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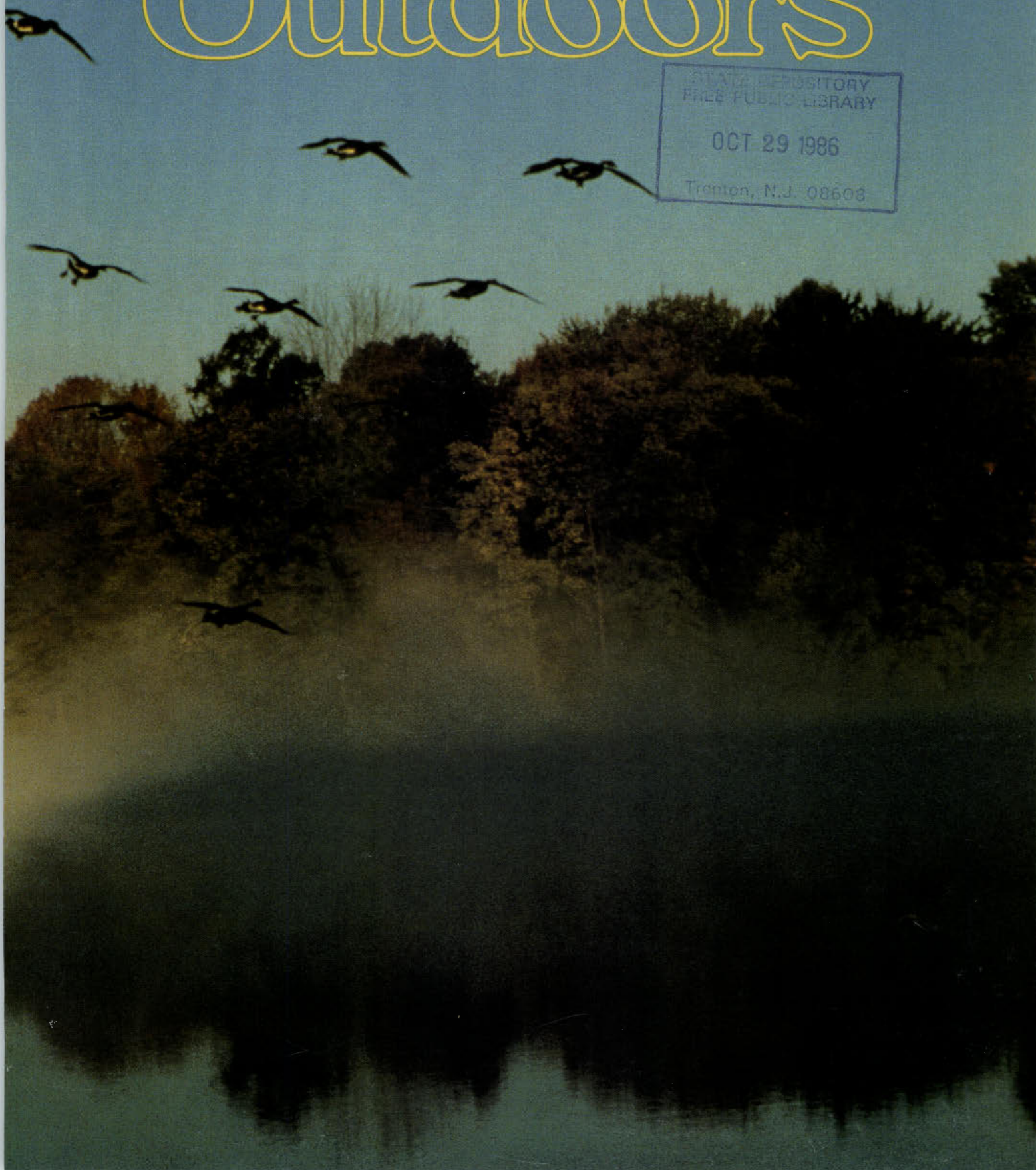
New Jersey Outdoors

September/October 1986
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State of New Jersey

Thomas H. Kean
Governor

Department of Environmental Protection

Richard T. Dewling
Commissioner

Natural Resources Group

Helen C. Fenske
Assistant Commissioner

Resources Interpretive Services

Howard J. Wolf, Director
CN 402, Trenton, NJ 08625
Telephone: (609) 633-2102

New Jersey Outdoors Magazine Staff

Steve Perrone
Editor

Sally Dudley
Special Projects Editor

Contributing Editors

Sharon Ann Wander
Cathie Cush
Carolyn Bevis

Circulation

Jackie Fisher
Margaret Scott

Art Director

John Mocerl

Graphic Design

Paul J. Kraml

Dominick J. Burzichelli

Production Assistant

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NEW JERSEY OUTDOORS CREDO

This publication is dedicated to the wise management and conservation of our natural resources and to the fostering of greater appreciation of the outdoors. The purpose of this publication is to promote proper use and appreciation of our natural, cultural, and recreational resources, and to provide information that will help protect and improve the environment of New Jersey.

FROM THE EDITOR

The publication of this issue coincides with the beginning of the new school year and, as promised in the July/August issue editorial, we have included the *New Jersey Outdoors Explorer*, designed especially for fourth and fifth grade students and their teachers. This center spread snapout includes teaching aids and hands-on activities for the teaching of environmental and natural resource subjects. And some activities are fun, too.

* * *

And now for a fish story that stands out like the tallest of tall tales about fishing—but the difference is this one's true. Most of the New Jersey press must have picked up this story from DEP's Division of Fish, Game and Wildlife release, but I'll repeat it in brief for the readers who missed it.

David Copperthwaite of Edison and John Terrizzi of Somerset were bass fishing on the Millstone in a small boat on the evening of June 24th. They weren't catching fish and it was getting dark so they decided to call it a night. David asked his cousin, Joe Mariano of North Brunswick, who was fishing in another boat to tow them back to dock.

And it was during this tow that a "thing" jumped out of the water, hit David in the shoulder, then slapped his face, and flopped into the stern of the small boat.

At first, David thought he had a large bass. But upon inspection on the dock he said, "It looked a little like a shad, except for the head. It was white and silver with a greenish head and had very small scales but very long pectoral fins."

They took the fish to the Division of Fish, Game and Wildlife Lebanon Laboratory, but the biologists there could not identify it. Then the fish was packed and sent to the Philadelphia Academy of Science for identification. Jackpot.

It was identified as a silver carp, a species native to Russia and the Orient. The Academy scientists said this species can grow up to 100 pounds and is used extensively in oriental cooking. And they said one of the common traits of this fish is that it will often jump out of the water and into boats when it's scared. Now that's the kind of help I need when fishing.

How did this fish get into the Millstone River? Your guess is as good as mine.

IN THIS ISSUE

The wraparound cover on this issue was provided by Donald Pagano, the First Prize Winner in our 1986 Photo Contest.

The article titled *Surf Fishing* by Jill Barnes is the First Prize Winner in our 1986 Writing Contest. The color photograph used in this article is the work of Brion Babbitt, winner of Second Prize in our Photo Contest.

The focus in this issue is the Natural Lands Trust, founded in 1968, and created to find new ways to acquire and preserve land for its unusual natural features, as habitat for threatened wildlife species or endangered plants, or to protect a watershed, a floodplain, or a barrier island.

In this issue the articles related to Natural Lands Trust programs are: *Ex-*

ploring Bear Swamp by Jean Jones; *The Crossley Preserve* by Helen Collins; *Hunting for Treasure* by Rick Radis, and *Clan of the Cave Keepers* by Steven K. Brush.

We've also included two articles which discuss the "red tides" and now the "green tides" which appear from time to time in our coastal waters. The articles are *New Jersey Divers Monitor Ocean Dumping* by Cathie Cush, and *Monitoring Red Tides in New Jersey* by Paul Olsen of DEP's Water Resources Division and John Mahoney of the US Environmental Protection Agency.

Two lighter pieces: *New Jersey Wines Go Outdoors* by Deborah Boerner and Michael Ein, and *Season of the British is Here* by Gail Greco.

30 Years Young and Growing by Rosalie Strachan discusses the development of the Morris County Park Commission.

Indian Summer Grouse by A.L. Peinecke is all about a glorious day in the field seeking out the elusive grouse.

On page 11 we feature the beautiful New Jersey Waterfowl Stamp. Our *Wildlife in New Jersey* series features the *Timber Rattlesnake/Copperhead* by Dave Chanda.

And on pages 32, 33 we feature some of the *DEP Poster Contest Winners*.

Steve Perrone

New Jersey divers monitor ocean dumping

BY CATHIE CUSH

PHOTOS BY MARGARET J. PRALL

When a diver can reach out and pet a bergall, something's just not right. A group of environmentally aware scuba enthusiasts from New Jersey is trying to pinpoint exactly what's wrong or, rather, to confirm their suspicions.

The divers are concerned (as are many who've never donned mask, fins or air tanks) about the health of the marine community in the New York Bight—those waters downstream of the Hudson River, which have an environmental impact on the northern Jersey shore. Dredge spoils, sewage sludge and other materials are dumped relatively close to shore in the 1,100-square-nautical-mile area and seem to be having a negative impact on many forms of marine life.

Frequently in the summer finfish seem sluggish and dead shellfish have been found littering the ocean bottom. Divers working with the Highlands-based American Littoral Society have reported finding as many as 30 lobsters at a time, 6 to 8 pounds each, dead, away from the safety of their holes, their shells covered with what appears to be a white fungus. Finfish show signs of skeletal deformities and fin rot. At some sites divers have taken ocean pouts out of their holes, and the fish made no attempts to escape.

As if that weren't enough indication that the area is stressed, the New Jersey Department of Environmental Protection (DEP) has issued warnings on the consumption of striped bass (rockfish), bluefish, American eel, white perch and white catfish. This focuses on waters primarily in the vicinity of Lower New York Bay, but extending to Barnegat Inlet, which is approximately 50 miles south of Lower New York Bay. The fish were found to contain relatively high levels of polychlorinated biphenyls (PCBs).

Occasional Red Tides

Furthermore, for the past 20 to 25 years, the northern Jersey shore has been plagued by occasional red tides, algae blooms which cause unpleasant odor and discoloration. Since 1984, the southern portion of the shore, as far north as Long Beach Island, has experienced green tides, caused by an overabundance of a species of algae, different from those causing red tides.

Paul Olsen, a biologist with the DEP's Division of Water Resources, has been studying the green tides to determine what causes the algae to bloom. "The blooms seemed to originate in the vicinity of outfalls, but I don't want to point the finger," he said, "since there are various other nutrient sources in the area. We can't have it without the proper oceanographic weather conditions." In addition to

sewage outfalls, area runoff which includes fertilized property may be a factor as well as the normal estuarine outflow or upswelling of deeper ocean water. Why the green blooms started appearing only recently is one of the questions Olsen is trying to answer.

"This happens in other parts of the world," he adds, "and it's not always in the most densely populated areas."

In the northern part of the state, the Littoral Society divers are more ready to point the finger. They believe that ocean dumping is, if not the cause of the problem, a major contributing factor. Through a volunteer Diver Observation Program, they hope to gather enough evidence that dumping is harmful to halt the process.

Millions of Tons Dumped

Each year 10 million tons of dredge spoils from New York Harbor are dumped at a site only 6 miles east of Sea Bright. These spoils contain varying amounts of heavy metals such



as cadmium and lead, as well as petrochemical pollutants and PCBs. Ten miles southeast of the dredge spoils dump lies an acid dump site, which receives approximately 100,000 tons of dilute hydrochloric acid each year. This site is of the least concern to environmentalists, as preliminary studies seem to indicate that ocean water neutralizes the acids quickly and without serious impact.

Approximately 12 miles east of Sea Bright, roughly eight million wet tons of sewage sludge are dumped each year. This figure represents waste not only from New York City, but from at least six New Jersey shore communities, including Neptune, Deal and Sandy Hook as well—a total population of about 15 million. The federal Environmental Protection Agency (EPA) estimates that in the last decade alone, nearly 95 million tons of sewage have been dumped there, and an estimated 85 percent of the material dumped reaches the bottom. The rest is dispersed throughout the water column.

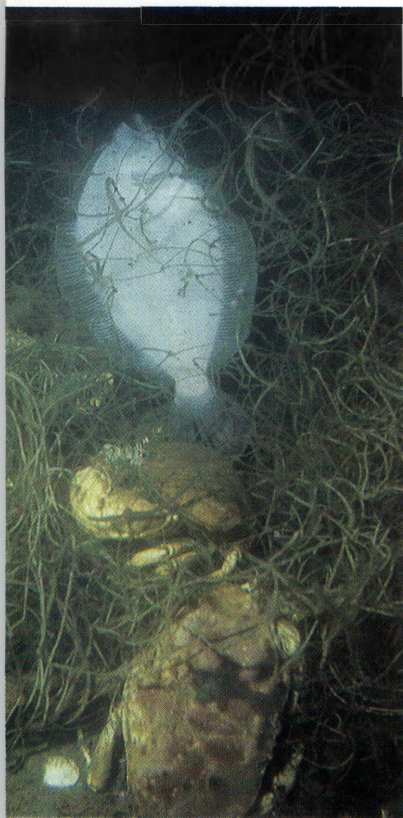
In addition to "human artifacts," the sludge can contain viruses and bacteria. It also contains nutrients. Ironically, that is where the problem arises.

The New York Bight is the only area in the United States where sewage sludge is put on a boat and dumped at sea. Other cities, such as Boston and Los Angeles, run pipelines offshore. On the West Coast, where the edge of the continental shelf is relatively close to shore, the material is dumped into the deep ocean. A pipeline over the edge of the continental shelf off New York or northern New Jersey would have to be 80 miles long. The EPA is considering moving the sludge dumping sight to a point 106 miles offshore. While the Littoral Society feels this would be a help, Executive Director D.W. Bennett is quick to remind that the move would do nothing to curtail runoff from the Hudson and other rivers, nor would it stop the flow from sewerage outfalls along the coast.

Left: Checking water samples.

Right: Dead lobsters, with shells covered with what appears to be a white fungus.





Fish and crabs caught in gill net.

Divers or offshore anglers who notice unusual environmental conditions should contact John Tiedemann at the Sea Grant Marine Extension Service, Southern Ocean County Resource Center, Recovery Road, Manahawkin, NJ 08058; (609) 597-1500 or the American Littoral Society, Highlands, NJ 07732; (201) 291-0055.

Millions of Gallons of Raw Sewage

Not all the sewage is treated. Approximately 220 million gallons a day is discharged raw into the Hudson River. A dry spell can aggravate the situation by adding to that amount sewage that was meant to be treated. Without rain, the raw sewage cannot move through the sewerage system to the treatment plants. If a heavy rain follows the dry spell, the onslaught of mattress-size chunks of sewage is too much for the treatment plants to handle, so they bypass the plants and are dumped raw into the river. According to Bennett, aerial photographs show a brown surge heading toward the sea. (In September 1984, New York officials agreed to begin primary treatment at a new plant in Manhattan by Aug. 1, 1986, and at a new plant in Brooklyn by 1987.)

In 1968 and again in 1976 there were major fish kills in the New York Bight. During the latter, 3,000 square miles of ocean were affected. These kills have been traced to extremely low levels of dissolved oxygen in the water—a condition that could occur naturally, but that could be aggravated by the addition of excessive organic nutrients, such as nitrogen-rich sewage sludge, to the water. Excessive nutrients promote the growth of phytoplankton. In 1976, oceanographic and weather conditions were optimal for this to happen. When these drifting marine plants die, they settle to the bottom and are consumed by bacteria in a process that requires large amounts of oxygen. The oxygen supply on the ocean bottom is depleted by a lack of vertical mixing caused by winds and storms. Dissolved oxygen levels of less than 2 milliliters/liter stress marine life.

Development of the Diver Observation Program followed the '76 fish kill. The program is conducted in cooperation with the National Marine Fisheries Service of the National Oceanic and Atmospheric Administration. Under the auspices of the Littoral Society, trained volunteer sport divers from New Jersey and New York monitor water quality at a number of sites within a 700-square-mile area and report their findings. On standardized environmental logs they record location; existence and depth of thermocline; color and temperature of the water on the surface, at the thermocline and on the bottom; the type of bottom (i.e., wood or metal wreck, rock, sand, mud, etc.), and the dissolved oxygen level if measured.

These conditions are easily assessed (with the exception of dissolved oxygen, which requires special testing equipment) and are indicative of the large-scale changes that take place within the environment as the seasons

change. The changes may be both weather related and/or a result of pollution.

Diver Reports

Sometimes the pollution is easily observable—too much so. Bennett says divers who have wandered too close to the dumping area have found a substance they describe as "a greasy, smelly black mayonnaise." Others report "brown string material" or clumps at sites throughout the reporting area.

Divers also record the number and size of any marine life observed. If fish are swimming high on the wreck, or are very sluggish, it may mean that dissolved oxygen levels on the bottom are too low to support them. At some stressed areas, finfish seemed to be absent, while bottom dwellers are dead or dying.

For instance, on a dive made during the summer of 1984, divers discovered a number of dead lobsters at a site near Manasquan Inlet. According to diver Eugene Geer, who organized the Diver Observation Program, the area reached from about a mile north of the inlet to 4 or 5 miles south and about 4 miles seaward. When the area was visited, the worst seemed to be over, but all bottom life was dead. "It looked like somebody has burned the place," he said.

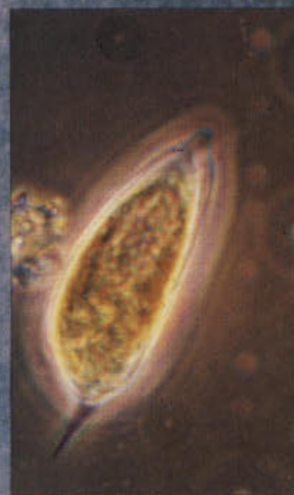
A similar report was filed on April 18, 1981 after a 10-foot dive at Hoffman Island in Lower Bay, New York Harbor. The diver "found dead lobsters on the bottom, some still in homes.

Reports of dead shellfish and sluggish or absent finfish are interspersed with reports of normal, healthy marine life. A summary of the 1981 reports noted that the dive season that year "was reported as the best in a long time." Most local divers agree that 1981 was the first good year since the '76 fish kill, but conditions are not consistent.

Some 200 reports are filed each dive season (April-October). Once a year, the Society holds an environmental seminar for divers. At a series of workshops, the volunteers (and other interested persons) study fish identification, plankton productivity, ocean dynamics and related topics. Most important, they are taught to distinguish normal from abnormal in the mid-Atlantic area.

Divers, notes marine biologist Tony Pacheco of the Sandy Hook Marine Lab, have a unique ability to provide environmentalists with feedback on a real-time, first-hand basis. Because they offer greater scope and frequency of coverage than a survey ship would, amateur divers become the front line. They can make direct observations, rather than inferences, and deliver pertinent field sample collections.

Monitoring Red Tides in New Jersey



BY PAUL OLSEN AND JOHN MAHONEY

Red tides have recurred annually in New Jersey's northern shore waters for over twenty years. Most of these algae "blooms" were benign in nature; however, in the summer of 1968, an extensive bloom of the dinoflagellate, *Prorocentrum micans* along the Monmouth County shore was apparently responsible for mild toxicity to bathers. This event was cause for the New Jersey Department of Environmental Protection to initiate a study of the phenomenon and an eventual monitoring program. In 1976, a massive bloom of a non-toxic dinoflagellate, *Ceratium tripos*, although not visible as a red tide, depleted the dissolved oxygen in bottom waters, causing widespread fishkills. Only in the past two summers (1984-85) has the phenomenon occurred in southern New Jersey, there in the form of a brilliant "green tide" caused by a species identified as *Gyrodinium aureolum*. While no toxic effects have been directly associated with it, concern for our valuable fishery and recreational resources has prompted an expanded study.

Dense accumulations of single-celled algae, or phytoplankton, historically have been responsible for localized areas of discoloration, popularly called "red tides," in aquatic environments around the globe. Highly urbanized or industrialized locales are particularly susceptible to this phenomenon, though it oc-

curs in areas remote from population centers as well. The effects of the blooms are varied, depending chiefly on the species of phytoplankton and environmental factors.

Relatively few of the many phytoplankton species found in New Jersey produce red tides in local waters; however, red tides caused primarily by flagellated forms have been documented in annual occurrence in Lower New York Bay and adjacent New Jersey waters for over twenty years. These have not been the acutely toxic varieties, but some have had adverse effects on local fishery and recreational resources. In some instances, when the blooms ceased, subsequent depletion of the dissolved oxygen supply resulted in fishkills. Most of the fishkills and red tides have been small-scale. However, in 1976, a massive bloom of a non-toxic dinoflagellate, *Ceratium tripos*, caused anoxia in bottom water and widespread kills of demersal species (see New Jersey Outdoors July/August 1978—Ocean Fishkill/1976).

The history of New Jersey's involvement in red tide monitoring dates back to 1968, when many complaints by bathers of superficial irritation and respiratory discomfort were associated with an extensive bloom of *Prorocentrum micans* along the Monmouth County shore. This happened on a lesser scale in a few subsequent years. Two other species, *Olisthodiscus luteus* and *Katodinium rotundatum*, often dominated blooms in the area, but these

Red tides caused by a few different species of phytoflagellates have been documented for over 20 years in Lower New York and adjacent waters.

PHOTOGRAPHS PROVIDED
BY AUTHORS

Helicopter surveillance of the New Jersey coastline is conducted weekly from May through September by the U.S. Environmental Protection Agency.



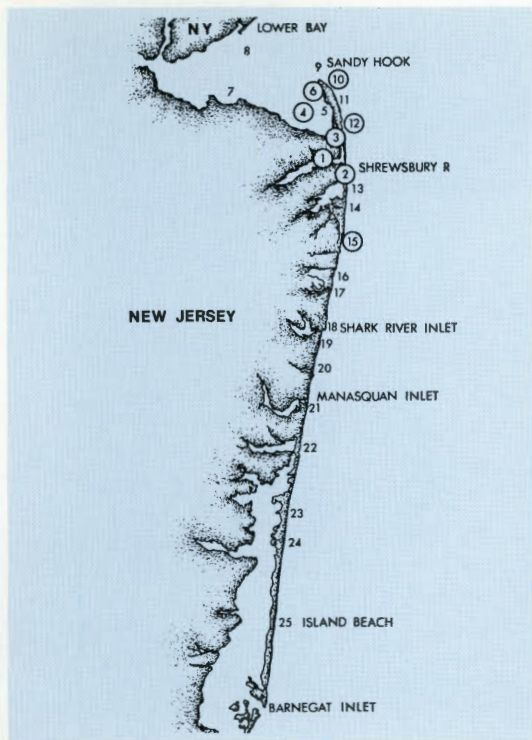
were not usually associated with ill effects to bathers. The phytoflagellate blooms occurred during the warmer months, from the middle of June to the end of September, with most frequent occurrence between late June and late August. The usual pattern included an outbreak in June or early July, followed by one or two more later in July or August. Most episodes lasted one to two weeks. Seasonal blooms continued to the present, often predictably in the Sandy Hook vicinity, with complaints coming sporadically from Monmouth County bathers. Whatever the species, the red tides imparted an unaesthetic quality, especially when the algae decomposed forming a solid or stringy mass.

The southward influence of Lower New York Bay (the Hudson/Raritan estuary) was reflected in the occurrence of the blooms along the New Jersey shore, often as far as lower Monmouth County, occasionally into Ocean County. Hydrography of the area is such that nutrients and phytoplankton accumulated near the New Jersey side, rather than the New York side, of the estuary. Blooms were frequently initiated in Sandy Hook Bay, a relatively sheltered area with sluggish tidal flow. With the estuarine plume, red tides could wash out up to three miles then (due to Coriolis forces) curl southwestward toward the shore between Sea Bright and Long Branch. From there, the tendency was for bloom patches to string out southward along the beach, temporarily sustained by localized nutrient sources such as outfalls, inlets or storm drains. They occurred most often within a mile of the beach, but occasionally extended out three to five miles. Typical red tides were patchy and not visible at all points within an affected area; for this reason they were more readily spotted from the air, such as from a helicopter. They were most visible where there was some turbulence,

such as in the curl of a wave or in the wake of a boat.

The seriousness of the 1968 bloom aroused the New Jersey Department of Environmental Protection (DEP) to investigate the problem. In 1969, a response group known as the Inter-agency Committee on Phytoplankton Blooms was formed to coordinate government effort in the event of significant blooms in NY/NJ waters. The committee consisted of representatives of the National Marine Fisheries Service (NMFS), US Environmental Protection Agency, US Food and Drug Administration; the NJDEP and NYDEC; and the Long Island and NJ shore county health departments. The committee functions to determine the extent and possible effects of blooms which occur, to ensure proper identification of bloom organisms, and to affirm channels of communication where the public would have to be quickly advised. In 1970, studies into the ecology of the red tides were initiated at the NMFS Sandy Hook Laboratory.

Detailed phytoplankton information was lacking for the region. Therefore, in 1973, the Department of Environmental Protection, Division of Water Resources, in cooperation with the NMFS, Sandy Hook Lab. instituted a long-term, intensive study of the phytoplankton assemblages in Lower New York Bay and New Jersey northern coastal waters. Beginning in 1973, this year-round survey was the initial phase of routine monitoring of phytoplankton and related parameters in the New Jersey shore. To encompass northern estuarine and coastal locations with a history of blooms (see map), primary sampling stations were established in the Navesink and Shrewsbury Rivers, Sandy Hook Bay (including the Earle Naval Ammunition Pier), and on the ocean beaches from Sandy Hook southward to Shark River. During the warmer months, the usual period



Map showing area of original red tide phytoplankton survey in the New Jersey shore. Primary sampling stations are indicated by circled numeral.

of phytoflagellate maxima in the area, supplemental boat sampling was conducted on the former NMFS vessel, RV Martha E, which extended the sampling range into the Hudson/Raritan estuary and offshore of the ocean beaches. Supplemental shoreline observations were made southward to Island Beach State Park. In a few instances, assistance was provided by the US Coast Guard and the NJ Marine Police. Besides surveillance for red tides, this year-round, baseline study ultimately identified the presence and relative abundance of 335 species of phytoplankton, 208 of which were newly-recorded for New Jersey waters. The studies into the causes of the blooms, conducted at the Sandy Hook Laboratory, ultimately associated them with excessive nutrients (e.g. nitrogen and phosphorus).

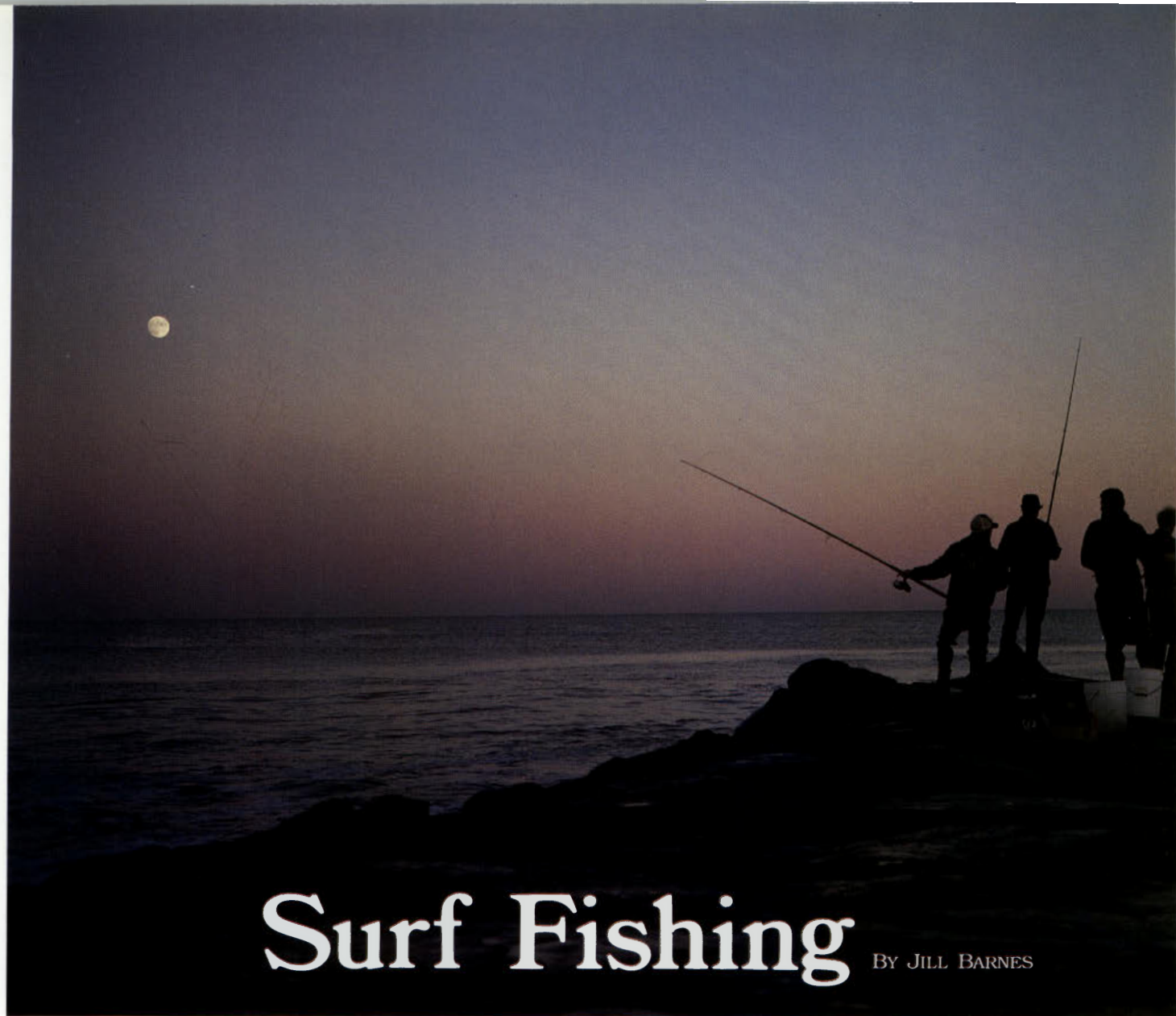
Monitoring entered another phase in 1976, when the catastrophic *Ceratium tritpos* bloom covered a vastly wider area, extending well offshore and at greater depths, than the more transient inshore red tides. It was evident at the shore only in scattered locations where patches of the "black tide" (a result of anaerobic decomposition) and some dead fish or shellfish washed in. In response to this, the NJ Division of Fish, Game and Wildlife conducted a survey (1976-78), in which the Division of Water Resources cooperated, to measure chemical and physical conditions as affecting phytoplankton abundance in New Jersey's nearshore ocean waters. An additional inter-agency group, the New York Bight Advisory Committee, was formed primarily to respond to hypoxia problems.

In 1977, following institution of the 200-Mile Fishing Limit, NMFS required greater emphasis on offshore problems. With a helicopter to facilitate observation of the entire NJ coast, the USEPA (Edison NJ) then assumed

the cooperative role with DEP in monitoring inshore conditions. This extended surveillance eastward to Long Island and southward to Cape May, with routine phytoplankton monitoring from Raritan Bay to Island Beach State Park. It also included bacteriological testing of the surf zone, as an index for safe bathing, and dissolved oxygen testing on transects to nine miles offshore. This ongoing survey generates an annual report which summarizes water quality conditions in the New York Bight.

Since 1969, red tides were infrequently observed in the coastal region south of Manasquan Inlet and, rarely, south of Barnegat Inlet. Blooms in southern New Jersey were inconspicuous or they were localized and of short duration. In the past two summers (1984-85) however, algal blooms were responsible for extensive areas of green water in the central to southern NJ shore, persisting especially in the area from Atlantic City to Ocean City. Because water was a brilliant green color, the episodes were termed "green tide." As with most local blooms, they occurred primarily within a mile of the beachfront. The species responsible for green tides, identified as *Gyrodinium aureolum*, has not been detected in such great abundance in our northern areas frequented by red tides. Pale green water caused by dense concentrations of another species, a minimum green algae (*Nannochloris* sp.), has occurred commonly in the Raritan Bay/Sandy Hook area. In 1985, this pale green or greenish-brown water was detected offshore, reportedly as far as the Hudson Canyon, and southward to Cape May County subsequent to the "green tide." It rivalled in extent the 1976 *Ceratium* bloom, but apparently without such serious effect.

The recent green tides launched a new phase in New Jersey's monitoring program. Concern about the southern New Jersey shore has prompted an expanded study of the phenomenon and its possible causes to be initiated in 1986. This again will be a cooperative effort involving the New Jersey DEP, USEPA and NMFS. It will entail a research phase, intensive surveys in the areas most affected, and expansion of routine phytoplankton monitoring to include the South Jersey shore. Although no acutely toxic effects have been reported, there is concern over potentially adverse effects on our valuable fishery and recreational resources as well as on public health. Hopefully, the information gathered in this collective effort will provide a greater understanding of these events, in our southern and northern coastal areas as well as offshore, to guide future governmental action at the State, Federal, and local levels.



Surf Fishing

By JILL BARNES

PHOTO BY BRION BABBITT,
SECOND PRIZE WINNER IN
OUR 1986 PHOTO CONTEST

It was late afternoon, and I had committed a cardinal sin of fishermen. I went to the beach without my pole. It was about 4 o'clock on a partly sunny August afternoon, and I had planned a quick swim in the waters off Long Beach Island. I never did get that swim. Wherever there was space to throw a line into the surf, fishermen were at work, lined up like fence posts along the shore. I couldn't get near the water. The baitfish were plentiful and the bluefish were running.

I had never seen anything like it, and me without a pole. The blues were biting ferociously, leaping from the water before even being hooked. The action lasted some 20 minutes, moving north along the beach. And then it was over. But that's typical of surf fishing for blues along the Jersey Shore in the summer and fall. Here one minute, gone the next.


"That type of action is called a blitz," says Bob Yonaitis of The Ship Chandlers in Point Pleasant Beach, north of Long Beach Island. "When somebody yells, 'Blitz,' everyone grabs a pole. I remember a friend of mine was in the store and he wearing his business suit when

someone yelled, 'Blitz!' He grabbed his pole and, with his suit on, ran up to the beach. He ended up catching a 21-pounder."

New Jersey has plenty of walk-on fishing opportunities along its beaches. The coast of the Garden State is perfectly suited to surf casting and is further enhanced by the weather conditions, which usually are not too severe. And bluefish are one of the best catches during the summer and right into the fall months. You can enjoy fishing the jetties and surf, and the piers and bulkheads from Sandy Hook, where Raritan Bay meets the ocean, to New Jersey's southern tip at Cape May. It only takes a little know-how and a bit of local information to catch these silvery beauties.

Blues Most Popular Fishery

The Northeast Fisheries Center of the National Marine Fisheries Service notes that 60 per cent of all recreational fishing done in New Jersey is spent casting for bluefish. It also notes that the bluefish population is about as great as it's ever going to get. Bluefish begin arriving when the water temperature is between 55-62 degrees.



Bluefish in the surf usually don't run as big as those caught on party boats or as large as the one Yonaitis' friend caught. Two to three pounders are the average, but they can be bigger, depending on the school. Yet, no matter what the size, they are a powerful, determined fighting fish with many of the same characteristics as a hooked salmon. A bluefish strike is unmistakable. It hits like a torpedo and usually hooks itself before you have a chance to set the hook. Some leap and run, occasionally exhausting the angler before it exhausts itself.

The best times to catch blues are during early morning or afternoon tide changes, but this rule is not inviolate. Even the cocktail fisherman who wanders onto the beach at his own convenience can catch fish.

New Jersey's surf fishing starts north at Sandy Hook, practically in the shadow of lower Manhattan's twin Trade Towers. Here, fishermen take blues and snapper blues, a smaller, younger fish, saltwater angling's version of the freshwater panfish. Sandy Hook is part of the Gateway National Recreation Area, and some beaches are marked for fishing only. Favored sites include the North and South beaches and Spmaceti Cove. "Just about the entire coast area has good bluefishing," says Art Giglio, who owns a bait and tackle shop in nearby Sea Bright. "When the baitfish (mullet, bunker) are in the water, the blues are there. They're like eating machines."

Long Branch Pier

Bluefish are among the many species that can be caught off the 800-foot long fishing pier at Long Branch. There is a \$5 charge for using the pier, which is one of the most popular fishing spots on the New Jersey coast. While a good fishing spot, it often draws large crowds, making it unattractive to some weekend anglers.

Blues also can be hooked along the Sea Bright Wall with its rocks and jetties. The town's municipal jetty and the area behind the Coast Guard Station have produced a few beauties. A little south at Monmouth Beach, the Driftwood, the sea wall and the areas behind the tennis court and high-rises are good bets.

Continuing south, the jetties between Manasquan and Point Pleasant Beach are productive. "The little coves on either side of Manasquan Inlet can be very good areas because they're a holding place for baitfish," says Yonaitis. The warmer inlet water also attracts the bluefish. The rock piles are hiding places for this predator as it waits for a meal to swim by. Anglers have been known to catch blues at any of the beach areas in Bay Head and Mantoloking. Karge Street in Bay Head is particularly good.

Some of the best surf fishing of the season occurs at Island Beach State Park, about 15 miles south of Point Pleasant. It runs from South Seaside Park to Barnegat Inlet. The inlet separates Island Beach State Park from Long Beach Island. You'll need to do some checking since some beaches are not open to fishing, but there still are numerous opportunities for the surf anglers. Most begin near Control Gate #2. The last four-to-five mile stretch on Island Beach is open to four-wheel drive vehicles, but a permit is needed so the beach doesn't get overcrowded.

It's been said that dune buggies originally were designed to allow fishermen to follow the bluefish runs. In fact, as long ago as the Model-T era, inventive sportsmen were building custom conversions of these cars for use on sandy beaches. Fishermen, then as now, cruise along the beach, watching, sometimes with binoculars, for fish feeding close to shore or for wildly circling flocks of gulls. The gulls usually are after the same baitfish as the blues. They then race in their vehicles to those areas until the fish have moved on and repeat the cycle.

Make reservations in advance

Again, the Barnegat Inlet is an excellent fishing spot because of the underwater depressions that are holding areas and the warm water inflow from Barnegat Bay.

Long Beach Island on the other side of the inlet is 18 miles long and runs from Barnegat Light on the northern end to Holgate and Beach Haven Inlet at the southern tip. The island is a popular resort area (as is most of the Jersey Shore), so if you're planning to stay a few days during peak season, you should make reservations in advance. Surf casters, though, can find blues at many locations along the island. You can start at the jetty near the Barnegat Lighthouse. The beach here is in a state park, so check with park officials where to fish. There might be a small charge for using the park. There also is a small fishing pier with a bait store alongside the park. A little south of the park, public beaches in Barnegat Light can be reached from 5th through 12th streets.

"The walk from the street to the water is a long one but well worth it," says Bruce Hoagland of Bruce and Pat's Bait and Tackle Shop in Surf City, about the midway point on the island. The best fishing at Barnegat Light and at the southern end of the island is about two hours before the tide changes in the morning and evening, but again it can vary with the blitzes.

Surf City is the beach where I spotted the ravenous blues. It and Ship Bottom are at the

end of the Causeway Bridge, which links Long Beach Island with Manahawkin on the mainland. These areas can produce some fine catches, and there are many other public beaches (Harvey Cedars, Brant Beach, Long Beach and Spray Beach) in either direction. Many of these are popular bathing beaches, however, and fishermen have to be careful not to cast into a crowd of swimmers.

The Atlantic City area has a variety of good locations, and your luck is almost always bound to be better in the surf than in the casinos. Brigantine, north of Atlantic City, offers excellent jetty fishing, especially at the North Beach area. Also, fishermen casting off the beach behind the Sand Piper Motel or any of the rock pile areas have been lucky. The T-jetty in Atlantic City has been built-up in recent years, increasing catches. You also can give the Absecon and Brigantine inlets a shot.

Some Like Evening Best

Fran Shields of the Dorset Marine Bait and Tackle Shop in Ventnor believes the evening hours produce the biggest catches in the Atlantic City area. "I don't know if it's the shadows and they can't see you as well, but I've had better fishing into the evening hours. Bluefish are smart bottom fish. They just don't hit at anything."

The Ventnor fishing pier and the two block area around Sacramento Avenue are bluefish territory. In nearby Margate, 38th Street and Washington Avenue are good bets. Drifting bait off the jetty in Longport is a good tactic at Great Egg Inlet. Fishing by the bridge or casting off the south end of the beach are good. The 5th Street jetty and all the beach front at Ocean City on the south side of the inlet are fish producers.

Cape May County has its share of fishing opportunities. In Ocean City, there's the jetty at 5th Street, while at the north end of Avalon, Townsend's Inlet provides the same type of hiding places as the other inlets. Any beach that is easily accessible from the street in the town of Cape May has anglers fishing for bluefish through November. Beach permits are needed to fish the jetties (except 2nd Street). The fishing at Queen and Philadelphia avenues generally is worth taking the time to get a permit, which may be obtained by checking with the lifeguards or at the Police Station. You also need to check the fishing areas around Wildwood beaches. Some are bathing only.

Surf fishing for blues requires a little bit of special equipment. Surf poles average about 10 feet long, and a variety of lures and bait can be used. Open-faced spinning reels with small bales are preferred by many surf casters.

Greater distance can be achieved with a narrow-spoiled reel because there is less friction from the line as it goes through the first guide of the pole. The lighter the line the longer your cast will be, but you have to be realistic. If the line is too light, the water's turbulence and the weight of fish could break it. You also run the risk of watching your heavier lures fly off into distance as your line waves good-bye in the wind. Twenty to thirty pound test is a good choice where there are rocks and barnacles. On sandy beaches, 15-20 pound test is fine.

Fly casting's Fun

For a special thrill, try flycasting with a small popping plug or salmon fly such as a grey ghost that simulates a minnow. The wide sand beaches are ideal for casting, and the expert flyfisherman can use specially weighted, shooting lines for extra-long casts. These methods are suited best to quiet waters and uncrowded beaches, however.

Hopkins lures, alone or with a yellow or white teaser, are bluefish favorites. But the lure should fit the pole. "I advise a two-ounce lure with a 10-foot pole," Hoagland says. "And then scale down as the pole size gets smaller. You should gauge your lure by the size of your pole not the size of the fish you want to catch."

Other lures and plugs include the Kastmaster, Red Fin, Avis (with tails), sand eel plugs, and swimming and popping plugs. When the water is calm, Yonaitis has a sure-fire way of attracting reluctant blues. "First I use a popping plug and cast it out about four or five times to get the fish to come in closer. Then I switch to a swimming plug which runs a little deeper. That usually does the trick."

Baitfish that populate the waters, such as mullet, small moss bunkers and sand eels also are inviting additions to hooks. Mullet rigs with sinkers that allow the bait to float off the bottom have worked for Yonaitis. A wire extender is placed through the mouth and out the gill and a two-way treble hook is attached with an 18-20 inch leader. Making cuts in the fish to allow its oils to seep out and cause a slick also is a good idea.

If you're planning much jetty fishing, some type of special gripper shoes would be a good idea since the rocks can get slippery. Foul weather gear can keep you more comfortable—and fishing longer—if the weather turns bad. Or it can come in handy just to protect you from the ocean spray.

The main purpose of bluefishing in the surf of New Jersey is to have fun. And, the best way to have fun is to catch fish. So check with the local bait and tackle shops for up-to-date information on bait, lures, beaches and times so you can come home, Singing the Blues.

New • Jersey's • Third Waterfowl Stamp



New Jersey's 1986-87 waterfowl stamp features a pair of pintails resting on the water, a design by Ronald J. Louque, winner of the World Championship Wildfowl Painting Competition in 1984, and the 1985 Ohio duck stamp contest.

Limited edition, signed and numbered prints of the third New Jersey Waterfowl stamp may be purchased from art dealers. To find the dealer nearest you contact the publisher, MIDWEST Marketing, Sullivan, Ill., 61951, telephone (toll free) (800) 382-5723.

Each print includes a resident and non-resident stamp and sells for \$142.50. Prints of New Jersey's first waterfowl stamp were originally offered at the same price; today they are selling in the secondary market for considerably more than that.

Each year, two waterfowl stamps are issued; one with a \$2.50 face value for residents and one with a \$5.00 face value for non-residents. State and federal stamps are required for waterfowl hunting in New Jersey. The state

stamps are valid from July 1, 1986 through June 30, 1987. Only people with valid New Jersey resident firearm hunting or bow and arrow licenses may buy the resident stamp before June 30, 1987. The non-resident stamp is available to anyone up until December 31, 1987. After that time, all stamps will be destroyed.

Stamps may be obtained from regular fish and game licensing agents and from the Division of Fish, Game and Wildlife, Waterfowl Stamp, CN 400, Trenton, N.J. 08625.

If you invest in these beautiful pieces of wildlife art, you will make a contribution towards conserving and acquiring wetlands and waterfowl habitat. Think about it. By purchasing a limited edition waterfowl print or waterfowl stamps, you can help preserve a piece of New Jersey's fast disappearing wildlife habitat. Proceeds from the sale of New Jersey's first two waterfowl stamps issued in 1984 and 1985 totalled over \$850,000 and will be used for wetlands conservation and acquisition throughout the state.



New Jersey Wines Go Outdoors

BY
DEBORAH A. BOERNER
AND MICHAEL EIN

PHOTOS BY
MICHAEL EIN

When you think of New Jersey being the Garden State, you probably think of corn, Jersey tomatoes, blueberries, and roadside markets. Though the state didn't acquire its nickname for its grape-growing regions, they are what make New Jersey the nation's fourth largest grape producer. And some yield a product that won't be found at the roadside market—New Jersey wine.

Two of the state's seven wineries promote their product where it began—with outdoor festivities within sight of the grapevines. Coincidentally, New Jersey wine goes outdoors at the state's newest and oldest wineries, at the winery farthest north and at one in southern New Jersey. Thus, there is ample opportunity for residents anywhere in the state to participate in a little grape-stomping or wine-sipping fun this fall.

Tucked away in the hills of Hunterdon County, not far from Spruce Run and Round Valley State Parks, Daniel Vernon hosts a wine festival each spring and fall at Tewksbury Wine Cellars. "We started having the festivals because it seemed like a good idea to promote the wines," Vernon said. "We've gotten people to look forward to coming. They rave about the festivals and want to be put on our mailing list after they attend one."

Vernon is a veterinarian who started his winemaking career as a hobby—alfalfa hay was the basis of his first wine. Although his winery has been in operation only since 1979, Vernon now has 20 acres planted—not to hay but to over 18,000 vines of six different wine grape varieties. Twelve to 15 wines are made

at Tewksbury, including a few fruit wines—apple, peach, and cranapple. "The festivals are the only time you can taste all the wines," Vernon said. Soft drinks and cider are available for the children.

This year's harvest festival at Tewksbury is scheduled for September 20-21. Admission is free but haywagon rides through the vineyards, tours of the winery, and all food are sold separately. "We always charge less than it costs us per person, so it's a good value, and we offer the wine for sale at a little bit of a discount," Vernon said. The wines are categorized into stations, so you may choose to buy tastings of as many different types of wine as you like.

Tewksbury's spring festival is generally held on Father's Day weekend.

But if you're in the mood for a Hawaiian luau or a Bavarian festival, there's no need to pack your bags and leave the state. Just visit Renault Winery in Atlantic County (east of Egg Harbor City.) Go there any Sunday in September, October, or late April-early May and you're likely to be caught up in a spirited winfest. "People have always come in the fall just to see the grapes being picked," says owner Joseph Milza. "We decided to add some festivities to the harvest when we had our first fall festival in 1978. It turned out to be a big thing. People really like it."

The first spring winests were held in 1981 "to balance out the year." A spring celebration is also part of a European tradition, in which the grapes were blessed at the start of the growing season, Milza notes. Last summer, Re-

renault held its first July Carnevale—a two-day fair that featured an array of homemade pastas, sausages, and Italian pastry treats. All the winery's festivals are based on a special theme (see sidebar for this fall's lineup) and feature food, music, and entertainment associated with the theme. A popular activity at the fall winefests is to kick off your shoes and stomp your own grapes.

Marie and Frank DeClementi have stomped grapes at Renault many times. "We come here all the time, we wouldn't miss any of the festivals," Marie says. "I was born and raised around here, and we used to come here and play in some of the old buildings. It brings back memories and makes me feel good to see how everyone comes out to have a good time."

History is definitely a part of the Renault aura. The winery boasts of being "the oldest winery in the U.S. with its own vineyard in continuous operation." It survived Prohibition, operating 14 years under a government permit that allowed it to produce a wine tonic that was sold in drugstores throughout the country. Before and after Prohibition, Renault excelled in making champagne. Its founder, Mastervinter Louis Nicholas Renault, came to this country from France, representing the Duke of Montebello's champagne house. After trying to establish a winery in California and having his vineyards destroyed by the same aphid that was ravaging vines in Europe, Renault came to southern New Jersey. Here he found a climate and soil similar to that in France. He also found a native American grape, the Labrusca, that was resistant to in-

sects and disease. Renault put all these factors together and made his winery the nation's largest distributor of champagne during the early 1900's.

Around the time of Prohibition, John D'Agnostino became the owner, buying the winery from Renault's son. After Repeal, he put the Renault name back on champagne bottles by blending California with New Jersey Labrusca grapes. Much of what visitors see in the winery today—a wineglass museum dating back to 1200, a tiled hall, a chateau-style hospitality house—is the work of D'Agnostino's sister, Maria, who operated the winery for 20 years after her brother died.

For 10 years, Renault was under corporate ownership. Then in 1978, Milza bought the winery. Today, it produces 300,000 gallons annually, more than any other winery in the state. Milza says Renault has the capacity to make more wine but he does not wish to compete with New York or California wines. So Renault prides itself in making quality wines that other wineries do not—blueberry champagne and blueberry duck are unique to South Jersey, for example. All of Renault's wines are made from grapes grown in its own vineyards, and most are sold right at the winery.

There is no charge for admission to any of Renault's wine festivals, but food is sold and tours of the winery cost \$1. The festivals are held inside the winery if it rains. Additional ways in which Milza promotes Renault wines are by candlelight buffet tours on Friday and Saturday evenings (\$9.50 per person, by reser-



Everyone has their own way of stomping grapes—and the crowd likes to watch.

vation) and by gourmet dining in a restaurant atop the winery. The restaurant is especially unique, because it features Renault wines in many of the courses as well as *along* with a six-course dinner.

If outdoor festivals are so popular, then why don't all seven wineries in New Jersey have them? Bernard D'Arcy, owner of Gross' Highland Winery, also located in Atlantic County, says he has not considered going outdoors with his wines because of insurance reasons. "The way lawsuits go today, it's too risky," he said. "We can screen and control the public in here, but not outside on a massive scale."

Whatever the reason or reasons for not having outdoor activities, the remaining five wineries promote their wines in other ways. All of them offer free tastings and most conduct winery tours. Tomasello Winery sells its wines at the winery on Route 30 in Hammon-ton and at a retail shop in the Historic Towne of Smithville on Rt. 9 north of Absecon. Balic Winery, a fourth one in Atlantic County, is located on Rt. 40 just west of Mays Landing.

Farther north, on Bridgeboro Road (Route 537 spur off Route 130) in Delran, Antuzzi's Winery features various fruit wines—strawberry, raspberry, and blackberry—with its newest venture being champagnes, including blueberry champagne. Continuing north on Route 130, two miles south of Bordentown, is Bucks County Vineyards and Winery. Until a couple of years ago, it was known as Jacob Lee Winery but is now a satellite establishment of a Pennsylvania-based winery that specializes in sweet wines.

The fact that before Prohibition, just one county (Atlantic) had four times as many wineries as exist in the whole state today does not reflect the public's appreciation of the product. What New Jersey wines have lost in quantity exported nationally and internationally, they have gained in quality and local recognition. At an international wine exhibitor's open house held in southern New Jersey three years ago, two New Jersey wineries showed off their wares side by side. Jack Tomasello of Tomasello Winery shrugged it off and explained that the two wineries—and in fact all seven wineries in the state—do not compete with each other, because they are all working on something a little different and can actually learn from one another. The result is seven wineries that offer seven unique experiences to New Jerseyans who go winery-hopping through the state.

That such an international wine exhibit—attracting impressive labels from California, Italy, France, even as far away as Africa—was even held in New Jersey is evidence that New Jersey residents are becoming more aware of

wine. Helping that trend along are New Jersey wines that, like the people they cater to, are also coming of age. The exhibit was arranged and sponsored by the Atlantic-Cape May Chapter of Les Amis du Vin, an international society of wine enthusiasts who get together as often as they can to sample fine wines from all over the world, including New Jersey wine.

Another example of New Jerseyans' growing interest in grape-growing and wine production is the Hunterdon County Wine Growers Association. Formed in 1980 and now totalling more than 100 grape-growing members, the organization's goals include:

- Promoting public awareness of the quality and quantity of wines produced in Hunterdon County.
- Maintaining, fostering, and developing grape-growing as a viable, alternative agricultural industry.
- Discovering and distributing information regarding grape-growing practices and techniques, equipment, and chemical applications.
- Stimulating public and legislative awareness of the environmental, economic, and tourist benefits of grape-growing and wine-making in Hunterdon County.

As owner of the only fully licensed winery in Hunterdon County, Daniel Vernon is naturally a member of the Hunterdon County Wine Growers Association, and his spring and fall festivals at Tewksbury Wine Cellars have done much to cultivate the interest in wine in the area. Vernon believes that the climate and soil of his vineyards combine to make grape-growing favorable. The "gravelly loam" is heavier and perhaps not as well-drained as the soil beneath vineyards in southern New Jersey, Vernon explained, but it imparts a more flavorful character to the grape. A French wine expert who once toured Vernon's vineyards told him the soil looked like that found in the Bordeaux region of France, which is famous for its red Bordeaux wine. Vernon, however, grows more white grape varieties than red, because he considers the climate in Hunterdon County to be more like that of another French grape-growing region (Alsace), noted for its white wine. Fortunately, Vernon's vineyards in the Hunterdon hills have a southern exposure, which average 10 degrees warmer than a northern slope and therefore extends Vernon's growing season. It also makes for a sunnier fall festival.

So mark your calendar to get out and enjoy some wine-sipping sun and fun this grape harvest season. New Jersey may not be Napa Valley, but two of its wineries are helping the Garden State show off one of its finest agriculture products in a festive way.

Cecelia McDonnell pours some refreshment at the Renault July festival.



Natural Lands Trust

BOB CARTICA

PURPOSE

The Trust is to preserve land in its natural state and to protect natural diversity for the present and future enjoyment of the people of New Jersey.

Founded in 1968, the Natural Lands Trust was created to find new ways to acquire and preserve land for its unusual natural features, as habitat for endangered plants or threatened wildlife species, or to protect a watershed, a floodplain, or a barrier island. In short, to maintain New Jersey's natural heritage—to save something green, sparkling, pure, unspoiled for our children.

Created by legislative mandate and established within the Department of Environmental Protection, the Trust encourages charitable gifts of land and manages the lands which it holds. Through a volunteer supported Stewardship Program the Trust properties are protected for their valued natural elements and used for the benefit and enjoyment of all New Jersey citizens.

The Trust plans to have volunteers involved in management of each of its preserves, which at present number 15 comprising over 1500 acres. Individuals from the vicinity of the preserves will be invited to serve on volunteer committees called Preservation Cooperatives. Reporting to and acting under the guidance of the Trust staff, the volunteers are to act in a multi-faceted role in overseeing the properties. They will build trails and otherwise provide for public use where appropriate. The Cooperatives will monitor the site and pick up litter. They will also write resource inventories and alert the Trust to threats to the natural resources.

Two preserves were the sites of the first full fledged Preservation Cooperatives incorporating access control, resource protection and site maintenance. The Crossley preserve in central Ocean County and the Limestone Ridge Marsh Preserve in Warren County are the initial properties chosen for volunteer management. Enthusiastic volunteers have been recruited and are already volunteering their services in overseeing several preserves. The Trust and other offices in the Department of Environmental Protection are eagerly awaiting the results of this bold new approach to management of public lands.

As a concerned New Jerseyan, you can become involved as a *land donor, a contributor, or a volunteer.*

For additional information contact:

Natural Lands Trust
CN 404, Trenton, NJ 08625
Telephone: (609) 984-1339



Exploring Bear Swamp



BY JEAN JONES

Bear Swamp!

Even the name has a primitive sound, and rightly so. Located in the southern portion of Cumberland County, near Dividing Creek, the swamp is believed to contain the largest tract of uncut primeval forest remaining in New Jersey.

Flanked on the East and West by sand-mining operations, Bear Swamp was in jeopardy in the early 1980s from proposed mining expansion and a logging operation, which commenced in 1981. When two years of negotiations with the landowners failed to produce an agreement for sale or trade of the land, the state condemned nearly 1,566 acres.

The acquisition included the nesting site of the state's only breeding pair of bald eagles and an impressive inventory of plants and birds, many near the northern boundary of their range.

Bear Swamp is bisected by county Route 555 and its two segments have been dubbed Bear Swamp East and Bear Swamp West. The state's acquisition was in Bear Swamp East, a mature lowland hardwood forest edged with pines and oaks on its upland borders. It shelters in its boggy depths such rarities as the cranefly orchid, little ladies tresses orchid, American mistletoe, fringe tree, basket oak, and a pond pine at least 200 years old and eight feet in circumference, which is home to the bald eagles.

American beech, several species of oaks and gums, red maple, and towering tuliptrees create a forest canopy which includes many exceptionally large trees, Daniel O'Connor, chairman of the Conservation Committee of the New Jersey Audubon Society, compiled a list of some of these giants, including a living tuliptree with a circumference at breast height of 14'8" and a dead tree of the same

species measuring 17'3".

The wind has an almost unbroken sweep from the Delaware Bay, about five miles distant, and its whisper, high above the forest floor, is nearly always present, providing a background for the calls of nesting, migrating or wintering birds. Ornithologists Clay Sutton and Peter Dunne noted in the *Peregrine Observer* (Summer 1981) that "The fantastic association of northern and southern species which occurs in Bear Swamp is unequaled in New Jersey."

In addition to the bald eagle, more than 100 species of birds have been recorded as breeding here, 17 considered uncommon in New Jersey. The combination of large acreage, tall trees, lack of disturbance, abundant food and proximity to marsh and both freshwater and saltwater ponds contributes to the diversity of species.

Among the breeding species—and there are doubtless some not yet recorded—are acadian flycatcher, various warblers and vireos, summer tanager, and several species of raptors, including the state threatened barred owl, and red-shouldered hawk.

In addition to its plants and birds, the swamp also is home to the southern gray treefrog and the Pine Barrens treefrog, both state endangered; the northern pine snake, listed as threatened; and the eastern hognose snake, carpenter frog, and five-lined skink.

Tiny pools of clear water partially cover the gold and russet leaf litter and a living sponge of mosses. Ferns, partridgeberry, wintergreen, and other moisture-loving ground covers draw nourishment from the rich, black muck. Even in the higher areas of the swamp, water is never very far beneath the surface.

The entire Bear Swamp—1,769 acres in Bear Swamp East and 1,600 acres in Bear Swamp West—was placed on the state's Register of Natural Areas in 1984. Placement on the list does not affect land ownership or use but provides the state with an inventory of areas containing significant natural resources. With state acquisition of Bear Swamp East, it was proposed for addition to the state's Natural Areas System. A public hearing held in April 1986 brought no opposition and a management program is expected to be adopted soon. In May of this year Bear Swamp East became incorporated into the Natural Areas System.

The swamp has traditionally been hunted for deer and, since state acquisition, hunting has been permitted to continue during deer season only (the eagles are not nesting at this time).

Why is preservation of Bear Swamp important, even to those with no interest in rare

plants or animals? Thomas Hampton, administrator of the Office of Natural Lands Management, says the importance lies as much in what is not known as in the recorded facts. "It relates to preservation of natural diversity," Hampton says. "Plants make up 50 percent of prescription drugs but only five percent of plants worldwide have been studied. There may be something in those plant communities that some day will be important to man. It needs to be set aside for future use—for future knowledge."

A 1981 study by Rutgers University biologists Richard Forman, Laurie Goodrich, Mark J. McDonnell and Gary Wein concluded that the nearly 200 acres of uncut primeval forest, the large trees, unusual diversity of breeding birds, rare amphibians and reptiles, and the only active bald eagle nest in the state warranted protecting Bear Swamp East *in toto*.

The report recommended a protection easement for the upstream watershed on state land and easements or reverter clauses for use of the sand mining area adjacent to the primeval hardwood swamp. It also recommended that the spraying of pesticides should be controlled in the immediate area and that at least one other large swamp in the region, such as Bear Swamp West, should be protected and connected by a corridor to Bear Swamp East.

The first mention of the swamp in print was Gordon's Gazetteer of the State of New Jersey in 1834. At the turn of the century, nature writer Dallas Lore Sharp wrote of discovering nesting turkey vultures in the swamp.

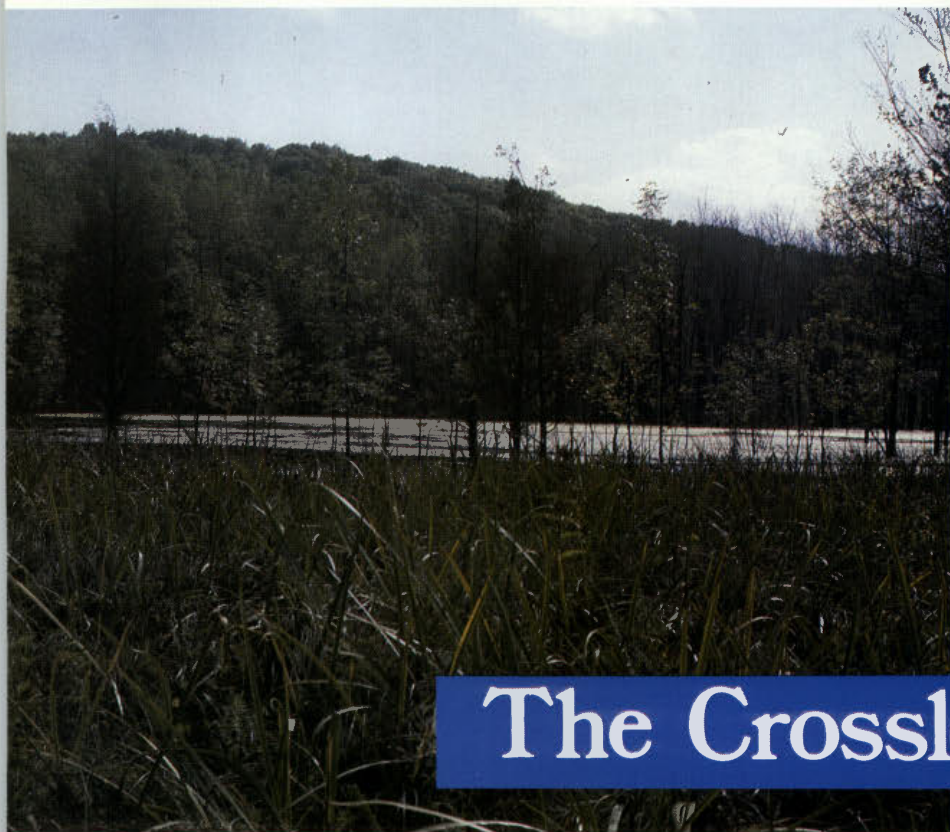
When logging and mining operations began to threaten the swamp, a coalition of environmental groups, including the New Jersey Audubon Society, The Nature Conservancy, the Cumberland Conservation League, CAPE, the New Jersey Conservation Foundation and the Sierra Club made certain that the state was aware of the importance of Bear Swamp. The Natural Lands Trust of Philadelphia purchased 275 acres of Bear Swamp West and is continuing to expand its refuge.

Drawing on data compiled by botanists Karl Anderson, Sara Davison, Alfred Schuyler and Richard Stalter and naturalists Donald Kinkle, Alfred Nicholson and Patricia Sutton, in addition to these already mentioned, Department of Environment Protection officials were able to present a convincing argument for condemnation to the court.

Because of the close cooperation between the state and private citizens, a significant part of Bear Swamp is being preserved, not just for scientists but as a living museum for our children.

PHOTOGRAPHS BY PETE MCLAIN





South end of marsh.



MARLENA CAMPBELL

The Crossley Preserve

BOB CARTICA

BY HELEN COLLINS

On the northern outskirts of New Jersey's Pine Barrens lies a 251-acre plot of land known as the Crossley Preserve. It holds as odd an assortment of flora and fauna, as wide a variety of manmade conditions, and as many remnants of our state's history as you'll find anywhere else in the rich regions of the pinelands.

Located in central Ocean County in Berkeley and Manchester townships, the sand trails of the Crossley Preserve meander through pine and oak forests and pitch pine lowlands. They wind their way past a white cedar swamp, Wrangel Brook, and an old abandoned cranberry bog. The sand trails skirt clay pits that once supported a thriving mining business and the ghost of a village where miners once lived. On the southern end of the Preserve, the trails follow the right-of-way of what was once the Penn Central Railroad. All that remains are old railroad ties half-buried in the sand.

The Crossley Preserve is named for the Crossleys, a family from Trenton who owned and operated the clay mines in the 19th and early 20th centuries. The mining village, gone except for the ruins of a brick-and-concrete machine shop and loading platform, bore the name Crossley as well.

But what's special about the Crossley Preserve lies not with its past, but with its future. In 1984 it became the property of the Natural Lands Trust of New Jersey, an independent organization established within the Department of Environmental Protection to manage and preserve open spaces.

Within the forests in the Preserve dwell several endangered creatures: the colorful Pine Barrens tree frog, the reddish corn snake, the

white-and-black northern pine snake, and an occasional timber rattler. Twelve endangered plants, some found in only a couple of locations in the entire world, flourish here as well. Oddly enough, it is human disturbance of the natural environment that has created many of the conditions these species need to thrive.

Until about 1920, according to the Natural Lands Trust, the Crossley family ran a busy clay-mining operation on this site. More than 100 miners manned the operation, producing clay for brick, terra cotta, and pottery. Miners lived in company houses and sent their children to nearby Whiting to school. Because of the convenience of the railroad, commuting was common, according to information provided by the Ocean County Historical Society.

In 1920 the Crossleys sold the property to Cypress Mines Company. Amoco later took over Cypress Mines and became the owner of the Crossley Preserve, too.

According to Ted Gordon, a botanist who completed a study of this tract of land, clay is a good water-holding medium. "It creates a moist habitat that encourages certain species," Gordon explains. "The vegetation has moved back in where the clay was excavated."

Among the most lovely plants here—though not a rare species—is the Calopogon orchid. And one of the most unusual is Pickering's morning glory, a ground cover that blooms in spring. According to Gordon, the morning glory and its snowy white blossoms are scarce in the Pinelands, and it's found only in one other place in the world—North Carolina.

The Carolina club moss, Gordon said, is an unusual species that trails along moist sand



Tracking rare snakes

near the edge of the water. This plant, which Gordon said has a "strange distribution throughout the world," can be found only in limited abundance on the Preserve. Yet it grows all the way on the other side of the world, off the coast of India.

Among the many rushes and sedges that grow here are the Knieskern beak rush, a rare find for New Jersey; Torry's muhli, a kind of grass very seldom seen in Ocean County; and Barrett's sedge, a wetland plant on the endangered species list.

In an exhaustive study of the area, Robert Zappalorti of Herpetological Associates tracked the rare snakes that live among the Preserve's dense vegetation. As part of his study, Zappalorti surgically implanted radio transmitters into corn and pine snakes as a means of following their movements. What he found is that part of the reason these snakes are so abundant in the Crossley Preserve is because of its disturbed environment. Pine snakes, according to the study, like to nest in the embankment of the railroad right-of-way, on the shoulders of sand roads, and even in open fields. Corn snakes rely on logs, stump holes, and cavities in railroad ties.

If you walk along the trails and old railroad right-of-way, you'll see a number of sandy mounds, some as large as three feet high and twenty feet long. If you study the mounds, you'll see deep burrows through which the snakes crawl in and out. On a warm day, you might glimpse one of these beautiful and harmless snakes basking in the sunshine on top of a mound.

Communal Snake Homes

These mounds, many of which were formed as banks when the railroad was built along the path, are known as hibernacula—or communal snake homes. All winter long, snakes hibernate deep inside these sandy heaps. When the weather turns warm, they emerge.

Although it may be possible to spot a snake if you visit the Preserve on a warm afternoon, you'll have a more difficult time locating the elusive Pine Barrens tree frog. An abundant resident of the swamps, bogs, and brown acid water found in the Pine Barrens, this inch-and-a-half long amphibian is decorated like an Easter egg. Its body is kelly green with lavender stripes bordered by white, with a patch of orange on the inside of its legs.

Although it stays hidden throughout the year, the endangered tree frog emerges in spring in order to mate. The only way to see this creature is to wait quietly on a spring

evening, listening for the male's nasal cacophonous "quonk, quonk, quonk" to echo through the forest as he calls for a female. Careful observers listen for the call, quickly aim their flashlights at its source and try to spot the tree frog before he hops out of sight.

Wildlife, according to Tom Hampton, are much less vulnerable to disturbed conditions than are plants. Snakes, frogs and other Pinelands creatures, he pointed out, may leave a disturbed area temporarily but recolonize if the environment is restored. It's more difficult for plants to recolonize, either naturally or through planting. "Ninety-nine out of one hundred times," Hampton insists, "once you take a rare plant and remove its habitat, you can forget about trying to bring it back to that area. It's almost impossible.

An animal, Hampton continues, is mobile. If it cannot adjust to a certain area, it can sometimes go somewhere else. A plant will just die.

Seeing that endangered species do not die is one of the Natural Land Trust's main reasons for being. New Jersey is the most urbanized and densely populated states in the nation, yet within its borders are a great many natural environments deserving of preservation. Along with the fertile sand of the Pine Barrens, there are coastal and freshwater wetlands, barrier islands, rivers, inland lakes, streams, dunes, marshes and mountain ravines. These natural resources are home to a variety of plants, wildlife, and many rare and endangered species.

In the early 1960s the state began buying land it wanted to preserve, using Green Acres funds authorized by New Jersey voters. But since there is not enough money to purchase all the open spaces the state wishes to preserve, the Natural Lands Trust was born.

The clay mines on the Crossley Preserve ceased operating during the Great Depression. But it wasn't until 1984 that Amoco, its new owner, offered the property for sale. But the Green Acres funds had run dry. And that's where the Trust came in. Aware of the importance of preserving this land—and all the rare species it contained—Amoco donated it to the Trust instead.

Although it stays hidden throughout the year, the endangered tree frog emerges in spring in order to mate. The only way to see this creature is to wait quietly on a spring evening, listening for the male's nasal cacophonous "kwonk, kwonk, kwonk" to echo through the forest as he calls for a female. Careful observers listen for the call, quickly aim their flashlights at its source and try to spot the tree frog before he hops out of sight.

Hunting for Treasure

BY RICK RADIS

PHOTOS BY AUTHOR



BUNCHBERRY

One cool morning last April, I found myself in a bog on the Kittatinnies in Warren County. I had fallen into the still, icy water while hopping from tussock to tussock. It is wise not to pin one's hopes for dry feet upon these small clumps of tussock edge; they are fickle and perverse. One had simply collapsed under my weight, tipping me into the water. As I sank slowly into the mud below, I wondered what I was doing in an isolated swamp, alone and far from help. The reason for my being there made the situation seem even more ludicrous. I was looking for dwarf mistletoe, a tiny plant which bears a great resemblance to a dead needle of black spruce, the tree which it parasitizes. Known in New Jersey only from a few cold bogs in the northern part of the state, dwarf mistletoe had been reported from this swamp in the 1930s.

My search for rare plants was one of a number of surveys recently conducted by professionals and volunteers in conjunction with the New Jersey Natural Heritage Program. This statewide biological inventory was inaugurated in 1984 as a joint effort of the New Jersey Department of Environmental Protection and The Nature Conservancy. The Natural Heritage concept was pioneered by The Nature Conservancy in the 1970s, when it was becoming evident that a critical need existed for a comprehensive and uniform system of gathering and unifying information about rare species. Development and alteration of our environment is progressing at such a pace that there is an urgent need to know what species and habitats are most vulnerable to extinction so that we may set preservation priorities.

Starting a Heritage Program is now a relatively standardized procedure: A computer

database is set up, uniform survey methods are established, historical records of rare species are checked, and additional locations in similar habitats are visited. Rare or unusual natural communities—limestone fens, pine barrens savannas, boreal bogs—are thoroughly searched and cataloged. Using standardized mapping conventions and computerized codes, it quickly becomes evident which sites are biological "not spots": places where numbers of rare species occur together within a small area. Natural Heritage professionals can obtain locational information with a few simple computer keystrokes.

When it becomes evident that species are no longer present at formerly known locales, there are other avenues available to Natural Heritage professionals and volunteers. Searches conducted at the collections and herbariums (repositories of botanical specimens) of museums, universities, and botanical gardens often turn up additional locations for rare species that never appeared in print. Also, it often happens that records of rare species never reach those most involved with their preservation. This is particularly true of information compiled by amateurs. The field of natural history has a long record of amateur contributions, and the Natural Heritage Program has actively solicited the aid and information of nonprofessionals.

Natural Heritage workers operate under a productive rule: Take nothing for granted. A species absent from all its known sites is not necessarily extirpated. Most plants and animals have fairly precise habitat preferences. Birders almost instinctively begin to look for piping plover on broad dry beaches; for upland sandpiper, grasshopper, and Henslow's spar-

rows in grasslands. These are the birds' preferred habitats. Over the last few years, I have become fairly conversant with the long-tailed salamander, thought to be relatively rare in New Jersey. I have learned, when in rocky, wooded areas in the limestone belt of Sussex and Warren counties, to turn over rocks and logs, to scan ledges: this attractive little animal is actually fairly frequent in the region, though I have seen it nowhere else in the state. Limestone is evidently a component of this species' habitat.

Searchers looking for lost species in habitats similar to the one in which they were last recorded have been finding plants not seen in New Jersey for many decades; a few have never before been seen in the state. Pickering's reed grass, southern rein orchid, Nebraska sedge, Carolina wood vetch, Darlington's spurge, dwarf azalea, grooved yellow flax, long-awned smoke grass, and Walter's St. John's-wort, all lost plants, have been relocated recently by Natural Heritage staff, contractors, and volunteers. Large water plantain had not been known to occur in the state prior to its discovery in 1985. While examining a wetland in the northern part of the state, scientists from The Nature Conservancy and the NJ Natural Heritage Program came across a species of moth which is new to science; quite a feat in a small, well-studied area such as New Jersey. The following is a partial list of the rare species and natural communities that the Natural Heritage Program has been surveying and cataloging: Pine Barrens tree frog, pine barrens savannas, and dwarf pine barrens; southern bog lemming and timber rattlesnake; trap rock glades; northern goshawk, corn snake, great blue heron, and bald eagle; limestone fens; hanging bogs; peregrine falcon and bog turtle; mud, blue-spotted, long-tailed, and tiger salamanders; a rare species of tiger beetle; piping plover, Henslow's sparrow, wood rat, and upland sandpiper; freshwater tidal swamps.

The inevitable question is: "So what?" Why spend money and time searching for and protecting obscure plants and animals when there are so many other critical problems to be dealt with? There a number of sound practical, ethical, economic, and aesthetic reasons. As has often been pointed out, nearly 50 percent of our medicines and pharmaceuticals are derived from nature. Only a tiny fraction of the world's estimated millions of species have been studied. Many of them will be gone before we ever get a chance to study them. The line between the world and starvation is held by a very few species—rice, wheat, corn, rye, barley, potatoes—which rest on a very narrow genetic base. They are extremely vulnerable to

diseases and pests. Their wild ancestors, some of which retain the genetic diversity to resist such problems, are disappearing. There may still be species in the wild with potential to become human food crops. At the current rate of extinction, which is far beyond the "natural" rate, this potential will be greatly reduced within a decade or two. Our current genetic manipulations cannot match a diversity that has evolved over eons. And finally, many people feel a sense of responsibility for the stewardship of the myriad other forms of life that have evolved into being along with the human race.

The Nature Conservancy's share of financial support to the NJ Natural Heritage Program will come to an end this year. Funding for Natural Heritage Programs has generally been assumed by their respective states after the first two years, and it is hoped that New Jersey will do the same. It makes economic sense to do so. Among the major causes of cost overruns in highway construction, development projects, park development, and similar activities are the delays and costs of litigation brought about by the opposition of environmental groups and concerned citizens. Once a project is committed and land is purchased, it is very difficult to make changes; but changes on paper in the early planning stages are relatively painless. By consulting the professionals and the computer data base of the NJ Heritage Program in advance, planners can avoid future headaches. Forewarned of the presence of a rare plant, animal, or natural community; they can alter the route or siting before financial commitments have been made. Environmental impact studies and surveys can benefit from the Heritage Program's statewide and up-to-date database.

The New Jersey Department of Environmental Protection is responsible for more than 400,000 acres of land in parks, forests, and wildlife management areas. It also manages lands in the Natural Areas program, the first state program (1961) in the country designed to protect rare species and habitats. With the Natural Heritage Program it has a cost-effective tool for identifying areas which are most deserving of state protection. To assist in this conservation effort, The Nature Conservancy has also launched a critical areas program which is raising funds for preservation of the most critically important natural areas identified by the NJ Natural Heritage Program.

Conservationist Jon Roush, writing in *Northern Lights* magazine, has called the Natural Heritage Program a "state-of-the-art biological information system." Considering New Jersey's current and projected growth, we surely need it.



SQUIRREL CORN



INDIAN PAINT BRUSH

Clan of the Cave Keepers

BY STEVEN K. BRUSH



Cavers are a special breed. Their passion is to leave the light and open air for dark and close confines underground. They rope down pits the bottoms of which cannot be seen, and squeeze through passages sometimes a little bigger than their heads. After hours of almost constant movement through subterranean spaces, the cavers emerge at the surface dirty and tired but with a burning desire to do it again.

Caves hold an attraction for many of us, as demonstrated by the popularity of Mammoth Cave and Carlsbad Caverns. There are cave-lovers of many kinds from Mark Twain's Tom Sawyer to Ian Fleming's Dr. No. Few of us, however, past Tom's age or short of No's obsession intentionally go underground.

Yet it is easy to understand why cavers participate in their form of recreation ... easy, that is, after talking with Tom Pollock. Pollock is President of the Central Jersey Grotto, an affiliate of the National Speleological Society, the national organization for cavers. Pollock, by profession a planner for Middlesex County, brims over with an enthusiasm for his past-time familiar to anyone who has met a mountain climber, scuba diver or balloonist. The fascination for these recreationalists seems to derive from leaving the everyday world behind to enter a more exciting and personally-challenging one.

The experience shared by cavers may be a reason why they have been willing to volunteer time and energy to preserving opportunities for caving in New Jersey. Pollock, with two other members of the Central Jersey Grotto and three from the North Jersey Grotto, make up The New Jersey Cave Management Committee (CMC). The CMC controls access to and use of two caves located on land owned by the New Jersey Natural Lands Trust. Based on a five-year agreement between the Trust and the volunteer committee, the role played by the CMC is an innovation which is leading to more active volunteer participation in managing public lands. It bodes equally well for citizen involvement in governmental affairs and retention of public recreational resources in a time of park staffing limitations.

Cave Accident

There are few caves in the state—only 112 in all, many of them on private land. Many are not suitable for good caving. Access to the longest one, Crooked Swamp Cave in Sussex County, was threatened after a fatal accident in 1982. Donald Weltner was a New Jersey State trooper leading a group of children through the 1250-foot-long Crooked Swamp

Cave (also called Breathing Cave), when Weltner became stuck in a narrow passage. Cave rescue teams and other support groups from across the state and nation took part in a rescue attempt that ultimately was unsuccessful.

Following Trooper Weltner's death, there was a public outcry to close the Crooked Swamp Cave, especially among residents living nearby. The closure issue became a matter of public debate because the cave entrances are located on a preserve owned by the New Jersey Natural Lands Trust. The Trust had received the 18-acre property by donation in order to maintain its natural and open space values as well as to preserve the cave system and buffer the adjacent great blue heron nesting area. Obviously, the easiest solution to the situation would have been simply to close the cave and accentuate the other natural amenities of the property.

It was a familiar scenario for Tom Pollock and other spelunkers. Pollock wrote in an article for *New Jersey Outdoors* (Jan/Feb, 1982), "There are far more closed caves than open ones ... [After an accident or incident] A private owner will feel the pressure to close the cave from his friends and neighbors, especially if one of their children is the focus of an incident. Unfortunately, once the pressure becomes effective, access to the cave is denied to all comers, experience and qualifications notwithstanding."

Crooked Swamp Cave probably would have been closed if the cavers had not entered the picture. Working on precedents of cave stewardship in other states, the two grotto clubs went before the New Jersey Natural Lands Trust. They proposed that they manage the cave themselves by constructing a secure gate across the entrance. The gate would be designed to allow passage of air and small animals, thus not disturbing the life and conditions of the cave. The cavers themselves would be responsible for opening the gate for those who wanted to explore the cave. They would be able to refuse to open the gate if they judged the people were not experienced or responsible enough.

Proposal Accepted

The Natural Lands Trust was receptive to the proposal. According to Maude Backes, Real Estate coordinator for the non-profit corporation, for several years the Trust had wanted to utilize volunteers in overseeing its preserve system. The Grotto club proposal gave the Natural Lands Trust a chance to test the volunteer stewardship idea for the first time,

Backes said. What resulted was a management agreement on February 1984 between the Trust and The New Jersey Cave Management Committee. A small amount of money was appropriated by the Trust, materials were donated from private sources and the cavers designed and built the gate. It was constructed and functional by September, 1984, two and a half years after the accident.

Having set a precedent with Crooked Swamp Cave, The New Jersey Cave Management Committee looked to other caves. In May, 1984, the CMC initiated a similar agreement with the DEP Division of Water Resources for management of the Lee Cave. This Hunterdon County cave, 900 feet in length, had long been a subject of interest and concern for New Jersey cavers, Pollock said. Particularly because it has a couple of precipitous 15-20 foot drops, it was "an accident waiting to happen." In fact, only a few weeks before the gates were installed, a young boy in the Hunterdon County neighborhood of Lee Cave ran away from home and hid in the cave. Luckily, he was found unhurt.

On both properties, the cavers have built secure steel and concrete gates. Keys to the gate padlocks are distributed among the proper DEP offices and also are kept by members of the CMC. Anyone who wants to visit the caves must request access through the CMC. A responsible and capable caving group may be allowed to go through on their own but inexperienced cavers must be accompanied by members of the Committee. Thus, the CMC is truly the "gatekeeper" for public recreational resources.

The successful functioning of the Caves Management Committee has encouraged the Natural Lands Trust to expand its volunteer outreach, according to Backes. With the Crooked Swamp Cave as a "test site," she said, "it demonstrated what could of been done with the help of concerned volunteers." "We have had such a good experience with that group," she continued, "the Trust is applying the idea to other properties."

A small group of enthusiasts who did not want to lose opportunities for their form of recreation provided the test case for the Natural Lands Trust's Preservation Cooperatives. This expansion of the volunteer role is a new ingredient in the matrix of use and management of public land. It may become increasingly important to the efficient and wise stewardship of our natural areas.

I'm sure this is all fine with Tom Pollock and his fellow cavers, but I couldn't ask him. He had gone underground.

Write the New Jersey Natural Lands Trust at 109 W. State St., CN 404, Trenton 08625 to get in touch with the committee. If you want to try caving, write the National Speleological Society (NSS) located on Cave Ave., Huntsville Alabama 35810. The NSS will direct you to the affiliated grotto nearest to you.

The NJ Cave Management Committee built a concrete and steel gate to protect the cave and the people who enter it. The circular entrance passageway is 19 inches in diameter and four and a half feet long. It is padlocked at the inner end. The smaller opening allows air to circulate and creatures such as bats to come and go.

Season of the British

BY GAIL GRECO

When the leaves turn golden, mahogany and russet, the hillsides also blaze with other hues: the unmistakable shades of "the hunt ..."

The fox hunt.

As the furling gray mist rolls off green mountainsides on fall mornings, elegant and stunning scarlet and black garbed riders on horseback charge across the Garden State in pursuit of the elusive and sly Reynard, the fox.

Clad in melton waistcoats, they rise above valleys, cresting hills from the farthest reaches of Northern Jersey to the inner grasslands of Central Jersey.

Capped in English chapeaus, their top hats, derbys and velvet riding caps bob gently as they maneuver among frolicking hounds readying for their swashbuckling adventure.

The white-gloved entourage in creme britches and brown leather boots about to embark on a breathtaking journey, is once again keeping a British tradition alive in America.

When the brass tones of the huntmaster's horn cut through a quiet, crisp autumn morning, the hunt has begun with all the motherland's regalia and pageantry.

"Tally-ho," it's foxhunting season, and New Jersey is one of the 34 states where the red coats still fly over hills and dales.

In fact, it's little-known (even among the sporting hunters) that New Jersey was part home to organized foxhunting in the United States. In 1766, the Philadelphia City Cavalry, the oldest military unit in America, formed the first subscription pack (a hunt club as we know it today). Their hunting grounds on both sides of the Delaware River, were in Philadelphia and Gloucester County, N.J. In Gloucester they hunted red foxes, which are said to have been native to that area.

Today, there are five hunt clubs in the state: Monmouth County Hunt Club in Allentown, established in 1885; Essex Fox Hounds in Far Hills, 1912; Spring Valley Hounds in New Vernon, 1915; Amwell Valley Hounds, Hopewell, 1960; and Windy Hollow, 1963—a Port Jervis, New York-based club which also hunts in Sussex.

The clubs hunt primarily on weekends, taking to barnyards and open fields just as their counterparts in Britain. The classic chase to outwit the fox with a pack of trained hounds and sophisticated riders, also known more poetically as "riding to hounds," began in 17th century England.



The genteel society picked up the tradition from countryside farmers who were plagued by foxes menacing their livestock. Squires enjoyed the excitement of tracking down the fox and added ceremony to the hunt. Instead of using weapons to kill the fox, they trained hounds to follow the scent and do the stalking for them while they reveled in the thrill of the chase.

Today, in England, these hunts continue. Some 40 to 50 riders follow 12 to 24 hounds on the track of the fox's scent. When they ferret and kill their prey, the hunt is drawn to

is here

PHOTOS PROVIDED BY AUTHOR



a close. In this country, the hunt is as formal as the British, but one aspect is very different.

American foxhunting is not a bloody sport. Killing the fox is not the primary goal of fox hunts here. Unlike the English, Americans don't have to control the fox population, as there are few of the native red and grey fox around. The object of the sport is the chase rather than the kill. Riders also enjoy camaraderie and the rewards of a challenging ride.

Some clubs hunt the fox, but call off the hounds once the fox has dug a hole and gone into hiding. Others, like the Spring Valley

Hunt Club which only hunts "drag," don't even see a fox.

During a "drag" hounds and hunters pursue only the scent of the fox. The night before the hunt, the kennelman who takes charge of the hounds (you don't call them dogs) lays the scent by dragging cloths soaked in fox urine along a path he has plotted. Next morning, as long as it hasn't rained in the interim, the hounds follow the scent. They lead the riders on an unknown course over grasslands and through forests, and fences of timber and of post and rail.



Stirrup cup is said to provide a hunter with leaping power.

A drag hunt eliminates uncertainties in the trail. Riders don't end up in dangerous ravines or amid tangled ground cover. The drag hunt almost guarantees a steady gallop over undulating countryside rather than steep hills that tire the horses.

"That is not to say we don't give them a good run," says Richard Vanderhoof, kennelman for Spring Valley. "We lay the scent according to the way a fox would run," he explains. About 10 percent of the organized hunts in this country are drag.

Foxhunting was once a sport of the aristocratic and very wealthy. Nowadays, anyone can hunt who can afford to keep a horse and pay club membership dues averaging \$850 a year. However, some clubs are more elite than others and their more than average membership fees do keep out those who do not have a certain income level.

Hunters gather for the morning stalking at a fixed destination. Everyone puts the finishing touches on their hunt regalia. Each part of the huntman's outfit is significant. The white tie, called a "stock" is designed to serve as a bandage if a horse or hunter is injured.

The color of the coats are also symbolic. The majority of foxhunting clubs in the United States prefer "hunting pink" (scarlet) coats for men who have earned certain status in the club and black for women and men without "colors." the "pink" refers to the tailor who originated the coat in the 17th century. His surname was "Pink." Different colors also delineate club rank.

Before taking to the fields, hunters imbibe a "stirrup cup," sometimes defined as "leaping power," because it is said to instill courage. It is usually a sip of brandy or a cordial.

When the hunt is about to depart, the master of hounds signals the start with his horn. He prances out in front, followed by his staff. The staff includes "whippers-in," who snap the ground with thin leather straps to keep the hounds from straying. The remaining riders trot behind.

As soon as the hounds pick up the scent, the quest begins. Sometimes they amble in gallops and then the pace quickens and riders may be jumping over "coops"—fences in equestrian jargon.

At the end of the trail, the hounds' bark and the master's horn signals the end of the hunt. The riders return to the starting point or end up at the home of a club member for a hearty meal known as the "hunt breakfast."

The foxhunting production is basically the same scenerio all over the state. Hunt clubs

religiously follow British tradition and hunt protocol.

Reasons for "riding to hounds" varies with each hunter. For Val Bonomo, a teacher in East Hanover, "Foxhunting is somewhere between a ballet and a bullfight. I enjoy its grace and beauty and its dramatic excitement."

Hunters frequently come in couples. Foxhunting is a sport which draws husbands and wives to participate together. That's how it is for Yolande and Jack Casey of Smoke Rise in Kinnelon. Foxhunting has been a way of life for them for many years.

The Caseys have hunted in other countries including Ireland. "Foxhunting provides a thrilling outdoor challenge and the chance to see beautiful scenery, like that along the edge of the Delaware," says Casey, who is a master of foxhounds at Spring Valley.

The Caseys were on a hunt in Allamuchy and talked to *New Jersey Outdoors* while they settled their horse after a two and half hour run.

In addition to grooming their horses, the Caseys covered their animals with woolen blankets on this, a warm fall day, to keep the sweating animals from cool breezes.

All around them, hunters were doing the same. Then it was time for everyone to relax and eat.

Club member Diane Millner was serving the "hunt breakfast" at her Johnsonburg home.

The breakfast is more of a brunch because of the time the riders conclude the hunt, but foxhunters refer to it as a "breakfast" for tradition's sake.

Hunters were mingling around Diane's festive table eating hot soup, salad and cold meats while analyzing the morning's hunt.

In recent years, foxhunting has drawn a trickling of spectators. Friends and relatives of riders can follow the kennelman during many hunts. He knows the route and drives along, stopping at certain points to make sure all is well with the hounds. This gives spectators a glimpse of the riders and scenery.

As long as property owners continue to permit their lands to be traversed by foxhunters, the sport will continue here.

Wherever the fox, or his scent, is hunted, the ritual of the event—replete with special language, dress code and specially bred hounds is essentially English. As the days turn into winter and then spring when the foxhunting draws to a close, a British tradition first organized in this country partially in New Jersey, continues to thrive all across America.

Morris County Park Commission

30 Years Young and Growing

BY ROSALIE STRACHAN

PHOTOS BY THE MORRIS COUNTY PARK COMMISSION

Most people think of a park as a place where you can go to relax or have fun, a place where you can lie under a shady tree on a hot summer day, have a picnic, or play baseball. But, as the Morris County Park Commission has demonstrated over its 30 years of existence, parks can be all that and more. They can serve as buffers against development in an increasingly urban environment. They can serve as environmental education facilities, where both adults and children learn about man's inter-relationship with nature. And, through historical sites, parks can let us experience firsthand how complicated the "simple" life of our forefathers really was.

In the early 1950s, Morris County officials found that land was already being gobbled by development. They foresaw the need to preserve open spaces and to provide recreation areas for the future, and to do it before the land was priced out of reach. The Morris County Park Commission was established by public vote and, in 1956, the first parkland, James Andrews Memorial Park in Randolph, was acquired. Lewis Morris Park, opened in 1958, was the first park developed as a recreation area. Since the first acquisitions, the Park Commission has grown to over 8,000 acres of land in 22 parks.

Environmental Programs

While the first parks opened to the public, such as Lewis Morris, were chiefly recreational in nature, it soon became evident that the parks could be used for instruction as well.

In 1963, the Park Commission, in cooperation with the New Jersey Audubon Society, started using the Great Swamp Nature Education Center to teach about the environment. Today, the Great Swamp Outdoor Education Center still serves as the main environmental education facility, holding weekday programs throughout the school year for school groups and weekend programs for adults, children, and families.

School programs vary according to age, with older children getting a more detailed study of each topic. However, all children first meet with one of the OEC's instructors in one of the Center's classrooms and then move outside to explore nature firsthand. In the Nature Observation class, second graders use their five senses to become familiar with the world of nature by touching, listening, watching, sniffing, and tasting. Sixth graders may study Indian Life, learning how man adapted to the environment, and then might study Pioneer Ways, learning how man adapted nature to suit his needs.



Fosterfields farmer Bob Fossetta demonstrating blacksmithing.



Corn shelling demonstration at Harvest Festival.



On weekends, the OEC offers a trail walk and a related film as well as special programs suitable for families. Fall botanic subjects include wild edible plants, poisonous plants, and autumn fruits and flowers. The changing season is marked by programs on fall migration, the arrival of winter birds, and a study of the Swamp's fur-bearing animals. Special programs have included the Great Swamp's bluebird population (largest in New Jersey) and how to attract bluebirds to your yard, what archeological digs reveal about Indian life in New Jersey, and how special rehabilitators care for injured wildlife.

Out-of-facility activities include canoe trips, bike tours of the Swamp that generally go as far as Loantaka Brook Reservation, and a trip to Hawk Mountain Sanctuary in eastern Pennsylvania to view the fall migration.

Since Morris County sprawls for 479 square miles, similar programs have been set up at Bamboo Brook Outdoor Education Center, part of Black River Park, and at Saffin Rock-Rill Reservation, part of Mahlon Dickerson

Reservation, to serve schools in other parts of the county. Habitat varies greatly, however. The Great Swamp Outdoor Education Center is surrounded by flat, marshy land and a little laurel woods. Bamboo Brook was once a private residence with extensive gardens that show how man alters nature to suit his purposes. Saffin Rock-Rill is located in the rockiest and hilliest part of the county with a great variety of terrain and habitat, perfect for geological studies.

Summer programs shift to Lewis Morris and Schooley's Mountain parks, rather than remaining at Bamboo Brook and the Great Swamp, although programs do continue at Saffin Rock-Rill.

Historical Programs

Cooper Mill, also part of Black River Park, and Fosterfields Farm provide the nineteenth century backdrop for Morris County Park System's historical programs.

Although there was an earlier mill on the site, the present Cooper Mill, a sturdy field-stone structure, dates from 1826 and was in use until 1913. When purchased by Morris County, not much was left except the shell, so the entire millworks had to be reconstructed. The original mill had a wooden waterwheel but researchers found that during the nineteenth century, these were replaced by more durable iron waterwheels. Although Cooper Mill's iron waterwheel was still there, it was in such bad shape that it couldn't be used. Another one was located, hauled to the mill, refurbished, and, since it was larger than the original, after much rebuilding of the Mill, it was finally in place.

Cooper Mill is open from April through November, presenting demonstrations of the milling process and the work needed to maintain a mill. If you'd like a sample of stone-ground grain, a donation will get you a two-pound bag of whatever's available: whole wheat flour, cornmeal, rye, or buckwheat.

Most historical programs are held at Fosterfields Farm which has a visitors' center and which, as a living historic farm, can demonstrate a broader range of everyday life.

Fosterfields exists today through the generosity of Caroline Foster who lived there from 1881 until her death in 1979 at the age of 102. Active throughout her life, she built with her own hands the estate cottage and, when in her nineties, turned over the first spade of earth for the visitors' center and attended the dedication a few years later.

The main residence, The Willows, is a large, rambling Victorian structure which was built

by the grandson of Paul Revere and dates from 1854. Unfortunately, the building needs extensive renovation so it isn't open to the public yet. But visitors can anticipate a realistic look at turn-of-the-century life, since Miss Foster never changed a thing. A special treat is found in the dining room where walls are decorated with trompe d'oeil paintings thought to be done by General Joseph Revere himself.

From April through October, Fosterfields presents a variety of activities that took place on a Victorian farm. In the spring, visitors can watch a sheep shearing, then try carding and spinning the yarn themselves. You might also watch a demonstration of blacksmithing, take a turn churning butter, or try dipping candles. Special fall events include corn husking and making apple cider. And if you're interested in keeping bees or raising goats, or just curious, experts in those fields will be giving a couple of weekend demonstrations this fall.

The visitors' center contains an exhibit of old farm implements, a gallery of pictures taken at Fosterfields around 1900, and a movie that weaves the history of Fosterfields with the development of agriculture and events in American history that took place at the same time.

Visiting school groups probably get the most enjoyment from their hands-on experiences. Since children love animals, they're thrilled to see how large a horse really is and want to know if the cow is dangerous because she has horns. They go into the old hayloft where machinery is stored now, and, if they're big enough to have the muscle power, try to crank the corn sheller and corn cracker themselves. They learn why corncribs have such an odd shape, see a variety of equipment in the outbuildings, and may walk up the driveway for a closer look at The Willows, Miss Foster's cottage, and the orchard, all under the supervision of one of the educational guides.

Fall Celebration

To celebrate its thirtieth anniversary and its growth, the Morris County Park Commission has been holding a series of special events throughout the year. In January, the second ice surface was dedicated at Mennen Sports Arena. In May, a 1.5 mile extension of the recreation trail at Loantaka Brook Reservation was formally opened. In June, the Traction Line Recreation Trail connecting the Ford Mansion with Convent Station was opened.

But the biggest celebration will take place at the Harvest Festival to be held at Fosterfields on October 18 from 10 a.m. to 4 p.m.

Here you'll get to observe or take part in many of the weekend activities all at one time. If the weather is favorable, Farmer Bob Fossetta will work the draft horses, plowing in the corn stubble before planting winter wheat.

Antique engines will be used to power a portable gristmill, corn sheller, and other "advanced" turn-of-the-century farm equipment. These will be contrasted with the hand-cranked corn sheller, corn cracker and fanning mill that were being phased out due to the development of the gasoline engine.

Visitors will be able to pick and husk corn and see how cornhusk dolls are made, see an exhibit of herbs in Miss Foster's cottage, watch the village smithy pound iron, and watch brooms being made, among other activities.

Children will have a chance to try out stilts, take part in a sack race, test their aim with "darts" made from corncobs, and try other Victorian children's fun.

And "Dr. Andy" Drysdale, better known as Curator of Education/Historic Sites, promises to bring his traveling patent medicine show to cure the ills of all mankind.

Expansion

The Morris County Park System continues to grow and change, adapting to meet the needs of the expanding population. This year alone, additions include Snow Bowl, a former ski area, and lands adjacent to The Tourne, Hedden Park, and Passaic River Park, with combined funding from Morris County and Green Acres.

Addresses:

Information on any of the Morris County parks is available from:

Morris County Park Commission
PO Box 1295R
Morristown, NJ 07960 (201) 829-0474

Parks detailed in this article are located at:

Outdoor Education Center
247 Southern Boulevard
Chatham, NJ 07928 (201) 635-6629
Cooper Mill
Route 24 and State Park Road
Chester, NJ 07930 (201) 879-5463
Fosterfields
Route 24 and Kahdena Road
Morristown, NJ 07960 (201) 644-0342

The Friends of Fosterfields is an organization of volunteers established "to support and promote the development and maintenance" of Fosterfields and Cooper Mill, including the publication of a newsletter. Contact them at the Park Commission address, or phone Fosterfields.

Indian Summer Grouse



The Brittany works enthusiastically off to the right in a heavy mix of honeysuckle, cedars, and wild barberry, as I stop to mop the beads of perspiration trickling down my nose and glasses. Evidently she is in better shape than I *thought* I was. Her bell stops momentarily, then starts again, as I hastily try to replace my glasses and bring the gun from under my arm. All to no avail as a grouse zooms past at about 30 yards, and sails off down the hill it had just taken me 20 minutes to climb.

I jam the red handkerchief into my back pocket as the Brit emerges from the dense cover. She is enthusiasm personified—to most bird dogs, the scent of grouse is heady stuff.

It is Indian summer, that evanescent time during early October when warm, hazy days follow autumn's first frosts. We are on the season's first outing for ruffed grouse, also known in Northwest New Jersey as "mountain birds"—a clue as to where they are likely to be found. Especially-favored covers are overgrown, abandoned, hillside farms, which have begun to revert to the wild. With old apple orchards, vine-festooned stone walls, and scattered stands of birch, poplar, and evergreens, such places offer food, protection, and nesting sites.

A "birdy" spot...

Impatient with the delay, the five-year-old "pup" becomes restless—I defer to her urging and move on. Ahead lies the huge, moss-and-grapevine-covered trunk of a fallen former forest monarch—a "birdy" spot—but not today. Immediately uphill an overgrown woods road follows the contour of a wide shelf which runs along the side of the mountain, and I take the line of least resistance, while the dog works the cover on either side.

The sun, topping the mountain above us, floodlights the mosaic pattern of fields and woods in the valley below. In the calm morning air, a thin blue haze veils the distant Kittatinny Ridge, while down along the brook, the sound of a farm tractor punctuates the quiet. A few early frosts have turned the swamp maples brilliant red, and scattered stands of birch and poplar have begun to show a tint of yellow.

The Brit cuts downhill into a spring seep, lush with growth from the past summer. Her bell stops, and as I take a few steps in her direction, there is a whirl of wings and a blur in the brush as the bird vanishes before I get the scattergun halfway to my shoulder. I rationalize that such tactics ensure the survival of the species.

PHOTOGRAPHS BY AUTHOR

The dog is called to heel as we traverse a piece of open woods. Since she seldom finds birds in this sort of cover, she tends to make a beeline for the distant brush, not always with the best results.

The woods gives way to a large clearing, with an old orchard at one end. Near a few scattered cedars, along a crumbling stone wall, the Brittany stands on point. As I approach, she moves ahead a step or two, freezes, then seems uncertain. I circle a little to approach her and the grouse, which apparently had flipped up into a tall cedar, roars off as our shot brings down a shower of cedar needles. Well, at least this time I got to fire the gun!

We continue around the edge of the clearing as the "pup" checks out several woodcock spots—(some dogs seem to have an uncanny memory). She comes up blank, and I tell her the woodcock will arrive later—maybe next week.

Where the old woods road leaves the clearing, there is a jumble of downed trees and bittersweet vines. I spot the Brittany standing on point in the middle of this tangle, and as I move forward, the grouse breaks cover and bores straight for me. I start to swing the gun ahead of our target, but an "instant" sapling interrupts, and I fire a futile shot well behind as the bird sails overhead. The dog does not seem to understand what I am muttering under my breath.

Overhead, the sun climbs toward its zenith, and a light breeze stirs the leaves on the birches. As we rest on a soft mat of pine needles, and share a snack, I recall dogs past working these grouse covers and none of us were perfect—gunner or dog. And I remember the comment of a friend who accompanied me in pursuit of grouse one autumn day. It had been uphill and downhill most of the day, but seemingly mostly uphill. At the end of the day, as we trudged uphill toward the car, he exclaimed: "How can it be that we hunted *uphill* all day, and must go *uphill* to get to the car?"

The "pup" becomes fidgety, and we drop down into a small ravine where a tiny brook provides water. A pair of grouse flush wild along the brook and the sound of their wings fades up the mountain—birds for the future.

Her day has been made...

The day has become much warmer now, and we start the return trip. The way back threads through some shaded glens, and while they are uneventful, the relief from the heat of the sun is welcome. We descend to the old woods road where we started, and the Brit works the



The venerable 16-gauge double, veteran of innumerable grouse forays, complements this russet-tailed ruffed grouse taken one Indian summer morning.

downhill side, a stand of poplar and birch, where earlier frosts have thinned the foliage.

Just beyond a large spruce lies a pocket of black-raspberry briars. Sensing that we are nearing the end of the hunt, the dog puts on a burst of speed, trying to make the most of the last few moments. Streaking down the woods road at full throttle, she wheels and freezes at the edge of the pocket. I take a few steps and the grouse explodes from the thicket at a right-quarterming angle, the 16-gauge double speaks, and the bird folds at the edge of the cover. The dog is there in an instant, noses the bird, then with head held high, brings it in and deposits it at my feet ... her day has been made.

I smooth the brown-and-gray mottled feathers, admire the fan-shaped, russet tail, with its black band, then pat the dog's head—and the mutual admiration society adjourns to the nearby car.

Suddenly the morning's tribulations seem to fade into oblivion, and the Brittany and I are elated with our modest success. This is early in the season, and we have found mountain birds on the hillside. Perhaps this challenging gamebird, with a history of cyclic populations, is on the upswing this year. The possibilities seem promising ... and we look to the future with anticipation.

Grouse country is mostly rough country. A light gun, and lightweight, brush-and-briar-resistant clothing, will prove their worth in affording that split-second advantage needed to get off a shot in heavy cover—sometimes! Before the early-season foliage thins, grouse seem to lie closer than later in the season. An open-bored gun, with trap loads, is a good choice.

The gear is stowed, the dog jumps up on the front seat, and—much slower—I follow. On the short ride home, she sleeps with her head on my lap. Tonight, she will dream of the morning's hunt ... perhaps I'll join her.

A recipe for early-season grouse hunting might consist of perseverance, liberally sprinkled with perspiration, plus a pinch of luck. Mix well with a keen dog and colorful autumn foliage—result is a rewarding day in the October outdoors.

1986 DEP Poster Contest Winners

The overall subject for this year's DEP poster and essay contest was "Water in New Jersey." Specific sub-topics for the poster contest were designed for individual entry levels. For example, primary grades (K-3) used "How do I use water?" and senior high grades (9-12) used "Quality water—Now and in the future." The theme for the Junior High essay contest was "How do we guarantee quality water for now and the future?" The judges had their work cut out for them—more than 1,500 posters and over 100 essay entries were received!

Plaques, subscriptions to *New Jersey Outdoors* and passes for free admission to day-use facilities at state parks/forests/recreation areas were presented to the first place winners and plaques were awarded to the second and third place winners.

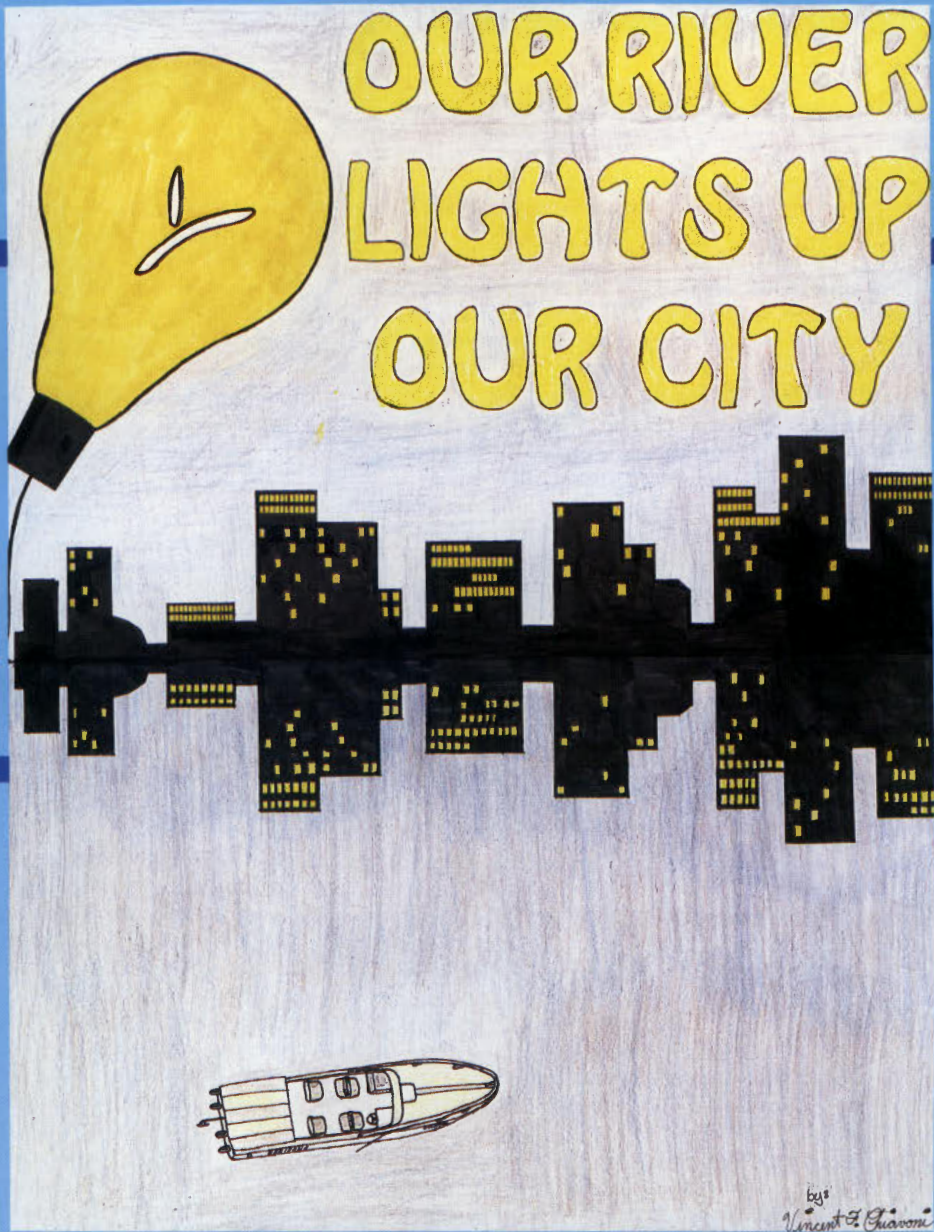
Winners and their respective categories were:

PRIMARY (K-3) "How do I use water?"

1. **Patricia Moscarello** of Trenton, St. Raphael School, Trenton
2. **Anne Kuras** of Howell, Taunton School, Hopewell
3. **Kyle Wanberg** of Avalon, Stone Harbor School, Stone Harbor

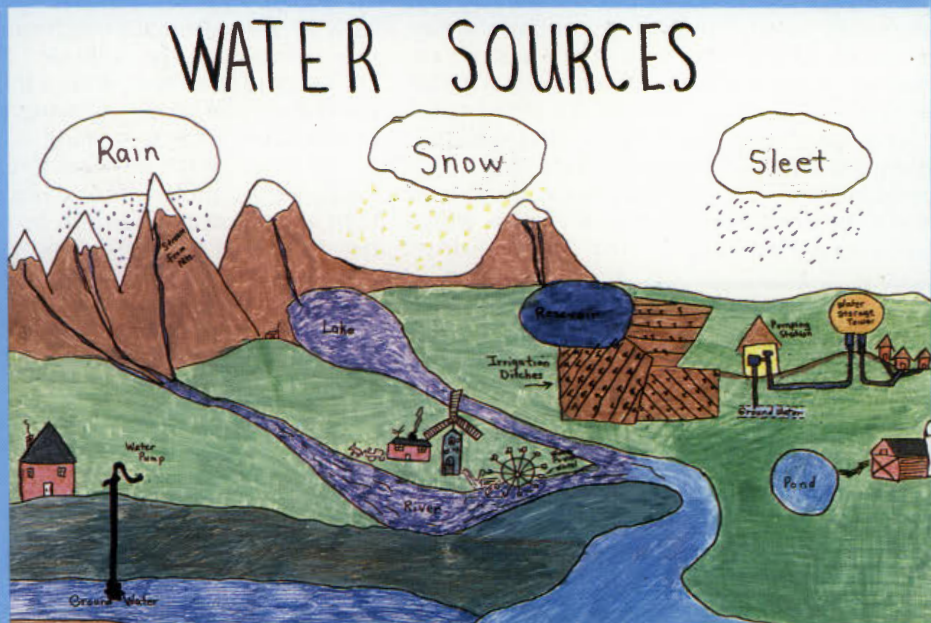
INTERMEDIATE (4-6) "Water uses in New Jersey"

1. Kevin O'Brien of Howell, Taunton School, Hopewell
2. Kimberly Ziolkowski of Clifton, Christopher Columbus Middle School, Clifton
3. Irena Hnatyszak of Linden, School #6, Linden



VINCENT CHIAVONE

ANDY GRANO



How do I use Water?



PATRICIA MOSCARELLO



KEVIN O'BRIEN

JUNIOR HIGH (7-9) "Sources of Water"

1. **Andy Grano** of Sparta, Sparta Junior High, Sparta
2. **Cameron Green** of Sparta, Sparta Junior High, Sparta
3. **Jennifer Ruess** of Sparta, Sparta Junior High, Sparta

SENIOR HIGH (9-12) "Quality Water—Now and in the Future"

2. **Rodger Phillips** of Irvington, Frank & Morrell High School, Irvington
3. **Bryan Tallusca** of Vineland, Sacred Heart High School, Vineland

SPECIAL EDUCATION "Water Uses in New Jersey"

1. **Vincent Chiavone** of Trenton, Burlington County Special Services S.D., Mt. Holly
2. **Christopher Whitesall** of Pennsville, Penn Beach School, Pennsville
3. **Kinshasha Lindsay** of Trenton, Parkway School, Trenton
James Reed of Brick, Brick High School, Brick

JUNIOR HIGH ESSAY "How do we guarantee quality water for now and the future?"

1. **Linda Rodriguez** of Browns Mills, Burlington County Vo-Tech Medford Campus, Medford
2. **Alexandra Schmidt** of West Orange, St. Joseph School, West Orange
3. **Lisa Gladis** of Frenchtown, Alexandra Twp. School, Pittstown

Dear Editor

New Jersey Outdoors welcomes letters from readers. Letters for publication should include the writer's name and address and should be mailed to: Editor, New Jersey Outdoors, CN 402, Trenton, N.J. 08625. Letters may be edited for reasons of length or clarity. Please keep the letters coming. We'd like to hear what you think about the magazine. We'll also try to answer questions and if we cannot, we'll ask our readers for help.

Another Response

I have been a subscriber of this fine magazine for many years and thoroughly enjoy reading the same.

A couple months ago there was a fine article by Gary Hayden which I enjoyed but differ with him upon the assessment of the late Max Schrabish.

As a boy of ten or twelve years of age, when I met Mr. Schrabish, who had been recently appointed State Archeologist I resided on the side of the Waughaw Mountain at Towaco, N.J. with my grandfather Young who was a member of the State legislature from Morris County. Grandfather was well acquainted with Schrabish and had asked him to visit for a week-end at the farm.

Mr. Schrabish asked about unusual rock formations or overhanging cliffs or other Indian remains. I was asked to show him two such large leaning rocks on the mountain slopes and went with him. Both were by the side of a small rivulet on the mountainside. He took out his trowel and began to dig away the debris from one of them and soon located a remnant of a pottery bowl which he said was Lenape Indian. Also found were a couple of broken arrowheads and numerous flint chips, a scraper and what may have been part of a bone or deer horn. The other site nearby revealed no remains as I recall it.

The following day, after a night of rainfall he took me to the top of a high hill on the farm and pointed out two blackened spots in the otherwise brownish soil that were revealed by the rain. When he told me that these were ancient remains of an old Indian encampment I could scarcely believe him. We went down the hill, and searched in furrows, washed clear by the rain and discovered several arrowheads, lots of flint chips of various colours, as well as

a compounder with thumb hole, and a broken banner-stone of soapstone. I still have some of these items after all these 60 odd years.

Yes, Max Schrabish by today's standards may have been a bit amateurish and crude in his efforts but he was a most knowledgeable genius to my mind who could find relics in what seemed unexpected places, a modern Serendipitist!!

Sincerely yours,
William Y. Pryor
Essex Falls

Suggestions

I read N.J. Outdoors from cover to cover, and don't stop until I read the complete magazine.

Suggestions:

1. A sign as the outline of the State of N.J. at the end of each article to designate end.
2. Less unused white space so it will take me longer to read magazine. July-August issue corrected this by about 50 per cent. Very good, try for 100.

Charles E. Goal, Jr.
Flemington

Me too!

I agree with the suggestion of Laurence Hlavacek in the July/August issue concerning an outline map showing the location of places covered in your articles. So many times, I have no idea where these places are I am reading about. I hope you will consider this as part of every issue. It will help to make a great magazine even better.

Sincerely,
Elaine M. Jordan
Cape May Court House

Maybe we should try this out in a future issue.

How are things in High Bridge?

Years ago when Joyce Hankinson and I would get together at college again, one or the other would always inquire, "How are things in High Bridge?" (up there in Hunterdon County)—their childhood hometown.

I wonder "How are things in High Bridge?" a place I haven't been able to revisit for over twelve years now.

Do the locals still gravitate to the pond (Lake Solitude actually) on a hot Summer's day with its dock and diving boards, sliding board, first and second rafts?

Do young bucks like my father and his youngest brother of yesteryear still each climb a little higher up the beautiful falls that used to power Taylor-Wharton before plunging head first into the white foam at the bottom?

Do current Methodist Sunday School teachers like Phyllis Dietrick from my grammar school days still take their classes up beyond the purge to where the water gurgles over a few interesting rocks—after then break a trail through the woods?

I wonder "How are things in High Bridge?"

Sincerely yours,
(Mrs.) Evelyn W. Baldwin
Toms River

A Response to C.D. Gilbert Letter

Alloways Creek is named after Chief Alloway. Some of his relatives are still alive and live in New Jersey. I don't know how much information they can provide you with in the way of Alloway family history. One of the Alloway Family burial plots is in Fort Dix, near Duck Pond and the runway of McGuire Air Force Base.

You can also check thru the six books written by Carlton Beck, Rutgers University Press.

- Mrs. John Alloway
Publik Road
Columbus, NJ 08022
- Mrs. William (Alloway) Detteres
52 Second Street
Bordentown, NJ 08505
- Mrs. Mildred (Ryder) Anderson
151-B Providence Way
Jamesburg, NJ 08831

Mildred periodically has material published by the Historical Society. She likes to spend her Sundays in a cemetery eating chicken salad sandwiches.

Sincerely
Louise Tonn LPN
564 East Road
Tiverton, RI 02878

CALENDAR OF EVENTS

September 20
through October 13

COASTWEEK. Fifth annual celebration focusing on the shores of our nation. For further information and events contact David Charette, NJDEP, Division of Coastal Resources, (609) 984-0856.

14-19

AUTUMN WORKSHOP. For birders who want to become better birders. At the Cape May Bird Observatory. Leaders are Pete Dunne, Pete Bacenski, and Michael Hannislain. Call (609) 884-2736 for registration and information.

27, 28

Clark, NJ 07066. Send \$20 for registration fee.

OLD TIME BARNEGAT BAY DECOY AND GUNNING SHOW. Tip Seaman Park on Lakeside Drive & Route 9 in Tuckerton. Call (609) 296-5606.

20

(Raindate 9/21). **THIRD ANNUAL HUNTINGTON'S DISEASE BENEFIT BIKE TOUR.** Somerset County College location. For Flyer write: NJ Chapter, National Huntington's Disease Association, 13 Jules Lane, New Brunswick, NJ 08901. Attn: Elaine Schwartz. (201) 828-3070. Maps, Lunch, sags.

20, 21

HORSE AND COUNTRY FAIR. Benefit for Burdette Tomlin Memorial Hospital, Cape May Court House. At Rx Ranch, Route 47, Goshen. (609) 465-2000, Ext. 5105.

20, 21

NEW JERSEY WINGS 'N WATER FESTIVAL. Wetlands Institute, Stone Harbor. World Class Decoy and Decorative Carvers, Artists, and Photographers. Guided nature walks, children's activities, environmental exhibits, retriever demonstrations, food. (609) 368-1211.

27

SHAPE UP HIKE. 7½ miles. Easy pace. Get ready for a strenuous hiking season with this short "shaper-up" over the BATONA Trail and woods roads to the "lost" town of Washington deep in the heart of Wharton Forest. Meet at Evans Bridge, Route 563, 11 miles south of Chatsworth. Bring lunch and beverage. Leaders: George and Dot Werner, (609) 859-8160.

26, 27, 28

SKYLANDS BIKE TREK. A 3-day 125-mile adventure through parts of Hunterdon and Morris counties. Spend an exciting weekend and at the same time raise funds for the American Lung Association of Central NJ, 206 Westfield Ave.,

OCTOBER

5

HIKE: WELLS MILLS-BROOKVILLE. 8 miles. (A brand NEW hike!) Leader: Bert Nixdorf, (609) 267-7052. Meet: At Wells Mills County Park entrance (Look for large wooden sign), Route 532, 4½ miles west of Waretown and 3.6 miles east of jct., Routes 532 & 72, by 10:30 a.m. In western foothills of Forked River Mountains enjoy an abundance of laurel and ample cedar swamp scenery in this recently acquired historic tract and former logging community. Easy walking. Bring lunch and camera.

26, 28

THE DELAWARE RIVER BASIN—APPROACHING THE 21ST CENTURY. The 24th Fall Conference of the Water Resources Association of the Delaware River Basin will be held at the Buck Hill Inn, Buck Hill Falls, Pennsylvania. Contact Bruce E. Stewart, Executive Director, WRA/DRB, Box 867 Davis Road, Valley Forge, PA 19481, (215) 783-0634.

SEPTEMBER

6
10:30 AM

MULLICA RIVER HIKE AND SWIM. 6 miles. Easy pace. Hiking and dipping along the cool, clear, amber colored waters of the Mullica. There is a refreshing water hole about every mile. Wear or carry sneakers. Bring lunch and beverage. Meet opposite the Pleasant Mills churchyard, Route 542, one mile west of Batsto Village. Leader: Chris Denneker, (609) 461-5379.

7
8:00 AM

EARLY RISER RIDE. 40-50 miles. An enjoyable ride for those that want to ride, but need or want to be back by noon. We'll make a refreshment stop along the way. Meet at Laurel Acres Park, 1.7 miles south on Church Street from Route 38 in Mt. Laurel. Leader: Don Villanova, (609) 235-2457.

13

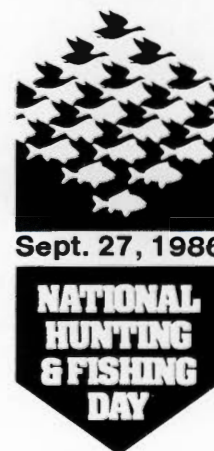
SALEM COUNTY SPORTSMEN'S CLUB DECOY SHOW AND NEW JERSEY STATE CHAMPIONSHIP DUCK CALLING CONTEST. Salem County Sportsmen's Club, one mile from the southern end of the NJ Turnpike on Route 40. Ed Rogers, (609) 678-5994.

12
8:00 AM

THE GLADSTONE DRIVING EVENT. A three day carriage driving competition, designed to test the versatility of the horse and driver. Held annually at Hamilton Farms, on Rt. 512, just west of Rt. 206 in Gladstone. Parking Fees. Call for information on daily events. (201) 876-9123, (201) 832-9366 or (201) 234-0151.

13
8:30 AM

14
9:00 AM



Timber Rattlesnake/Copperhead

BY DAVID CHANDA

Probably no other animal has been more maligned and misunderstood than the snake. Ever since biblical times, the snake has been a creature associated with evil.

This is unfortunate because they are actually quite beneficial to humans. Snakes feed on a variety of insect pests and rodents, thereby playing an important role in the environment. Contrary to popular belief, snakes are not aggressive towards humans, and do not seek out and attack people. Given the opportunity, a snake would rather retreat to a secluded hiding place.

In the United States, death from a snake bite is very rare. The chance of encountering a poisonous snake in New Jersey is rather remote, and in reality, a person has a much greater chance of winning the state lottery than he or she does of being bitten by a poisonous snake.

New Jersey only has two species of poisonous snakes—the copperhead and the timber rattlesnake. Many people believe that the poisonous water moccasin can also be found in New Jersey, but this is not true. The water moccasin, whose range barely extends into the southern part of Virginia, is often confused with the harmless water snake, which does inhabit New Jersey.

One method to determine if a snake in New Jersey is poisonous is to examine its eyes. Both the copperhead and timber rattlesnake have a vertical pupil which looks like a narrow slit, while non-poisonous snakes have a round pupil. In addition, both of these poisonous snakes have heat sensing pits, which look like a deep hollow, in front of and below each eye. This heat sensing pit is used by the snakes when feeding on warm-blooded animals such as birds or mammals. The pits enable the snake to detect heat differences and enable the snake to accurately strike at the heat source. This system works extremely well at night when the air temperature surrounding potential prey is cooler.

The copperhead is found only in the northern portion of the State. It lives in old stone walls, woodlands, farmlands, and sometimes can even be found in backyards. However, rocky, wooded hillsides are its favored habitats.

A copperhead is easily recognized by a copper-red head and hour glass pattern on its body. When viewed from above, the dark bands are widest on the sides and narrowest on the top of the body. As an adult, the snake is about 2 1/2 feet long. A copperhead will eat mostly mice and other small mammals. Occasionally it will eat insects and some amphibians such as frogs.

It is rarely aggressive, and is often confused with a variety of non-poisonous snakes, such as the water snake, milk snake and hognose snake. These three harmless snakes are often left alone by predators because they appear to be dangerous.

The timber rattlesnake is on the Endangered Species list in New Jersey. It can be found in the Appalachian Region

of northern New Jersey and in the pinelands of Ocean, Atlantic, Burlington and Cumberland Counties. In North Jersey, the rattlesnake prefers mountainous areas that have plenty of rocky ledges and crevices. However, in the summer it can also be found around briar patches, clearings and old stone rows. In South Jersey, the rattlesnake is found in scattered locations throughout the pinelands. It will spend much of its time hunting at night around brush piles, blueberry bushes and clearings.

The timber rattlesnake is easily recognized by the rattle on its tail and dark crossbars on a lighter background. This background has two major color patterns. It can be either yellow or black. The main diet of a timber rattlesnake is mice. It will also eat a variety of songbirds, squirrels, chipmunks and sometimes even larger animals such as rabbits.

Some people believe it is possible to tell the age of a rattlesnake by counting the number of rattles on the tail. This is not true. A rattlesnake will add a new segment, or "rattle," each time it sheds. A timber rattlesnake can shed as many as four times per year. In addition, due to the rough terrain the snake lives in, the tip will often wear down or break off.

Some harmless snakes try to imitate the sound of a rattlesnake by vibrating their tail on the leaves. Although this can be quite startling when first heard, it must be noted that the tail must be under the leaves in order to make the noise. A rattlesnake always lifts its tail when it rattles.

Rattlesnakes return to the same den site year after year. Here they spend the winter in hibernation, often sharing the winter den with copperheads. In North Jersey, a typical den might be found in rock crevices deep enough to allow the snake to crawl below the frost line. In South Jersey, a typical den may consist of brush piles or a sandy burrow.

Both the rattlesnake and copperhead give birth to live young. Usually about 8-12 young are born in the late summer. The young snakes are born near the den site and can fend for themselves at birth. They receive no parental care. A newborn rattlesnake or copperhead can give a painful bite and possesses enough venom with the first day of life to make a person ill.

Rattlesnakes and copperheads have few natural enemies. Humans pose the greatest threat to their survival. Indiscriminate killing, habitat destruction and illegal collection are examples of activities which affect these animals. This is unfortunate, because the role they play in New Jersey's natural ecosystem is an important one. With sound wildlife management practices, which includes educating people about the value of these animals, their survival will be insured.

For more information about the snakes of New Jersey, send a stamped, self-addressed envelope to New Jersey Division of Fish, Game and Wildlife, (Attn: "Snakes"), CN 400, Trenton, NJ 08625.

FRONT COVER

The Gathering—Bee Meadow Park in Whippany. Photograph by Donald Pagano. (First Prize winner in our Photo Contest.)

INSIDE BACK COVER

Timber rattlesnake/copperhead. Painting by Carol Decker.



© 86 Carol Decker

