the fact that these birds are working on insects in such large numbers is certainly in their favor.

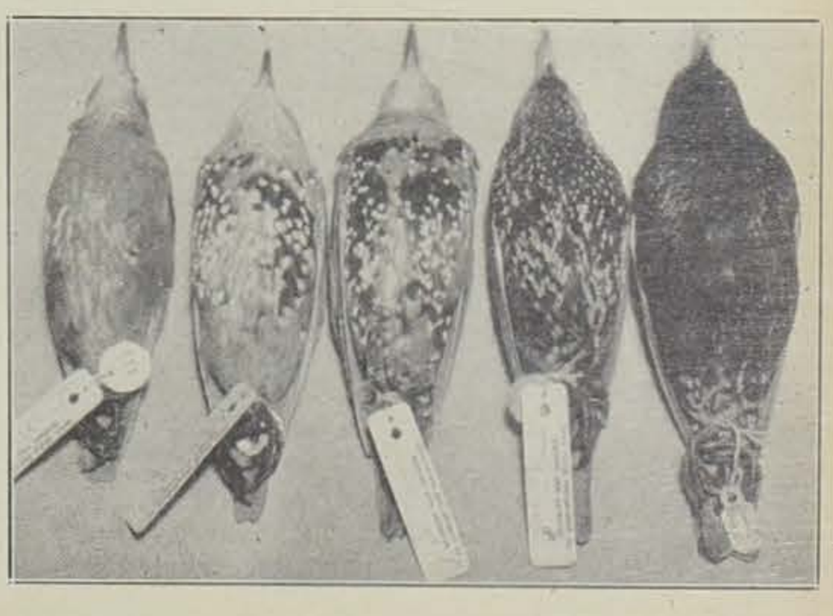
The adult starling is about eight and one-half inches long, the approximate size and weight of a robin. It has a short tail which gives it a rather chunky, hump-backed appearance. In the early spring until the middle of June the adult birds may be identified at a distance as the only black bird having a rather long yellow bill. After the breeding season when the birds molt their plumage, the bill darkens to a dark brown and remains that way until the following spring. The plumage of the adult birds is a rather iridescent greenish reflecting purple and blue and with individual feathers tipped with triangular spots of white and tan. During the fall months the tipping of the feathers is more prominent and is carried into the winter plumage. As the feathers wear throughout the winter months, these tips are worn off and the plumage becomes a glossy greenish black, particularly on the breast.

The young of the starling soon after leaving the nest are uniform dark olive brown with the same build as the adults, having black bills, and within a few weeks show white-tipped feathers on the sides, breast, and back. Flocks of starlings from midsummer until spring are a common sight among the cities and in the open fields of the countryside, where they search for food by rapidly walking over the ground, getting up in large flocks whirling in unison only to light again. In their search for food the starlings do probably a more complete job of searching the ground than any other bird.

The voice of the starling is a clear whistle and coarse rasping notes of alarm. However, the birds are a mimic par excellence and can imitate the notes of the bluejay, screech owl, bob-white, and many others. The young have harsh, hissing and rasping notes.

Control measures of all types have been tried with little success. Even in spite of bounties, the starling has continued to increase, and as the birds are driven out of one area they seek habitation in a new place. It is doubtful that the starling can ever be eradicated. It is believed that in many areas the birds have reached a saturation point. However, only time will tell whether or not we are to have large flocks of starlings over the entire country.

The starling can be utilized as food, and the ease with which they can be captured and the excellent quality of their flesh might welcome them for this use. The birds, if properly prepared as a pot-pie, make a dish to rival the blackbird pie set before Old King Cole, and many sportsmen might do well to hunt these birds as a test of marksmanship and to try them as game. Starlings to be used as food should be skinned and soaked 12 hours in salt water, then parboiled and made into a potpie with a thick gravy and biscuit dough. They can also be broiled, being wrapped individually with strips of bacon and broiled until tender.



The plumage of starlings varies from dark olive brown in the young to a beautiful iridescent greenish blue in the adults in breeding plumage. —Photo by Jack Musgrove.

Native Fish

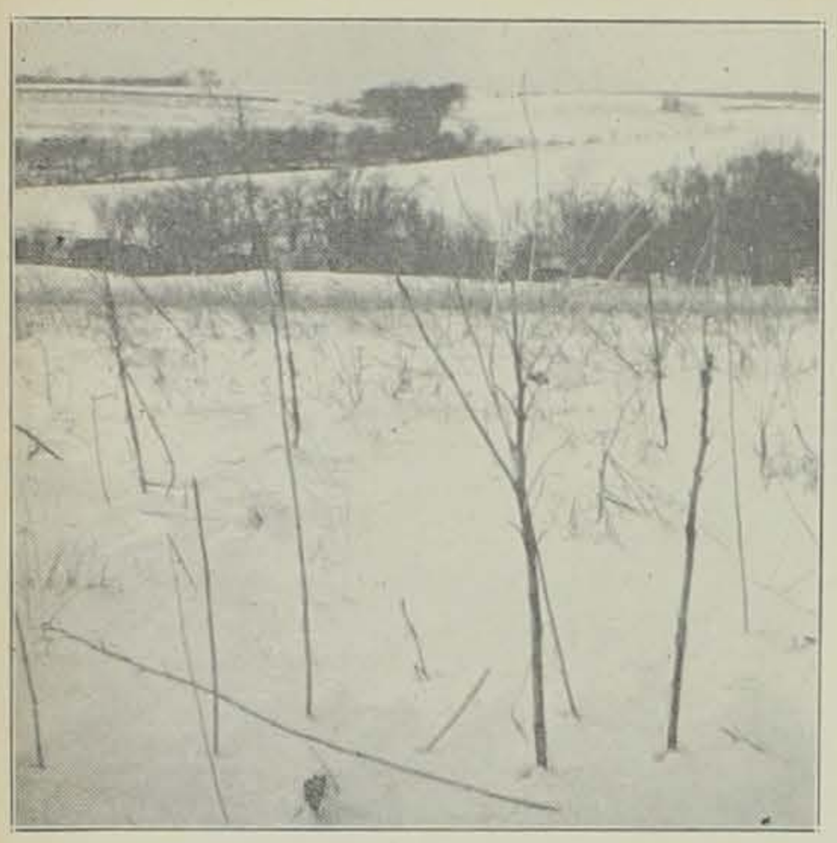
(Continued from Page 60)

wasted in Iowa alone. Carp roe are easily cleaned and prepared. Parboiled in salted, acidulated water for 20 minutes, the pink or red caviar can be broiled, baked, fried, or scalloped, or, if you wish, made into tasty and attractive sandwich spreads or hors d'oeuvres.

Iowa's Fish Dinners

Why not look forward to the day in the not too distant future when Duncan Hines or some other book on good eating places lists Iowa restaurants famous for their native fish dinners? What could be more tempting than fish taken right out of fresh clear water—one of Iowa's deep, clear lakes or streams, a nearby fish pond, or a crystal clear glass tank recessed in the restaurant wall—cleaned, prepared to your liking, and served with plenty of melted butter or hot oil, potatoes and garden fresh greens and other vegetables?

To place a grass hopper on the hook turn the hopper belly up and insert the hook under the breast armor. Bring the hook out toward the back of the chest. Turn the hook over so the point faces the belly, then push it through and out of the back. The point of the hook should just protrude from the back between the wings. The weight of the hook being on the underside keeps the hopper right side up.



This gully shelter cover with weedy feeding cover supported a covey of quail in winter, 1943-44.—Photo by George O. Hendrickson.

Upland Game

(Continued from Page 57)

part of the land operators. After a scrutiny of the reports by officers of the League acquainted in general with environmental conditions in the county, it was believed that a large percentage of the farmers not replying probably had not seen quail or pheasants during the year and that suitable environment was lacking in these areas.

Among the 130 replies 40 reported 538 quail, 35 a few or an indefinite number, and the remainder, 55, no quail. Of the 75 reporting quail 71 stated that the birds could get water easily, 75 had plenty of food, 72 plenty of shelter, 72 room for more quail, and 75 liked quail to be on the farm. Of 55 farmers who had no quail 35 reported water easy to get, 38 plenty of food, 34 plenty of shelter, 43 room for more birds, and 50 a liking for quail on the farm.

In regard to pheasants 53 reported 497 birds, 31 a few or an indefinite number, and 46 none.

Under remarks two land operators stated that quail and pheasants were not increasing but that they did not know why. Three farmers blamed hunters for loss of their game, four condemned foxes and wolves, and five reported floods, deep snow, and severe winters as responsible for bird losses. Seven wanted quail brought to the farm, two wanted pheasants, and 10 asked for both birds. Two land operators offered to cooperate in any program for the welfare of game, whereas one admonished the League to get busy, get the birds out and quit talking so much. One farmer noted that quail seem to like brome grass pasture. A land operator along the Nishnabotna River, who reported 30 quail and 24 pheasants, mostly young, on 80 acres, wrote that he provided food such as mulberries and sorghum in patches for birds the year around.

To check on the farmers' replies and general quail environment, the writers in November and December, 1943, spent a week in the field and several days looking at aerial photographs of farms in the county Soil Conservation Service office. The field work consisted of looking for quail signs in suitable cover on farms from which reports had been obtained and on some additional farms. Conditions in the Missouri River bluffs, roughly a mile wide for the length of the county and four to eight miles from the river, were studied carefully at several points. Quail were reported from four farms, and pheasants from none of the bluffs area. Four coveys of quail were accounted for on two sections embracing the Waubonsie State Park in the bluffs region and farms adjacent at the east. Water readily available in a gully and at several springs was noted in this locality. Evidence of bob-whites was found on a bluffs section two miles south of Thurman as reported by a farmer and also on the section south of that, but not reported in the postal card survey. Farmers stated that water was available the year around in gully streams on the two sections. Two other adjacent sections did not have signs of quail, and none was reported from them. No springs or running streams were observed on the two quail-less sections. Much of the bluffs area of approximately 25 square miles is grassland with insufficient shrub and tree shelter as well as suitable food. Older farmers stated that quail had never been as numerous in the bluffs as in the Missouri River bottomland and on rough land east of the bluffs.

Free water in streams and springs evidently is not available throughout most of the year on some of the bluffs sections, although dews considered by some game managers as sufficent for water needs of quail are heavy in normal summers.

Quail were reported on 22 farms and not present on four farms representative of 26 sections out of approximately 110 sections of inhabited Missouri River bottoms. Field and map surveys showed the bob-whites centered chiefly at natural groves of trees, some of which are around farm buildings and others in open fields, usually in wet low ground not easily drained. Formerly, before the river was under control, these low wet places with natural groves were more numerous and then the quail were also more plentiful, according to several older farmers. The numbers of birds mentioned by those farmers, however, were not as large as those given by older residents of southeast counties. That is, "quail by the hundreds" was not stated. And there was less said about market hunting of quail in this southwest county than is heard farther east in the state. A somewhat higher quail population was reported for the Missouri bottoms in relation to acreage than for the remainder of the county. Pheasants were reported from 24 farms and not present on two farms of this bottomland. Several farmers and other sportsmen expressed the opinion that recent wet years and the 1943 spring flood had been harder on pheasants than on quail. They thought pheasants had done better in dry years.

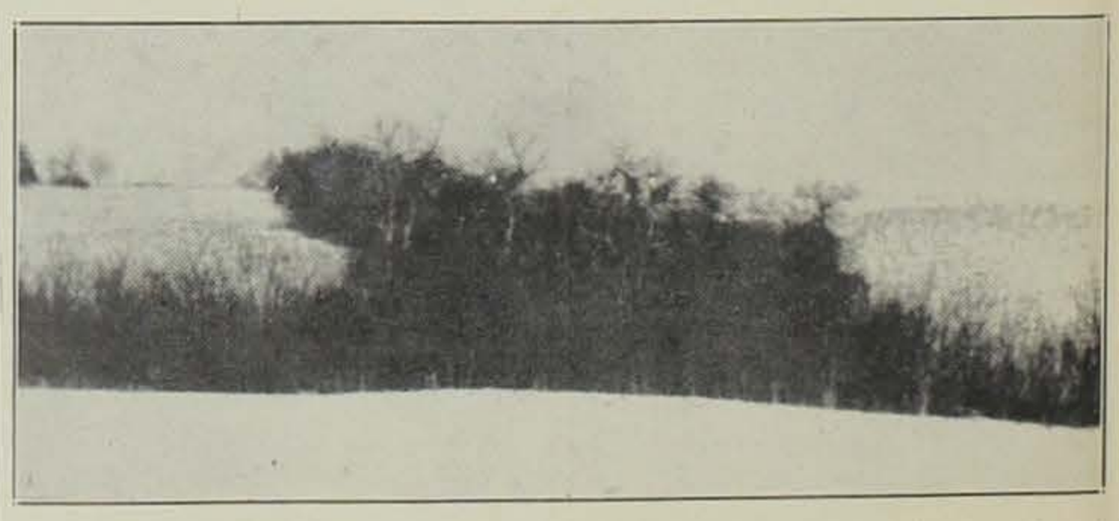
The approximately 100 sections of bottomland along the East and West Nishnabotna Rivers and Walnut Creek furnished eight reports of quail on 20 farms and pheasants on 17 of 20 farms. These reports are about one-half as satisfactory for quail and about as good for pheasants as on the Missouri River bottoms. There is more intensive cultivation and less protective cover in the Nishnabotna and Walnut bottoms than in the Missouri lowlands.

The remainder of the county, about one-half of its area, is of an upland type with gullies frequent in some parts and with one or more other open water channels in each section. Out of 80 replies from the upland area, 41 reported quail and 43 pheasants. Neither bird was quite as numerous on the upland area as a whole as in the Missouri bottoms. Quail outnumbered the pheasants considerably where the frequent heavily wooded gullies and drainage channels together with farm groves and hedgerows furnish much shelter cover on one-fourth of the upland area. This one-fourth has interspersion of nesting cover and cultivated crops in smaller fields than the rest of the uplands. The remaining three-fourths have occasional hedgerows, small farm groves, and thin tree and shrub cover along watercourses.

In attempting estimates of the quail and pheasant populations for the entire county, it appears best to accept the view that farmers not reporting probably had no birds and that their farms were short of suitable shelter cover. After the reports had been plotted by farm locations on a county map it was clear that some sizeable areas without reports lay between areas on which reports were grouped. Several of the vacant areas were in river bottomland that was flooded in spring, 1943. Other vacant areas as seen on aerial photographs showed little shelter cover such as groves, woodlots, and large thickets needed by the birds in cold weather and in escape from preying birds and mammals. Also these vacant areas had large fields of cultivated crops or large pastures which do not provide as much edge between cover types as is required for large numbers of game birds. The areas with grouped reports showed more shelter and escape cover together with greater interspersion of cultivated crops, hay and pasture in smaller fields.

Over the whole county there were probably a bob-white to 72 acres and a pheasant to 88 acres, or about nine bob-whites to a section and seven pheasants to a section. This estimate may be considered as of the spring seedstock, for probably most of the birds reported were adults observed in spring before the hatching season. At a few centers of grouped reports, each an area of

(Continued to Page 64, Column 2)



The heavy tree, shrub and herbaceous shelter cover of these healed gullies, meeting at center foreground, with picked, lightly grazed cornfields, held quail in winter, 1943-44.—Photo by George O. Hendrickson.

The Virginia opossum has within the past five years extended its range in Iowa until now it may be found in almost every location.

HISTORY OF THE OPOSSUM

(Didelphis virginiana virginiana)

The opossum is a member of the order Marsupialia. This name is derived from the Greek word "marsupium" which means "pouch". This name was adopted because the marsupials generally carry their young in an abdominal pouch. In some members of this order the pouch is not noticeable and in a few it is absent. The marsupials are limited to North and South America and Australia. The opossums are the only representatives of this group of animals found in North America. Three kinds are found on this continent. The one which comes into Iowa is properly called Virginia opossum. The other representatives are the Texas and Florida opossums, natives of the state for which they are named. The Virginia opossum is found everywhere in the United States from the Great Lakes south to Texas on the west and from the Hudson Valley to Florida on the east. There is a tendency for it to extend its range slowly to the north and to the east. Twenty years ago the opossum was rarely, if ever, seen north of Des Moines, but now it is frequently found along the wooded streams of northern Iowa. The original range of this animal did not include the Pacific states. An accidental introduction and more recent plantings are responsible for the opossum's presence in California.

Comparatively speaking, the body is similar in size to that of a house cat. It usually measures about two and one-half feet from the tip of the nose to the tip of the tail. The tail alone is about one foot long. An opossum weighing 12 pounds has been recorded, but six to seven pounds is the average in this state. The forehead is not broad and the muzzle is pointed. This long appearing face has a grinning expression produced largely by a display of many primitively developed teeth. The animal has a total of 50 teeth, whereas man has only 32. As is true of all North American marsupials, our opossum has a well-developed fur-lined pouch on the underside of its body.

There are five toes upon each foot. All of them have nails except the "big toes" of the hind feet. This toe is much like a thumb and can be used in grasping just as readily as ours. The soles of the feet are bare.

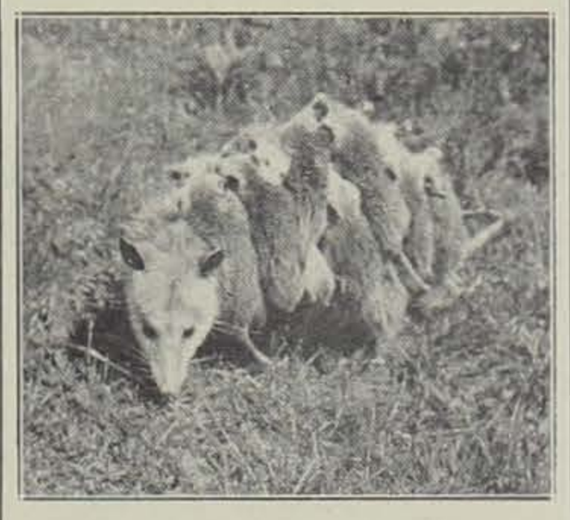
Color of the body is generally described as "grizzled gray". Normally the soft underfur is white with black tips, and the long or guard hairs are whitish gray. The face is white with black around the eyes and on top of the head. The large naked ears are black except for a light yellow margin. Legs and feet are blackish. The tail is blackish at the base but gray to yellow toward the tip. The coloration just described is known as the natural or "gray phase". There are several less common color variations. A "black phase" results when the guard hairs are black instead of white. Both of these phases may vary by the presence of brown pigment in place of the black. Albino or completely white opossums occasionally appear. Male and female are similar in color.

Because of their slowness and stupidity many opossums are killed by enemies. In Iowa their principal enemies are great horned owls, foxes, dogs and man. When cornered they are generally not inclined to fight, but occasionally this will be the case. More often they will feign death or "play 'possum". It is believed by some that the animal actually faints from nervous shock over which it has no control. There may be some truth in this because the pulse and heart beat slow down considerably during the feigning. It recovers from its pseudo-death rather hurriedly when an opportunity of escape is open. It will patiently wait for an almost certain opportunity of escape rather than take chances.

Opossums live in haunts similar to those preferred by the raccoon. The timbered water courses throughout Iowa provide a natural home. Its den is made in almost any kind of a warm, dry hole, but hollow trees serve the purpose best. It pads its den with a bedding of leaves, especially those of the oak. It is nocturnal in habit, that is, it goes about in search of food only at night. Days are generally spent in the den, but the animal may come out to sun itself on warm days. Nightly travels never take it far from the home den. Much of the time is spent alone. It apparently does not hibernate, or if hibernation is practiced, the period is short.

One brood of young is born during April or May in the northern states. Two broods of young may be born during the course of the year in the southern states. The number of young varies from five to 18. The mother can care for only about 11 of the brood, so some are doomed to die. At birth the young are about the size of navy beans. They weigh about 1/15 of an ounce, but increase this weight ten times in the course of a week. Their front feet are rather well developed at the time of birth in order to enable them to get into the marsupium and become "incubator babies". They do not open their eyes for seven to eight weeks. Within two months they are about the size of mice and begin to leave the pouch to ride about on the mother's back. Then when three months old they begin to hunt for themselves.

The opossum is omnivorous in its feeding. Almost everything is included in its diet. Small birds and mammals, frogs, fish, carrion, eggs, insects, and fruits are the foods best liked. In securing fruit it has been known to hang from a limb by its tail. It may prove destructive by occasionally entering poultry houses to steal eggs and eat chickens, but on the other hand may be considered as a helpful scavenger of carrion. Its greatest use is as a fur-bearer, for the fur industry utilizes its pelt a great deal in making reasonably low-priced coats.



Although a mother 'possum can take care of only about 11 of the young of their large families, this mother 'possum was "sharing the ride" with 19 little ones when found.

Our Vanishing Prairie

By MRS. ADDISON PARKER

Much has been written about America's vanishing frontier. Iowa's frontier, the waving prairie grassland, has almost passed into history. When Lieut. Albert M. Lea wrote his "Notes on The Iowa District of Wisconsin Territory", following his survey with the U. S. Dragoons in 1835, he portrayed the appearance of the country as one of great beauty. He wrote, "It may be described as one grand rolling prairie along which flows the mightiest river in the world. . . I have ridden through grass six feet high . . . During this season (summer) the appearance of the country is gay and beautiful, being clothed in grass, foliage and flowers."

And Willa Cather wrote, "As I looked about me, I felt that the grass was the country, as the water is the sea. The red of the grass made all the great prairie the color of wine-stains or of certain sea-weeds when they are first washed up, and there was so much motion in it; the whole country seemed somehow to be running."

What a pity to lose it forever!

Some part of the limited area still remaining should be rescued from the plow if only to preserve the pattern of our state before the white man took it over. Perhaps, too, we could learn from it some hidden secrets of game protection and food, of erosion control and of plant life.

The State Conservation Commission is interested in making as comprehensive a survey as possible of remaining areas within the state. We are asking our readers to cooperate by sending any information they may be able to give us on virgin prairie areas. This means unplowed and preferably not heavily pastured. Please state county, township, section, and number of acres. Address: Prairie Editor, State Conservation Commission, 10th & Mulberry, Des Moines 8, Iowa.

Know Your Outboard Motor

There is no more pleasant pastime in season than boating; and boating is not only pleasant, it is safe. It seems safe to say that there are far fewer accidents involving small boat transportation than with automobiles, for example, on a passenger-mile or any other basis. Yet, as with any other mode of transportation, the human element is involved; judgment and common sense are necessary.

The very first of the "Rules of the Road" in boating is SAFETY FIRST. Here is a good place to go back to the A.B.C.'s of boating and discuss some of the do's and don'ts of it.

The first essential is a **good boat.** It should be strong and water tight; of a size capable of carrying whatever the load is to be; of a shape and design so that it will not tip over; of an over-all type which is adapted to the service and the kind of weather and water in which it will be operated.

There is no "best" boat for outboard motor use, just as there is no one motor truck that is "best" for all kinds of hauling. So if you don't know from your own experience what boat will fit your needs best, rely on the experience and knowledge of an expert. You'll usually find that your outboard motor dealer knows what he's talking about on boats; let him guide you.

Second, know about the water and weather conditions where you are going to use the boat, not only what these are now, as you start out, but also what they might be before you get back. You must not take a 12-foot hydroplane out on water where only a good 18-foot round bottom wave-rider is the minimum requirement for safety.

Third, know how to swim. It isn't very likely that swimming will be necessary but then it might mean saving your life or another life. But probably the best reason for knowing how to swim is that it will give you confidence. You'll be able to relax, to enjoy yourself, while boating. That doesn't mean that anyone should get over-confident to the point where he will be foolhardy or careless.

Fourth, equip the boat on every trip no matter how short or how protected, with the essential safety devices. There should be a buoyant life-jacket or cushion for each passenger; a pair of oars or at least one paddle; an extra can of fuel for the outboard motor; a small kit of tools—screwdriver, adjustable wrench, pliers; a couple of extra spark plugs; and a spare starter cord and several extra drive pins for the propeller.

Fifth, be sensible. Rocking the boat, making turns at too high speed, overloading, driving a motor-equipped boat close to or among bathers, venturing into water that is rough or may become so—none of those are sensible.

Aside from the safety factors, there's the matter of simply being "a gentleman". The use of outboard motors has been prohibited on too many bodies of water, particularly small lakes, because a few "wild" motor operators gave scant heed to the comfort of others. Enthusiasts have been known to arise in the early morning hours and speed up and down and around with the motor cut-out open or the muffler removed, waking sleeping neighbors, annoying the whole population—for their own pleasure. Some "cowboy" drivers delight in zooming close to a boat in which people are still-fishing or in swooping close to a party of bathers with a propeller which can slash quickly and very deep in a twinkling.

In many localities there are laws prohibiting the use of muffler cut-outs or removing the muffler from a motor. Manufacturers of motors are heartily in favor of quiet operation; they spend a great deal of time and money to make motors quiet because noise hurts the sport. It's too grand to be hurt unnecessarily.

It will always pay dividends in boating as in any other sport, pastime or activity, to remember "The Golden Rule". Besides, people who love the water are somehow just a bit more "sporting" in their relations with other members of the fraternity. How often it has been said that a bunch of fishermen or boaters are "good fellows". Well, when you're out in a boat, be a "good fellow" and do for others those things you'd like them to do for you under like circumstances. You can't go wrong.

By all means obey the laws. If a local ordinance says "no noise", then be quiet; if the state says "do not troll for fish from a motor equipped boat", then don't do it; if the federal government asks you (as it does) to always carry certain safety equipment in the boat when operating it on waters under federal jurisdiction, then you'd better do it as the alternative isn't very pleasant.—Johnson Motors.

Upland Game

(Continued from Page 62)

about six to 12 square miles, the game bird population may have been a bird to 12-24 acres, or about 30-50 to a section. Such centers were seen in the bottom land near Bartlett and Percival, where quail and pheasants were about equal in numbers. In the uplands heavy centers of quail occurred east of Hamburg and east of Waubonsie State Park, areas with much shelter cover including frequent old orchards. A third upland area, characterized by wooded gullies and occasional orchards and extending northeast from Anderson above the bottom land of Walnut Creek, had good numbers of both birds. In the hill country west of Sidney there were fair numbers of quail and a few pheasants, whereas on bottom land around Randolph pheasants predominated over bob-whites.

After a study of the reports last fall and a discussion of an immediate program, the League decided to ask each member to contact and assist an assigned number of farmers to care for the birds and carry the largest possible number through the winter. Electric fences along gullies were advised to keep livestock from grazing close to the edges. The few feet or several rods of edge cover would be of great value to the quail and pheasants for winter shelter and food, though of slight value for livestock. Furthermore, there would be less danger of livestock falling in the deep gullies and less starting of new gullies by such a fencing practice. The League resolved to speak more frequently and enthusiastically about the Soil Conservation Service program which embodies maintenance of cover in its soil-building program.

The field work indicated that there are some good coverts without quail. These should be studied more intensively, and quail might be planted there as well as at other coverts when improved. A number of spots with light, sandy soil in the bottomlands may be planted to trees and shrubs when labor is available. Leaving wide untilled edges along the gullies with lessened grazing or with fencing will provide more shelter cover in the weaker three-fourths of the upland. These practices are part of the good land usage program advocated so widely in recent years. The Soil Conservation Service program will tend to increase the amount of water absorbed by the soil, which in turn should increase the seepage into the gullies and help in maintaining water for longer periods in the creeks. It is expected that the more frequent watering places will benefit quail production and distribute the birds more widely. Although the bobwhite population may not go as high in Fremont County as in several southeast counties, quite probably intensive cover improvement will provide a shooting surplus there in time.

We have heard of no buffalo as yet, and the Indians have not over-run the state, but nevertheless, with the return of deer, beaver, wolves, and many other animals, Iowa seems to be getting pretty wild.

Increase in Wild Animals Noted

This country seems to be getting back to the early days as far as the animal population is concerned. Seven deer were seen in one herd north of this city last week. Along the river south of this city, others saw two or three more and these are seen quite often. Around Swan and Mud Lakes there are a few more.

On the river south of this city, the coon are getting quite numerous. Other parts of the country seem to be also finding a few. We have never heard of any coon in this section before. In the early days there were a few wolves of the prairie variety. Now we hear of timber wolves in several places in the county. The fox population is also increasing, and the beaver are back and more numerous than before.

The mink population is also on the increase, according to those who trap during the winter. This might be from the abundance of water in streams and lakes.

We have heard of no buffalo as yet, and the Indians have not come back. Otherwise the country seems to be getting wild.—Estherville Enterprise.