

New York State *Conservationist*



SPRING DRIVE

(See Page 24)

NEW YORK STATE CONSERVATION DEPARTMENT

April-May 1947

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See Editorial

PICTURE PROOF

If every photograph should tell a story, we believe the one facing this page does itself proud. It has not one but two stories to tell, and both challenge interest in some very fundamental conservation problems.

One story concerns angling pressure on our public streams. Twenty men are pictured in this small stretch of Catharine Creek, but they are only a tiny fraction of the angling army which thronged this stream for the opening of the season. Estimates placed the total at 3,000—on eight miles of water.

That's a lot of fishermen for this or any stream, and Catharine isn't the only one in the State under such pressure. Our angling population has reached gigantic size (600,000 licensees alone) and it's going to get bigger. Making supply meet the demand of this vast group is a tremendous job. It requires increased assistance for Nature through every known means, and the discovery of new ones. More and more creel-size fish will have to be stocked directly for the rod in some waters.

The photograph's second story has to do with productivity of our streams and the crying need for development and maintenance of public waters so they can furnish more and more fish to keep pace with demand. You can see that this particular stream is in bad shape. There are hundreds of others equally in need of improvement.

These jobs take money. Organized sportsmen of the State recognized that fact when they voluntarily asked the Legislature to increase fees they pay for licenses, so that additional funds would be available for this work. The proposal was not approved—and the problem is still with us. —Editor

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Our Public Streams



NEARLY 600 LEASED MILES OF TROUT WATER ARE OPEN TO THE "AVERAGE GUY" IN NEW YORK. HERE THEY ARE

THE RISING tide of fishermen in New York State, and the subsequent pressure that has been brought to bear on our streams, has long since demonstrated the increasing need for expansion of public waters to meet public demand. The acquisition of specific rights for fishing, on continuous and extensive mileages on good trout streams, has become a "must" in New York, and the Conservation Department has recognized its importance in our fisheries resource picture.

Since 1935, when the program started in this State, there have been acquired 580 miles of water on 36 of our best trout streams. The job has not only provided more fishing for the general public, but has offered the Department the opportunity to develop fish management projects which even the best of our waters require if they are to continue top production.

Before the acquisition program began some 12 years ago, the Department studied various systems of obtaining these fishing rights. Leasing of streams was considered, but met the objection that temporary leases involve renewals. Purchase of lands was also considered. In some instances this is practicable, but it is rarely possible to buy a strip along a stream through farms or other private holdings. The best answer seemed to be purchase of permanent easements

which would give the public the right to traverse the stream for the purpose of fishing in the areas designated in the contract.

For simplification, this can be called "stream purchase". The one point to remember in fishing such streams is that the angler has only the designated right of fishing on the areas covered by the contract. The landowner gives up no rights other than the right to exclude fishermen as designated. He can use the land for his crops or livestock and can post against any other type of trespass. He need not permit picnics, the building of fires or other things some fishermen may wish to mix in with their angling.

There are some uses other than fishing that are written into many of the contracts, however. Where there are long stretches of stream covered by easements, occasional rights-of-way across lands are obtained so anglers can get to the fishing spots. Many parking areas are acquired, as need arises, for the use of fishermen. All the stream easements further provide that stream improvement structures can be built by the State.

The plan works well. While it is true that the acquisition of public rights works no immediate change in the stream, the thoughtful sportsman can find much comfort in knowing that his

favorite stretch of trout water will not be broken up by posting and that, when sufficient mileage of stream is acquired, the water can probably be managed better than ever before. The foresighted landowner, in many instances watching bank erosion become worse each year, will give careful consideration to the outlook for a State program of stream improvement.

Previous to the war, which was the indirect cause of stopping acquisition and development work, the progress in both leasing and management of trout streams was most encouraging. Today, with many of the signs marking the public rights needing replacement, with the ravages of floods and erosion untouched for many years, the "stream purchase" areas need attention.

Fortunately, for the future, the program has now been actively resumed both in its acquisition and developmental aspects.

Even though this year you did not find every fishing rights area marked in detail, including the rights-of-way for reaching the stream, the yellow and black signs are going up fast. Marked or unmarked, nearly 600 miles of newly-acquired public water is a help to trout fishing, even if you did not always recognize what areas were covered by State contracts.

This article is principally for the purpose of telling you a little about the location of these streams. On some, the acquisitions are extensive. On others

there are large gaps or only a few easements. This situation is, of course, unavoidable in a program that is still in progress.

The accompanying map shows the location of streams and approximate amount of mileage on which rights have been obtained. Lack of space prohibits more than a brief description of individual streams. In those which follow, mileages acquired are summarized to February 1, 1947.

(1) Ausable River, 13 miles. This is a famous stream for browns. There are also some rainbows and brook trout. The East Branch rights are nearly continuous between Keene and Ausable Forks. On the West Branch, rights are above Haselton with several gaps up to State lands located above High Falls.

(2) Battenkill, 9 miles. This is an unusually large stream, well known for browns and brook trout. Rights are nearly continuous, with some skips, between the Vermont line and vicinity of Rexleigh.

(3) Beaver River, 21 miles, a free dedication by Niagara-Hudson Power Company, continuous from Beaver River Flow to Belfort. This stream produces some large brook trout.

(4) Beaverkill, 12 miles. World-famous for its dry-fly fishing for brown trout, with rainbows and brookies of occasional occurrence, this is heavily fished but continues to produce. The rights are about three-quarters complete from above Rockland to Peakville. The Beaverkill State Campsite also includes a fine upper area of stream.

(5) Big Salmon, 28 miles. With browns in the lower area and brook trout in the upper, this stream has much to offer. Rights are mostly between Mountain View and Malone, with some skips in State ownership.

(6) Black River, 23 miles. Another big stream, the Black is well regarded by many brown trout fishermen. Brook trout predominate in its upper parts and there are some rainbows taken in various sections. Rights are nearly solid between Port Leyden and Reeds Mill.

(7) Bouquet River, 14 miles. This is a lively and beautiful stream with some deep, slow pools. Brown trout predominate; some rainbows and brookies also taken. The rights are between Split Rock Falls (above New Russia) and Wadhams Mill, with some skips.

(8) Catharine Creek, 5 miles recently contracted for. This famous rainbow stream, in which acquisitions have recently begun between Pine Valley and Montour Falls, was featured in the last issue of *The Conservationist*.

(9) Catskill Creek, 18 miles. This is productive of browns and rainbows, with some brook trout. Rights run from

The streams described herewith are shown in an orientation map on the inside back cover of this issue of The Conservationist

below Franklin to below Oak Hill and are almost continuous. Several pieces of Ten Mile Creek, a tributary, are included, from Rensselaerville to the town of Oak Hill.

(10) Cattaraugus Creek, 16 miles. Mostly a brown trout stream, this is fed by several important tributaries on which rights are also secured, including Sardinia Creek, Elton Creek, and Clear Creek. Sections between East Arcade and The Forks are nearly solidly acquired, also up these tributaries for varying distances.

(11) Chateaugay River, 9 miles. This, and its main tributary, the Marble, produce brook trout and rainbows. Acquisitions are between Chateaugay Lake and Cooks Mill; on the Marble they extend above and below the State fish hatchery.

(12) Cohocton River, 15 miles. Chances for getting a large brown or a sizable brook trout are good, the brook trout being mostly in the upper part. Rights are fairly solid from above Atlanta to just above Bath.

(13) Crystal Creek, 11 miles. Although smaller than many of the others, this is considered a good stream for brown trout. Rights are nearly solid from below Petries Corners to the mouth of the creek.

(14) Deer River, 10 miles. Brown trout are taken here, also some bass. Rights are nearly solid from above Reynoldston to the highway between Nicholville and Dickinson.

(15) East Canada, 11 miles. Brook and brown trout. Rights, still rather spotty, are between Dolgeville and Knappville.

(16) East Koy, 11 miles. Brown trout predominate, with some brookies and an occasional bass. Rights are between Hermitage and East Koy, nearly solid.

(17) West Branch of Fish Creek, 33 miles. This is a brown trout stream somewhat "nuisanced" by chubs and other fish in some areas. Rights are nearly solid from above Williamstown to McConnellsville, also up Little River to Thompson's Corners.

(18) Fish Creek (East Branch), 42 miles. This stream and its tributaries comprise a large area, producing good fishing for brook and brown trout. The main stream above Taberg is mostly acquired to above Swancott Mill. Point Rock stream and other tributaries represent large mileages.

(19) Genesee River, 12 miles. Despite the bass and other fish, brown trout fishing is good. Some large rainbows are also taken. With some skips, rights extend from Belmont as far as the Pennsylvania line.

(20) Independence River, 20 miles. Brook trout inhabit the Independence. Perhaps there are even too many for their own good. Rights are continuous above Sperryville, and with its tributaries the stream offers plenty of room.

(21) Kayaderosseras Creek, 19 miles. Most fishermen pronounce this "Kaydeross". It produces some nice browns and brooks from its upper part. Rights are not solidly acquired but cover areas between the towns of South Corinth and Ballston Spa.

(22) Keuka Lake Inlet, 2 miles. Like

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Stream improvement is an important part of the public waters program



LAKE GEORGE



From a picture point of view Lake George is New York's prize pin-up. It also has fish

SOME TWO HUNDRED and thirty miles due north of New York City on Route 9 are the headwaters of Lake George, a lake which has few serious rivals among American inland waters when it comes to a question of natural beauty and historical association. True, there are many larger and more commercially important waters and these not far distant, but the absence of commerce and manufacture on Lake George is of itself an important recommendation to the vacationist seeking the unspoiled in Nature.

The Iroquois called Lake George "An-di-a-ta-roc-te," which, loosely translated, means "The Lake That Shuts Itself In." It seems to us that its white discoverers would have done very well to leave it at that. But Father Isaac Jogues, accredited as the first white man to actually see it, named it "Lake of the Blessed Sacrament" and claimed it as a French Colonial possession as far back as May 1646.

After a hundred years of French, English and Indian warfare marked with murder, burnings and torture and French and English pots alike calling the opposing kettle black, the region came under English domination. At that point Sir William Johnson (with no apologies for this, his chief atrocity), renamed the beautiful waters Lake George in honor of the English sovereign to whom he owed a great deal—yet not quite as much as that.

When American Colonists, after another 100 years, threw off the English yoke, the name of that fat Hanoverian

king no longer rang so pleasantly in their Revolutionary ears. So James Fenimore Cooper, he of the Leatherstocking Tales, plastered on yet another label and might have made it stick, too, but for his own later confession that "Horicon" was merely the name of a regional Indian tribe and had never been used by Indians to designate the lake itself.

In our own time, nearly another century later, some folk, still smarting from the lake's inadequate appellation, began a movement to rename it for its Jesuit discoverer and martyr, Jogues. This worthy objective met with popular approval, but so many of us dared not risk expressing our notion of the pronunciation that the simpler and accustomed "George" triumphed. It seems to boil down to the fact that all the changes made since Andiatarocete have been much inferior phonetically, and we are apparently now destined to avoid any more change of name and to remain as is—stuck with the worst label of all.

There's a rather prevalent notion, not alone in the extreme southern tip of New York State either, that all "up-state" is new country, at least compared with Manhattan. As a matter of historic record, Champlain saw the Lake George rapids—and the larger lake which still bears his own name—some months before Hendrick Hudson in the Halfmoon

had even begun his explorations of New York State's principal river.

Then there's another little matter which seems to have been often overlooked in connection with Lake George—that concerning the largest military expedition, known to history at least, ever assembled anywhere in the New World up to the time of our Civil War. We refer to the Abercrombie English and Provincial Army of 17,000 men who sailed down Lake George ("down" in this case meaning northward) to be so soundly trounced by the French at the outlet, near the community we now call Ticonderoga.

Geologically, the mountains in the Lake George region are exceedingly ancient. Although still lofty and rendered even more so in appearance because they rise abruptly from the water's edge, they are mere granite stubs remaining after incredible ages of erosion. All along the narrows of the lake the shores rise abruptly from the lake level of 322 feet, often with no intervening terraces, to heights of 2,500 feet and more, and on Black Mountain to 2,665 feet. These extensive mountain wildernesses hold scores of smaller lakes and ponds within their lofty, wooded valleys, some of which are seldom explored by man. Considered as a winding river, which it somewhat resembles, Lake George is about 40 miles long. Its greatest depth is slightly under 200 feet.

Those statistical sharks who crave further detail—historical, geographical, geological and local—may find it in profusion in any of numerous published volumes. A recent book of The American Lake Series by Frederick F. Van De Water called "Lake Champlain and Lake George" (Bobbs Merrill, publish-

By FRED STREEVER

ers), gives what might be termed an outsider's viewpoint. A more local outlook is presented in a three-volume work by Wallace E. Lamb, Bolton Landing, titled "Lake Champlain and Lake George Valleys," published by the American Historical Society, New York, in 1940. For much of the data herein I am indebted to a privately printed volume from the library of W. K. Bixby of Bolton Landing prepared by W. H. Samson and titled "Mohican Point on Lake George."

Of the several topographical maps of New York State made by the Geological Survey, the Bolton quadrangle is quite representative of the central part of the lake and its surrounding area. An excellent "Chart of Lake George" by S. R. Stoddard, Glens Falls, showing soundings of the waters, names of the mountains, islands, bays, points, landings and communities, has been standard for many years for fishermen and navigators.

The summer population at Lake George runs to thousands, yet no one need be crowded with such a wilderness close at hand. In winter a large part of the transient shore colonies are deserted. More permanent communities are Lake George Village at the south end and historical Ticonderoga close to the north outlet; the villages of Hague and Bolton Landing on the west shore, and the city of Glens Falls eight miles south of the end of the lake.

ALTHOUGH there are many stretches of waters wide and deep, there are few places where the inexperienced navigator could safely drive his speed boat were it not that the Lake George Association erects hundreds of warning spindles at dangerous shoals each spring. Practically all these shoals and ledges are of solid granite and are disastrous to keels and proPELLERS. Some are barely awash—mere resting places for grey and white gulls to preen and gossip during summer days.

Islands of all sizes—from a few feet to a mile in length—dot the lake. Most are cloaked with cedar, oak, Norway and white pine, a few blueberry and wild raspberry bushes, and some unusual species of wild flowers. Singly and in snug family groups, big and little, these green islands sleep in the summer sun, with the sparkling waterways between them offering new paths of adventure for Captains Courageous of power craft, outboards, oars and paddles. And most encouraging of all to the amateur explorer and summer camper is their almost complete lack of mosquitos.

Of the many islands in the lake, 119 are State-owned and supervised by the Conservation Department. They stretch the length of the lake, each marked by a

sign reading "State Land." Many boat leanto shelters for campers, and other facilities including water, tables, benches and fireplaces. In addition there are public campsites at Lake George Battleground, one-quarter mile south of Lake George Village, and another at Heartstone, on the Bolton Road which branches off Route 9 just to the north of the village.

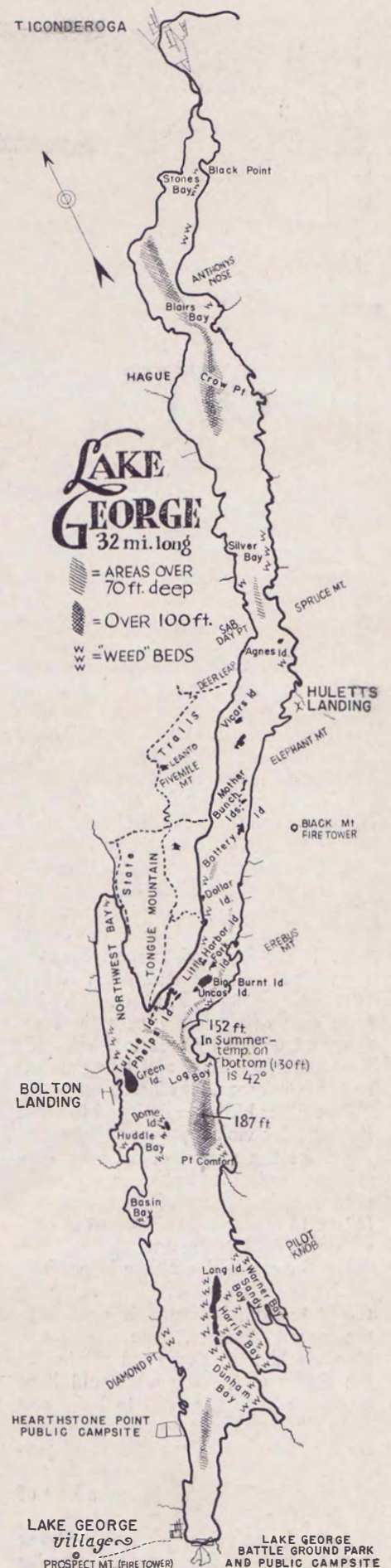
On the west side of the lake, above Bolton Landing, there are 13,000 acres of State-owned land on the Tongue Mountain range. Through them passes a well-kept trail providing one of the most scenic trips in the East and having three open camps. Circulars describing this trail are available from the Conservation Department. In addition, the Department's Recreation Circular 6 contains complete description of the Lake George area and shows campsites, State-owned islands, trails and access highways.

Along Lake George's borders, bare granite ledges drop out of sight in the waters' depths. Rising above the musical slap of waves on the rocks, the naked ledges are immediately clothed with green velvet mosses, lacy ferns and flowering shrubs and plants in all conceivable shades of green and gray and brown. A bit higher the forest takes over, and the trunks of chastely white native birches mingle with darker boles of oak and the trunks of maples, both sugar and red, which need only the early touch of autumn frost to set the mountainsides ablaze with scarlet and gold. And high on the remote ridges, standing against the sky, are the spires of great spruces and pines.

Leisurely cruising along the shores without a motor has a special charm. Spring-fed rivulets from the heights above are clear and cold; their duty seems to be not merely to minister to the lake but to provide food and drink to trees whose massive roots are anchored into every rock crevice. And wonder mounts as to how all these growing things are supplied with nourishment, since there seems to be no alluvial soil anywhere visible. Because the waters are exceedingly cold and clear, fed almost entirely from these mountain rills, there are practically no patches of water weeds visible on the lake's surface—which brings us to fishing locations and fishing itself:

In summer the trout in Lake George are far down in the cool depths and are trolled for with native smelt or spoons at depths reaching 100 feet. In all seasons some trout will be found close to bottom, but in spring, and up to June, they may be caught in lesser depths and even close to the surface. Lake trout, although legal the year 'round, are

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A LOOK AT THE new LEGISLATION

*Major bills fail of passage in
1947 law-making session*

ACTION by the 1947 State Legislature in matters affecting conservation—including measures for fish and game—can be described as largely negative in character. Some of the outstanding proposals under consideration failed to make the grade.

The subjects of the increased license fee bill and the proposal to prohibit the construction of Higley Mountain dam on the South Branch of the Moose River, both were defeated. The latter is discussed elsewhere in this issue.

Two other proposals, backed by the State Conservation Council, were killed in the Assembly Conservation Committee. One sought to prohibit all hunting and the possession afield of firearms for a 15-day period preceding the woodcock or grouse season—whichever occurs first. It was designed to strengthen enforcement weapons and put a crimp in illegal pre-season hunting. The bill took care of necessary exceptions for farmers troubled by predators, scientific license holders, skeet and trap shooters and law enforcement officers.

The other bill—also designed to make it tough for violators—would have provided for the seizure of firearms, conveyances and other instruments illegally used in the jacking of deer, and forfeiture to the State in the event of conviction or civil settlement.

On the credit side of the ledger, two resolutions which would have amended the State Constitution as it pertains to the Forest Preserve, were withdrawn. One would have permitted mining in the Preserve; the second would have given the State the right to build and maintain permanent, enclosed buildings on the same lands for recreational purposes. Both had been opposed by the Conservation Department and a host of conservationists and sportsmen.

A third resolution, the Wicks-Reoux amendment, which would authorize

construction of ski trails on the slopes of Belleayre Mountain in Ulster and Delaware counties, and Gore and Pete Gay Mountains in Warren county, again passed both houses and was sent to the Secretary of State for presentation to the voters this fall. While this was opposed by some conservationists who are against all constitutional amendments, it was not opposed by the Commissioner, who felt that it made possible a definite project for the more complete use of local skiing facilities for which there is a demonstrated need.

New conservation laws enacted by the 1947 session as we go to press, follow:

Pike-Perch

Oneida Lake—Reduces daily limit of pike-perch which may be taken by a person in one day from waters of Oneida Lake from 30 to 15, and provides that two or more persons fishing from a boat may take and possess not more than 25 such fish in one day. Effective July 1.

Oswego River—Blue pike and yellow pike of any size may be taken and possessed in any number in the Oswego River north of the lower bridge in the city of Oswego. Effective July 1.

Muskalonge

Cattaraugus, Chautauqua Counties—Reduces from 32 to 30 inches the minimum length of muskalonge which may be taken from waters of Cattaraugus and Chautauqua counties other than Lake Erie during the open season. Effective immediately.

Free Fishing Licenses

Veterans—Allows free fishing privileges to a patient in U. S. Veterans' Facilities or a patient in a public tuberculosis hospital providing proper authorization is on his person. Effective immediately.

Citizens over 70—Permits citizen residents of New York over 70 years of age to procure citizen-resident license without charge, providing they have been residents for at least six months prior to application for license. Effective July 1.

Bait Fish

Sawbellies—Permits use of gill nets measuring not more than 25 feet in length, having mesh not larger than one inch, in Keuka and Seneca lakes by persons holding licenses to take fish by angling, in the taking of sawbellies for bait, for the taker's personal use and not for sale. Effective immediately.

Pheasant

Open Season—Extends to January 1, 1950, the Department's authority to regulate open seasons and bag limits for wild pheasants for the entire State except Long Island. Effective July 1.

Deer

Open Season—Makes 1947 open seasons the same as those fixed in 1946 in the same open counties, in addition to that part of Oneida County south of the main line of the New York Central and Hudson River Railroad, where the open season is from November 24 to November 29, and the taking restricted to the use of shotguns and long bow. Effective July 1.

Deer by Long Bow

Westchester County—Sets a special open season for deer having horns not less than three inches in length in Westchester County from November 15 to December 15, and provides that only the long bow may be used in taking deer. A person may take but one such deer. Effective immediately.

Hunting

Herkimer County—Opens a section of Herkimer County between Routes 5 and 5S which had been closed to hunting for the past several years. Effective immediately.

Possession

Birds, Fish and Game—Continues temporary provisions which permit possession in any number of carcasses of legally taken birds, except migratory birds, fish and quadrupeds until July 1, 1948, and governs the transportation of such fish and game. Effective July 1.

Marine Fisheries

Menhaden Boats—Provides for one license for boats of residents or non-residents in taking menhaden, or other fish from which oil fertilizer is made, in the Marine District. Effective July 1.

Netting

Lakes Erie and Ontario—Extends to July 1, 1949, authority temporarily conferred on the Department to regulate the use of nets in the waters of Lake Erie and Ontario within one-half mile of the shore or islands thereof. Effective July 1.

Alewives, Ontario—Continues until July 1, 1950, the section permitting use of nets having a mesh not less than one inch, at any distance from shore, in Lake Ontario west of the Oswego-Jefferson county line for the taking of alewives (sawbellies). Effective July 1.

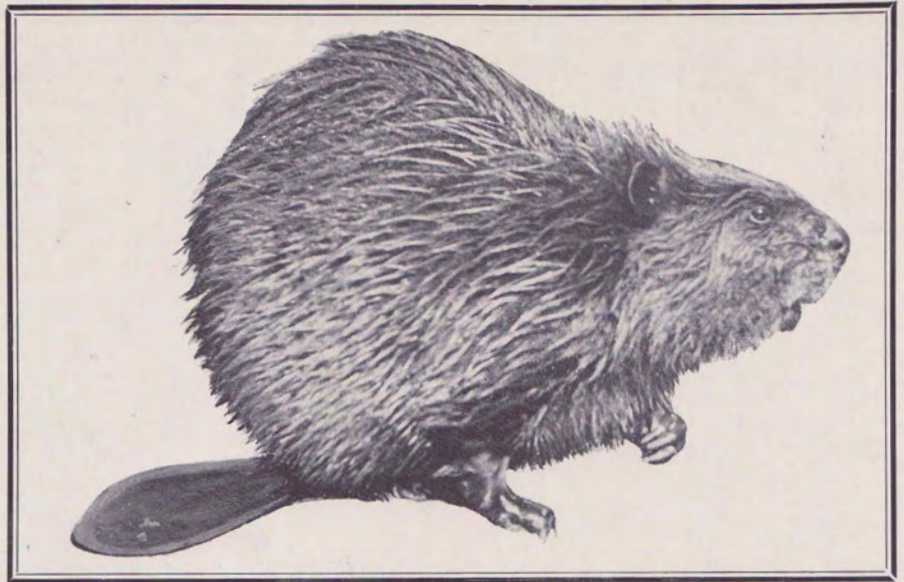
Plumage

Pheasant Feathers—Amends the law relating to the sale of plumage of birds so that the plumage of certain pheasants raised in captivity may be bought and sold and trafficked in at any time without license or permit from the Department. Effective immediately.

Forest Rangers

Change in Status—Removes from the Conservation Law limitations on Forest Rangers' salaries and makes it possible for the Salary Standardization Board to place Rangers on a salary schedule in keeping with the duties and responsibilities of their position. Effective immediately.

The 30-day period for action by the Governor on bills approved by the Legislature had not passed as this was written. Numerous others awaited his signature. Because of this fact, this cannot be a final report of the new Conservation Laws enacted. Additions to the above will be reported in the next issue of the *Conservationist*. THE END



A Breather for the Beaver

By GARDINER BUMP

Superintendent, Bureau of Game

EARLY IN MARCH 1923, the Legislature of the State of New York set a new precedent in wildlife management. It passed a bill giving the Conservation Commissioner the power to annually set an open season on beaver, or to give them complete protection, in accordance with population conditions as they were found to exist from year to year.

Since that date open seasons have given trappers from all parts of the State an opportunity to periodically harvest the surplus crop. The record is impressive, for no less than 43,067 beaver—worth conservatively one million dollars—have found their way to market. Year by year the trapping has been so regulated as to leave always a substantial seed stock of beaver well distributed over the State. Furthermore, damage to timber and croplands has been substantially reduced. Nor has there been a single failure of the beaver crop over this period.

This near-miracle of modern game management is the result of a long thought-out plan. In its earlier stages this called for relocation of beaver in most counties of the State, but as their numbers increased, so did the complaints concerning their engineering and tree-cutting proclivities. Beaver, to a greater extent than most other species, make a nuisance of themselves when too abundant, and it was soon discovered that they should be restricted largely to forested, waste, or abandoned land areas. Their presence is so incompatible with agricultural activities as to make it necessary to eliminate them entirely

from heavily farmed communities, and even in forest areas too many beaver lead to complications.

With these facts in mind, an intensive reconnaissance of the State's beaver range was started in 1940, interrupted by the war, and completed in 1945. As a result of this survey, the State was subdivided into the following three classes of beaver range, and a policy for the management of the beaver crop in each was decided upon.

Class 1—Counties (mainly Adirondack) in which not more than 50 percent of the land is devoted to agriculture. Open seasons in this class should be declared, and the beaver so regulated as to maintain a population at about the carrying capacity of the range.

Class 2—Counties having 50 to 75 percent of their areas in agriculture. Open and closed seasons in this class should be declared, to maintain the maximum population compatible with agriculture.

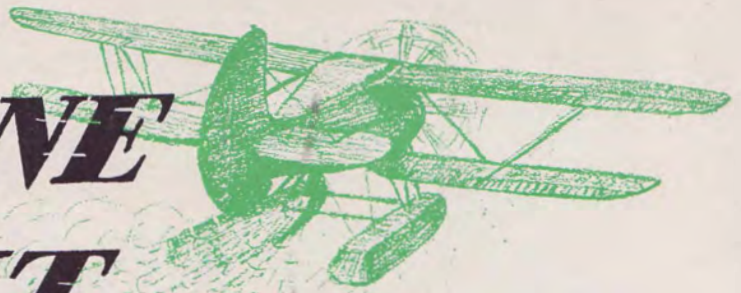
Class 3—Counties over 75 percent agricultural, (largely in the Lake Plains District). Beaver here should be periodically eliminated by open seasons held concurrently with Class 2 counties.

The accompanying map will enable the reader to see in which of these classes any county, in which he may be interested, has been placed.

Each fall the State's eight District Wildlife Managers collect information in their respective districts on the following points: (1) Current beaver populations; (2) Number of active and inactive colonies and (3) Number and distribution of beaver damage complaints.

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AIRBORNE TROUT



by Fred Everett

ONCE upon a time, not so long ago, over-burdened fish planters, trudging weary miles with heavy tanks of water and fish on their backs, must have had visions of a millennium when trout would rain down from the heavens to stock their favorite waters back in the bush.

That millennium has arrived. The age of airborne trout is here. Fish do rain from the skies to stock the most inaccessible waters. No region is too remote, no waters too secluded in the depths of our mountain wildernesses to be stocked with airborne fish.

About a year ago, at the state convention of the New York Conservation Council, the head of a neighboring state conservation department emphatically declared that, no matter what was said, no one could stock fish successfully from a flying plane. And most other people, too, find it hard to believe that fish dropped hundreds of feet, and at the high speed at which an airplane travels, can live to relate the harrowing experience to their grandchildren.

But fish can and do live to carry tales long after such breath-taking high dives. "Dive" is the word because, as the fish flutter leaf-like down from the plane, the majority hit the water head-first, thus receiving little shock. And it must be that even those which take "belly-floppers" are not hurt either, because experiments with airborne stocking have failed to produce any stunned or dead fish.

New York's era of flying fish actually started back around 1933 when horse-drawn buckboards were still being used to cart fish into remote waters. The slowness of this transportation resulted in a big loss of trout even before the waters were reached. To overcome such waste of time, effort and valuable fish, the Department decided to try flying them into waters big enough to accommodate a float plane. While this plane was taxiing around a lake, fish were dipped out

of a special tank and carefully put into the waters.

This method was successful in that fish survival was high. But it was restricted to large lakes and presented a fairly hazardous undertaking. In order to stock smaller, more remote waters, a method had to be devised whereby the fish could be dropped from a low-flying plane. While the stunt of swooping down over small bodies of water could also be dangerous, it would provide a speedier system of stocking if the fish could survive the drop.

About 1938, Sumner Cowden, superintendent of fish culture, and O. R. Kingsbury, supervisor of fish distribution, decided to attempt such a stocking stunt to see what would happen. They based their decision on experiments along this line which had been tried out with good results in Canada. At their direction a large cheese-cloth net was staked out under the surface of Lake Pleasant. This was the pilot's target. As the plane sped along, between 125 to 150 miles an hour and at an altitude of nearly 200 feet, approximately 150 trout were dumped from a 14-quart pail. They landed over the netting, which was quickly taken up, and were rushed back to the hatchery from which they had come. To everyone's delight, not one fish died as a result of the dive from the plane.

Repeated experiments produced similar results. And fewer trout died during actual transportation because they were in the plane such a short time. Also, survival after stocking was better than it was after slower transportation methods; at least, fewer sick or dead trout were found. No doubt this was likewise due to the fact that the trout were planted soon after being put in the plane—thus being in better condition when stocked.

Once the success of planting fish from a flying plane was assured the Department made use of the system on an in-

creasing scale. The first waters so stocked, from a plane based at Speculator, were Spruce and West Canada Lakes. From that modest start more than 40 lakes are now being stocked annually by this method. Future plans, augmented by postwar projects, call for a rapid step-up in this program until most of the remote waters now or henceforth in need of stocking, and accessible by plane, will be stocked by this method. The results should be a big saving in time and fish and a more thorough coverage of wilderness waters.

All this past program has been carried out without any great fanfare. The limited amount of such stocking and lack of equipment made it necessary to avoid publicity and its resulting demands until such time as money and equipment for an expanded program became available. The time has now come to give credit where credit is due, and to tell the world what this State has done with this progressive stocking method.

FIRST off, this credit should go to sportsmen's clubs and boards of supervisors of Warren and Hamilton counties. These groups have not only cooperated fully, but have provided funds to finance the stocking program. With their aid during the past five years a total of 561,950 trout have been safely stocked by plane-drops in the waters of those two counties.

Firm believers in the program, and co-owner pilots of the plane which did this stocking, were Harold A. Scott and Charles Smith, both of Inlet. They built a special two-compartment aluminum tank into their hydroplane, with a flap valve under each compartment. When the valve was opened, both water and trout flowed out, scattering the fish over a wide area as the plane sped along. At first no oxygen tank was used, but, as the stocking program called for travel over greater distances, an oxygenating system was installed to

keep the trout in the best possible condition for their spectacular dive into their future homes.

Three other members of the Conservation Department have played a leading role in this program in addition to Cowden and Kingsbury and the progressive-minded "higher-ups." They are Donald Pasko, who was in charge of the Johnstown rearing station before going to war and now a Department aquatic biologist stationed in Rochester; Emile Williams, who took over Pasko's job at Johnstown, and Kenneth B. Nichols, foreman of the Warrensburg Fish Hatchery. These men have furnished the fish and directed their stocking all over the State.

When trout are to be stocked by plane they are rushed in a Department fish truck to the lake from which the plane is to operate. There the plane's tanks are filled with water and up to 70 pounds (about 3,000 in number) of trout. The oxygen is turned on, and away they go to waters where stocking by any other means is an impossibility. Most trips are completed in less than an hour and are purely routine from everybody's point of view, except that of the unsuspecting trout.

This year a new program will be set up with funds available through the State's Postwar Planning Commission. The Department itself has purchased a plane which is being outfitted with tanks and other newly-designed equipment. This plane will be used to make possible an enlarged stocking program over a much wider area of the State's waters. All of which fits in perfectly with Commissioner Duryea's plans for a greatly expanded output by the hatcheries to give all waters more and bigger and better fish.

With the tremendous increase in fishing pressure since the end of the war, this new, more economical and speedier method of fish stocking is greatly needed. Fortunately, modern science has kept pace with growing demands. And those in the Bureau of Fish Culture, the Division of Fish and Game, and the Commissioners themselves, were "on the beam"—producing the era of airborne trout just when it was most needed.

THE END

PHOTO CREDITS

1st and 2nd Covers	Doug Finch
Page 2	Pete Fosburgh
Page 3	Doug Finch
Pages 7 and 11	Earl McGuirk
Page 14	Doug Finch
Pages 18 and 22	Clayt Seagars
Page 29	Fred Streever
4th Cover	Clayt Seagars

BREATHER FOR THE BEAVER

(From Page 7)

This information is collected in surveys conducted by Game Protectors and, independently, by the District Game Managers. The findings of the two surveys are compared before a final report is submitted to the Commissioner, and a year-by-year record of the location of active and inactive colonies is kept on standard Geological Survey maps in the office of each District Game Protector.

In making these surveys, every available means is used to arrive at accurate estimates of beaver abundance. In the past most of the work has been done on foot, but it has been found that aerial surveys can be almost as accurate, and they are infinitely quicker. A plane cruising at 110 miles per hour can cover 175 square miles each hour.

Other points, too, are taken into consideration in making final recommendations. The opinions of trappers and sportsmen regarding the desirability of an open season are canvassed and taken into account. So also is the number of beaver taken in each of the counties during past open seasons, because if the harvest is properly handled that number should remain roughly the same year after year.

It was a picture such as this that the Commissioner had before him in making his decision not to open any counties to beaver trapping in 1947. It is interesting to go over a few of the pertinent facts on which this decision was based:

This year's survey indicated that in most counties in the State there are somewhat less beaver than last year.

Last year's take of 5,567 beaver was

the largest on record since the beaver made their comeback at the turn of the century. Also, last year 33 counties were open to trapping; this is also the largest number on record.

Though the beaver have shown a satisfying comeback, it would seem wise to allow them more time to re-establish themselves before another open season. Though 1,081 active colonies were located, the number of inactive colonies, due to heavy trapping, increased this year over last.

In all but a few parts of the State there is still plenty of good beaver territory not yet occupied. This is a good year to give these furbearers a chance to recolonize these favorable spots, since beaver "blankets" are bringing only about \$25 apiece this year as compared with last year's \$70.

Protectors, District Managers and sportsmen were almost unanimous in recommending a closed season.

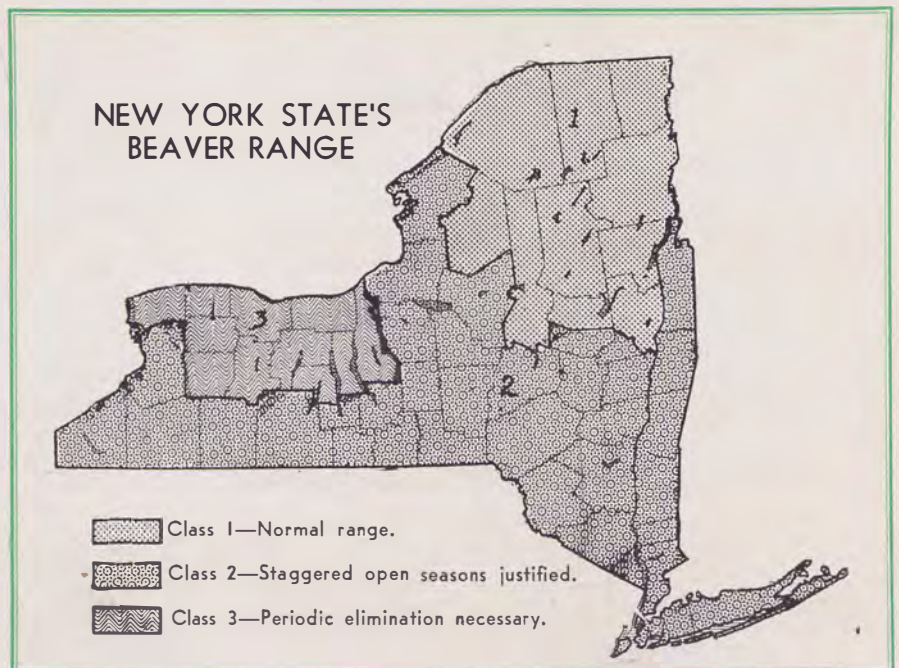
In the Adirondacks there has been an open season each year for the past eight years, with the result that many of the more accessible colonies have been trapped out.

The few counties in which beaver are abundant are not contiguous and represent too small an area in themselves to make a beaver season therein a practical proposition.

Current beaver populations are not sufficiently high to result in any unusual number of beaver damage complaints over the forthcoming 12 months.

So that is the story of how old "flat-tail" came to enjoy a respite this year and of the safeguards that assure his continued well-being so long as he behaves himself.

THE END





It's going to rain. Now is the time to decide what you're going to do about it, (if anything)

YOU HAD BETTER figure out where you stand with regard to rain, because as long as you stay in this State it's going to rain on you one day out of every three. This is official, and don't let your Chamber of Commerce tell you different. In the winter, of course, it may snow instead, but 10 inches of snow equals about one inch of rain, and if things average out the way they have for the past 50 years some sort of dampness is going to fall on you every third day.

You might suppose that when anything happens as often as this, people would react to it normally. This is not the case in New York. Most say "Oh, it's raining", and go inside. Others say "Ah, it raineth", and go outside. Still others say "Damn, here she comes", and there's no telling what they will do. The most extreme reaction we know about was that of a gentleman from Hoffmeister, in Herkimer County, who was so disgusted with rain that whenever it clouded over he took to the bottle and stayed with it until advised that the sun was out again. He passed quietly away toward the end of 1945, which was the rainiest year this State has had since 1890.

We don't mean to harp on this fellow, but he should have moved out of Hoffmeister. This is the wettest place in New York, from a meteorological point of view, because an average of 53.75 inches of rain falls on it every year. Our man could have gone to Lewiston, in Niagara County, which is just about the driest town we have. He would have gotten only 25.44 inches there. But as long as he stayed in New York he would have been in pretty bad shape most of the time, because the average for the whole State is just under 40 inches.

This might be a good time to explain what an inch of rain amounts to. If you had a lawn of one acre; if you put on this lawn 1,357 bathtubs; if you had 20 gallons of water in each bathtub; if you pulled the stoppers on all of these bathtubs at the same time, you would get the equivalent of one inch of rain. This one inch equals 27,143 gallons per acre.

You may therefore expect that during the course of one year you will get 1,085,720 gallons of water on your lawn. If you live on the southern slopes of the Catskills, or on the ridge between Lake Ontario and the Black River Valley, you

will have the wettest lawn in the State. If you live near the Livingston-Wyoming county line, or on the western shore of Lake Champlain, you will have the driest.

So you don't care? Nevertheless, we will go on to say that the biggest rainfall that ever occurred in one day in this country hit New Smyrna, Florida, on October 10, 1924. It rained 23.22 inches in 24 hours. This, however, is small potatoes compared to what goes on in the Philippine Islands. On July 24, 1911, it rained 45.99 inches on the island of Luzon, all in 24 hours. If you will refer back to the bathtub formula you will understand that this was a nice shower, in fact the nicest ever recorded anywhere. At the other extreme, it once took Baghdad, California, five years to accumulate 3.93 inches.

If anything at all can be deduced from the foregoing paragraph, it is that New York, compared to the rest of the world, has a fairly moderate rainfall. Our 40-inch precipitation is what makes this a green State, spotted with plenty of blue lakes and rich brown soil. If we had less rain a lot of the green would turn to yellow, and a good deal of the blue would disappear. More rain, and the colors would begin to run together.

Even if we didn't get the right amount of precipitation, there wouldn't be much you could do about it. Last year a fellow in an airplane made snow fall on Massachusetts, but so far he hasn't made rain. The Hopi Indians out in Arizona, when they need some moisture for their corn, jump up and down and hoot loudly. They call this a rain dance and it is usually followed by rain, although there is often a time lapse which casts some doubt on the effectiveness of this method.

IT seems then there isn't much you can do to start rain or stop it. The delivery of celestial water is handled mostly by gigantic masses of air which move around the country at the rate of 300-500 miles per day. They carry a lot of water with them, in clouds, and it's pretty hard to say just when they are going to let it go, although a lot of people try. The advancing edges of these air masses are called fronts, either warm or cold depending on the character of the air behind, and sometimes they ex-

tend for a thousand miles or more. When one of these fronts arrives over Hoffmeister, watch out.

But we also have purely local weather, as Mr. Calvin Atwater of Garfield will tell you. On the afternoon of July 22, 1945, Mr. Atwater stepped to the door of his sawmill, took a quick look at Rensselaer County, and announced that it was going to rain. It did. In fact it seems that the Almighty delivered New York's heaviest rainfall in the shortest time over the smallest area. Although no official measurements were taken, Army Engineers, who had to survey the damage afterwards, estimate that it rained between 12 and 14 inches in about three hours.

Twenty minutes after it started, Mr. Atwater looked out of his window and observed a cow floating down Kinderhook Creek. The cow was soon followed by other cows, by a procession of coffins from a funeral establishment upstream, by a series of bridges and houses, and finally by most of Mr. Atwater's mill. That night a 16-foot motor boat was cruising around in a pasture east of Stephentown, trying to rescue two men from a perch in an elm tree. Total estimated damage, \$1,365,000; three dead.

The local weather that hit Garfield was, of course, a thunderstorm. Unfortunately it arrived at the same time that a good air-mass rain was in progress all over the Northcast, but although this was a coincidence, thunderstorms are not. New York gets a lot of them. They can happen anywhere in the State, but they are particularly likely to happen when some warm air, with a lot of moisture in it, gets blown against a mountain range. The mountains force the air upward, which cools it, which condenses the water in the air, and then, brother, it rains. Ask Mr. Atwater, who lives at the foot of the Berkshires. Or ask anyone in the Catskill counties.

ASTORM like this, in fact any excessive rain, does tremendous damage to crops, fish and wildlife. When the Kinderhook finally returned to its banks it left a lot of trout behind, and farmers picked them out of their fields for weeks afterward. Besides that, the bed of the stream got a thorough scouring that removed most of the natural fish food. Rain keeps streams and lakes fresh, and the water temperatures low, but too much is plenty.

Too much is also plenty for small game. If rabbits had to choose between precipitation and multiplication, they'd go for the arithmetic. This is partly because, like most rodents, they get all the water they need out of the stuff they eat, and too much rain drowns a lot of rabbits. Pheasants and grouse can also get along very well without rain. A long,

Out of Control



cold rain in late May or early June will kill more birds, especially those from one to 15 days old, than all the hunters and predators in the State.

When it comes to agriculture, a heavy rain often flattens standing crops, but its effect on uncovered soil is even more serious. It beats the pores of the surface soil to a pulp and so destroys their ability to conduct water into the ground. Any rain that comes down after that is going to run off—fast.

To get back to Mr. Atwater, we do not contend that either he or the Hopi Indians could have shut off the rain that hit the Kinderhook watershed. But although you can't start or stop rain, you can control what happens to it when it gets here, and that's where you, and conservation, come into the picture. If you want to make the most of our 40 inches, if you want to raise a nice field of timothy, or keep water in your well, or are interested in surviving the next flood that comes down your valley, you ought to start fooling around with the Hydrologic Cycle.

The nice thing about this cycle is that it will stand fooling around with. Its fundamental principle, as applied to New York, is that of our 40-inch annual precipitation, roughly 19 evaporates, 11 is breathed out into the atmosphere (transpired) by plants, 6 runs off in streams, and 4 sinks into a subsoil reservoir known as ground-water. Most of this ground-water also runs off in streams, sooner or later. So if you group together all of the rain that is eventually returned to the atmosphere, and then all the rain that eventually runs off, you get this equation: Precipitation equals Evaporation plus Runoff.

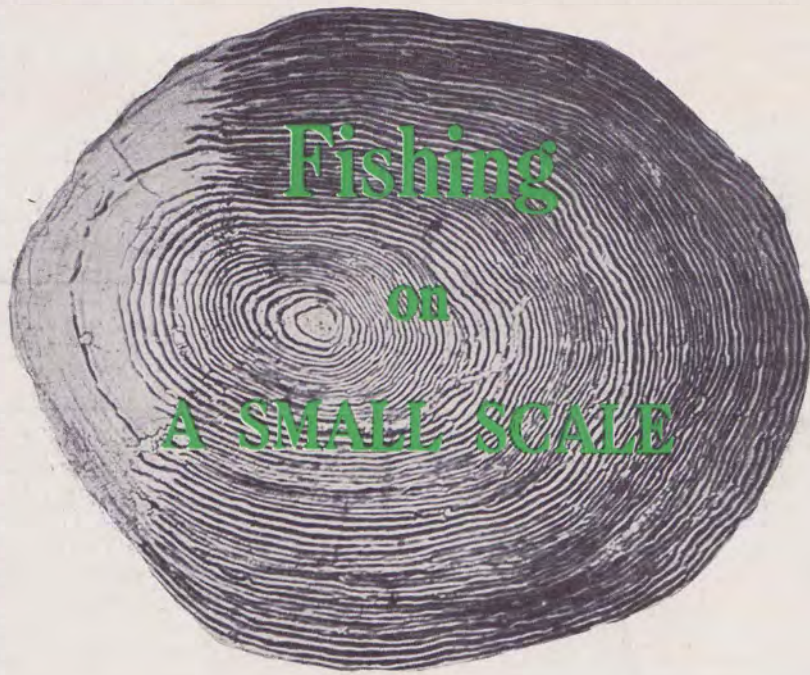
We will try to recapture your interest

by pointing out that you can meddle with this equation, at least with the right-hand side of it. Except for precipitation, you can change these figures and proportions to your advantage, and on a strictly local scale. Your fundamental objective is to store rain in the ground for just as long as you can keep it there, and to do this you can, and should, increase the evaporation figure and cut down on the runoff. There are methods of doing this—all involving the way you use your land—and a quick look at the upper Kinderhook valley will show you that very few of them were practiced there.

On seeing this valley, you might conclude that it looks uncomfortably like a lot of other valleys in this State. The drainage basin is small, the valley narrow, the hills on either side high, and the slopes and river gradient steep—an ideal setup for a flood provided the wrong amount of rain arrives at the wrong time, which it did.

But you might also conclude that poor land use had contributed at least something to the flood, and a good deal to the damage it caused. You will notice that the hills on both sides of the stream have been grazed right down to the water's edge and that not even the woodlots have been fenced, which means that most of the vegetation that might have held soil and water has been eaten off. There has been no reforestation to protect steep slopes, no strip cropping, no terracing, and almost no contour cultivation to keep soil and water where it belongs; no ridging and very little furrowing or diversion ditching to handle excess runoff; and no dams or cribbing to slow up the water once it

(Continued on Page 30)



A fish's "fingerprints" tell us much of its life history

By DR. JOHN R. GREELEY
Senior Ichthyologist

IF YOU have ever allowed a bass or pike to dry out before scaling it, you have probably wished that fish had never acquired such armor plating. Although bullheads and a few other types of fish seem to get along well without scales, most of the finny tribe have them in one form or another, large or small.

Scientific studies of scales may some day throw light on the subject of why these structures are so important to fish. More important, from a conservation standpoint, research has progressed far enough to put scales to good use by making them reveal facts about their owner's past history.

In handling any crop, a knowledge of growth rate is important. A game crop, like other warm-blooded livestock, has a relatively constant rate of growth, so there is less need of detailed, localized studies than there is for a fish crop. Comparisons of different populations of yellow perch, for example, show as much as 900 per cent variation in weight at the same age.

It is usually impossible to study growth rate of fish by observation, as could be done with a timber or a farm crop. Hence the reading of fish scales, although sometimes complicated, is often the simplest method of getting facts for fish management.

Scales, scraped from the side of a fish and labeled with information that includes species, date, length, collector's name and other details, constitute scale samples. Age determination requires a microscope and is therefore a laboratory

job to be done at any time the dried samples can be soaked up and mounted for study. But perhaps techniques of preparation and study are of less concern than methods of interpreting what the microscope shows.

To start with, a few words about the structure of fish scales may help. In common with your own outer skin, a scale is a hard, non-living structure which is produced by living cells but is not itself living tissue. The ridges evident in your fingers, which make it possible to take fingerprints, have their counterpart in fish scales. These ridges, which photograph black when light is transmitted through the scale, are called "circuli".

These ridges are not to be confused with the winter marks, known as "annuli". A winter mark is not a definite structure but a location—the place where growth of one season ended and that of the next began. Often the pattern of the circuli will change at this point. Since determination of age depends on correct interpretation of the number of winter marks, such markings in the pattern of circuli spacing are helpful. The salmonoid fishes (salmon and trout) have scales which usually show such pattern changes.

From here on let's take a look at some scales photographed by Dr. U. B. Stone, Senior Aquatic Biologist. The first, at right, is that of a 17-inch landlocked salmon and is a good one to show how interpretations of growth rate are made. In the center, like a bull's eye,

is a ring. This is the first of the circuli outside the focus or center of origin of the scale when it first started growing on the baby salmon. The adjoining ridges are widely spaced, for the scale is growing fast—partly because the young fish feeds actively, and partly because the scale has plenty of room in which to grow during its early stages.

Having now followed the scale out to about a quarter of the way to its edge, the pattern of the circuli changes abruptly to a much wider spacing, and this continues on to the edge of the scale. This large area of the scale represents the second year. It is obvious that the growth was fast, as shown by the wide spacing and by the large amount of scale growth. Growth was fast right up to the winter, as there is no zone of closely-spaced ridges which would indicate a slow-down.

The next step, after noting and classifying the type of growth shown by this salmon in its two years, involves comparison with other scales from the same habitat—which happens to be the Schroom Lake-Schroom River area. As a result of this background, information on the life history of the fish can be interpreted. The first year was spent in a stream, probably the Schroom River. The second year—the one of fast growth—was spent in a lake, undoubtedly the Schroom.

Hence this landlock, an immature male weighing a pound and a half, taken May 12, 1944 in the Schroom River, is a two-year-old which dropped down into Schroom Lake at the end of its first year. Presumably it was an unusually large yearling, for most salmon are two years old before they migrate. If you wish to know how large it was at the end of its first year, the scales will tell you this by simple arithmetic, for the growth of the scale is closely proportionate to the growth of the fish. Hence, if we know the length of the fish when it was caught, its length at any year can be calculated. For this particular fish it comes out 4.3 inches.



Suppose we look now at a second photograph (below), the scale of a 10½-inch brown trout from the Beaverkill. Brown trout scales are very much like those of salmon, and the first year of growth is very much like the corresponding year in a salmon scale. The second year of this brown trout scale shows moderately wide spacing of the circuli in early growth, followed by narrower spacing later in the year. After the second mark, the growth started off with very wide spacing, and in June the fish was still growing faster than it grew in the comparable scale zone the year before.



This acceleration during the third season occurs on a large number of brown trout scales from the Beaverkill. Evidently growth conditions in this stream are very good during the spring months, and trout there increase materially in size and weight as a result. In this large stream system, with its numerous tributaries, it is quite probable that trout migrate considerably. A trout's change to a more favorable habitat, by dropping down from a tributary into the main Beaverkill, would produce the type scale pattern shown in the photograph.

For research purposes, fortunately, most fish scales in the northern states form good winter marks (annuli) and fish rarely stop growing long enough from causes other than winter to form confusing marks.

Ever-increasing emphasis on age determination as an aid to management of fish crops may be expected to produce better fishing. It isn't quite possible, by fishing for facts on the scale record, to determine everywhere a fish has been and everything that has affected its growth, but when supplemented by field studies of habitat conditions such explorations do give many useful conclusions to be caught and put in the pan of fish management application. THE END

OUR PUBLIC STREAMS

(From Page 3)

Catharine Creek, this is a rainbow stream on which acquisition of rights have just been started, between Bath Hatchery and the lake. The upper part produces browns and brooks.

(23) Kinderhook, 17 miles. Brown trout, with an occasional brookie or rainbow, lure many fishermen to this attractive stream on which rights are nearly solid between Malden Bridge and Garfield, with a few rights on major tributaries.

(24) Little Salmon, 8 miles. Although not one of the largest, this one is a real producer of browns and brookies. Rights are nearly solid from Brush-ton to Twin Ponds.

(25) Mohawk River, 1 mile. Acquisition was barely started when the war interrupted the work on this brown trout stream.

(26) Moose River, 14 miles. This is a dedication by Niagara-Hudson Power Company which allows fishermen to use that section from McKeever to Koster-ville. Brown trout and bass.

(27) West Branch Oswegatchie River, 17 miles. Landowners gave free dedications allowing public fishing. Brook trout are taken in this stream, on which public rights are continuous from the vicinity of Kimball Mill to above Round Pond.

(28) Otselic Creek, 24 miles. Although best noted for brown trout, occasional brook trout, pickerel and bass are taken. The open areas are nearly solid from Otselic to Cincinnatus.

(29) Otter Creek, 16 miles. Browns, rainbows and brookies are represented in this stream and tributaries. Rights are solid to above Partridgeville.

(30) Owasco Inlet, 13 miles. Browns and large rainbows are the principal attraction. The acquisition is only partially completed, but includes numerous pieces from Peruville to Moravia and up the Dresserville tributary.

(31) Salmon River, 69 miles. Niagara-Hudson Power Company contributed dedications below their reservoirs and nearly to Pulaski. This section produces some large brown trout. The Redfield Reservoir and upper areas of the main stream and major tributaries produce brooks and also some rainbows and browns.

(32) Schoharie Creek, 12 miles. Landowners made free dedications making State management possible. A barrier dam, built by the CCC under supervision of the Conservation Department, has helped the browns and rainbows hold their own against bass. Rights are scattered from Prattsville to Hunter and up the West Kill tributary.

(33) St. Regis River, 8 miles. Brook trout and brown trout. The stream has been three-quarters' acquired from Nicholville to the vicinity of Santa Clara.

(34) West Canada, 9 miles. Brown trout are the principal species, but this stream also produces some bass and brook trout. Rights have been about half acquired from Hinckley to above Middleville.

(35) Willowemoc, 8 miles. A tributary of the Beaverkill, but well-known of itself, this stream produces brown trout. Rights are about three-quarters solid from Roscoe to Parkston.

(36) Wiscoy, 8 miles. An excellent producer of brown trout, with occasional brook trout, the Wiscoy is well-known. The rights are nearly solid from above Pike to above Mills Mills.

These public fishing rights acquisitions afford a wide variety of fishing with a diversity of water, open or brushy, fast or quiet. Most of it is good, for it has been the policy to acquire only good streams and in relatively long mileages. There are, however, plenty of instances of unfavorable conditions such as erosion and predominance of chubs or other undesirable fish. It will be a big job to handle these streams to make them produce fishing up to full capacity. The program to date is still incomplete but has already taken a real step forward toward assuring permanent fishing and has opened up opportunity to manage streams better than ever before.

As just one step in their management, these streams were stocked with approximately 600,000 trout in 1946. More will be stocked this year. THE END

PESTS AND PLANES—Although gypsy moth infestation is at its lowest ebb in several years, the Bureau of Forest Pest Control will have two spray planes operating this spring against this and other forest enemies. The planes have now been equipped with special devices to improve their efficiency in this field, and it is hoped that the area covered will almost double the 20,000 acres sprayed last year.

Aircraft spraying of two Albany area communities this spring will mark the first that the Conservation Department has projected over municipalities, and it is expected that a by-product of this operation will be a marked decline in the local fly and mosquito populations. The work will be done in the early morning, when there is little wind, as the spray is released in a finely atomized mist which envelops all objects in the line of flight. The spray is an oil-based DDT concentrate, developed during the war. Use of aircraft in spray work is becoming more widely adopted throughout the country, replacing other methods.



Long Island charter boats get a big play. This pair has just returned with a catch of school tuna and bonita

A GAIN THIS YEAR—as it has happened annually for generations—New York's coastal waters will be invaded by countless millions of predatory and hungry migrants. And once again, as in former years, this invasion will be met by thousands of persons in the Metropolitan area, abetted by many others from far-away places, hopeful of dealing personally with the invaders.

We are speaking, of course, about the millions of salt-water fish of many species which enter Long Island's coastal waters each spring and summer. Some of these species come into salt-water bays and remain with us all summer; many others inhabit inshore ocean waters during this same period; still others tarry only a few days or weeks before continuing on their predestined journeys to more distant regions.

Among the many fish which enter the bays, there may be listed such food and game species as the fluke (summer flounder), weak-fish, porgy (Gardiner's and Peconic bays), striped bass and, occasionally, bluefish. These species are also available in nearby ocean waters, along with such other summer residents as sea bass, blackfish, and the more transient, spectacular members of the mackerel family—the common or "Boston" mackerel, common bonita, ocean bonita, tuna, and "false" albacore. Swordfish and marlin are also present from time to time.

This large and spectacular array of species offers the angler a pleasing list from which to choose, in addition to

presenting the public with a wide variety of fresh fish at the markets, retail stores, and restaurants. And perhaps nowhere else on our Atlantic coast have facilities for taking advantage of these resources been as efficiently developed as on Long Island. Thousands of rowboats are available for rental at a small fee; hundreds of specially equipped, sport-fishing cruisers—skipped by highly experienced captains—are available for charter; dozens of so-called "open" boats sail almost daily to the bay or ocean fishing grounds, carrying anglers for a fee of only a few dollars per person, and for the surf fisherman there are available great stretches of ocean beach.

To the veteran salt-water angler all this general information may be "old stuff", but each year finds many anglers fishing salt water for the first time. To anglers who may be contemplating such a venture this year this general information is essential. They need to have described to them such things as angling activities in terms of another's experience. In the case at hand, this may be quite simple; we may not have to pro-

ceed much farther than that old theory of "inch for inch and pound for pound the gamest fish that swims" in order to convey something of the nature of salt-water angling to the inland fisherman.

Now, we have no wish to drag this "inch for inch" theory out of the closet and debate it with some of the old "hot stove leaguers", but we do believe that some comparisons of the behavior of certain salt and fresh-water species may give the inland angler an idea of what to expect from salt-water fish.

When using precisely the same gear—for instance, a bait casting rod the tip of which is five feet in length, $\frac{3}{8}$ ths inches thick at the butt end and tapering to slightly less than $\frac{1}{8}$ th of an inch thickness—and whether casting or bait fishing, a bit more difficulty may be experienced in handling a two-pound weakfish than a small-mouth bass of equal weight. The smallmouth may be more deliberate, more tricky, and he may have a bit more staying power, but the weakfish hits like a "ton of bricks"; he bulls, squirms and twists with lightning speed, and he cannot be "horsed"

Salt Water Resources

By JAMES R. WESTMAN
Senior Aquatic Biologist

lest the hook be torn from the weak tissues of his mouth. In appearance the weakfish somewhat resembles a trout and, in fact, is called "sea trout" in some localities. They can be taken readily by plug casting, but success in this usually requires some special knowledge and technique. Therefore, conventional bait fishing methods with sandworms and shrimp are recommended.

The common mackerel is the same species which is sold under that name at fish stores and restaurants. Its rich green, silver, and iridescent colors are lost within a few hours of capture, but they are among the most beautiful of fish when hooked. Their fighting behavior is characterized by swift, long rushes, providing, of course, that light tackle of the type referred to is employed. It is not unusual to catch several dozens of these handsome fish during a day's angling offshore. They can be taken by trolling, casting, or "jigging" a small, metal lure.

The common bonita behaves like a slightly larger edition of the mackerel, and the ocean or "watermelon" bonita is still heavier. The "false" albacore is another notch higher, and tuna, while behaving in a similar manner when hooked, are usually much larger (sometimes reaching hundreds of pounds in weight) and have a speed and power to their rushes which is difficult to describe. "Watermelon" bonita, "false" albacore, and tuna up to 15 pounds or so in weight can be taken on a light rod (the rod tip used by the writer is 4½ feet in length and weighs 3 ounces) and upwards of 200 yards of 6-thread (18 pound test) line on a star drag reel, but this type of gear requires some experience and is decidedly not recommended for a first trip. Moreover, tackle for these larger species is nearly always provided by the charter boats which specialize in this type of fishing, or by outfitters near the point of departure.

Sea bass and porgies are generally considered together because they provide a good share of the so-called "bottom fishing" in ocean waters. They are usually taken in depths of 30 feet or more. These species may be likened to the panfish of inland waters in that, while they run larger in size and "pull hard", they are caught by still-fishing methods and are not noted for flashy and spectacular fighting. An angler can often catch a sackful of these fish during a day's fishing offshore, and they are excellent table fare.

Fluke (summer flounder) are usually taken on live bait fished from a slowly drifting boat. They do not jump when hooked, but a three or four pound fish can put up a fairly stiff battle, and when you tie into one of "doormat" size, you've really hooked something.

NEW YORK'S SALT-WATER CALENDAR

(Where to Go for What)

Species	Spots Expected	Approximate Dates	Size Range
Weakfish	Peconic Bays; Gardiner's Bay, Great South Bay, open waters	Mid-April to October	¾ lb.-7 lbs.
Fluke	South Shore bays, ocean waters near shore	May to October	¾ lb.-7 lbs.
Winter flounder . .	Long Island Sound and nearly all bays	Spring and fall, except Long Island Sound, where it is present all summer	½ lb.-2 lbs.
Sea bass and porgy	Ocean waters from Sheepshead Bay to Montauk (porgies also frequent Peconic Bays in spring period)	May to October	½ lb.-3 lbs.
Blackfish	Ocean waters, bays, and Long Island Sound	May to October	½ lb.-5 lbs.
Common bonita . . .	Ocean waters off-shore	June to September	1-4 lbs.
Ocean bonita	" " " "	Late July to October	4-10 lbs.
"False" albacore	" " " "	August to October	8-15 lbs.
Mackerel	" " " "	April to July	¾ lb.-2 lbs.
Tuna	" " " "	July to October	8-150 lbs.
Bluefish	Ocean waters inshore; sometimes in bays	July to October	1-4 lbs.
"Snapper" blues .	Bays	Late August to Oct.	6 to 10 inches
Striped bass	Inshore waters, Jones Beach to Montauk Point	June to November	4 to 20 lbs.

Boat Locations

Rowboats: Dozens of stands near highways along both north and south shores.

Open boats: Bronx River, Sheepshead Bay, Jamaica Bay, Lawrence, Island Park, Freeport, Lindenhurst, Babylon, Bayshore, Canoe Place, Montauk.

Charter boats: Generally the same as for open boats, plus locations on north shore of Peconic and Gardiner's bays, near Route 25, such as New Suffolk and Greenport.

Note: It is advisable to arrange for charters several weeks in advance.

The winter flounder is one of the most abundant species in Long Island's salt waters. It is a permanent resident of these waters, but in the South Shore and Peconic Bays regions it seeks the cooler waters of the ocean during the summer months. From April to June winter flounders can be taken in large numbers by hook and line, and in somewhat smaller quantities when they enter the bays again in early fall.

The bluefish demands special mention, because this is where the "inch for inch and pound for pound" theory is truly on "thin ice", if indeed it is on any ice at all. This species has been characterized as the "fish that has everything" and this may not be far from the truth as regards its fighting characteristics. It combines ferocity with speed, power and tactics to an extent where it seems much more angry than scared. And its behavior is made more interesting by the fact that the tactics are unpredictable. Unfortunately, the species' migratory habits are also unpredictable.

One valuable product of the bluefish visits to these waters is the "snapper" or young blue, which comes from the same year's spawning in local or nearby waters. These little blues hatch from the eggs in late spring or early summer, and grow very rapidly. By the end of

August or early September they have reached about six to 10 inches in length and provide excellent sport for rowboat and dock fishermen in the bays.

June will bring to Long Island waters a fish that is probably the most highly-touted of any species along the Atlantic seaboard—the striped bass. Pride and prize of the surf fisherman, the striper can be taken day or night from ocean-side waters extending from Jones Beach to Montauk. Individual catches range from fish of a few pounds to those in the 20-pound "lunker" class, or bigger.

Stripers are not finicky in their eating habits. They can be caught on sandworms, bloodworms, eels and eelskins, crabs and cut bait. Metal squids, jigs and plugs are also productive. The stripers play to capacity crowds of surf fishermen in New York waters until late fall, with the best fishing in late October and early November.

With such a variety of fish to be caught, and so many opportunities existing to catch them, it is small wonder that salt-water gets such a big play in New York and that it annually attracts more and more sportsmen—from humble jetty-sitters to deep-water trollers. And for the fresh-water angler, a trip to "salt" will fall little short of a revelation in angling.

THE END

THE BIG BOOM



By PETE FOSBURGH

“YANKEE JOHN” Galusha is one of the last of the old-time Adirondack river drivers—one of the last of the men who drove big logs through fast water in the hey-day of New York lumbering. His memory goes back to a day when he was a boy and there was great excitement in his town, and then somebody told him President Lincoln had been shot.

Yankee John lives now in Minerva, and when his winter shows signs of breaking up he steps to the door of his house to listen for the Hudson. On the right day he can hear a roar coming from the other side of Kettle Mountain, and then he knows that spring has come, the ice is going out of the river, and the wood has begun to move.

There is still wood coming down the Hudson, but not the sort of wood that Yankee John used to drive. He was on the river in the 70's, when General Grant was President, when Albany and Glens Falls were big timber towns, when Adirondack river driving was at its peak. The lumbermen in those days cut nothing under 12 inches at the stump, and nothing less than 13 feet long. These were saw logs, and in the 70's they came tumbling down the white water to Glens Falls by the million.

They came down the North River,

which is what Adirondack people call the Hudson above North Creek, down the Sacandaga, the Schroon, the Boreas, the Cedar, and the Indian, and sooner or later they all ended up at the Big Boom above Glens Falls. If the river was good, and it stayed good, you could put a log in at Newcomb and it would show up at the Big Boom in a matter of only two days.

But with 13-foot logs, there was always trouble somewhere. The Boreas was bad all the way down. The Hudson was bad at Ord Falls, below Newcomb, bad again just above the mouth of the Indian, and very bad on the big bend below Blue Ledge, near the Deer Den. Even if the drive got through those spots, it could always hang up on the Moulton Bars at Warrensburg.

The worst, though, was always that stretch past the Deer Den. That was where Russ Carpenter smashed up his bateau and disappeared under a boiling mass of logs. Months later some children found him 30 miles down stream when they saw a piece of red cloth sticking up through the gravel near Stony Creek. It was Carpenter's handkerchief, still tied around his neck.

In those days getting logs down to the Big Boom was wild, rip-roaring work from start to finish. The trees were cut in the summer and fall, and then hauled

The Big Boom at its peak:
Glens Falls, 1872

during the winter down to “rolling banks” on the edge of the river. The teamsters who did this hauling were mighty men. Their reputations depended on the size of the load they could carry and the speed they could make through the woods, and it was common practice for them to go out at night and pour water on the tote road. The next day their sleds, piled 10 or 12 feet high and with the teamster standing on top, would careen through the woods on a bed of ice.

The logs were measured and marked on the rolling bank. The standard of measurement in the eastern Adirondacks, and nowhere else, was the “market”—a hypothetical log 13 feet long and 19 inches inside the bark at the small end. It was the equivalent of about 200 board feet. There is some doubt as to how this scale came into use, but you still find people around North Creek who talk about “a thousand markets of pine.”

It was also necessary to stamp the ends of each log before it was put in the river. When Yankee John was on the Hudson there were more than 20 companies driving wood down to the Big Boom, and each company had its regis-

They still drive wood down to the Big Boom at Glens Falls, but old-timers on the Hudson will tell you that things aren't what they used to be.

tered mark so that its logs could be sorted at Glens Falls. The marks were stamped on with a monogrammed hammer while the wood stood on the rolling bank, and months later a company man at the boom would call for his "Dot L's" or his "Deerfoots".

When the first spring flood broke out the ice in the river, the blocking was knocked out on the rolling banks, the logs tumbled into the water, and the drive was on.

Yankee John drove either the North or the Boreas each spring for 20 years—usually the North—and each spring he used to see pretty much the same faces along the River Drivers' Trail. The pay was 90 cents a day, but the river had something that drew the best men back to it year after year.

They slept in open leantos 40 feet long, 40 men to a leanto, with a log fire running the whole length of the camp out in front. They ate beans cooked in a big kettle buried in the ground, and usually the cook dropped in a skinned ham. They came in at night only after it was too dark to work on the river. Most of the time they came in soaking wet, but they never took off their clothes; they just steamed out standing in front of the fire, and then slept on the dirt floor of the leanto.

They got up at three o'clock in the morning, and Yankee John remembers standing around in the cold April rain on Blackwell's Stillwater, waiting for it to get light enough to start work. There was usually snow on the ground, and big pans of ice floating with the wood in the river.

Every day the work was different. It was an easy day going down Blackwell's because the Hudson there was slow and deep, and each man used to pick a good log and ride it for two or three miles, smoking his pipe. Sometimes he would "run the wood" from log to log, just to pass the time of day with another driver across the river.

But when the drive passed the Cedar and came to the mouth of the Indian there was always a dull roar coming up from below, and that meant tough times ahead. This was the "jam stretch". A log would hang up on a rock, others would tie into it, and finally the whole channel would be blocked by a network of wood, with more coming down all the time.

Each jam had its key log, and the river boss used to call for a volunteer to

find that log and chop it out. Dynamite was almost never used. Leaving his pike pole on the bank, a man with an axe would run the wood out to midstream, chop out the key log, and then try to get away before the jam broke over him. McGar, Culver, Bruno, Repetoi, a fellow called Frenchie who would never tell anybody his name, Lewis, Houghton, and Dillon—they were all friends of Yankee John, and they all got caught in the wood and drowned.

Some of them got caught in "jam boats". These were the old Adirondack bateaux, 14 feet long, pointed at both ends, and manned by an oarsman, a bowsman, and a sternsman. Except in quiet water they were always rowed against the current and pointed directly upstream, because if they ever hit a rock while crabbed across the current they were almost certain to capsize. They followed every drive, even on the Boreas. There was a standing order that they were to be "roped" or "painted down" through rough water, but there were plenty of good oarsmen who ran the Hudson all the way from Newcomb to North Creek, and more who tried.

Log driving was already well established on the Hudson watershed when Yankee John hit the river for the first time in 1876. The Fox brothers, of Glens Falls, decided in 1813 that it would be easier to bring wood to their mill than to move the mill to the wood, and that year they started floating down pine from the Brant Lake Tract. The idea caught on. By 1849 there were so many companies on the river, and the confusion was so great, that the Hudson River Boom Association was organized, and the Big Boom was built.

The biggest year was 1872, when 1,069,000 markets of spruce and pine, representing well over two million logs, floated down to the Big Boom. By that time the lumbermen were reaching back

into the more remote sections of the Adirondacks. By building "splash" dams and tripping them at the right time, they could release a flood that would carry logs down the smaller rivers like the Boreas. They even rafted logs down Schroon Lake, and Yankee John remembers how they used to "kedge" them through on a moonlight night, when the wind and water were calm and the lanterns swung back and forth out on the rafts.

Then came the pulp mill. The first one in this country was built in 1868, in Stockbridge, Massachusetts, and although it was some time before this invention affected the Hudson River drive, the change was eventually complete. The 13-foot saw log gave way to the four-foot pulp stick; the "market" was supplanted as a unit of measurement by the "cord". As a sign of changing times, the biggest spruce in the State—41 inches in diameter—was cut at the turn of the century for pulp.

The last of the big logs came down the Cedar and into the Hudson in the spring of 1924, under the auspices of the Union Bag and Paper Company. The trouble was that Finch, Pruyn and Company had pulp wood in the river at the same time, and it frequently happened that a man who was riding a big log in midstream would find himself cut off from the bank by a raft of four-foot wood—too light for him to "run". One year was enough of that, and now nothing comes down but short wood, and nobody drives it but Finch-Pruyn.

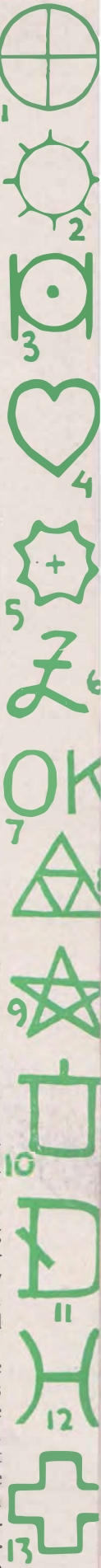
They have 34,000 cords of spruce and balsam coming down this year; 18,000 out of the Cedar, 10,000 out of the Boreas, and 6,000 starting down the Hudson from Newcomb. Most of the sticks will have a daub of yellow paint on either end. This is Finch-Pruyn's registered mark, supplanting the "Dot L" of former years, but there will also be some green paint, and perhaps some red. The green sticks should have come down last year, but got hung up somewhere along the line; red was the mark two years ago.

When the stream gauge at North Creek shows that the Hudson is moving at the rate of 1,600 cubic feet per second, the Finch-Pruyn men know they have enough water to float the drive. But they never know if that flow will hold until the pulp hits Glens Falls.

As long as wood floats down to the Big Boom, there will always be gambles and guesses in getting it there. There will be jams and there will be accidents, and the Hudson will always roar past the Deer Den and boil under Kettle Mountain. But if you ask Yankee John Galusha he will tell you that river driving isn't what it used to be when General Grant was President. THE END

HUDSON RIVER LOG MARKS

- | | |
|----------------------|----------------------------|
| 1. A. Wing | 8. Kenyon Lumber |
| 2. A. N. Cheney | 9. Van Dusen & Crandall |
| 3. Cheney & Armes | 10. Freeman & Van Dusen |
| 4. Morgan Lumber | 11. Thomson, Douglas & Dix |
| 5. James Morgan | 12. International Paper |
| 6. Finch, Pruyn | 13. Union Bag and Paper |
| 7. Morgan & McEchron | |

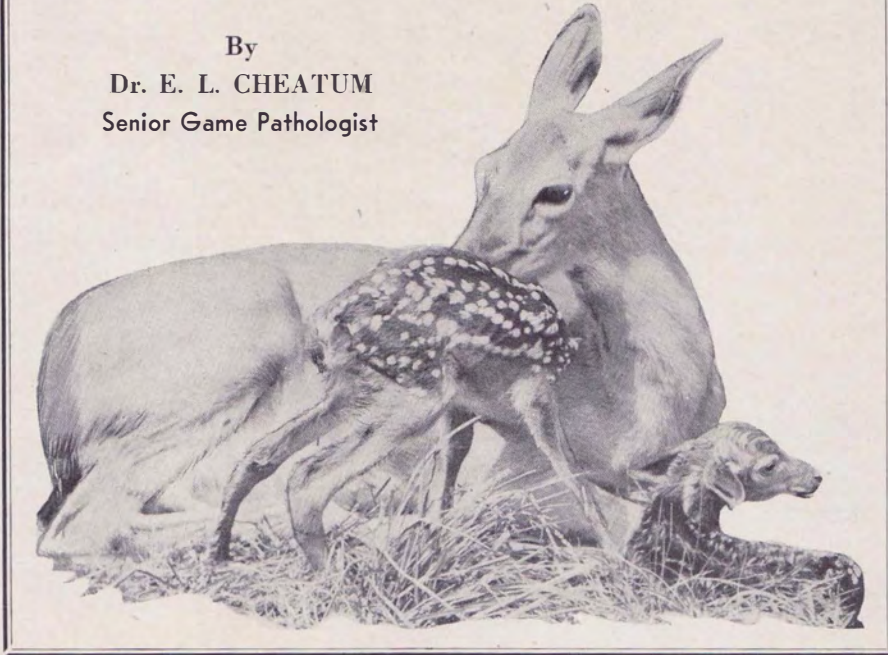


Whitetail Fertility

By

Dr. E. L. CHEATUM

Senior Game Pathologist



THE CHARACTER of our wild and woolly Adirondack mountain country has long given the average sportsman sufficient reason to believe that it should be the best deer range in the State. But in late years he has seen the almost spectacular increase in deer herds in the central and southern counties and has begun to ask: "Why doesn't the same thing happen up north?"

He gets a lot of answers. Here are two most frequently given: "There is a shortage of breeding-age bucks, hence more fawnless does."—"Too many deer winter starve, and the annual fawn production hardly balances these losses and the kill by hunters."

Both explanations are premised on the idea that annual replacement of young stock is inadequate. There is a lot of truth in that, but it merely complicates the problem. All plant and animal life has certain limitations, both from within itself as a species and from those imposed on it by environment, or living conditions. This article will discuss one of the more important "internal" factors—rate of reproduction—and how it varies between our Adirondack deer and those in the southern part of the State.

During a Conservation Department study from the winter of 1938 to the spring of 1942, a large number of does from these two zones were examined for the presence of unborn fawns. The dividing line between the two regions was roughly that set up in respect to deer hunting. In the southern zone sufficient deer for examination were available from those killed along our highways and in

other accidents. In the Adirondacks, however, in order to obtain specimens in suitable condition for study, it was necessary to collect animals specifically for this purpose. The results more than justified the job.

Since the whitetail in New York mates in late fall and produces fawns in the spring, deer had to be collected during winter and spring months in order for the presence or absence of embryos (unborn young) to be evident. From the Adirondack region we examined 158 does (86 adults and 72 fawns), and from the rest of the State 258 (156 adults, 102 fawns). The study included fawns (i.e., deer in their first year) because we had previously discovered that, in the southern counties, does were frequently bred successfully at six or seven months of age.

In addition to keeping records of whether or not a doe was carrying young, and of the number of embryos present for those that were, a study of the female glands was made to determine the number of eggs which had been shed (rate of ovulation) prior to the time of collection. One doesn't usually think of "egg production" in relation to mammals, but they do produce eggs and the "egg record" principle applies to deer as well as fowl when measuring their potential powers of reproduction.

Results of the study may be summarized as follows:

1. Of the adult does from the southern zone, 92.3 percent had been successfully bred; of the Adirondack does, 77.9 percent.

2. Of the doe fawns from the southern zone, 36.3 percent were carrying embryos, while the figure for the Adirondack stock was a mere 4.2 percent.
3. Among the 144 pregnant adult does from the southern zone, 48 bore singletons, 86 sets of twins, and 10 triplets. The 67 such specimens from the Adirondacks carried 54 singletons, 12 twins and one set of triplets. In percentages, the figures represent 33, 60 and 7 for the southern does, and 81, 18 and 1, respectively, for the Adirondack deer.
4. Among the 37 pregnant fawns from the southern zone, 35 carried singletons, and two bore twins. The three such specimens from the Adirondacks carried singletons only.
5. The egg production rate of southern does was higher than that in northern deer, and the percentage of eggs fertilized and successfully developed as embryos was much higher.

So much for fact-gathering. Turning to the "why" we are faced with something more difficult. We have shown the existence of an internal limitation in the ability of Adirondack deer to produce as large fawn crops as do those in the southern counties—hence, the southern herd expands much more rapidly. But right here we run into another puzzler: Is this limitation a permanent, hereditary thing among Adirondack deer, or a temporary reaction to adverse living conditions? If the latter, there may be opportunities for effective management to remedy things.

As it happens, there are no facts which would show hereditary differences between deer in the two zones, or anything to indicate but that the two groups would behave alike in like environment. So, it would appear that differences in living conditions are the controlling influences in fawn production. And there is every reason to believe that nutrition is a primary factor.

The term "nutrition" here does not refer merely to the food eaten by a deer, but rather to the net balance derived from such food and the energy the animal burns up in his daily life. Thus, though a deer received an abundance of good food, it could be nutritionally poor if it had to expend more energy than it took in, in combating certain environmental conditions.

In the first place, the central Adirondack region—where the specimens used in this study were collected—has a much shorter growing season (100 to

(Continued on Page 32)



UP AT SARATOGA, in the world's greatest forest tree nursery, Conservation Department employees are pulling, bundling and shipping the bulk of some 12 million seedlings to cover the State's 1947 reforestation program. The balance are going out from the Lowville nursery.

While being far from the greatest number of trees supplied for a single season, the shipments this year represent a substantial increase from a low of 3,800,000 distributed in 1945, and indicate an increasing interest in tree planting, which fell behind during the war.

Tree inventories at the nurseries run about 50 million at the present time, with from one-fourth to one-third going out each year for field planting, depending on age classes. As seed becomes available in larger quantities and for a wider variety of species, production will be increased to meet greater demands.

Outside of plantings on State lands, the principal groups receiving trees this spring are farmers, 4-H Club members, municipalities and such miscellaneous agencies as service clubs and game clubs. The latter have always played an important part in the reforestation movement, records showing that from 1900 to date 144 clubs have planted nearly five million trees.

Species of trees being distributed this year are approximately as follows: white pine, 3,037,000; red pine, 6,693,000; Norway spruce, 1,870,000, and about 400,000 of such miscellaneous species as jack, Austrian and pitch pine and Douglas fir. The one factor that has been holding up production is lack of

By **ARTHUR AMADON**
 Superintendent of Nurseries

seed. Federal and State agencies have been competing since 1944 for the seed supply, an item essential for the continuation of tree production but one which is not now available. Coniferous seed has been "off the market" since the beginning of the war.

In 1942 the Conservation Department had in storage over 5,000 pounds of white and red pine and Norway spruce seed. This supply for these three species was the basis for the bulk of planting stock now available to tree planters. A well-rounded tree production program should include the following species: white, Scotch, jack and red pine, white and Norway spruce, and larch. With but three of these species available this year, it is apparent that the variety now being produced is not in balance from a production standpoint.

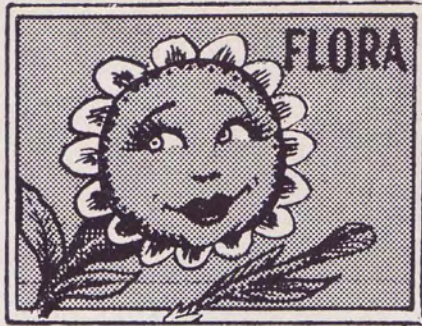
Two factors are responsible for the difficulties in obtaining seed. First, much of the tree seed used in the nurseries is imported from foreign countries—Scotch and Norway pine from Germany, and larch from Japan. Trees of these species have not been grown in this country long enough or in sufficient quantities to yield any appreciable amount of seed. Second, seed collectors in this country have been unable to locate labor in remote areas where seed is produced. This shortage of labor is acute in northern New York and the Lake States, the two principal sources of white spruce and red pine. Forestry

sections of the Office of Military Government in Japan, Korea and Germany have been contacted, however, and on the basis of reports from these countries it is possible that at least limited quantities of seed can be secured.

During the period 1900 to 1946, more than 663 million trees have gone out from State nurseries to reforest approximately 663,000 acres of waste land. This total has been divided among various agencies as follows: State lands, 355 million trees, municipalities 81,584,000, industrial organizations 24,530,000, service and miscellaneous agencies 20,142,000, and individual landowners 181,454,000, of which number 148,262,000 trees were planted on farm lands. Since 1927, the 4-H Club organization alone has set out nearly 26 million trees on these lands in 25,000 separate plantations. These are demonstration areas designed to show the advantages of reforestation for the purpose of producing timber to meet lumber requirements on a local basis.

Trees distributed from State nurseries are used principally for timber production, control of soil erosion, and for the Christmas tree market. Each year it is becoming more evident that more and more land-owners are purchasing trees for the latter use.

If you yourself are scheduled to receive trees from the Department this year, you will find in each crate a clear and concise guide to proper planting procedures. Follow it to the letter, making certain, in particular, that the roots of your seedlings are kept moist until they are transplanted. **THE END**



THE TAMARACK: THE ODD CONIFER OF OUR BOGLANDS



An evergreen—part of the time

THE right name for it is "Eastern larch." At least, that's what some of the botanists claim. But farmers, foresters, lumbermen and out-door people in general will keep on calling it "tamarack" (or sometimes, "hackmatack"), no matter what the book says.

A month ago the tamarack stood leafless, a slender gray skeleton with tan-colored branch tips, rising stiffly from the swamp. Today it is clothed in a pale green mantle of new leaves that sprout in rosettes from every twig. If you're a good observer (and lucky besides), you may see, against the green leaf clusters, the tiny crimson flowers which will turn into the familiar brown, woody cones by the end of the season.

Tamarack is the living answer to the question: "When is an evergreen not an evergreen?" In the botanical classification it belongs in there somewhere between pine and spruce, and with its needle-like leaves it looks—during the summer—like any other conifer. But as autumn comes on, the tree, responding

to some ancient call, discards its needles in preparation for the long northern winter. Before they fall, the needles take on a rich, golden tone, often made more brilliant against a background of black spruce and balsam.

Just how our northeastern variety of larch got pushed back into the swamps is something of a mystery. The western larches, and those of Europe and Asia, are more often found up in the mountains. Tamarack, it's true, sometimes grows on dry land and in the north of Canada makes extensive forests on benches and well-drained uplands. In the northeastern states, however, and south into Pennsylvania and West Virginia, "tamarack" and "swamp" go together. The farther north we go, the more tamarack takes over the forest; in Labrador, northern Quebec and Ontario it's one of the principal tree species. At timberline, on the fringe of the Arctic barrens, it's the last outpost of the tree population. Here it is reduced to a dwarf, three or four feet high, but still the tallest vegetation in sight. In New York, tamarack is common all through the Adirondacks and is particularly abundant in the counties of Hamilton, Franklin and St. Lawrence.

Tamarack wood, like that of the other larches, has a natural durability that makes it good for posts, poles and railroad ties, though in this day of preservative-treated timber such a characteristic is less important than it used to be. In the West, the larch is used for wood pulp, but has never found particular favor, up to now, with eastern mills.

In our reforestation program we are using more and more larch, but in this case we have to depend on introduced species. Although it doesn't sound patriotic, we must admit that the European and Asiatic larches give better results in planting than our native tree, because they grow faster and are better adapted to high and dry ground, where most of our tree planting is done. The object of planting larch here in the first place was to produce a tree with durable wood to take the place of the chestnut, which was dying out as a result of the chestnut bark disease. It is a fact that the old-growth European larch is highly decay-proof, almost in a class with the American redwood and cypress. To be durable, however, no matter what the species, a tree must have time to develop

heartwood, for that's where the substances accumulate which ward off insects and fungus decay.

In one respect, however, the larch has turned out to be a good investment. It is the fastest-growing of the conifers, produces a ground cover rapidly, is a good "mixer" with other species, and seems to improve the soil more effectively than most softwoods. What's more, a larch plantation is a handsome thing to look at, summer or winter.

In late May and June the tamaracks that looked so fresh and green when they first leaved out, often begin to turn rusty. Some of this is due to late frosts, but the chief cause is an insect—the larch case-bearer. This little bug gets into a larch needle in the summer and after feeding on the tissues inside it uses the shell, bound up with silk, for a protective cover during the winter. Wherever the insect goes, it carries the case along on its back after the fashion of a turtle. Unless you're a professional entomologist, all you're likely to see of the larch case-bearer is the case, which looks like a small oat-grain attached to a needle. The ideal control for this insect would be "chickadees unlimited."

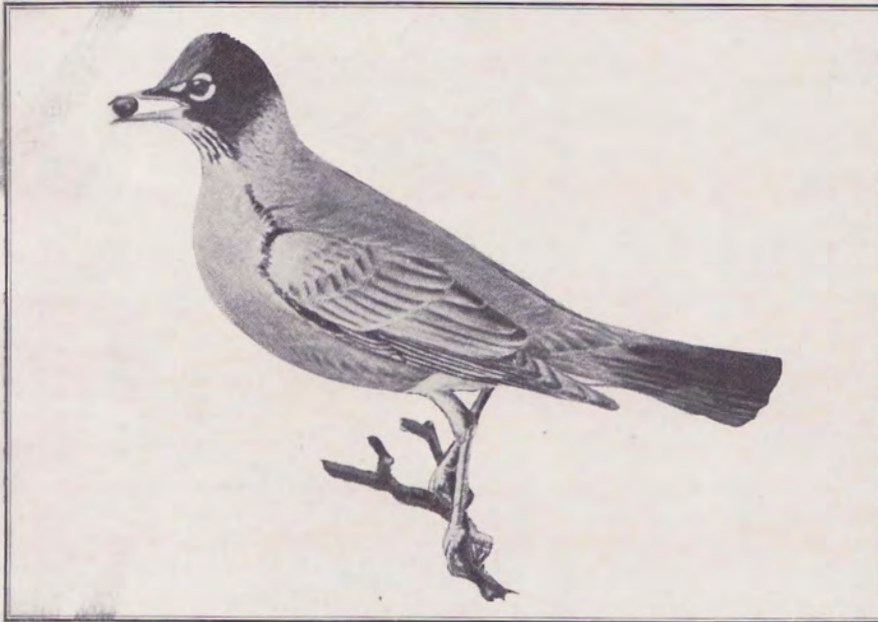
So we'll leave the tamarack for now, remembering that while it's the "poor relation" of the larch family, it has its place in the natural order, lighting the bogs and swamps with color in spring and fall, and using this land, otherwise barren, to produce useful forms of wood.

Ed Littlefield





THE ROBIN: HE'S AS COMMON AS SALT BUT STILL LITTLE KNOWN



THE FIRST thing a lot of folks will say when they see this piece is: "My gosh, everyone knows a robin!" In doing so they will be making a rather rash statement; they may recognize the robin as an ever-present splash of color on the front lawn, or in the cherry tree in back, but the people who really know him and his habits are in the minority.

To begin with, he's not a "robin" at all. He's a thrush. One of his closest relatives is the bluebird—which is also a thrush. The "robin" label was given him by early settlers who saw in him a close resemblance to the Old World "Robin Redbreast."

As a herald of spring he is also something of a phony. The sight of the "first" robin is always signal for a front-page news story, but that same robin may have spent the entire winter tucked away in the warmth of some local swamp, feeding on berries and getting his drinking water from spring-holes. To justify the argument, however, it can be said that most of our New York robins migrate south each fall; the winter residents are probably birds which spend their summers in the far northern part of the continent.

An incurable optimist, the robin often comes north too early for his own good, and is occasionally caught in late season snowstorms. Yet few of them seem to suffer more than temporary inconvenience.

Our own "local" birds migrate along the East coast as far south as Florida, sometimes reaching even the Keys. Their southern trek is beset with dangers unknown in the north; ostensibly protected in most states as a songbird, thousands of them are slaughtered each winter by night hunters who spotlight them in their roosting trees, and robin pot-pie is not an uncommon dish in a lot of southern homes.

In our own State there are probably some people—particularly fruit growers—who might sympathize with this practice if New York did not protect the robin. It is true that the bird can do a lot of damage in a cherry orchard, but this is likely to happen only in areas where clean-farming has destroyed the wild fruits and berries which constitute four-fifths of the vegetable part of the robin's diet. In this connection, it is interesting to note that the bird is probably one of Nature's best distributors and planters of such wildlife foods as bittersweet, bayberry, mountain ash and choke-cherry.

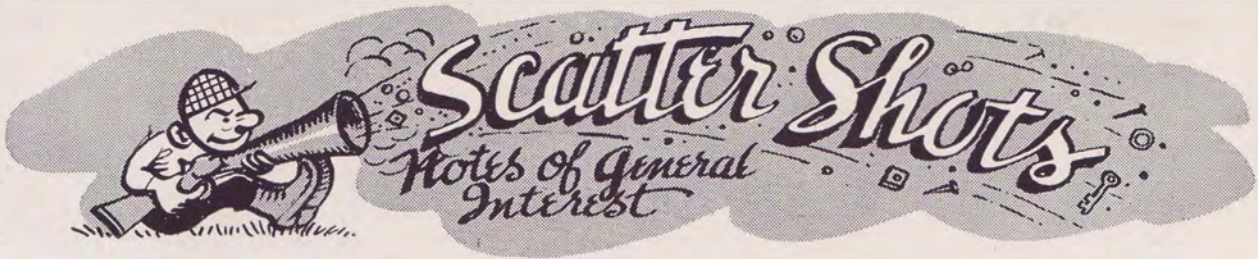
When it comes to the animal matter on his menu, the robin runs second only to the woodcock as an eater-upper of the earthworm. This is particularly true in the spring of the year, when he is raising a family. But he also destroys a host of insects harmful to farm and forest alike, and in doing so more than pays for the cherries he may steal.

The robin-earthworm affinity brings up one particularly interesting question that has been the basis of argument for years: When a robin cocks his head when hunting a worm, is he looking or listening? Facts would seem to substantiate the latter theory. When moving against vegetation, an earthworm makes a rasping sound audible even to human ears, and science has proved auditory powers of birds much higher than man's. Research men have gone so far as to experiment with blindfolded robins, and the result has been always the same—the worm has always come out on the short end of the stick.

In the matter of parenthood, the cock robin is probably one of the more hen-pecked of avian husbands. It is true that he shirks much of the responsibility when it comes to nest building, but after that he really goes to work. Robins generally try to bring off two broods a season; when the fledglings of the first brood leave the nest and the female robin prepares for her second, the male is given the job of playing bread-winner for the first batch. This is a man-sized job, because the young birds appear to avoid learning to feed themselves just as long as they dare, and that is often until they reach the point where they are as large as Dad himself.

It may be hard to believe, but before man came to America with his axe the robin was a bird of the deep woods. And, despite his modern leanings toward open farmland and suburban yards, he still returns each year to his old love. Each fall, when scores of robins bunch up before their trip south, you will find them in marginal timber, taking a final fling at the native berry crops that were their fare before man made lawns—and cherry trees.

Apart from cats, which destroy untold thousands of fledgling birds, the robin's chief enemies appear to be the sharpshin hawk, the pothunter, and jays—which steal their eggs. But his numbers persist in spite of these predators, and his cheery morning and evening songs should always be with us. For the sake of the youngsters (and some adults, too) who stamp that "first" robin for luck with fist and spit, we hope that statement is true. —Bob Bush



ARBOR DAY'S HERE; PLANT A TREE!

The average grown-up's impression of Arbor Day is that it's for youngsters only; his own most vivid recollection of the occasion is that it was a day when the schools closed and he and his buddies got out into the spring air to plant a few trees. Since then its importance as a national institution may have become a bit clouded in his mind by the appearance on the American scene of such nonsense as National Spinach Day and National Bread and Gravy Week.

For all that, Arbor Day is an important observance in these United States, more so today, in fact, than ever before. Our present timber dilemma is a challenge to us to replace as well as use wisely, and the challenge is aimed at adults as well as youngsters.

Arbor Day was designated in New York this year by the State Education Department as one of three days: April 25, May 2 and May 9—selection of which by communities is dependent on weather conditions in different parts of the State. While there is no organized State-wide tree-planting program for sportsmen's clubs, numerous organizations will use the day as occasion for the planting of evergreen trees now being distributed by the Conservation Department from its nurseries at Saratoga and Lowville.

But—there is an opportunity for every sportsman in New York to make any one of these spring days his own private Arbor Day, simply by taking 10 minutes of his time to plant a willow shoot or two along some stream where vital cover has been destroyed by flood, cutting or grazing.

All he has to do is slice such shoots (the young, green growth) from the base of a mature tree and push them into the ground along stream or pond to a depth where the cut ends will be in moist soil. Pack them in firmly and forget them; by fall you will have new trees well started. The shoots should be cut at a 45 degree angle and the ends kept moist until planting.

Willow planting is a simple investment that will in time pay big dividends in erosion control and shade and cover for trout. And it doesn't cost you anything but a few minutes' time.

PLENTY OF DEER LEFT

New York's 1946 deer kill was the second largest in State history, but it is evident from scattered reports that there is still a heavy crop to go into the 1947 season, in spite of a rough winter.

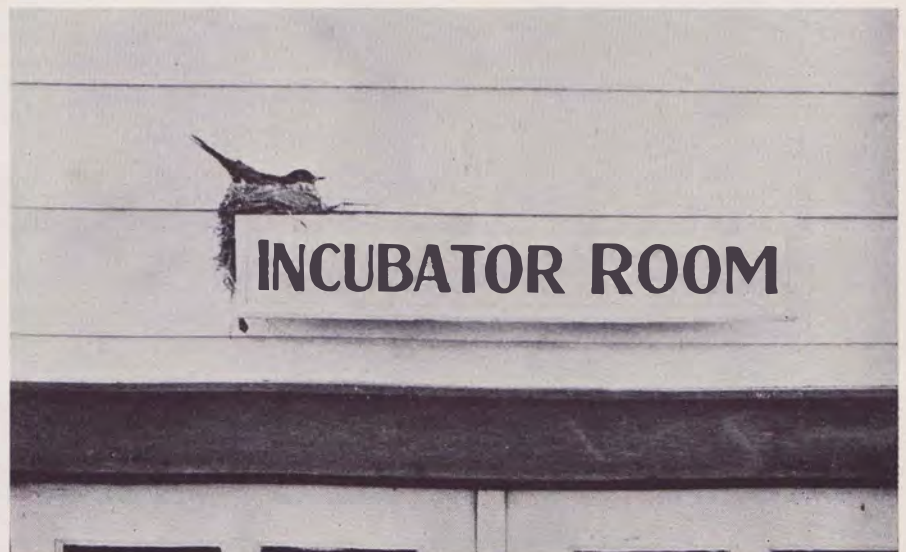
Unusually large deer herds, driven out of the woods by heavy snows in March, made their appearance in many parts of the State. The animals came boldly onto farm property and acted, as one observer reports, "just like a bunch of sheep." One of the largest herds seen was a group of more than 100 which spent several weeks along the right-of-way of the Delaware & Hudson Railway near Richmondville. Another herd of approximately the same number invaded farm lands in the Batavia area.

YOU COVERED, MISTER?

There's something new in the hunting and fishing business every day. Right now it's a matter of insurance—on life and property.

The Margaretville unit of the Delaware County Federation of Sportsmen's Clubs reports that each of its members has been given \$5,000 coverage for personal accidents concerned with rod and gun, liability up to \$10,000, and another \$5,000 to cover property damage, such as forgetting to close the gates in a cow pasture. The cost is 15 cents a year.

By rights this building at the Department's Delmar Game Farm is reserved for pheasants, but this female robin happened to believe in signs



PLANES INVADE LAKES

The airplane—in addition to making the world smaller—is making the Adirondacks smaller as well. Many of the more remote lakes in the Preserve will this year echo the roar of amphibians and float-equipped planes bringing flying fishermen in and out.

Checks by Conservation Department Forest Rangers in 1946 revealed that four different planes made 119 trips during the fishing season to West Canada Lake, 22 trips to Cedar, 20 to Spruce, and 11 to Whitney.

1946 OTTER TAKE

A reported take of 61 otter by 42 trappers has been recorded by the Department's Bureau of Game for the 1946 trapping season, which extended from November 5 to December 4 on this particular fur-bearer. Franklin County trappers led with 19 pelts; St. Lawrence reported 11, Hamilton 10, Herkimer 8, Lewis 7, Essex 4, and Oneida 2.

Tactful Turtle

The turtle may be slow, but he isn't dumb. Forest Ranger Leslie Hough observed a wood turtle (often called land turtle) frantically digging into a wet, punky stump at the approach of a forest fire near Holtsville, Long Island.



The end of a Northwoods tragedy

DOGS AND DEER

"Any Game Protector, Forest Ranger, and member of the State Police may kill any dog pursuing or killing deer anywhere in the State from January 15 to April 15."

This is the law, and justification for it can be found in the accompanying photograph. Game Protector Paul Benoit, of the Saranac Lake Division, killed this dog as it was attacking a deer bogged down in deep snow, but his intervention was too late to save the exhausted animal.

Dogs running at large are usually predators, and the State holds their owners responsible: "Except on lands actually farmed or cultivated by the owner or tenant thereof, no owner shall allow his dog to run at large in fields or woods inhabited by deer outside the limits of any city or village." That's a law, too.

CLUBS BAT .500 ON FOX HUNT

There aren't many clubs in this State that can boast a .500 batting average on foxes in a single day's organized drive, but it seems the Community Conservation Club of North Rose is one of them.

We have a report from Secretary W. E. Baldrige that this unit's members, teamed up with clubs from Lyons and Wolcott, recently accounted for seven out of 14 varmints seen during a day's hunt. Sixty sportsmen took part.

This was one of seven hunts engaged in by these organizations during the past winter, in which there were 19 foxes killed out of 48 started—and that in itself is a season average only slightly less than .500.

'HOPPER COLLECTING MADE EASY

The grasshopper is just about tops in New York as a bait for trout, bass and panfish. He is also hard to catch. If you use the old-fashioned system of trying to run him down (even with a hand net) you'll spend half your waking hours getting enough for an hour's fishing.

But, with the help of a couple of buddies and the use of a large, fuzzy-wool blanket as equipment, you can catch

enough 'hoppers in an hour's time to last you a week. Once you have located a good field, post your buddies with the blanket spread between them, about chest-high. Act as a "driver" yourself, pushing the hoppers toward the blanket as they flush, and have your assistants move as the situation demands.

When the 'hoppers hit the blanket, the tiny, sharp projections on their hind legs will become entangled in the wool fibers of your blanket, and the rest is simply a matter of picking them off. If you are alone in your 'hopper hunting, you can use the blanket with almost equal effectiveness by spreading it out on the ground and driving the insects toward it.

Getting a grasshopper into a can or a bottle—without losing all those you have previously put in—is an exasperating business, but easily remedied. Stretch a piece of muslin over the mouth of your can and secure it with a rubber band. In its center make a slit about a half-inch long. When you catch a 'hopper, shove him through this hole; it will immediately close up and prevent the escape of any others you may have collected.

Our Marine Fisheries Division reports what appears to be a new long-distance travel record for shad. A fish tagged this past spring off Fire Island Inlet, Long Island, was taken in a net 39 days later at St. John's Harbour, New Brunswick—500 miles distant.

GOVERNOR ORDERS FULL-SCALE SURVEY OF ADIRONDACK POWER PROPOSALS

Governor Dewey's decision to order an investigation of further water power and flood control developments, with special reference to the State's Forest Preserve, brought new hope to conservationists all over the State at a time they were feeling particularly low over the defeat in the Assembly of the bill to prevent the construction of the Higley Mountain Reservoir—long a controversial issue.

Immediately after the failure of the bill, Speaker of the Assembly Oswald D. Heck, Schenectady, many of whose constituents had fought vigorously for the bill, conferred with the Governor and issued an announcement of the Governor's decision in a release from the Speaker's office, March 20.

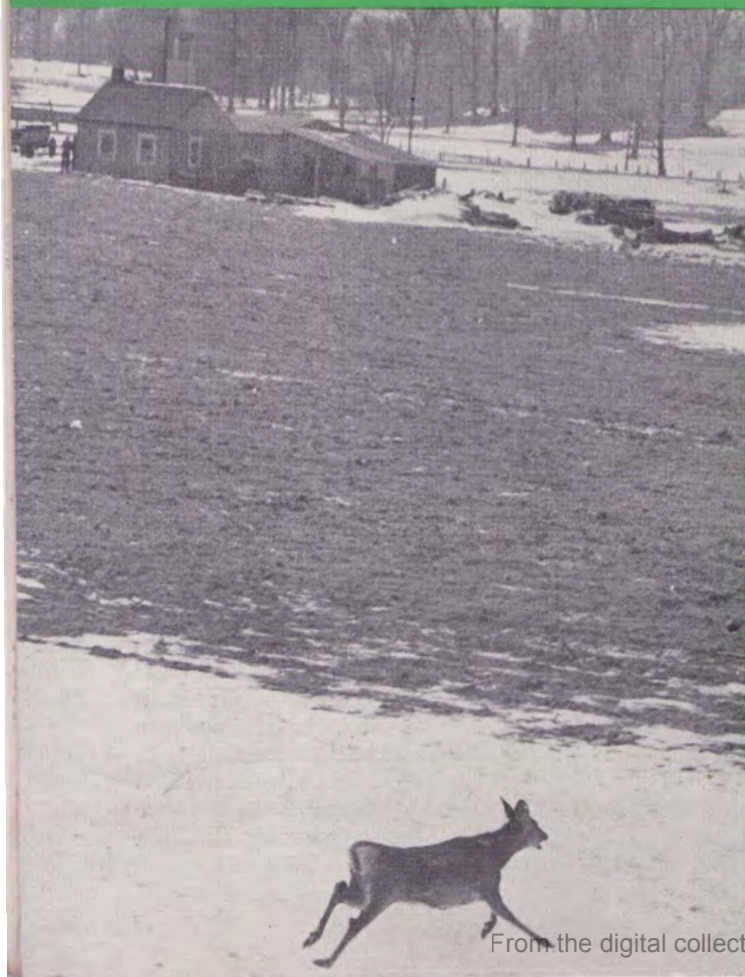
It was known that the Governor had previously interested himself in the controversy which raged about the proposed Higley Mountain Reservoir and that some special research work had been done for him on it. It was evidently on the basis of the information thus secured, plus information sent him by

both proponents and opponents of the bill, that he decided the time had come for a comprehensive study of the whole problem.

Because the Governor and his staff are so completely occupied with hundreds of bills left for his decision by the Legislature, it is unlikely that any announcement as to the organization and exact scope of the study will be made until sometime after the 30 day period is ended. Meanwhile, Commissioner Duryea has announced that the State Water Power and Control Commission will hold up any further action on additional reservoirs sought by River Regulating Districts until the study can be completed.

This study inevitably will have to explore some vital and fundamental questions involving the use of public waters and lands for water power and flood control purposes. The Governor's action, therefore, is exceptionally courageous and farsighted—and merits the appreciation and support of every conservation-minded person in the State.

In late March more than 100 deer in the Batavia area congregated in farmers' winter wheat. An SOS was sent Bob Perry, District Game Manager, and a drive was started to break up the herds. One of the "persuaders" used was a helicopter, from which Doug Finch, Department photographer, got these fine shots.



THE INSIDE ON THE OUTDOORS

By Clayt Seagears



CLAYT SEAGEARS

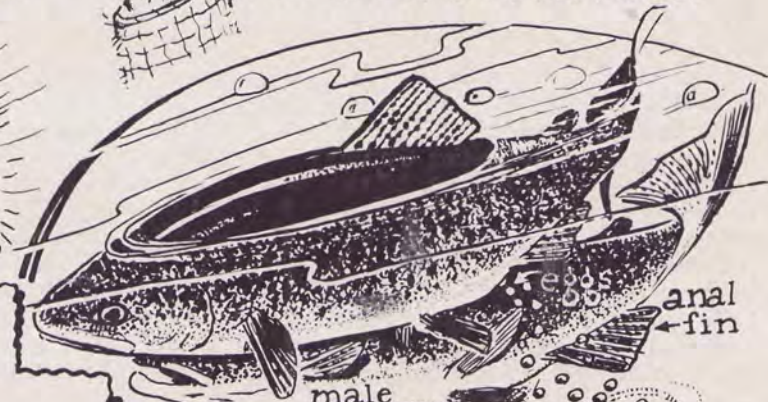
TROUT LINES

TROUT IN SOME STREAMS LIVE, LOVE - AND DIE WITHOUT EVER GROWING TO LEGAL SIZE. A 6-YEAR-OLD FISH, FOR EXAMPLE, MIGHT BE ONLY 6 INCHES LONG. USUAL REASON IS LACK OF LIVING SPACE. IT'S THE SAME WITH A GOLDFISH WHICH MAY LIVE 10 YEARS IN A SMALL AQUARIUM AND NEVER GROW - YET PUT THAT SAME GOLDFISH OUTDOORS IN THE GARDEN POOL AND IT'LL DOUBLE ITS SIZE IN A FEW MONTHS.



HOWEVER, WHEN LARGE STREAMS OR PONDS PRODUCE STUNTED FISH, LACK OF FOOD OFTEN IS THE MAIN CAUSE

A NORMAL TROUT SHOULD BE 5 TO 7 INCHES LONG ON ITS FIRST BIRTHDAY.



★ ENVIRONMENT HAS MUCH TO DO WITH THE COLOR OF TROUT. THOSE FROM CLEAR, OPEN LAKES USUALLY ARE LIGHTEST. DARK OR SHADED WATERS PRODUCE DARKER FISH. PINK OR SALMON-MEATED TROUT ARE FROM WATERS IN WHICH THE FISH FEED ON SUCH COLOR-PRODUCING FOOD AS FRESH-WATER SHRIMP ETC.



★ EVER CATCH A BIG-HEADED FISH? IT SIMPLY NEVER GOT ENOUGH TO EAT. ★ YOUNG TROUT HAVE A FORKED TAIL. BUT AS THE FISH GROWS OLDER -



THE MIDDLE RAYS OF THE TAIL GET LONGER SO THAT THE OLD FISH ARE 'SQUARE-TAILED' ★ LAKE TROUT ALWAYS HAVE FORKED TAILS



THE LOVE-LIFE OF THE TROUT IS MORE COMPLICATED THAN YOU THINK. FIRST THE FISH SEEK CLEAN GRAVEL SPAWNING BEDS. NEXT - MA TROUT DIGS A NEST WITH HER TAIL. THEN, - AS MA DEPOSITS SOME OF HER EGGS, PA TROUT FILLS THE WATER AROUND THEM WITH A CLOUD OF MILKY MILT. THE EGGS LITERALLY SUCK IN THE MILT AS THEY EXPAND - AND ACTUALLY MAY BE GUIDED INTO THE NEST BY MA'S ANAL FIN. FINALLY SHE COVERS THE NEST WITH GRAVEL AND DIGS A NEW ONE.

Department Activities

NEW YORK JOINS THE FIGHT TO UNLOCK PITTMAN-ROBERTSON WILDLIFE FUND

New York, at the direction of Commissioner Duryea, has taken a leading position in a concerted effort to secure additional Federal aid funds for desperately-needed wildlife work in this and other States.

The money involved is contributed by hunters everywhere in our land through their payment of an excise tax on firearms and ammunition. Congress, by approving the Pittman-Robertson Act, established the principle that these moneys paid by American sportsmen should be dedicated to wildlife conservation in the various states.

During the war, because personnel and material needs for wildlife work were not available, appropriations out of this ear-marked fund properly were relatively small. It was understood that, when the war was over, the money would be made available for the purpose of assisting States in meeting the very situation now faced—an emergency created by certain game shortages and a great increase in hunting pressure.

Close to \$17,000,000 has accumulated in this Fund. New York and other States hold that not only should appropriations be brought up to levels of annual revenue to the Pittman-Robertson Fund, but that a schedule making available this surplus money in an orderly manner over a period of from six to 10 years should be adopted. The outcome is not yet known.

Commissioner Duryea threw the full support of our State into this vitally important program whose benefits would be shared across the country. He also appealed to many members of the Congressional delegations from New York for their assistance in securing increased appropriations this year.

As we go to press, it is a pleasure to report that the following New York Congressmen have already put their shoulders to the wheel in your behalf: Edwin A. Hall, James W. Wadsworth, W. Sterling Cole, Hadwen C. Fuller, W. Kingsland Macy, Ralph A. Gamble, Ralph W. Gwinn, David M. Potts, Frederic R. Coudert, Jr., Kenneth B. Keating, Henry J. Latham, John C. Butler, Daniel A. Reed, J. K. Javits, Robert

T. Ross, Katharine St. George, W. G. Andrews, Leonard W. Hall, Jay LeFevre, Edward J. Elsaesser, Dean P. Taylor, Gregory McMahon, Clarence E. Kilburn and B. W. Kearney.

WIDE-SPREAD COMMENT ON "FACTS" ARTICLE

The article, "Let's Face the Facts", which appeared in our February-March issue, drew a good deal of response from conservationists and sportsmen throughout the State and attracted comment even from national conservation authorities.

Typical of the latter's reaction is the following letter received from Albert M. Day, Director of the Federal Fish & Wildlife Service. He writes:

"I have analyzed your 'Let's Face the Facts' article in the last issue of *The Conservationist*, and I think it is splendid. You have boiled down the salient points in a manner which is understandable to anyone. I think it is well done and certainly have no criticism of the approach. It is the same type of information we have been trying to hammer out to the general public in an attempt to convince people that we are not living in the horse and buggy days any longer insofar as wildlife management is concerned."

(Signed)

Albert M. Day

NEW CAMPSITE—Sections of the Rogers Rock campsite at Cook's Bay, Lake George, will be open to the public during the 1947 camping season. Its development is now under way, with Foreman Bernard Ramsey supervising. When the work is finished, Rogers Rock will be a de luxe campsite and picnic area overlooking one of the most beautiful reaches of the lake, with a waterfront capable of accommodating a large number of bathers.

FOX CONTROL—Summary reports on the Department's fox control program during 1946 in the Lower Hudson District shows that nearly 2,000 farmers and sportsmen attended trapping demonstrations and lectures conducted by A. W. Bromley, District Game Manager for that section. Seventeen such meetings were held in Dutchess, Putnam, Westchester, Ulster, Orange and Rockland counties.

This District has an all-time high fox population (or did have until scientific trapping was put into effect), and the control program was a corollary to the joint campaign of the Conservation Department and the Department of Public Health to curb the spread of rabies in these animals. The demonstrations were aimed at improving trapping techniques of amateur trappers, not only to increase the size of the catch but to insure against damage to other wildlife.

EGG STRIPPING—The Bureau of Fish Culture has a real nest egg in the form of nearly three million lake trout ova stripped from spawning fish late last fall in the Adirondacks and Finger Lakes. The actual figure was 2,746,722—and that's a whale of a lot of eggs. By the middle of January they were turning into lake trout fry at the Bath, Caledonia, Saranac and Warrensburg hatcheries.

Department netters report the "laker" crop in excellent shape—a conclusion based on the appearance of larger and better mixed age groups on the spawning beds. That, in itself, is a credit to the Department's stocking program, as is an estimated take of some 250 tons of lake trout in the State as a whole.

Those lakes from which the greatest number of eggs were taken will receive the lion's share of the trout they produce. The breeders themselves were returned to the water unharmed.

We're Getting Around!

We don't like to sound as though we were blowing our own horn, but here's a little fact we became aware of the other day which should prove interesting to our readers: *The Conservationist* is now reaching subscribers in 28 states and a half dozen foreign countries, including such widely separated spots as Norway and Malaya.

FIRE FIGHTERS PLAN FOR 1947 SEASON AT BEAR MOUNTAIN CONFERENCE

Every spring the Conservation Department fire fighters' thoughts turn grimly to fire hazards and "fire-bugs". In fact, even before sun and wind dry out the fields and forests and imbue the "bugs" with an uncontrollable urge to burn off grass and brush, the powers-that-be in the Forest Fire Control set-up are on the job, marshalling their forces, preparing equipment and laying plans. All of which culminates in the Annual Forest Fire Control Conferences at Bear Mountain.

This year, from March 10 through the 14th, the Fifth Annual Conference was held to prepare for what is anticipated to be a season marked by the greatest potential fire hazards in many years. Lush growth for the last four years, extra heavy lumbering operations and resultant brush piles, increased hordes seeking recreation in the woods and many other factors all combine to challenge the New York State fire fighters and their enviable record of protection.

The conference was doubly important this year because the entire Division, of Lands and Forests was recently reorganized, with the State divided into 15 forest districts to comply with the provisions of the new Forest Practices Standards Act. Corresponding fire districts were also set up, enlarging the area of the forests to be protected and adding a large number of new personalities to the force. Thus the conference served not only as a forest-fighter's school but also to orient the rangers into their new duties and responsibilities.

As a result, the meetings were primarily for two purposes: one to cover the administrative features of the Forest Rangers work, the other to give them training in the new techniques and equipment for fighting fires.

From the administrative angle, the following talks were given: The Forest Practice Act, William G. Howard, director of Lands and Forests; Postwar Programs for State Forests, A. S. Hopkins, assistant director; Public Relations and Publicity, Fred Everett, editor, Conservation Publications; Personnel Problems, William E. Tinney, personnel officer, and Conservation Department Finances, E. F. Smith, assistant director, Division of Finance.

William Foss, superintendent of Forest Pest Control, introduced J. M. Corliss, U. S. Department of Agriculture, who outlined new developments in pest control work. And W. D. Mulholland, superintendent of Trails and Campsites, gave a short history of recreational developments in the Forest Preserve and

demonstrated how to spot a trail with trail markers.

Most of the conference was given over to the features directly related to the rangers' work: telephone trouble shooting, elements of forest fire control, importance of good fire warden organization, railroad fires, organization of crews, sizing up a fire, and talks on the use of various equipment.

Feature of the conference was a day afield for work on fire line construction with Ernest Karger and Ephe Olliver of the U. S. Forest Service as instructors. Use of other equipment was also demonstrated under actual fire-fighting conditions upon Bear Mountain.

The conference was under the direction of Fred McLane, veteran pilot of the plane which hovers over all fires, and Solon J. Hyde, Supervising District Ranger, who took over for Kinne Williams, superintendent of Forest Fire Control, who was convalescing from an attack of pneumonia.

ANOTHER PEST—A new forest enemy, the bronze birch borer, made its first appearance in the State late last summer. This worm, which girdles the tops and subsequently kills both white and yellow birch, was found in the town of Day, Saratoga County. The Bureau of Forest Pest Control warns that damage from this pest is likely to be heaviest in cut-over areas, and recommends the removal of all merchantable birch from such areas.

DO YOU KNOW YOUR LAWS?

All laws concerning the taking of fish and game are enacted by the Legislature, except that the Conservation Department has been given authority to regulate the taking of beaver and otter and, temporarily, grouse and pheasants.

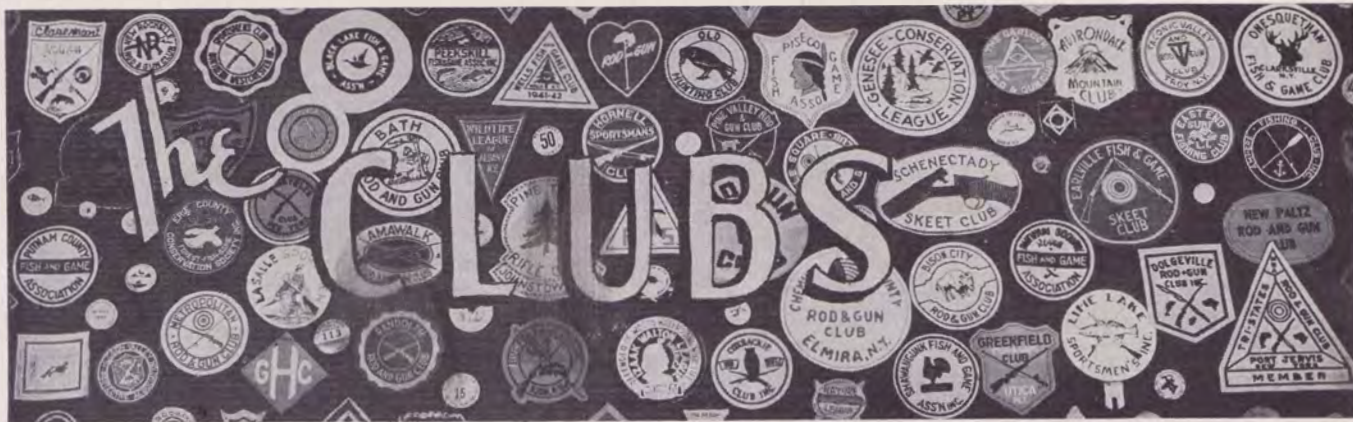
But, the Department has the power to grant **ADDITIONAL PROTECTION**—which has the force and meaning of law—to any species of fish or game except migratory birds, and if you check your syllabus you will find that this power has been used fairly often. A 7-inch trout, for example, is legal in the Esopus River, but the rainbows in Star Lake have been given additional protection; they have to be 10 inches.

This is how such a measure becomes part of the law: At least 10 citizens present a properly signed petition, requesting additional protection for a certain species in a certain area; if the Department entertains the petition it conducts a public hearing, properly advertised in advance, in the area affected; if, as a result of the hearing, the Department finds that such additional protection is necessary, it publishes suitable regulations to provide it.

Before you joint up your rod, better have a look at that syllabus.

A vital link in this spring's record stocking program. "Miss Adirondack", the Department's own fish Pullman, carries trout from hatchery to major distribution centers, whence trucks shuttle the fish to nearby waters.





USE PLANES FOR BIRD FEEDING

The problem of getting emergency rations to pheasants during periods of heavy snow has been approached on a scientific basis by the Southern New York Fish & Game Association. Late this past winter they experimented with planes, with good results.

Feed was measured out in five-pound bags, which were dropped in specified areas. The Association reports that, in times of particularly bad weather, wide areas can be covered quickly and effectively by this method. Planes for the job were donated by Edward Garfield, Howard Matteson and Arthur Yadden, of Armonk Airport.

WORK STARTED IN LIMESTONE AREA

The 1947 Fayetteville-Manlius Co-operative Program for the improvement of the Limestone Creek watershed got away to a fast start this month when the first of 75,000 pine tree seedlings were put into the ground on lands of farmers who have signed up as participants in this long-term conservation program.

The work will continue through the end of May on 14 farms, and is being done by crews composed of Boy Scouts, Future Farmers of America, 4-II clubs and forestry students from Syracuse University. Over 300 men are at work.

The Limestone project is one of the most ambitious conservation cooperatives to be undertaken in the State. It will involve soil conservation, forestry, wildlife management, woodlot fencing and stream improvement. Its key point is better farmer-sportsman relations.

Not all records are confined to lengths and weights in sportsman's circles. When affiliated sportsmen's clubs of Madison County met recently at Morrisville they set a perfect record of attendance—18 out of 18 clubs.

SCHOOL MAPS COURSE IN CONSERVATION

The Metropolitan Rod & Gun Club of Brooklyn, which is devoting some of its energies to the encouragement of conservation courses in public schools in that city, announces that class projects in the subject are being planned at Junior High School 29. They will be supplemented by speakers and films for the visual education periods.

Adequate development of a program in conservation education in the schools is a responsibility of the State Department of Education. The Conservation Department can provide the fundamentals and suggest text materials, but it is unable to provide trained teachers or handle the actual mechanics of such a program.

COLLINS PLANS OUTING

The Collins Conservation Club of Gowanda will hold its annual picnic for the first time on its own grounds on Conger Road, Town of Collins, Sunday, June 15. Previously, the event has taken

place at Mentley's Grove, Gowanda. A program of entertainment, games and refreshments is scheduled for the grand opening to the public.

The grounds cover 32 rolling, hilly acres, newly forested and traversed by two trout streams which the club stocks annually. Fifteen hundred square feet of space for dancing and entertainment have been added to the original 24'x30' clubhouse of this organization.

SCOUTING FOR TROUT

Boy Scouts of Pleasantville's Troop 1 pitched in with a purpose early last month to help members of the Northern Westchester sportsmen's organization plant an allotment of trout in waters of that area. Despite rainy weather and 12 inches of snow, some 90 members—plus the Scouts—were on hand for the job.

Distribution of 5,400 brown trout was made in the following waters: Croton Reservoir, Kisko, Mianus, Muscoot, Titicus, Waccabuc, Cross River and Amawalk. In addition, 1,820 rainbow trout yearlings were released in all waters but Mianus and Titicus.

Reforested area on Limestone. More of this is scheduled



LAKE GEORGE
(From Page 5)

seemingly holding their own in Lake George. Average adult weight is around five or six pounds and the length about 27 inches, though that is by no means the limit. Guides and outfitters all along the lake take out parties and furnish tackle specialized for deep-water angling.

Lake George has been an excellent lake for smallmouth bass, but fishing seems to have deteriorated since 1900, probably from excessive pressure. Casting rods and plugs are not usually as successful in Lake George as in shallow and warmer lakes. The accepted technique is to anchor off suitable shoals and ledges in 30 to 50 feet of water and still-fish with small frogs, dew-worms, crawfish, minnows or dobson, in the order named. If you use a fly rod you can count on considerably more action. I have seen some boat-record catches in Lake George bass around the turn of the century, which seems not so long ago in retrospect. In six days of angling the smallest catch recorded was 11 smallmouths aggregating 37½ pounds. The largest day's catch was 17 bass weighing 49 lbs. 4 oz. The largest average catch I recall was of eight bass of 41 pounds, or more than five pounds per fish. Our point is that conditions of food and water do not appear to have altered since that time, and that over-fishing would seem the reason for the drop in the bass population.

Great northern pike are in fair supply. In the old days there was a good deal of shooting and spearing of this species on spring spawning grounds, and there are some who claim these ravenous fish have increased at the expense of bass. However that may be, there are still anglers who champion



Lake George has ice-fishing too. The author jigs for perch

the cause of the pike, though he may damage bass and habitually consume perch, and several varieties of sunfish and rock bass that make up children's fishing. The sunfish in Lake George, incidentally, are regarded as a pest, although exceedingly sweet eating.

The yellow perch in Lake George is not as large as he is in warmer lakes but is favored for his sweetness and esteemed above trout by many native anglers, who in winter employ a technique peculiar to Lake George and who take perch by the hundreds for community chowders. The bait used is an eye gouged from the first perch caught. These "first-comers" are baited with a white grub of the sawyer beetle, chopped from white pine "down timber".

Lake George bullheads are moderate

in size and enjoy a protected season. These fish, too, have their clientele and devotees, and in comparison rate with the lake trout—which, perhaps, is all to the credit of the trout. At any rate, the Lake George bullhead is always richly sweet and never muddy in flavor. He is angled for of evenings, and from the region of deep-water grass beds off-shore there often comes to me, while seated on the porch of my log house of a summer or early autumn night, yowls of excitement from successful anglers.

An occasional brook, brown or rainbow trout is taken, and oftener still a landlocked salmon. It is interesting to note that there is a real opportunity for a man to catch landlocks in Lake George if he will concentrate on this particular species. Last year, for example, a 9 lb. 10 oz. fish taken by Henry Eichin won him second prize in a national fishing contest.

Although lightly regarded by the confirmed fisherman, who angles eternally, there are so many other exciting recreations available at Lake George that the per capita ratio of fishermen to fish is far below average.

Often as the sun goes down of a summer night, and the shadows of the purpled mountains stretch across the lake, there comes a hush as winds die away. The reflection of fast changing colors plays across waters and sky. Darkness brings the mountain peaks nearer, the shadows merge, and in the mysterious light of ending day the angler, afloat on the deep, lifts his eyes to the hills, realizing it is not all of angling to fish. And that's the exact moment a big trout elects to smash your neglected tackle to smithereens—a habit with trout in Lake George.

THE END

One of the many shelters on State-owned islands. This one is at Mother Bunch



DUCKS AND EELGRASS

A food shortage on the wintering grounds of northeastern black ducks, resulting from the disappearance of vast beds of eelgrass during a blight which struck the Atlantic Coast some 16 years ago, has long been a matter of concern to biologists.

New York is now cooperating in a project, along with several other coastal states, the Fish & Wildlife Service, the Wildlife Management Institute and Ducks Unlimited, which seeks to restore this aquatic plant as an aid to waterfowl.

The program grew out of a meeting arranged last December by Ducks Unlimited, at which a Joint Black Duck Committee was formed. Members of that committee are: Chairman, Philip C. Barney, Connecticut Fish & Game Commissioner and trustee of Ducks Unlimited; Dr. Ira N. Gabrielson, president of the Wildlife Management Institute; L. J. McNamara of the New Jersey Division of Fish & Game; John Pearce of the U. S. Fish & Wildlife Service, and Robert A. Wells, secretary of the New York State Conservation Department.

To facilitate the work, an "Eelgrass Planting Guide" has been prepared by the Fish & Wildlife Service and published in pamphlet form under the auspices of the Black Duck Committee.

Carrying out its share of the job, New York now has Biologist Donald L. Schierbaum making a reconnaissance of its Long Island coastal waters, securing information on present conditions and locating sites where there were formerly vast beds of eel grass. Experiments at Parker River National Wildlife Refuge in Massachusetts by C. E. Addy have shown that eelgrass can be successfully transplanted.

The Conservation Department uses red, yellow and blue disks to mark its forest trails. You'll find them tacked to trees. Roughly, trails that run north and south are blue; those east and west are red, and diagonal trails yellow.

RAIN

(From Page 11)

gets down to the bed of the stream.

In other words, most of the elementary methods of modifying the Hydrologic Equation were pretty much neglected. Runoff, in particular, was left to take care of itself. Nobody knows how much water the upper Kinderhook carried during that flood, but during the big rains in July, 1935, the Schoharie Creek at Prattsville had 474 times its

normal volume, and it's likely that the Kinderhook did considerably better. It built up quite a current, and when you double the speed of running water you quadruple its powers to remove soil.

The evaporation part of the Hydrologic Equation is harder to control than the runoff, but there are things you can do about it. When a raindrop hits the ground, it either sinks into the soil or runs off, depending on the condition of your soil. So, by preparing your soil and

OUT OF THE PAST

The boys who groused about the grouse shortage in New York covers last fall may be heartened to know that the phenomenon has happened before. In 1907, for example, most hunters agreed in stating that the bird was extremely scarce throughout the State and that in some localities they appeared to have been practically exterminated.

Said one writer:

"The wholesale destruction of grouse was due to unhappy combination of three separate factors:

1. The unusual abundance of foxes and, particularly goshawks during the winter of 1906-07. 2. The extremely cold, wet and late spring of 1907. 3. An epidemic of some disease or parasite, or both, just which we cannot now determine.

The most serious of these was unquestionably the cold, wet spring of 1907, which was universal throughout the range of the ruffed grouse and which almost entirely eliminated the normal increase to be expected."

(From the annual report of The Forest, Fish and Game Commission, 1907).

planning your crops properly, you can reduce runoff in favor of evaporation. Perhaps you want a nice big field of timothy. Then you'd better plan to keep some rain in the ground, because when that field gets going, roughly twice as much water is going to be transpired from it as would evaporate from a lake of equal size.

But, let's assume that your surface soil has got all the water it can hold. Then the force of gravity takes over, and some of the rain that doesn't run off directly is sucked through the pores of the soil into the sub-surface reservoir. The distance of this reservoir from the surface of the ground is known as the

Water Table, and in Brooklyn, of course, the Water Table is in bad shape. In fact Long Island in general is in a bad way, because in many places the table has gone down to 160 feet, which means, on parts of Long Island, that when you start pumping your well you are reaching down below sea level, and you may get salt water. This infuriates Brooklynites and other people.

There is still some doubt as to what controls Water Tables, except that they go up and down according to the amount of precipitation. The main reason that Long Island is short of ground water seems to be simply that Brooklynites and other people have pumped out too much of it, but in the rest of the State the Water Tables don't show any decided tendency one way or the other, over a period of years. Rain brings them up; a dry spell will drop them. Consecutive years with less than average precipitation will drop them considerably, either locally or all over the State.

You can, however, control the ground-water level on a local scale. If you want to raise a big load of onions you will want a low Water Table in your field, because onions have microscopic roots that sometimes go down 10 feet. Now you wouldn't suspect this of an onion, but these roots are very sensitive, and when they get too wet the entire onion may toss in the towel. To rescue the onion, drop your local Water Table by draining your field.

BUT most people are more interested in a high Water Table than in onions. They want water in their brooks and wells all year 'round. To get it they take measures to keep rain on their land instead of letting it run off to sea. They use their soil wisely. They keep an adequate cover of vegetation. They may even dig a farm pond.

You are bored. We will therefore bring this business to a close with a description of the Great Flood of New York. This flood hasn't happened yet, but just so that you won't get complacent about rain, we offer the thought that it could happen any spring.

Long and severe frosts will hit the Adirondacks in the late fall and early winter, freezing the ground deep and solid before any snow falls. Then six feet of snow will come down, and stay. Then, along about the first of April, a warm front will move in on the Adirondacks, and it will bring a lot of warm, steady rain. The rain will melt the snow, and none of the ensuing mess will sink into the ground because the ground will still be frozen. Vast quantities of the mess will go into the Hudson River.

Citizens of Albany, order your arks early.
—Pete Fosburgh

What's Bitin' Ya?



YOUR LETTER BOX

The opportunity for the reader to express his opinions—either in criticism or commendation—is something every publication must today provide. Particularly is this true of a State conservation magazine; a letter section becomes a clearing house for ironing out mutual problems and putting all the cards on the table for a look-see.

"What's Bitin' Ya?" is your special department, and we want you to use it. Just address your letters—gripes, orchids, or simply ordinary question-asking—to "What's Bitin' Ya?" New York Conservationist, Conservation Department, Albany 7, New York. And please keep them as concise as you can so they can be more easily published.

Editor

His Money's Worth

Sir:

The Columbia County Federation of Sportsmen, which went on record opposing any increase in license fees (although its Councilman had previously voted in favor of the New York Conservation Council's resolution) recently received a letter from Clayton D. Teter, president of the Columbia Rifle Club of Hudson, who had "been figuring a little on the costs and value received in having a hunting and fishing license."

Clayt, whose club was one of the few in the Federation favoring higher license fees, had it figured out that it cost him \$10.65 to take the fish and game he did last year, and "value received" in meat on the table at \$33.

He shot two partridge and 16 rabbits and caught 10 trout and 20 perch. Replacement he figured as \$6 for the "pats," \$18.40 for the rabbits, and \$2 for the trout, setting no figure on perch. He estimated the values as \$1.50 for the birds, \$24 for the rabbits, \$1.50 for the trout and \$6 for the perch. That was 2½ pounds of partridge at 60¢ a pound and 40 pounds of rabbits at 60¢.

His combination license cost him \$2.25; he put 300 miles on his car, bought 20 gallons of gas for \$4 and six quarts of oil for \$1.80; spent \$1.10 on his tires and \$1.50 for shells.

He wrote: "Value received equals three times the cost to me. Cost to me was 40 per cent of the replacement. Of course, most of the figures are estimates, but I have a very good idea of what I spent."

Post-mortems aren't always cricket, but I believe the above should be interesting to sportsmen who don't believe they are getting their money's worth.

R. B. M., Chatham

We wish to thank R. B. M. and Clayton Teter for their combined letter. If we can put our two cents worth in we might add that Mr. Teter's figures are—if anything—pretty modest. Imported Scotch grouse and European partridge on sale in fancy markets would cost him from \$5 to \$10 a pair, and they are no more dear than the two native "pats" whose value he estimated at \$1.50. If he were to buy 10 commercially-raised brookies weighing—let us say—a half-pound apiece, they would set him back more than \$5. Even on the basis of his own figures, his combined hunting and fishing license cost him less than a tenth of the "meat value" received.—Editor

.22 Pistols an Exception

Gentlemen:

The new State syllabus states that no person shall use in hunting, or possess afield, any auto-loading firearm capable of holding more than six shells in magazine and chamber combined. Does this apply to pistols such as the Colt "Woodsmen", which are designed to carry more than six shells, or is such an arm, properly licensed by the Pistol Permit Bureau, a legal firearm?

R. M., Buffalo

Your "Woodsmen" is OK. Provisions of the new automatic and auto-loading law do not apply in the case of autoloaders using .22 caliber, rim-fire ammunition, or to those having barrels not more than eight inches in length.—Editor

He Thinks So Too

Dear Sirs:

I would like to answer A.C.M. from Rensselaer, whose letter appeared in your February issue. I am glad this guy said "hunters" and not sportsmen. Quoting his bag of one squirrel, things must be pretty tough in his area, or else he can't see the length of his nose. If he would read the Conservationist as a good sportsman should he would get up off his plush seat and do something about the situation, instead of

thinking he is entitled to a two-million dollar gripe for his little \$2.25 license. Where does he get that stuff, quoting "we hunters"? He ought to get acquainted with some real hunters and sportsmen, the guys who are really working to keep even that one little squirrel he shot available for fellows like him.

L. W. H., Schenectady

This is one of numerous letters blasting A.C.M. received soon after our February issue was mailed. Seems we have some real sportsmen left at that.—Editor

Summer Fox Trapping

Dear Sirs:

I am under the impression that New York State has been sponsoring the summer trapping of fox. If this is so, quote me as being against it. I do not believe it possible to successfully trap fox without catching other fur-bearers. Naturally, if said fox-trapping is done in summer, protected fur-bearers are also caught. Let's hope something is done to remedy this.

A. R. V., Watervliet

You are correct in stating that fox-trapping is being conducted by the Department on a year-round basis, but it is being done by expert, professional trappers specially employed by the State, and records show that the take of animals other than foxes is so small as to be negligible. A further factor to consider is that much of the trapping is being done in control areas where foxes are known to be infected with rabies, and I doubt if anyone would contest the advisability of such work.—Editor

Rescue via Railroad

Gentlemen:

I am a railroad man and of late have seen dogs wandering around the country hunting by themselves. The other day I saw two mongrels holding a doe deer at bay. They had bitten one of the doe's front legs and I heard later that they had held her there for hours before I saw them. I threw a note off to a section foreman asking him to call a Game Protector and give him the location. I would like to know if I did the proper thing and if a Game Protector would be interested in this information if called.

C. A. C., Buffalo

You did do the right thing; the Game Protector definitely would be interested, and we thank you for your cooperation.—Editor

They Just Can't Make It

Sirs:

While hunting this past fall I found several old chestnut stubs which had fresh growth coming up from their base. Some of this new growth was up as high as 10 to 12 feet. I couldn't find any burrs to show fruiting, but it looks as though our good old chestnut is coming back. Have you had reports like this?

H. J., Olean

Unfortunately, in the case of the chestnut, all is not well that looks well. There is much of this new chestnut growth evident today throughout the State, but if you will look at it closely you will note that all of it is suffering from the same blight which killed off our magnificent stands of this tree shortly after the turn of the century. Some of this new growth will reach a height of 30 or more feet, but it eventually succumbs to the disease, and most of it shows evidence of blight in its first year of growth. There is nothing to indicate that this new growth will ever develop immunity.—Editor

On Pheasant Stocking

Gentlemen:

Last fall five pheasants were liberated near my home from a local game farm on the first day of the season. A group of hunters happened to notice the release and ten minutes later all five pheasants were dead. None had a chance to leave the clump of bushes they were put into. My suggestion is that game birds be released one or two weeks before the season opens. Let's give them a sporting chance!

M. S., Troy

The Conservation Department naturally opposes any such liberation practise as you describe if State birds are involved. State pheasants, unless they are chicks, of course, must be liberated as soon as received and sportsmen need have no fear that they aren't capable of caring for themselves. Every bird shipped has had at least one month of hardening in large open fields from which they are trapped when three months or more old. Furthermore, birds shipped this year will be more nearly mature than ever—and in greater numbers. Incidentally, pheasants should be allowed to walk, unfrightened, from the shipping crates into good cover. Then the liberating agents should return and pick up the crates.—Editor

No Lease or Sale

Gentlemen:

How can I purchase, or lease from the State, a parcel of land for use as a vacation lodge site?

W. L., Yonkers

We are happy to advise that the State Constitution prohibits sale or lease of any State land. This Department does, however, maintain numerous campsites scattered about State property, which are available to the public. A list of these campsites and leanto's and their locations can be had by writing our Bureau of Camps and Trails.—Editor

Stripping for Eggs

Dear Editors:

Will stripping the spawn from lake trout cause fishing to become bad? The reason I ask this is because for several years lake trout have been stripped of their spawn and the fishing seems to have declined a little each year since then.

S. J. S., Severance

Taking of eggs has no bearing on the future populations of lake trout in any water. Any lake in which lake trout spawn is secured receives an added stocking of fingerlings. This stocking provides a much greater population of trout than would survive from natural spawning in that particular body of water.—Editor

Gall Worms for Trout

Editors:

Having heard mention several times of gall worms as a bait for trout I am writing to ask if you know where these may be available. Can you buy them? If not, where can they be found?

K. H., Buffalo

The gall-worm is the larva of any of several species of sawflies, one of the more common of which deposits its eggs in the stem of our common goldenrod. As the larva grows it becomes encysted in the stem, causing a gall, or bulge, in the stem itself. You have probably noticed these many times. Cut this gall open carefully and you'll find your "worm". They are excellent bait.—Editor

Bait From Trout Streams

Gentlemen:

I know that it is against the law to use a seine for minnows in all trout streams, but what if I want to set a small trap in such a stream to take bait for my own use? Is there any regulation against that?

B. T., Kingston

The law states that the use of nets in taking bait fish is forbidden in waters containing trout, but you can take such fish in a glass or wire trap provided it is not more than 20 inches in length, with an opening not to exceed one inch, and further provided that it is not equipped with wings or leaders. It must also bear your name and address.—Editor

Harmless to Man

Gentlemen:

It is fairly common knowledge that most fish contain parasites such as tape worms, etc. Although we believe most of these parasites live in the digestive tract and organs of the fish and are cleaned out when preparing the fish for cooking, the question bothering us is: are these parasites and their eggs destroyed by cooking if they should be present in other parts of the fish?

H. S., New York City

Not always; but research shows that no parasitic organisms common to fish in this State are harmful to man.—Editor

WHITETAIL FERTILITY

(From Page 18)

140 days), than the southern region, where it varies from 130 to 180 days. Whitetails show a marked preference for fresh growth, and succulent vegetation can be had in the southern counties one or two months longer than in the north.

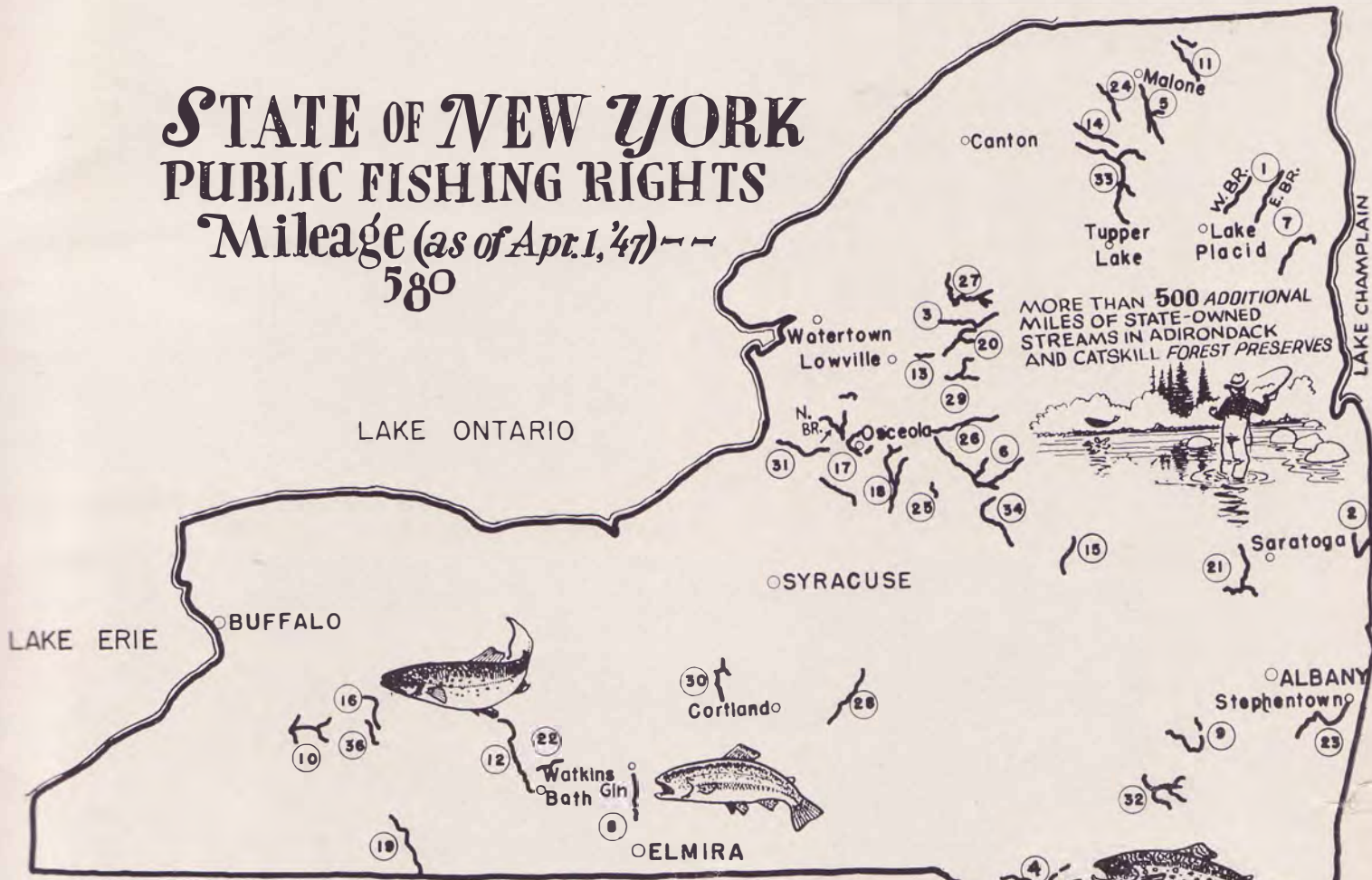
The soil in the Adirondacks is derived primarily from granite; southward there is a greater variety of soil origins, such as shale, limestone and sandstone. The northern region, therefore, may be much lower in some essential minerals. Calcium and phosphorus are extremely important to proper growth and reproductive functions. Plants differ in their abilities to take up and store various minerals and there is a greater variety of available plant foods in the southern section (including agricultural crops).

Temperature and snowfall in the north are basic influences on the availability of foods during winter and spring. In the north, where snow covers the ground early and lasts late, the availability of vegetation and most crops is accordingly reduced. As the snow piles up, the range of Adirondack deer becomes greatly limited, and there is an acute competition for food. The result is malnutrition—ranging from moderate to complete starvation. Whether the surviving deer completely recover from their winter and spring fasting in time to attain their maximum powers of reproduction by the following fall is questionable.

Other explanations have been advanced for the low fawn production in the Adirondacks. One concerns an "unbalanced" sex-ratio. Such a situation might explain the relatively high percentage of adult does which pass through a breeding season without bearing even one fawn, but this does not explain the low egg-production or low embryo count. The opinion is that among polygamous animals such as deer, a ratio of one male to three or four females is sufficient for service of all females. We know that a ratio of 83 males to 100 females was found among 3,289 adult deer killed by accident in the State, from 1938 to 1941, but less than 10 percent of these were from the Adirondacks. In the Moose River wintering area, a sex ratio of 38:100 among winter-killed deer has been recorded. The objective evidence available leads us to believe that the higher frequency of does without fawns in the Adirondacks cannot be explained satisfactorily by a shortage of bucks. There is more reason to believe that this condition is a more severe expression of the same forces which result in the low egg and embryo counts.

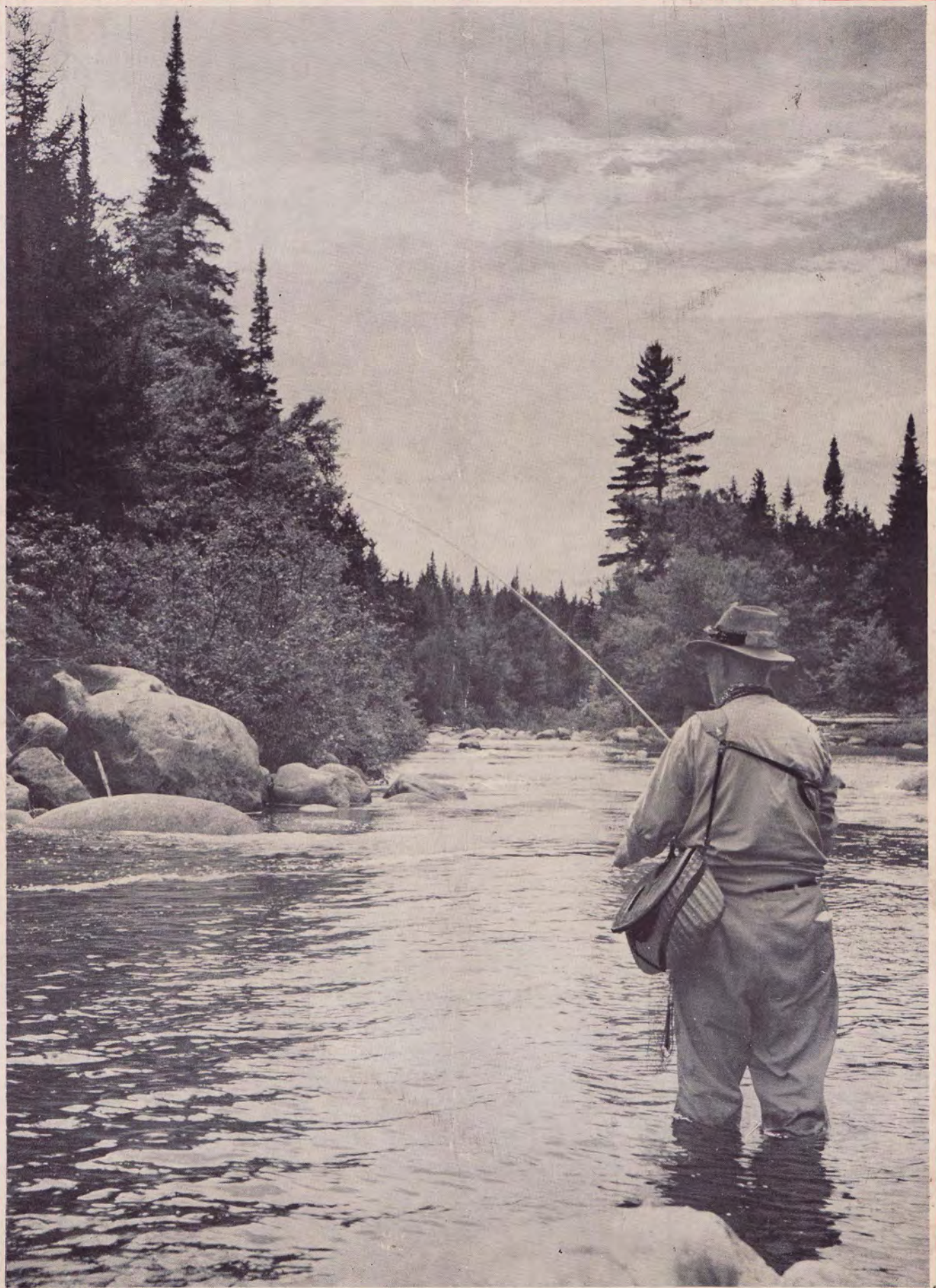
THE END

STATE OF NEW YORK PUBLIC FISHING RIGHTS Mileage (as of Apr. 1, '47) — — 580



- | | | |
|-----------------|----------------------|-----------------|
| 1 AUSABLE | 13 CRYSTAL | 25 MOHAWK |
| 2 BATTENKILL | 14 DEER RIVER | 26 MOOSE |
| 3 BEAVER | 15 EAST CANADA | 27 OSWEGATCHIE |
| 4 BEAVERKILL | 16 EAST KOY | 28 OTSELIC |
| 5 BIG SALMON | 17 W. BR. FISH CREEK | 29 OTTER |
| 6 BLACK RIVER | 18 E. BR. FISH CREEK | 30 OWASCO INLET |
| 7 BOUQUET RIVER | 19 GENESEE | 31 SALMON RIVER |
| 8 CATHARINE | 20 INDEPENDENCE | 32 SCHOHARIE |
| 9 CATSKILL | 21 KAYADEROSSERAS | 33 ST. REGIS |
| 10 CATTARAUGUS | 22 KEUKA | 34 WEST CANADA |
| 11 CHATEAUGAY | 23 KINDERHOOK | 35 WILLOWEMOG |
| 12 COHOCTON | 24 LITTLE SALMON | 36 WISCOY |

See story Page 2



DOWNSTREAM DRIFT

The Oswegatchie