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New Jersey Outdoors Magazine

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Editor

Harry Grosch
Photographer

Lucy Brennan
Circulation

Edi Joseph
Environmental News

Contributors

Bob Byrne
Roy Elicker

Joan Galli
Bob McDowell
Pete McLain

Sharon Ann Brady
Editorial Assistant

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from the editor

Our Reader Survey Returns

We hear you talking and this is what you're telling us about *New Jersey Outdoors* magazine. More than 93 percent of our subscribers believe that *NJO* is effective in its efforts to educate and inform our citizens about our environmental problems and the conservation of our state's natural resources. Almost seven percent of our subscribers find fault with our efforts, at least in part. In a similar survey taken in 1975 and discussed in the editorial in the January/February 1976 issue, 84 percent of our subscribers said we were effective.

As to how many people read each issue of the magazine: 17% of the approximately 43,000 subscriptions are read by 1 reader; 33% by 2 readers; 16% by 3 readers; 11% by 4 readers; 5% by 5 readers; 3% by 6 readers; 2% by 7 readers; 1% by 8 readers; and 6% by 9 readers or more. This last figure includes teachers who make *NJO* available to their students. When these figures are multiplied out, we come up with more than 132,000 readers for each issue of *New Jersey Outdoors*.

The ages of our subscribers as answered in the first question of the survey: 2% of our subscribers are 14-17 yrs. old; 16% are 18-29; 29% are 30-40; 16% are 41-50, and 37% are over 50.

We asked about your educational level and you told us that 70% of our *NJO* subscribers have either attended college, graduated, or have received post-graduate degrees. Of this figure, 50% have graduated—and half the graduates have post graduate degrees.

The range of your occupations suggests that you are truly a representative group. Subscriber occupations include professionals, trades and technical, white collar, homemakers, students, retired, teachers, and self employed.

Because the old *NJO* was primarily a male-oriented publication, we were interested in how many female subscribers we have attracted to our present publication. Your answers indicate that 15%—nearly 7000—of our subscribers are female. Of course, this does not give a true reading of the actual number of *NJO* women readers. Most, if not all, the male subscribers indicated in the Survey that their wives also read each issue. A conservative estimate of our female readers would be between thirty and forty thousand for each issue.

The "outdoor interests" of our subscribers is an item of some importance to us. According to what you tell us—29% are fishermen, 23% like nature study and birdwatching, almost 20% are hunters, 16% are campers and hikers, almost 6% like outdoor photography, 4% prefer sailing and boating, more than 2% are gardeners, and 1% like to ski.

And how much time do our subscribers spend

outdoors (weekly)? Sixty percent spend 10-20 hours or more outdoors; 30% spend 5 to 10 hours; and 10%, under 5 hours per week.

We asked the question "How did you first learn about *New Jersey Outdoors*?" Your answers indicated that word-of-mouth (27%) is still one of our best circulation boosters. The category "other" received the highest response (40%) but this is somewhat misleading because in reviewing these responses we found that a majority of them were auto and boat registration mailings which included our *New Jersey Outdoors* subscription blanks. This would indicate that Direct Mail (15%) would be the primary source of new subscriptions if the auto and boat registration responses were added to the 15% figure.

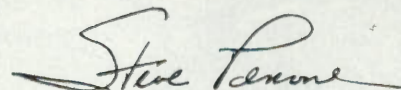
How long have you been reading our publication? Your answers are as follows: Less than a year—16%; one to two years, 23%; two to five years, 33%; six to ten years, 10%; and over 10 years, 18%.

What do you read first? The highest number of you (19%) checked "other" and explained that you read the entire issue; then in descending order, wildlife management articles (17%); editorial, recreational, environmental news, and pictorial (each about 13%); nature study (9%), and historical (3%).

The final Survey question "What are the three most pressing environmental problems in New Jersey?" elicited the largest response from our subscribers. Many answered with several pages. The top concern expressed was water pollution/ocean pollution by sewage (33%); land use—"unrestricted development" as expressed by many subscribers (21%); concerns about disappearing wildlife habitat (11%); preservation of the Pine Barrens (8%); air quality (7%); population explosion (7%); litter on our countryside (5%); law enforcement on public lands (4%); and solid waste disposal (3%).

The large volume of responses to this question and the sincere concerns expressed by our subscribers should be interpreted by our elected officials as grass roots democracy in action. This Survey has illustrated that *New Jersey Outdoors* subscribers are representative of the concerned New Jersey citizens that inhabit our state. As such, they raise families, pay taxes, work in New Jersey, seek recreation here, and will express their concerns about our state at the polls on election days.

In closing, we want to especially thank all the subscribers who took the time to fill out and return the completed Survey to us. You've done us a great service and we owe you. We are also grateful for your word-of-mouth promotion of our magazine. Keep it up. □



IN THIS ISSUE...

About two years ago while driving south on Rte. 206 just north of Princeton I came upon several hot-air balloons descending on the near horizon surrounded by several vehicles and a small crowd of people. At the

time, while observing this attractive scene with the setting sun backlighting the multicolored balloons, I thought this would make a fine article for *New Jersey Outdoors*. I almost forgot about it until early this year when I received *Is*

New Jersey Filling Up With Hot Air? by Karen Leeds. Professional photographer Leeds authored the article after taking a balloon ride and getting hooked on the sport. The front cover, photographed by the author, in-

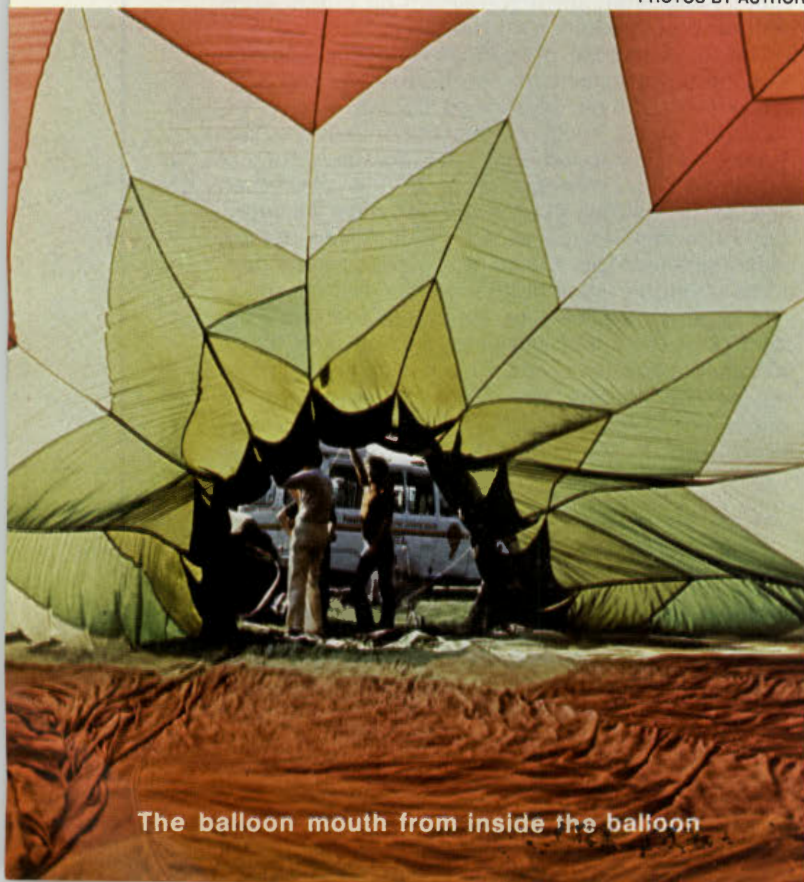
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IS NEW JERSEY FILLING UP WITH HOT AIR?

BY
KAREN LEEDS

PHOTOS BY AUTHOR



The balloon mouth from inside the balloon

Have you noticed? The skies are blossoming with huge dots of color lately as hot-air ballooning in New Jersey increases in popularity. Balloons are used for sport, racing, and recreation; some people are even making money with them. With the wide-open spaces our state has to offer, ballooning is a natural.

The boom right now is in recreational flying. People are buying flights for birthdays, anniversaries, even wedding gifts. Some people go just to see what it's like. At least I did . . .

The initial attraction for me was certainly the vision of the thing—the colors sang out from a balloon seven stories high. I suppose I might have been frightened, but I was so intrigued by the look of it all that I just followed along. I found myself gently floating over Philadelphia in a “Hound and Hare” race to New Jersey with 12 other balloons. For their first ballooning experience, most people would probably prefer the lush countryside to an urban landscape but being a captive passenger, I was not in a position to question the itinerary.

Every tempted landlubber wants initial reassurance about the dangers involved, with the first question usually something like “Can you fall out?” Let me say that although ballooning may seem dangerous to the uninitiate, if you follow the rules and use some common sense, it's about as risky as sailing. But really, who cares about common sense? We're talking about an adventure! It takes less than five minutes in the air to become a balloon enthusiast.

The big drawback for many is the fear of heights, but within seconds of takeoff, that fear disappears. As the balloon leaves the ground, you discover that certain of your perceptions are different from those experienced during other types of flight. First, the basket travels at a speed of less than 10 mph, and since the balloon is traveling with the wind rather than against it, the feeling is one of weightlessness rather than speed. This is one sport where the greatest delight can be had by gently floating along at a snail's pace. You drift a little higher and notice that while earthly things get smaller, your field of vision gets infinitely larger.

Again, your perceptions deceive you. As I left the city, the streets were filled with thousands of people, mobs of traffic, and the familiar din of metropolitan life. But the sounds that wafted up to me at 5000 feet were not quite what I expected to hear; no loud voices, no horns blaring—what I heard instead were dogs barking, children splashing around in swimming pools, and people calling up to me: “Hello! Where are you going?” I should immediately caution: You don't go up in a balloon to get to a predetermined destination; you get in a balloon for the sheer enjoyment of getting wherever you go. So face it—for an hour or so, you can soar like a bird in flight and see things that mortals rarely do.

While you do have a certain degree of control, it's mostly over your altitude, and is achieved by using propane burners to alter the temperature of the air inside the balloon. The direction of your flight is determined by the prevailing winds and the air cur-

rents which layer the atmosphere. Finding the various currents on a particular day is entirely a matter of pilot skill, so find a good one!

Ballooning began in France in 1783 when the Montgolfier Brothers became the first to challenge the domain of the eagle. In the 1950's the number of balloonists increased dramatically as flying became simpler and less expensive, and the balloons themselves more durable.

The balloon takes about 20 minutes to inflate. The empty balloon envelope is spread out on the ground while the ground crew assembles the gondola, or wicker basket. Several people hold the mouth of the balloon open as air from a ground inflation fan is directed inside the balloon until it is almost fully inflated with cool air. Next, the pilot ignites the propane burners mounted on top of the gondola and directs the flame into the mouth of the balloon to heat the air. (In order to create lift, the air inside must be hotter than that outside—this is the working principle of hot-air ballooning.) Propane gas, which is the fuel used, is stored inside tanks in the gondola. The heated air expands, causing the balloon to rise to a vertical position, while the pilot gives the balloon a preflight inspection and gets ready for the takeoff.

The length of the flight depends on the number of people on board and on how much propane the tank holds. With three people on board, a balloon can fly about two hours; with two people, about three hours. A solo flight could last up to five hours. When deflated, the balloon envelope can be rolled up into a ball and stored inside the 3' x 4' gondola. And in case you were wondering a "chase" vehicle—one that follows the flight from the ground—is a necessary part of getting home.

Such recreational, or "sport" ballooning is the variety with which most people are involved. On the commercial side, one individual, Bob Waligunda, is largely responsible for the enormous amount of aerial advertising currently being done in New Jersey. His Princeton-based business specializes in flying inflatable replicas of popular consumer products as a promotional medium. Bob's firm also handles balloon sales and provides gas and hot air. In addition, he offers balloon consultation and lecture tours, presents the nation's only professional balloon racing team, and hosts the world's only balloon airline.

Racing is the glittering spectacle of ballooning. If you think *one* balloon looks good in flight, you should see the hundreds that take off from the National Hot-Air Balloon Championships in Indianola, Iowa, each year. There are three types of races: for distance; spot landing for accuracy; or via the "hound and hare" technique, in which the lead balloon is followed by the pack, the winner being the balloon which lands closest to the hare.

Another international event is the World Hot-Air Balloon Championships held annually in Albuquerque, New Mexico. But one of the grandest events of all is one held in June of each year in Balleroy, France. The credit for that one belongs to Malcolm Forbes, an able aeronaut if ever there was one,



Balloons and chase vehicle



Publisher Malcolm Forbes directs air from a ground inflation fan into mouth of balloon.

and a native New Jerseyan. In the spring of each year, *Forbes Magazine* sponsors the International Balloon Meeting at the Forbes chateau in Normandy.

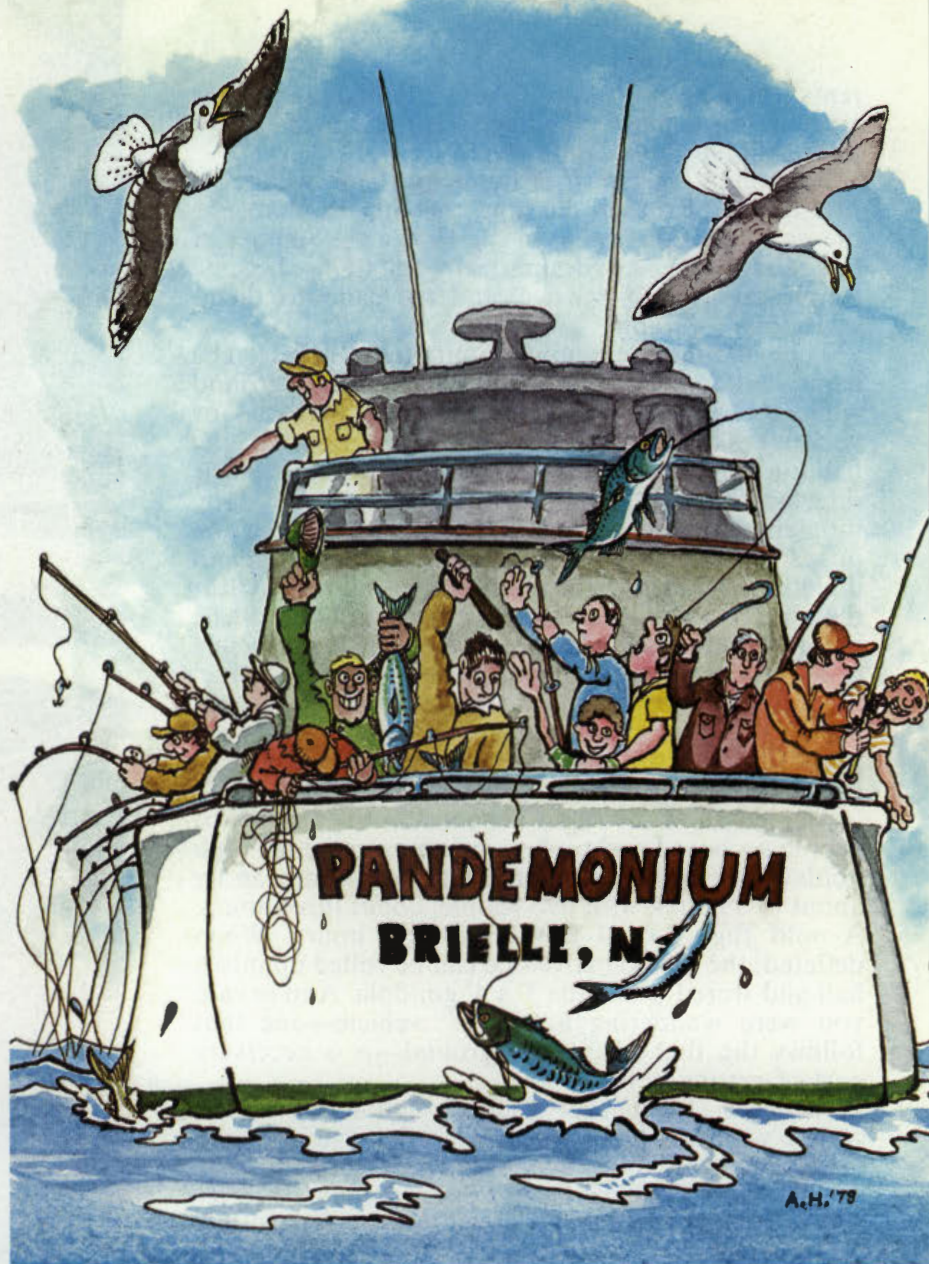
I met with Forbes one day last spring, shortly after the landing of the Double Eagle II, the first balloon to complete a trans-Atlantic flight. Forbes, one of the world's leading balloon enthusiasts, became interested in the sport on his way to work one morning, and his first flight became his first lesson. Eventually his driver, who signed up with him on the spot for lessons, became the director of *Forbes Magazine*

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GUIDE TO NEW JERSEY'S SALTWATER FISHING

BY
RAY TOWNSEND,
BILL FIGLEY,
AND PAUL HAMER

DEP's Division of Fish, Game and Shellfisheries has compiled this guide to help fishermen, boaters and other recreationalists enjoy New Jersey's saltwater resource. Included are general facts on *how*, *when* and *where* to catch fish and shellfish, *where* to launch or rent a boat, and *where* to find party and charter boats.



ILLUSTRATIONS BY ANTHONY HILLMAN

HOW TO CATCH THEM

BLOWFISH OR PUFFER

At one time the blowfish was considered a trash species and thousands were discarded by sport and commercial fishermen each year. Today the blowfish, alias "sea squab," demands a good price on the market. Since the edible portion of this fish is rather small (about the size of the drumstick of a small fryer), it is not worth keeping unless a good number can be obtained. When enough have been caught it is a simple matter to remove their back bones with the meat attached. They take a variety of baits such as squid, clam, shedder crab and blood worms.

BLUE CRAB

The blue crab is one of our tastiest shellfish. Crabs are abundant all along the Jersey coast, from the Hackensack River to the Delaware Bay. The best places to catch crabs are in tidal creeks, rivers and shallow bays. The most common methods include handlines and folding traps, baited with

chunks of fish or chicken necks. Another technique, especially effective for soft or shedder crabs, is to wade the shallows with a scoop net. Remember to release all females bearing an egg mass or "sponge."

BLUEFISH

Adult bluefish can be taken by trolling with various lures, chumming from a boat or surf casting with either cut bait or lures. Young bluefish, known as "snappers," are usually caught in the bays with bobbers and small hooks baited with spearing, although casting small lures such as bucktails and spoons also works well.

BONITO

Bonito vary in abundance over the years. Fair catches are made from time to time but as a general rule they are taken incidentally while trolling or chumming for other species such as bluefish or tuna.

COD

Cod are generally taken on bait (clams or cut bait) on or near the bottom, but at times they can be enticed with a jig.

CROAKER

Croakers are usually found in Delaware Bay and other southern waters of the State. Preferred baits are shrimp, shedder crab and squid.

DOLPHIN

Usually found well offshore, this spectacular migrant from southern waters is generally taken by trolling or casting in the vicinity of flotsam.

DRUM

Only occasional schools venture north of Great Bay, Delaware Bay being the preferred fishing ground. This large, powerful species is usually taken by using clams for bait in the vicinity of shellfish beds.

FALSE ALBACORE OR TUNNY

A fast moving lure will usually entice this species, but they are occasionally taken by chumming. They are comparable to school tuna in general appearance, size and fighting ability. The few anglers who have taken this species from the surf are extremely enthusiastic over their fighting ability. The false albacore is not usually sought as a food fish; however, it is excellent when canned.

FLUKE OR SUMMER FLOUNDER

Being a voracious species, the fluke prefers a moving bait and the most successful fishermen let their boat drift with the tide or, when fishing from the bank, cast up and across the current. The object being, for either method, to let the sinker drag along the bottom and keep the bait in constant motion. Killies, spearing, other small bait fish or squid strips are favorable baits. Some anglers prefer to troll slowly with their baits dragging over the bottom.

HARD CLAMS

Hard clams or quahogs are found throughout New Jersey's coastal bays, although their abundance varies considerably with location. They can be harvested from a boat with tongs or a bull rake or in the water, with a scratch rake or by feeling with your feet. A clamming license, which can be obtained at most tackle shops, is required for residents and non-residents. Clammers should be careful to observe all regulations and avoid condemned waters.

KINGFISH

Bloodworms, squid, shrimp and shedder crabs are good bait, and should be fished on the bottom. Kingfish prefer sandy bottoms.

LING OR RED HAKE

Ling are a bottom species, and are usually caught on clams. When present they are usually extremely abundant.

MACKEREL

Two species are found in New Jersey waters; the common mackerel, which is the largest, and the small chub mackerel, also known as "tinker mackerel" or "thimble eye." Mackerel generally occur in our waters as transients enroute to the New England coast where they spend the summer. They are generally taken offshore from party and charter boats by jigging with small lures. Chum is often used to attract and hold the school of fish near the boat.

MARLIN

White marlin are the predominant billfish off the New Jersey coast, but occasionally a lucky angler hooks a blue marlin. Both species are generally taken by trolling well offshore.

PORGY OR SCUP

Porgies are found on wrecks along our entire coast and are also taken over mussel beds in Delaware Bay and Sandy Hook Bay. Clam is the standard bait, but bloodworms are also good.



SEA BASS

The sea bass is of great importance to the party boat fishery. Sea bass are bottom feeders taken on clam, squid, killies and most other baits.

SHARK

Sharks of several species are regularly taken along the New Jersey coast. Sandbar and occasionally sand tiger sharks can be caught in the bays and inlets as well as in the ocean, while the dusky and hammerhead are usually encountered in the ocean. As one moves offshore, tiger, white, mako and blue sharks can be found. They are generally taken on large chunks of bait and chumming increases one's chances of success. Although unknown to most anglers, shark meat provides excellent eating, baked, broiled or in chowder.

SPOT

Spots, Lafayette or "Cape May Goodies" are an important species in the Delaware Bay area, but they also occur further north along our coast. Cape May Point, Crow Shoal and the Cape Shore Channel are good fishing areas for this species. Clam and squid are excellent bait.

STRIPED BASS OR ROCKFISH

The striped bass is the ultimate trophy for New Jersey surf fishermen. The legal season is March 1 to December 31. Popular fishing spots include Sandy Hook, Shrewsbury River, the Monmouth County jetties, Island Beach, Barnegat Bay and Inlet, Great Bay, Mullica River, Great Egg Harbor River and Bay, Maurice River and Egg Island Point. Many lures, including metal squid, plugs, spinners, spoons and jigs are used successfully, while shedder crab, clam, bloodworms, shrimp, mullet and live bunker, herring and eels are used for bait fishing.

Continued on page 22

THE SNAKES OF NEW JERSEY

PETE McLAIN

No group of animals has been more maligned, persecuted, condemned, or misunderstood than snakes. Since the biblical story of Adam and Eve, the snake has become a symbol of treachery and evil. Today, in spite of the overwhelming common sense and the biological facts which attest to the snake's value to our environment, a good portion of the general public still looks on the snake as something to be frightened of, destroyed, or at best relegated to glassed-in cages at zoos.

To the contrary, the snakes perform an integral ecological role in their control of rodents and insects. The chances of being bitten by a venomous snake in New Jersey are far less than being struck by lightning while standing on a hometown street corner!

Here in New Jersey we have only two venomous snakes—the northern copperhead and the timber rattlesnake. Yet people attempt to destroy every snake they see thinking that it may be venomous. Actually, the chance of an average citizen even seeing a copperhead or rattlesnake is remote, for there are just not that many around.

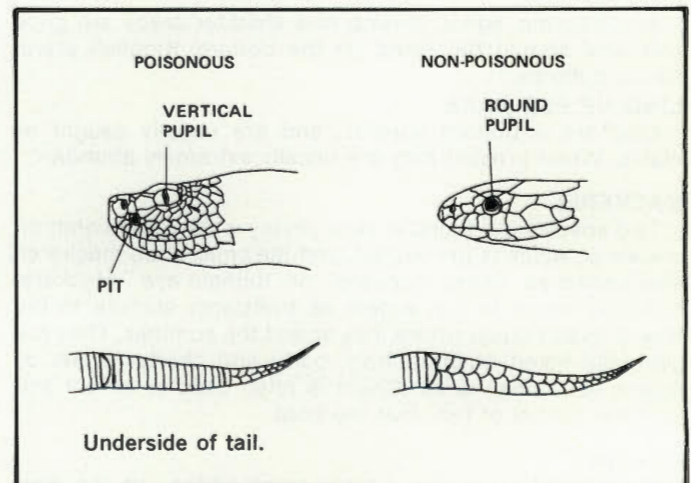
There are 21 species of snakes in New Jersey. Both the venomous snakes, the rattlesnake and the copperhead, are members of the pit viper family, which have an elliptical pupil and the characteristic heat-sensing pit which is located between the eye and the nostril. Contrary to popular belief, the cottonmouth, or water moccasin, does not occur in New Jersey; it does not range north of the Dismal Swamp in southern Virginia. The 19 remaining snake species found in the state are not venomous or dangerous to man. In New Jersey, snake populations have declined during the past 50 years for a number of causes. Habitat destruction in the form of urbanization has been a primary cause, but pollution, changing land use, commercial collecting, and human persecution have all contributed to the reduction of our snake populations. However, despite the odds, 21 species of snakes may still be found in the most densely populated state in the country.

Snakes as a group have been in this world for more than 100,000,000 years and they have adapted beautifully to their habitat. Snakes are not slimy or wet as some people think, but actually dry to the touch. Most have a small head compared with the rest of the body, but the jaws are loosely hinged so that the mouth can be extended to swallow objects several times larger than the snake's own head. The nonvenomous snakes in New Jersey have a single row of small, even-length teeth which point slightly backward to help hold prey. The venomous rattlesnake and copperhead have two



PETE McLAIN

Robert T. Zappalorti, Herpetological Associates, under contract to the Division's Nongame and Endangered Species Project lifts a timber rattlesnake in the pine lands of southern New Jersey. Research work is continuing on the range and habits of New Jersey rattlesnake populations.



large, hollow fangs, one on each side of the upper jaw, which may inject the venom when they strike; the venom is used to immobilize and kill small prey, mostly rats and mice. About 40 percent of venomous snakes do not envenomate when they strike a human, which may explain some so-called "immune" people who,

when bitten by a venomous snake, show no reaction to the venom.

New Jersey snakes hibernate during the winter months below the frost line. They arrive at their hibernating areas or denning sites in the fall as the weather starts to turn cold. Some snakes may come out for short periods in winter during warm spells, but generally are in hibernation from fall until spring. The common water and garter snakes are the last to hibernate and the first ones out in the spring.

Most snakes have their young in early summer through fall. Nine New Jersey species, such as the rattlesnake and garter snake, give birth to live young. The 12 remaining species lay eggs in the warm earth and let the sun's rays do the incubating. Some snakes, such as the pine snake, may lay 10 to 15 eggs, whereas the hognose snake lays as many as 50. When the eggs hatch, the young snakes dig their way to the surface and immediately start searching for insects, salamanders, frogs, toads, and small rodents. As snakes grow throughout their lives they shed their skins to make room for new growth. Younger snakes may shed several times a year, whereas an old adult may shed only once or twice. The largest species of snake in New Jersey is the black rat snake, which may attain a length of over 8 feet, while the smallest snake is the smooth earth snake which may attain a length of 10 inches as an adult.

Following are general descriptions and approximate range maps for the snakes which are presently known to occur in New Jersey. The maps are generalizations of the known range of each snake, however, some individuals or populations may occur outside of the indicated range.

SNAKES OF NEW JERSEY: RANGE MAPS AND GENERAL DESCRIPTIONS

NORTHERN WATER SNAKE (*Nerodia sipedon sipedon*). The water snake, one of the most common snakes in New Jersey, inhabits freshwater streams, ponds, lakes, swamps, marshes, and bogs throughout the state. It is usually seen basking on logs and stream banks. The young are born live in late summer and are more brilliantly colored than the rather plain dark brown or black adults which may exhibit dark cross bands on the necks and the forepart of the body. The water snake is the only snake you will find consistently in the waters of New Jersey and it may measure from 9 to 50 inches long with an average of about 30 inches. It feeds primarily on fishes, various amphibians, crayfish, and small rodents. This snake is frequently misidentified as the cottonmouth, which does not occur in New Jersey. The water snake can exhibit a mean disposition and can inflict a painful, nonvenomous bite if carelessly handled.

QUEEN SNAKE (*Regina septemvittata*). At the edge of its range in New Jersey, this species inhabits a narrow area adjacent to the Delaware River from just south of Trenton to the Camden County line; it is considered uncommon. This is a slender brown snake about 8 to 36 (record) inches long with a yellowish belly exhibiting four longitudinal brown stripes. The two outer stripes are larger. It is always found near water and may be observed swimming as it searches for crayfish, its favorite food. The young are born in September.

NORTHERN BROWN SNAKE (*Storeria dekayi dekayi*). Frequently called the "city snake", as it may show up in city parks, playgrounds, cemeteries, vacant lots, and around trash, the brown snake occurs statewide and is common in New Jersey. It measures from 4 to 15 inches in length and is best identified by the two rows of dark spots down the back. The general color ranges from dark to light brown to a deep reddish brown. The belly is a pale yellow, brown, or pinkish.

In nonurban habitat it's found in bogs, swamps, marshes, moist woodlands, and also on hillsides—usually under logs, rocks, and debris. The northern brown snake feeds on slugs, soft-bodied insects, and earthworms. From 11 to 18 young are born in August and September.

RED-BELLIED SNAKE (*Storeria occipitomaculata*). This is a small snake measuring from 3 to 14 inches in length and colored gray or brown with a red belly and light spots on the back of the head. There is considerable variation in the color pattern, as it ranges from gray to black, and in some cases the belly may be blue-black. The red-bellied snake occurs statewide except along the immediate coastline and in built-up areas; within this range its distribution is spotty, as it is common in some areas and rare in others. It inhabits hedgerows, stone walls, fields, and wood lots, where it feeds upon insects, slugs, earthworms, myriapods, and sowbugs. The red-bellied snake is secretive, and its habits are not well known.

EASTERN GARTER SNAKE (*Thamnophis sirtalis sirtalis*). Probably our most common snake, the garter snake is found throughout the state in fields, meadows, and woodlands; along streams; and in city lots and dumps. It feeds primarily on frogs, salamanders, slugs, earthworms, and insects. This snake is identified by the three longitudinal stripes of yellow or cream on a dark background of brown or olive; there may be a row of square spots between the stripes. Garter snakes average about 25 inches long, but may reach 48 inches. Young are born in late summer and one individual snake can give birth to about 30 young, though large adults have been known to bear as many as 90.

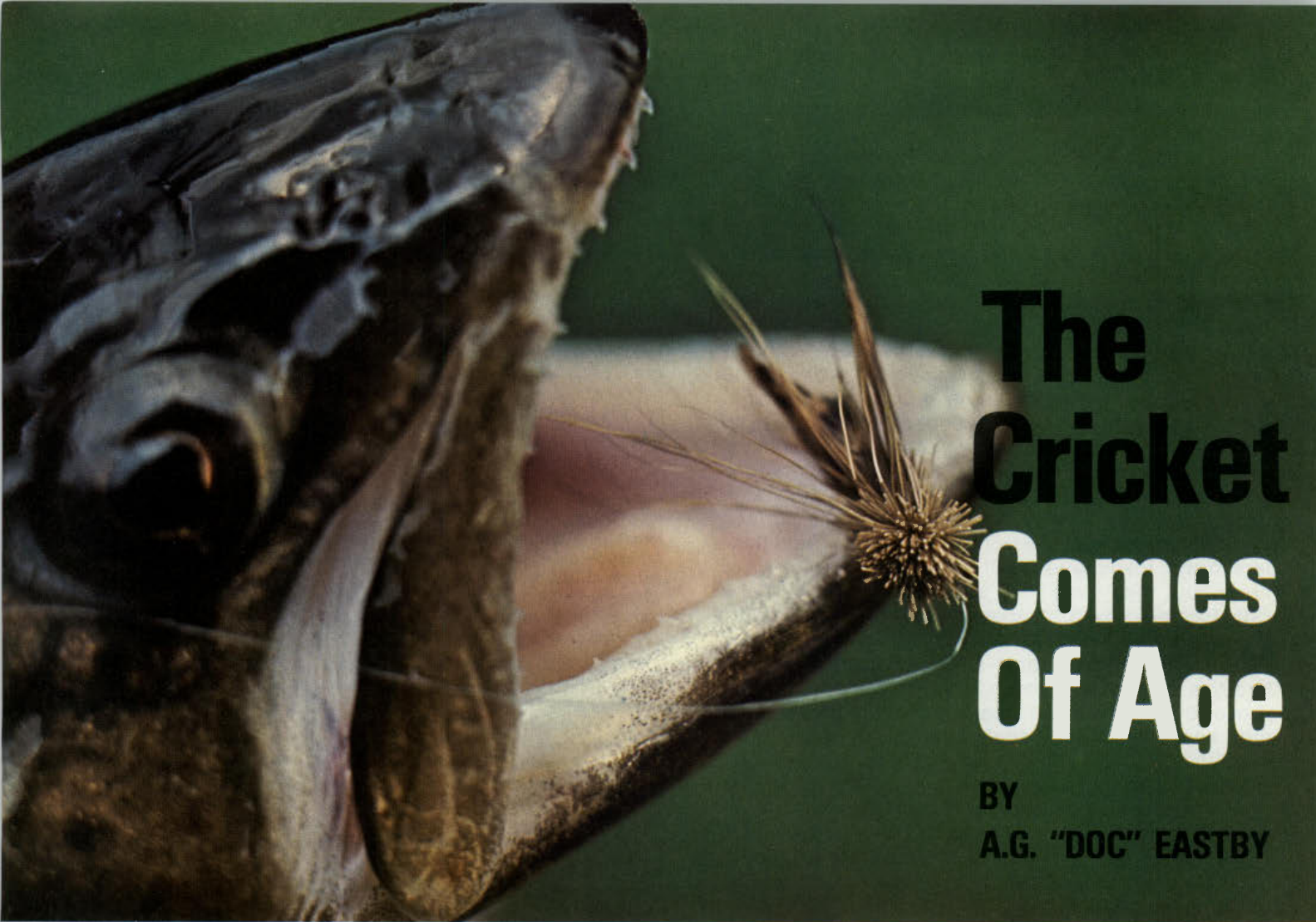
EASTERN RIBBON SNAKE (*Thamnophis sauritus sauritus*). Generally found statewide except in the major metropolitan areas, the ribbon snake is the trimmest member of the garter snake family. It is semiaquatic, seldom wandering far from bogs, swamps, and streams, where it feeds primarily on frogs, salamanders, and small fishes. Compared to the similar garter snake, the ribbon snake has a tail which is extra long, averaging 1/4 to 1/3 of its body length, which in turn ranges from 7 to 36 inches. The 3 to 20 young are born in August. The distinguishing characteristics of the ribbon snake are the three bright yellow stripes set off against the dark body.

EASTERN EARTH SNAKE (*Virginia valeriae valeriae*). This 3-1/2 to 10-inch snake is seldom seen, for it spends most of its life under debris in or near deciduous forests. It is an uncommon snake which occurs primarily in the Piedmont and Coastal Plain regions of the state. The earth snake is smooth-scaled and gray or reddish brown with a white belly. It feeds primarily on earthworms. Two to four young are born in September. The smooth earth snake may be reasonably abundant in certain limited areas, but very few New Jersey citizens will ever encounter it.

EASTERN HOGNOSE SNAKE (*Heterodon platyrhinos*). The hognose snake occurs statewide except in the metropolitan areas. Over the years their numbers have been reduced and they are presently uncommon in most parts of the state. The most distinguishing feature of this snake is its upturned snout, which is used for burrowing. The coloration is variable, ranging from a background of yellow, gray, or brown with black, brown, or red spots; the belly is usually mottled gray. Lengths range from 5-1/2 to 30 inches. Hognose snakes usually inhabit sandy soils and spend most of their time above ground rather than under objects. The female lays 4 to 46 eggs in June and July. Food consists primarily of toads and frogs. This snake attempts to bluff attackers by puffing up its body and assuming a striking position—if unsuccessful, it may roll over and play dead.

NORTHERN RINGNECK SNAKE (*Diadophis punctatus edwardsi*). A generally common snake of the Piedmont and Appalachian regions of the state, the northern ringneck snake does not occur south of Monmouth County. This snake is from 10 to 15 inches in length with a plain yellow belly occasionally dotted with black; the back is dark with a golden neck collar. This secretive snake is found mostly in woodlands and rocky hills and in areas where there is an abundance of hiding places. The northern ringneck snake feeds on salamanders, frogs, and earthworms. One to eight eggs are laid in June and July. This subspecies intergrades with the southern ringneck snake (*Diadophis punctatus punctatus*), which occurs in the Coastal Plain of southern New Jersey. The southern ringneck snake is distinguished from the northern primarily by the large half-moon-shaped dots on

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The Cricket Comes Of Age

BY
A.G. "DOC" EASTBY

An imitation cricket where it belongs—in the jaws of a healthy trout.

PHOTOS BY AUTHOR

During the past twenty years dozens of new fly patterns have appeared. They are the products of a never ending quest to find better ways to take trout that are growing ever more sophisticated as fishing pressure increases. Most of them have enjoyed a brief flurry of popularity. Then they have passed into oblivion, occasionally reappearing in some scholarly angler's pattern dictionary. A few retain a place in the fly boxes of fishermen who concentrate on particular streams or watersheds. Others are replaced by more effective imitations of the insects they were intended to counterfeit. A mere handful have stood the test of time, gaining an ever widening circle of devotees, their fame spreading by word of mouth and the printed page. One such fly is the now famous Letort Cricket.

As its name implies, the Letort

Cricket originated in Pennsylvania's limestone region, the birthplace of many patterns that have achieved national prominence. Already its origin is shrouded in mystery and a mythology is growing up about it. What is important, however, is that it is one of the handful of patterns that have found a secure place in the boxes of most flyfishermen.

But the reputation of the Letort Cricket is exaggerated and its development has been arrested far short of maturity. Now it is time to subject the basic pattern to a process of refinement, tailoring it to as wide a range of conditions as possible. After all, few streams bear a close resemblance to the limestone creeks of central Pennsylvania and the flies needed on the rivers most of us fish are usually different from those required on the Falling Spring

or Big Spring. It is time, in short, that the artificial cricket leaves behind its long years of adolescence, undergoes its rites of passage, and comes of age.

The original cricket pattern is a good representation of one of the Gryllidae, the *Acheta (Gryllus) domestica*, the common House Cricket. This insect is indigenous to built-up areas throughout North America. On a stream such as the Letort, running as it does through the center of a town, both banks lined with the works of man—homes, warehouses, businesses, a quarry, railroad tracks, and so forth—the House Cricket may be found in abundant numbers. But on most rivers the House Cricket is a stranger. If we are to make the best possible use of the *idea* of a cricket imitation it is necessary that the original pattern be adapted to suit the

character of waters quite different from the civilized limestone stream of Pennsylvania.

The first step in the search for effective cricket imitations was a study of the insects. Fortunately, entomological data are readily available to laymen in forms we can use and understand. A visit to a good local public library or a library at one of the state colleges or universities that dot the countryside can bring unexpected rewards to the fisherman willing to spend a few winter hours among the stacks. Over the last 75 years most of the insects in the U.S. have been described and cataloged, and reference works filled with photos and sketches put this research at our fingertips. By combining some judicious reading with careful observations during those slack periods every angler knows when the trout absolutely refuse to cooperate, it is an easy matter to put together accurate portraits of virtually any insect that fishermen, and fish, are likely to meet.

The second stage was to redesign the basic black cricket, so other varieties of cricket could be mimicked. The result has been a battery of flies that are among the most effective ever used.

The most common cricket in the countryside throughout North America is the Field Cricket (*Acheta assimilis*). Subject to great variation in size and color depending upon environment and diet, these medium-sized insects (they range from one-half to one inch from head to tip of wing) are particularly numerous near farms and in meadows. The adults appear in July, but prior to this the immature forms or nymphs often find their way onto the trout's menu. These nymphs, which are well worth imitating, can be distinguished from the adults by the absence of wings. The pattern developed is the prototype for the other flies in this series.

Hook: Mustad #94833, sizes 12 through 6

Thread: Brown, 6/0, prewaxed

Body: Brown polypropylene dubbing

Underwing: Brown turkey wing quill segment

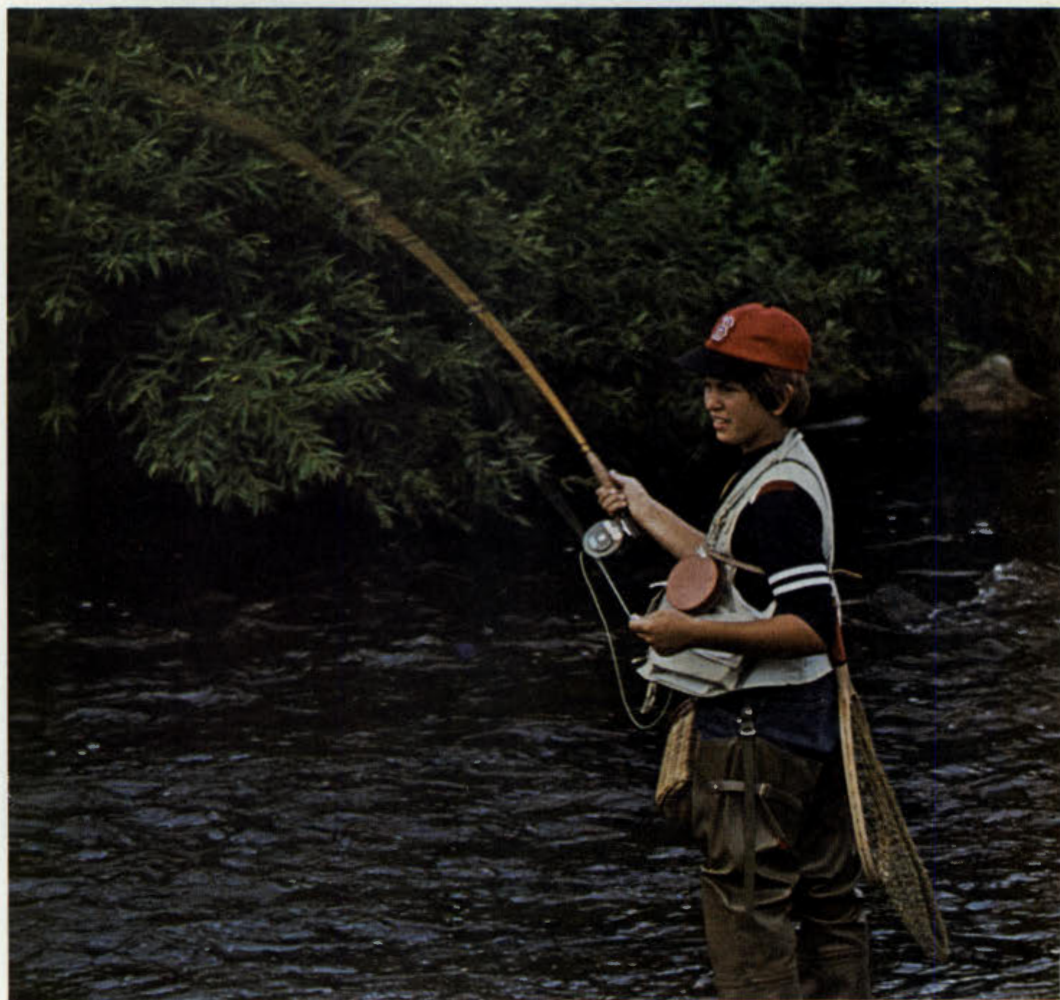
Overwing and

Head: Brown deer body hair (natural or dyed)

Continued on page 27



A typical cricket, this one a creamy-olive Imitation of a Snowy Tree Cricket.



Its effectiveness makes the cricket a good choice for young anglers.



Standing three feet tall, the Great Blue Heron is New Jersey's largest heron. Its extreme height, together with its gray-blue plumage, serve to identify it. The Louisiana Heron is similarly colored but much smaller (size of Snowy Egret) and has a very white belly.

A CLOSER LOOK AT NEW JERSEY'S WADING BIRDS

**WADE WANDER AND
SHARON ANN BRADY**

PHOTOS BY THE AUTHORS

DeVries, the great Dutch explorer of the 1600's, called them "cranes." Three hundred years later, New Jerseyans from farmers in Sussex County to fishermen in Cape May are still calling them "cranes." Actually, what DeVries saw were not cranes at all but herons, a family of birds which, despite their similar appearance, are only distantly related to true cranes. Surprisingly, the three-foot-tall Sandhill and Whooping cranes of North America are more closely related to the much smaller rails (like the tiny six-inch Sora) than to herons. Still, to many people all large birds with long legs, neck, and bill are "cranes."

Unfortunately, New Jersey cannot boast of any cranes, but we do have 12 species of strikingly beautiful herons, many of them quite common. This was not always so, however. The long, beautiful back plumes called "aigrettes" grown by both sexes during the breeding season were very much valued by the millinery trade late in the 19th century. About 1870, European fashion trendsetters decided to make the wearing of bird plumes the "in thing," and like a bomb exploding the demands of the milliners had worldwide repercussions on bird populations.

Within a few decades, populations of many bird species, including the herons, were decimated. The Snowy Egret and the Great Egret were affected most severely, because their long, graceful white plumes were valued the most. Although plume hunters claimed that they took only feathers shed after the breeding season, in fact they invaded heronries and shot actively breeding birds to get the plumage at its finest, thus destroying both the adults and the young, which died of starvation or



Half the size of their larger cousins, Little Blue Herons, like this individual, are dark blue with a purplish neck and head. Immatures are white, strongly resembling the similar-sized Snowy Egret. Subadult Little Blue Herons acquire a curious pied appearance with patches of white and blue.

exposure.

Under such relentless pressure, it appeared that our herons were going to follow the Great Auk into extinction, but help arrived barely in time, with the passage of the Lacey Bill. This federal legislation prohibited the interstate transportation of the bodies or plumage of birds (and other wildlife) killed in violation of state laws (many protective state laws were on the books at the time, but were seldom enforced). Passed in 1900, the Lacey Act severely curtailed the exploitation of all birds, including herons, by the millinery trade, and its enactment can be credited largely to the efforts of the American Ornithologists Union and various state Audubon societies.



The Snowy Egret is New Jersey's "small" white heron. Adults have black bills, black legs, and the fabled yellow "slippers," or feet. Immatures, like the birds pictured here, have yellowish-greenish legs.

The plume traffickers fought back, though, and hard. In 1905 Guy Bradley, an Audubon game warden in Florida, was murdered by a plume hunter, who was subsequently set free. The millinery merchants also took advantage of state laws, which contained so many loopholes and contradictions as to be useless. Not until 1913 and the passage of the Weeks-McLean Act, which placed all migratory birds under the protection of the federal government, were the herons safe.

Then, slowly, the herons started to rebuild their numbers and to reoccupy parts of their range from which they

had been exterminated. In southern New Jersey, herons began reappearing early in the 1900's, but did not begin to nest here again until the 1920's and '30's. While most heron species were and are essentially southern in distribution, some species, such as the Snowy Egret and the Great Egret, occurred in New Jersey rather commonly prior to their persecution. Other species, however, such as the Louisiana and Little Blue herons, expanded their range to include New Jersey only after the plume hunting was stopped. Two other species, the Cattle Egret and Glossy Ibis, are quite recent additions to the New Jersey bird list. The Glossy Ibis was first reported breeding in southern New Jersey in 1955; apparently it found conditions here to its liking, as today it is our state's most abundant breeding wading bird. Even more remarkable is the story of the Cattle Egret, which prior to 1930 was found only in the Old World. At about that time some individuals presumably crossed from Africa to South America, possibly in storms. Finding a feeding niche unoccupied by any of our native herons (they follow cattle—and now tractors—to catch the insects that are stirred up) they spread rapidly through Central America into Florida and up the East Coast. In 1958—only about 28 years after they first arrived in the New World—Cattle Egrets were found breeding in New Jersey.

So, thanks to the strong resurgence of herons following the end of exploitation, and to the unexpected arrivals of the Glossy Ibis and the Cattle Egret, New Jersey now boasts more herons than it ever did. A 1978 survey of coastal heronries (breeding colonies) in New Jersey, conducted by the Non-game and Endangered Species Project of the Division of Fish, Game and Shellfisheries, discovered almost 10,000 herons in 32 colonies. Most colonies are located on the coast between Barnegat and Cape May Point, and most occur on spoil islands created by the deposition of material excavated during the dredging of coastal waterways. Such islands represent one of the few instances in which human activity has created instead of destroyed wildlife habitat. After several years many of the spoil islands are invaded by shrubs and small trees which provide excellent nesting structures for herons.

Most colonies are composed of several species of herons all coexisting on the same island. How they separate ecologically, with as many as eight or nine species in a few-acre colony, is the subject of considerable speculation and study. Different species may nest at

different heights or in different areas of the colony, or perhaps their actual nesting times are slightly different. We do know that the different species use different feeding methods to capture different prey items (herons in general feed upon small to medium-sized fish, frogs, snakes, salamanders, and various aquatic invertebrates). The giant Great Blue Heron and the chunky Green Heron "stand and wait," preferring to let the fish come to them. Great Egrets "walk slowly," or stalk, prey, while Snowy Egrets and Louisiana Herons actively "chase" food. Usually you won't see different species of herons feeding close together; basically the longer-legged species feed in deeper water than the smaller birds. Some species, such as the Black-crowned and Yellow-crowned Night herons, have



The green-and-blue (black at a distance) Green Heron is New Jersey's most "unheronlike" heron. It is short, stocky, flies like a crow, and isn't usually colonial in habits. Virtually every pond, lake, and stream in New Jersey has a "fly-up-the-creek" or "—up-the-creek" lurking along its shores awaiting patiently, like this bird, for some hapless fish.

adapted to feeding at night (they are the owls of the heron world) and remain sleeping in trees during the day.

After the nesting season the young birds newly fledged undertake what is known as "post-breeding dispersal," a phenomenon noted in many species but especially conspicuous in the herons. At this time—usually from mid-July into August—Great Egrets, Snowy Egrets, and Little Blue Herons in their immature white plumage show up at many of our inland lakes and ponds. At the Assunpink Wildlife Management Area in July and August 1975, for example, we saw 12 Great Egrets, 10 Snowy Egrets, and 5 Little Blue Herons. And motorists on the Garden State Parkway near Exit 135 in Clark get a treat every summer when in a little swamp not 50 yards from the

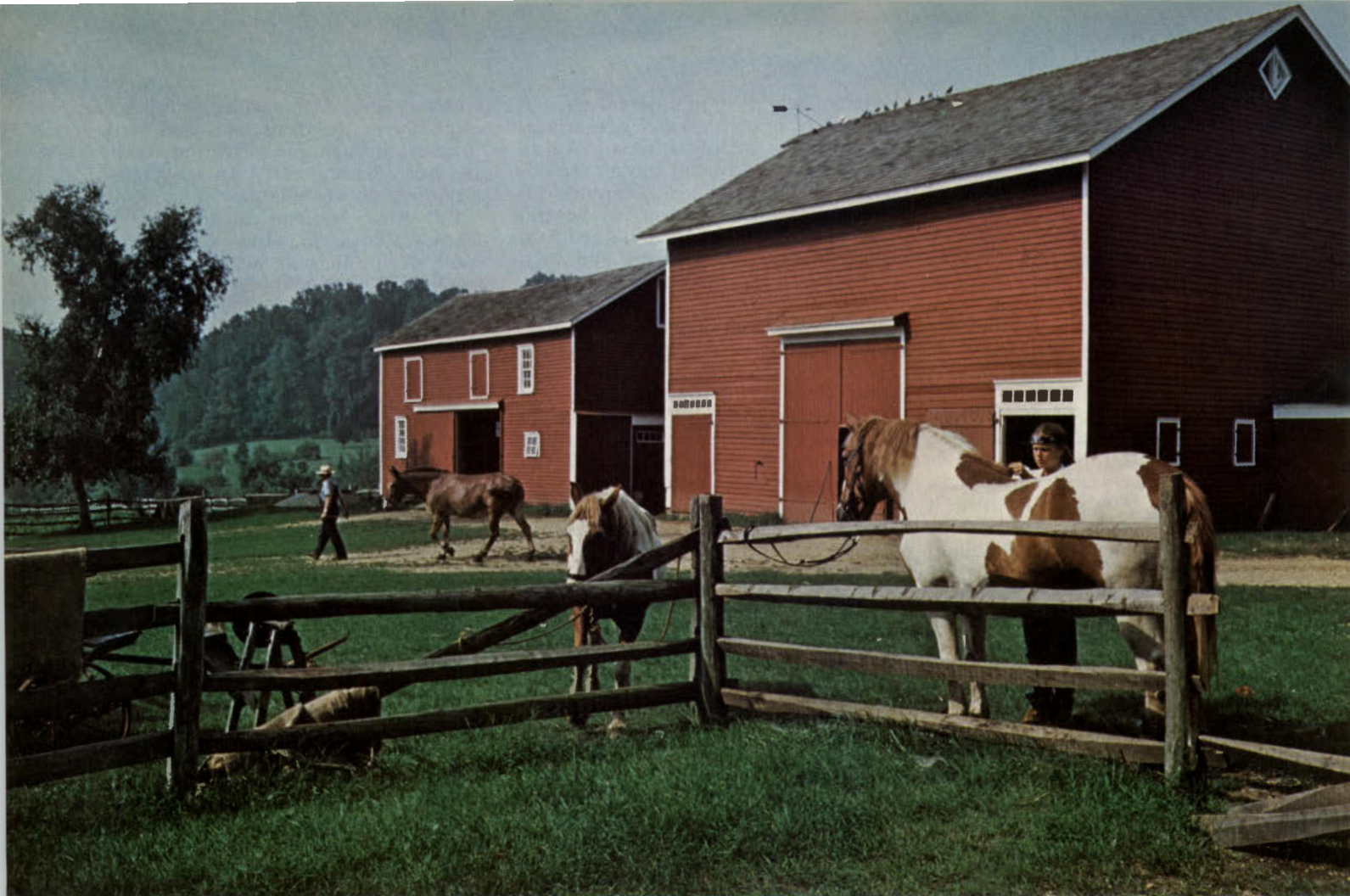
roadway several large white birds perch elegantly in the dead trees and stalk intently through the mirroring water. In short, herons can turn up almost anywhere during summer!

But what happens to these birds when winter sets in? Most of them head south during the fall, but every year a few individuals remain into winter. Occasionally a Snowy or Great Egret is found in one of our salt marshes but more often it is the Great Blue Heron or Black-crowned Night Heron that braves the cold. When the water freezes, these herons turn from fishing to "mousing," and many are encountered hunting in dry fields far from water. Both species have large, heavy bills admirably suited to capturing and killing small mammals. At Brigantine National Wildlife Refuge we once observed a Yellow-crowned Night Heron beating a medium-sized brown object on the ground and thrashing it about; on closer inspection the "object" turned out to be a muskrat!

Well, the millinery trade no longer pursues the herons, so there's no need to worry that they'll again become rare here—right? Wrong! There are still many reasons to be concerned about the survival of our herons. For instance, will the exotic Cattle Egret expand at the expense of some native heron species? In the Southeast there is evidence that numbers of Little Blue Herons are declining in many heronries owing to competition from aggressive Cattle Egrets. How about Glossy Ibises—will they push out other herons and begin to dominate colonies? Must one species increase at the expense of another? And then there's always the danger of pollution contaminating the prey species eaten by herons. Several species, for example, nest in or near the mercury-menaced Hackensack Meadowlands.

The species that appears to be in the greatest trouble is the Great Blue Heron, which was recently placed on the state threatened species list. Some 20 years ago, a colony of more than 100 pairs of these regal birds thrived at Sandy Hook. The summer of 1978 saw no birds nest there, and for no obvious reason. Populations have declined elsewhere in the state, and these declines appear to be continuing. In addition, the Great Blue Heron can't resist the easy meals available at fish hatcheries, where it is decidedly unwelcome.

The herons of New Jersey provide us with intriguing questions, challenging problems, and an element of almost tropical beauty in our aquatic landscapes, and certainly merit our appreciation and continuing concern. □



Picture-pretty red farm buildings of Longstreet Farm

PHOTOS BY AUTHOR

“Down on the Farm” in Monmouth County

BY LOIS BRUNNER BASTIAN

What would the Longstreets think if they could see their farm today?

The buildings remain, the animals are of the same kind. So are the crops. But now their farm in Holmdel is visited by nearly 75,000 people a year. They come for the guided tours, regular demonstrations, and an unusual children's summer program.

The Longstreet family established the farm in the 18th century. In the late 19th century it was inherited by Jonathan Holmes, for whose family Holmdel was named. In 1965 Monmouth County bought the farm, one of the finest examples of an 18th-century farm remaining in the county. The plan: To have the county park system re-establish

a “living-history” farm as part of 330-acre Holmdel Park.

The park itself was developed from farmland, reducing Longstreet's acreage. Nevertheless, today's farm has an influence that greatly exceeds its size.

Barnyard sounds and sights and odors engulf each visitor to the picture-pretty red buildings framed by the bucolic landscape. Sheep graze, mules pull cultivators in the fields, and potatoes flourish. Hogs snuffle and squat in mud puddles while pigeons perch on the roof peak, just as they did 200 years ago.

Although Longstreet Farm was established in the 1700's, today's demonstration farm is oriented around the 1890-1900 period. This was done for several reasons, ac-

cording to a farm brochure. Most farm restorations appear to be restored to the colonial period or pre-Civil War period, but few, if any, stress the period of agriculture just prior to common use of internal combustion engines.

Also it is still relatively easy to collect farm equipment commonly used during the 1890's. Finally, many of our older county residents remember common farm practices of the day and are available as resource people to provide background information for restoration purposes.

A collection of vintage farm equipment fills several buildings and spills over onto the lawn. There are carts, carriages, cultivators, plows. Many, like the corn sheller,

silage cutter, potato grader, and fan mill, are labeled to explain what they are and how they are used.

"The implements and farming techniques used to work the farm today are as faithful to the period as we can be with the equipment we have," says Howard Wikoff, park manager. "But sometimes we must make compromises. We bought a pair of red mules recently. Black mules were more typical of the 1890's, but we were not able to find gentle ones. So, for the sake of visitors' safety we chose the reds. We have to balance historical accuracy with practicality all the time."

Despite the animals and farm implements, Longstreet Farm is not a museum or a zoo. It is a *working* farm designed to preserve the local agricultural heritage, an idea that is growing nationally. In 1970 the Association for Living Historical Farms and Agricultural Museums was formed. Longstreet is a member.

In 1977 "Down on the Farm," a special summer program for children, was run. During six weekly sessions, youngsters 10 years of age or older participate in farm chores and farm fun for four days.

How do 1970's children take 1890's farm life?

"It was fun," said Susan Maggia, who participated in the program the first year, "because we could do things we can't usually do. I helped to drive the horses. I dug potatoes. I shelled corn on the sheller and fed the animals. And at the picnic we had a hayride and chased a greased pig," Susan added, her dark eyes glistening.

When the children arrive they are provided with straw hats and bandanas and given a history of the farm. They take a tour that covers areas not usually open to the public.

"After the tour," says Jeff Hendricks, part-time park interpreter, "we go right to work." The children carry buckets of water and feed to the animals, including hogs, goats, and sheep, every day.

Jeff is a high school science teacher in Monroe Township who has a way with children. Patient and relaxed, he directs them

throughout the week with humor and practical advice. Last summer Hendricks' assistant in looking after the children was Bernadette Mullen, one of the high school students employed at Longstreet Farm during the summer.

The youngsters reach a fence on their way to the cornfield. "Wait a minute," Hendricks cautions, "before you climb any fence check to make sure the rails are engaged." As they hoe in the hot sun he doesn't merely supervise, he works beside them.

Only a limited time is spent at any one job and there are enough different farm chores to keep the children eager and interested. They are fascinated from the morning that John Snyder demonstrates how to milk Duchess the cow. Then he gives each of them a chance to try it. "You know what it feels like?" one youngster asks. "A rubber glove."

Dressed in workpants, blue workshirt, and broad suspenders, Snyder fills the role of Longstreet's farmer. He was born in Farmingdale 60 years ago and raised on tenant farms around Freehold. In 1939 he left the farm for the Army because there didn't seem to be much of a future locally for a "poor farm boy" as he still calls himself. In 1966 he retired after a 28-year Army career. Then he heard about the demonstration farm that the Monmouth County Park System was planning to develop on the old Longstreet property.

He's been there since 1968 putting in a working farmer's hours, seven days a week and as many as 12 or 14 hours during planting and harvesting. He can be seen plowing behind a team, milking Duchess, overseeing repairs to buildings, and answering visitors' questions.

"Will Duchess bite me?" a visitor asks.

"No," replies Snyder, "any animal that chews its cud, has a split hoof, and horns or antlers has no upper teeth. That's why the cow can't bite you."

During the week, down-on-the-farmers learn many other facts of farm life. Wielding pitchforks to clean out the stalls of the mules and horses, they learn to stay clear of

Continued on page 21



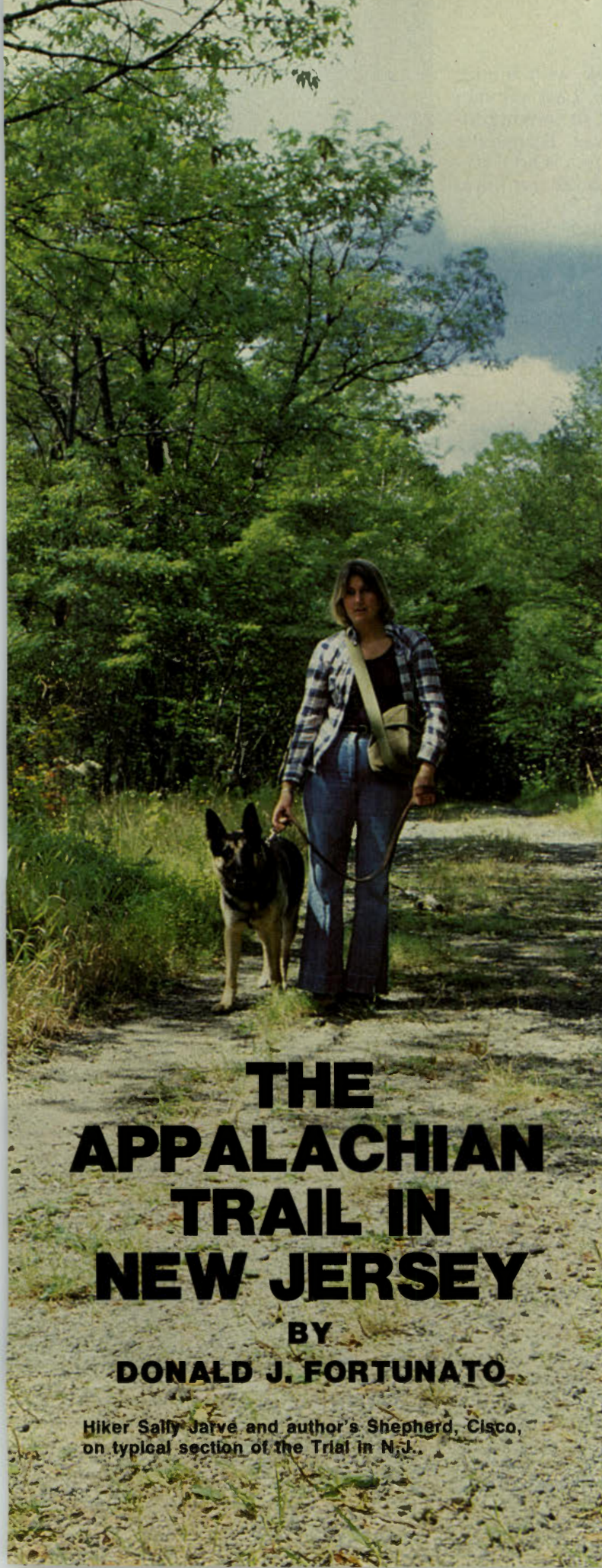
John Snyder and Shelly Huber harness a mule.



A hayride climaxes "Down on the Farm" week



Jeff Hendricks offers advice on hoeing



THE APPALACHIAN TRAIL IN NEW JERSEY

BY
DONALD J. FORTUNATO

Hiker Sally Jarve and author's Shepherd, Cisco, on typical section of the Trail in N.J.



National Park Service sign on Appalachian Trail.

From a height of 1461 feet above sea level atop Mount Minsi in Pennsylvania, the Appalachian Trail dips more than 1000 feet into the Delaware Water Gap and enters New Jersey.

The famed Appalachian Trail (AT) is a continuous, marked wilderness foot trail extending along the crest of the Appalachian Mountain chain from Maine to Georgia. In its 2070-mile length through 14 states the AT traverses some of the finest mountain wilderness in the eastern Atlantic states. While elevations of 5000 and 6000 feet are encountered in the Southern and New England states, in Pennsylvania, New Jersey, and New York the trail seldom rises above the 2000-foot contour.

As the hiker crosses under Interstate Route 80, the Trail passes beautiful Dunnfield Gorge and ascends via a rough, rocky footway to glacial Sunfish Pond. Following the characteristic 2- x 6-inch white blazes of the AT, the hiker skirts around this unique gem and enters the boundary of the Delaware Water Gap National Recreation Area to reach the crest of Kittatinny Mountain. Kittatinny, meaning "greatest hill," according to the Lenni-Lenape Indians, "the original people," who once inhabited this region.

Kittatinny Mountain is the same conglomerate sandstone ridge that continues southward into Pennsylvania to the Susquehanna River, bearing the name of Blue Mountain. Within the Ridge and Valley Province of New Jersey, Kittatinny Mountain leads 42 miles northward to the New York border and becomes Shawangunk Mountain (known as the "gunks").

Two and one-half miles north of Sunfish Pond, the hiker reaches Mount Mohican (1500 feet), affording a fine view westerly down to the Delaware River and the Poconos beyond. Further along, a blue-blazed trail leads off the AT and descends steeply 1000 feet to spectacular Buttermilk Falls, a trip well worth the exertion involved.

The Appalachian Trail now enters Stokes State Forest. Chestnut oak, red hickory, and some pitch pine are characteristic of the Trail environment. The trumper now ascends the open summit of Rattlesnake Mountain



Author looks toward meandering Delaware from atop Mt. Mohican.

PHOTOS BY AUTHOR

(1492 feet), with commanding views in all directions. Having hiked the entire Appalachian Trail in 1974, Rattlesnake Mountain still remains one of my favorite spots. There is no feeling quite like being high atop a mountain summit where a silence prevails as you gaze at the vastness of land below and watch a hawk soar effortlessly in the sky.

Further north, after Culvers Gap, a long climb brings one to the summit of much frequented Sunrise Mountain. This 1653-foot peak affords inspiring views eastward toward the farm valleys of New Jersey and westward to the wooded Pennsylvania ridges. For less rugged souls, a paved road also leads to the summit of Sunrise Mountain.

Several miles after Sunrise, the AT enters High Point State Park and is heavily used. The Trail then enters New York for several miles before re-entering New Jersey. The hiker now traverses the breadth of 10,000-acre Wawayanda State Park through upland deciduous trees interspersed with red spruce, white cedar, and hemlock. *Wawayanda* is the name given by the Lenape Indians to a creek they called "water on the mountain."

The underlying rock here is resistant granitic gneiss about 1 billion years old—the oldest rock formation in the United States. Erosion has worn down these mountains that were once more than 10,000 feet high.

Shortly after Wawayanda Mountain, the Appalachian Trail leaves New Jersey. Along the 60-mile length in our state, the Trail offers many opportunities for day hiking or extended backpacking trips of several days. For about 70 hardy souls who hike the entire length of the AT in a single season (about 700 attempt it each year), New Jersey is state number 8 in the long grind. This type of long-distance hike is best left to those persevering backpackers who understand the strenuousness of the terrain found on the AT and the rigors of daily trail life.

Nevertheless, even the day hiker or weekend backpacker should be cautious not to over-extend him/herself. The footway on the Trail in New Jersey is often rough and rocky, and the constant ascending and descending can be very exhausting.

The day hiker should have a sturdy pair of well-broken-in hiking boots with a light inner sock of olefin or silk and an outer pair of wool to remove sweat from the foot area; this will help in preventing blisters.

A light day pack, available at sporting goods stores that carry hiking equipment, should include the following: first-aid kit, canteen, high-energy foods (such as nuts, chocolate, etc.), light rain parka, and a snakebite kit.

While on the AT, or any trail, the hiker will probably never see a poisonous timber rattlesnake or copperhead; if one is encountered, it will only strike in self-defense and only as a last resort if it cannot escape. It is senseless and against State law to kill these beneficial snakes, which fill an important niche in the natural realm preying on mice and other small rodents. I have passed within a few feet of both the timber rattler and copperhead on three separate occasions and could have easily been bitten, but they always just threatened and crawled away. It is no wonder less than 30 out of 7000 snakebite victims die annually.

The day hiker can plan many hikes of 6 or 7 miles on the Appalachian Trail by using a state road map and the *Appalachian Trail Guide for New York—New Jersey* available from the New York—New Jersey Trail Conference, 15 East 40th Street, N.Y., N.Y. 10016. This organization also has much more information on hiking in our state. Kittatinny Point Visitors Center on Interstate 80 before crossing into Pennsylvania also has the AT Guide and other valuable books and pamphlets.

For those considering a backpacking trip on the Trail in New Jersey, an excellent guide is the *New Complete Walker* by Colin Fletcher. Trips for several days in the backcountry require specialized and expensive equipment including backpack, down or fiberfill sleeping bag, portable stove, fuel containers, and so on. If at all possible have an experienced backpacker accompany you when purchasing equipment.

The Appalachian Trail in New Jersey offers impressive mountain vistas, a remoteness to escape the pressures of civilization, and a wilderness environment to help us regain a sense of belonging in the natural world. □



YACC IN N.J.

GARY LETCHER

Program Administrator, Bureau of Parks

In the dark days of the Great Depression, President Roosevelt was faced with nationwide unemployment of an unprecedented scale. Part of his solution was the creation of the Civilian Conservation Corps. Administered by the Army, the CCC employed young men to work in the parks and forests of the troubled nation. And work they did! In New Jersey, there is hardly a public recreation area not filled with accomplishments of the CCC. Camping facilities, beaches, roads, pine plantations—all stand as evidence of the hardworking CCC Boys. The hallmark of the CCC was quality; the corps had the time, manpower, and support to do a job right. Take a look at the Sunrise Mountain Pavilion in Stokes State Forest, or the massive stone shelters at Palisades Interstate Park. Projects like these are typical of CCC work in the State.

With the advent of World War II the men of the CCC were needed in Europe and the Pacific. The Corps ceased operations; public lands of New Jersey did not see a large input of federal support for three decades.

Today, with unemployment again running high among America's youth, the CCC has been reactivated. Now known as the Young Adult Conservation Corps (YACC), men and women aged 16-23 are working on the public lands of our State. The Bureau of Parks within DEP's Division of Parks & Forestry administers YACC programs in 25 State Parks and Forests. Camp size ranges from one corpsmember at Ramapo Mountain State Forest to thirty at Ringwood and

High Point State Parks. At most areas enrollees commute every day to work, but at High Point and Voorhees State Parks the Corps live on the site year round, day in and day out. Much of the initial work at these sites involved preparing the Corps living and eating quarters.

Created under the Youth Employment Act of 1976, the YACC is sponsored jointly by the U.S. Department of Labor, the U.S. Department of the Interior, and the U.S. Forest Service. An applicant must go to the local employment service office; individuals are eligible if they are currently not in school and out of work. The applicant will then be referred to an available position at a nearby or residential YACC camp.

Pay starts at the federal minimum wage for a forty hour work-week. There is some opportunity for promotion if a corpsmember exhibits superior performance and leadership ability. Enrollment is limited to one year. Recruitment is continuous.

Who is enrolling in the YACC? A whole spectrum of youth—high school drop-outs on parole to college graduates seeking experience in a conservation trade are finding a home in the Corps. Some are in it just for the money, but others are dedicated environmentalists. Everyone has the opportunity to learn. Veronica Wood, a 22-year-old corpsmember at Allaire State Park, could not understand why more people don't apply. "Most of my friends," Veronica said, "are on unemployment or working as waitresses. I love working here, being able to see the results of my work and being outdoors most of the time. The park staff is great, and I'm learning things I never thought I could . . . carpentry, cement work, park management . . . I can't think of any job I'd rather have right now." At Allaire the YACC members have installed about 3,600 feet of new split rail fencing and are in the process of building a new nature facility.

While admiring a completed YACC project or an old CCC pine plantation, it is easy to forget the hard work behind the finished product. The reality of labor in conservation work seems to discourage some enrollees. Others soon recognize that great results require great efforts, and these enrollees may make a career of conservation. Some corpsmembers have already been awarded permanent positions in the park system; others have entered college to study environmental science. Aside from providing work to young people, the YACC is introducing them to conservation.

During U.S. Senate hearings on creation of the YACC, an old "CCC Boy" testified that he had worked at a camp in 1937. "Today," he said, "I like to bring my son to the site of the camp. 'I helped plant that forest', I'd tell him. 'This is where I learned to work.'" And today, the YACC is helping teach young people to work. □

WILDLIFE WORKSHOP FOR TEACHERS

The New Jersey Division of Fish, Game, and Shellfisheries and the New Jersey School of Conservation will jointly sponsor the Fourth Annual Teachers' Wildlife Workshop on June 1, 2, 3, 1979. This workshop will be conducted in a similar manner to the highly successful ones held in previous years at the School of Conservation. Numerous elective courses covering Wildlife Management Philosophy, Non-Game and Endangered Species, Using Wildlife Materials in the Classroom, Fisheries Management, and other

pertinent wildlife topics will be offered.

A limited number of scholarships will be available to cover the \$40 cost of room, board, and instruction. One hour of graduate or undergraduate credit is available for the workshop through Rutgers University.

For further information and registration forms contact:

Wildlife Education Unit
New Jersey Division of Fish,
Game, and Shellfisheries
P.O. Box 327
Hackettstown, NJ 07840

201: 852-2565; 201: 852-8236; 201: 852-8343



Environmental News

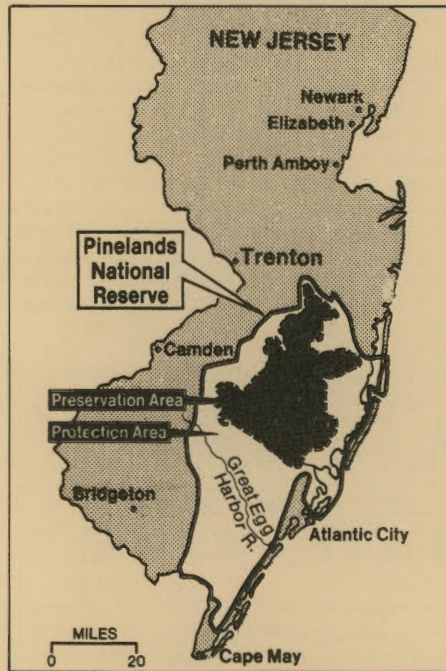
THE PINELANDS . . .

There has been so much written, discussed and debated in recent months about the state's efforts to protect the Pine Barrens area in southern New Jersey, that it seemed proper to try to "get it together" in one story to present background information followed by a general overview of developments in chronological order.

Background: The Pinelands, which cover all or part of seven south Jersey counties (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Ocean), is the last vast natural resource in New Jersey. Underneath the sandy tracts covered with oak and pine forests there lies an estimated 17 trillion gallons of pure water which is the source for most of the southern part of the state. (A U.S. Geological study found that the water quality in the Pinelands Aquifer approaches that of melted glacier ice or that of uncontaminated rain water, and the sandy soils make the Pinelands one of the greatest water recharging areas in the world.) The sandy soil, which easily catches and holds rain, is not very good at filtering out contaminants/pollutants. Should they find their way into the aquifer in sufficient quantity they will travel long distances and eventually could destroy it, depriving future generations of its use. And, the Pinelands region contains the state's largest tracts of wilderness as well as some of New Jersey's most scenic rivers. It is "home" to many of the creatures and plants on the endangered and threatened species list.

The fragile nature of the Pine Barrens has been well documented by scientists. The need to protect the region from incompatible development is understood. How can this be done while still upholding the interests of those who make their homes there and have invested in its development? The first step was taken on *December 1, 1976* when Governor Byrne convened a conference on the subject of Pinelands protection at Princeton University which invited and received public input.

Other major steps: *January 1977*—DEP proposed nondegradation ground and surface water quality standards for a 760-mile section of the Pinelands. *May 1977*—Governor Byrne issued Executive Order #56 establishing the Pinelands Review Committee, which was charged with creating a Pinelands plan to include protection of the ecosystem; protection of agriculture which is dependent upon



The New York Times/March 25, 1979

high water quality; direct development of suitable areas, and encouragement of suitable recreation. Also in *May*, the governor pledged \$10 million of the state portion of 1974 Green Acres funds for land acquisition in the Pinelands. *June 1977*—DEP, under the authority of various state laws, proposed that the Pine Barrens nondegradation water quality area be declared a critical area for the purposes of sewerage disposal. *August 1977*—The state Attorney General's office filed suit to claim title to 2,000 acres of Pinelands on which the state holds the tax liens. This was the first of several such actions planned for tax liens.

Federal action: *November 1978*—President Jimmy Carter signed the National Parks and Recreation Act of 1978 which included the establishment of a Pinelands National Reserve of roughly one million acres in south Jersey's Pine Barrens. This was the first federal recognition of the national importance of the unique Pinelands. The law provides for \$26 million to New Jersey—\$3 million for long range planning and \$23 million

towards the purchase of about 30,000 environmentally threatened acres of the Pine Barrens, with the state contributing the rest—subject to the approval by the U.S. Department of the Interior of a management plan to be prepared by a 15-member Pinelands planning board and submitted to Interior in 1980. (The federal funds must be appropriated by Congress.)

Funding Pinelands acquisitions: An estimated \$60 million has been projected to come from federal and state sources over the next few years for purchases of land in the Pine Barrens.

Governor's Executive Order #71: Governor Byrne followed through and on *February 8, 1979* signed the Pinelands Executive Order which established a Pinelands Planning Commission and imposed a temporary ban on the issuance of state permits, approvals, grants and licenses related to construction or development until the commission completes a comprehensive management plan for the region. The ban was limited to 18 months from the date of signing. The Pine Barrens areas involved in the building restrictions are the "Preservation Area"—approximately 570 square miles where water quality and other factors call for the highest possible degree of protection (small, dark area on map), and the "Protection Area"—about 1,000 square miles which surround (larger, white area on map) the Preservation Area.

There are *exemptions* to the building ban. Executive Order #71 provides two options which might entitle a person wishing to build in the Preservation Area to an exemption: 1) A compelling *public need* for the development or construction or 2) Extraordinary *hardship* because of denial of a permit. Either of those two reasons, or a third, might make a person eligible for an exemption in the Protection Area. The third reason is when a project is judged to be "consistent with the intent, goals and objectives" of the Executive Order. In addition, there are other exemptions including some types of wells and the entire area under CAFRA (Coastal Area Facility Review Act) control, except in the Mullica River Basin where the CAFRA area overlaps with the proposed Preservation Area.

Pinelands Field Office: *February 25*—DEP opened a Pinelands office in Toms River to answer questions on the

Continued on page 16 D

\$600,000 ALLOCATED FOR PRESERVATION OF HISTORIC SITES

The department recently approved \$600,000 in matching grants to 17 state, municipal and private applicants for the preservation of historic homes and other buildings. The funds were allocated under the state's annual Historic Preservation Plan and cover the 1979 fiscal year. All properties receiving grants are listed on the State and National Registers of Historic Places. The funding also provides \$250,000 for preservation planning and surveys by DEP.

The grants are funded by the U.S. Department of the Interior, Heritage Conservation and Recreation Service and are administered through DEP's Office of Historic Preservation. Recipients have one year to use the money and complete the projects. Included among the 17 approved projects are the restoration of Old Eagle Tavern in Trenton (Mercer County), reconstruction of the Morris Canal lock at Waterloo Village (Sussex County), preservation work on the Chesilhurst AME Church (Camden County) and stabilization of the Oxford Furnace (Warren County). □



MISS LIBERTY—A BOAT TRIP AWAY FROM N.J. Here's some pleasant news for New Jerseyans who have put off visiting the Statue of Liberty because of the time and money involved in reaching the ferryboat pier in New York City—regular ferry service from Liberty State Park to Liberty and Ellis islands began on April 28 and will continue through September. Circle Line Cruises runs three trips each day (10:30 a.m., 12:45 p.m. and 3:00 p.m.) from the New Jersey park. Ticket prices are \$1.50 for adults, 50 cents for children under 12, and \$1 for high school students and scouts. Discount rates are available for groups of 25 or more. Arrangements for the service were made through the efforts of DEP, the U.S. Department of the Interior and its National Park Service, Jersey City Mayor Thomas F.X. Smith and the Circle Line. Liberty State Park is located on the Jersey City waterfront just off Exit 14B of the New Jersey Turnpike. □



SWIMMERS AND 'DUNKERS'—GET READY! Memorial Day weekend traditionally opens the summer season at the state-administered inland swimming areas with the two oceanfront facilities opening two weeks later when the water temperature becomes more comfortable. This year, all inland "swimmin' holes" will open on May 26 and the oceanfront areas (above, Island Beach) on June 16. The young men and women (about 120) who serve as lifeguards at the swim sites had to pass a difficult series of performance tests given at the various facilities. In addition, the lifeguards participate in a summer-long organized program of physical conditioning, first aid and water safety.

Here's a list, by county, of state-operated facilities with swimming areas. **Inland:** BURLINGTON—Bass River State Forest (SF), Lebanon SF; CAPE MAY—Belleplain SF; HUNTERDON—Round Valley State Park (SP), Spruce Run SP; MIDDLESEX—Cheesequake SP; MONMOUTH—Prosperitown Recreation Area; MORRIS—Hopatcong SP; PASSAIC—Shepherd Lake in Ringwood SP; SALEM—Parvin SP; SUSSEX—Stokes SF, High Point SP, Swartswood SP and Wawayanda SP. **Oceanfront:** OCEAN—Barnegat Lighthouse SP and Island Beach SP. □

HIGH PESTICIDE LEVELS BRING FISHING BANS, 'DON'T EAT' WARNING

The ban on fishing in the North and South Branches of the Pennsauken Creek (Camden County) and Strawbridge Lake in Moorestown (Burlington County), imposed in September 1978, is still in force. The ban on fishing in Cooper River Lake (Camden County) and Stewart Lake (Gloucester County), imposed in December 1978, is still in force. Fishing is banned at these areas because continued fish sampling by the state departments of Health and Environmental Protection showed very high levels of the chlorinated pesticide chlordane in the edible portions of fish caught in these waters. The state agencies recommended that the entire Cooper River Watershed be posted with an advisory that the fish may be contaminated with chlordane and should not be eaten.

Fish sampling, which was halted when the waters were ice-covered, is again in progress. Until analysis of fish samples shows a drop in chlordane content to the point where there will be no potential health risk to consumers, the fishing ban and "don't eat" warning will remain in effect. (Chlordane is a persistent pesticide that can accumulate in living organisms and is a suspected cancer-causing substance.)

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

PROGRESS MADE TOWARDS PHASEOUT OF OCEAN DUMPING

A report released by DEP in late February shows that New Jersey is well on the way to meeting the December 31, 1981 federal deadline for ending ocean dumping of sewage sludge. The report, prepared by the department's Office of Sludge Management and Industrial Pretreatment, indicates that every district has tried to resolve this issue and reflects the phaseout plans of those which still dump in the Atlantic Ocean.

According to the report, 137 New Jersey municipal sewerage authorities were included in federal ocean dumping permits in 1976. Only 22 of these authorities were continuing the practice by February 1979 and nine had received extensive federal and state funds for the preparation of sludge management plans. DEP expects that all the New Jersey authorities will meet the federal deadline.

Environmental Protection Commissioner O'Hern noted that land-based sludge disposal alternative could cost as much as \$144 million in New Jersey and he called upon sewerage authorities to "explore less costly methods, particularly composting." The disposal of sludge compost will be permitted in landfills under a new policy of the department's Solid Waste Administration. Sludge is the residue of treated sewage and can be composted biologically to be an odor-free soil conditioner. (A sludge composting plant is already in operation in Camden. See NJO, Jan./Feb.)

STATE PARK/FOREST CAMPSITES POPULAR WITH VACATIONERS



Camping, once the province of youngsters and dedicated outdoorsmen, has become a favorite leisure-time activity of the young and not-so-young, singles, families and groups. The chance to get away from home and relax in natural surroundings while "roughing it"—with modern sanitary facilities nearby—has drawn thousands of people to New Jersey state park and forest campsites the past few years. There's plenty to do—swimming, boating, hiking, horseback riding and visiting a nearby historic site are some of the activities available. If camping in a state park/forest is on your agenda this season, some helpful information is given below.

CAMPING RESERVATION PROCEDURES:

First of all, *NO reservations for campsites are handled by DEP's Division of Parks and Forestry office in Trenton.* All arrangements should be made through the specific park or forest office in charge of the campsites desired. (A list of addresses is given at the end of this article.)

Cabins: During the summer (June 15 through Labor Day) cabins may be reserved for either one week (seven nights) or two weeks (14 nights)—NO part weeks, NO weekends only. The same time limits apply to Lean-to reservations.

Family campsites: Family campsites are designated by numbers. For the June 15 through Labor Day period, reservations may be made for either one week or two, as explained above. Exception: Campsites at Round Valley may be reserved throughout the year for one or more nights, not to exceed 14.

Advance payment: Payment in full, in addition to a \$3 Reservation Fee, MUST accompany the application for reservation. Money order or check (no cash) is to be made payable to Treasurer, State of New Jersey. If the facility is not available, the remittance will be returned promptly. The Reservation Fee is nonreturnable. A fee will be charged for cancellations. **NO TELEPHONE RESERVATIONS ACCEPTED.**

SMOG SUIT

The U.S. Court of Appeals in Washington, D.C. recently turned down a motion by New Jersey and six other Northeastern states* asking the federal Environmental Protection Agency (EPA) to delay imposition of stricter clean-air standards until a lawsuit against those standards is resolved (See these pages, NJO, March/April). Though the court dismissed the motion for an injunction at the February 9 hearing, the plaintiffs won a partial victory as the court ordered EPA to turn over to the states documents related to the new standards. These include the methodology used by the federal agency to arrive at the new ozone (smog) standards. The states had been trying without success to get the paperwork from EPA since the summer of 1978.

*New York, Rhode Island, Vermont, Connecticut, Maine and Massachusetts

For specific information about cabins, campsites, lean-tos, group camping and application forms for reservations at a particular campground, write directly to that park/forest area office, as follows:

Northern New Jersey Locations: Bull's Island section of Delaware and Raritan State Park (SP), R.D. #1, Box 4, Canal Rd., Belle Mead, 08502; High Point SP, R.R. #4, Box 287, Sussex 07461; Jenny Jump State Forest (SF), Box 150, Hope 07844; Round Valley SP, R.D. #1, Round Valley Rd., Lebanon 08833; Stephens section of Allamuchy Mountain SP, Hackettstown 07840; Stokes SF, R.R. #2, Box 260, Branchville 07826; Swartswood SP, R.R. #5, Box 548, Newton 07860; Voorhees SP, R.D. Glen Gardner 08826; and Worthington SF, c/o Jenny Jump SF, Box 150, Hope 07844.

Southern New Jersey Locations: Allaire SP, Box 220, Farmingdale 07727; Bass River SF, New Gretna 08824; Belleplain SF, P.O. Box 450, Woodbine 07747; Cheesequake SP, Matawan 07747; Lebanon SF, New Lisbon 08064; Parvin SP, R.D. #1, Elmer 08318; and Wharton SF, Batsto, R.D. #1, Hammonton 08037.

All state parks, forests, recreation areas and historic sites are administered by DEP's Division of Parks and Forestry. General camping information pamphlets are available by writing to the division at Box 1420, Trenton 08625. □

Storage tanks

ROLLINS GRANTED PERMITS

DEP in late January granted construction permits to Rollins Environmental Sciences to build four storage tanks at its chemical waste facility in Logan Township (Gloucester County). The facility was destroyed by an explosion in December 1977. The permits, issued by DEP's Bureau of Air Pollution Control, allow Rollins to build two 30,000-gallon tanks, one 20,000-gallon tank and one 9,000-gallon tank. Upon completion of construction, the site will be inspected for safety precautions before the necessary operation permit is issued to the firm. □



DONALD A. BROWN NAMED ENFORCEMENT COORDINATOR

Donald A. Brown, 34, of Island Heights, became director of DEP's new Office of Regulation and Enforcement on February 6. Brown, who has been with the department for six years, will be responsible for coordinating enforcement and rules development within the divisions of Water Resources and Environmental Quality and the Solid Waste Administration. Better coordination between environmental programs should allow DEP to more effectively deal with problems that have air, water and waste disposal impacts, and eventually make it possible to streamline the regulatory process. The Office of Regulation and Enforcement reports to Assistant Commissioner for Environmental Management Paul H. Arbesman.

Brown, former assistant director of DEP's Division of Water Resources, holds a B.S. degree in Commerce and Engineering Science from Drexel University, a Juris Doctor degree from Seton Hall University, and an M.A. degree in Philosophy and the Arts from the New School for Social Research. He has been a member of the New Jersey Bar since 1973. Before joining DEP, Brown was a field engineer with Leeds and Northrup Company in Union. □

FEDERAL AID AWARDED FOR CLEAN AIR PROGRAM

DEP has been awarded a \$3.4 million grant from the federal Environmental Protection Agency (EPA) to support the state's air pollution control program. The funds, which cover the period October 1, 1978 through September 30, 1979, will augment state financing.

New Jersey pioneered clean air efforts—it was the first state in the nation to pass a statewide air pollution control law (1954). Later, when the national clean air law was passed and implemented, federal funds became available to the states. Grant awards to New Jersey have increased steadily over the years from \$6,000 in 1959/60 to the \$3.4 million for 1978/79. The people of New Jersey are breathing cleaner air as a result of progress made possible by federal and state cooperation in funding, expertise and law enforcement. □



CHEMICAL FIRM INDICTED FOR DUMPING TOXICS INTO NEWARK SEWERS

Scientific Chemical Processing, Inc., a chemical processing company with plants in Newark and Carlstadt, and its president, account executive and operations manager were indicted on 34 counts by a State Grand Jury on February 13 on charges involving the illegal dumping of dangerous chemical pollutants directly into the Newark sewer system. The total amount of toxic and dangerous wastes disposed of, as charged in the indictment, exceeds 100,000 gallons. The indictment was handed up to Superior Court Judge George Y. Schoch, who allocated the case to Essex County for trial. □

RECYCLING WORKSHOP SLATED FOR JUNE 26

A one-day workshop/conference on the source separation and recycling of municipal solid waste will be held at the Ramada Inn in East Brunswick on Tuesday, June 26. The conference, cosponsored by the U.S. Environmental Protection Agency (EPA) with DEP and the state department of Energy, is open to the public. The registration fee of \$20 per person will cover coffee breaks, luncheon and workshop materials. For further information please contact Charlotte Tomaszewski of DEP's Solid Waste Administration by phone (609-292-9880) or by mail (P.O. Box CN027, Trenton 08625). □

PICRIC ACID PICKUP

A statewide program for the safe disposal of picric acid was carried out earlier this year by a joint effort of DEP, the State Police, the Alcohol, Tobacco and Firearm branch of the U.S. Treasury and the U.S. Navy. The potentially explosive picric acid was collected from schools, drug stores and other laboratory facilities, transported and destroyed by specially trained teams. (In its liquid form, picric acid is not considered dangerous. But when it ages, it crystallizes, taking on explosive qualities.) Anyone finding the material—picric acid also is known as picronic acid, carbazotic acid or nitrozantic acid—should contact DEP's Bureau of Hazardous and Chemical Wastes at 609-292-9877. □

PARKS/FORESTS RECREATION GUIDE FOR VACATION PLANNERS

The DEP brochure, "New Jersey Invites You to Enjoy Its—State Forests, Parks, Natural Areas, Marinas, Historic Sites, Wildlife Management Areas," can be a great help in planning your summer vacation. The brochure contains information about recreational opportunities at New Jersey's many state-owned facilities. The glove-compartment-size, foldout, color brochure offers descriptive text plus 5 charts and a map which shows the locations of the facilities. To obtain a copy, write to DEP, Division of Parks and Forestry, P.O. Box 1420, Trenton 08625, and request the "New Jersey Invites You" brochure. □

Continued from page 16 A

THE PINELANDS . . .

ban and state permits and advise applicants on the exemption process. The office is headed by Sean Reilly, DEP Pinelands Coordinator. DEP staff, plus staff from the state departments of Agriculture and Community Affairs, will be available for conferences at the Pinelands field office, 1433 Hooper Avenue at the corner of Indian Hill Road in Toms River. Phone: 201-341-3977.

Pinelands Development Review Board: An interim board which was responsible for making decisions on exemptions from the temporary ban until the Pinelands Planning Commission was seated and ready to function. The three-member review board, made up of representatives from the state departments of Agriculture, Community Affairs and DEP, was chaired by DEP Deputy Commissioner Betty Wilson. Decisions on exemption applications were based on recommendations of a staff headed by DEP Pinelands Coordinator Sean Reilly. Exemptions were granted for more than 700 houses during *March*.

Public Meetings: A series of public meetings has been held on the Pinelands Executive Order at various locations throughout the seven counties affected to explain the Order and the state permit process.

CONSERVATION AREAS OPEN TO THE PUBLIC

DEP has published a pamphlet listing over 14,000 acres of privately owned land available to the public for recreation or nature observation under the Green Acres Tax Exempt Program. (See these pages, NJO, Jan./Feb.) The pamphlet gives the site location, land owner/address, site name and activities permitted at each of the open space areas. In many cases, these areas are adjacent to state-owned recreation and conservation lands and complement the state's efforts to preserve public open space. Activities range from fully developed camp or nature education facilities to open space areas for hiking and nature observation. Copies of the pamphlet, "Green Acres Tax Exemption Program Area Listing," are available from: Administrator, Green Acres Program, DEP, P.O. Box 1390, Trenton 08625. □

DAY USE SCHEDULE: ROUND VALLEY AND SPRUCE RUN

A note to day trip planners: Both Round Valley and Spruce Run state parks (located only eight miles from each other in Hunterdon County) are open on Saturdays, Sundays, Tuesdays and Wednesdays. Spruce Run is closed for day use on Mondays. Round Valley is closed for day use on Thursdays and Fridays. □

FISHING LICENSE MUST BE WORN ON OUTER CLOTHING

DEP's Division of Fish, Game and Shellfisheries reminds anglers that their New Jersey fishing licenses must be prominently displayed on their outer clothing while fishing. □

Legal Action: The New Jersey Builders Association filed suit in the Appellate Division of Superior Court contending that Governor Byrne went beyond his constitutional powers when he imposed the building ban, and took actions that would normally be considered legislative responsibilities. The builders requested an injunction to prevent the governor from using his executive powers to stop construction in the Pinelands. *March 6*—The New Jersey Supreme Court took jurisdiction over the constitutionality question after a three-judge court of appeals panel, headed by Judge John Fritz, turned down the request for an injunction. The building association then asked the state Supreme Court to temporarily suspend the ban until the court considers the arguments on the question of whether the governor had the authority to impose it. The request was denied on *March 13*. The Supreme Court scheduled the oral arguments for *May 8*.

Pinelands Planning Commission: The 15-member Planning Commission, as required and outlined in both the 1978 National Park and Recreation Act and the Governor's Executive Order #71, was completed by *March 22*. The commission consists of:

Seven members appointed by the Governor—Franklin Parker of Mendham, chairman; Peter J. Burke, Jr. of Williamstown; Floyd West of Bass River Township; Gary Patterson of Woodland Township; Thomas Darlington of New Lisbon; Candace Ashmun of Bedminster; and B. Budd Chavoosian of Trenton.

Seven members appointed by the Boards of Freeholders in each of the seven affected counties—Robert Shinn of Hainsport (Burlington); Russell Clark of Hammonton (Atlantic); Donald H. Wagner of Woodbury (Gloucester); Hazel Gluck of Lakewood (Ocean); Anthony Catanoso of Wildwood (Cape May); Joan Batory of Haddonfield (Camden); and Patrick Fiorilli of Vineland (Cumberland).

One member appointed by U.S. Secretary of the Interior Cecil Andrus—David F. Hales, deputy assistant secretary of the Interior department for Fish, Wildlife and Parks.

Legislation: Measures to implement the Pinelands protection program have been introduced in the State Legislature.

Maps: A 2 ft. by 3 ft. Index map of the Pinelands, showing both the U.S. Geological Survey quadrangles (1:24,000) and the State Atlas sheets (1 in. = 1 mile) which cover the area, has been prepared by DEP's Bureau of Geology and Topography. The maps cost \$1 each. Make check or money order payable to "Treasurer, State of New Jersey" and mail to the bureau at Box 1390, Trenton 08625, or visit the office at 88 E. State Street (4th floor) on the downtown Trenton Commons Mall. □

IN THIS ISSUE

troduces the article.

You asked for it! *Guide to New Jersey's Saltwater Fishing* includes the "how, when, and where to catch fish and shellfish, where to launch or rent a boat, and where to find party and charter boats." The authors are Ray Townsend, Bill Figley, and Paul Hamer of DEP's Division of Fish, Game and Shellfisheries.

There are 21 species of snakes in New Jersey and two of them, the rattlesnake and the copperhead, are venomous. All are discussed and illustrated in *The Snakes of New Jersey* by Pete McLain. Author McLain says "no group of animals has been more maligned, persecuted, condemned, or misunderstood than snakes." The snake illustrations by Duane Raver were reprinted from *Virginia Wildlife*, February and April 1974.

Flyfisherman Allen G. Eastby is back

with *The Cricket Comes of Age*. Author "Doc" Eastby updates and adapts the famed Letort cricket of Pennsylvania for our New Jersey trout streams.

Biologists, birders, photographer/writers Sharon Ann Brady and Wade Wander take *A Closer Look at New Jersey's Wading Birds*. They look at and are concerned about Great Blue Herons, Little Blue Herons, Glossy Ibises, Cattle Egrets and others.

The Monmouth County Park system has a "living history" farm in Holmdel that is visited by almost 75,000 people each year. "They come for the guided tours, regular demonstrations, and an unusual children's summer program." So says author Lois Brunner Bastian in "Down on the Farm" in Monmouth County.

Hike *The Appalachian Trail in New Jersey* through the Kittatinny Mountains, Dunnfield Gorge, around Sunfish

Pond, and on through Stokes State Forest, over Rattlesnake Mountain, Sunrise Mountain, through High Point State Park and Wawayanda State Park and more. All these places are in New Jersey. Author Donald J. Fortunato tells us what to wear, what to pack, and what to read before attempting this journey.

Author Gary Letcher, Program Administrator, Bureau of Parks, writes about the *Young Adult Conservation Corps (YACC)* and how this program operates in New Jersey.

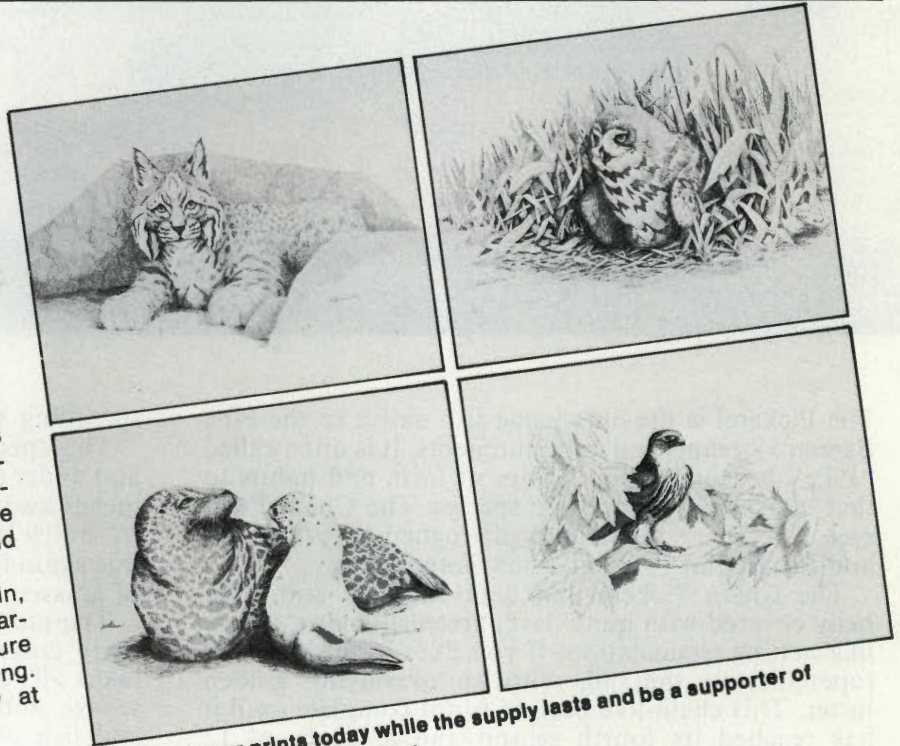
Our *Wildlife in New Jersey* series continues with *More Little Fishes of the Pine Barrens* by Warren E. Fox. This article is introduced by the illustration on the inside back cover by Carol Decker.

Young fisherman/author Bruce Litton, a frequent contributor, tells us about *Stream Fishing for Smallmouth* in New Jersey. □

ART FOR Wildlife's ART'S SAKE

New Jersey artist Robert Pierro, a frequent contributor of wildlife illustrations to *New Jersey Outdoors*, has graciously donated four of his pen and ink drawings to the Endangered and Nongame Species Project. Prints of these original drawings are now on sale, the profits to be used exclusively for endangered and nongame wildlife research.

The species featured include a merlin, a bobcat, a short-eared owl and a harbor seal with young. The prints measure 11" X 14" and are suitable for framing. They can be obtained individually at \$2.50 per print or as a set for \$8.00.



Purchase your prints today while the supply lasts and be a supporter of "ART FOR WILDLIFE'S SAKE."

Send check or money order to:

ENDANGERED AND NONGAME SPECIES PROJECT
P.O. BOX 1809
TRENTON, NEW JERSEY 08625

NAME:

ADDRESS:

CITY, STATE, ZIP:

..... merlin short-eared owl

..... bobcat harbor seal

..... complete set (at a savings of \$2.00!)

..... Total amount enclosed

Wildlife in / MORE LITTLE FISHES New Jersey / OF THE PINE BARRENS

BY WARREN E. FOX



Young
Redfin
Pickerel
with that
hungry look

PHOTOS BY THE AUTHOR

The Pickerel is the only game fish native to the Pine Barren's streams and impoundments. It is often called "Pike" because of similarities of form and habits to that cousin. There are two species: The Chain Pickerel, *Esox niger*, sometimes catalogued *E. reticulatus*, and the Redfin Pickerel, *Esox Americanus*.

The Chain Pickerel has a green body and paler belly covered with quite dark, greenish-brown chain-like netting (reticulations if you like) from the cheek (opercule) to the tail, with an overlaying golden luster. This chain-like pattern is not complete until it has reached its fourth season and a length of 12 inches. While young, the body background is usually a brownish green with brassy yellow vertical markings, vaguely rectangular in pattern and an interrupted median striping much like dots and dashes. The chain pattern begins to develop during the first winter on the tail base (caudal peduncle) and forebelly. Their coloration varies greatly during their early years, from nearly black with brilliant yellow markings when it is fearful and about to be eaten by big brother, to pale gray-green and pale yellow markings when content. The fins are transparent with the first rays of the dorsal and uppermost ray of the tail tinged orange. The first two rays of the ventrals, anal and lower tail lobe have a white opalescent glow

spreading slightly into the web.

This species lurks near stumps, logs, grassy patches and under lily pads, often in an eddy where only a few inches away the mainstream is rushing by, the better to snatch its prey as it passes by. In lakes and ponds it is again found near stumps and logs or near clumps of grasses, not hiding but just waiting motionless.

The mouth can be opened to twice the size of the body cross-section and meals are often so large it takes all day to get them down. Feeding is brutally savage and the attack lightning swift. Large meals and fish swallowed whole while still wiggling cause discomfort to the Pickerel and it adjusts by frequent body wagging, stretching and yawning.

This Pickerel has the potential to grow to a length in excess of 30 inches and nearly eight pounds but such a size is unknown in the Pine Barrens area because adequate numbers of food species are not available for that kind of growth. Those most often caught by fishermen are 10 to 12 inches long and weigh five to six pounds. An occasional 16 incher weighs about 12 pounds and a "wall hanger" of 19 inches weighs about 24 pounds and is six years old.

Their preferred diet is the little sunfishes, *Enneacanthus spp.* but the Ironcolor Shiner, *Notropis chalybaea*, the Mudminnow, *Umbra pygmaea*, Swamp

Darter, *Etheostoma fusiforme*, and smaller members of their own species are quite acceptable fare. In lesser numbers they feed on the American Eel, *Anguilla rostrata*, Creek Chubsuckers, *Erimyzon oblongus*, Yellow and Brown Bullheads, *Ictalurus natalis* and *I. nebulosus*, frogs and crayfish. When the hunger is great enough, tadpoles, turtles, insects and mice or anything that moves can be lunch. If there is no hunger, a little sunfish could nibble at its nose with impunity.

The second is the Redfin Pickerel, *Esox americanus*, a southern species reaching its northern limit in New Jersey and becoming increasingly plentiful. Its fins are not always red (an orange shade really) but the first rays of the dorsal fin and the upper and lower-most rays of the tail have an orange tinge. Otherwise all the fins may be clear. A specimen in full color in the spring is a beautiful sight to see.

By comparison with the Chain Pickerel, the Redfin is usually darker, more brown than green, varying to nearly black and again to buff. The reticulations are like elongated honeycomb cells, one above and one below a zig-zag median line, together forming a pattern of forward slanting, vertical bars. While the Chain Pickerel lurks near grasses the Redfin lurks in them with only nose and eyes protruding.

Both Pickerels have the remarkable ability to remain apparently motionless, as though they were nailed to an invisible stanchion anchored in the bottom, regardless of the water-flow about them. The transparent webs of their fans beat furiously, independently of each other, compensating to maintain the fixed stance. A beautiful deception.

And now about the little fishes who live out their lives only to be eaten the first time they make a mistake.

The Mudminnow, *Umbra pygmaea*, is probably the most plentiful and although it is a very dull brown in color to match the mud of the bottom sediments, it is very interesting in character.

When a Pickerel enters the scene the Mudminnow will dive into the mud and wiggle through the mud so it isn't where it was last seen. Lacking a mud bottom, it will enter plant growth that always has some parts laden with sediments and assumes a position that will imitate a plant part. It may stand on its head and look like a broken stem. It may butt its head against a stem and curve its body to imitate a leaf and it will

maintain its position until danger passes regardless of time. It survives summer drought when small streams go dry for weeks by burrowing into the mud and detritus and survives long winter freezing in streams with only several inches of water by the same technique. It will survive oxygen depletion during winter kills and natural stagnation in flood-plain pools but dies quickly of man's pollutants because of the fungi and kinds of bacteria attendant in such situations.

In young specimens and males, there is a nearly solid row of golden specks from the eye to the base of the tail and below this another very scattered row of about 10 specks. The eye is a golden ring with a large black pupil and orbit. A prominent black band across the base of the tail is a distinguishing characteristic.

We have a fish that hops, skips and jumps rather than swims in the conventional manner. It has either no swim bladder or a very small one so that it cannot float suspended in the water column as other fishes do. The Swamp Darter, *Etheostoma fusiforme*, can swim very well and very fast but comes to rest solidly on vegetation or on the bottom behind a big pebble in a riffle, using its fins as legs to stand on. Here it waits in relative ease until some tiny prey organism comes by, whereupon it darts out and grabs it. Hence "Darter".

This fish is usually less than two inches in length and one-seventh of that in depth. Its coloration is a neutral tan to greyish-brown, varying to blend with the sandy bottom. It has brown mottling forming an interrupted lateral stripe from the head to the tail. Characteristic of all Darters, the rather prominent eyes are set well forward and high on the head to allow it to peek over the stones or logs it hides behind, to see what is coming. It always holds its head high and can turn it from side to side like a lizard. The dorsal fin is divided into two fins, a first dorsal that is supported by spines and the soft dorsal aft having rays. The Swamp Darter is difficult to see because it blends so well with its background and is hard to catch because it is so small but it must be relatively plentiful because Pickerel stomach counts put it in third place behind (1) Mudminnows and (2) Sunfishes. Its range is limited to streams of the Atlantic Drainage, Massachusetts to Maryland.

Another Darter that shares our habitat is a variety of the widely distributed Johnny Darter, named the Tesselated Darter, *Etheostoma nigrum olmstedii*. It has

Second
season
Mud Minnow





Pirate Perch

more than 13 rays in the soft dorsal fin and the series of Ws that form the lateral stripe may appear or disappear according to the fish's need for camouflage. Often, when the lateral stripe disappears, seven to ten dusky vertical bars appear. A specimen, dominant in its community, displays a dark blotch in the forward portion of the spinous dorsal, between the first and second spines. This species attains three inches in length, has a rather chunky body with a head smallish in proportion and a depressed nape. It inhabits gravelly riffles that have a few clumps of grasses streaming in the current and it excavates a nest under a log or root that provides shelter and flow-thru water of moderate velocity. Such habitat provides high levels of dissolved oxygen which they require. As soon as pollutants enter their streams, bacteria that thrive on such materials increase and their metabolism diminishes the oxygen supply so the Darters have to leave or die. This then, is a loss of a major food source of the Pickerel.

A more strikingly colored fish is the Iron color Shiner, whose most prominent marking is a very dark stripe from snout to tail with a yellowish gold stripe immediately above it, both interrupted by the eye. The dorsal area is brown with rather indistinct cross bands the third of which runs through the first ray of the dorsal fin followed by four more to the tail. Along the ridge of the back it has a fine golden stripe from the nape to the hinder point of the dorsal fin. The lower half of the body is creamy white.

Since this fish feeds mostly on benthic organisms, tiny crustaceans and the like, it is susceptible to being host to the glochidiate larvae of the freshwater mussel, *Ellipto*, which are parasitic for about two weeks and appear as tiny black dots scattered over the body and fins of the shiner.

When a Pickerel approaches, the Shiner will dart into grasses and change its color pattern for camouflage, triggered by fear. The median black-brown stripe fades as does the brilliant contrast of

colors and the indistinct cross bands of the dorsal area intensify and extend to the white belly without affecting the gold stripe.

A hang-over from prehistoric ages is the Pirate Perch, *Aphredoderus sayanus*, the only specie to survive of a family otherwise known only from fossilized specimens. Of several dozen specimens I've been able to observe, only one had gumption enough to move about in search of food. Most simply lie on the bottom under dense, overhanging vegetation that partly hides them and waits for something to eat, like a tiny fish, an insect or Mayfly larvae, to pass so close that all they have to do is open and close their mouths. Such behavior leads me to believe they are very near the bottom of the intelligence totem pole and good reason for the family's extinction.

The one specimen I found that did hunt, had the interesting technique of apparently passing by a food item, then with reverse propulsion and a sideways lunge, obtained the item together with a mouthful of sand that almost choked it.

An oddity of this specie is the dislocation of the anus from the usual position in front of the anal fin to the throat region. I've never found a specimen over 3-3/4 inches long although Hubbs and Lagler, 1958, report four inches and Eddy, 1969, reports about five inches.

Much still needs to be studied about the little fishes of the Pine Barrens and their ecology. Water quality is of prime importance to their well being and production. Human activity with attendant soil erosion, excessive use of pesticides and fertilizers, toxic by-products of automotive use such as the oxides of chromium, cadmium, mercury, lead and copper are the prime degradants and each citizen of the State is going to have to be aware of their impact upon the land and the water.

The teachings of every religion stipulate that Man has dominion over the beasts of the land, the fowl of the air and the fish of the sea. Then, "be ye mindful of their care, lest they care not for thee." □

Continued from page 13

"Down on the Farm"

the animals' hind legs. And they find out that a mule is the offspring of a female horse and a male donkey—surprise to a generation more familiar with spacecraft and pocket calculators.

Each group has an opportunity to operate some of the old farm equipment such as the corn sheller and the silage cutter, which require old-fashioned elbow grease. They watch blacksmithing and harnessing demonstrations. In the corn crib they separate full ears of corn for the horses and mules from the partial ears fed to the hogs. Eagerly they climb the ladder to the dim, sweet-smelling hay mow to arrange sheaves of rye pitched up to them.

None of the chores is make-work. Everything the children do contributes to the operation of the farm. Seeming to realize this instinctively, they're enthusiastic about the program because it's a new experience, but also because their work is useful. As one child put it, "It makes me feel important."

On the final day their work is rewarded. There's an old-fashioned picnic with games, prizes, homemade ice cream, and a hayride. All week they talk about the picnic with anticipation.

The games are homespun—sack race, horseshoe pitching, tug-of-war, spitting watermelon seeds. As they play the timeless games, the children could be mistaken for their counterparts of 80 years ago were it not for the "Star Wars" and Fonze T-shirts they wear.

Chasing a greased pig (covered not with grease, but lanolin) excites them most. "You can't just catch it," Hendricks explains, "you've got to hold on to it for five Kalamazoos (the length of time it takes to say "one Kalamazoo, two Kalamazoos . . .")."

Youngsters who have never had to go much farther for ice cream than the family freezer or the Good Humor truck turn the crank of the ice cream maker willingly. They agree that the ice cream tastes especially good. Or is it their effort that

makes it seem so?

Meanwhile John Snyder is harnessing the mules to a big farm cart for the hayride. When the kids are seated on bales of hay, W. O. McGantlin takes the lines for the ride into the park. Since he retired from the fingerprint division of the New Jersey State Police, McGantlin has found a new yet old job. He works part-time at Longstreet Farm giving blacksmithing demonstrations, exercising the mules, and repairing equipment—skills he learned as a child on a farm in Englishtown.

Each youngster gets a turn at the lines under McGantlin's tutelage. "Settle down, you mules," he calls out affectionately as he advises a youngster to "tighten up on the right line if you want 'em to turn right."



Jeff Hendricks scoops out homemade ice cream

It takes a staff of four full-time and seasonal employees to run the farm and handle visitors. Frances Lee, animal science student, and Amy Codella, agriculture student, both at Cook College of Rutgers University, were the guides for the farm tours last summer. They work a semester or more at the farm earning credits toward a degree. In the summer, local high-school and college students are added to help with planting, caring for, and harvesting crops.

All farms change according to the season. At Longstreet there are regular demonstrations of farm activities of interest to adults as well

as children: use of draft animals; blacksmithing; canning and basketry; woodworking and quilting; processing of milk into pot cheese, butter, and ice cream. In season, wheat threshing, sheep shearing, ice-cutting, potato planting, spring plowing, and cider making are carried out.

Demonstrations are dependent upon weather conditions. The park maintains a 24-hour telephone message center (201-946-2669) which provides information on scheduling.

Fee for the "Down on the Farm" program is \$17. Children must be 10 years of age or older. Each session is limited to 10 children. Further information and registration blanks can be obtained from the Monmouth County Park System, P.O. Box 326, Lincroft, N.J. 07738 or by calling the number above. Registrants need not be county residents.

On the final day of her "Down on the Farm" session, ten-year-old Susan Subik shyly brought in a note she had written:

Dear Jeff, Bernadette and the Rest,
Thank you so much for the fun days at the farm. I enjoyed every minute of it. I liked feeding the animals and milking the cow. I might come back next year.

If the Longstreets could visit their farm today surely they'd be pleased.

Longstreet Farm is open from 9 to 5:30 daily Memorial Day to Labor Day and 10 to 4 the remainder of the year. Groups of 10 or more must make arrangements for tours in advance.

Holmdel Park in which the farm is located is open from 8 A.M. to dusk daily. There are picnic tables, charcoal grills, nature and hiking trails, playing fields, tennis courts, a fishing pond and shelter building with snack bar. There is no admission charge to either the park or farm. To reach Holmdel Park, take Exit 114 off the Garden State Parkway and turn right if southbound, turn left if northbound, to the first traffic light. Turn right at the light onto Crawford's Corner Road and proceed past Bell Laboratories. Longstreet Road is opposite the entrance to Holmdel High School. Turn left onto Longstreet Road and go three-quarters of a mile to the park entrance on the right. □

NEW JERSEY'S SALTWATER FISHING

TAUTOG OR BLACKFISH

An abundance of cover is a prerequisite for good tautog grounds. Cover can be provided by rocks, weeds, bulkheads, peat banks or wrecks. Most any point, on or off our coast, having suitable cover will produce tautogs. However, catching them is quite an art since one "must set the hook just before the fish is felt," according to the experts. Although rarely taken on lures, tautog take a variety of bait including green crabs, sand bugs, fiddler crabs, clams, mussels and bloodworms.

TUNA

School bluefin tuna have provided fair to good fishing in New Jersey waters. They are usually caught well offshore by trolling or chumming. Giant tuna weighing up to 800 pounds are occasionally caught in the "mud hole" during early fall.

WEAKFISH

Many weakfish are taken in our bays by chumming with live



WHERE, HOW AND WHEN TO CATCH THEM

SPECIES	WHERE			HOW			WHEN												
	SURF	BAYS	DEEP SEA	SHORE	BOAT	CHARTER	PARTY	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
BLOWFISH	•	•		•	•							•	•	•					
BLUEFISH	•	•	•	•	•	•						•	•	•	•	•	•		
BONITO			•	•	•	•								•	•	•			
COD			•	•	•	•		•	•	•								•	•
CROAKER		•	•	•	•	•								•	•	•			
DOLPHIN			•	•	•	•								•	•	•			
DRUM		•		•	•	•						•	•						
FALSE ALBACORE			•	•	•	•									•	•	•		
FLUKE	•	•	•	•	•	•						•	•	•	•				
KINGFISH		•	•	•	•	•								•	•				
LING			•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
MACKEREL	•	•	•	•	•	•					•	•							
MARLIN			•	•	•	•								•	•	•			
PORGY		•	•	•	•	•							•	•	•				
SEABASS		•	•	•	•	•						•	•	•	•				
SHARK	•	•	•	•	•	•							•	•	•	•			
SPOT		•	•	•	•	•							•	•	•				
STRIPED BASS	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
TAUTOG (Blackfish)	•	•	•	•	•	•					•	•	•	•	•	•	•		
TUNA			•	•	•	•								•	•				
WEAKFISH	•	•	•	•	•	•						•	•	•	•	•	•		
WHITING	•	•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
WHITE PERCH		•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
WINTER FLOUNDER		•	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•
BLUE CRAB		•		•	•	•						•	•	•	•	•	•	•	•
HARD CLAM		•		•	•	•		•	•	•	•	•	•	•	•	•	•	•	•

shrimp. This type of fishing is done in Barnegat Bay, on the east side from Cedar Creek Point southward, and also in Great Bay, Great Egg Harbor and Delaware Bay. Shedder crab, squid and spearing are also excellent baits, while bucktail jigs, shad darts and plugs are effective lures.

WHITE PERCH

Worms and shrimp are excellent baits for white perch. They can also be taken through the ice using shrimp, worms or small killies, particularly on the Mullica and Toms Rivers.

WHITING OR SILVER HAKE

Whiting, also known as "frostfish," are taken with clam, fish strips, squid and diamond jigs. This species is not strictly a bottom feeder and the bait must sometimes be fished well off the bottom.

WINTER FLOUNDER

Baits, including bloodworms, clam, shrimp and squid, should be fished on the bottom. Using a chum pot or a device to stir up the bottom will often improve your success. Since winter flounder have a very small mouth, special hooks are employed such as the "chestertown."



FISHING ACCESS FACILITIES

The following is an alphabetical list by town of the fishing access facilities available along the New Jersey coast and in Delaware Bay. The italicized portions describe the general facilities offered in each town, including bay piers, ocean piers, jetties, surf and bank fishing areas, and beach buggy use. Also listed are the specific sites of boat launching ramps, boat rentals and party and charter boat fishing.

Many of the fishing piers listed are commercially operated and charge a fee. Jetties are located all along the eastern seaboard; those listed are the more popular ones. With the exceptions of Island Beach State Park, Holgate and part of Brigantine, beach buggy use is seasonal. In most areas, a permit and a specialized vehicle are required.

Most of the boat launching ramps listed charge a fee. Launching at low tide may be difficult at a few of the ramps. A wide variety of fishing boats are available for rental, including rowboats, garveys and open skiffs, with or without motors. In most cases, rental boat use is restricted to bays and rivers.

For deep sea fishermen, New Jersey has over 100 party and 200 charter boats. Party or head boats handle large groups of fishermen who pay as they board. These boats are available for full-day, half-day and night fishing. Bait is provided; rods and tackle can be rented. Charter boats cater to small groups, usually six or less, who must reserve their trip in advance. All bait and tackle are provided by the boat.

ABSECON

Public Ramp, Faunce Landing Road

ASBURY PARK*Ocean Piers—Jetties—Surf***ATLANTIC CITY***Ocean Piers—Jetties—Surf—Bank*

Public Ramp, Boulevard Avenue

Public Ramp, Bader Field, Albany Avenue

Captain Starn's Basin, New Hampshire Avenue, Party

ATLANTIC HIGHLANDS*Bay Piers*

Atlantic Highlands Marina, First Street, Ramp, Party, Charter

Frank's Boats, First Avenue, Rental

AVALON

Public Ramp

BARNEGAT

Public Ramp, Ramp and Rental

East Bay Marina, East Bay Avenue, Ramp and Rental

Frank's Dockage, East Bay Avenue, Rental

Barnegat Boat Basin, East Bay Avenue, Rental

BARNEGAT LIGHT*Bay Piers—Jetties—Surf—Bank*

Public Ramp, Bay Avenue and 10th Street

Henry's Boat Rentals, 7th and Bay Avenues, Rental

Jimmy's Boat Rentals, 8th and Bay Avenues, Rental

Van's Boat Rentals, 9th Street, Rental

Myer's Yacht Basin, 6th Street, Party, Charter

Bayview Marina, Bay Avenue, Party, Charter

Fisherman's Marina, Bay Avenue, Party, Charter

Barnegat Light Yacht Basin, Bay Avenue, Party, Charter

BASS RIVER

Public Ramp

BAYVILLE

Harbor Light Marina, Sloop Creek Road, Ramp and Rental

Moby Dick's Landing, Berkley Shores, Rental

Downes Fishing Camp, Brennan

Concourse, Ramp and Rental

Trixies, Brennan Concourse, Ramp

Whitey's Boat, Butler Boulevard, Rental

Cedar Creek Marina, Harbor Inn Road, Ramp

BEACH HAVEN*Surf—Beach Buggy*

Public Ramp

Sportsman's Dock, 20th Street and Bay Avenue, Rental

Polly's Rowboats, Dock Road and Center Street, Rental

George's Dock, Center Street, Rental

Schoenberg's Dock, Engleside Avenue, Party

BELMAR*Bay Piers—Ocean Piers—Jetties—Surf—**Bank*

Public Ramp, Highway 35

Belmar Marine Basin, Highway 35, Rental, Party, Charter

BRANT BEACH*Surf—Beach Buggy*

Sickinger's Marina, 4114 Boulevard, Ramp

BRICKTOWN

Sportsman's Island, Riverside Drive, Ramp

Green Cove Marine, Division Street, Ramp

Meadow's Marina, Ridge Road, Ramp

BRIELLE*Bank*

McCarthy's Marina, Route 70, Ramp

Brielle Anchorage, Green Avenue, Charter

Hoffman's Anchorage, Green Avenue, Charter

Brielle Marine Basin, Green Avenue, Charter

Captain Sam Good's Place, Green Avenue, Charter

Cline's Anchorage, Union Lane, Charter

Brielle Yacht Basin, Ashley Avenue, Charter

Bogan's Brielle Basin, Ashley Avenue, Party, Charter

BRIGANTINE*Ocean Piers—Bay Piers—Jetties—Surf—**Bank—Beach Buggy*

Young's Dock, East Shore Drive, Ramp and Rental

George's Dock, East Shore Drive, Rental

Bayshore Marine, Rental

Jim's Boats, East Shore Drive, Rental

Viking Marina, West Shore Drive, Rental

Arby's Boat Dock, 13th Street, Rental

CAPE MAY*Jetties—Surf—Bank*

Pharo's Marina, Cape Island Creek, Ramp

Bree-zee-lee Marina, Ocean Drive, Ramp

McDuell's Marina, Ocean Drive, Ramp

Hinch's Marina, Ocean Drive, Ramp

Utsch's Marina, Harbor, Charter

Roseman's Boat Yard, Schellinger's

Landing, Charter

Cape Island Marina West, Route 9, Party, Charter

CLIFFWOOD

Wagner's Ramp, Amboy Road

FORKED RIVER

Captain Richie's, East Lacey Road, Ramp and Rental

Forked River Marine Mart, Marine Plaza, Ramp and Rental

The Houseboat, Lacey Road, Rental

Bara Marina, Lakeside Drive, Ramp

Forked River State Marina, Marine Plaza, Party

Captain's Inn Dock, Lacey Road, Charter

FORTESCUE

The Captain's Assoc., Party, Charter

Double "A" Marina, Ramp

GALLOWAY

Oyster Creek, Moss Mill Road, Ramp, Charter

Motts Creek Dock, Motts Creek Road, Ramp

Scott's Landing, Scott's Landing Road, Ramp

HANCOCK'S BRIDGE

Alpha Yacht Club, Ramp

HARVEY CEDARS

Houghton's Rowboats, 83rd Street and Bay, Rental

HEISLERVILLE

Matt's Landing, Ramp

Mud Flat Marina, Ramp

HIGHLANDS

Johnny's Landing, Shrewsbury Avenue, Rental

Henjo Dock, Shrewsbury Avenue, Rental

Jim's Boats, Rental

Kesgal Snug Harbor, Washington Avenue, Charter

Highlands Marina, Bay Avenue, Charter

Bahr's Pier Seven, Party Boats

ISLAND BEACH STATE PARK*Jetties—Surf—Beach Buggy***ISLAND HEIGHTS**

Island Heights Marina, Ramp

Public Ramp

KEYPORT*Bay Piers*

Public Ramp

Snug Harbor Marina, Route 35, Ramp

Olsen Boat Works, Front Street, Ramp

LAVALLETT*Beach Buggy*

Campbell's Boat Basin, Bay Boulevard, Rental

Ocean Beach Marina, New Brunswick Avenue, Ramp

LINWOOD

Public Ramp, Seaview Avenue

LONG BRANCH*Ocean Piers—Jetties—Surf—Bank***MANAHAWKIN**

Causeway Rentals, Ramp and Rental

Margo's Marina, Causeway, Ramp

Butch's Boats, First Street, Rental

MANASQAN*Jetties—Surf—Bank*

Seaway Marina, Brielle Road, Ramp

Christiano Boat Basin, East Main Street, Ramp

MANTOLOKING

Traders Cove Marina, Ramp

Pleasure Cove, Inc., Mantoloking Road, Rental

Winter Yacht Basin, Route 528, Ramp and Rental

MARMORA

Clayton's Boat Yard, 34th Street, Ramp

All Seasons' Marina, 34th Street, Ramp

MATTS LANDING

Driftwood Marina, Maurice River Road, Ramp

Bailey's Marina, River Road, Rental

Anchor Marina, River Road, Party

MAYS LANDING

Riverbend Marina, Mays Landing Road, Ramp

Spoony's Marina, River Drive, Ramp

METEDECONK

Stark's Landing, Princeton and Beaverdam Roads, Ramp

MIDDLETOWN

River Plaza Marina, Ramp and Rental

MILLVILLE

Public Ramp, Fowser Road

Menantico Creek, Ramp

Manamuskin Creek, Ramp

Dennis Creek, Ramp

Dividing Creek, Ramp

Bidwell's Ditch, Ramp

Holiday Beach, Rental

NEPTUNE

Shark River Hills Marina, Riverside Drive, Ramp

McGreevey's Realty, Trenton Avenue, Ramp



NEWPORT

Hollywood Beach, Hollywood Beach Road, Rental
 Beaver Dam Boat Rentals, Beaver Dam Road, Rental

NORMANDY BEACH

Normandy Beach Marina, Route 35, Ramp
 Chadwick Marina, Strickland Boulevard, Ramp and Rental

NORTHFIELD

Hackney's Boat Yard, Margate Bridge Road, Ramp
 Smith's Marina, Margate Bridge Road, Ramp and Rental

OCEAN CITY

Ocean Piers—Bank—Surf—Beach Buggy
 Corson's Inlet, Ocean Drive, Ramp
 Dry Dock Marina, 7th Street and Bay, Rental
 Boyer's Marina, Bay Avenue, Rental
 Public Ramp
 Harbor House Marina, 2nd Street and Bay Avenue, Rental
 Pier 34, 34th Street, Ramp

OCEANGATE

Good Luck Point, Ramp and Rental
 Norm's Marina, Bayview Avenue, Ramp
 Becker's Marina, Bayview Avenue, Ramp and Rental
 Cerreta's Marina, Chelsea Avenue, Ramp

ORTLEY BEACH

Yachtman's Anchorage, 6th Avenue and Bay Boulevard, Ramp and Rental

PARKERTOWN

Public Ramp, Brook Street

PLEASANTVILLE

Public Ramp, Bayview Avenue

POINT PLEASANT

Party Boats, Channel Drive
 Pt. Pleasant Marine Basin, Charters
 Broadway Basin, Broadway Bridge, Party
 Ken's Landing, Broadway Avenue, Party
 Inlet Basin, Party, Charter

PORT MONMOUTH

Port Monmouth Marina, Port Monmouth Road, Ramp

PORT REPUBLIC

Chestnut Neck Boat Yard, Route 9, Ramp and Rental

RED BANK

Sealand Boat Livery, Front Street, Rental

RUMSON

Municipal Ramp, Avenue of Two Rivers
 Pavel's Boats, Washington Avenue, Rental

SALEM

Marlboro Marina, Inc., Ramp and Rental

SCULLVILLE

Jeffers Avenue Marina, Jeffers Landing Road, Ramp

SEA BRIGHT

Jetties—Surf—Bank—Beach Buggy
 Trade Wind Marina, Ocean Avenue, Ramp
 Chris Landing, Ocean Avenue, Ramp
 Surfside Marina, Ocean Avenue, Ramp
 The Quay, Ocean Avenue, Charter Boats
 Mihm's Nauvoo Marina, Ocean Avenue, Ramp

SEA ISLE CITY

Beach Buggy
 Public Ramp
 Party Boat Marina, 44th Street, Party

SEASIDE

Wheelhouse Boats, Bayview and 24th Streets, Ramp and Rental

SEASIDE HEIGHTS

Ocean Piers—Bay Piers—Beach Buggy
 Public Ramp, Bayview Avenue
 Beacon Light Boats, Dupont and BayFront, Rental
 Bayside Marina, Bayview Terrace, Ramp and Rental

SEASIDE PARK

Public Ramp, 13th Street and Bayview Avenue
 Sunnyside Boats, M Street and Bay Avenue, Rental
 Red Top Boats, 20th Street, Ramp

SHIP BOTTOM

Beach Buggy
 Public Ramp, Route 72

SOMERS POINT

Bank
 Smith's Pier, Bay Avenue, Ramp and Rental
 Corlets Marina, Bay Avenue, Rental
 Gateway Marina, Route 559, Rental
 Kennedy's Park, Ramp

STONE HARBOR

Surf—Bank—Beach Buggy
 Public Ramp

SURF CITY

Jetties—Surf—Beach Buggy

TOMS RIVER

East Dover Marina, Fisher Boulevard, Ramp
 Bay Bridge Marina, Route 37, Rental
 Cedarmar Marina, Ramp
 Shelter Cove Marina, Shelter Cove, Ramp

TUCKAHOE

Tuckahoe Wildlife Management Area, Route 9, Ramp

TUCKERTON

Bank
 Captain Speck's, Parker Avenue and Green Street, Ramp and Rental
 Tuckerton Marina, Green Street, Ramp
 Ray's Boat Rentals, S. Green Street, Rental
 Cedar Harbor Marina, Great Bay Boulevard, Ramp
 Ace's Place, 115 Parker Avenue, Rental
 Skinner's Marina, Bartlett Avenue, Rental
 Rand's Marina, Great Bay Boulevard, Ramp and Rental
 Great Bay Marina, Radio Road, Ramp
 Captain Mike's, Great Bay Boulevard, Ramp and Rental
 Mystic Islands Marina, Mystic Island, Ramp

VENTNOR

Ocean Piers
 Public Ramp

WARETOWN

Holiday Harbor, Lighthouse Drive, Ramp
 Waretown Fishing Station, Bay Street, Rental
 Sanborn's Anchorage, Baltic Avenue, Ramp
 Carl's Boat Service, Bay Avenue, Rental
 Mac's Dock, Oregon Avenue, Ramp and Rental
 Liberty Harbor Marina, Washington Avenue, Rental

WEST CREEK

Public Ramp, Bay Avenue
 Burton's Boats, Landing Road, Rental

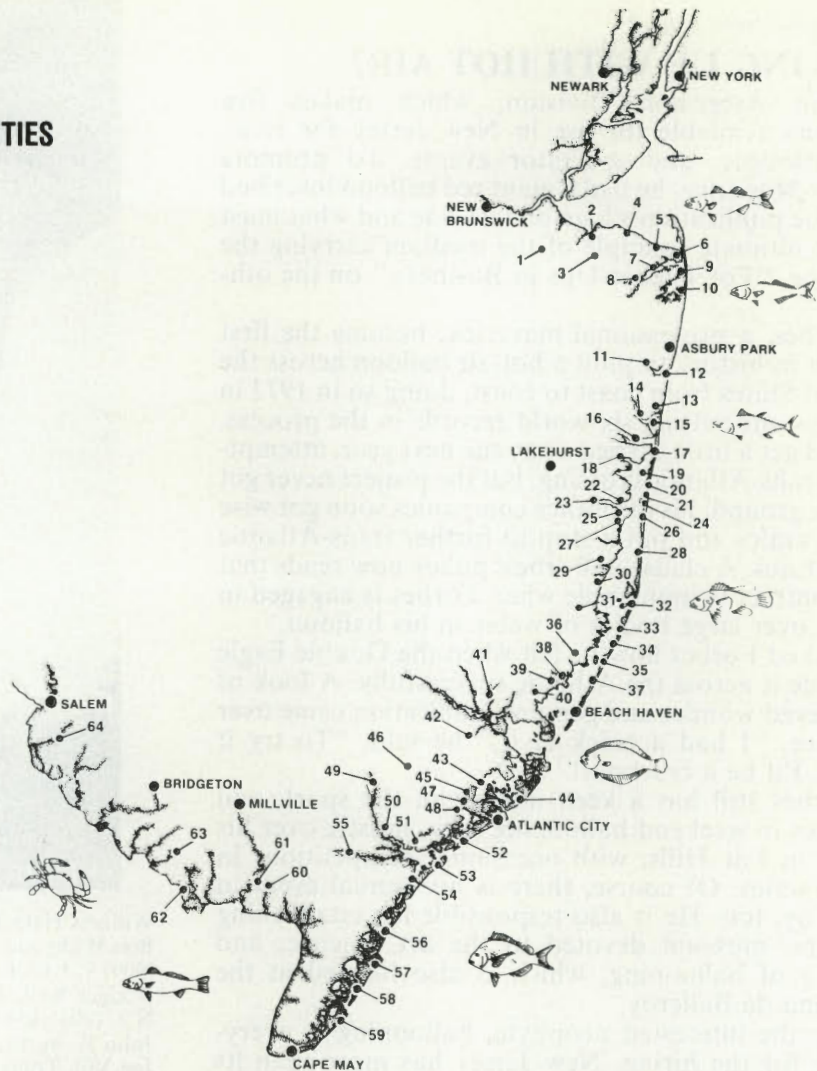
WILDWOOD

Surf—Bank—Bay Piers
 Public Ramp, 5th Street
 Dad's Place, Hereford Inlet Br., Rental
 Otten's Harbor, Davis Avenue, Party
 Wildwood Yacht Basin, Rio Grande Avenue, Charter



NEW JERSEY'S SALTWATER FISHING FACILITIES

- | | |
|-----------------------|---------------------|
| 43. Absecon | 16. Metedeconk |
| 5. Atlantic Highlands | 3. Middletown |
| 57. Avalon | 11. Neptune |
| 31. Barnegat | 63. Newport |
| 32. Barnegat Light | 19. Normandy Beach |
| 41. Bass River | 47. Northfield |
| 27. Bayville | 53. Ocean City |
| 12. Belmar | 25. Oceangate |
| 37. Brant Beach | 21. Ortley Beach |
| 18. Bricktown | 39. Parkertown |
| 14. Brielle | 45. Pleasantville |
| 44. Brigantine | 15. Point Pleasant |
| 1. Cliffwood | 4. Port Monmouth |
| 29. Forked River | 42. Port Republic |
| 62. Fortescue | 8. Red Bank |
| 46. Galloway | 7. Rumson |
| 64. Hancock's Bridge | 50. Scullville |
| 33. Harvey Cedars | 9. Sea Bright |
| 60. Heislerville | 56. Sea Isle City |
| 6. Highlands | 24. Seaside Heights |
| 28. Island Beach | 26. Seaside Park |
| 22. Island Heights | 35. Ship Bottom |
| 2. Keyport | 51. Somers Point |
| 20. Lavellette | 58. Stone Harbor |
| 48. Linwood | 34. Surf City |
| 10. Long Branch | 23. Toms River |
| 36. Manahawkin | 55. Tuckahoe |
| 13. Manasquan | 40. Tuckerton |
| 17. Mantoloking | 52. Ventnor |
| 54. Marmora | 30. Waretown |
| 61. Matts Landing | 38. West Creek |
| 49. Mays Landing | 59. Wildwood |



Continued from page 7

SNAKES OF NEW JERSEY

its belly, and by a "break" in the collar.

EASTERN WORM SNAKE (*Carphophis amoenus amoenus*). A small snake only 7-1/2 to 12 inches long, the eastern worm snake closely resembles an earthworm but has scales; it is colored plain brown with a pink belly and a pink tongue. The head is generally pointed. The worm snake is almost always found in moist soil under stones, boards, and rotten logs. Its food is mostly earthworms and soft-bodied insects. One to five eggs are laid in June. The worm snake is distributed statewide except in the developed metropolitan areas, but is seldom seen except by those nature students who seek it out and recognize it.

NORTHERN BLACK RACER (*Coluber constrictor constrictor*). This snake, simply called "black snake" by the casual observer, occurs throughout the state in unpopulated areas, avoiding the metropolitan regions. It is shiny black above and gunmetal gray below, with an occasional white area on the chin and throat. A large snake of up to 72 inches, the black racer may travel with its head slightly raised and is able to climb trees. It feeds on frogs, lizards, birds, rodents, and insects, and is found primarily in fields and open woodlands. Eggs are laid in June or July and hatch in late August. Hibernation is in large groups of 30 to 40 snakes. The black racer is a rather aggressive snake which frequently bites when handled.

ROUGH GREEN SNAKE (*Opheodrys aestivus*). A beautiful snake which frequently climbs bushes and small trees, the rough green

snake is frequently called "vine snake" because of its slender body which is light green above and plain white, yellow, or pale greenish below. Its scales are "keeled"—that is, each one has a central longitudinal ridge. Feeding primarily on insects, it is usually found in dense growth especially along streams and lakes. Three to 13 eggs are laid in July and August. This snake is difficult to locate, but once observed, it is long remembered for its beauty. The rough green snake occurs primarily in southern New Jersey from Monmouth and Mercer counties southward and is considered common.

EASTERN SMOOTH GREEN SNAKE (*Opheodrys vernalis vernalis*). The eastern smooth green snake is similar to the rough green snake except that its scales are smooth rather than keeled. It is known to occur only in the extreme northwestern counties of Sussex and Warren, where its preferred habitat includes low bushes, open woods, and meadows. Largely terrestrial and not displaying the climbing ability of the rough green snake, the eastern smooth green snake consumes mostly spiders and insects. The eggs are laid in July. This snake is considered to be common within its limited range.

CORN SNAKE (*Elaphe guttata guttata*). The corn snake is a red-and-orange snake locally called the "red rat snake." The color pattern is widely variable, ranging from browns, to oranges, to grays, marked with 39 to 45 dark patches on a background of light to dark gray; the belly is usually white with a checkerboard pattern of black. Its length ranges from 9 to 60 inches. This snake climbs well, but is most often found on the ground in the Pine Barrens. In New Jersey the corn snake is restricted to the pinelands of Ocean, Burlington, Atlantic, and Cumberland counties. Rodents comprise most of its food. Five to

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Continued from page 3

FILLING UP WITH HOT AIR?

Balloon Ascension Division, which makes five balloons available for use in New Jersey for civic, philanthropic, and spectator events. To promote *Forbes Magazine*, he had a giant red balloon inscribed with the publication's logo on one side and what must be the ultimate example of the medium carrying the message, "For Higher-Ups in Business," on the other.

Forbes, a professional maverick, became the first person in history to pilot a hot-air balloon across the United States from coast to coast, doing so in 1973 in 34 days and setting six world records in the process. He did get a little carried away the next year, attempting a trans-Atlantic crossing, but the project never got off the ground; his insurance companies soon got wise to his antics and put a stop to further trans-Atlantic adventures. A clause in Forbes' policy now reads that the contract is inoperable when Forbes is engaged in flying over large bodies of water in his balloon.

I asked Forbes how he felt when the Double Eagle II made it across the Atlantic successfully. A look of wide-eyed wonder and genuine admiration came over his face. "I had a crack at it," he said. "To try it again, I'd be a crackpot!"

Forbes still has a keen interest in the sport, and engages in weekend ballooning now, mostly over his home in Far Hills, with occasional competitions in other states. Of course, there is his annual event in Balleroy, too. He is also responsible for establishing the first museum devoted to the art, science, and history of ballooning, which is also located at the Chateau de Balleroy.

For the interested neophyte, ballooning is everywhere for the hiring. New Jersey has more than its share of able aeronauts who, for a price, will take you up and over the rainbow. If you think you might like to give it a whirl, here are some of the pilots you might contact; all the names listed are those of commercial pilots fully licensed by the Federal Aviation Administration. I recently went for another ride with one of the pilots, Vicki Harrison (Harrisonaire, Ringoes, N.J. (609) 466-3389).

Harrison, at 34, is not only the lone female professional touring balloonist in the country, but is 5'1" and 101 pounds to boot, with more muscle than you'd guess by looking at her. She and husband Terry fly balloons out of Ringoes, N.J. Terry and Vicki's own firm does promotions for various interests and also works with Bob Waligunda. Both Vicki and Terry teach and give rides, and are also available for special events, including corporate affairs, company picnics, incentive awards, and flights. All flights end with the traditional champagne toast and chase vehicles are provided.

Other New Jersey balloon pilots include:

Gary M. Lewis, Warren, N.J.
Harden L. Crawford, Hamilton Farm, Gladstone, N.J. (201) 234-0126
Windrifters, Inc., Dave Lowe, 2 Wycombe Way, Princeton Jct., N.J. (609) 799-3685
Allen Emer, 7 Broadway, Ocean Grove, N.J. (201) 775-2697



Up, Up, and Away

William Harkins, 25 Utica Road, Edison, N.J. (201) 549-8481
Bob Waligunda, Sky Promotions, 20 Nassau St., Princeton, N.J. (609) 921-6636
Rodger Kell, Have Balloon—Will Travel, Rt. 12, Phillipsburg, N.J. (201) 454-1991
John E. Burns, Cinnaminson, N.J.
Joe Vill, Toms River, N.J.

For the really adventuresome spirit who may want to pilot his or her own balloon someday, some facts on flying:

The FAA certifies pilots for ballooning. A Private Pilot Hot-Air Certificate requires 10 hours in free balloons, at least 6 of which must be with an instructor. The applicant must also pass a written test and be familiar with navigation charts, weather conditions, and operating procedures of hot-air balloons.

Training costs vary somewhat, but many instructors offer a fixed price for a license; private licenses cost about \$1000.

Balloons start at \$6500 for a basic model, but more complex or ornate envelope patterns can involve higher costs. Other equipment, such as an inflation fan, extra tanks, and precision instruments can add another \$100 to the bill. The average balloon burns 10 gallons of propane an hour, and propane sells for about 50¢ a gallon.

One other thing about ballooning—when you go up for an hour, you transcend the immediate world and leave every care you had on earth. For the time you are airborne, sunrises and sunsets can be viewed from every conceivable angle, treetops can be grazed for the asking, and you can play out your most childlike fantasies. □

Cricket

To tie a cricket nymph, the underwing should be left off and the overwing kept as sparse as possible.

Using the same basic construction technique, a number of other patterns can be tied. One of the most effective is a simulacrum of the Snowy Tree Cricket (*Oecanthus fultoni*). Usually most numerous in late summer, they congregate in and near stands of maple and oak and around fruit trees. Feeding indiscriminately on foliage, small insects, ripening fruit, and virtually anything else that comes their way, these rapacious little crickets (averaging between one-half and three-quarters of an inch from head to tip of wing) often blunder into streams and lakes, especially at dusk. They are distinguished by their pale, creamy-olive, at times almost white, coloration. The pattern imitating these insects is one of the most useful cricket artificials since it can be fished with excellent results 24 hours a day, and is of particular value to the night fisherman. It is also highly effective on bass and panfish.

- Hook: Mustad #94833, sizes 14 through 8
- Thread: Primrose or cream, 6/0, pre-waxed
- Body: Cream-olive polypropylene dubbing (2 parts cream, 1 part light olive)
- Underwing: Pale wing quill segment (use either white dyed mallard wing quill or very pale brown mottled cinnamon turkey wing)
- Overwing: Deer body hair dyed pale olive

The katydids, whose nightly monologues are familiar to everyone, are close cousins of the crickets and counterparts of them are often telling.

The Bush Katydid (*Scudderia furcata*) is found throughout North America. Large, dark green insects (one to one and three-fourths of an inch from head to tip of wing), they make their homes in deciduous trees. This pattern is also a first-rate replica of some species of grasshoppers and so it is generally a good choice on an unfamiliar river.

- Hook: Mustad #94833, sizes 10 through 6

- Thread: Olive, 6/0, prewaxed
- Body: Green or Kelly Green polypropylene dubbing
- Underwing: Light cinnamon turkey wing quill segment
- Overwing: Deer body hair dyed dark greenish-olive

Tying these flies is a simple matter and even the novice should have no trouble doing a creditable job. The body material is dubbed on, rather thick and heavy. Then a wing quill segment is tied in parallel to the body. The deer hair is then bound to the shank and the butts are flared and trimmed to form a head. On crickets, the heads should be smaller and more squarish than on a grasshopper pattern. A light coat of clear, flexible cement can be applied to the head for added strength. Flies tied in this fashion meet the most stringent standards of any angler: They are easy to tie, durable beyond belief, and they certainly look as if they can do the job.

Patterns that appeal to the angler, and to the trout, are not enough. It is also necessary to know when to fish these flies, where to fish them, and how they should be presented. Finding answers to these questions was the third and final step in the cricket passage through adolescence.

The best time to fish crickets is, of course, when the populations of these insects have reached their greatest numbers and crickets are finding their way into the streams in sufficient numbers to accustom fish to feeding on them. Although the nymphs or immature crickets are in evidence as early as April (depending on weather and geography), it is not until the adults are present that these patterns are at their best. It is easy to tell when it is cricket time—all you have to do is hear the first "chirrupings" and "katydidings" to know that a cricket would be a good choice to knot on the end of a leader.

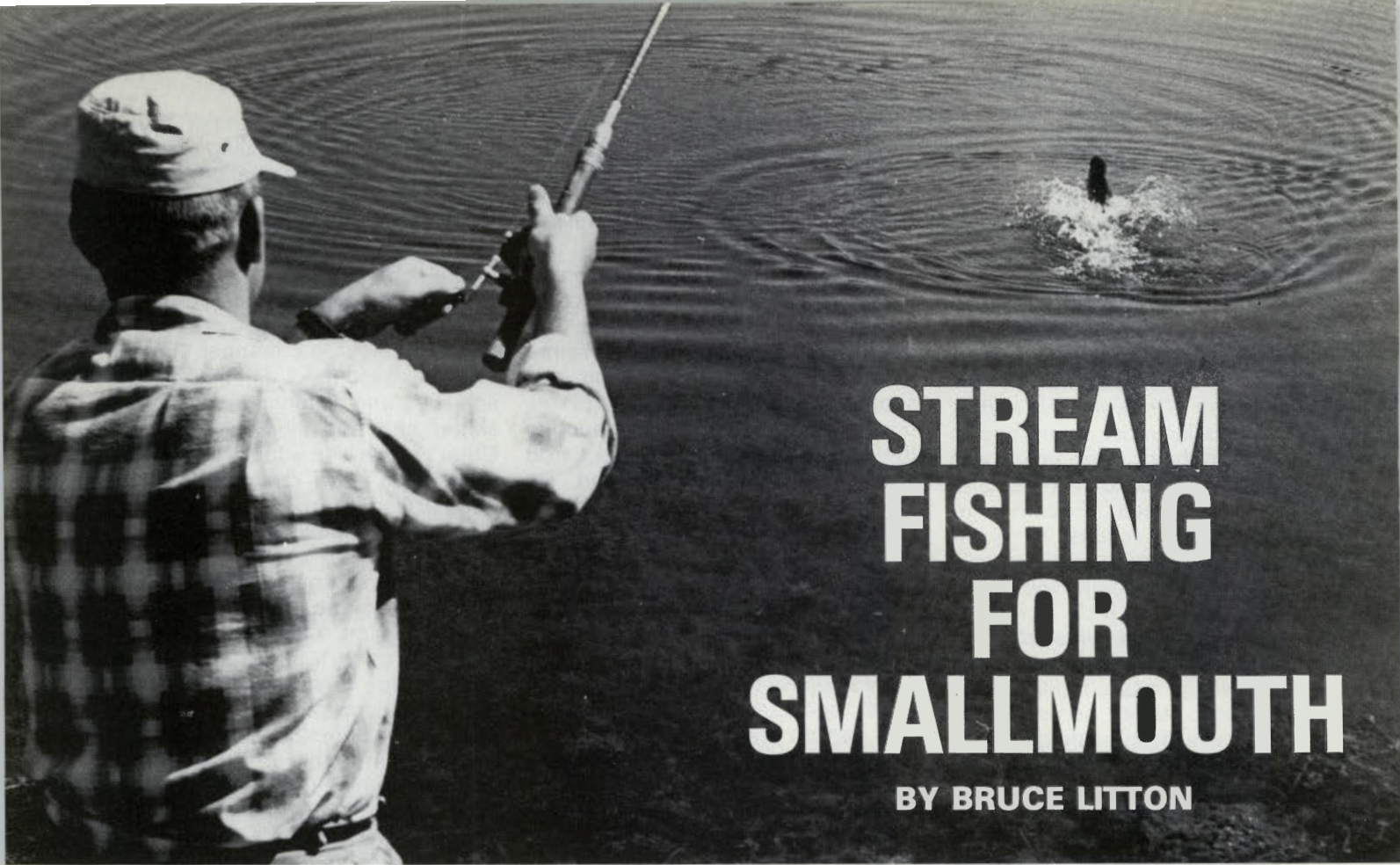
There is no single ideal locale for fishing sham crickets, but they come into their own on mountain rivers, creeks, and small ponds. The woods, small meadows, orchards, and farms bordering these waters harbor hosts of crickets and katydids, some of which are always chancing into the water. On these streams, the new patterns are many times more potent than the "traditional" Letort tie. Indeed, of all the

flies a late-season angler could choose whether pursuing trout or bass, a cricket imitation should always be one of the first to come to mind since the naturals are so numerous and are so frequently a part of the fish's diet.

Many of the authorities on fishing terrestrials advocate presenting bogus crickets in a manner that can best be described as "sloppy and splashy" and fishing them so they skitter and hop along the surface. Other writers with equally impressive credentials have described how a dead drift, drag free approach works best. It is quite true that when crickets land in a stream they resemble nothing more closely than a ditching airplane with all the noise and confusion a crash landing entails. Yet once trapped in the flow, crickets do not struggle with the intensity of grasshoppers. They appear more content to float along until washed onto shore, drowned, or gobbled up by a trout. It is advisable to take this into account when fishing with a cricket imitation. The cast can and should land the fly with a distinct "plop," but once the cricket is in the stream, it is best to restrain all impulses to try to manipulate it. If the current should cause drag, there is no need for panic, however, as some movement on the part of the insect is to be expected. But it is generally far better to allow the cricket to float naturally.

Patterns designed to imitate the crickets are among the best flies in any collection. Although habit and angling tradition dictate the use of diminutive flies and ultra-fine leaders for trout fishing and deer hair bugs and streamers for bass, experience, observation, and common sense point in an opposite direction. Even under the demanding conditions of summer, when most anglers have put aside their fly rods and taken up lawn mowers, the cricket has proven its worth time and again.

With the emergence of these patterns the Letort Cricket has undergone its final metamorphosis. What began as a fly of limited application, truly appropriate to only a handful of streams, has become a family of flies, each one a proven fish taker on all types of streams and lakes. The cricket has indeed come of age. □



STREAM FISHING FOR SMALLMOUTH

BY BRUCE LITTON

Photos by Harry Grosch

Among all the bass fishermen in, New Jersey, it is rather rare to cross lines with one who fishes the smallmouth bass regularly. Most fishermen are oblivious to the great smallmouth angling such as enjoyed by a small group of North Jersey stream anglers. At approximately the same time the springtime trout fishermen leave the streams, the smallmouth bass become active and provide knowledgeable stream anglers with fine, solitary sport.

For several years before I began gamefishing seriously, I fished a local stream for trout and whatever else came my way. When a bass was caught, I would treat my catch with a special pride because back then such a fish was not easy for me to come by. As far as I was concerned, there were very few bass in the stream and any bass I would catch I'd try to stretch out to nine inches so I could take him home.

Then one June day several years ago, when I was becoming adept at catching largemouth from ponds, I decided to give the old stream a try for bass. After swimming a Mister Twister grub through the pools and riffles, I was amazed at the number of fine smallmouth I had caught—and the number I had lost!

Although the bass weren't big (the largest weighed about a pound and most measured close to 10 inches in length), their strong, bulldogging dives and high leaps made up for it. I estimate that these stream bass fight nearly twice as hard as their largemouth cousins.

Most of the rock-based trout streams found from the

center of the state north are literally loaded with smallmouth bass. Any slow stretch, pool, or bend with substantial depth and cover has the potential of holding them.

You can expect good smallmouth fishing between May and mid-November, with the action peaking in June and again in October. July, August, and September are months of low water and spooky, sluggish bass. After October the water cools rapidly and the fishing deteriorates as water temperatures fall below 55 degrees.

Live bait fills a very important role in stream smallmouth fishing because the bass are generally very easily spooked and often unwilling to strike a lure. This is especially true during the summertime when the water levels are low and in fall when the water is cold.

I consider lively minnows as the best all around smallmouth bait, although hellgramites, night crawlers, and crawfish are all good choices. I think I would use hellgramites more often if they were available. A big problem with using night crawlers as bait are the bait-stealing sunfish, and as for crawfish, I find the bass (especially smaller ones) often unwilling to strike them.

Killiefish (hardheads) are the best type of minnow to use. They are a hardy breed, taking a lot of punishment before they die. If hardheads cannot be netted or bought in your region, try shiners or chubs. Larger minnows (three to four inches long) are best because they allow longer casts and the bass take them readily. Hook the minnow through both lips with a size six, light

wire, Mustad Aberdeen hook. Tie the hook directly to your line and use a BB split shot only if you must get the bait down deep. The same hook is used in fishing the other three baits also. Hook hellgramites through the "collar" below the head, nightcrawlers at the forward tip of the body and crawfish through the tail.

The standard minnow retrieve demands a five to fifteen-second wait after the cast minnow hits water until beginning a slow retrieve coupled with short jerks of the rod tip. In shallow, warm water it is usually best to allow the minnow to flutter on the surface until it is attacked by a mean bass or it swims away from the target area.

A lift-drop retrieve is more appropriate for fishing the three other types of smallmouth bait. Cast the bait to the target and allow it to fall to the bottom. Allow a five-to ten-second wait, lift the bait off the bottom with your rod, then repeat. There are variations, for example—crawfish can be twitched and a night crawler can be jigged.

Although live bait usually produces the best numbers and size of bass, there are those times when fishing success with a lure can be better or just as good. When I think a lure will catch just as many bass as live bait, I'll use the lure. It is less troublesome (no bucket to carry around) and I find more pleasure in catching smallmouth on lures.

Lures are most effective when stream levels are normal or slightly higher, so that the stream is well oxygenated and the bass are less spooky.

Plastic twister grubs and worms, small floater-divers, beetle spins, small topwaters, and single-shafted spinners all will produce fish when the conditions are right, and they are fished in the proper manner.

Two- to four-inch curly-tailed grubs threaded on a size two or four hook are deadly when fished in clear, shallow water. The lure is tied directly to the line, with no snap swivels or split shots. Hooking smallmouth with this rig presents quite a challenge. A smallmouth usually strikes the lure at the tail, often not getting the hook into its mouth and thus into hook-setting position; even if allowed to run with the lure the bass will usually spit it out. I've found that the best way to react to a strike is to wait two seconds or slightly longer (if the water is clear try to see how much of the lure the fish has in its mouth) then set the hook with a fast, hard upswing of the rod.

I rig four-inch plastic worms the same way as I do the grubs and toss them at cruising bass or let them drop into deep holes. I don't get as many strikes as I do with the grub but I miss very few of the strikes I do get.

Rebels, rapalas, and other floater-diver plugs work best in slow stretches and riffles early in the morning and in the evening toward dusk. A slow to medium retrieve speed should be coupled with a hard jigging action. Common variations include a fast retrieve through riffles and a slow, surface-popping action in slow water. It is best to experiment with various retrieve patterns.

The best action can be had with beetle spins (jig and spinner lures) when the water is muddied by recent rainfall (although *not* when the stream is very high and

roiled—don't even bother fishing under such conditions). When the stream is muddied and running slightly above normal, beetle spins and other spinners seem to be the only thing that will draw strikes. This is because spinners flash and send out vibrations, making it easier for fish to detect them. The Colorado spinners of the beetle spins send out more forceful sound waves than do the thin, less cupped blades of the single-shafted spinners. Keep in mind that the Colorado-bladed spinners might be the best at attracting bass in the muddiest water.

Recently a fishing buddy of mine who regularly fishes a local smallmouth stream started experimenting with a 1/8-ounce blabbermouth plug, a surface plug manufactured by the Gudebrod Company. We have found that the plug is a good choice in clear, warm, shallow water. Fish it in quick, short darts.

It is important to cover as much water as you can in the fastest and most thorough way. This can be accomplished by wading the stream or by "spot hopping" in your car from one productive hole to another. I prefer to wade long distances upstream, getting farther away from the road as I go, but some fishermen prefer to fish a bunch of holes that are close to the road.

Whichever way you choose, make sure that you fish all the pools and stretches carefully. If no fish are found in a particular pool, move on. If fish are found, fish the pool until they spook.

Ultra-light to light spinning rods (five to five-and-a-half feet) coupled with ultra-light spinning reels (six to eight-and-a-half ounces) are your best bet for the streams. Line any heavier than four-pound test may spook fish and impair handling and casting.

A fishing vest should be used to carry equipment such as lures, hooks, etc. A small knapsack or shoulder bag will house a bag lunch, camera, or any other extra equipment.

Stream smallmouth fishing is a very relaxing and rewarding experience. We don't need to transform it into a needless fish slaughter. Nowadays, with the enormous fishing pressure in New Jersey as well as throughout the country, more fishermen are coming to realize a fish is more valuable in the water instead of on the table. Throw the bass back and save any sunfish you catch if you want food on the table. Sunfish taste better anyway. □



SNAKES OF NEW JERSEY



RING NECKED SNAKE



NORTHERN WATER SNAKE



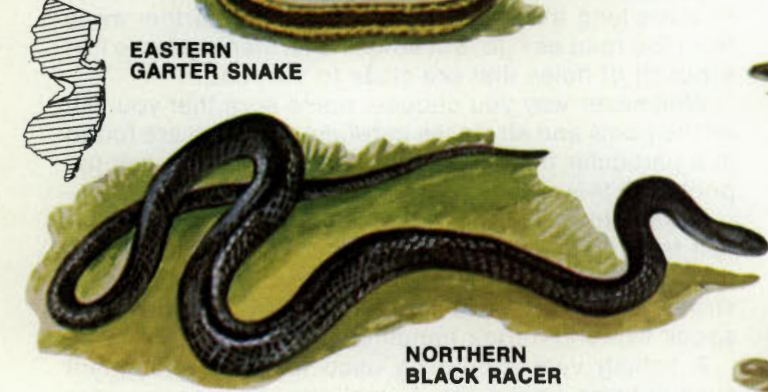
EASTERN WORM SNAKE



EASTERN GARTER SNAKE



ROUGH GREEN SNAKE



NORTHERN BLACK RACER



EASTERN EARTH SNAKE



CORN SNAKE



EASTERN HOGNOSED SNAKE



BLACK RAT SNAKE



EASTERN RIBBON SNAKE



EASTERN SMOOTH GREEN SNAKE



NORTHERN PINE SNAKE





**EASTERN
KINGSNAKE**



EASTERN MILK SNAKE



**NORTHERN
SCARLET SNAKE**



QUEEN SNAKE

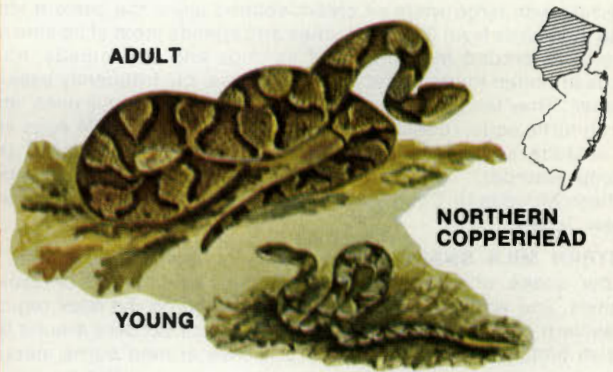


**NORTHERN
BROWN SNAKE**



RED BELLIED SNAKE

POISONOUS SPECIES



ADULT

**NORTHERN
COPPERHEAD**

YOUNG



BLACK PHASE



**TIMBER
RATTLESNAKE**

YELLOW PHASE

ILLUSTRATIONS BY DUANE RAVER

18 eggs are laid in July or August. This snake is considered uncommon in New Jersey and is on the State Threatened Species List.

BLACK RAT SNAKE (*Elaphe obsoleta obsoleta*). This is New Jersey's largest snake, ranging from 14 to 101 inches in length. The black rat snake has a shiny black body that may show traces of a spotted pattern; the belly is frequently cloudy gray on a brown, white, or yellowish background. The black rat snake prefers dense woods and thickets and is found statewide except in densely populated areas and along the coast. These snakes frequent hillsides, fields, stone walls, barns, and trees. From 5 to 24 eggs are laid in June and July. Black rat snakes are occasionally called "Pilot Snakes," as they may be found around rattlesnakes and copperheads which they are erroneously reported to pilot to safety. Although their numbers are declining they are still considered common in New Jersey.

NORTHERN PINE SNAKE (*Pituophis melanoleucus melanoleucus*). A large black-and-white snake, ranging from 15 to 83 inches in length, the northern pine snake has dark blotches that are black toward the front of the body but that may become brown closer to the tail. The belly is usually a dull white, yellow, or gray. A threatened species in New Jersey, the pine snake occurs primarily in the pinelands of southern New Jersey; habitat destruction and illegal collecting have reduced the numbers of this snake in certain areas.

The pine snake climbs trees readily but spends a considerable amount of time burrowing. It feeds primarily on rodents and lays its eggs in June. The young measure from 15 to 18 inches at hatching.

EASTERN KINGSNAKE (*Lampropeltis getulus getulus*). Frequently referred to as the "chain snake" because of its shiny black color patterned with large white or cream-colored links, the eastern king snake measures from 32 to 82 inches and spends most of its time on the ground around the borders of swamps and streambeds. King snakes are often found under logs and debris, but frequently bask in the open. They feed on other snakes, including venomous ones, and also on turtle eggs, rodents, birds, and frogs. From 3 to 24 eggs are laid in June and hatch in August. This snake, locally called the "swamp wamper," is found only in southern New Jersey from southern Monmouth County southward and is considered common in New Jersey.

EASTERN MILK SNAKE (*Lampropeltis triangulum triangulum*). A slender snake which is gray strongly marked with red or brown blotches, and with a Y- or V-shaped light patch on the neck region, the eastern milk snake has predominantly black borders around the reddish blotches. Because of their presence around barns, people erroneously believed that these snakes sucked milk from cows, hence their name. Unfortunately, this snake bears a superficial resemblance to the copperhead, and many are killed merely for this reason. It is easy to tell the two apart, however—the milk snake is much slimmer and has a less constricted neck than the copperhead. Found throughout New Jersey, the milk snake frequently finds its way into urban areas. Usually found under boards and rocks, in barns and on rocky hillsides, it feeds primarily on rodents, but will also take smaller snakes, frogs, birds, and their eggs. Six to 24 eggs are laid in June and hatch in late August. This snake is considered common throughout most of its range. In the southern region of the state, the milk snake intergrades with the scarlet king snake and is sometimes referred to as the "coastal plains milk snake."

NORTHERN SCARLET SNAKE (*Cemophora coccinea copei*). An uncommon little snake measuring from 6 to 24 inches, the northern scarlet snake resembles the dangerous coral snake of the south. The scarlet snake has a sharp red snout and red bands that do not go all the way around the body and that are bordered by black with white or cream interspaces. In the pinelands of Ocean, Burlington, and Atlantic counties, the scarlet snake is found on the sandy soils usually hiding under logs, boards, or trash. It seldom comes above ground except at night. Foods include mice, lizards, turtle eggs, and small snakes.

NEW JERSEY'S VENOMOUS SNAKES

NORTHERN COPPERHEAD (*Agkistrodon contortrix mokasen*). The copperhead is one of the two venomous snakes found in New Jersey. It occurs from the lower Piedmont to the Appalachian Highlands. Old rocky fields, berry thickets, woodlands, farmlands, haystacks, old sawdust piles, and even backyards are typical habitats. Copperheads measure from 8 to 48 inches in length. A distinguishing characteristic is its hourglass pattern of a dark or reddish brown on a background of light brown or reddish gray; the head is usually a copper color. A typical pit viper, the copperhead has a heat-sensing hole or pit between the eye and the nostril, and an elliptical pupil. Copperheads are considered less venomous than rattlesnakes, and few deaths have occurred from their bite; still, they should be avoided. Even the young snakes can inflict a painful bite and enough venom to make one ill. The copperhead frequently hibernates with the timber rattlesnake in rocky dens which extend below the frost lines. They give

birth to from 6 to 17 young in mid-August to early October. They feed primarily on fishes, frogs, rodents, and some insects, but birds are also taken. The copperhead is considered uncommon in most portions of New Jersey but occasionally one or two are found in the vicinity of developed areas of northern New Jersey; copperheads do not occur in southern New Jersey.

TIMBER RATTLESNAKE (*Crotalus horridus horridus*). This is potentially the most dangerous snake in New Jersey because of its large size and the amount of venom it can inject; however, there has not been a verified case of a timber rattlesnake bite occurring in the wilds of New Jersey for many years. The timber rattlesnake is found in the Appalachian Region of extreme northwestern New Jersey and also in the mountains of north central New Jersey; also inhabits the pinelands of Ocean, Atlantic, Burlington, and Cumberland counties. The timber rattlesnake has two color phases: black and yellow. The black phase consists of the head and the posterior third of the body being black with dark saddles and incomplete chevrons almost obscured by the dark pigment in the ground color. The yellow phase is more dramatic, with the head having only a little brown pigment, the saddles and chevrons always black or brown, and the tail always black. The rattle, which is used as a warning device, is located at the end of the tail. Rattlesnakes range in length from 10 to 60 inches. They feed primarily on rodents, birds, and occasionally frogs. From 5 to 20 young are born live in August and September. During the summer they scatter throughout their range, but during the fall they return to dens in large numbers; research indicates that rattlers tend to return to the same den sites year after year. The northern New Jersey limestone outcroppings provide ideal denning sites. In southern New Jersey rattlesnakes seek out stump holes, old brush piles, and spill heaps in isolated areas of the Pine Barrens. Overcollecting and indiscriminate killing have reduced the timber rattlesnake to endangered species status in New Jersey.

A final warning. Never lose respect for or become careless around venomous snakes. While they may appear docile they may strike without provocation. NEVER FOOL AROUND WITH OR FREE-HANDLE A VENOMOUS SNAKE AND NEVER KEEP ONE IN THE HOUSE.

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The next issue of New Jersey Outdoors will feature the second half of this article which will include *How to Control Snakes, Snake Bites, and Keeping Snakes in Captivity*. □

FRONT COVER

Inside a Hot Air Balloon—Photographed by Karen Leeds (See article on page 2.)

INSIDE BACK COVER

Iron Color Shiner—Illustration by Carol Decker (See article on page 18.)

BACK COVER

Fawn in a Field—Photographed by T. J. Horvath. Don't pick up what seems to be an abandoned or orphan fawn. The mother is probably nearby searching for food, or waiting and watching for you to leave. Don't be tempted—just walk away. Conserve our wildlife.



Carol Decker d
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