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March / April 1979
**New Jersey
OUTDOORS**



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Conservation Paradox

Teachers and youth leaders are faced with a very difficult task when attempting to help students develop positive environmental values. Despite the availability of a number of materials dealing with energy and conservation, a very serious problem exists. How does a teacher help students to develop a conservation ethic when confronted with so many contradictory realities?

- How do you tell students to lower the temperature in their homes while shopping malls maintain sub-tropical temperatures year round?
- How do you tell students to turn off lights around the home that are not in use while businesses, shopping centers, and office buildings allow light to burn even when they are closed?
- How do you explain that mass transit is a much more energy-efficient method for moving people when children see the dilapidated condition of our bus and rail lines?
- How do you explain that smaller cars should be utilized because they use less energy while large, luxury automobiles are regularly advertised?
- How do you explain that we should rely less on automobiles while highway construction proceeds at a remarkable rate?
- How do you tell students that riding bicycles is a more energy-efficient method of transportation when there are so few safe bicycle routes?
- How do you explain that fresh water is a vital commodity that is in short supply while students observe lawns being watered throughout the hottest and driest summer days?
- How do you explain to students that fresh water must be conserved and returned to underground reservoirs while communities, states, and the federal government spend millions of dollars to pipe fresh water carrying our wastes for miles, eventually dumping into the ocean?

- How do you tell children that our seashore is important for marine life and recreation when we continue to dump garbage and pipe wastes into our coastal waters?
- How do you tell students that fresh food produced at nearby farms is healthier and cheaper while we allow New Jersey farms to disappear at an alarming rate?
- How do you explain that forests are important for recreation, for wildlife, for flood prevention, and for returning rainwater to the ground water supply when communities allow developers to clear vast stretches of wooded areas?
- How do you explain that we must not be so wasteful with paper when children eat at fast food restaurants that practice packaging overkill?
- How do you explain to students that we must not be so wasteful with paper while schools set such a bad example?
- How do you tell students that we must cut down our electricity consumption while at Christmas time we are bombarded with advertisements about electric convenience gadgets?
- How do you tell students that oil is in short supply when so many unnecessary items are made from petro-chemicals?
- How do you explain that windows incorrectly sealed, doors that do not close tightly, and lack of insulation waste energy while most schools are glaring examples of these abuses?
- How do you explain that by opening windows and letting breezes enter the house, we are saving energy wasted on air conditioning while many office buildings have windows that do not open?
- How can you say that recycling is important when little, if any, effort is being made in most schools and communities?
- How can you teach that conservation means wise use of natural resources when it is so difficult to find examples of conservation in the students' everyday lives?

Charles A. Doyle, Jr.

IN THIS ISSUE...

This issue opens with a guest editorial by Charles A. Doyle, Jr., author of *Nature in the Classroom*, a monthly column on environmental education in the *NJEA Review*, journal of the N.J. Education Association. Mr. Doyle is a science teacher in Wall Intermediate School and serves as a member of the NJEA Environmental Education Committee.

In *Round Valley Lakers*, author Robert Soldwedel updates the lake trout article published in the May/June 1978 *New Jersey Outdoors*. Bob says New Jersey anglers can help the lake trout in Round Valley by catching the 10 to 15-pound brown trout that inhabit this reservoir.

For some time we had been hearing stories about giant muskellunge being fished out of the Delaware River above Trenton and Walt Janukowicz verifies the tales with *Muskellunge in the Delaware*. Author Janukowicz interviews successful musky fisherman, Al Ames, Chief Ranger, Washington Crossing State Park, who tells *how, when, and where* to catch these monsters.

A new contributor, flyfisherman Allen

G. Eastby, writes about "*The Nymphs of April*" especially for the early Spring trout angler. Author Eastby has been published in *Flyfisher*, *Flyfisherman Magazine*, *Fishing World*, and *Outdoor Life*.

After being schooled by "Doc" Eastby on how to lure and catch early season trout, go out and buy a 1979 fishing license, a trout stamp, and get your old flyrod ready for Opening Day Trout—Saturday, April 7.

Our Wildlife in New Jersey series continues with *The Snapping Turtle* by Mario G. Del Baglivo. This feature is illustrated by Bob Pierro and is introduced by a color illustration on the inside back cover by Carol Decker. Author Del Baglivo is a zoologist who is especially interested in the disease aspects of wildlife ecology.

Spring Woods, a pictorial feature by photographer William D. Griffin, tells us with pictures and color that Spring is here. . . or maybe it's just around the corner.

Another new author, Arthur J. Michaels, reveals the *Secrets of the*

Urban Angling Experts. Just because you live in the city doesn't mean you can't catch fish right close to home. Yes you can!

In the article *Backyard Birds*, author Rick Schroeder (also new to NJO) writes that "birds have managed to adapt very well to man and many species will share our backyards with us." But first we must attract them with food and shelter.

Two book reviews: *New Jersey Wildlife Illustrated* is reviewed by wildlife biologist Joseph Penkala; and *My Moby Dick* is reviewed by fisheries biologist Robert Soldwedel.

The picture story on page 17 announces the annual *Open House Hackettstown Fish Hatchery* on Sunday, March 25. Bring the kids so they can feed the fish with free fish food. Also, free color posters and New Jersey Outdoors copies (while they last), and it's a convenient place to buy your fishing license. And more tiger muskies will be displayed.

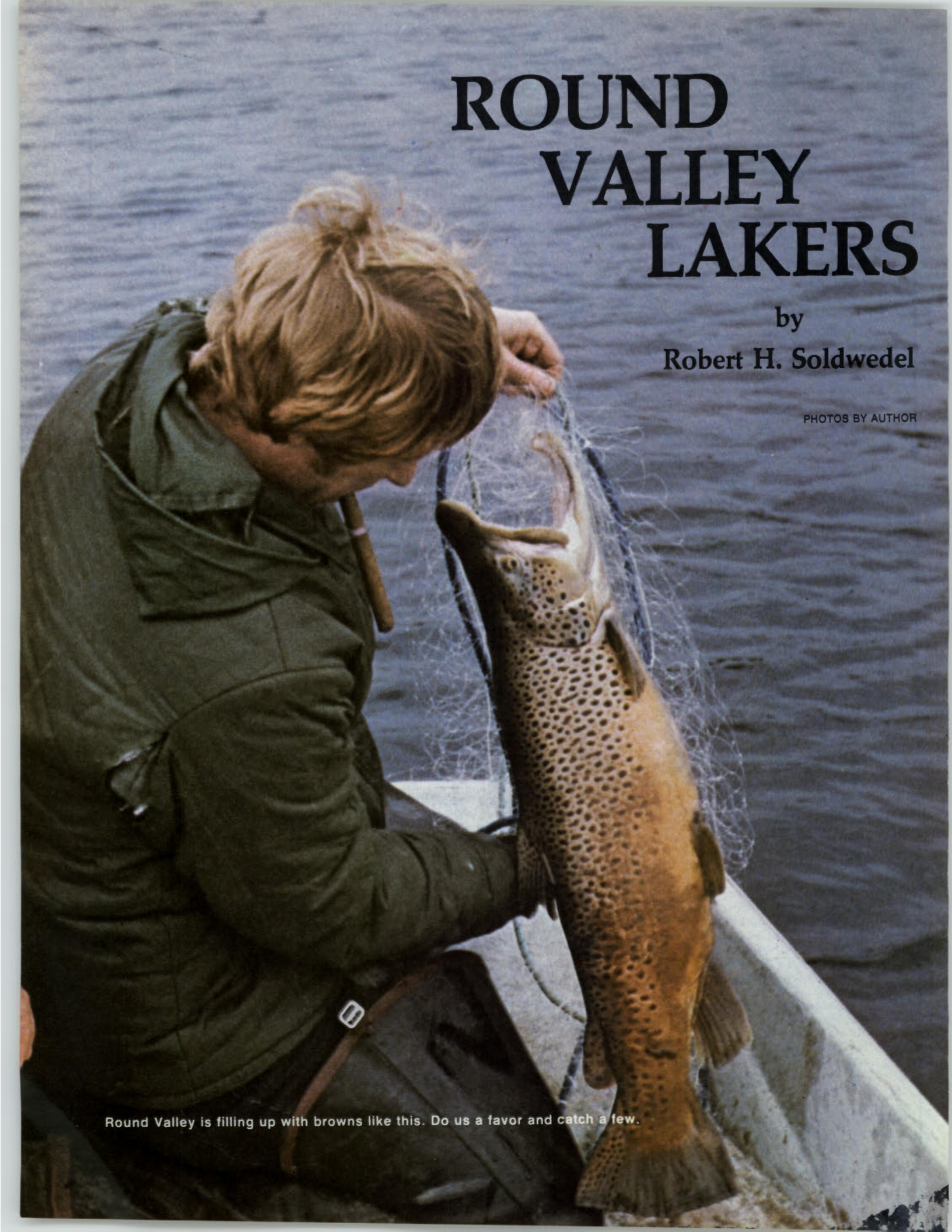
"We've become, in large part, a

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ROUND VALLEY LAKERS

by
Robert H. Soldwedel

PHOTOS BY AUTHOR

A man with light brown hair, wearing a green jacket, is shown from the side, holding a large brown trout in a net. The fish is speckled and has its mouth open. The background is a body of water.

Round Valley is filling up with browns like this. Do us a favor and catch a few.

Lake trout were first stocked in Round Valley Reservoir in March, 1977. That stocking consisted of 6,300 yearlings which ranged in size from 4 to 7 inches. The following November, biologists from the Bureau of Fisheries' laboratory at Lebanon, gillnetted the reservoir to check on the survival and growth of the lake trout from this stocking (reported in the May/June 1978 issue of *New Jersey Outdoors*). The results of that survey were very encouraging on both counts. Six lakers were taken, ranging in size from 8 to 10 inches and averaging 9.2 inches in length (when stocked eight months earlier they had averaged 5.5 inches). These results indicated a growth rate of nearly half an inch a month which is excellent for this species. The fine growth rate, plus the fact that we did find them, also proved that Round Valley Reservoir was a very suitable habitat for lake trout.

Encouraged by our initial successes we have forged ahead with the program. The second stocking of lakers in Round Valley Reservoir was made on November 21, 1977. This stocking consisted of 1,482 trout averaging 8.2 inches. So that these trout could be distinguished from those of the first stocking, their adipose fins were "clipped" (i.e. cut off). This "clip" in no way impairs the trout and this method of identification is a well established fisheries' management technique used by fisheries biologists all over the world to evaluate programs which involve numerous stockings of the same species of fish. For example, in Lake Superior where the lake trout program involves many stockings, the biologists have used just about every clip and combination of clips possible. When you consider that each trout has one adipose fin, one anal fin, one dorsal fin, two ventral fins and two pectoral fins you come up with about 50 possibilities.

A third stocking of lakers was made in Round Valley Reservoir on March 28, 1978. This stocking involved a total of 4,155 trout averaging 4.8 inches. To identify this batch of lakers, each trout had its left ventral fin clipped.

The fishery for lake trout broke wide open during the summer of

1978, (unfortunately). The lakers were very susceptible to the angling tactics used by those knowledgeable fishermen who were pursuing the reservoir's famous trophy brown trout and rainbow trout. As the lake trout is presently fully protected, they had to (were supposed to) be returned to the reservoir immediately and unharmed. This is essential to the success of the program. We realize that even the best efforts of the most concerned angler often is not enough to prevent mortality and we deplore wasting anything, but we can't let fishermen keep the lake trout that they feel are going to die anyway as this would open the door for the out-and-out poacher. As the lakers get bigger and bigger, they become more and more attractive and fishing, just like every other sport, has its share of cheaters. We have even gotten reports of these "lowlives" using ice chests with false bottoms to smuggle the lake trout away. Every honest angler should be more than willing to report these greedy thieves. After all, *you* are the one they are robbing.

The HOW (Help Our Wildlife) program, which was created by the National Rifle Association, provides

one of the means by which the individual sportsman can help weed out the slob in our midst. The HOW program is based on the willingness of the concerned sportsman to fill out a "cooperative violation report card" and to appear in court as a witness if necessary (report cards are available from the Trenton office of the Division of Fish, Game and Shellfisheries or its district law enforcement offices). Admittedly this will cause the reporter some effort, but the results should be worth it.

The one thing we really can't do to solve our "laker-taker" problem, is to close down the reservoir to angling. The fishery for the other trout species, bass and panfish is just too good and too important to allow us to do that. It appears that we are just going to have to live with our losses and beef up our law enforcement effort to discourage the thieves.

From what the fishermen have reported to us, we are to believe that the lake trout being caught (and reportedly released) are as large as 17 and 18 inches in length. To confirm these reports and to determine survival we brought our gill nets back to Round Valley during the week of

Continued on page 30



This year's results found lakers up to 17.0 proving that the lake trout survive and grow well in Round Valley.



PHOTOS BY AUTHOR

MUSKELLUNGE IN THE DELAWARE

by Walter Janukowicz

Since the spring of 1965, when puny one-inch muskellunge fry were introduced to the Delaware River, many stories but few facts have been written about the Delaware River's newest resident. So *New Jersey Outdoors* has sought some authoritative information on New Jersey's most prized freshwater game fish.

The following are excerpts from a recent conversation between the author and Al Ames, Chief Ranger, Washington Crossing State Park, an ardent musky fisherman.

Author: Al, how many legal-sized muskies have you caught?

Al: I've caught 10 muskies in the last two years.

Author: In what part of the Delaware River were the fish caught?

Al: They were all caught in the area between the Scudders Falls Bridge and the Lambertville Bridge, mostly north of Titusville, off Route 29.

Author: What is the best time of the year to catch muskies?

Al: I've been most successful in the Fall (October-November) and in the Spring (March-April).

Author: What are some of your secrets of successful musky fishing?

Al: Probably the water level and the water temperature are the most significant. I have made my best catches usually after the river has been high, and the water level starts dropping, and the river clears. The river temperature should read 40 to 50 degrees. Lures also are an important factor and my three favorite lures are: A six-inch black-and-silver jointed Rebel; a number five Mepps bucktail spinner with a silver blade; and a bucktail jig with a Mr. Twister.

All lures are fished with a slow retrieve, close to the bottom. I prefer to fish with a bait-casting rod and reel with line between 10- and 15-pound test with a wire leader. With a

baitcasting rod and reel, I seem to be able to control my fishing better. Most musky fishermen prefer to fish during the early morning or evening hours. I have had most of my luck in the afternoon, when the sun's rays start to warm the river. I fish the eddies and coves, especially where there are "holes" or "drop-offs" in the river's structure. It is also very important how you set the hook because of the fish's bony mouth. I always set the hook 2 or 3 times. I never net a musky, but I "bank" him. If I catch one musky in an area, there is almost certain another in the same area. I must emphasize that muskys are not generally caught, but they are "hunted." It takes a lot of man-hours and patience to become a proficient musky fisherman. Of course there have been quite a few exceptions—muskies caught by anglers who were fishing for other species such as suckers or catfish and surprisingly hooked into one of these "transplanted monsters." The angler's bait usually was the common earthworm.

I have kept a casual record of muskellunge that I have seen caught in my area of the Delaware River, and from between March 1976 to November 1977 I recorded 31 legal fish (counting the ten I have caught). The largest musky I have seen caught measured 38 inches and weighed 17 pounds. Three of my trophy

fish were mounted by my friend and amateur taxidermist, Elmer Baggaley.

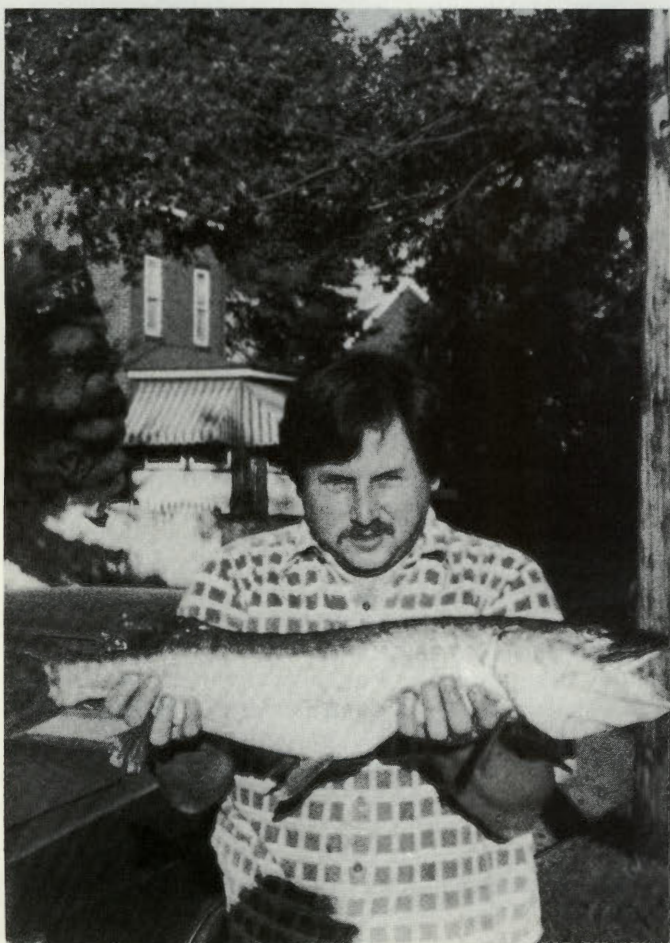
After I completed my Interview with Ranger Ames I came down with a severe case of "musky fever" and immediately put his assorted information to work, faithfully plugging the choice waters of the northern Delaware suited for musky. Needless to say, these monsters are a little more elusive than panfish, and several trips produced nothing more than pleasant exploration and relaxation (what else is needed). During these trips, however, I saw several big carp frequenting the quiet pools. I advised my father, an elder sportsman, who does very well at bait fishing for this species.

So dad dug out one of his old, beat-up spinning outfits, a couple of rusty hooks and prepared some cornmeal balls for bait. A few casts—you guessed it—a tremendous strike, a screaming line and eventually a 10-pound 32-inch musky. What can I tell you??? Hang in there, play the percentages and get lucky, not necessarily in that order.

A friend of my father's, who witnessed the battle, later viewed the spiked mouth of the musky and exclaimed: "Now I know what happened to the smallmouth I had on my stringer."

Now try *your* luck. Good fishin'.

□



My brother and his musky.



My father and grandson with his musky.



Clara Eastby brings an early-season trout to net.

PHOTOS BY AUTHOR

“The Nymphs of April”

by
A.G. “Doc” Eastby

Everyone knows what those first weeks of the trout season are like. Streams are usually high and off-color or at the very best merely cold and inhospitable. Competition is intense among the anglers who line the banks jockeying for advantageous casting positions. Patience wears thin waiting for someone to grow tired or fill a limit and move on so there is room to fish a favorite pool. Hectic comings and goings, endless searches for parking places, and ribald comments hooted across a pool when a fish is lost are all part of April trout fishing.

Also part of early-season angling is the deep, soul-wrenching desire of virtually every flyfisher for a can of juicy nightcrawlers. For most devotees of the long rod, April is a month of frustration and anxiety, a time of profound and utter depression. The trout season is open. Fish are being caught. But as often as not the fly rodder is confronted with a seemingly impossible task: taking early season trout on bits of fur, feather, fibers, and steel. Yet it is possible for the flyfisher to enjoy some of the best angling of the year, with flies, on raw days when grey clouds tumble over the western hills and a sharp wind sets teeth chattering.

The mainstays of the April flyfisher are *nymphs*, imitations of some of the insects spending at least part of their lives in streams or ponds. All too often, however, the flies that most anglers carry and use are worse than useless. At best they are poor depictions of some creature dredged up from a stream bottom. At worst, they are the products of overactive imaginations. Whether purchased from a sporting goods store or produced during hours spent hunched over a fly-tying vise, seldom do these flies fool trout.

Effective nymphs are not difficult to create, however. Patterns that are *imitative* enough to fool even the most judicious brown trout and easy enough to fashion so that anyone with even a rudimentary knowledge of fly-tying can turn out a creditable copy are available to flyfishers who take the trouble to look for them.

No selection of April nymphs would be complete without representations of the immature stages of the two most common early-season mayflies, *Paraleptophlebia adoptiva* and *Ephemerella subvaria*. The following patterns, based on the popular "seal substitute" (shredded polyester yarn), can persuade highly selective trout to take a fly.

Subvaria Nymph:

- Hook: Mustad +94833 or #94840, sizes 10 through 14
- Thread: Brown, 6/0, prewaxed
- Tails: Imitation wood-duck feather fibers
- Wingcase: Latex strip tinted brown and mottled red-brown with waterproof marking pens
- Body: Polyester ("seal substitute") dubbing—two parts golden tan, two parts red-brown, one part medium brown, and one part buff
- Legs: Grouse, brown partridge, or other brown mottled soft hackle

Adoptiva Nymph:

- Hook: Mustad + 94833 or + 94840 or equivalent, sizes 16 and 18
- Thread: Grey, 6/0, prewaxed
- Tails: Grouse shoulder feather fibers
- Wingcase: Latex strip tinted dark grey with a waterproof marking pen
- Body: Polyester ("seal substitute") dubbing—one part grey, one part dark brown, and a tinge of red-brown
- Legs: Grouse, brown partridge, or other brown mottled soft hackle

These mayfly nymphs should be tied on light wire hooks so that when a hatch is encountered (always a possibility), the fly can be dried, dressed with a silicone floatant, and fished on the surface to rising trout. One point must be emphasized: The bodies on these flies should be rough and shaggy, heavily picked out with a dubbing needle—then the fly will trap tiny air bubbles and when submerged will glisten and shimmer irresistibly. This ability to capture and refract light is the mark of a good nymph.

On most April days the observant angler will notice a few stoneflies flitting about the edges of rocky streams; fishable hatches of these insects may even occur. The best early-season nymph is a simulation of one of the red-bodied *Taeniopteryx* species. At home in a wide variety of habitats from bouncing mountain brooks to the quiet eddies of pastoral rivers, these insects are often staples in an April trout's diet and therefore well worth imitating. This pattern, too, utilizes polyester "seal substitute."

Red Stonefly Nymph:

- Hook: Mustad +9671 or +94831, sizes 12 and 14
- Thread: Brown, 6/0, prewaxed
- Tails: Brown-dyed goose wing quill fibers or

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Orange Beetle Larva.



Red Stonefly Nymph.

WILDLIFE IN NEW JERSEY

The Snapping Turtle

by Mario G. Del Baglivo

Lurking in the ponds and swamps of New Jersey is a creature which seems as if it were forgotten by time. With its large head, armor-like body covering, and long, saw-toothed tail, it resembles a miniature of the dinosaurs which roamed the prehistoric Northeast millions of years ago. Unlike its ancient relatives, however, this reptile is a successful survivor which thrives in our state.

The common snapping turtle (*Chelydra serpentina serpentina*) belongs to the very old family the Chelydridae whose members, all snapping turtles, have not experienced any significant evolutionary change for thousands of years. In New Jersey the "snapper" can exist in any large body of fresh water although its preferred habitat consists of ponds and swampy areas. These strong animals can even travel in swift-running streams and rivers while moving

from one location to another. In fact, almost all of the snapping turtle's life is spent in water with the exceptions of the characteristic overland travel of the male during the mating season (copulation always occurs in the water, however) and the female's emergence onto land to nest. It is rare to observe them basking in the sun as other native turtle species commonly do.

You are most likely to observe a snapping turtle at dawn or dusk during May and June for it is then that nesting occurs. The female, using either the left or right hind foot alternately, digs her nest in a bare patch of earth usually located close to her watery home, but which can also be hundreds of meters away from the nearest shoreline. Disturbed areas, such as plowed fields, are favorite nesting sites. The nest-hole itself is rounded at the bottom where the eggs will be

ILLUSTRATION BY ROBERT PIERRO



placed and narrower towards the surface with the entire excavation resembling a large round-bottomed flask. The average depth is 10-11 centimeters (about 4 in.).

After this depository has been dug, the female squats over it and releases eggs from her cloaca one at a time while guiding them gently into place with one of her hind feet. Soft and leathery when initially emitted, the eggshells harden within minutes. As many as 30-40 of these small, round eggs (which resemble ping-pong balls) can be laid by a large female. When laying has been completed, the eggs are covered over with soil and the hole is filled in entirely with the female again using her hind feet alternately. This final activity is performed so well that it is usually impossible to locate a nest unless you have seen the female nesting at a particular spot.

Hatching occurs during late August and early September after the eggs have incubated through the summer in the surprisingly near-constant temperature of the subterranean nest. Hatchlings tear open the eggshells with their beak-like jaws and dig their way to the surface of the soil where they crawl to water. Dark in color with a light spot at the edge of each marginal scute (plate), the carapace (upper shell) of the newly hatched turtles measures 2-3 centimeters (approximately 1 in.) in length. Three distinct rows of raised scutes are found along the length of this shell.

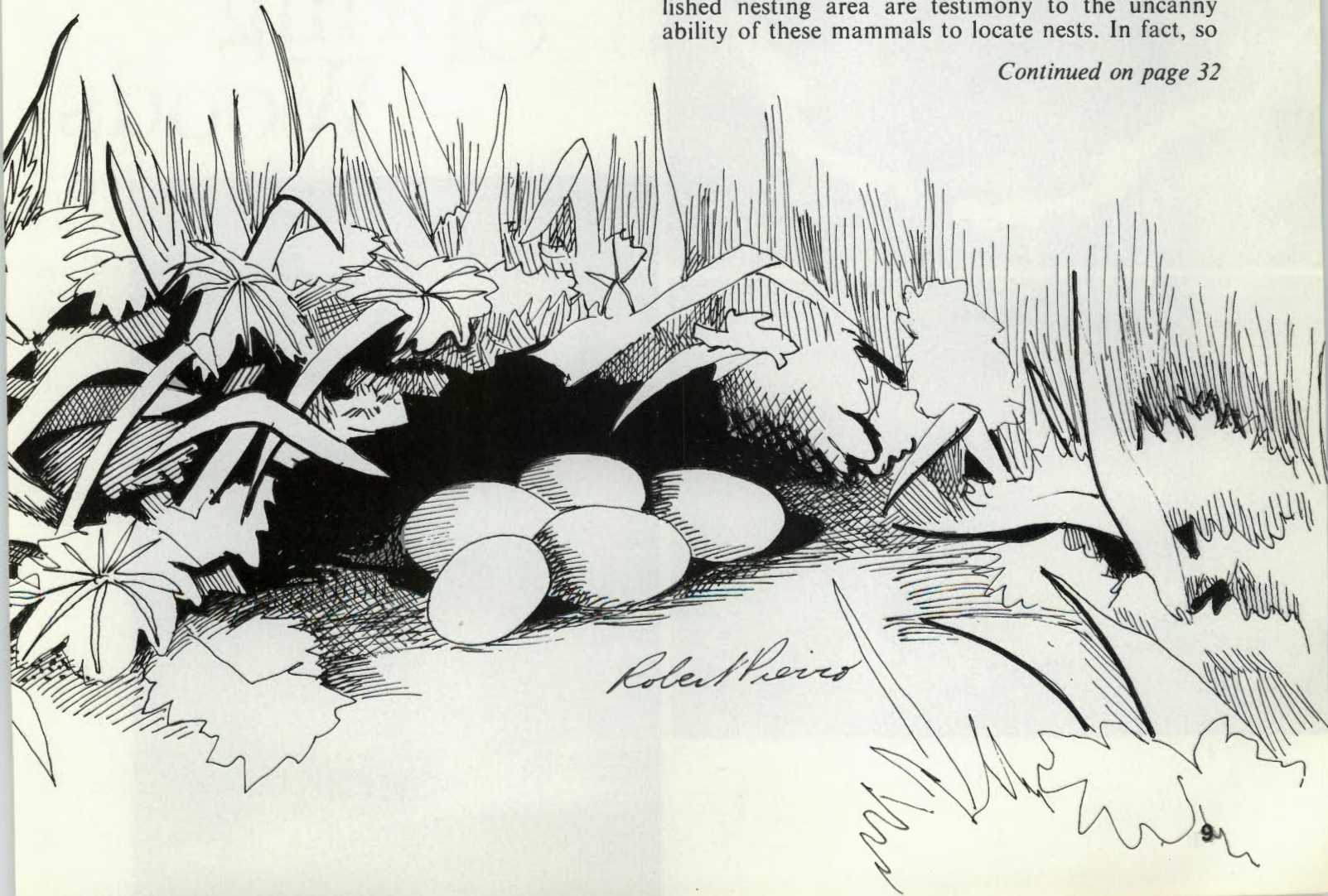
Later, as the turtle grows to the average adult weight of 5-16 kilograms (10-35 lbs.), these three keels become less prominent and give the carapace of the adult its typical rough appearance. Also, the marginal white spots will disappear leaving the entire shell a dark green in color. Throughout the life of these turtles, the plastron (lower shell) is very dark, almost black, and is much shorter in length than the carapace.

C. s. serpentina is omnivorous. Vegetation, carrion, insects, aquatic invertebrates, fish, and hatchling turtles of all species are consumed. A high duckling mortality rate can be attributed to these reptiles and, for this reason, snapping turtle populations are usually controlled in waterfowl refuges. No teeth are present, but all food is torn apart by the powerful jaws and gulped down in large sections.

"Snappers" have a reputation for biting humans and it is true that even a medium-sized turtle can inflict serious injury. However, it is a myth that they seek out and prey upon unsuspecting swimmers enjoying the tranquility of the local pond on a hot summer afternoon. Unless purposely disturbed or accidentally stepped on, these solitary animals will actually shun bathers.

The snapping turtle is susceptible to predation, as well as other dangers, at each stage of its life cycle. Nests are regularly pillaged by raccoon, skunk, opossum, and fox. The great number of opened nests and fragments of eggshells observed in any established nesting area are testimony to the uncanny ability of these mammals to locate nests. In fact, so

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10



4

Spring Woods



5



6

by
William D. Griffin



7



8

1. The marsh marigold, related to the buttercup which flowers later, glistens brightly along woodland pools or streams in April. 2. Having spent the winter in hibernation, the mourning cloak is the first large butterfly to appear in the Spring. 3. The multicolored spathes of skunk cabbage shield the ill-smelling flowers hidden inside. These are the earliest of the woodland wildflowers, often showing in early March. 4. A male American toad, his throat puffed out, sings his love song in a cold woodland pool. Each trilling call lasts about 20 seconds, and hopefully will attract a mate. 5. Spring beauties are a typical flower of early spring woods, often appearing in great masses along moist spots. 6. Dutchman's breeches, each flower scarcely an inch long, are among the earliest woodland bloomers. 7. The snowy blossoms of the bloodroot, standing proud above the yet unopened leaves, are among the showiest of early spring. 8. A green frog absorbs the sunshine along the stream bank. 9. Sunning himself in the spring sunshine, the red-backed is one of the most common North Jersey salamanders.



9

North Jersey Wild Library



SECRETS of the URBAN ANGLING EXPERTS

by
Arthur J. Michaels

The scenery of urban angling can be equally spectacular as snow-capped mountains. Here, two urban anglers hit the Hudson River in Hoboken.

PHOTOS BY AUTHOR

"You can catch some pretty big fish in urban waterways," says Steve Jandoli, Essex County Park Commission's Park Naturalist. "Every summer," says Jandoli, "we go out and seine some of the ponds in our area, and we've pulled out several 20-inch bass. One of these lunkers came from Grover Cleveland Pond in Caldwell."

Seining is one thing. But can you really catch—on hook and line—a 20-inch bass in a pond surrounded by factory complexes, twining expressways, and a carpet of endless asphalt?

You can if you know how to fish an urban waterway. And there are anglers who consistently catch big fish in urban areas of New Jersey. During the summer of 1976, for instance, a bass fisherman hauled a 17-inch hawg from Braddock Park's lake in Hudson County. And in 1973, another Braddock Park fisherman wrestled a 17-pound carp to the creel.

If your idea of fishing an urban area is tainted with visions of pollution, decay, filth, and no fish, then these urban angling experts surely know something you don't know. To be sure, many urban areas of New Jersey are too polluted to hold gamefish. But if you take a closer look at the fishing potential in your own urban area, you can pull big fish out of some of the most unlikely places.

The major pollution problem in many of these urban, unlikely places is runoff, because city lakes and ponds often form area basins. These lakes and ponds receive runoff of fertilizers, oil, nitrates, and phosphates. Commenting on the water quality of Essex County, though, Jandoli said, "In the summer of 1975, we undertook a fishery survey of Commission waterways. In spite of the runoff problem, the waterways here still provide a good, varied warmwater fishery." Jandoli reported 10 fish species sampled, in-

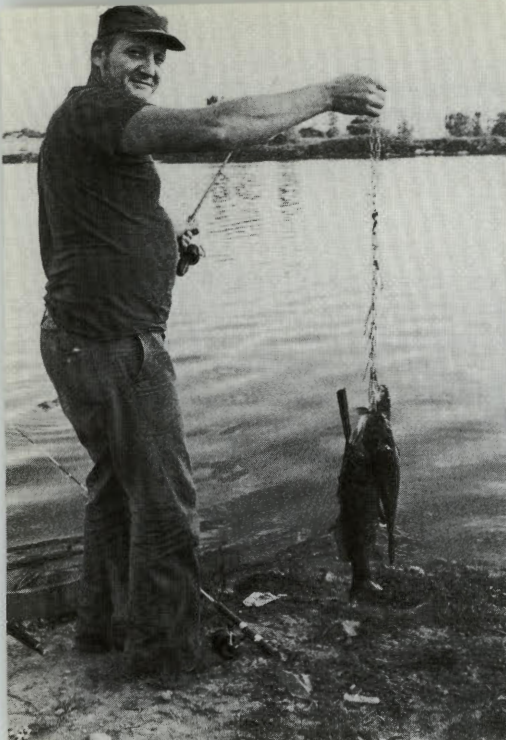
cluding largemouth bass, bullhead, bluegill and pumpkinseed sunfish, carp, and channel catfish.

Besides Essex County, other metropolitan areas of New Jersey offer consistent fishing for eel, white sucker, black and white crappie, and white and yellow perch.

The Hudson and Delaware rivers, for instance, offer excellent eel fishing in urban areas. One city fisherman pulled a writhing eight-pound lunger from the Delaware River near Trenton, and anglers lining the Hudson River from Jersey City to the Palisades Interstate Park report catching eels averaging two feet in length.

To latch onto an urban lunger, use uncomplicated fishing tackle. Most urban anglers use light spinning

In September and October, Hudson River eels come big. This Edgewater angler creeled a total of six within an hour on sandworms. ►



◀ April, May, September, and October are the best times to tangle with a husky carp. Pound for pound, carp fight just like largemouth bass on the end of a line. These carp took worms.

Fishing is best in late August and September for snappers, young bluefish like this one. If you fish for them as the tide changes, they'll clobber almost anything you can throw at them—sandworms, plugs, spoons, and spinners. Snappers caught on a six-foot spinning rod with eight-pound test line offer fine sport.



(now part of Overpeck County Park). In addition to the usual carp baits of commercially prepared dough, raw hamburger meat, and corn, some carp experts swear by a concoction of peanut butter and bread. They press the bread and peanut butter with their hands and knead the mixture into balls of bait. "It's a real mess to prepare," said one carp connoisseur, "but it's *THE* bait for large carp in some spots."

Along with their wide variety of baits for bottom-fishing, most urban anglers enjoy a long, eight-month season, from April through Thanksgiving and ice-out. In April, May, October, and November, fishing is best during midday. In the hot, dog-day months, urban anglers score best early in the morning and at night.

"You have to look right through the factories," commented one city fisherman. And displaying an eight-pound carp on a stringer that was as long as his right arm, he concluded, "Why should I spend two or three hours traveling in my car when I can catch fish like this, right here close to home?" □

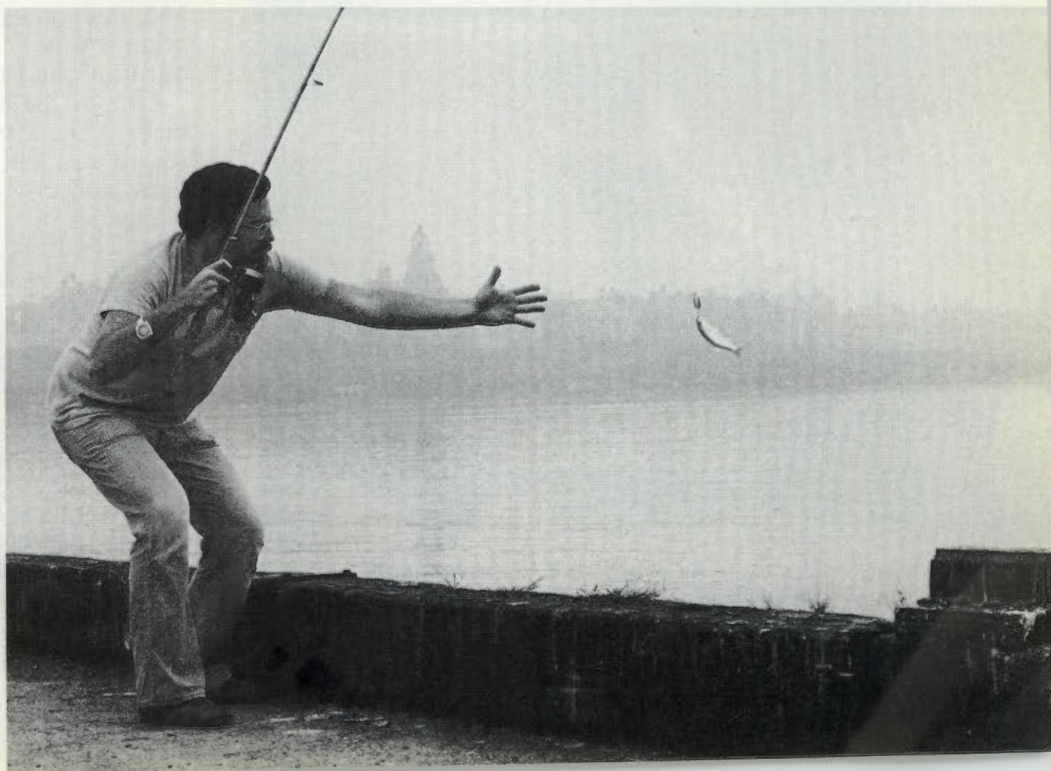
tackle with six or twelve-pound test line. In the tidal areas of urban coastal rivers, though, heavier tackle is your ticket to success. Twelve-pound test line with a light-action surf casting rod is common fare.

And fishing a worm on the bottom with a sinker heavy enough to prevent drifting is the city fisherman's common method. In freshwater, use a #6 bait-holding hook with an eight-ounce sinker, and in salt water, try a one-ounce sinker with a #4 hook.

You might have to go heavier on the sinker if you're fishing in a swift current or stiff breeze. And spinning tackle, of course, offers you maximum efficiency to hook a timid biter like the carp.

To attract more frequent strikes, vary your bottom-fishing baits. Replacing your worm with corn, for instance, will lure large carp in the two to six-pound class, especially in North Jersey's Overpeck Creek, a tributary to the Hackensack River

Here, the author loses a nice snapper. Seconds after this picture was taken, the frisky snapper jumped the hook. That fish was *not* one of the twenty-five snappers the author caught and released, all in an hour and fifteen minutes on a muggy, August afternoon.





Cedar waxwing—Sleek, crested cedar waxwings may flock to your yard, stripping trees or shrubs of their berries.

PHOTOS BY AUTHOR

It occurred to me over the course of several years. I'd been spending hours in the car driving to remote locations to observe and enjoy birds. I never liked the ride, but figured the results were worth it. After all, where else could I get to see a rich variety of birdlife? I should have tried my own backyard.

The variety of birdlife right out our backdoors is amazing. Birds, more than any other type of wildlife, have adapted to the presence of man. From cities, to the country, to wilderness areas, birds are present everywhere. They are easily the most visible and abundant form of wildlife that most people can observe.

I have heard the story of a man who owned a small lot in New York City and wanted to attract birds. Through the use of feeders, plantings, and good management, he made his property a bird haven. This gentleman was rewarded with the visits of over 200 species of birds to his backyard. And this in New York City!

The fact is that the average backyard can provide good opportunities to enjoy and observe birds. I was mistaken to think I always had to visit wild areas to birdwatch. Since my awakening I have spent many enjoyable hours looking out my kitchen window. I have counted about 40 species, and am certain to add more to this list.

Attracting and identifying birds is becoming an enjoyable activity for more and more people all the time. The place to start is in your backyard. Through the use of plantings, feeders, birdbaths and houses, you can attract a wide variety of birds. And with the help of a good field guide, a pair of binoculars, and patience, you can identify the birds you see.

Pictured here are four birds that are found in or near backyards in New Jersey. Each one is a unique and interesting creature. Learning about these and other birds is one way to keep in touch with the outdoors and natural things.

One of the best known and most easily recognized birds is the attractive blue jay. The blue jay is a year-round resident and is found in wooded areas, suburbs, and city parks. They are easily attracted to the backyard by offerings of seeds, peanuts, bread, and suet. The bulk of the jay's wild food is plant material, but they also eat insects, frogs, snails, and the eggs of other birds.

One of the jay's outstanding characteristics is his noisiness. A blue jay's shrill and resonant call is easily identified and not soon forgotten. This call often alerts other forest creatures to intruders, and makes the jay a valuable forest sentinel.

At six or seven inches long, the downy woodpecker is our smallest woodpecker. It is fairly common and is easy to attract. An offering of suet tacked into a tree or into a swinging branch stub will bring the downy to your backyard.

Back Yard Birds

by Rick Schroeder



Downy woodpecker—A swinging limb with suet-filled holes is a favorite feeding place for the downy woodpecker.



Blue jay—The prominent crest and definitive markings make the handsome blue jay hard to miss.



American robin—The arrival of the robin is a traditional sign of spring.

Downy woodpeckers are found in most wooded areas, and are often heard before they are seen. Their call is sharp “peek, peek.” Downy woodpeckers may be confused with the larger and less common hairy woodpecker, which has a longer bill and is eight to ten inches in total length. The key feature in distinguishing the two birds is the outer tail feathers. If they are solid white, the bird is a hairy; if they are marked with small black spots, the bird is a downy woodpecker.

Probably one of the first birds we all learned to identify was the American robin. Many a backyard has had a robin nest in it, filled with the familiar blue eggs. Although “robin red-breast” is usually heralded as the first sign of spring, this bird is occasionally seen here in the winter months. The real influx occurs at winter’s end, as the early spring flowers burst forth.

Male robins arrive first and set about claiming their breeding territory. Following the arrival of a female, a nest is constructed in a tree crotch or on the ledge of a building. Young robins with spotted breasts are often seen in backyards as they beg for food from the parent birds.

Robins may be enticed to nest in your backyard by the presence of trees and shrubs or a man-made nesting platform under an eave. A bird-bath will also attract nearby robins.

The sleek, crested cedar waxwing is a year-round resident in New Jersey. These attractive birds are named for the red wax-like spots found on the wings of most adults. The yellow belly, black mask, and crest are identifying features of the cedar waxwing.

Plant several berry-bearing bushes in your backyard and you will probably attract waxwings. A flock of these birds can strip a tree of its fruit in a short time; as they do so, you may notice an interesting ritual. Several waxwings will sit on a branch all facing in the same direction. A berry or fruit will be passed back and forth several times until it is finally

eaten by one of the birds. The reason for this strange activity is one of nature’s mysteries.

As quickly as they come, waxwings are gone to look for their next meal. Flocks of cedar waxwings will wander sporadically throughout the winter in search of berries still clinging to frozen branches. These gregarious birds are often easily approached for closeup observation. Their hardiness and simple beauty make their unpredictable visits all the more enjoyable.

Learning about the birds pictured here can be the start of your enjoyment of local birdlife. Once you can identify several species you may want to learn even more about them. Note which birds use which habitats. Study the food habits of visitors to your backyard. Observe nesting birds and where and how they build their nests. You may be surprised at the variety of activity and the differences among the birds you see.

Birds are an invaluable part of the natural world around us. As we learn about birds, we begin to understand the beauty of all natural things. Birds are but one part of a complex web of life that keeps our world stable and livable.

Look around your neighborhood and the surrounding country and learn to recognize areas of good bird habitat. Help preserve these areas as places for food, cover, and shelter for wild creatures. Work at making your own backyard a favorite spot for passing birds.

Birds have managed to adapt very well to man and many species will share our backyards with us. With a little effort each of us can make our property more attractive to more birds. And, with time and patience, we can learn much from these wild visitors. After all, our backyards have been used by birds longer than by man. That scolding jay out the window may be telling you that he has first rights. And you know, in a way he does. □

MY MOBY DICK

By William Humphrey
Nick Lyons Books
Doubleday & Company, Inc.
Garden City, New York 1978

\$6.95

The angling fraternity has a caste system that would have put medieval Europe to shame. The nobleman (in this system) is that angler who disdains all terminal gear save the dry fly in his pursuit of that noblest of fish, the trout. Throughout the author does not deny this separation of the classes, in fact he boasts of it. He is proud to be the "snob of snobs among fishermen," as are they all—this breed is notoriously self-indulgent and subject to delusions of grandeur. Yet with some degree of truth when he states that other fishermen acknowledge the purist's position in the scheme of things with much the same deference that the blue collar worker accords a corporation president. Being a "hardware merchant" myself I found it difficult at times to identify with this zealot (my own feeling about the purist is that every museum of natural history

should have one, stuffed with tweed, in a glass case to complete their collection of rare and endangered species). Because the charm of this book depends on the reader's being able to identify with the writer's experiences and, more importantly, to share his philosophy, the audience to which the book will appeal will be somewhat limited. The fly-fishing elite will adore this book—it is cultured, it is witty, it is intelligent, and it has all the ingredients basic to "snob appeal." The author doesn't apologize for being snobbish; he's proud of it. What fools these purists be! I could have caught his Moby Dick in the first chapter with a live minnow, a number four hook, and 17 lb. test line; but of course, I wouldn't have sold many books that way.

Reviewed by Robert Soldwedel
Senior Biologist, Bureau of Fisheries

New Jersey Wildlife Illustrated

Edited by Dennis Rhodes
Books about New Jersey
A Division of
William H. Wise & Co., Inc.
Union City, New Jersey 07087

\$4.95

the reader little credit for any sophistication. Mislabeled photographs and illustrations further imply that the reader is rather naive.

Sandwiched between two introductory chapters with no obvious rhyme or reason and a poorly written final chapter on hunting, is a section of brief discussions of animals. I hesitate to call these discussions "life histories," since the term has a specific scientific meaning. They might more aptly be described as some combination of nature trivia and fairy tales. We are told that red foxes ride on the backs of sheep to break their scent, that weasels are prone to orgies of bloodletting, and that jumping mice will jump right into the mouth of hawks, owls, and foxes. These anecdotes are supplied, not in addition to factual information, but instead of it.

A number of the animals discussed do not occur in New Jersey. The "editor" does not feel compelled to point this out, so that the reader is left with the impression that mountain beaver, ground squirrels, and bush tits are part of the state's fauna. Other species which are native to the state are ignored.

The introductory two chapters are loosely put together and poorly writ-

ten, rambling with no apparent point. Chapter II, called "Wildlife Settings," began with a section on zoos followed by a section listing areas of public open space.

The connection between zoos and wildlife is remote but fits in well with the discoordinate arrangement of the first two chapters. The editor would have done better to have discussed the wide diversity of habitats to be found in New Jersey and their importance to wildlife.

If you are interested in learning more about hunting, Chapter VIII, "The Thoughtful Hunter" will not bring you a whole lot closer to your objective. The author first appears to know little about the how-to aspects of hunting and second has no feeling for the philosophical and aesthetic components of the sport.

The photograph on the book cover is very attractive. Unless you can justify the expenditure of the purchase price for the picture alone you had better look at some other volumes on New Jersey wildlife which are more complete and factual and would be better additions to your reading list.

Reviewed by Joseph Penkala
Wildlife Biologist

"The finest and most complete single volume on New Jersey's wildlife ever published," reads the cover of a book titled *New Jersey Wildlife Illustrated*, edited by Dennis Rhodes and published by William H. Wise & Co., Inc. If this assertion is correct, it is indeed a sad commentary on books about New Jersey's Wildlife.

The volume is grossly deficient in content and technical accuracy. Hard facts are few and far between. The writing style is fanciful and gives



Environmental News



ANALYSIS OF CHEMICALS IN DRINKING WATER. A major statewide potable water testing project which is examining public drinking water supplies for 120 selected toxic and cancer-causing chemicals is in its second year. The tests will provide New Jersey's first systematic information on chemical pollution in treated water. DEP's Program on Environmental Cancer and Toxic Substances is conducting the program with laboratory analysis being done by Rutgers University.

Research Assistant Pat Adamczyk (above, extreme left) inserts vials of organic chemicals extracted from drinking water samples into the automatic sample changer of the gas chromatograph—mass spectrometer to demonstrate Rutgers' analytical technique. The readings will indicate quantity and the exact chemical found in each sample. Looking on are Dr. Robert Tucker (second from left), DEP research scientist, Dr. Joel Kaplovsky, chairman, Department of Environmental Sciences of Cook College, Rutgers, and Dr. Joseph Hunter, professor.

Back in court

NEW JERSEY CONTINUES BATTLE FOR NATIONAL SMOG CONTROL

New Jersey Attorney General John Degnan and Environmental Protection Commissioner Daniel J. O'Hern have asked the U.S. Court of Appeals in Washington, D.C. to compel the federal government to develop a national ozone (smog) control program so New Jersey and the northeast won't be discriminated against in air pollution cleanup requirements. This action was taken in response to the U.S. Environmental Protection Agency's (EPA) fourth attempt to delay court action on New Jersey's original suit (May 1978) against the EPA.

The latest motion, filed in December, requests the court to prohibit the EPA from taking any action on state clean air plans submitted by EPA's January 1 deadline, or impose economic sanctions until the court decides on the merits of the state's ongoing lawsuit to require a national uniform air pollution control effort.

If the court agrees, O'Hern said, then the effect will be to force EPA to provide the technical rationale in support of its decision in March 1978 to divide the country in hopscotch fashion for pollution control purposes. New Jersey's position, O'Hern said, is that the March plan is technically unsupportable be-

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To protect the public

DEP GETS INJUNCTION AGAINST CHEMICAL FIRM

DEP went to court on January 19 to stop an Elizabeth chemical waste facility from stockpiling drums of chemicals which DEP alleges pose a risk of explosion and release of toxic gases to the immediate area. This action was supported by the federal Environmental Protection Agency (EPA) and the City of Elizabeth.

Deputy Attorneys General Steven Tasher and Ronald Heksch obtained an injunction in Union County Superior Court barring the Chemical Control Corporation from accepting any chemical wastes at its incineration and storage facilities on South Front Street. The order also requires the firm to remove 12,000 drums immediately, take steps to mitigate spillage and clean up contaminated soil at the site, as well as initiating other remedial actions. It also requires that fire extinguishing equipment be assembled at the plant and mandates that the corporation produce all records related to the facility operation and the corporate structure.

Dr. Ronald J. Buchanan, chief of DEP's Bureau of Hazardous and Chemical Waste, said, "Chemical Control has amassed a potentially devastating array of chemical wastes which pose an imminent threat to the surrounding area." State and city inspectors will be monitoring the site to determine compliance with the order.

Background of case

The state Attorney General's office had previously initiated a criminal investigation of Chemical Control which resulted in the indictment of the firm's owner at that time, William Carracino, for illegal chemical waste disposal, creating a public nuisance and operating a solid waste facility without a proper Public Utilities certificate. In September 1977 the new president of Chemical Control, Michael Colleton, assured DEP that he would begin an inventory of the drums on site, incinerate all burnable waste and determine what would be done with the remaining drums. Subsequent inspections by staff from DEP's Bureau of Hazardous and Chemical Waste, however, found that the drum storage problem was increasing. As a result, the department issued an order to Chemical Control in May 1978 requiring the firm to clean up. Followup inspections of the site showed that the number of drums continued to grow, creating the hazard. DEP then went to court to obtain the injunction against the company. EPA endorsed the DEP action, saying disposal of hazardous wastes to protect the public is of utmost importance.

Northeast Jersey

INDUSTRIES TO BEGIN MULTIMILLION-DOLLAR CLEAN WATER PROJECTS

Four major industrial water pollution control projects totaling \$16.5 million were approved in mid January. DEP's Division of Water Resources granted construction permits for the projects, three of which will improve wastewaters discharged by generating stations of the Public Service and Gas Company (PSE&G). The fourth project approval is for Exxon Corporation's Bayway plant in Linden (Union County).

According to the division, the commitment by these industries of millions of dollars for water pollution control will help to improve the water quality of major new Jersey waterways. The PSE&G projects will upgrade wastewater treatment and will meet requirements of national pollutant discharge permits.

The PSE&G projects include the Woodbridge Township (Middlesex County) generating station which has a designed average handling of 200,000 gallons of wastewater daily. Project cost for the Woodbridge plant, which discharges into the Arthur Kill, is \$3.1 million. The other PSE&G projects are \$5.4 million project for a generating plant in Linden which discharges a million gallons of wastewater daily into the Arthur Kill and a \$5.3 million project for a Jersey City (Hudson County) station which discharges into the Hackensack River.

Exxon Corporation's project for its Bayway plant in Linden involves a \$2.7 million expansion of the plant's sludge dewatering facilities and improvement of primary oil separators. The Linden plant also discharges into the Arthur Kill.

**TO REPORT ABUSES
OF THE ENVIRONMENT
CALL ACTION LINE
609-292-7172**

MONEY RELEASED FOR BEACH WORK

A \$4 million appropriations bill to help shore communities pay for restoring and repairing beaches was signed into law by Governor Byrne this past November. This is the first expenditure under the \$30 million Beach and Harbors Bond Act, approved by New Jersey voters in 1977. The new law, Chapter 157, P.L. 1978, also requires DEP to develop a comprehensive beach protection plan for a five-year capital program for beach protection facilities, projects, and programs. DEP's Office of Shore Protection within the Division of Marine Services, administers the program.

In the past, state grants for the construction of shore protection facilities have been awarded on a 50-50 matching basis. Under the new law, municipalities can receive up to an additional 25 percent of the total cost of a

Continued on page 16D



TRENTON INNER-CITY PARKSITE. The \$2 million Delaware and Raritan Canal Park, to be located near downtown Trenton (Mercer County) between Willow and Warren Streets, will be developed under DEP's urban emphasis program. A Green Acres grant for \$1 million has been approved to cover 50 percent of the project's cost, a Federal Land and Water Conservation Fund grant will provide \$800,000 (40 percent of the cost), and the city will contribute \$200,000 (10 percent). The parkside is adjacent to the canal, a new housing development and health center, is close to schools and a long-established residential area. The park will serve the entire region. Development plans include a skating area, a tot lot, walkways, pedestrian bridge, benches, water feature fountain, landscaping, canal edge repair, parking and roadwork. Also, the park is the city end of an 8.2 mile bicycle path to Washington Crossing State Park being constructed by DEP.

NEW MEMBERS NAMED TO NJ PESTICIDE CONTROL COUNCIL

Mr. Peter Bylone and Dr. John E. Boyd have recently been appointed by Governor Brendan Byrne to the NJ Pesticide Control Council. Mr. Bylone was appointed to the council to fill a position held by Mr. C. William Haines, Sr. who was the Acting Chairman of the Council and has recently retired. Dr. Boyd is now filling a position which was previously vacant.

The Pesticide Control Council is the advisory body in the NJ Department of Environmental Protection in matters relating to control, regulation and use of pesticides as set forth by the New Jersey Pesticide Control Act of 1971.

The council consists of nine members, three of whom are the Secretary of Agriculture, the Commissioner on Health, the Dean of Cook College of Rutgers, or their designees, who serve as ex-officio and six citizens of the State representing the general public appointed by the Governor of whom one is a farmer, one a toxicologist and one an ecologist.

Currently, Mr. William M. Cranstoun is the designee for the Secretary of Agriculture, Dr. Terry Schulze is the designee for the Commissioner of Health and Dr. Ray R. Kriner is the designee for the Dean of Cook College. Mr. Peter Bylone is the farmer appointee, Dr. Ralph W. Fogleman is the toxicologist and Mr. Joseph Lomax is the ecologist. The other three members are Dr. John E. Boyd, Mr. William Parkhurst, III and Mr. Richard E. Sameth who currently is the Acting Chairman of the Pesticide Control Council. For a list of council members write the NJ Office of

Pesticide Control, 380 Scotch Road, West Trenton, NJ 08628.

Forest fires

'TIS THE SEASON TO BE WARY

Historically, the forest fire danger in New Jersey is greatest between March 15 and May 15 with the peak usually occurring in April. Property owners in forested areas should remove debris and flammable materials to help guard against forest fires. Dry conditions and high winds usually prevail during the spring season, but forest fires can take place at anytime the woods are dry enough to burn.

Did you know that more than 98 percent of all forest fires in New Jersey are caused by humans? Almost half (47 percent) are deliberately set—this malicious burning of the woods, incendiarism, is a criminal act. Any conservation-minded citizen who recognizes an act of arson should immediately report this to the nearest forest fire warden. Carelessness when smoking, failure to completely extinguish campfires and children playing with matches are but three examples of unthinking actions which can result in disaster.

There are 2.7 million acres of forested land under the surveillance of DEP's Forest Fire Service unit. James Cumming, State Firewarden, stresses that public cooperation, including good individual practices of sportsmen, picnickers and residents, along with the use of modern firefighting equipment and intensive training of forest fire personnel is vital to forest fire prevention and control.



I SOLEMNLY SWEAR... Environmental Protection Commissioner Daniel J. O'Hern (extreme right) administers the oath of office to members of his executive staff involved in the recent top management level reorganization. (See these pages, NJO Jan./Feb.) From left: Richard J. McManus, chief, Office of Regulatory Affairs; Joseph T. Barber, deputy commissioner for governmental affairs; George J. Tyler, director, Division of Environmental Quality; Paul H. Arbesman, assistant commissioner for environmental management and control; Dr. Peter Preuss, director, environmental cancer and toxic substances program; Betty Wilson, first deputy commissioner; Dr. Glenn Paulson, assistant commissioner for science and research; and, David C. Mattek, director, Office of Inter-governmental Operations.

New fee schedule

TUESDAYS FREE AT STATE PARKS HISTORIC SITES FREE EVERY DAY

When planning your vacation schedule this year, reserve Tuesdays for a day's outing to a state park or forest and give your wallet a rest. Parking and entrance fees to those facilities will be waived every Tuesday this year under a new fee schedule adopted by DEP. And here's more good news—the 50-cent tour fees at all state historic sites, Wharton Nature Center and Skylands Manor have been eliminated altogether. (Note: State historic sites are closed Mondays and Tuesdays.)

The overall reduced fee schedule, which became effective on January 1, includes summer parking fees of \$1 on weekdays at most state parks and forests (Exception: Island Beach, \$3). Weekend and holiday parking fees have been lowered to \$2 at Allaire, Belleplain, Cheesequake, Hacklebarney, Lebanon, Ringwood, Skylands, and Shepherd Lake. Weekend and holiday rates have been lowered to \$3 at Bass River, High Point, and Swartswood.

The weekend and holiday fee remains \$4 at Island Beach, Lake Hopatcong, Round Valley and Spruce Run. The schedule also levies a 15 to 20 percent increase in marina rentals.

Residents aged 65 or over will get a \$1 reduction on campsite fees under the new schedule. Camping fees are \$4 and \$5 depending on facilities.

No parking or entrance fee is charged for New Jersey residents age 65 or over or for totally disabled persons. Applications for Senior Citizen Park Pass and Disabled Person Park Pass are available from DEP, Bureau of Parks, Box 1420, Trenton 08625.

TOWARDS A 'NEW LIFE' FOR HUDSON WATERFRONT

Governor Byrne early this year created, by executive order, a commission of legislators, state and local government officials and private citizens to develop ways to revitalize the 14-mile Hudson River waterfront from the George Washington Bridge southward through Bayonne. Byrne said, "The Hudson River waterfront is one of our most valuable resources . . . I have great hopes that government encouragement and private sector imagination can lead to a more vital waterfront area." The governor likened the new commission to the one which developed plans for Liberty State Park on the Jersey City Waterfront in Hudson County.

The Hudson River Waterfront Study and Planning Commission membership will include the state commissioners of Environmental Protection, Community Affairs and Transportation or their designated alternates, certain legislators and county officials from Hudson and Bergen counties, mayors of the 15 cities in the area and private citizens. The members, who will serve without pay, will be appointed by the governor.

DEP'S NINTH ANNIVERSARY

The New Jersey Department of Environmental Protection will mark its ninth anniversary on April 22. Founded on the first national Earth Day in 1970, DEP's goal remains to assure a better quality of life for the citizens of New Jersey through the protection, conservation and preservation of our natural resources—air, water, land, flora, fauna—and our historic heritage.

First of three-parts

STUDY EXAMINES PATTERNS OF N.J. CANCER MORTALITY

Much has been written about the above average rates of some types of cancer in New Jersey, but no really major effort had been made to statistically study the problem until DEP's Program on Cancer and Toxic Substances, directed by Dr. Peter Preuss, undertook such a study almost two years ago. "Theories abound about cancer and its causes, but they are only theories," said Preuss. "Science needs solid, comprehensive but unglamorous statistical information in order to uncover clues to the paths that lead to answers," he said.

The first phase of a major three-part statistical study of cancer records in the 21 counties of New Jersey and in 28 counties of neighboring areas of New York, Pennsylvania, Connecticut and Delaware was released in January. This part of the study, prepared by a team headed by Dr. Michael R. Greenberg of Rutgers University, deals with cancer mortality statistics collected by the National Cancer Institute in the 20-year period, 1950-1969. The 209-page report is entitled, "The Spacial Distribution of Cancer Mortality and of High and Low Risk Factors of the New Jersey-New York-Philadelphia Metropolitan Regions, 1950-1969."

Dr. Greenberg is in the second phase of the study, which covers the early 1970's. He noted that after the full study is completed, "We hope to be able to say how the study region differs from the nation, where the differences are greatest and, among other things, which age groups are most affected. We also will be able to provide some hypotheses on why these differences have occurred."

OIL SPILL RESEARCH IDEAS UNDER REVIEW

The department early this year announced that approximately \$300,000 is available for oil and chemical spill research and the development of better spill prevention and removal techniques. Funds for the project come from the interest accrued in the New Jersey Spill Compensation Fund, implemented by the state in April 1977, under provisions of the Spill Compensation and Control Act.

Dr. Glenn Paulson, DEP's Assistant Commissioner for Science and Research, said, "DEP is encouraging research on the effects of spills of oil and hazardous substances on the marine environment, especially on the prevention of spills, as well as the development of better cleanup and removal operations when they occur."

The department is reviewing proposals from academic, private and government sectors exploring a wide range of topics in oil and hazardous spill research which were received by the March 1 deadline. Final notification on accepted proposals will be made about May 1.

A REMINDER. . .

ALL DEP public hearings, administrative hearings and DEP events of interest, such as council meetings, workshops, and public information meetings are open to the public. These are listed in a free DEP publication called "D.E.P. WEEKLY BULLETIN," which is available from the department's Documents Distribution Center, P.O. Box 1390, Trenton 08625. The bulletin also features a recap of timely press releases in capsule form.

NEW JERSEY YOUTH CONSERVATION CORPS (YCC)

In 1979, New Jersey will enter its sixth year as an employer with the YCC. Approximately 600 youth will work at seven Federal and 20 State camps throughout the State. The YCC is for all youth and is not especially aimed at low-income or disadvantaged persons. Enrollees must be 15 to 18 years old; Selection is made randomly from all eligible applicants. Application materials are available at all high schools and state parks. All interested youth are encouraged to apply for this most worthwhile opportunity.

WATER SUPPLY MASTER PLAN

Water supply planners in DEP's Division of Water Resources met with regional citizen committees to discuss progress in the development of a Statewide Water Supply Master Plan. The series of meetings, held in January, invited comments on parts of the plan which had been distributed in advance of the meeting for review. Also presented were information related to water use and population projects, diversion rights and regional water supply problems. The overall objective of the plan, scheduled for completion by the end of this year, is to produce recommendations to meet New Jersey's water needs to the year 2000 and beyond.

GEOTHERMAL ENERGY SOURCE NOT IN THE CARDS FOR N.J.

None of the five 1,000-foot deep test holes (wells) drilled in selected New Jersey sedimentary rock areas in recent months by the U.S. Department of Energy (DOE) showed enough below ground heat to be considered as a cost-effective source of geothermal (heat-flow) energy. (The federal DOE's search for an alternate source of energy produced by hot waters thousands of feet below ground—geothermal energy—began at Fort Monmouth in June 1978. In the months that followed approximately 50 test holes were drilled in selected sedimentary rock locations in an eight-state East Coast area extending southward from New Jersey to Florida.)



THOSE 'STICKS' WERE ONCE BEAUTIFUL TREES. The insatiable appetite of the Gypsy Moth larvae in some areas of North Jersey has destroyed between 64 and 69 percent of the oak trees over the years (Oaks are an economically valuable species, especially white oak.) The Gypsy Moth damage was particularly severe during the spring and summer of 1978—204,000 acres statewide. In addition to the oaks, there was defoliation of willow, apple, cherry, maple, ash, aspen and beech trees.

To minimize tree defoliation in North Jersey state parks and forests (above, a section of Stokes state forest) this year, DEP plans to treat approximately 10,220 acres with the insecticide Sevin, 4-oil. The insecticide is registered safe for use by the federal Environmental Protection Agency (EPA) and has been used for 20 years. Trained personnel from DEP's Bureau of Forestry and qualified aerial applicators will carry out the spraying project, expected to begin in mid May. The parks/forests scheduled for treatment include Hacklebarney, High Point, Ringwood, Stephens, Stokes and Voorhees. Funding of the project, which will cost \$67,720, is on a cost-sharing basis with the federal government (U.S. Forest Service) paying 25 percent and the state, 75 percent.

APRIL 28 IS ARBOR DAY

Arbor Day, a day when school children across the state take part in tree planting ceremonies, has been observed by school systems in New Jersey since the 1920's. The law set the last Friday in April as Arbor Day—the 28th day of the month this year.

Continued from page 16B

BEACH WORK

project in state money through a new funding formula to be developed by DEP and approved by the state legislature. Chapter 157 directs that the new formula consider the need of a municipality for beach protection, the benefit of the proposed project, the ability of the municipality to pay its matching share and the availability of beaches within the municipality which are open to the general public.

The shore tourism industry has been estimated at \$2 billion a year. The beaches suffered severe erosion in the winters of 1977 and 1978 from storms which whipped the shoreline. The five-year master plan will outline the projects and assign priorities. New Jersey's shoreline has been called "the most valuable shoreline in the United States," and with the help of the Beach and Harbors funds along with contributions from the municipalities, it will remain so.

Continued from page 16A

NATIONAL SMOG CONTROL

cause it does not take into account the down drift of smog producing activities in large areas of the nation. He said a national control program is required to lower smog levels.

Six northeastern states (New York, Massachusetts, Maine, Vermont, Rhode Island and Connecticut) and the District of Columbia have joined New Jersey in lawsuit and they are expected to join in the latest motion.

Since May, when the original lawsuit was filed, EPA has delayed the review of the case four times. "Each time we were promised an answer and it wasn't forthcoming. Enough is enough," said Deputy Attorney General Richard M. Hluchan, who handles the case for New Jersey.

"Meanwhile, our new state air plan has been filed with EPA in accordance with the January 1 deadline," said Assistant Commissioner Paul Arbesman. "We are acting in good faith but feel strongly that EPA must force other states to take similar bold and costly actions to clean up the air." Arbesman said the concepts of the State Implementation Plan are the same as presented at public hearings this past November.

The original suit was filed by the administration of Governor Brendan Byrne in order to challenge the federal regulations under the Clean Air Act Amendments because of their lack of national uniformity. (See these pages, July/August, September/October 1978.)

OPEN HOUSE HACKETTSTOWN FISH HATCHERY

SUNDAY, MARCH 25, 1979

10 AM to 3:30 PM

(Rain Date: Sunday, April 1st)

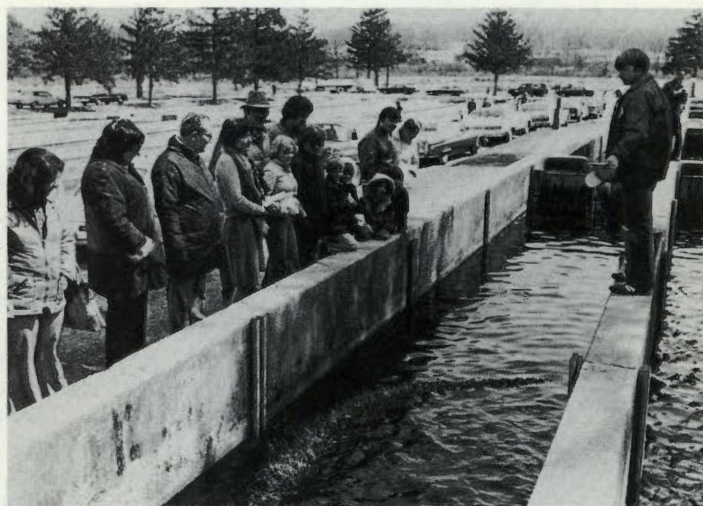
In June 1978, the Hackettstown Fish Hatchery began rearing a new fish in addition to the usual trout, bass and channel catfish—the tiger musky. The photos on this page feature the fingerling tiger muskies, introduced at the 1978 Open House. One of the goals of DEP's Division of Fish, Game and Shellfisheries warm water fisheries program is the establishment of tiger musky and northern pike populations in suitable New Jersey habitat. Feasibility studies have shown that New Jersey's large impoundments can support large esocids (fish of the esocidae family—northern pike, muskellunge, tiger muskies, and pickerels) without detriment to existing fisheries.

The tiger musky is the first generation hybrid between the northern pike and the muskellunge. Unlike the northern pike or muskellunge, the tiger musky is relatively easy to rear in a hatchery situation. Its growth rate is very fast and under optimum hatchery conditions it can grow six to eight inches in a few months. Experience gained from handling the tiger muskies under hatchery conditions will enable the successful rearing of northern pike in the future. Other favorable tiger musky characteristics also make it suitable for initial introduction into New Jersey waters. First, tiger muskies are sterile, consequently, their population can be strictly controlled. Secondly, studies of feeding habits indicate the tiger muskies feed on the most readily available forage fish, which in large impoundments are generally suckers, sunfish, and yellow perch. They are not anticipated to pose any major threat to other important fisheries such as trout. Thirdly, tiger muskies can tolerate warmer water temperatures and poorer water quality than other large esocids.

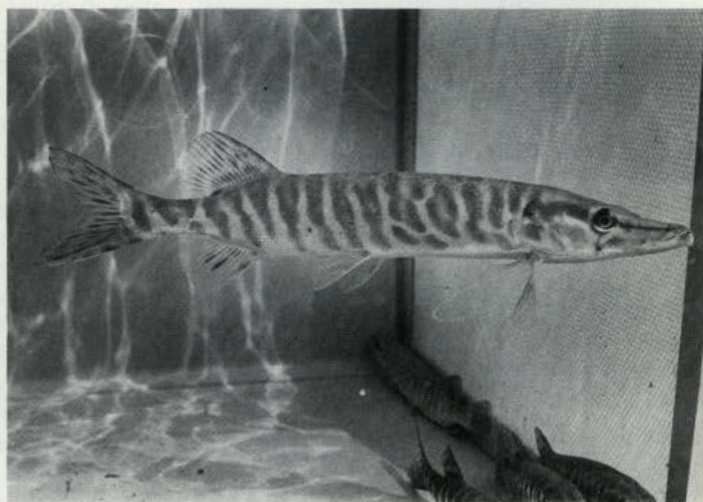
This year's Open House will again feature the tiger musky and our hatchery reared trout. We will also distribute free fish food to the youngsters so they can feed the fish.

In addition, we will give away *free* color posters of *New Jersey Outdoors* covers and back issues.

The Fish Hatchery is located one mile south of Rt. 46 from the center of Hackettstown on Rockport Road. □



Feeding the Trout



Close-up of the Tiger Musky



Kenny Romano and Joe Palma check out the Tiger Muskies in the display tank

LINEAR PARKS



AN URBAN STATE'S GREAT RESOURCE

by Greg Johnson

We've become, in large part, a throwaway society. Cans, bottles, clothes, cars, paper; the list is endless. Add to this list an increasingly precious item, land. We are in the process of preserving the unspoiled areas of the Pinelands and the Delaware Water Gap, but in a state such as ours, the time has come to recycle used land for new and beneficial purposes. The location: abandoned railroads, utility rights-of-way, towpaths, sewer lines, and others. The idea: linear parks.

New Jersey already has several linear parks in existence. Patriots' Path, in the Morristown area, skirts along the Whippany River, part of a sewer line and an abandoned rail bed to complete its course. Patriots' Path stands as an example of what can be accomplished through the continued and enthusiastic support of local citizenry. An important feature of the Delaware and Raritan Canal State Park is its well-maintained towpath. As a nearby resident, I found the towpath extremely convenient for jogging, biking, or a quiet Sunday stroll. In Manasquan, a four mile stretch of old rail bed has been paved for biking and jogging.

Even though other projects are in the works, we've barely scratched the surface of a virtually unlimited recreational resource. In Governor Byrne's second inaugural address, he stressed the need for revitalizing our great cities. Why not expand this concept to include all the land?

In New Jersey alone we have well over 1,000 miles of abandoned railroads. Why not recycle them?

1. Linearity—a most effective form of open space, offers maximum visual impact and physical access.
2. Long, gentle grades of less than 3% will allow children, the elderly, and the handicapped to use these path.
3. The railroad beds are designed to promote drainage and prevent overgrowth.
4. Preserve bridges and tunnels as outstanding examples of engineering.
5. Station houses are often of architectural merit which can serve as trails headquarters, youth hostels, and bike rental centers.

6. Low cost (in many cases) of acquisition, manpower, materials, and energy expenditure.
7. Multiple use, year round potential for bicycling, hiking, jogging, cross-country skiing, horseback riding, and providing access to fishing, camping, and swimming.
8. An educational corridor for history, economics, environmental studies and others.
9. To preserve these corridors for future mass transit needs.

Excellent ideas, but is anything being done? In January of 1977, the Sussex-Warren Resource (RC&D) Conservation and Development Project, under a grant from the U.S. Department of Agriculture, published a survey known as *Recycling Railroads*. Within the year, the RC&D, with the cooperation of the New Jersey Work, Education, and Leisure Initiative and the area's prime sponsor for the Comprehensive Employment and Training Act (CETA) had hired a full-time trails coordinator, Tim Doherty. An historian, Mike Moran, and a secretary were added later. Eventually, the advisory board voted to form a non-profit corporation, Recycling Railroads Incorporated.

The group is dedicated to converting some of Sussex and Warren's 130 miles of abandoned railroads into linear parks. What started out as a beautifully simple idea has been slowed down by state and local government disinterest and lack of public support.

Nevertheless, Recycling Railroads Inc. is heartened by the success of rails to trails projects in Illinois and in Wisconsin. The Elroy-Sparta Trail winds its 60 mile round trip through 3 cavernous tunnels and over 33 trestles found within the towns and countryside of Wisconsin.

An increasing awareness of our potential for right-of-way conservation has taken seed. The New Jersey Conservation Foundation is in the process of releasing a statewide report on abandoned rail lines with respect to linear park conversion.

Under the guidance of Al Kent, the North Jersey group of the Sierra Club has come up with an exciting idea of the most heavily urbanized sections of New Jersey. By using 12





Photos of Abandoned Railroads (routes shown on map below) were provided by author.

miles of Public Service electric transmission line rights-of-way and the 6-mile abandoned Cladwell Branch of the Erie Lackawanna Railway, the Lenape Trail Committee seeks to connect a dozen county and municipal parks, Newark's James Street Historic Area, the Center for Environmental Studies in Roseland, the Morris County Patriots' Path, and various schools, colleges, and landmarks along a 36-mile urban-suburban route.

Sponsored by the Association of New Jersey Environmental Commissions (ANJEC) and others, the Friends of Towpath Trail hope to

place a trail along the 13 mile route that the Rockaway Valley Regional interception sewer line will take from Boonton to Wharton using portions of the old Morris Canal. Also the New Jersey Department of Environmental Protection was awarded a grant of \$607,500 from the Heritage, Conservation, and Recreational Service agency to convert an 8.2 mile stretch of unused rail lines from Trenton's Battle Monument to Washington's Crossing Park.

If I've made it sound like there's a lot being done, don't be misled. The opportunities are vast, but time is a crucial factor. The physical features

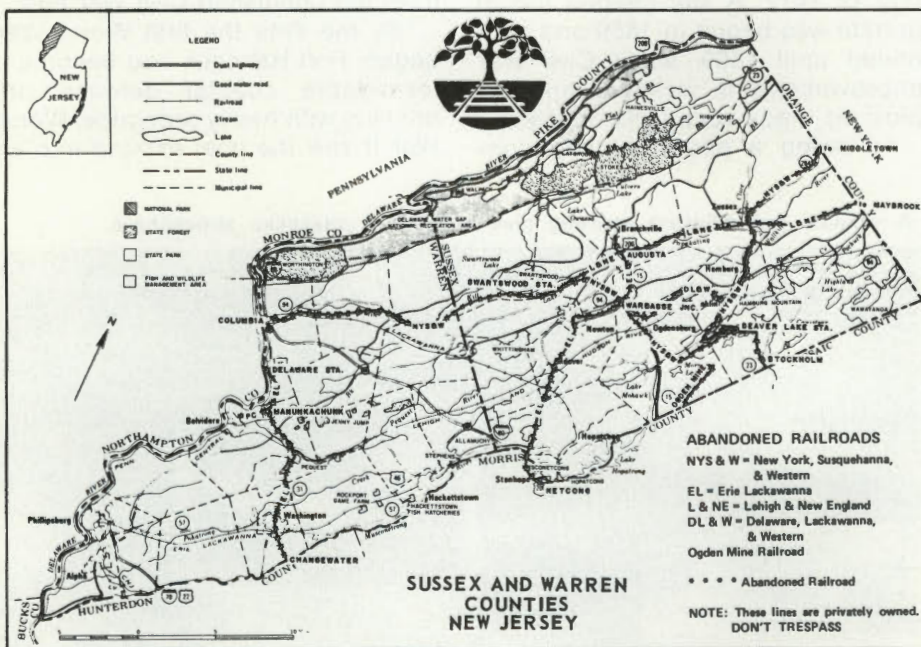
of our state are ever changing. Once the pure linearity of any right-of-way is lost by construction or some other means, its future as a recreational resource is seriously impaired.

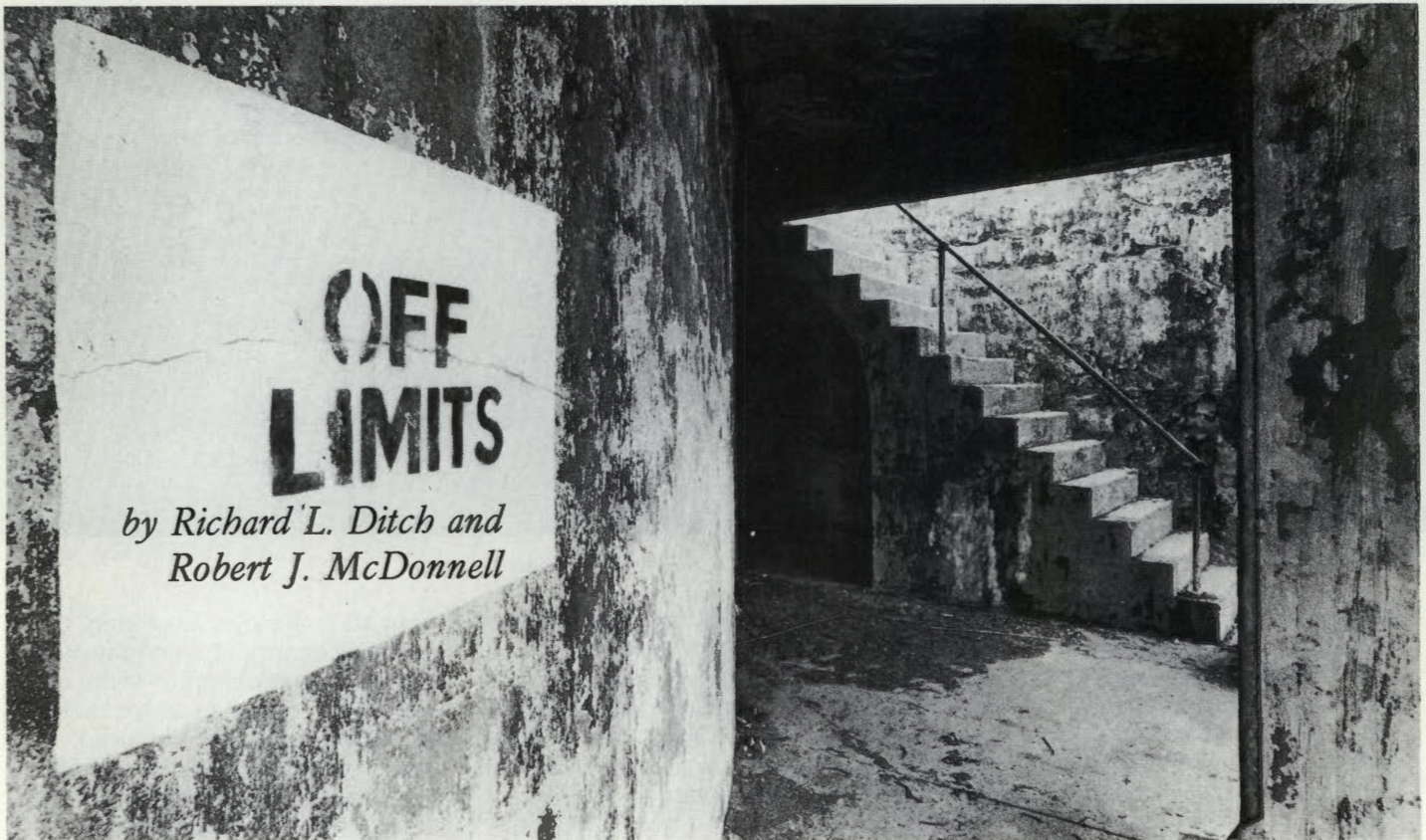
With potential funding available from the Federal Highway Administration, the U.S. Department of the Interior, the Conservation Foundation, the New Jersey Green Acres Program, private industry, and other grant-awarding foundations, money is not a serious problem. However, public, private, and government interest is essential.

Many are willing to help. The RC&D Office in Newton and the New Jersey Conservation Foundation in Mendham both offer outstanding slide and film presentations. The New Jersey Work, Education, and Leisure Initiative would be happy to provide assistance. The telephone number in Trenton is (609) 984-7893.

For \$1.50 *From Rails to Trails*, a guidebook to linear parks, is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Aimed at the abandoned railroad concept, it contains a passage which applied to all right-of-way, "... the trail presents a public resource, a thoroughfare along which all may journey through the landscape. That it is man made is no reason why it should be any less carefully conserved than a great forest or clean water. Finally, the trail contributes a sense of continuity with our past. . .", and our future. □





RICHARD L. DITCH

THE PHOTOGRAPHS

These photographs are part of an essay on the bunker areas of Fort Hancock, located on Sandy Hook. The title, "OFF LIMITS", is taken from a sign characteristic of the bunkers. Special arrangements were made with the National Park Service Rangers who maintain Fort Hancock, allowing the photographers access to these restricted areas. These and other black and white photographs from this essay have been exhibited at the public library in Middletown, N. J., and were featured as the cover story in the Monmouth Magazine section of the September 24 Sunday Register. They are intended to factually show the present condition of this aspect of Fort Hancock.

HISTORY OF FORT HANCOCK

"On October 30, 1895, General Order No. 57 designated the for-

**This quotation, as well as all other quotes and general information in this "History", are taken from a National Park Service brochure provided by the Sandy Hook Unit, Gateway National Recreation Area, entitled "Sandy Hook's Bicentennial Story".*

tifications at Sandy Hook as Fort Hancock, thus honoring Major General Winfield Scott Hancock of Civil War fame."*

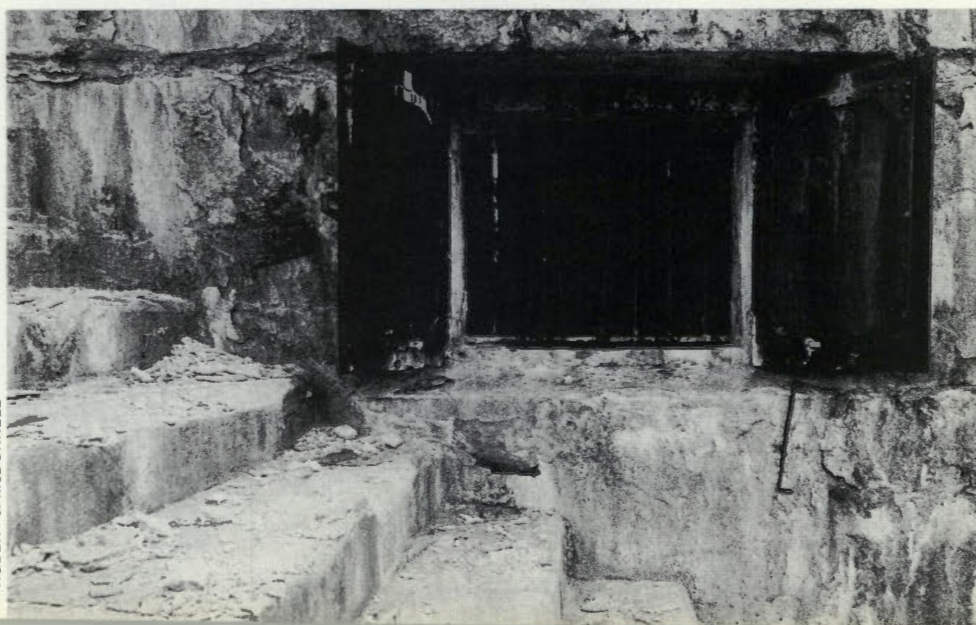
The military role of Sandy Hook prior to this time included a "massive log fort" manned by the Monmouth County Militia during the War of 1812. A star-shaped fort of granite was begun in 1859 and continued until 1869, when Civil War improvements in weapons and explosives made such forts obsolete.

Following a period of abandon-

ment and deterioration after the Civil War, "construction of the first heavily fortified solid-concrete shore batteries were begun at Sandy Hook in 1890." This was Mortar Battery, finished in 1892. Battery Potter, constructed between 1890 and 1898, partially used "granite blocks taken from the unfinished Civil War Fort."

"By the time the first World War began, Fort Hancock had become a formidable coastal defense site bristling with heavy ordnance. World War II saw the post expand into an

A window and adjacent stairway give bunkers a prisonlike atmosphere.



ROBERT J. McDONNELL

anti-aircraft site and an Eastern staging area for troops being readied for European duty."

In the early 1950's, Fort Hancock was equipped with anti-aircraft gun's, followed by Nike Ajax and Nike Hercules defensive missiles. These weapons have since become obsolete. Fort Hancock was deactivated in 1974.

Today Fort Hancock is a part of Gateway National Recreation Area, administered by the National Park Service, U.S. Department of the Interior. Assistant Superintendent Kenneth Morgan points out that all of

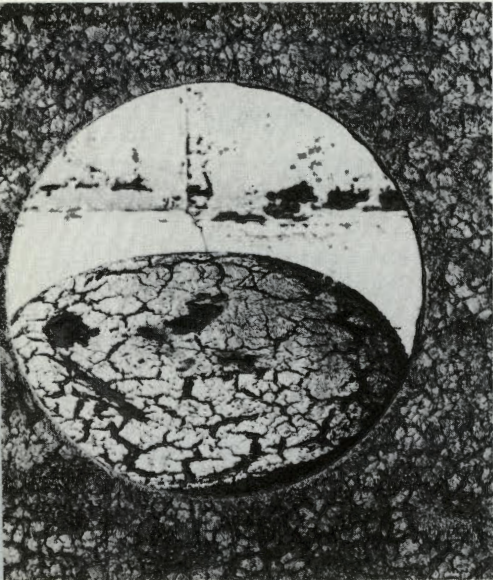
Fort Hancock is not "off limits" to the public, but that its use is regulated to protect both visitors and resources. Currently, three tours are led daily through Fort Hancock in the summer and at least one daily the rest of the year.

PHOTOGRAPHERS' IMPRESSIONS

The iron, concrete, and granite of the bunkers still retain their massiveness, and the prison-like aspects of these areas are overwhelming. Mysterious caverns and recesses hint at

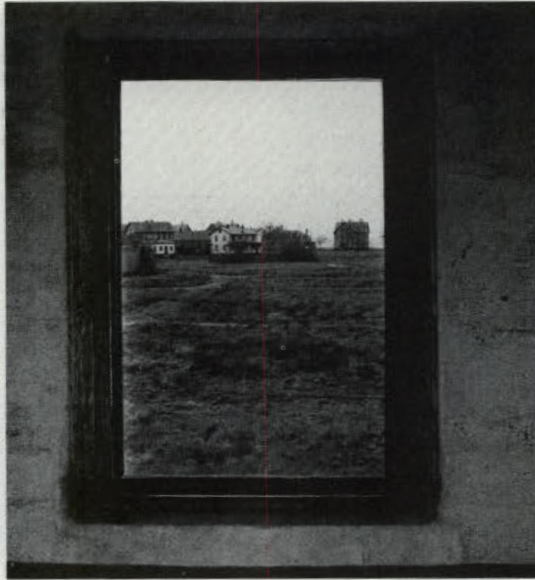
a concentration camp atmosphere. Cold graphics and textures abound.

Yet, amid all the powerful structures and materials of the bunkers, nature is making her inevitable recovery of this abandoned area. Lichens grow on the walls; fungi hang from ceilings; poison ivy vines climb pillars and tangle walkways; a small flower blossoms from a cracked floor. Given enough time, these monuments to the follies of war could entirely disappear, if it were not for the continuing efforts of the NPS to stabilize, improve, and restore these areas. □

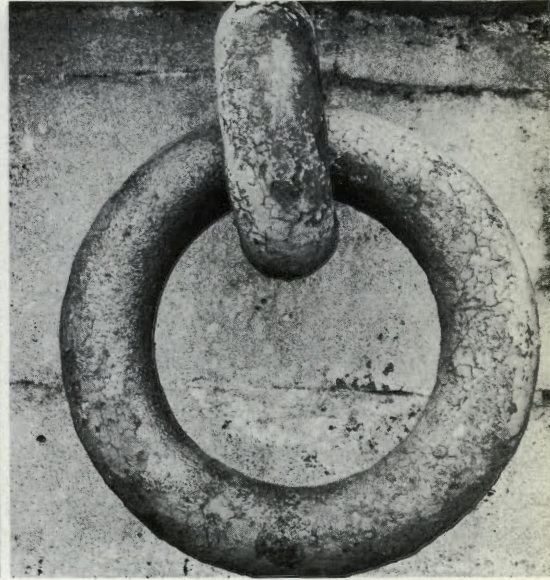


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RICHARD L. DITCH 2



ROBERT J. McDONNELL 3



RICHARD L. DITCH

RICHARD L. DITCH



4

1. Open metal port in metal door. 2. The Officers' quarters as seen from a window located in an observation tower atop one bunker. 3. Large iron ring remaining in concrete recess near former gun site on gun battery. 4. Tangle of vines along ground level corridor of bunker shows further evidence of Nature's reclaiming process. 5. A view down the entrance corridor to Mortar Battery.

5

ROBERT J. McDONNELL



Nymphs of April

Continued from page 7

imitation wood-duck feather fibers
Wingcase: Latex strip tinted red-brown with a waterproof marking pen

Body: Polyester ("seal substitute") dubbing—two parts red-brown, and one part medium brown

Legs: Grouse hackle

The body of this fly should be neat and well tapered. For very high or discolored streams, carry several flies ribbed with very fine tinsel to add clarity and definition to the body.

An early-season trout faces a unique set of problems. Aside from avoiding capture, freshly stocked fish must adapt to a new and hostile environment. This means, above all, finding food. Frequently trout are planted in marginal waters—relatively shallow ponds or the lower reaches of rivers and streams, where there are few if any of the food sources we associate with trout. The fish, of course, don't realize this and they take advantage of what is available. Since much of the best early-season fishing is to be found on waters where fish have acquired the habit of dining on slender, delicate damselfly nymphs or the robust larvae of aquatic beetles, simulations of these life forms are clearly called for. These are two proven patterns:

Amber Damselfly Nymph:

Hook: Mustad +79580, sizes 12 through 6

Thread: Tan, 6/0, prewaxed

Tails: Amber-dyed partridge

Wingcase: Latex strip tinted amber and mottled light brown with waterproof marking pens

Body: Ginger nylon-acrylic yarn ("sparkle" or "frosted" yarn)

Legs: Amber-dyed partridge.

Riffle Beetle Larva:

Hook: Mustad +37160, sizes 16 through 10

Thread: Yellow, 6/0, prewaxed

Abdomen: Latex wound over an orange floss underbody then tinted amber and highlighted in orange with waterproof marking pens

Thorax: Sandy brown fur

Hackle: Amber-dyed partridge (optional)

These flies should be considered merely as representative examples; the bodies can and should be tied in a variety of colors. Olive, green, and brown for damselflies, yellow, brown, and grey for the beetle larvae will all prove useful.

"The mainstays of the April flyfisher are nymphs"

Without a doubt the best early-season nymph is a replica of a caddis fly larva. There are as many ways of tying caddis nymphs as there are flytyers, and each style has its merits; but no one has yet devised a fly better than this simple pattern:

Green Caddis Larva:

Hook: Mustad +37160, sizes 20 through 14

Thread: Olive, 6/0, prewaxed

Abdomen: Olive-green nylon-acrylic yarn ("sparkle" or "frosted" yarn)

Thorax: Dark brown fur

Hackle: Olive-dyed partridge (optional)

Admittedly some of these flies are out of the ordinary and they take some getting used to. But they provide the early-season angler with that little extra edge that helps to take trout under adverse conditions.

A selection of well-designed flies is less than half the battle, however—the flyfisher also has to know how to fish them.

During April the fly rodder will find a sinking or sink-tip flyline a good investment, especially when fishing larger rivers or ponds. But even on big water a floating line is equally useful since trout, notably stocked ones in stillwaters, will feed close to the surface. On smaller creeks and little brooks tucked away in the mountains a floating line is always the choice. Above all, the tackle must be well balanced and comfortable to use.

Leaders, too, are important. Nowadays a great deal is said, and written, about 12- and 14- foot leaders tapered to six, seven, and even eight X tippets. Although these may have a role in late-season angling, a six- or six-and-one-half-foot leader is the choice for April nymphing. An excellent design is based on a butt section (three feet) of flat monofilament, two feet of taper, and a tippet of 18 inches of three X material.



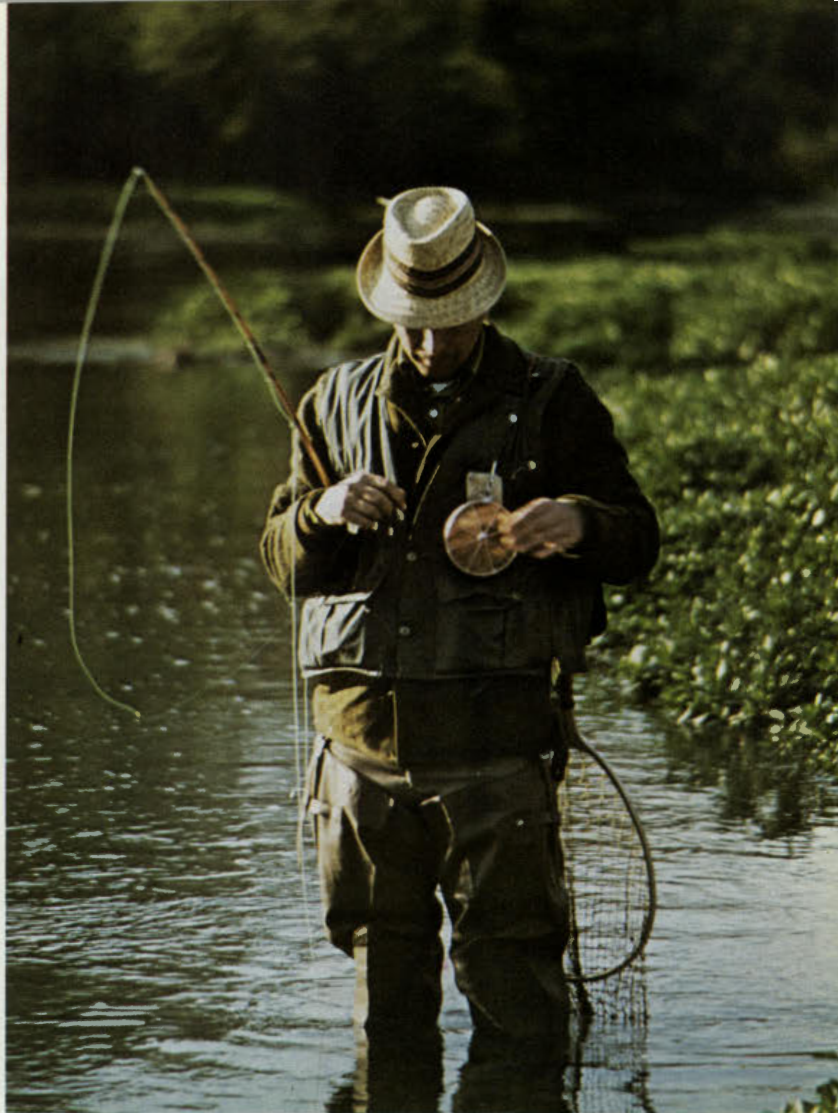
Green Caddis Larva.

If the water is exceptionally low and clear, another 12 to 24 inches of butt material can be added to deal with circumspect trout.

No matter the line or leader chosen, it is axiomatic that the fly should sink. Some prefer to get nymphs down by weighting the hook, others by crimping split shot on the leader. The latter is usually the best method, particularly if removable shot are used, since the angler can adjust the weight to suit the water. For example, on a deep, swift run, three BB-sized shot are not excessive. On a shallow riffle just upstream or a broad flat downstream, one shot will get the fly deep enough. Then too, by tying the flies on light wire hooks, switching to a floating line, and removing the shot from the leader, nymphs can be fished just below or on the surface. This is one of the keys to good nymphing tactics: getting the fly at the right depth. Line, leader, and weight *must* be selected with this goal in mind if the angler wants to take trout.

As for presentation, no flyfisher can go very wrong if he or she follows the example of early season baitfishers. Casting across or quartering upstream and allowing the bait to drift in a wide arc until it is directly downstream is the way most successful worm anglers work. The same method does the job when flies are used; however, there are situations that call for a different approach. On a lake or pond, damselfly nymphs should be fished at different depths using a number of retrieves (slow to rapid, regular and rhythmic to pulsating and erratic) until the right combination is found. Fast, broken-water reaches call for repeated casts well above the suspected holding area followed by carefully controlled retrieves slightly faster than the current. When confronting deep undercut banks (especially when they are topped with brush tangle), simply letting the fly drift directly downstream into the pocket is a most successful technique.

The angler should be constantly trying different methods, changing the pace and style of presentation when moving from pools through riffles to cascades. The general guidelines sketched above are just that: guidelines. The fly rodder also needs imagination, a willingness to experiment, and above all, experience—*especially* experience. Only by actually *fishing* will the fly rodder learn all the finer points and develop that indefinable sixth sense that is the hallmark of a master nymph fisher.



Mayfly nymphs can be dried, dressed with fly floatant, and fished to rising trout as Gerry Wetzel, Sr., is preparing to do.

Most trout fishers look upon the pleasant weeks of May and June, when trout rise almost gleefully to dry flies, as the halcyon days of the season. But how many days are there when fish and insects, weather and water cooperate? They are few indeed. There is no need to despair, however. With a fly box filled with the right flies and a fair knowledge of how to fish them, the angler can look forward to taking trout on rain-filled April afternoons or frost-tinted early-season mornings. □

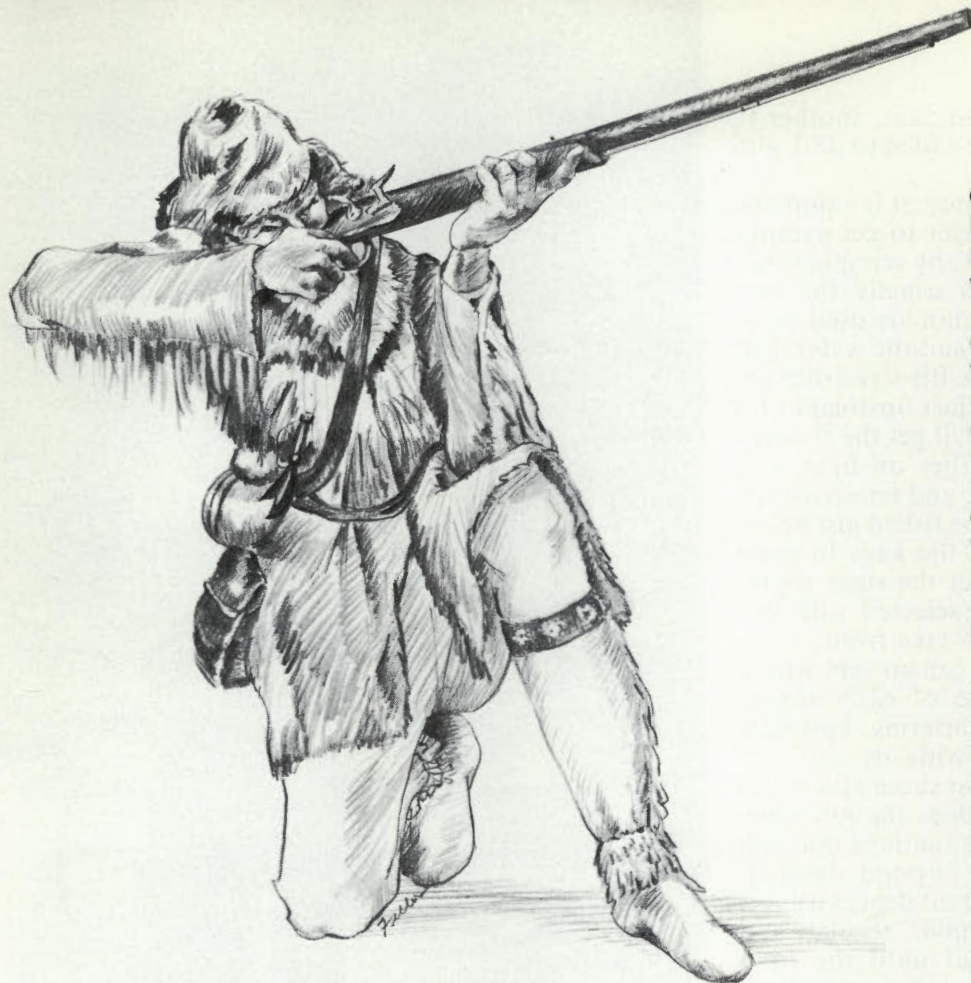
URBAN FORESTRY IN PROGRESS

The Urban and Community Forestry Program, which was reported as being in the planning stage in our September-October edition, is now in operation. The Bureau of Forestry has recently added three foresters who are providing the professional planning and assistance in implementing and improving urban tree resource programs throughout the state.

One of the primary objectives of the program is to provide assistance in the management of city-owned parks, forests, and green-spaces. This assistance includes species identification, recommendations for tree seedling planting and maintenance, residue management, insect and disease control, fire protection, and other areas of technical expertise not available from local sources. Advice is also given on the development of ordinances for tree planting, care, and removal which would supply the necessary foundation for a sound forest management program.

The Urban Forestry program is also designed to assist and encourage communities without a shade tree commission, or the equivalent, in implementing such an organization so as to maximize the aesthetic value of their municipal trees.

If you would like further information on how a forester could assist you and your community, write to: Bureau of Forestry, CN 028, Trenton, NJ 08625, or call (609) 292-2531.



First Muzzle-loader Affair

By Fred Everson

It seems a shame that good ideas are often so slow to catch on, particularly amongst the hunting fraternity. This year's three-day either sex muzzle-loading rifle hunt was a prime example. Of 5,508 permits available for the December 11-13 season, only about 1,500 were applied for.*

Not that I am complaining, quite the contrary. In the two days that I was afield with my front loader I had the rare opportunity of hunting in a woods devoid of other gunners. As far as I could tell there wasn't another hunter within miles. The only shots that I heard in those two days came from my own rifle.

Weather conditions were near perfect following a shotgun season marred by warm temperatures and torrential downpours. Monday was cold and clear with a light dusting of

fresh snow. As I rammed a maxi ball down the barrel, two does walked out into a field across the road and began to feed. Not at all the wary creatures one would expect to find after a week of heavy hunting. I jumped another deer on a hillside as I made my way into the woods, too far for a shot but in no hurry to put any more distance between us.

I was carrying a Thompson/Center Renegade in .54 caliber, a basic no frills hunting rifle lacking the usual assortment of brass furniture. A friend recommended this particular gun because of the large caliber and its ability to take a heavy powder charge. It is also rifled to shoot the maxi ball, a modern projectile that loads easily and shoots accurately. My rifle will also shoot a patched round ball, but these are too difficult to load for the type of hunting that I do.

The minimum legal caliber in the Garden State is .44 but I prefer a larger caliber. The .45 caliber permits the use of the maxi ball, which would seem to be adequate for deer.

After buying the gun I had a great deal to learn about shooting it. With the help of a knowledgeable friend I purchased all of the necessary accessories. A spare ramrod, a nipple wrench, a ball starter, and a powder measure are the bare essentials. All of these tools will be needed should you ever load a ball without a powder charge, a common occurrence among the most experienced black powder buffs.

It takes some time to learn the finer points of loading and shooting a muzzle loader, but a few trips to the range and a little research will do the trick. Your first experience with the muzzle loader should be a pleasant surprise. These guns are accurate! A good quality reproduction will shoot groups comparable to those of a modern rifle up to a hundred yards. It will take a bit more effort on the shooter's part however.

Deer hunting with a muzzle loader is like taking a step back through time. That first morning when I left the road behind me and headed into the woods it was not hard to imagine what it must have been like for our forefathers. Still hunting through virgin timber and concentrating on making that one shot count. The family's next meal depended on their success. The muzzle loader and its accessories create an atmosphere that is all their own.

I hope that next year more hunters will take advantage of this rare opportunity to visit the past and come away feeling the things that I felt. It is a taste of history that any hunter would savor.

EDITOR'S COMMENT: It's not for lack of interest that only 1500 applied—we find there is a great deal of hunter interest in a muzzle loading season. We feel the reason more hunters did not apply was the fact that a rifle permit was required and many prospective applicants did not feel they had time to take a rifle education course in order to be eligible.

**1978 Preliminary deer harvest by season
and deer management zones**
(Winter Bow Information—unavailable at printing).

N.J. Deer Mgt. Zones	Fall Bow	6-Day firearm	Muzzle- Loader	Special Permit
1	34	203	16	249
2	19	99	2	45
3	54	145	9	228
4	123	394	22	529
5	110	423	8	566
6	84	144	6	174
7	106	263	16	260
8	223	669	31	765
9	81	193	7	200
10	261	476	27	572
11	197	458	22	735
12	188	418	22	448
13	42	121	2	136
14	110	223	7	203
15	30	102	1	69
16	37	150	3	61
17	15	93	1	61
18	41	116	2	80
19	31	98	0	28
20	16	110	0	25
21	28	210	3	86
22	25	76	4	27
23	81	293	3	—
24	21	230	3	—
25	25	78	3	—
26	46	252	6	20
27	42	93	2	50
28	29	70	2	—
29	110	171	3	119
30	10	38	1	—
31	26	115	1	—
32	23	161	8	—
33	8	38	1	—
34	16	135	1	—
35	26	71	0	5
36	9	34	—	—
37	14	19	—	46
38	—	—	—	100
39	11	18	—	12
40	9	12	0	14
Totals	2361	7012	245	5913
		<u>15,531</u>		



Above: Superintendent Louis Cherepy works with YCC'ers placing used tires in Sunrise Mountain containing wall. Rutgers student Sandy Henricks (white hard hat) is Work Leader on the project. The terracing effect and the packing with sand can be noted in this scene. Right: The completed bridge across Stoney Brook. Some of the lumber used is new but much is recycled.



PHOTOS BY AUTHOR

The Natural, the Recycled, and the New

by Nora Holley

Given a large forest full of timber, stone, and other materials, it would seem wise that someone make use of these materials in building projects. This is exactly what the Superintendent does at Stokes State Forest.

During the past five years Stokes has received a complete facelifting and some development of new facilities through an influx of funds provided by the Youth Conservation Corps (YCC) program. YCC funds, allocated by the federal government, have supplied needed money for materials but primarily they have provided labor and man-hours.

Finding work for 50 unskilled teenagers for eight weeks each summer is no easy task. Nor is it easy, with severely limited budgets, to find materials with which to work for these youth. Credit for successful solutions to these problems can be given to Stokes State Forest Superintendent, Louis Cherepy. His enthusiasm, ingenuity, and hard work have culminated in results that astound observers and that should

bring praise from the much-taxed citizens of New Jersey.

It should be mentioned that Stokes State Forest, like most of New Jersey's forests and parks, survived the effects of austerity budgets for decades. The 15,000-acre Stokes Forest includes beautiful streams, gorges, and some small lakes. It sits astride the Kittatinny Mountains, and is forested with a mixture of secondary hardwood growth and coniferous plantations. The present Forest was developed during the 1930's with Civilian Conservation Corps labor and materials. Until the recent influx of YCC monies, it had survived on a basic maintenance budget with few improvements, and was reaching a stage where most of the 40-year-old CCC projects needed restoring or replacement.

Through the administration of Forest and Parks Director Alfred Guido, New Jersey has received generous YCC funds and has been innovative in developing successful programs. Many YCC programs across the country resort to trail maintenance, streambank improvement and other non-material-consuming projects.

Many programs, unable to develop better projects, simply rake lawns, pick up litter, and do their mundane tasks which, while perhaps necessary, leave the teenagers involved without much sense of accomplishment or purpose.

Superintendent Cherepy has his YCC'ers tear down unused buildings, dismantle outmoded tent platforms, and salvage just about anything that can be used again. These materials may reappear as a 10 bay garage, new sand and salt bins, or incorporated with new materials into handsome lean-to's and sanitary facilities. Even used cement blocks are cleaned and used in these facilities where strength, safety, and appearance are not factors.

Since the forest abounds in natural materials, Superintendent Cherepy makes full use of these when possible. Beautiful stone pillars, stone walls, and stone fireplaces are to be found throughout the Forest. These have been built by the YCC using fieldstone, which northern New Jersey is blessed with thanks to the glaciers that brought it and the generations of farmers who



Above: Stokes Forest YCC'ers enclose one of the many areas they have worked on in the forest. This parking lot uses timbers cut from Stokes' many Red Pine plantations and its groves of Black Locust. Top right: A beautiful stone retaining wall is built at Stoney Lake in Stokes Forest. The stone is found in the forest and even the concrete blocks are recycled. Below: An excellent example of using natural materials to be found in the forest. A YCC'er's notches a Red Pine log for a fence crosspiece.

piled it neatly into stone walls. When a wooden fence is required, Cherepy cuts non-rotting Black Locust up-rights and for crosspieces uses some of the abundant Red Pine planted by the CCC.

One of the problems inherent to any work project in Stokes Forest is containing soil, whether within a natural bank or a new fill to be enclosed, and Superintendent Cherepy has come up with a novel solution. At service stations along local highways, his men pick up old tires. YCC corpspeople pack these with sand and layer them in terraces. This forms an immovable barrier against all forms of erosion and a splendid wall to backfill. As a finishing touch, the tires are covered with a layer of soil which is planted with grass or other ground cover. In this way, a hard-to-recycle material is used to excellent advantage.

It should be mentioned that considerable new material is provided to the YCC. They do much excellent

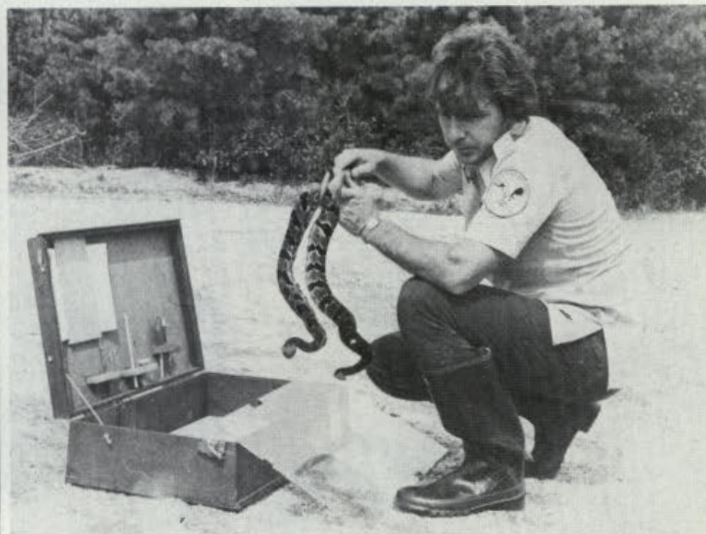
work in building new structures, using cedar shakes to replace shingles on forest buildings and much more. But it is the use of recycled materials and natural materials that vastly expands the scope of work done by the YCC in Stokes State Forest.

Superintendent Cherepy's resourcefulness benefits both the forest and New Jersey's citizens in an area which is much appreciated—the pocketbook. But perhaps even more important is that each year 50 young people receive valuable les-

sons they may learn nowhere else. They learn that even used things are still valuable and can be reused. They learn to obtain materials from a natural setting and use them in practical application. Finally, these young people discover that one does not need to go to a store and buy everything new but that beautiful lasting work can be created with a combination of manufactured, natural, and recycled material. These are lessons in utility, thrift, conserving, and thinking. □



Southern Gray Treefrog



Herpetologist Robert Zappalorti about to place timber rattlesnake in pinning box to facilitate safe data collection.

10 ENDANGERED SPECIES ADDED TO OFFICIAL STATE LIST

In 1975, the first official list of New Jersey's endangered species as prepared by the Endangered and Nongame Species Project was published. Research and consultation with experts in the fields of ichthyology, herpetology, ornithology and mammalogy conducted since that time have indicated the need to place ten additional species in the endangered category.

The Tremblay's Salamander, an all female genetic variation of the endangered Blue-spotted Salamander, was only recently discovered in New Jersey. The Tremblay's shares a range limited to the Passaic River drainage with the blue-spotted salamander and the presence of males of that species is essential to its unique mode of reproduction.

The Pine Barrens Treefrog occurs in disjunct population pockets in four southern states and here in New Jersey. This secretive amphibian is rarely observed unless one follows

the mating call of a male to its source. The lack of knowledge pertinent to this species and its potential as an indicator of a healthy Pine Barrens community were considerations taken in assessing its status.

The Southern Gray Treefrog has a distribution limited to Cape May and Cumberland counties. This species is morphologically indistinguishable from the abundant Northern Gray Treefrog whose occurrence is sporadic in southern New Jersey.

The Timber Rattlesnake is an addition to the list which many may find surprising. However, New Jersey rattlesnake populations have declined significantly in recent years through loss of habitat, wanton killing and over-collection (rattlers can net up to \$10.00 per foot on the black market).

The federal government has recognized four more species of marine turtles as endangered—Atlantic Hawksbill, Atlantic Ridley, Atlantic Leatherback, and Atlantic Loggerhead. All these have been known to occur off the New Jersey coast, if

but occasionally, and the state list has been amended to include them.

Two avian species, the Least Tern and the Black Skimmer, comprise the final additions to the list. The loss of nesting habitat and the threat of human disturbance to nesting colonies have been well documented. These birds require the special attention afforded the endangered.

With the addition of these species, 25 animals are currently classified as endangered in New Jersey. The ultimate goal of the Endangered and Nongame Species Project is not to expand this category but to abolish it entirely!

To obtain a copy of "Endangered, Threatened, Peripheral, Undetermined, Declining and Extirpated Wildlife Species in New Jersey" write:

Endangered and Nongame
Species Project
Box 1809
Trenton, New Jersey 08625

Kate Davies

from the editor

continued from page 1

throwaway society. Cans, bottles, clothes, cars, paper; the list is endless. Add to this list an increasingly precious item, land." Author Greg Johnson opens his article, *Linear Parks—An Urban State's Great Resource*, in this manner and goes on to urge our citizens to think about recycling used land such as abandoned railroads, utility rights-of-way, towpaths, and others, for use as linear parks.

Off Limits, a photographic study of the bunker areas of Fort Hancock in Sandy Hook by Richard L. Ditch and Robert J.

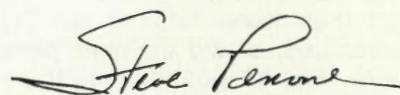
McDonnell. The photographs express graphically the impressions of Mr. Ditch and Mr. McDonnell as they went about photographing the crumbling, massive structures in the fort.

In the article *First Muzzle-Loader Affair*, author Fred Everson writes about his first hunting experience with a muzzle-loader. He says it was "like taking a step back through time. . . a taste of history that any hunter would savor." This article was illustrated by Gene Feller.

In *The Natural, the Recycled, and the New* author Nora Holley, Resident Staff Member, Linwood-MacDonald Environmental Education Center, discusses the accomplishments of the past five years

by the Youth Conservation Corps (YCC) at Stokes State Forest. Young people interested in YCC employment this summer, read the item in the *Conservation Capsules* section of the *Environmental News*, page 16D.

Kate Davies of the Endangered and Nongame Species Project informs us that 10 *Endangered species Added to Official State List* brings to 25 the animals currently classified as endangered in New Jersey. To obtain a copy of this list, read the article on page 28.



OSPREY T-shirt

Endangered and Non Game Species Project

The Endangered and Nongame Species Project is proud to announce a cooperative effort with the state's National Audubon Society chapters and the New Jersey Audubon Society whereby T-shirts featuring the endangered osprey are available. The proceeds from the sale of these fine-quality, 100% cotton T-shirts will be shared between the Project and the individual Audubon clubs. All proceeds will be directed toward the protection of New Jersey's endangered wildlife and other worthwhile conservation programs.

The T-shirts are light blue with green lettering and can be obtained by completing the order blank and submitting it, along with a check/money order for \$5.25/shirt plus \$.65 for first class postage and handling (add \$.50 for each additional shirt ordered), to the Audubon group nearest you.

Atlantic Audubon Society
P.O. Box 63
Absecon, N.J. 08201

Jersey Shore Audubon Society
P.O. Box 474
Bricktown, N.J. 08723

Monmouth Co. Audubon Society
Box 542
Red Bank, N.J. 17701

Morris Highlands Audubon Society
Box 935
Denville, N.J. 07834

New Jersey Audubon Society
790 Ewing Ave.
Franklin Lakes, N.J. 07417



Please send me _____ Osprey T-shirt(s) \$5.25 plus \$.65 postage for one shirt (\$.50 postage for ea. additional shirt)

Size: S M L XL

Quantity: Total amount enclosed

Return to one of the Audubon groups listed above, making checks payable to that particular club.

Round Valley Lakers

Continued from page 3

November 12-18, 1978. The results of the sampling were mixed.

The most outstanding and impressive catches were the holdover brown trout, the largest being in the neighborhood of 15 pounds. These browns normally are too large to be taken by the size gill nets we're using, but the big males on occasion get their lower hooked jaw (kype) entangled, as did the ones pictured here. The 15-pounder, by the way, was released. (Note of interest: You can often tell from a photo if a fish is alive or dead by looking at the eye. If it's got that wide open blank stare it's usually dead, but if the eye is tilted or looking down it most always is alive, as the fish's reflex is to avert its eyes from the light).

Releasing the big brown presents an interesting point of debate. On one hand is the fact that knowing these browns are present in the reservoir is what makes the fishing there so attractive. On the other hand, very few of the browns that reach this size are ever taken. The fact is that more trophy size browns are probably dying of old age than are caught by fishermen. Why is this bad? Take another look at the mouth on that 15 pounder and tell me how big a trout he would consider for a quick lunch (2 pounds?, 3 pounds?, surely anything we're stocking). I had a report that one stocking of trout made off the north tower was much the same as feeding the lions at the zoo! Huge brown trout were coming up and taking the freshly stocked trout as soon as they hit the water! Maybe one of your problems in failing to take trophy trout is that you're not thinking big enough in your choice of baits. Undoubtedly the big browns are a major factor acting to the detriment of the lake trout program and they may be part of the reason that we didn't find any of the March '78, stocked lake trout in our nets. So if you want to help our program along, you can do it by catching a 10-pound brown trout. Thank you.

We were happy to find that not all the lake trout were in the bellies of the brown trout or the secret com-



I hate to think how many lake trout this fellow ate.

PHOTOS BY AUTHOR

partments of some outlaw's ice chest. Actually the nine lake trout that found their way into our nets indicated substantial survival, especially from the initial (March, 1977) stocking. The eight lakers taken, which had originated from this stocking, ranged in size from 12.5 to 17.0 inches and averaged 14.6 inches in length. The other laker was from the November 1977 release and he was 14.8 inches. This overlap in sizes points out the need to mark fish from

each stocking for future identification: you can't assume that the biggest fish are from the first stocking. The average size of the trout from the March '77 release indicates that the growth rate of these fish has not slackened and is still running at about half an inch a month. At this rate we can expect lakers over 20 inches in 1979.

While the lakers are doing fine "lengthwise" they are not really putting on any weight. A brown or rain-



Last year's survey found these lakers which averaged about 9 inches.

bow from Round Valley that was 17 inches long would be three pounds at least. The 17 inch lake trout we took weighed only about a pound and a half. There really is no cause for alarm on this as it is characteristic for this species to be "sleek" and they do not really begin to put on weight until they get over 20 inches at which time they slow down growing long and speed up growing wide.

The lakers in the reservoir are still not sexually mature and next year's

"year class" will be made up from the 15,000 fingerlings which we are presently rearing at the state fish hatchery.

One of the big decisions that will soon be coming up for us is the setting of size limits and bag limits. Our primary objective at this point in time is to see if we can establish a breeding population in the reservoir and we can't find that out if people insist on killing our potential breeders while they are still sexually

immature. On the other hand with these trout running over 20 inches they are going to be a very attractive fish, especially alongside the 10 inch average trout we will be stocking. People may be very reluctant to throw back what may be the biggest trout they've ever caught. Since the lakers are proving to be incredibly gullible, we have to expect a lot of people will catch them. We are not really eager to make wholesale arrests, but we would like to see the program have every chance to succeed. Our job at this point, therefore, is to convince everyone that this is really going to be a great program, but it's only going to work if everybody cooperates. So friends and neighbors throw back that two pounder and in a few years we'll give you a twenty pounder.

Apparently we have convinced a few people inasmuch as two of the lake trout that we took in the gill nets had hooks in them. Since these weren't "tackle-busting" size fish, it was obvious that some sportsmen had cut their lines, sacrificing their hooks to release the lakers alive. They could have easily ripped the hooks out, killing the trout and no one would have been the wiser. It is this type of act of pure conscience, for undoubtedly there was no one around close enough to applaud, that separates the sportsman from the slob. □

ATTENTION: HOME OWNERS

The New Jersey Department of Energy is administering the U.S. Housing and Urban Development (HUD) Solar Hot Water Initiative Program. Single family home owners are eligible to receive a grant of \$400, when an approved solar hot water system is installed. In addition to the grant, the Federal Government has passed legislation that allows a tax credit, amounting to \$680 for a system that costs approximately \$2400. The State of New Jersey offers property tax exemption for those home owners who install a solar hot water system and exempt solar systems from the State sales tax. For further information and application contact:

N.J. Department of Energy
Office of Alternate Technology
101 Commerce Street
Newark, N.J. 07102
201-648-6293

The Snapping Turtle

Continued from page 9

successful are they at this enterprise that nests which survive to the hatchling stage are most likely the exception rather than the rule. Those turtles that do hatch out and subsequently make their way to water face the threat of being devoured by either mammals or birds encountered along the route. Many of the hatchlings fortunate enough to reach the aquatic environment fall prey to fish and larger turtles. Others drown in currents strong enough to sweep them away from the vegetation and shoreline debris that normally provide a secure haven from which they may periodically surface to breathe.

As adults, snapping turtles are too large and bad-tempered for most predators to bother with. The one exception is man who captures large numbers for use in soups and stews. Snapping turtle soup has made Philadelphia seafood restaurants famous, and fish markets sometimes sell turtles for those daring enough to use the meat in recipes at home. The chef who wishes to experiment in this manner should be forewarned that, just as they characteristically emit a foul odor when found in their natural state, the meat of the snapping turtle smells even worse during cooking.

Snapping turtles hibernate at the bottom of their aquatic environs from mid-fall until mid-spring. While buried under mud and debris, they absorb sufficient dissolved oxygen through the thin, membranous walls of two accessory bladders which are connected to the dorsal wall of the cloaca. Small amounts of the gas are needed since hibernation is characterized by metabolism rate which is drastically lower than that of a fully active animal.

Interestingly, this annual period of hibernation has a significant influence on the growth patterns of turtles and other reptilian forms found in the temperate zones of the earth. Because reptiles continually grow in size throughout their lives, factors such as the availability of food resources and fluctuations in metabolism levels greatly affect the individual growth rates of these animals. The lowered metabolism of hibernation does not allow for much growth and may even bring it to a halt until normal activity and feeding have resumed in the spring.

Daniel C. Wilhoft, Ph.D., Professor of Zoology at the Newark campus of Rutgers University, has been investigating the ecology of *C. s. serpentina* within the Great Swamp National Wildlife Refuge in Morris County. Concentrating on the growth rates and survivorship of individual specimens, Dr. Wilhoft has marked 138 snapping turtles during the past five years. Weight and carapace and plastron lengths are determined for each recaptured turtle. This information, as well as data concerning the location and climatic conditions of recapture, is later recorded in computerized form for correlation and statistical analysis.

During the course of his research, Dr. Wilhoft has found that the behavior and habitat preference of these turtles make them difficult subjects to study. "Snapping turtles are very wary," he says, "and the nature of the aquatic vegetation at our study area makes observations on marked individuals virtually impossible except during their terrestrial activity." The herpetologist now feels, however, that modern technology may have an ecological application in this situation: "A reasonable technique to resolve this problem would be the day-to-day tracking by telemetry of individual turtles as they emerge from winter dormancy. This technique would provide the opportunity for daily and even hourly records of turtle movements as well as the nature of the movement. This data would be impossible to collect with any other technique." So far, Dr. Wilhoft has experimented, on a limited basis, by attaching a transmitter to each of four adult snapping turtles. The relocation points of these specimens are determined by triangulation with a receiver and plotted on a map of the study area. Early results have been encouraging and Dr. Wilhoft plans to continue this avenue of snapping turtle research.

As the top aquatic carnivore in the freshwater habitat of New Jersey, the ubiquitous "snapper" occupies an important niche within our environment. Its survival as a species is not endangered by the gourmet interests of turtle hunters. However, the indirect dangers of man, including swamp reclamation and water pollution, do seriously threaten the existence of these fascinating creatures. Care should be exercised that man does not undo, in a relatively short span of time, that which nature has taken millions of years to create and perfect. □

FRONT COVER

A Trout Fisherman and his Companion—Photographed by David Bast

INSIDE BACK COVER

Snapping Turtle—Illustration by Carol Decker (See article on page 8.)

BACK COVER

Conserve Our Wildlife—The Cougar—Alias Mountain Lion, Puma, Panther, and other names. Provided by The National Wildlife Federation for National Wildlife Week, March 18-24, 1979.



Carol Decker d.
© '78

NATIONAL WILDLIFE WEEK MARCH 18-24, 1979



Conserve Our Wildlife

JOIN AND SUPPORT THE NATIONAL WILDLIFE FEDERATION
AND STATE AFFILIATES