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NEW JERSEY

Outdoors

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Fall 1996



Sail with the *Meerwald* • Hike the Pochuck Valley
Black Powder Hunting • Fish for the Wild Ones • The Green Invasion
Watchable Wildlife in NJ • The Blue Hole of the Pine Barrens



The jewel-like colors of porcelain berries change as the berries mature.

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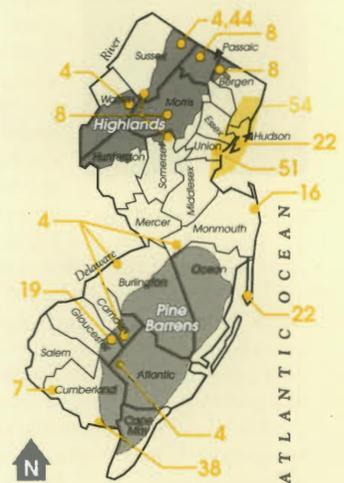
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The eastern chipmunk, its cheeks stuffed with winter provisions, is among the creatures that call New Jersey home. Learn about the many species that inhabit our state in "Watchable Wildlife in the Garden State" on page 32. © Photo by Clay Myers



Christine Todd Whitman, Governor

Partners for the Environment

Despite being one of the most densely populated and highly industrialized states in the nation, New Jersey still has vast areas of wilderness — a full 17 percent of our land is protected as open space. And these areas — federal, state and local parks, forests, wildlife management areas, historic sites and others — provide a whole host of recreational opportunities.

New Jersey corporations and businesses have been helping the Division of Parks and Forestry enhance existing services. Last year, Saturn built modern playground equipment at Cheesequake State Park in Matawan, Snapple donated bags for the park system's "Carry In, Carry Out" program, and AT&T donated funding to the division's Forest Resource Education Center in Jackson, while Wakefern supplied dune grass for plantings at Island Beach State Park.

To build on these cooperative efforts, the New Jersey Corporate Partners program was recently introduced. Through this program, corporations can help us enhance outdoor recreation and education throughout the state. Corporations may get involved in state parks and recreation, environmental education and interpretation, tree plantings, historic restoration, the arts and preservation of natural areas.

A total of 13 million people visit our state parks each year and more than 400,000 use our facilities to camp. Corporate partners can help with the cost of constructing cabins, shelters and yurts. In addition, funding is needed to set up viewing platforms to facilitate close encounters with the state's many birds, mammals, fish, amphibians and reptiles.

The state also runs several educational programs, including Project Learning Tree and Project Wild, to teach students and teachers about the environment. Partners can help by sponsoring workshops or the purchase of guides.

To keep New Jersey green, partners are being sought to sponsor tree plantings in urban areas or to improve fragile ecosystems with sand dunes, wildflowers or reforestation.

Our state's 57 historic sites are always in need of volunteers or funding for restorations or historical programs at the facilities. And efforts are underway to foster culture in the parks through shows featuring theater, music, dance and art.

With help from businesses and with the splendid natural and historic resources in this state, we can spotlight the best of New Jersey for residents and visitors alike.



Robert C. Shinn, Jr., Commissioner

See the Wildlife in Your Own Backyard

How would you like to go on a North American wildlife safari? Why not try the "wilds" of New Jersey?

New Jersey is home to a greater variety of wildlife per square mile than any other state in the nation, including Alaska. And now the Department of Environmental Protection, with the help of the federal EPA, U.S. Park Service and U.S. Fish and Wildlife Service, as well as the Partners for Wildlife and the Defenders of Wildlife, is about to make it easier for you to see some of our best natural resources.

New Jersey's *Wildlife Diversity Tours*, which will be published by Falcon Press, will provide information on the 90 best viewing areas in the state's wildlife management areas, state parks and forests, national wildlife refuges and recreation areas, county and municipal parks and land owned by conservation organizations.

The guide divides the state into eight major ecoregions, each with unique features and wildlife. In north Jersey, the mountainous, forested Ridge and Valley region, and the Highlands region, host bobcats, bear, beaver, otter, deer, wild turkey and forest birds. The rolling hills of the Piedmont offer red-tailed hawks, grassland birds, deer, coyote and many reptiles and amphibians. The Pinelands area, with its rich forests and wetlands, is home to unique wildlife, such as the Pine Barrens tree frog, the pine snake and corn snake.

The salt, fresh and brackish tidal marshes of the Lower Delaware River ecosystem are havens for marine mammals, such as otters and muskrats, as well as water birds, such as ducks, herons and egrets. The Delaware Bay/Cape May Peninsula and the Shore regions are world renowned for their resident and migratory bird populations, including those of the ruddy turnstone and semipalmated sandpipers as well as the resident terns, plovers, herons, ducks, eagles, ospreys and marsh hawks. Even the Metropolitan area in the northeastern part of the state provides excellent viewing opportunities for wading birds, peregrine falcons and migratory waterfowl and songbirds.

So if it is wildlife you're after, pick up your copy of *Wildlife Diversity Tours* today, and begin your expedition to New Jersey's great outdoors.

State of New Jersey
Christine Todd Whitman
Governor



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New Jersey Outdoors
Fall 1996, Vol. 23, No. 4

This publication is dedicated to promoting and encouraging the wise management and conservation of our natural, cultural and recreational resources by fostering a greater appreciation of those resources, and providing our residents with the information necessary to help the Department protect, preserve and enhance them.

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Mailbox

Bad Moon A-Risin'

In your spring 1996 edition of *New Jersey Outdoors*, on page 22, "Turning the Tide on Barnegat Bay," your photographer did a little bit of editing when he placed a full moon next to a rising sun. A full moon usually is opposite the sun. However, it's a beautiful picture as are all the photos in your magazine.

Bill Walsh
Clark

Editor's Note: We received several letters on our photograph of a full moon at the Barnegat Lighthouse.

The photo was indeed a composite. While *New Jersey Outdoors* usually uses unmanipulated photographs, this one was so striking, we had to use it.

Mountain Club Formed

We would like to inform your readers of the newly formed Mid-Jersey Group of the Appalachian Mountain Club. This group is dedicated to providing a schedule of activities involving the mountains, streams and ecological centers of New Jersey and elsewhere. Our activities include hiking, biking, backpacking, canoeing and kayaking, as well as events for children.

The Mid-Jersey Group has adopted the Highlands Trail construction as a group project. The Highlands Trail is being developed as a day-use trail running 155 miles from Storm King Mountain in New York down the Highlands area of New Jersey and

New Jersey Outdoors welcomes letters to the editor. Please include your name, address and daytime telephone number. Our address is NJO, NJDEP, CN 402, Trenton, NJ 08625-0402. We reserve the right to edit letters for length and clarity.

terminating on the Delaware River. It passes through several state parks.

For more information on the Mid-Jersey Group of the Appalachian Mountain Club, write to R. Watson, Box 211, Three Bridge, NJ 08887 or C. W. Hall, 14 Woodland Road, Somerset, NJ 08673 or call 908/788-8821 or 908/828-9261.

C. W. Hall
Somerset

Who Killed the Glass Industry?

I read your magazine, usually from cover to cover — particularly the Spring 1996 issue. I do question one article, "Magic Under Glass," in which the author mentions the following: "Competition from Western countries killed the (Quinton) plant." Could you please tell me these Western countries — I always thought the USA was one. I look forward to your answer.

Florence E. Kennedy
Hammonton

Editor's Note: Competition from mid-Western states put the Quinton plant out of business. The Quinton plant was known for its plate glass. We regret the error.

A Rodeo Restored

I greatly enjoyed reading your article about the Cowtown Rodeo, "A Taste of the Old West," in the Spring issue of *New Jersey Outdoors*.

Another notable aspect about Cowtown that might interest readers is The Nature Conservancy's efforts in 1988 to preserve the 465 privately owned farm acres used as pasture for the rodeo. Under threat of immediate loss, the farm and the bird habitat it provided were purchased by the Conservancy's New Jersey Chapter and then re-sold in part to Howard Grant Harris, who now continues — for the third generation — his family's farm in connection with the rodeo. Almost 200 acres are owned and managed by the Department of Environmental Protection's Endangered and Nongame Species Program as grassland bird habitat.

Michael Catania
The Nature Conservancy
Chester

Missing an Issue of *New Jersey Outdoors*?



Back issues of *New Jersey Outdoors*, when available, may be obtained at a discounted price of \$3. To order copies, call 800/645-0038.

UNDER ATTACK IN THE NEW JERSEY WOODS

by Art Charlton

The woods are silent, but I worry that my pounding heart will reveal my position as I lie pressed to the cold, wet earth in my shallow foxhole.

Waiting for what seems like an eternity, I try to blend into the terrain and scan the forest from my hiding spot — until some movement catches my eye. It's two of them, creeping from the cover of one tree trunk to another, their weapons at the ready.

The ground's dampness is beginning to wick into my camouflage fatigues. My neck aches as I arch my head a few inches off the carpet of dead leaves and pine needles to watch their stealthy progress.

Patience has its payoff. They move past without noticing me and take up positions of their own, one behind a bunker of sandbags and plywood only about 10 yards away and the other somewhere behind him.

It's time to make my move. Rising to a crouch, I sprint toward the bunker, and I'm on him in seconds, firing again and again before he even can lift his gun. The feeling is exhilarating, and I drop to one side of the bunker as his cohort's shots whiz harmlessly overhead.

But the glory is gone in a flash, as shots erupt from behind. A miscalculation — I've failed to notice the third member of their patrol. I leap over the bunker, away from the barrage, but now I'm pinned down between the two of them, with little protection in front of me. It's only a matter of time before one of the hail of shots finds its mark, and I take a hit right in the face mask. With a splatter of paint oozing down my goggles, I'm out of the game.

For the entire episode is just that — a game — something its proponents call "the world's fastest growing outdoor participation sport."

A NEW SPORT

Paintball has become a popular way to spend a day stalking, scrambling, crawling and charging across the New Jersey countryside, living out a fantasy that fuses teamwork, tactics and thrills.

The game's premise is simple.

"It's a combination of hide and seek and capture the flag," explains Jeff Hass, owner of Poco Loco Paintball Inc. in Buena. "It just brings back a lot of childhood memories for people."

But unlike those days you spent in the woods as a youngster, playing Army and pretending to shoot or be shot, the twist in the game of paintball is that players actually are shooting at one another with guns that fire a paint-filled projectile.

Divided into two teams, the players seek to outfox and outshoot their opponents while fulfilling an objective, such as capturing the other team's flag or overrunning its home base. When hit by a paintball, the player, marked by a splatter of paint, is out until the next game.

"You never had your adrenaline rush so fast as to shoot someone and have them shoot back at you," asserts Carlo Iozia, owner of All Star Paintball in Hewitt. "The level of adrenaline that flows through your body is incomparable to any other sport."

The use of paintballs allows players to eliminate their opponents without doing permanent damage.

"You know you can get shot and still walk away and be happy about it," Iozia adds.

MARKED FOR LOGGING

Paintball proprietors from around New Jersey say the sport began about 15 years ago with a type of pistol that fired paint pellets to mark trees for logging.

"A couple fellows started fooling around shooting at each other, and that's the way the sport started," Iozia says, adding that paintball was perfected in upstate New York where people began to organize games.

Some participants buy equipment and play on their own, but, for the most part, paintball is played at places that charge admission and rent equipment, much in the way skiers buy a lift ticket and rent skis, boots and poles. Serious paintball devotees, like serious skiers, often bring their own equipment, and there even is a competitive level of the sport played professionally for prize money.

Paintball markers, as the guns sometimes are called, employ carbon dioxide or compressed air to propel the paintball. Although the original tree-marking projectiles contained an oil-based paint so that the splotches of color would not wash away, the paintballs used in the game are water-based and wash off skin and clothing.

The encapsulation is a gelatin shell, much like a bath oil bead, and each paintball is about the size of a large marble.



© ART CHARLTON

In this adult version of hide-and-seek, participants are both the hunter and the hunted in New Jersey's wilderness.

pretty much puts everybody on an equal playing field.”

To experience paintball firsthand, I headed to Paintball Depot's playing field, located on about 70 rolling, wooded acres in Mansfield Township. The \$30 admission charge covers a full day of play, use of a paintball gun and goggles with a full face mask. Paintballs cost five cents each. The average player goes through 200 to 400 — or about \$10 to \$20 worth of paintballs in a day.

Rules are explained by referee Bob Kennison, who stresses regulations are intended to ensure the safety of players.

“These paint balls are traveling fast enough — they'll take your eye out,” says Kennison, a 30-year-old Hackettstown resident. For that reason, players must wear their goggles and face masks at all times while on or near a playing field; players who remove their goggles are called out for the game.

CAPTURE THE FLAG

Variations of paintball games abound. In the basic “Capture the Flag,” players must snatch the banner from the opposing team's base and bring it back home. For “Cutthroat,” the flags of both teams are tied together and hung on the battlefield halfway between the two home bases. The object is to grab the flags and make your way to the opposing camp, hanging the flags in your enemy's base without getting “killed” first.

Artler says Cutthroat is more of an offensive game, while Capture the Flag involves both offensive and defensive tactics.

Another variation is “Attack and Defend,” where one team is on offense while the other defends its base from attack.

Referees stay on the playing field to rule on whether a player has taken a direct hit from a paintball, to clear up any equipment problems and to keep time. Games typically are called a draw if neither team has won after 30 minutes.

At Paintball Depot, they keep the games interesting by rotating players among nine fields, which feature different types of terrain and places to hide. Manmade bunkers and foxholes dot the woods, while “Tent City” consists of a group of tents with the flag hidden inside one of them, offering a taste of house-to-house search in combat.

I tag along with a group of players, mostly first-timers, consisting of coworkers from a management consulting firm and some of their friends. A good-natured rivalry starts as soon as the group splits into teams, (our arms are marked with bands

Sport organizers say both the shell and the paint inside are non-toxic and biodegradable, so paintballs that miss their mark and fly off into the woods don't damage the environment.

BUILDING A TEAM

People of all ages and walks of life play paintball, and the game often is billed as a way for groups of friends, schoolmates or coworkers to gather for some action-packed recreation. Some corporations use a day of paintball as a team-building exercise for their employees, several proprietors say, while Iozia says playing can be good practice for hunters.

“Basically, it's stealth, being able to know when to move, when not to move, in a wooded area,” Iozia explains.

While the majority of players are men, paintball business owners say women are involved in the sport as well.

Age and gender don't matter, according to Dave Artler, owner of Paintball Depot, located near Hackettstown. “It

We discuss strategy at the start of each match — who guards the flag, who attacks and from what direction.

of colored tape so we could tell friend from foe) and we head off to the playing fields for the first game.

“Nice knowin’ ya,” one player says.

“You’re going down,” a friend on the opposite team replies.

We discuss strategy at the start of each match — who guards the flag, who attacks and from what direction — and with a blast of the referee’s air horn, the battle begins.

“I feel a little bit of concern about how much I’m enjoying this,” says Lewis Decker, 35, a self-employed carpenter from Bernardsville, during a break after several games had finished.

But people are aggressive creatures, Decker muses, and it seems better to do something like playing paintball to vent that aggression.

So what was it like to snatch that flag and win the game?

“It was kind of like when you finally hit that home run in Little League after striking out five times in a row,” Decker replies.

“This is what we used to do every day when I was a kid. It’s just a helluva lot more expensive now,” remarks 27-year-old Matt Donovan of West Orange.

“You feel like you’re six or seven years old again,” playing cowboys and Indians, agrees Tina Conti, 28, also of West Orange.

The games are fast-paced and aggressive, and Conti remarks, “Most of the people we work with tend to be really competitive.”

Donovan replies, “Yeah, they’re also getting shot.”

Our day ends after nine games, but most of the group gathers in Paintball Depot’s parking lot to re-live their favorite moments of triumph and defeat.

“Was that you behind the tree?” asks one. “I had a perfect ambush set up. Somehow, I missed them all,” another player says. And still another recalls being pinned down for five minutes — by his own unwitting teammate.

That’s paintball, deep in the woods of New Jersey.

Art Charlton is a freelance writer from Easton, Pa.

PLACES TO PLAY IN N.J.

All Star Paintball

P.O. Box 90
Hewitt, N.J. 07421
201/728-0134
(Facility at Hidden Valley Ski Area in Vernon)

Gunrunners Paintball Entertainment

630 Broad Street
Beverly, N.J. 08010
1-800-929-3719
(Indoor facility at site)

Paintball Depot

P.O. Box 648
Hackettstown, N.J. 07840
201/584-2220
(Facility on Route 57 in Mansfield Township)

Picasso Lake Paintball

3359 Glenview Street
Philadelphia, Pa. 19149
1-800-213-4353
(Facility in Winslow Township)

Poco Loco Paintball Inc.

P.O. Box 61
Eagleville, Pa. 19408
1-800-752-7626
(Facilities in Buena, N.J., and Limerick, Pa.)

Top Gun Paintball

567 Monmouth Road
Cream Ridge, N.J. 08514
908/928-2810
(Facility at site)

The Greenwich Tea Party

by Harry S. DeCamp

Hey Boston — listen up! Did you know that your little country cousin, way down here in southern New Jersey, also had a “tea party?” Yes, it surely did, and this little village even carries a New England name — Greenwich.

Greenwich was founded by John Fenwick in 1622 and was named in honor of the Connecticut colony that served as the first home for many English settlers. Before the Revolutionary War, this port city — located four miles from the Delaware Bay — grew to be the largest and most prosperous town in Cumberland County.

It was here that the tale of the Greenwich Tea Party began on Dec. 22, 1774, just three days before Christmas.

Greyhound to Greenwich

Captain J. Allen tried to sneak his brig, the *Greyhound*, loaded down with a cargo of English tea, into the port at Greenwich. Here he thought he could find some of those loyal to King George — and greedy for gold — willing to store the tea for a short period of time.

Allen had chosen Greenwich after he had been warned by harbor pilots not to dock in Philadelphia. There, colonists were waiting to destroy the tea. And since Greenwich was only a short distance from that city by land, it seemed the logical place for hiding the concealed goods until they could be transported to their original destination.

Under the cover of darkness, Allen started up the winding Cohansey River, careful not to get caught on a mud flat. During the journey, he sent scouts to find a place to stow the tea and found the perfect comrade in one Daniel Bowen, who allowed the tea to be stored in the cellar of his home on Market Street.

As clandestine as these actions were, they had not gone unnoticed. Sharp-eyed colonial lads from Greenwich spied on all the comings and goings of the crew as the tea was unloaded from midnight to sunup. These colonists alerted others for miles around about the arrival of the tea and the traitor who was storing the contraband.

A general meeting of all neighboring colonists was held the following week in Bridgeton (then known as Bridgetown), just a few bends up the Cohansey River from Greenwich. This unexpected time lapse allowed the local patriots to plan for a “tea burning,” not unlike the one devised by compatriots in Boston.

The Bridgeton meeting was very boisterous, and suggestions were flying on how to dispose of the tea. But the Greenwich boys won the committee’s approval with their subversive plan to play Indian.

Howell’s Indians

Now the Howell boys of Shiloh, twin brothers Lewis and Richard, were young, well-educated and full of action. They became the chieftains in this rebellion. By twos and threes the rebels met at the Howell homestead and, after forming a unit of about 30 men, they proceeded to Philip Fithian’s home in Greenwich. Fithian, a Princeton graduate, was the visionary in this clandestine plan.

At Fithian’s house, they disguised themselves as Indians. This band of “natives” set off on silent feet toward their goal — the hated English tea.

A canopy of haze, cast by the early evening, was exactly the cover for which they had hoped. But despite their soft shufflings down the streets of the town, they drew some onlookers, inquisitive neighbors drawn from their homes by the intrigue. Quietly, the rebels surrounded Bowen’s house.

Bowen, surprised and chagrined, was bade to be quiet, as were his wife, children and other members in his household. After all, it was the tea they wanted, not Bowen or his family.

As silently as real Indians, they went to work. Box after box was handed from Indian to Indian, until they reached an open adjacent field via the human chain. Here the boxes were broken open, and their contents piled high. Not one box was left in Bowen’s cellar.

Then, from flint and steel held by a kneeling Indian brave, a tiny spark appeared. It fluttered in the light evening breeze, then quickly licked the tea into flames and burst into a roaring blaze, lighting up the night like day. This brilliant light revealed about 100 cheering spectators, who joined hands with the Indians and started yelling and dancing wildly about the bonfire.

A Monument to History

No one in that wild, cavorting crowd thought that particular night, when tea brought halfway around the world lit up half of Greenwich, would be remembered centuries later. They never knew the part their actions would play in bringing about the ultimate, bloody conflict with Britain in a fight for independence.

By that brazen and bold act, those brave young men of Greenwich silenced all the enemies of independence in the whole of Cumberland County. It was a mighty blow to King George.

Today, many of those freedom fighters, who later went on to serve with distinction in the American Revolution, are immortalized on a granite monument in downtown Greenwich.

So, move over Boston and make way for your country cousin, Greenwich. The fires of revolution are burning!

Harry S. DeCamp is a freelance writer from West Long Branch.

Angling for Stream Bred Trout



Story by Ross Kushner • © Photos by Barbara Kushner

A volunteer from Trout Unlimited collects data on wild trout streams to help the organization keep tabs on the health of these special waterways.

On a fishing trip last season, I released my final trout of the day and watched it dart off in the shade of a hemlock grove. It was a good representative of the half dozen I'd taken in a couple of hours, ten inches of wild brook trout as beautiful and delicate as a piece of fine china. In places from Maine to Montana, that scene might be common, but here in New Jersey, wild trout are treasures of the highest order.

For the uninitiated, wild trout are fish that maintain their populations by doing what comes naturally — laying their eggs in clean gravel to create the next generation of trout, without the intervention of people and hatcheries. In addition to their striking looks and hard fighting abilities, these stream-bred trout offer other less definable advantages, and most anglers feel that wild fish turn an ordinary stretch of water into something very special.

Three species of wild trout — brook, brown and rainbow — can be found in the Garden State. To survive year-round, these species need cold, clean water with high oxygen content. While many New Jersey waters have wild trout, there are only a few that are large enough and have fish populations that can sustain a fishery.

In 1989, Bob Soldwedel of the Division of Fish, Game and Wildlife's Bureau of Freshwater Fisheries pioneered the Wild Trout Stream Program, which has grown to include more than 30 waters. With special angling regulations, the program seeks to promote and protect these unique fisheries.

New Jersey's wild trout streams represent quality fishing opportunities that largely are overlooked or ignored. Unfortunately, as outdoor writer Art Lee once pointed out, secret rivers have no friends. And there are many reasons to be a friend to these waters.

Productive angling can begin as early as March. It takes a huge amount of rainfall to hurt fishing on these waters, since their undeveloped headwaters keep them clear and at moderate levels even when other well-known rivers are over their banks. The angling can be excellent at times when larger, more prominent streams are too cold, high or crowded. Until they become more popular, you're likely to have miles of water to yourself, an increasing rarity in today's world.

The Return of the Native

Spawning populations of native brook trout, our state fish, have made their home in the Garden State since the last Ice Age. Their numbers greatly diminished as unbroken forest gave way to farms and clearings, warming and muddying these once shaded streams. Today, New Jersey's water quality standards recognize the importance of wild trout and their habitat; stricter limitations are placed on releases into waterways where wild trout are present.

Brook trout are listed as a threatened species in the state, but that status is due to dwindling habitat rather than diminishing numbers. They are still residents in many streams, and a good example is Bear Swamp Brook in Mahwah.

Draining the eastern slopes of the Ramapo Mountains, Bear Swamp Brook offers several miles of crystalline pocket water tucked within shaded pools and foaming runs on the way to its mouth on the Ramapo River. There is public access for its entire length.

The forested headwaters keep it in good shape after heavy downpours. Too little rain in the summer months is more of a problem, and the summer of '95 was an especially bad one. The trout do survive, but for this reason, the early season there is prime time for anglers. Don't forget a camera as an abundance of waterfalls makes this stream very photogenic.

A Guest from the West

Rainbow trout, originally found only in the western United States, managed to establish themselves from hatchery fish and now are holding their own in New Jersey.

The West Brook, a fast, rocky waterway flowing along the border between West Milford and Ringwood, harbors a healthy population of these wild vagabonds. The stream bed is a rugged hodgepodge of boulders and deadfalls, swift runs and plunge pools. This makes for a very picturesque setting, but angling here is definitely for the energetic.

Though densely forested, there is enough elbow room for casting. Its small size makes the better holding water obvious. Watch out for high flows in early spring and low flows in summer; they can affect your success here.

An added plus on this waterway is the sight of black bear. These magnificent animals are common in the area.

Emigrants from Across the Sea

Brown trout from Europe and the British Isles are the most common wild trout here in New Jersey and across the country. Introduced in the 1800s, they took root as readily as the settlers that brought them. Browns are more resistant to pollution and warmer water, filling positions vacated by the more sensitive brook trout.

In the western hills of Morris County, India Brook is a classic example of the contrast between browns and brooks. While brook trout are found near its more unsullied headwaters, brown trout live farther down the brook.

The rapids, pockets and pools of India Brook are a pleasure to fish. The best public access is at Mountainside Road in Randolph, where a marked trail parallels the brook. Below its intersection with Mountainside Road, the water is not part of the wild trout program and is stocked with fish.

The Pequannock River traverses sections of Sussex, Morris and Passaic counties before reaching the Pompton River in Wayne. The five-mile section of the Pequannock between the Oak Ridge and Charlottesburg reservoirs is the largest water in the wild trout program and holds both brown and brook trout. The river's headwaters and the majority of its tributaries lie within the City of Newark's 35,000-acre holdings, home to bear, bobcat, eagle and otter.

This five-mile section of the Pequannock was closed to angling in '95 and '96 due to low flows caused by a dam repair project. Unfortunately, low water and high temperatures combined to eliminate trout in some sections of the river. The population should rebound and, hopefully, angling will resume in '97. Contact the Newark Watershed Conservation and Development Corporation at 201/697-2850 for the latest update.

Spawning populations of native brook trout, our state fish, have made their home in the Garden State since the last Ice Age.



A brown trout specimen taken from the Pequannock River.

Mixed Blessings

Finally, a handful of waters in the state are fortunate enough to hold all three trout species — brook, brown and rainbow.

One of these is the upper Passaic River, flowing clear and cold through the farms and woodlots in western Morris County. There are two popular access points. The first is the trail system in Jockey Hollow Park in Morristown. It involves a walk of about a mile — all downhill going in and uphill coming out.

The second route is through New Jersey Audubon's Scherman-Hoffman Sanctuary on Hardscrabble Road in Bernardsville. Audubon allows catch-and-release angling with single barbless hooks. Other special rules apply, and you must check in at the sanctuary office first. Fishing is prohibited when the office is closed.

The river isn't large, but there is ample room for casting under the mature forest canopy, where deer and turkey step through the open bottom land.

A tributary of the Delaware River, Van Campens Brook springs from the Kittatinny Ridge near the Delaware Water Gap in Warren County, and, like the Passaic, is home to brook, brown and rainbow trout.

The nearer the headwaters you fish, the more brook trout you will find, while browns and rainbows dominate the lower reaches. The stream provides classic trout cover in the form of fallen trees, rock strewn runs and undercut banks.

It's not uncommon to encounter other anglers as the stream is well-known, and fishing can be quite good. Some of the best angling coincides with the annual shad run on the Delaware, so a combination trip is possible. The brook is on public land and readily accessible. Picnic sites and groomed hiking trails make this area a great destination for families as well as anglers.

Gearing Up for Wild Trout

A license and a trout stamp are required to fish for trout in New Jersey's waters. And there are special restrictions for angling on wild trout streams.

Current regulations only allow the use of artificial lures and prohibit the use of bait, including power bait. (Since fish tend to swallow live bait deeper, it is easier to release a trout from an artificial lure.) From early April through September, there is a two fish limit, while catch-and-release angling is permitted year-round. The minimum size for brown trout is 12 inches in the Pequannock River and Van Campens Brook; for other waters, seven inches is the minimum size for all trout species. Check the *New Jersey Fish and Game Digest* for the latest regulations.

All of the streams listed here can be fished with fly tackle. Rods eight feet or less, casting two to five weight lines, are more than adequate. Carry a selection of standard dry flies, nymphs, wet flies and small streamers. Include some terrestrial patterns and stonefly imitations for special conditions, such as during insect hatching periods.

Spin anglers will be happiest with the lightest tackle available. Tiny jigs, spoons and spinners are well suited to the larger streams. For small waters and spooky fish, try the same nymphs, wet flies and streamers normally attached to a fly rod with enough added weight to permit easy casting.

I strongly suggest catch and release angling at all times for these wild fish. Large trout always are the first to be taken — sadly, these also are the most productive spawners and the ones that can make your day on a tiny stream. Remember that depleted stocks can't be replaced by the next hatchery truck.

Although not a legal requirement, spinning lures should be modified to single hook, and all anglers should crunch down those hook barbs. Freeing a small trout from a barbed hook (or several) is ticklish work. Even my two young nephews easily can release these fish unharmed with the use of barbless hooks.

And a word on etiquette: Always give other anglers a wide berth. They often are looking for solitude, something you probably enjoy as well.

Wild Trout Streams in the Garden State

Following is a list of wild trout streams by county. While many of these waterways have public access, some are located all or in part on private property. Be sure to get permission from landowners before fishing on private property.

Bergen

- Bear Swamp Brook

Hunterdon

- Black Brook
- Cold Brook
- Hances Brook
- Hickory Run

- Little York Brook
- Rocky Run
- Tetertown Brook
- Willoughby Brook

Morris

- Burnett Brook
- Flanders Brook
- India Brook
- Ledgewood Brook
- Rhineharts Brook
- Stephensburg Creek
- Stony Brook
- Trout Brook
- Turkey Brook

Passaic

- Pequannock River
- West Brook

Somerset

- Indian Grove Brook
- Lomerson Brook
- Passaic River

Sussex

- Mill Brook
- Parker Brook
- Stony Brook

Warren

- Bear Creek
- Dark Moon Brook
- Merrill Creek
- North Branch
- Rockaway Creek
- Van Campens Brook

The Road Ahead

The future of New Jersey's wild trout program is hopeful, but tenuous. Facing constant pressure from suburban sprawl and the demands of this densely populated area for both water and recreation, it is a wonder it exists at all.

On the Pequannock River, the New Jersey Department of Environmental Protection and Newark officials are working to balance the needs of water flow for drinking water with the needs of wild trout.

Decimation of hemlocks by the parasitic wooly adelgid is a real problem for Van Campens Brook, the West Brook and other streams. (See "Wooly Blight Destroys Hemlocks," *New Jersey Outdoors*, Summer 1994.) There are no easy answers to this dilemma yet, though studies are in progress.

Despite the quality experience these waters offer, they are fished lightly. Increased angler presence would help monitor threats from pollution and poaching. Of the many waters in the program, the six described here only scratch the surface. There are other great streams waiting to be explored. Although many have public access, others don't, and listing within this program is not an entry ticket to private lands. A polite request may still earn you a go-ahead, but always obtain landowner permission first.

New Jersey's wild trout and the waters they inhabit are an integral part of our natural heritage. If we treat them with care and respect, they will continue to thrill Garden State residents for many generations to come.

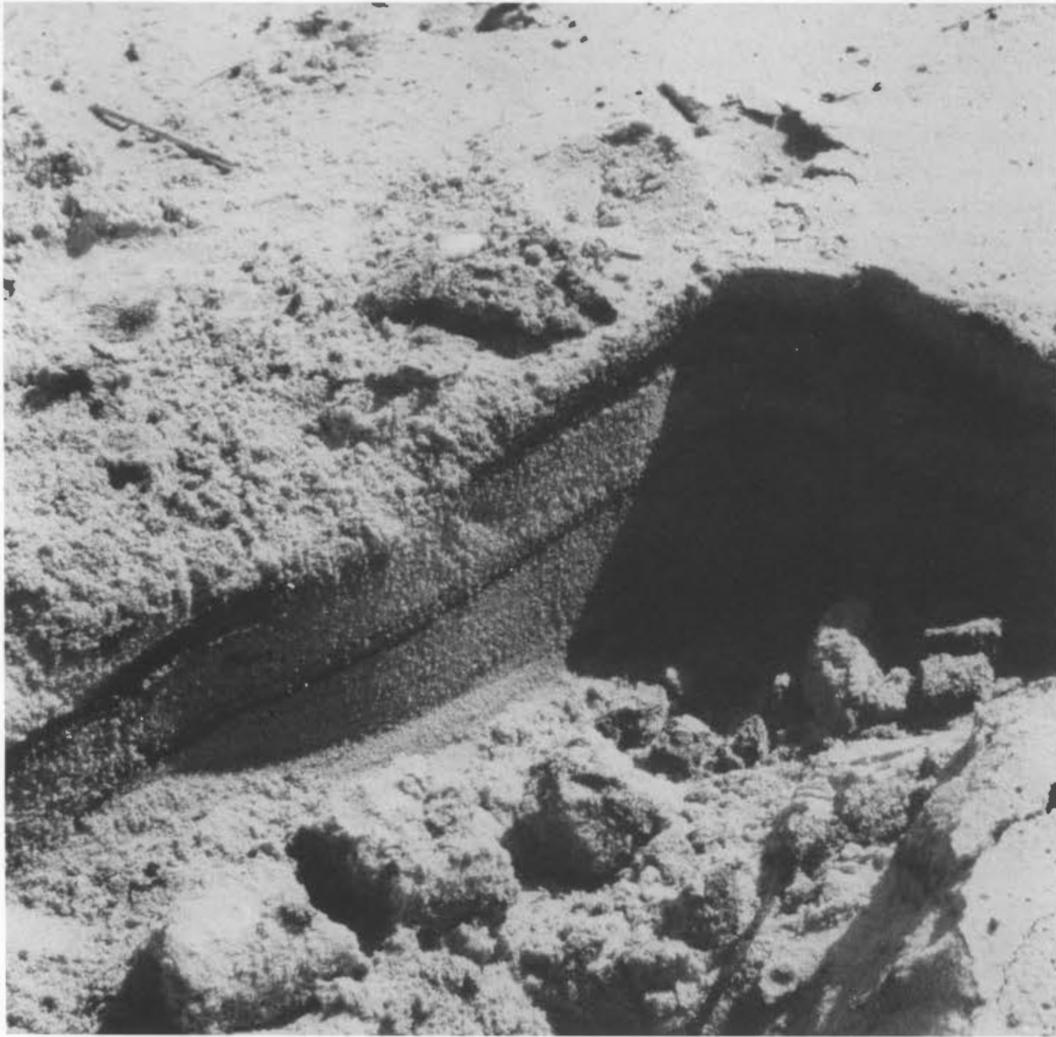
Trout Unlimited is working on several projects, including water monitoring, angler creel surveys, stream cleanups and educational programs, to help improve conditions for the wild trout. If you'd like to get involved, contact the State Council of Trout Unlimited at 17 Braemer Court in Andover, N.J. 07821 or call 201/448-0176.

Ross Kushner is a freelance outdoors writer from Kinnelon.

Increased angler presence would help monitor threats from pollution and poaching.

Crude Crusaders:

JOHN SACCO (DEP)



MARK ROBERTS (U.S. DEPARTMENT OF THE INTERIOR)



Although the horseshoe crab above may have died naturally and been washed up with residues, oil spills may harm a variety of life forms.

Horseshoe crabs lay eggs in tidal sand; responders will examine layers of tar-tainted sand (left) to see if tidal deposits have damaged the eggs.

Struggling to Clean Up New Jersey's Oil Spills

by Cheryl Baisden

It's like trying to find a needle in a haystack, only far more tedious. Imagine standing over your kitchen sink, and, just as the first drop of dish-washing liquid kerplunks into the water, you realize that there's a salad bowl laced with Italian dressing among the floating glassware. It only takes a second to pluck the oil-slick culprit from the rising tide, but an unnatural sheen has already begun to coat the water's surface. The only solution? Pull the plug, scrub the sink and begin again.

"Unfortunately, cleaning up an oil spill in our waterways isn't that easy," explains Gene Johnson, director of the Delaware Bay and River Cooperative, a cleanup company retained by 15 major petroleum producers in southern New Jersey in the event of a spill. "In fact, spill cleanups are a nightmare. They take a lot of time, patience and luck, and even with your best efforts, you still

know that the environment has been harmed by the experience."

Although every spill is unique, depending on the location and grade of oil, each takes a toll on the environment. Whether the material's weight results in its floating, sinking or blending with the water, the toxic mixture affects microscopic plankton, the first link in our aquatic food chain. Wetlands, where birds, reptiles and small mammals find food and shelter, also can suffer from the contamination, which sometimes results in decades of damage.

"What's especially bad is when we get a spill of one of the heavier oils, and it get into the tidal areas. It mixes with the water and forms underwater clouds, then it picks up sediment, and it rolls to the bottom, forming tarballs," says Don Henne, regional environmental officer for the U.S. Department of the In-

terior. "After one spill, we had blue claw crabs feeding on them. That made the crabs sick and, in turn, affected the people who ate them. It's a terrible cycle; people just don't realize."

To make matters worse, national estimates place the recovery rate for waterway oil spills at a mere 20 percent, according to Henne. That "depressingly low figure" has remained constant for decades, since spill cleanup technology has "continued to stagnate," he adds.

New cleanup measures, such as selective burnoffs and chemical procedures used in Europe, are being considered for waterways in and around New Jersey, Henne says. But their use, if approved, would be limited and experimental. For the time being, New Jersey's cleanup procedures remain centered on the labor-intensive process of containing and slowly siphoning off spilled oil, frequently in fast-moving waterways.

A River of Oil

A perfect example of the formidable struggle to out-manuever a murky mess, notes Johnson, is the Coastal Eagle Point Refinery spill, which spilled 40,000 gallons of light crude oil into the Delaware River near West Deptford in July of 1995. The accident occurred when stiff winds from a summer storm blew a tanker away from the refinery's dock just as it finished transferring oil to the facility. The shift snapped the flexible oil transfer line, and a glistening black stream of oil instantly cascaded into the waterway.

Cleanup professionals spent six to eight weeks in the smoldering heat struggling to contain the African crude and cleaning the river, surrounding shoreline and wildlife, estimates Johnson. By the end of the cleanup process, only an estimated 15,200 gallons of oil had been recovered.

"People think that when you have a spill, you go out there and contain it, skim it off and clean up a few birds, and it's over in a few days," he says. "Nothing could be more wrong. After the obvious work is done, there's a lot that goes on that people just don't realize. And that work shows you just how serious these spills can be."

Following the Coastal spill, the Delaware Bay and River Cooperative's crews spent three days steadily skimming oil from the river's surface and then worked their bright yellow booms and a smaller selection of skimmers for 10 to 12 additional days in an effort to clear the remaining oil from the river. Much of what did seep through their barricade made its way to the shoreline, coating piers, grassy coves, wildlife and a variety of personal and industrial property and debris. A scouting crew of more than 300 people spent six weeks combing the coastline for oil-tainted items.

"Hundreds of thousands of pieces of oil coated items were collected by hand in that time," Johnson says. "When it came to piers or shoreline problems, they used high-pressure washers or special absorbents to clean up."

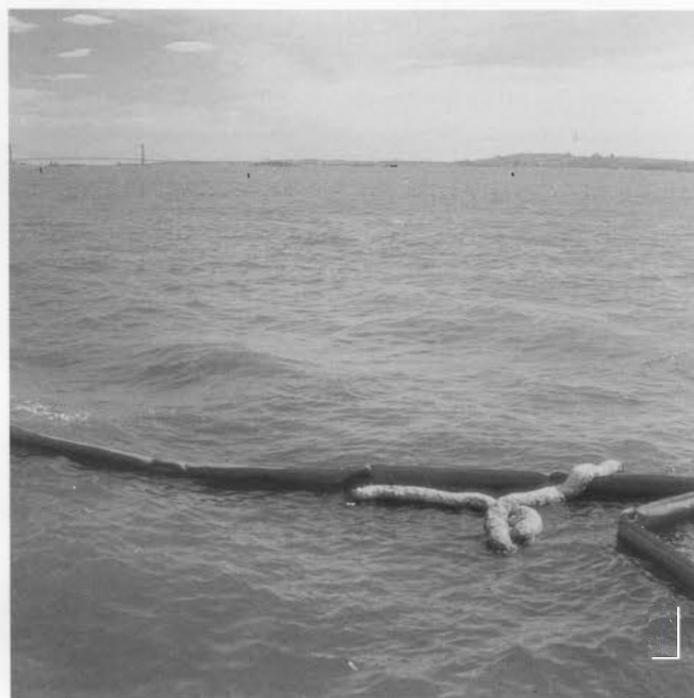
1,000 Accidents a Year

An estimated 1,000 hazardous incidents, including chemical and oil spills, fires, explosions and discharges, take place in New Jersey's waters each year, according to Rob Schrader, emergency response specialist with the Department of Environmental Protection's (DEP's) Bureau of Emergency Response. Oil spills can be as minor as leaks into streams from neighborhood gas stations or as major as massive spills from tankers along the coast. The number of accidents is actually minimal considering that the Delaware River serves as a primary port for the import and export of petroleum products, with approximately 13 billion barrels of oil making their way through the waterway each year.

It wasn't until a series of substantial oil spills in the Arthur Kill and Kill Van Kull during the 1990s that cleanups were stepped up by the state. The DEP's Office of Natural Resource Damages was established in response to those spills to add a new dimension to oil spill cleanup: restoration. Personnel from this office respond to oil spills and contaminated sites to document and measure the injury to the impacted natural resources, such as fish and wildlife. The office oversees this new process of natural resource damage assessment with the objective of preparing plans (for work to be performed or funded by the company that spilled the oil) for the restoration of injured wildlife.

Still, the impact oil spills have had on New Jersey's waterways, the wildlife that depends upon the region, and even the air we breathe seems incalculable, according to Ed Levine, scientific support coordinator for the National Oceanic and Atmo-

Booms are used to contain spills, like this one along the Hudson River near Liberty Island in Jersey City.



Once on the scene,
crews are guaranteed grueling,
round-the-clock work for days,
outfitted in rubber-coated
protective jumpsuits and
shoulder-high gloves.

spheric Administration. The air becomes polluted when the spilled substance evaporates. "The best that we can do, with nature and industry living side-by-side, is try to develop the skills needed to clean up spills as thoroughly as possible and respond instantly to every accident," he says.

As soon as a spill occurs, regardless of the site, the responsible party is required to notify the National Response Center, a federal clearinghouse, which in turn contacts the DEP, the appropriate U.S. Coast Guard office and the Environmental Protection Agency. The DEP dispatches staff from the Bureau of Emergency Response, the Office of Natural Resource Damages and the Division of Fish, Game and Wildlife. All these agencies are able to launch cleanup efforts within hours of a spill.

"The key to successfully cleaning up a spill is having a plan and quickly implementing it," Levine says. "We all know where the sensitive areas are on our waterways and where oil is likely to spread to if a spill occurs. So when we do have an accident, protective booms can be quickly put in place to keep the spill under control."

As with any other emergency, oil spill response teams often find themselves being summoned to action in the middle of the night or on holiday weekends, notes Johnson. Once on the scene, crews are guaranteed grueling, round-the-clock work for days, outfitted in rubber-coated protective jumpsuits and shoulder-high gloves that offer welcome warmth on bone-chilling winter nights and threaten heat prostration on steamy summer afternoons.

Rushing to the spill scene, boat-bound response teams quickly maneuver awkward chains of protective booms into place to shield wetlands and other sensitive areas from contamination. At the same time, crews are working to surround the ever-expanding spill with booms ranging in depth from one foot to five or six feet. The booms, a combination of floatation devices and net-like skirts, are designed to keep lighter floating oils from spreading along the water's surface and heavier solutions from slipping beneath the barrier.

"Once we have everything contained, we bring out the skim-

ming equipment and work to get as much oil out of the water as possible," says Johnson who — like most of his peers in the field — learned his trade on the water rather than in the classroom. "The adrenaline's pumping and so is all of this noisy machinery. You're fighting against the clock to pull everything you can out of the water, and it's a real challenge."

Stationed throughout the contaminated region are floating rigs equipped with a number of chugging and rumbling machines Dr. Seuss could have created. Rotating brushes collect oil from the water's surface and then pass through a squeegee-like apparatus for cleaning; belts force water into a well within the boat and oil is systematically pumped off; a floating lip sucks oil off the water's surface and into a holding tank. The flotilla functions 24 hours a day; its gears, pulleys and generators grind away into the night, sounding more like environmental ransackers than nature's crusaders.

As the area of contamination diminishes, crews begin the slow process of tightening the boom to further contain the remaining contamination. Using strips of absorbent material, they sop up floating crude and haul in the gear, now blackened with oil, hand over hand. In the Coastal spill, recovery teams using this process ultimately handled 26,000 feet of boom before their efforts ended, according to Johnson.

Scouting the Shoreline

But boom operators and skimmers aren't the only crews working round-the-clock to combat contamination following an oil spill. Clean-up crews scout the shoreline during the early stages of the operation and for several weeks after the booms have been retrieved, cleaned and stored. On foot or in small skiffs, they scour every cove, every tributary, every dock and boat and virtually every blade of grass in search of black slimy residue and methodically mop off everything tainted with oil. Privately owned boats that have become slimed are lifted from the water, scrubbed, power washed and returned to their moorings.

"The scouting work is really the most tedious," say Levine. "When an area suffers a spill, the oil touches everything, and it all has to be carefully cleaned so that further contamination doesn't occur. You also have to take care not to damage the environment with the cleanup efforts themselves."

In New Jersey, especially along the Delaware River, the main wildlife concerns center on the wetlands regions, which host a substantial number of migrating shorebirds each spring. "A major spill of a persistent product in the spring is the catastrophe we all fear in this region," says Henne. "The damage would be irreparable, and, when it comes to wetlands, you really run the risk of doing more damage in the cleanup than already exists with the spill." Disturbing a wetland by removing tainted resources or by bringing in machinery to clean up the remnants of a spill can have devastating effects on the area.

But regardless of the timing of a spill, the region's wildlife faces numerous risks from oil contamination. That's why, while recovery crews are on their way to a spill, site volunteers and staff workers from Tri-State Bird Rescue and Research also are barreling toward the contaminated waterway. Armed with nets, transport containers, medical equipment, pumps, generators and water heaters, Tri-State's wildlife rescue workers, who respond to spills around the world, set up makeshift "M.A.S.H." units and begin the arduous task of capturing and treating everything from beavers and birds to turtles and snakes.

"It's terrible to see the condition some of these animals end up in where there's a spill," says Eileen Muller, Tri-State's senior coordinator for oil spill response and training. "It's not just a few birds with oiled feathers that you need to clean off and release. It's far more involved and can affect far more than the wildlife we actually treat."

Suffering from shock and dehydration, often unable to float or stay warm and dry because of their oiled bodies, animals and birds contaminated in spills struggle to save themselves by attempting to lick or preen themselves clean. As they ingest the toxic crude, it coats their stomachs and lungs. Frequently the problem is spread to other animals when predators pick off dead and dying oil victims and either eat the carcasses themselves or feed them to their young.

"The problem encompasses a lot," Muller noted. "That's why we work to frighten other animals away from the contaminated areas and collect sick animals, most often birds, as quickly as possible. We also collect and dispose of the carcasses as we spot them."

Wildlife often is discouraged from using the area by loud, noise-making machines, such as bells or sirens, and, in some cases, loud, boisterous volunteers, who use lung power to keep them out of danger.

Wildlife caught in the muck undergo a battery of tests, designed to establish their strength, shock level and contamination level, to determine their condition before undergoing treatment. Those that have ingested oil are force-fed water and a Gatorade-type solution through oral tubes. The procedure flushes their systems and helps rehydrate them, Muller explains.

Later, each animal is held

down and scrubbed with a dish-washing solution, each feather or thatch of fur individually washed to ensure a thorough cleaning. But even with their attention to detail, wildlife rescuers must rinse and wash each animal several times to remove all traces of oil from the body.

To clean a single bird, Muller says, it takes close to 150 gallons of water and hours of labor.

Actually locating the animals in need of attention is a challenge as well. While some of Tri-State's patients make their way to shore shortly after a spill, others must be sought out in nesting grounds, marshes and other habitats. But regardless of rescuers' thorough search, still other oil-injured animals may not be discovered for days.

"You have to remember that an animal's natural response is to hide from people," Muller explains. "And sometimes it can take a week for some of the sea birds to work their way to shore and beach themselves. The natural reaction is to think that those are the birds who are weak, but in reality, they are the fighters, the ones who held out, the ones whose genes you want to pass on."

That is the challenge of oil spill cleanups, experts agree, fighting the clock to preserve New Jersey's natural treasures.

Cheryl Baisden is a freelance writer from Collingswood.

A mallard duck covered in oil after a spill into the Woodbridge Creek.



© DOTTY WAXMAN

THE IRONMAN

of the Jersey Shore

by Art Lackner

Triathlon. The very word causes pain to weekend athletes everywhere. We think of the Ironman competitions we've seen on television, those all day affairs that push the human body well beyond the limits of endurance. Just the thought of spending an entire day swimming, biking and running at breakneck speed causes most of us to grimace.

But it doesn't have to be that way. In fact, those Ironman events we've witnessed from the easy chair are pretty rare. Most triathlons are much shorter and more athlete friendly.

Take the Sprint Triathlon at Seven Presidents Oceanfront Park in Long Branch, for instance. The Monmouth County Park System has been staging this event since 1984, and its popularity grows each year.

The Sprint Triathlon consists of a 1/4-mile ocean swim, a 13-mile bike ride and a four-mile run. OK, this still sounds grueling. But consider this: the top Sprint Triathlon competitors finish the race in about an hour. That's less than half the time it takes the fastest runners to finish a marathon. Following this logic, the Sprint Triathlon is about half as difficult as a marathon. So with the right kind of training and motivation, competing in and finishing the Sprint Triathlon is an achievable goal.

"We try to appeal to recreational, weekend athletes, as well as those who want to be competitive," says Andrew Spears, race director. "We don't want our race to be an intensely competitive event where beginners are intimidated."

The Seven Presidents race always is held the first Sunday after Labor Day. It currently attracts about 400 triathletes each year, with men outnumbering women three to one.

For Dan Chasey of Long Branch, the competition is a family event. His wife Patty competes with him.

"(The race) is a real treat," says Chasey, 47. "It's a beautiful course with great ocean views. Everyone looks forward to it."

In addition, the Sprint

Triathlon has served as an introduction to this vigorous, challenging sport for Chasey and others.

"It's been a springboard to other triathlon events," says Chasey. "For many of us, this was our first triathlon experience. Some of us have gone as far as the Ironman in Hawaii."

Training for the Event

While the Sprint Triathlon is a relatively short event, you'll still need to be in shape. Beginners: first get your doctor's blessing and then count on at least two months of training before the race. Start off slowly, increasing your activity to about an hour per day. Don't try to practice all three sports in one session; vary them. Swimming, biking and running put stress on different muscle groups, and these groups need time to recover between workouts. So, by swimming, biking and running on different days, you're working all of your muscles regularly, while giving them the rest they need. You'll probably want to experience what it feels like to go from one sport to another, which is fine once in a while. But keep your "practice triathlons" to a minimum.

The benefits of cross training have been documented in recent years. Cross trainers suffer fewer injuries than single sport athletes and attain a higher level of total body fitness. Just keep your aim within reason, setting minor, achievable goals, and the benefits will come. Make training a part of your daily life, but don't let it take over your life.

Pay particular attention to your swimming. Spears cautions that the ocean swim is the Sprint Triathlon's most difficult (and, naturally, most dangerous) event. "It's a significant challenge, particularly getting through the breakers," he says. "For this reason, the swim portion of the triathlon comes first, when the athletes are fresh."

Ocean Adds Character

"The best thing about the Sprint Triathlon is Seven Presidents Park," says Spears. He believes the park, with its beautiful pavilion, well maintained natural beach and large parking lot, is a perfect staging area.

But it is the ocean itself that gives this race its unique character. After the swim, athletes bicycle north through Monmouth Beach and Sea Bright to the entrance to Sandy Hook, where they make a 180-degree turn and return to the park. Much of the time, the ocean is obscured by the sea wall, but peddlers can hear the surf breaking on the other side. The running event takes participants south of the park, along the Long Branch boardwalk. The ocean is visible the whole way.

Cross trainers
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© PHOTOS COURTESY OF DAVID HAVENSTEIN

Triathletes begin their race in the ocean off Long Branch, the event's first and most challenging leg.

Stepping Off from History

Seven Presidents Oceanfront Park today may be known for its beach and the Sprint Triathlon, but it has a long and rich history among the rich and famous.

The park, developed by the Monmouth County Park System in 1982, is named for the seven U.S. presidents — Ulysses S. Grant, Rutherford B. Hayes, James A. Garfield, Chester A. Arthur, Benjamin Harrison, William McKinley and Woodrow Wilson — who visited Long Branch in its heyday as an oceanside resort.

In the late 19th century, Long Branch was the jewel of the East Coast. With its el-

egant homes and luxury hotels, the area was a summer wonderland for the elite.

During this period, Long Branch businessman Nate Salsbury befriended Buffalo Bill Cody, who at the time was struggling with his "Wild West Show." Salsbury became Cody's partner and quickly transformed the show into a huge success.

With money flowing in, Salsbury decided to invest in some oceanfront property. He purchased the site now occupied by Seven Presidents Park and on it built a number of fashionable homes he called "The Reservation." Here, performers in the show — including Cody, Annie Oakley and Chief Sitting Bull — rested and practiced new routines between tours.

Long Branch has seen its share of change since those days. Most of the stately

homes and hotels have been replaced. But some still stand, including one building from Salsbury's "Reservation." It serves today as the park's Activity Center.

Seven Presidents is a small park — just 33 acres. But if you like the ocean, complete with sand dunes and beach grass, it's one of the prettiest spots on the Jersey Shore.

The park boasts 4,700 feet of ocean frontage and a modern pavilion with snack bar, sheltered eating area, changing and rest rooms and outdoor showers. There are also two children's playgrounds and a fitness court. The park is a haven for surfers, and owners of light boats can launch their vessels from a convenient boat ramp. During the bathing season, park rangers are out at 5:30 each morning, grooming the sand and cleaning up litter. With

all this going on, it is easy to see why Seven Presidents hosts thousands of visitors every summer.

But don't think of Seven Presidents as strictly a summer park. It's alive and well-used all year. Anglers always can be seen casting from the jetties. Walkers, joggers and beachcombers are out every day. When conditions are right, surfers in wet suits are "shooting the curl" even on the coldest days. And the Activity Center hosts programs — primarily designed for children — on a year-round basis.

Seven Presidents Oceanfront Park is open every day from 8 a.m. until dusk. Admission and parking fees are charged from Memorial Day weekend through Labor Day. The remainder of the year is free. For more information, call 908/842-4000.



A racer prepares her bicycle and equipment for the 13-mile ride along the oceanfront.

Triathlons Triumph in New Jersey

New Jersey is host to several triathlon competitions throughout the summer and fall. Following is a list of triathlon events held in the Garden State.

■ **Thundergust Triathlon (June; Merchantville)**

Swim: .6 mile; bike: 17.1 miles; run: 4.5 miles
Contact: Bernie Kichula 609/963-2772

■ **Fairview Lake Triathlon (June; Newton)**

Swim: .5 mile; bike: 18 miles; run: 6 miles
Contact: Ellie Daingerfield 201/383-9282

■ **Seaside Heights Triathlon (June; Seaside Heights)**

Swim: .5 mile; bike: 20 miles; run: 5 miles or
Swim: 1 mile; bike: 40 miles; run: 10 miles
Contact: Eddy O'Kinsky 908/506-6037

■ **Sunset Sprint Triathlon (July; Bridgeton)**

Swim: .5 mile; bike: 22 miles; run: 6.2 miles
Contact: 609/696-3824

■ **Brigantine Island Triathlon (August; Brigantine)**

Swim: .25 mile; bike: 11 miles; run: 4 miles
Contact: Debbie VanSant 609/646-8330

■ **Skylands Triathlon (September; Clinton)**

Swim: .75 kilometer; bike: 22 kilometers; run: 5 kilometers
Contact: 908/537-2160

"All three events have that nice oceanfront feel to them," Spears says. "We're very fortunate to have this facility."

One of Seven Presidents' parking lots serves as the transition area, the place where participants stop and "switch gears" between events. Before the race, Spears and his crew of park service employees bring in portable bike racks, enough to handle the 400 competitors. Spaces on the rack are numbered, and each athlete is assigned a spot. There, they leave their bicycles, cycling shoes, running shoes and, perhaps, shorts and a T-shirt to slip over their swimming attire. Some even bring a pan with water to wash the sand off their feet. Once the athletes have their spots set up, they're ready to stroll down the beach and begin the swim.

As in any event like this, safety and comfort are prime concerns. In case of emergency, at least two locally-crewed ambulances are parked along the course. The American Red Cross is on hand at the park to aid lifeguards if needed and to assist competitors who experience exhaustion. To keep the athletes hydrated, Spears provides them with two water stations, one in the transition area and one on the Long Branch Boardwalk, midway through the run. The stations are staffed by park service employees and volunteers. Racers finishing the triathlon are greeted back at Seven Presidents with fruit, juice, soda and granola bars.

Linda Horowitz, 46, has participated in the Seven Presidents race every year. The Ocean Township resident is currently the world champion in her age group. "I always come back to this one," she says. "Andy (Spears) has put together a really nice event. We're treated so well. This is not the biggest race, but there's a lot of loyalty here. It's for local (Jersey Shore) bragging rights."

"It's a classy race," says 66-year-old Ralph Aquino of Middletown, who proves that age is no barrier when it comes to competition. "The transition areas, water stops, refreshments and first aid available are all first class, from the first competitor to the last." Aquino has competed annually since 1986.

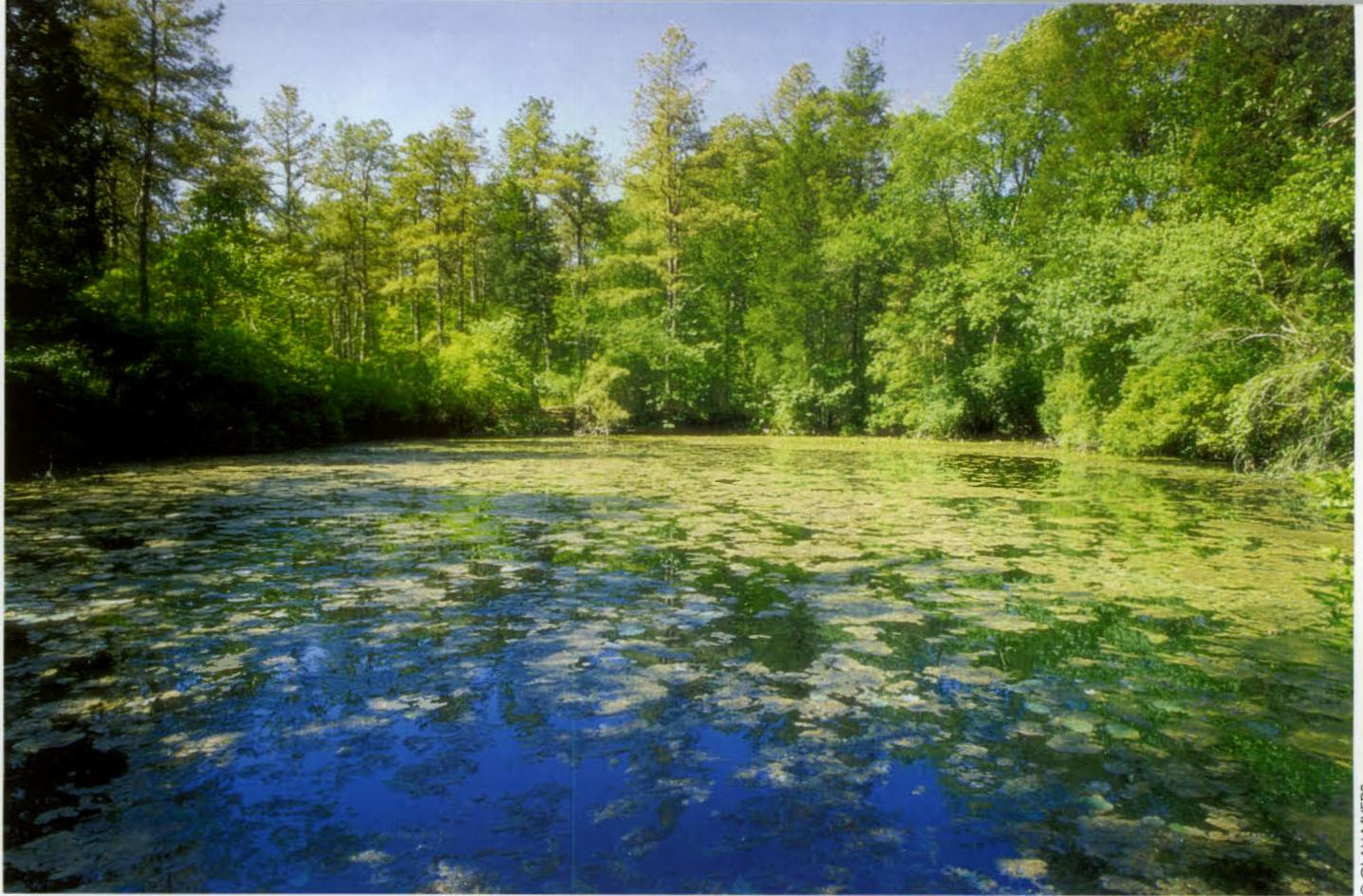
The race is held rain or shine. In the event of rough surf (which has happened three times in the 11 years of competitions), a quarter-mile beach run is substituted for the swim.

Each participant receives a commemorative shirt, and awards are presented in a number of categories. There is a \$30 registration fee.

"The Monmouth County Park Sprint Triathlon remains my personal favorite," says Horowitz. "It's a beautiful course and a great time of year at the Jersey Shore."

For additional information on the Sprint Triathlon, contact Andrew Spears, Monmouth County Park System, Newman Springs Road, Lincroft, N.J. 07738 or call him at 908/542-1642.

Art Lackner is a freelance writer from Eatontown.



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The **Blue Hole** of the Pine Barrens

by Anthony Aquilino

The Blue Hole, the Devil's Puddle, Beelzebub's Pit, Apollyon's Pool, the Bottomless Pit — all are names given to a beautiful woodland pond of shimmering water that looks as though it stole its color from the sky.

The Blue Hole evokes an air of mystery; few agree on what it is and how it was formed. About 150 feet from shore to shore, it is hidden deep in the Pine Barrens between Winslow and Cecil, on the border of Camden and Gloucester counties. The overflow of water from the hole drains into Great Egg Harbor River via a narrow connecting stream on its eastern bank.

Peering into the transparent water, one is filled with wonder. Unlike the rest of the South Jersey landscape, where cloudy streams weave like a spider's web through its interior and murky waters are found in dark, backwoods pools, the Blue Hole is as pristine as a raindrop and as clear as the water in a drinking glass. The water is so clear that you can stand on its bank and throw a stone, watching as it makes its slow motion descent to the bottom.

Adding to the mystery is its icy-hot temperature. While most of the water is frigid, some spots, by contrast, are warm. I have been adrift in the pond in a rubber raft on a sweltering summer day with both hands hanging over the side; one hand was freezing, while the

other was uncomfortably warm. Similarly, during a winter excursion, most of the surface was covered by thick ice, but small patches were open, with clouds of steam rising from the surface.

In Search of the **Devil's Puddle**

Folklore surrounding the Blue Hole claims it is a favorite haunt of the Jersey Devil. Natives may tell you that the Devil, Jersey style, was born in Leeds Point, but he more readily is found perched in the great white, black and pin oaks surrounding the Blue Hole. Others say his lair is hidden deep in an underwater cave in the abyss of the Blue Hole.

As a young boy, I spent summers in the Pinelands with my grandfather. He told me stories of the Jersey Devil and how he lived in a bottomless pit in the middle of the Pine Barrens in water that was ocean blue. Just like a sea serpent, the creature could swim as well as fly. Anyone who was lured by its inviting beauty to swim in the pit would be pulled under by the Devil himself and taken to the bowels of the earth, never to breathe again.

It was this story that prompted me to search for the Blue Hole. After finishing a short story on the people and lore of South Jersey, I embarked on my journey, finding references to the mysteri-

The area is as
tranquil as a
newborn
asleep in its
mother's arms.

ous water in the library and several people who were familiar with the legend. Paul DelGuercio, vice president of the Winslow Historical Society, brought me to a place in the back woods called Inskip (now called Inskip), named in honor of John Inskip, who first surveyed the area in 1762 and later built his home and sawmill there. But, despite being a lifelong resident and familiar with the tale,

DelGuercio could not pinpoint the hole's exact location. The local planning board, too, was unsure of the location, and some of the locals even doubted its existence.

I spent an early morning walking up and down the shallow waters of the Egg Harbor River and the nameless sandy roads that intersect the area. After a wet and fruitless search — and thoughts of tick larvae and DelGuercio's warning about riverbed quicksand — I decided to call it a day.

After leaving Winslow, I turned back and stopped at a nearby coffee shop to speak to some local residents. After relaying the story of my search for the Blue Hole, a man named Jay O'Neal agreed to take me there.

We drove together down Piney Hollow Road, just past the Inskip Antlers hunting lodge, and turned onto the unmarked Inskip Road. After traveling about two miles, we came to a promenade overlooking Egg Harbor, at the site where Inskip's mill was located.

O'Neal pointed to a wooden bridge laying on its side in the middle of the river and told me that it used to connect to the road that would lead to our destination. He waded, fully clothed, into the chest high water, a container of coffee in one hand and a cigarette dangling from his lip. I followed close behind across the river to the road that took us directly to the still waters of the Blue Hole.

Beauty and the **Beast**

As I approached the hidden pocket of blue, I realized that it is surrounded by as much beauty as legend. If the Jersey Devil does live here, he sure has good taste.

The area is as tranquil as a newborn asleep in its mother's arms. Except for the trickle of water from Egg Harbor and the gentle wind song humming its melody through the pines, it is as quiet as a whisper — and as tantalizing.

The foliage around the hole is unspoiled beauty. Wild huckleberry bushes line the sandy roads and the little, rare, curly green grass called *scheizaea* can be found in adjacent fields. A stroll around the area reveals florals, such as green wood or yellow crested orchids, rose pagonia, Turk's-cap lilies, swamp azaleas, hyacinths, wild magnolias and cassandras.

Plants, such as candy root, dogbane and goldencrest, abound. Club and foxtail moss also can be found as well as ferns, such as royal, rattlesnake, cinnamon and adder's tongue.

The nearby river is dotted with pond lilies, flowering pickerel and goldenclub, also known as "neverwets," with velvet leaves that repel water.

Gazing into the Blue Hole, you can see an abundance of green plants, seaweed, devil's shoestrings and, for those who dare to venture out to the center, several large strange plants that seem more characteristic of those from the depths of the ocean than a woodland pool.

The **Bottomless** Pit

One reason the Blue Hole is associated with the Jersey Devil is the popular belief that it has a fathomless depth. This belief conjures up Biblical images of arch demons such as Abaddon and Apollyon, exiled to a bottomless pit, awaiting the arrival of the serpent of old, the Devil or Satan, as is so vividly portrayed in the Book of Revelations.

Henry "Chic" Petters, an octogenarian and resident of Blue Anchor, may speak for others in South Jersey. "Of course people realize that there must be a bottom to the hole," he says. "Yet, as a child, I was warned by my parents and other adults never to swim in the Blue Hole because it was a bottomless pit.

"For some reason, people were scared of that hole and, as beautiful as it was, very few people were brave enough to actually swim in it. Those who took the risk kept close to the banks where they were safe, and the water was shallow."

Adding to the lore are numerous, unconfirmed stories of scientists and local residents who have attempted to drop lines and cables down the central core of the hold, only to be unable to hit bottom, regardless of the length of their gear. Although most of the hole is fairly shallow, only seven or eight feet deep, there is believed to be a crater in its center, the bottom of which has never been measured.

It is possible that the pit is connected to underground aquifers; one story claims that the depression in its center actually leads out to the Atlantic Ocean.

The **Creation** Theories

But what is this great hole and how was it formed? The mystery deepens further.

Most believe it was the result of a meteor that sank deep in the sugar sand, hitting an underground spring. Others say it is an unexplained, natural, geologic phenomenon or a sinkhole. Still others contend that it must be a manmade cavity that is filled with ground water. One local confided in me that he believes it was formed by something extraterrestrial. "If they ever do hit bottom, what they're gonna find is moon rocks," he says.

Those who think the Blue Hole is fed by an underground aquifer must contend with a water analysis done in 1958 by

Hungerford and Terry, Inc. Their results reveal a high content of organic matter inconsistent with deep wells or springs.

Those who believe the hole is manmade point to a brick company that dug holes in the area. However, the Blue Hole predates the brick company by almost 200 years. Still others maintain that John Inskeep dug the hole himself or that it may be a byproduct of his sawmill. It may have been caused by the millrace that overflowed from the wheel that ran the mill. Yet, it is improbable that the running water of a millrace would form a circular pool.

Interestingly, remnants of soil from an old dam that Inskeep built to power his mill can be detected just across the road from the Blue Hole. Where did the dirt come from to build the dam? Could it have been excavated from the Blue Hole? It certainly would seem likely.

Yet, historical evidence that predates the mill must be considered. The Lenni Lenape Indians knew about the Blue Hole and preserved a legend concerning its origin before Inskeep ever set foot on the land. The Native American lore says the hole was created when tears from the eyes of an Indian maiden dropped into the hollow from the sky above when her lover proved faithless. (Perhaps, there is something to the extraterrestrial theory after all.)

Of course, it is possible that the Lenapes dug the hole themselves. Native Americans excavated such holes to keep food and furs below the frost line. However, this doesn't fit with the Lenape's own explanation for the creation of the hole, just as none of the other theories appear foolproof.

One further dilemma must be considered. A small hole dug 20 feet from the northern shore of the Blue Hole produced water within 18 inches of the surface. Assuming that same condition existed in the days of the Lenapes, how and why would they dig a 10 foot hole in the dirt when they hit water after digging less than two feet?

A Whirlpool of **Mystery**

The glory of the hole, in part, has been its distinction as the bottomless pit. Prior to 1935, several writers chronicled the fact that the water of the Blue Hole drained into a crater in its center, forming a slow-moving whirlpool.

Myths were told of fair maidens who were drawn into the sinister vortex, only to arise in a subterranean paradise to live forever. Other legends told of boys who were seized by unseen hands that pulled them below the crystal water and of big, burly men, who mocked the warnings and ventured out to the pool's center, only to be sucked below the surface as they struggled for their lives.

Then, around 1935, Henry Carlton Beck, who wrote extensively about New Jersey, noted that a sluice — a channel fitted with a gate for conducting water — was put into the side of the hole.

Homer Pratt said that the large pipe was installed because "the hole kept flowing up over the road, which runs alongside of it."

As a result of the pipe, the flow of the hole began to run away

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The remnants of a bridge, which used to lead visitors across the Great Egg Harbor River to the Blue Hole.

from the center towards the sluice on the western bank, as well as the narrow stream on its eastern bank. The crater became clogged with the considerable debris that falls from white cedar, oak and pine trees hovering over it, leaving only a remnant of its former glory and status as the bottomless pit.

Secrets Concealed, Beauty Revealed

Although the Blue Hole invites us to gaze into its transparent waters, it hides its secrets well. Perhaps it was the icy water that caused adults to frighten their children with stories of bottomless pits and the Jersey Devil. In water less than 55 degrees, like the Blue Hole, hypothermia usually begins in 15 minutes. Perhaps it was the fear of cramping or the very real fear of the whirlpool's undertow that ignited stories designed to scare the young.

Even so, maybe we should search no deeper than what the transparent water so readily reveals. Perhaps we should let the aesthetic beauty satisfy our hearts, and the quiet solitude of the remote area simply penetrate as deeply into our souls as the lines dropped by the curious.

In any event, the legends about this mysterious body of water remain. Its beauty is as sweet as a baby's breath, its peace as tranquil as a missionary's prayer and its wonder, another priceless treasure of the Pine Barrens.

Anthony Aquilino is a freelance writer from Toms River.

Purple loosestrife at Troy Acres in Green Meadows.

The Green Invasion

by Karl Anderson

While planning a fern and flower identification workshop for the New Jersey Audubon Society, I identified a great spot for an outing in a forested area of the Rancocas Nature Center in Westampton. My field notes from 10 years before said this location was filled with native varieties of ferns, clubmosses and wildflowers.

But when our group arrived, these plants were nowhere to be found. In their place were Japanese honeysuckle and stiltgrass, creating a tangled mess as they crept across the forest floor.

In a single decade, foreign plants had taken over a prime locale for native flora.

This scene and others like it are being played out across the state as plants from foreign lands continue their invasion of New Jersey soils. Of the 2,600 species of plants that grow without cultivation in New Jersey today, more than 700, or about 27 percent, are not native — that is, they were not present in the state when the first Europeans arrived. Non-native plants are a real threat to native species and to the organisms dependent on them. In New Jersey, they are perhaps the greatest threat after outright habitat destruction.

But why does it matter if a plant is native or not? Since there's only so much sunlight, water and minerals available in any one place, a prolific, cosmopolitan weed is usually there to the detriment of others. So, if you are

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Queen Anne's lace

concerned about the conservation of native ecosystems and recognize that a species, once lost, is irreplaceable — whether it be a bald eagle or a Nuttall's mudwort— it matters quite a bit.

Stowaways to America

Most of our non-native plants arrived here during the 19th century. Usually, they occupied the sunny, dry, disturbed sites created by the destruction of the eastern forest. Few of our native plants could profit from the change in habitat, but plants long-adapted to similar situations in western Europe and Asia found congenial homes.

Typically, the botanical emigrants moved along the railroads, highways and ocean routes of commerce. Their seeds came in bulk cargo, on shipments of unwashed wool and raw hides, on the clothing and baggage of emigrants and as impurities in grain shipments. Many were introduced here as seeds in ship's ballasts, the cargoes of earth and stone carried by sailing vessels to add stability at sea, which were dumped at such entry ports as Camden and Jersey City. Ballasts also had a secondary purpose: to fill in marshlands.

Other plants were escapees from great-grandmother's garden, and some are more recent runaways from cultivation. Most of the really successful ones grow rapidly, can survive grazing, mowing and cultivation, produce copious amounts

of seed and have efficient mechanisms for seed dispersal by wind, water and transportation by birds and animals.

Not all these non-native plants pose a major problem. Many barely have maintained a foothold and rarely are seen; only the most ardent seekers of botanical exotica would recognize plants like woundwort and canker-root. The majority of them still grow best in areas that already have been stripped of their native vegetation and that are continually disturbed by human activities, such as roadsides, vacant lots, city parks and abandoned farm fields. Among these are some of our most widespread and familiar "wildflowers" — including oxeye daisy, red, white and hop clovers, chicory, field mustard, Queen Anne's lace, tawny daylily, Kentucky bluegrass and the ubiquitous dandelion.

A few species, such as winter cress, Canada thistle and jimsonweed, are troublesome weeds in cultivated crops, and a somewhat larger number of species are a nuisance to those folks who value a perfectly textured lawn of non-native grasses. Many of these species would probably disappear or decline dramatically if natural forest succession were to take place on the sites on which they grow.

**Seeds came in bulk
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grain shipments.**



Multiflora rose

The Changing Landscape

But there are some non-native plants that pose a real problem to the environment. These are the ones that can invade and spread in comparatively undisturbed native plant communities, displacing original inhabitants.

Purple loosestrife, the tall magenta wildflower found in marshy areas in late summer, was originally an ornamental garden plant. But it also can seed into native freshwater wetlands and, in a relatively short time, completely dominate them.

Stiltgrass, which probably came from the Orient as a weed on nursery stock, has the potential for almost completely crowding out native flowers and ferns in the woodlands where it grows. This plant, with a shiny rib running down the center of each broad leaf, is found throughout the state.

Japanese honeysuckle, originally brought to the United States a century ago as a garden plant because of its sweet-smelling yellow and white flowers, can make some woodlands, especially in South Jersey, completely impassable with its dense tangles of twiney, woody stems.

Garlic mustard, a tall, strongly scented biennial weed with small, white, four-petaled flowers, can grow abundantly in many North Jersey woodlands, often in the same areas as some of our most prized spring wildflowers.

The list of problem non-native plants

could be continued almost indefinitely, and every field botanist could nominate several additional candidates. A few of them might include porcelainberry, a vine with small round fruit that turns from white to turquoise to purple as it ripens; autumn olive, a shrub with gray-green foliage and abundant pale yellow flowers; multiflora rose, with its small white flowers and delicate fragrance; Japanese shore sedge, a low-growing species that forms a dense mat on sand dunes; Oriental bittersweet, best known for its

orange berries with red flesh; mile-a-minute vine, a sprawling prickly stemmed plant with triangular leaves and blue berries; lesser celandine, a low-growing herb with buttercup-like flowers and heart-shaped leaves; Tartarian honeysuckle, with its sweet-smelling pink and white tubular flowers and red berries; white mulberry, its edible berries originally brought to North America as food for people, silkworms and bears; and Norway maple, a street tree that is tolerant of pollution.

Fortunately, New Jersey has been

spared from other non-natives that are ravaging the South. Kudzu vines, which overwhelm trees in the Southern states, don't do well in the Garden State's short, cool growing season. And although the water hyacinth that chokes waterways in Florida turns up in the Garden State every year, presumably escaped from backyard ponds, it has been killed so far by cold every winter.

The "Foreigners" Around You

To see some non-native plants, just look around you! Most small to middle-sized parks, vacant lots and roadsides are dominated by non-natives, and most wildflower field guides will tell you which plants they are. One usually finds that non-natives make up between 15 and 30 percent of the total number of plant species at such sites. There are some small woodlands in central New Jersey that have a canopy of Norway maple and sweet cherry, and an understory almost completely composed of Tartarian honeysuckle, Oriental bittersweet and garlic mustard, where the non-native species make up 80 percent or more of the flora. Some small urban parks and vacant lots may have about the same percent of non-natives.

Considering some larger areas, Liberty State Park in Jersey City, which is one of the few state parks that has a reasonably complete botanical inventory, contains 161 non-native plants — 47 percent — of a total list of 340 species. These invading plants, however, cover 90 percent or more of the ground in some parts of the park. Of course, this area was historically a port, a landfill, a railroad terminus and a ballast dump — in other words, a highly disturbed area into which seeds were brought from all over the world.

More typically, Island Beach State Park in Ocean County lists only about 68 non-native plants, or 24 percent, out of a total of 277 plants. With few exceptions, the non-natives are confined to roadsides, the edges of parking areas and old home sites. Interestingly, a plant survey done here in 1959, when the park first

Phragmites blowing in wind.



© WILLIAM ERICKSON/NEW WAVE PHOTOGRAPHY



Chicory

opened, showed only 48, or 16 percent, of 292 plants as non-native. This increase in the non-native plant species presumably is due to the increase in seed-transporting traffic as well as seed dispersal by wind and water.

Finally, the 26-mile long Paulinskill Trail, on the site of an old railroad right-of-way in Sussex and Warren counties, has 151 non-native plants, or 26 percent, in a total list of 586 plants. In sharp contrast, 12 of the native plants at the Paulinskill are on the New Jersey Office of Natural Lands Management list of Special Plants of New Jersey (1992), a compilation of threatened and endangered species. It would be interesting to know how many, if any, of the rarities will be present in a decade.

There are already 681 native plants on the list of special plants. Could the pervasive nature of non-native flora increase the number on this list?

Pockets of Safety

Very few places in New Jersey are completely free of non-native plants. But, since the non-natives tend to be transported by vehicular, human and animal traffic and they favor open areas, the large roadless tracts of relatively undisturbed forests, such as those found in northwest New Jersey, have been spared somewhat. However, stiltgrass, Tartarian honeysuckle, and garlic mustard now are



Common Winter Cress

spreading rapidly in these areas. The Pine Barrens, with its acid soils and fire ecology, tends to be fairly pristine, and the non-native plants that do occur are mostly along roadsides and at old town sites. Salt marshes, like the Pine Barrens a difficult habitat for plants in general, also are relatively unspoiled.

Over the last decade, I have seen new weeds appearing in New Jersey at the rate of about one species every two years. In most cases, it's difficult to tell if these plants have been around for a long time and are being found now or whether they really are new introductions. Some are apparently brought in as impurities in grass mixtures used for planting on shoulders of roads. Others may be coming in as a by-product of relatively recent interest in wildflower meadow gardening and butterfly and bird gardening. Beware of seed mixtures and shrubs that contain non-native, invasive plants. Buy seeds and plants only from reputable, knowledgeable sources that specialize in them.

Unfortunately, by the time a non-native plant is recognized as a problem, it's typically too late to get rid of it. This situation is made worse by the fact that relatively few people can recognize more than a handful of plants — if all green things look the same to someone, it's hard to recognize that some of them are disappearing as others are becoming more prominent.



Day Lily

In some cases, where the problem with non-native plants is very obvious and economically damaging, measures have been taken. To control (not eliminate) purple loosestrife, for example, botanists in New York State recently released species specific insect predators.

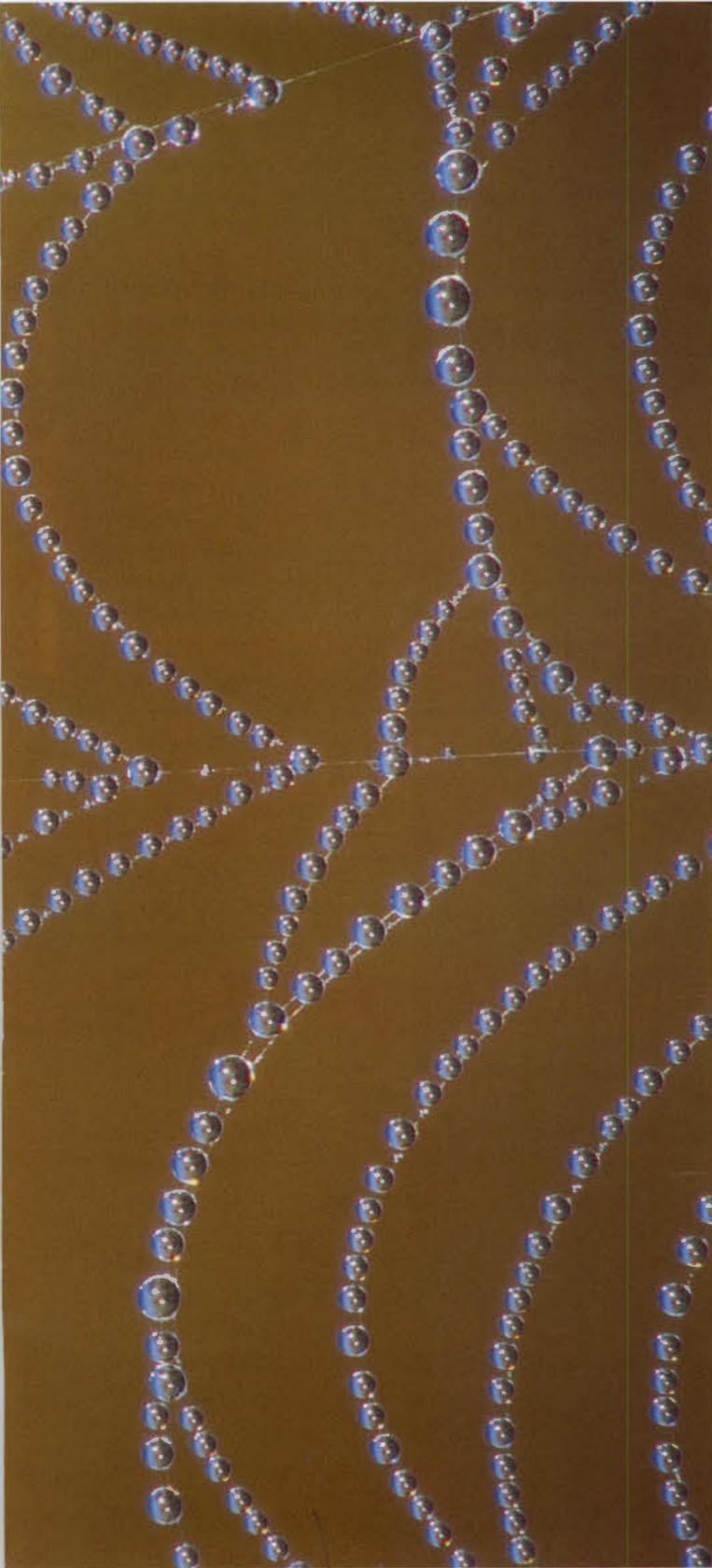
But generally, once a plant is established, about the best that can be done to keep it under control is mechanical removal from selected critical habitats, an extraordinary, time-consuming and costly — not to mention, back-breaking — chore.

Non-native plants are here, and apparently here to stay. So next time you gaze upon an expansive field of beautiful purple loosestrife or breathe in the sweet aroma of a tangle of honeysuckle, look again. What you might be missing is its New Jersey cousins, swallowed in an invasion of non-native vegetation.

Karl Anderson, director of the New Jersey Audubon Society's Rancocus Nature Center, is the author of "Checklist of the Plants in New Jersey" and co-author of "Plant Communities of New Jersey."

Spider webs, usually hidden in vegetation, sparkle like diamonds when covered with droplets of moisture.





Discover Dew

Story and photos © by Clay Myers

It's an early October morning, and the inevitable changes from summer to fall are becoming apparent even to the most casual observer. You're driving to work or school when you approach that empty plot of land between some houses or stands of trees. Usually, this overgrown patch of weeds is little more than an eyesore. However, this morning, something is different.

Everything in the field twinkles like shimmering jewels. Orange light from the newly risen sun interacts with moisture laden vegetation, creating prisms and crystals everywhere. Truly, dew has transformed this easily overlooked area into a beautiful fantasy land that beckons one to come and explore its secrets.

Being a nature photographer, I dream of mornings like this. A dew covered field opens up a multitude of photographic opportunities. It's as if some cooperative pixie has painted the landscape with a sparkling Technicolor brush, thus creating an almost surreal situation.

Upon entering such a field, I'm usually overwhelmed. I have to pause a moment, let it all soak in, and study the nuances created by the presence of dew.

For both the photographer and naturalist, dewy mornings are a special treat, a window of opportunity to observe plants and insects suspended in time.

Suspended Animation

One of the first things you might notice is the amazing amount of spider webs in the early fall. Female spiders can be seen on their webs guarding egg sacks. Old tattered webs seem to drape over everything, adding laced patterns to the scene.

Insects that hop, fly or buzz over the field by day are held in place by a covering of sweet dew. Perhaps some of the most exciting insects to spot are butterflies and dragonflies, their rich colors and patterns enhanced by tiny droplets of water.

Butterflies perch in the evening and remain until



morning. Sometimes, you get lucky and spot one on a tall flower head, but usually they are found hiding among the countless stalks. An almost guaranteed way to find butterflies is to return to the place where you saw them feeding the previous day.

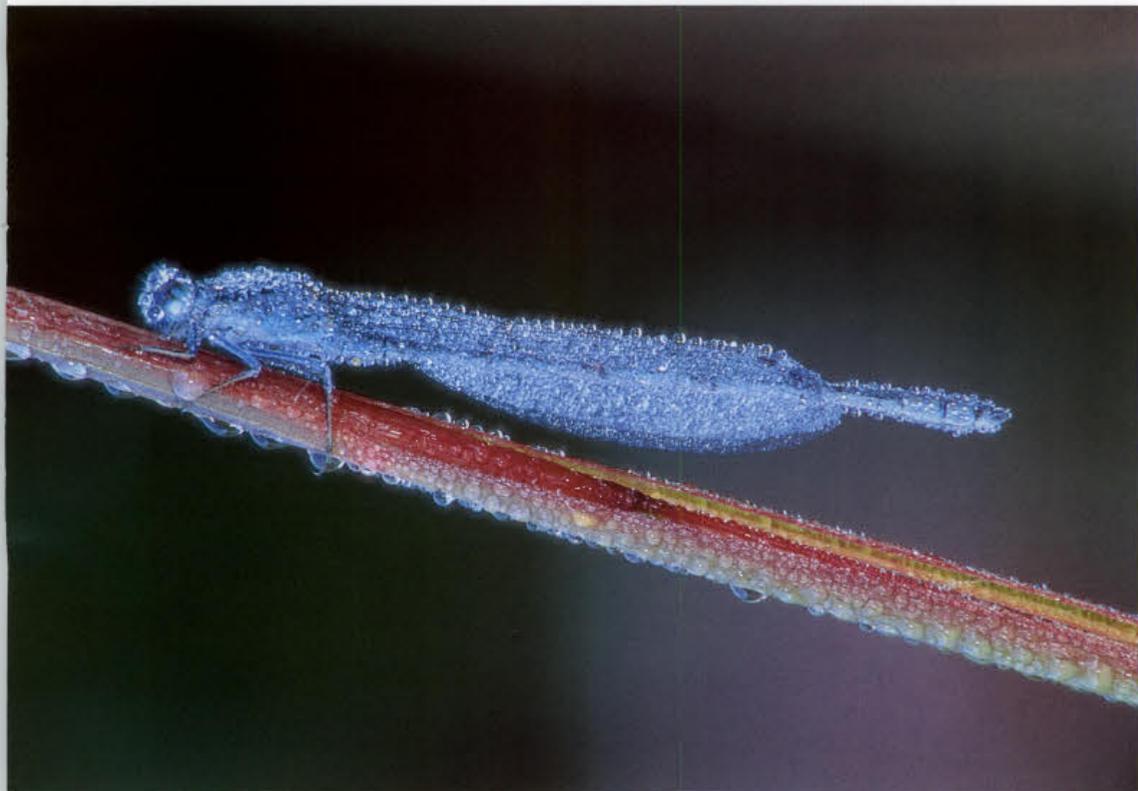
Camouflage is the primary defense for insects; you must look closely to find them. Get down at eye level with the plants, and you may come face to face with a praying mantis or tiny damselfly. When searching for insects, walk a few feet, pause to look for any distinct shapes that stand out from the vegetation and move on if none are found.

Dews and Don't

To experience dew, you have to get up early. In summer, dew can disappear by 6 a.m. In autumn, heavier amounts of dew occur and may remain until 9 a.m. in shaded areas.

Dew is formed by the condensation of atmospheric moisture on an object because of heat loss on cool, calm, clear nights. Watch the weather forecast the night before; cloudy, breezy nights are a sure sign dew will not form.

To enjoy a dewy morning without getting soaked, wear rubber boots or hip waders. Dress in layers; chilly mornings warm up quickly as the sun rises, and this temperature change can be quite abrupt. A good piece of equipment to bring is a pad for sitting or kneeling; a marine personal flotation device



• A slender spreadwing damselfly (opposite page) seems frozen in time on a branch.

• The wings of an eastern pondhawk (above) glisten in the early morning sun.

• A blue damselfly clutches a stem (left).



works well for me. But even if you get damp, it's still worth the trip.

So get out and witness the splendid beauty of dew. Morning dew may be one of the most common natural occurrences, yet it produces a fascinating way to view the outdoors. Go explore that seemingly empty field of weeds down the road. (Be sure to get permission from the owner if it is on private property.) Bring your camera, binoculars or spotting scope. Even if you don't have time for an expedition, just stop for a few minutes, take a deep breath and let go of some stress. Perhaps you will gain a new and refreshing outlook on life as you discover dew.

Morning dew may be one of the most common natural occurrences, yet it produces a fascinating way to view the outdoors.



A caterpillar slumbers on an autumn leaf (above).

It's easy to see how the tiny blue damselfly (left) got its name.

A dew-kissed monarch butterfly (opposite page) sparkles as the sun rises.

Clay Myers is a freelance writer and photographer from Villas.



Watchable Wildlife in the Garden State

by Jim Sciascia

Two of the many species of butterflies that can be found in New Jersey are the painted lady (above) and the tiger swallowtail (below).

Bottlenose dolphins frolic offshore (right).

Imagine hopping in the car and driving a relatively short distance to the scenic Delaware Water Gap National Recreation Area. Hiking along a path leading to the river, you have a momentary encounter with a black bear using the same trail.

When you reach the river, a fleeting blur over the water catches your eye, and you turn in time to see a bald eagle pluck a fish from the surface. This majestic creature lands in a nearby tree to eat its lunch.

Some New Jerseyans already take advantage of the wonderful wildlife viewing opportunities our state has to offer. In the very near future, many more will find it easier to discover and enjoy the incredible diversity of wildlife and natural resources available in our state.

Recreation centered on watching wildlife is growing by leaps and bounds each year.

A national survey estimates that more than 40 percent of adults in the United States participate in wildlife watching activities, and nearly \$20 billion is spent annually on travel, lodging, food and equipment in pursuit of these pastimes. So where are people going, or where would they like to go to watch wildlife?

Fifty-five percent of the respondents chose Alaska as their top North American destination. They cited Alaska's variety of animals as the biggest draw.

If variety of animals is what wildlife watchers seek, New Jersey provides some serious competition for Alaska. Alaska hosts 425 bird species, 102 mammal species, 10 reptile and amphibian species and 150 fish species. New Jersey has 325 bird species, 90 mammal species, 79 reptile and amphibian species and more than 400 fish



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A male hummingbird on a trumpet vine (left).

Harbor seals (below) are common visitors in the backwaters of our state.

The barred owl (opposite page, top) spends the winter in New Jersey.

The elusive porcupine (opposite page, middle).

The red salamander (opposite page, bottom) makes its home in water.

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species. When you consider New Jersey is barely 1/78th the size of Alaska, we are the hands-down winner in wildlife diversity over that Northwest stronghold. In fact, on a square mile basis, no other state in the nation has greater wildlife diversity than New Jersey.

New Jersey's advantage is its geographic position, which includes an amazing variety of mountains, valleys, rolling hills, wetlands, pinelands, beaches, estuaries and river systems. Also, New Jersey represents a Mason-Dixon line for wildlife, where northern ecosystems reach their southern limit and where southern ecosystems reach their northern limit. New Jersey has the best of many ecological worlds.

A Guide to Wildlife

An exciting project in New Jersey, initiated in 1995, will spread the word about our wildlife treasures and provide wildlife watching opportunities for our residents and tourists from around the globe. The Department of Environmental Protection's Division of Fish, Game and Wildlife (DFG&W) is about to make it easy for even the novice wildlife watcher to enjoy our wildlife resources, which savvy naturalists have coveted for decades.

The division's Wildlife Diversity Tours/Watchable Wildlife project, coordinated by its Endangered and Non-game Species Program (ENSP), will produce a *New Jersey Wildlife Viewing Guide*,

which is scheduled for release in the winter of 1996-97. The guide lists 90 of the best sites in our state where people can observe and learn about our incredible array of wild animals and the habitats that support them.

The New Jersey guide, created through a national watchable wildlife partnership coordinated by the Defenders of Wildlife, will be one in a national series of wildlife viewing guides published by Falcon Press. The New Jersey project is being funded through grants from the National Park Service, the U.S. Fish and Wildlife Service, the federal Environmental Protection Agency, the federal Partnerships for Wildlife program and proceeds from the "Conserve Wildlife" license plate.

The guide leads residents and visitors to a wide array of sites throughout the state that all have one thing in common: they are places where people can see, enjoy and learn about our wildlife. Viewing sites vary; they consist of a mosaic of wildlife management areas, state parks and forests, national wildlife refuges and recreation areas, county and municipal parks and land owned by conservation organizations.

From the Mountains to the Sea

For the purpose of the viewing guide, the state has been divided along major ecosystem boundaries to create eight wildlife diversity regions, including the Ridge and Valley, Highlands, Metro,

Piedmont, Lower Delaware River, Pinelands, Shore and Delaware Bay/Cape May Peninsula. Sites will be organized by region and, for each site, there will be an ecological description, directions, wildlife viewing opportunities and information on facilities and amenities.

Wildlife viewing sites in the Ridge and Valley and Highlands regions of northern New Jersey feature mountain ranges, lush valleys, dense deciduous forests, numerous lakes, ponds, streams, bogs and freshwater marshes. These areas support bear, bobcat, beaver, otter, deer, wild turkey and hundreds of other species.

The rolling hills of the Piedmont have some of the best agricultural land in the state, dotted with productive woodlots and bordered by forested ridges. Viewing sites here support a variety of wildlife species that have adapted and benefited from the farming that has shaped the landscape over the centuries. Species that live here include red-tailed hawks, grassland birds, deer, coyotes and a variety of reptiles and amphibians.

The unique Pinelands, in the southern half of the state, hosts viewing sites with vast pine forests, pure, tea-colored streams and numerous cedar swamps and wetland systems. These areas provide habitat for wildlife species, including the Pine Barrens tree frog, pine snake and corn snake, found nearly exclusively in more southern states.

The fresh, brackish and



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salt water tidal marshes and adjacent uplands along the Lower Delaware River will feature a productive mix of viewing site habitats that support a diversity and abundance of aquatic mammals, waterfowl and marsh birds. Here, otters, muskrats, ducks, herons and egrets abound.

The marshes, bays, beaches and dunes of the Shore and Delaware Bay/ Cape May Peninsula regions teem with both breeding and migratory bird life. These areas are key links in the mi-

gratory paths of many North American bird species and are equally important to populations of resident shorebirds, such as terns, plovers, herons, ducks, ospreys and marsh hawks. Breathtaking opportunities exist here to view the spring migration of hundreds of thousands of shorebirds, species like the ruddy turnstone and semipalmated sandpiper, that stop to feast on horseshoe crab eggs on Delaware Bay beaches.

Even New Jersey's often maligned northeastern "met-

ropolitan" area offers a selection of wildlife viewing sites scattered like gems throughout the urban landscape. The majestic cliffs in Palisades Interstate Park and the marshes of the Hackensack Meadowlands are two urban sites surrounded by millions of people. Yet, these areas rival some of New Jersey's wildest places for the number and diversity of wildlife species that can be seen. A stroll along the base of the cliffs at the Palisades provides the chance to see

ospreys or peregrine falcons, forest nesting scarlet tanagers and ovenbirds and a variety of ducks, herons and egrets that live in and around the Hudson River.

The potential benefits of the Wildlife Diversity Tours/ Watchable Wildlife Project for wildlife, people and the environment in New Jersey are numerous and significant. By establishing opportunities for the public to view wildlife in the state, we can provide meaningful recreational activities and, at the same time, educational programs. With the help of interpretive materials and programs at some of the sites, people can learn about the needs of wildlife and our responsibilities as stewards of our natural resources.

The project also has the potential to bolster local economies through natural resource related tourism. By providing a watchable wildlife infrastructure and a coordinated marketing effort, we can help keep tourism dollars at home and attract a larger market share of tourism dollars from states better known for their natural resources.

This project ultimately may lead to an increase in grassroots support for open space conservation, thus helping to conserve the habitats necessary to preserve wildlife populations. A major argument against open space conservation in some communities is the perceived tax burden on the local economy when large segments of a municipality are occupied by conservation



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lands rather than tax ratable development. The project is expected to show that visitors to conservation lands can generate more net dollars for the local economy than large taxable developments, which, in turn, require better roads, bigger schools and more services.

A major component of the project was the development of two-day, self-guided, interpretive "Wildlife Diversity Tours" within regions that have large areas of publicly-owned land. Selected wildlife viewing sites that reflect the dominant ecosystem in a region, as well as the relationships of wildlife and humans to those systems, have been linked in a self-guided tour using the guide and information available at each site. These tours are designed to encourage overnight excursions and provide a regional ecotourism marketing package that combine the tour with other regional, natural and cultural attractions and local amenities.

Building on Nature

Wildlife viewing sites vary greatly — from the expansive natural resource interpretive center and programs at Pequest Wildlife Management Area to sites that simply have a parking area and interpretive signs. The continual improvement of all the wildlife viewing sites will be an important factor in attracting new and repeat visitors. The DFG&W will provide grants for developing trails, blinds, observation platforms, literature and

interpretive panels at the viewing sites. Partnerships among site hosts, host municipalities, businesses and the division will be forged to maintain these facilities. Also, the DFG&W's Wildlife Conservation Corps and local community volunteers will play a major role in monitoring and maintaining viewing sites.

So why not order your guide today and start planning your day trips, weekend trips or in-state vacations to discover New Jersey's watchable wildlife? Just think of the gas money you'll save by not driving to Alaska!

New Jersey's wildlife viewing guide can be ordered by calling 609/292-9400 or by writing to the Division of Fish, Game and Wildlife, Endangered and Nongame Species Program, CN 400, Trenton, NJ 08625. The cost is \$8.95 plus \$3.50 shipping and handling.

Jim Sciascia is a principal nongame zoologist with the Division of Fish, Game and Wildlife's Endangered and Nongame Species Program.

The little brown bat (opposite) in flight.

A river otter (top) munches on fish.

A leopard frog (middle) caught in mid-leap.

Skates (bottom) can be found off the coast.



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Sail into History

on the Delaware Bay

by Jean Jones

Skeptics said it couldn't be done.

They scoffed and doubted, but eventually watched in awe as the rebuilt oyster schooner *A. J. Meerwald* was launched in September 1995 on the Maurice River, amid cheers and tears from the volunteers who made it possible.

She still lacked masts and rigging, an engine and the finished carpentry below deck, but the launching was a milestone as she embarked on her mission as a sailing classroom on the life and livelihoods of the Delaware Bay Estuary.

What made the effort of the Delaware Bay Schooner Project different from others that have failed was the volunteers — literally hundreds of them — who did everything from manual labor on the boat to the fundraising and paperwork necessary to keep the momentum going.

There was open skepticism when Meghan Wren, a 23-year-old apprentice shipwright and self-described idealist, incorporated the schooner project in 1988 and announced her intention to restore the 60-year-old vessel. Wren had crewed on the tall ship *Elissa* and knew of groups that used traditional crafts as educational tools.

"I had a long-term plan of doing something like that long before the *Meerwald* crossed my path," Wren says.

She was working at the Greenwich Boat Works when she met merchant marine Capt. John Gandy, who had acquired the *Meerwald*, and the plan took shape. They soon were joined by Greg Honachefsky, a Department of Environmental Protection (DEP) conservation officer, Robert Dunlap, a Vineland attorney, Roger Allen, formerly of the Philadelphia Maritime Museum, and Al Huber, a retired DEP hydrographic engineer.

Shipwrights install the garboard (opposite page). The wood is put in a steam box for two hours and then molded with live steam to twist the oak planks.

The schooner's hold before bulkheads and compartments were installed (inset).

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The A. J. *Meerwald* was built in 1928 at Dorchester, on the Maurice River, for Augustus J. Meerwald of South Dennis.

The Life of the *Meerwald*

The A. J. *Meerwald* was built in 1928 at Dorchester, on the Maurice River, for Augustus J. Meerwald of South Dennis. Like many oyster boats, she became idle during the Depression in the 1930s. In 1942, she was commandeered by the U.S. Coast Guard for service as a fireboat in World War II. At the time, it was said, she was in such bad shape that a tree was growing through the bottom of her hull. Her masts were removed, and she was refurbished.

After the war, she was returned to the Meerwald family, who sold her in 1947 to Clyde A. Phillips of Port Norris. She was renamed the *Clyde A. Phillips*, an identity that remained until her restoration.

The *Clyde A. Phillips/Meerwald* spent several more years dredging oysters in Delaware Bay, going "up the bay" in spring to transplant oysters from the state-owned seed beds to leased grounds in the lower bay, then harvesting them in the fall, after they had grown fat. In 1957, a parasite called MSX hit the bay, nearly wiping out the oyster population. In 1959, the vessel was sold again and began a new life dredging clams along the Atlantic coast.

The boat was retired in 1980. Don McDaniels bought her in 1986 for her clamming license and gave the hull to Gandy.

Towed back home, the *Meerwald* sank twice at her temporary dock at Mauricetown. Each time, she was raised and patched by a growing corps of volunteers. The clamming gear was removed, and the hull stabilized.

The vessel was hauled out of the water in 1992 and placed on blocks on Everett Marino's riverfront property in Bivalve, where it remained until the launching.



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A Dream Restored

"Join the Restoration," said the sign at the entrance to the restoration site, and many responded.

A plastic tent was erected over the boat to protect workers, and, in good weather and bad, the volunteers showed up every weekend. All non-authentic structures, such as the pilot house, which had been added to protect the helmsman from the weather and provide better visibility, were removed. In 1994, a professional crew of shipwrights was hired to rebuild the hull, still assisted by volunteers.

Mort Hughes, Dave Rutherford and Milt Edelman, who later became foreman of the professional crew, were some of the first to volunteer their labor, followed by many more over the years who hammered, sawed, caulked and painted.

Others worked behind the scenes. Retired marine engineer Charlie Lofft, who now is chairman of the Board of Trustees, and retired naval architect Merv Willis did the technical drawings and stability calculations.

Since the *Meerwald* is to be an educational tool, some volunteers worked on curriculum, lesson plans and a pre-sail teacher's package.

Artists Connie Jost and Glenn Rudderow painted murals for the group's Maritime Traditions of the Delaware Bay museum, and artist Ray Thorley painted the *Meerwald* under sail, prints of which were sold to raise funds. Knute Aspenberg crafted a detailed model of the oyster schooner, valued at \$3,000, which was donated to the cause.

Many other artists, including world-renowned paperweight artist Paul Stankard, donated their work to be sold at annual fundraising art auctions.

The South Jersey Traditional Small Craft Association built the *Meerwald's* yawl boat,

A plastic tent was erected over the boat to protect workers

Volunteers work on the cedar deck under a plastic cover (opposite page, left), which protects them from the elements.

Ship carpenters install the cedar deck (center).

The main mast is set through the deck to the keel (below). The mast was seated on 1928 silver dollars, as it was on the original *Meerwald*.



A volunteer crew sails the schooner to a Philadelphia festival (right).

Students observe minute animal and plant life (below, left) from the Delaware Estuary.

A class helps hoist the sails (below, right) on the day of the ship's commissioning.



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donating their labor and some of the materials. The yawl boat was an important adjunct to a sailing vessel. Equipped with an engine, it pushes the boat during times of little or no wind and helps maneuver the vessel.

Huber donated most of the artifacts for the museum and lined up docents for weekends from April through October. Photographer George Schupp recorded everything for posterity.

Honachefsky has worked at Wren's side since the beginning, laboring on the boat and doing the legwork for special events, such as the Almost Annual Sunset Ferry Cruise from Cape May to Lewes, Delaware, and the annual Delaware Bay Day celebration.

Delaware Bay Day, held in June on both sides of the Maurice River in Maurice River and Commercial townships, brings out huge numbers of volunteers. From the morning parade to the fleet of boats that sail in the evening to a spectacular fireworks closing, the day is filled with exhibits, games, competitions, children's activities and continuous entertainment.

A Charter for Education

The extent of continued interest in the project is evident in the fact that 115 people signed up for the first course to become crew members and docents.

Perhaps the biggest volunteer of all is Wren herself, who quit her job and worked as director of the organization for two years before she began to collect a salary.

Thanks to volunteers, the *A. J. Meerwald* is sailing again. Commissioned on May 11, she is visiting ports such as Philadelphia, Wilmington and other points in the Delaware Estuary and along the coast. Her mission is simple: to promote stewardship of the Delaware Estuary among residents of the region and to educate about lifestyle changes that support the development of a sustainable environment and economy.

In the summer of 1996, she was part of a summer schooner/ecology camp and by this fall, she will become a classroom for students. She also is available for charters. School groups will take three-hour sails to learn about wetlands, commercial shipping, charts and navigation and other subjects related to the estuary. Students will help raise the sails and haul up the nets and dredges to bring up marine life, including fish and oysters, for inspection.

"They can even eat an oyster if they want to," Wren laughs.

As part of the educational curriculum, water and plankton sampling will be done using microscopes, and the effects of oil spills will be studied. Students also will have the opportunity to just sit quietly on deck and experience the sights, sounds and smells of the estuary.

History will be part of the lesson, as well. Students will get to handle artifacts left behind by the area's first inhabitants, Native Americans.

"They learn about the history of the Delaware estuary, from the Lenape Indians to modern times," Wren says.

"Help Launch the Dream," says the fundraising prospectus. The dream now is under sail — and it is the volunteers who did it.

For more information about the Delaware Bay Schooner Project and its activities, call 609/785-2060 or write to the Delaware Bay Schooner Project, Box 57, Dorchester, NJ 08316.

Jean Jones, who has covered the progress of the Meerwald since its inception, is a freelance writer from Millville.



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Thanks to
volunteers, the
A. J. Meerwald
is sailing again.



A Restful Haven in the Pochuck Valley

Story and photos ©
by Bernadette Conroy

Where the voices of the wind and the colors of the mountains harmonize, there is a creek known as Pochuck. Named so by the Native Americans who took shelter nearby, the word *Pochuck* is said to mean an out-of-the-way place, a restful haven.

The Pochuck Creek in Vernon is actually the remnant of a pre-historic glacial lake. Nature continually attempts to return this creek to its ancient state by filling the valley with high spring waters. Consequently, only the area's wild inhabitants have been enjoying the view from the middle of this impassable valley. The view is a rare one, offering a triple perspective — Pochuck Mountain to the west, Wawayanda Mountain to the east and an unencumbered look southward to Hamburg Mountain. It's no wonder the Appalachian Trail was routed through this "restful haven."

Happily, those majestic mountain vistas are no longer the exclusive privilege of winged and water bound wildlife. A few months ago, New York-New Jersey Trail Conference volunteers finished construction of a 146-foot suspension bridge spanning the Pochuck Creek. For the first time, people can hike the Appalachian Trail over the creek, stroll across the valley, sit entranced in an ancient Indian rock shelter, hike up Wawayanda Mountain and gaze on the Pochuck panorama, enhanced by a 900-foot change in elevation.

Haven of the Ancients

Although the bridge is new, there is a landmark near Pochuck Creek that always has been there, or at least since 4,000 B.C., according to estimates. A local hiking loop within the Appalachian Trail corridor leads one directly past two rock shelters.

Hikers can access the Appalachian Trail from Canal Road in Vernon. There, a gentle path leads them directly in front of an escarpment, or ridge, in the mountain that was not affected by the glacier. Set back in the cliff face is a small rock shelter with a natural overhang. In the early 1960s, professional archeologist Barbara Kadish found the skeletal remains of a female inside the shelter. Because of the location's pre-historic Indian association, the skeleton is presumed to be that of an ancient Native American.

Even more significant than that finding was the discovery of numerous shards (pieces of pottery) from the Woodland Period, circa 1,000 B.C. to 1600. The variety of domestic materials included pestles (for mortar and pestle), reed-impressed clay pots, coil clay vessels and chert (flint) cores for making arrow points. Handmade objects like these indicate a well-used rock shelter in a valley with a long history of human occupation. Because of these significant findings, this site is listed on the National Register of Historic Places.

A short distance from the first rock shelter, in the same escarpment, is a second, larger shelter. Native Americans were known to have made rock shelters such as these even larger by extending posts at the entrance and covering them with bark. This technique could actually double the capacity of the area for larger groups. The restful feel of the shelter beckons modern visitors to sit inside and imagine the daily activities of ancestral Americans such as hunting, fishing and making arrow points.

Directly above the rock shelter, in the cliff itself, is one of the oldest remnants of the early planet that one can see at the surface of the earth.

"Bands of chert are visible within this rock outcropping," says Rick Paterson, a Vernon field archeologist. "Chert, an impure form of glass, was well suited for making arrow points."

Archeologists still are finding pieces of crafted chert on the ground at an ancient Indian quarry site nearby. Even discarded slivers demonstrate how Native Americans created high quality arrow points and display amazing workmanship, although nothing was used to make them but stone tools.

Under the Boardwalk

The Pochuck Valley's ancient wonders are found along the mountain ridges while modern day treasures can be observed from the approaches to the bridge. Hikers can catch a glimpse of river otters and beavers playing in the creek or see a blue heron rookery behind a wavy skirt of cattails.

Bird watchers are likely to witness the graceful airborne gymnastics of the northern harrier hawk. This sensitive habitat area is home to other state endangered or state threatened species including the Cooper's hawk, barred owl, bobolink, nesting vesper sparrow, nesting savannah sparrow, American bittern and least bittern.

Another way to see the exceptional riches of the Pochuck Valley will be by water once dead-falls have been removed. Put your canoe in the creek at Canal Road and enjoy a meandering and gentle trip several miles downstream to Newport Bridge, just over the New York State border.

The Missing Link

The 2,158-mile Appalachian Trail provides a scenic hiking path along the Appalachian Ridge in 14 states. A 73-mile section of the trail passes through New Jersey, with one of the most scenic segments crossing the Pochuck Valley. However, each spring, the waters rise, causing the normally 60-foot wide creek to expand to 3,000 feet across.

This rich and diverse natural area still might be buried in the New Jersey wilderness — inaccessible to people — without the NY-NJ Trail Conference. The story of how the valley has become open to hikers, bird watchers, canoeists, cross-country skiers and their families is one of commitment and dedication of countless volunteers.



Wildflowers grow at the edge of the creek (opposite page). The bridge can be seen in the background.

A canoeist's view of the bridge (above) from the Pochuck Creek.



Field archeologist Rick Patterson rests in an ancient Native American rock shelter (above, left).

The Pochuck Creek is a canoeist's delight (above, right).

The Pochuck Valley can be accessed via Canal Road, where this "rabbit" tree greets visitors (opposite page).



To make this area family friendly — and to protect the fragile flora important to the wildlife of the area — a crossing was proposed. Ten years ago, plans to build a bridge and boardwalk system were put on the back burner due to a \$500,000 price tag. In 1990, a new plan was initiated by Anne Lutkenhouse, projects director of the NY-NJ Trail Conference.

Lutkenhouse advertised in the organization's newspaper, *The Trail Walker*, for a civil engineer to volunteer his or her time to secure environmental permits. Professional engineer Tibor Latincics, an avid hiker and bridge designer, answered the call. With \$10,000 already committed to the project, the NY-NJ Trail Conference got a \$10,000 grant from the U.S.D.A. Forest Service, and the Department of Environmental Protection's State Park Service added more than \$50,000 for design services and bridge materials.

Another avenue of support came from banker Paul Bell. Bell's son, Duane, reveled in the splendor of the mountain views and especially was fond of the Appalachian Trail. Tragically, he died in a car accident on his way home from climbing Mount Washington. In lieu of flowers, his family asked for donations to the Duane Bell Memorial Fund, which was used to help build the bridge.

But Paul Bell realized it would take some serious manpower and machinery to make construction a reality. With the assistance of Assembly Majority Leader Walter J. Kavanaugh, he established a connection with Jersey Central Power and Light, and the company came on board as a corporate sponsor.

Pete Morrissey, a JCP&L lineman and foreman, fell in love with the project. He knew it was tailor-made for his specialized crew.

"The bridge towers would have to be put up on a base of organic muck," Morrissey says. "I'm talking lousy building conditions . . . the kind of situation we're used to."

In the spirit of eco-resourcefulness, Morrissey suggested the bridge be constructed with some materials readily available — telephone poles.

"The bridge was redesigned to incorporate JCP&L standard material and linemen know-

how,” Latincsics says. “We came up with a practical, cost effective suspension bridge by utilizing common construction material in a creative and innovative manner.”

Upon completion of the design phase, Wes Powers of the State Park Service was given the task to oversee the coordination of the various partners and volunteers for the construction of the bridge. Volunteer carpenters and laborers, organized by Paul DeCoste of the New Jersey Appalachian Trail Management Committee, began to erect the bridge, working alongside of NJ Park Service, JCP&L and NJ Department of Corrections personnel.

As more and more people heard of the project, the degree of enthusiasm grew. People offered their time and skills with everything from carpentry to carrying stone.

“The degree of enthusiasm on this trail project was astonishing,” Lutkenhouse says. “Volunteerism mushroomed both in and out of traditional trail conference channels. The ripple effect had turned into a wave.”

A Bridge is Built

In addition to the skilled professionals, the project was embraced by the local Vernon community. Adjacent property owners, school groups and tradespeople brought skills and different levels of interest to the Pochuck.

“Volunteerism is like soup,” reflects Lutkenhouse. “The flavor is enhanced when more and more spices are added and, in the case of the Pochuck, when more and more people got involved.”

By the end of the project, dedicated volunteers, including trail conference members, state employees and inmate crews, put in more than 5,000 hours of construction time. The building of Pochuck Bridge has come to epitomize public-private partnership at its best.

The last step of the project — analyzing the various alternatives for route approaches to the bridge for a permanent trail through this scenic valley — is still underway; nevertheless, the results are spectacular.

Whether you’re a paddler, bird watcher, hiker or an ecotourist who wants to show children how Native Americans pre-dating Pocahontas *really* lived, you’ll want to spend some time in the area. Autumn is an especially colorful season to visit the Pochuck Valley. It’s also harvest time at local farms, which sell fresh fruits and produce at roadside stands.

Spending either the day or a weekend in this out-of-the-way place will help smooth the modern wrinkles of stress as it nourishes one’s craving for the outdoors. The newly accessible Pochuck Valley in Vernon is a place lost in time. It is a site of national significance because of its endangered wildlife, rare geology, hands-on anthropology and glorious views.



This
out-of-the-way
place will help
smooth the
modern wrinkles
of stress as it
nourishes one’s
craving for the
outdoors.

Bernadette Conroy is a freelance writer and avid hiker.

Hunting with a Smoke Pole

Story and photos © by Robert Brunisholz

To hunt with a muzzleloader rifle, one must successfully complete a rifle-hunter education/safety course and get a permit.

But that's not all that is required to join the ranks of black powder hunters.

For instance, to be *really* considered a muzzleloader hunter, you should be a dyed-in-the-wool romantic, and it doesn't hurt if your personality leans toward deep feelings for nostalgia, history and fond recollections of yesteryear.

Next, you should be the type who can laugh off a missed chance at a deer, even a trophy-sized buck. If you take your deer hunting so seriously that a downed deer is your primary goal, stick with the modern slug gun or shotgun. The comparatively unreliable muzzleloader will test your patience and your perseverance.

Here's the picture: You're hunting with a muzzleloader. A rather sizable buck is wandering towards your deer stand. You shoulder the rifle, take a deep breath, let half out, settle down with the sights squarely in line with "your" buck and pull the trigger. In your mind's eye, the buck is as good as in the freezer.

But as the hammer falls, your load of black powder goes "pfft," and, aside from the snap of a percussion cap or a fizzling sound from the light load of powder in the flash pan, nothing happens. Oh, yes, I forgot. Something does happen. That prize buck is now in the next county.

That's muzzleloading hunting, folks, and despite its drawbacks, inconveniences and disadvantages, more hunters each year are taking up shooting with the same type of weapon used to tame our frontiers.

A Front End Loader

The reason for the muzzleloader's name is obvious. Instead of merely pulling a trigger to fire consecutive and rapid shots as in the case of the contemporary auto-loader, or working a forearm back and forth to load a second shot in a "pump-action" shotgun, the shooter is required to pour a pre-measured amount of black powder down the muzzle, or front end, of the antiquated smoke pole. After doing so, and sometimes spilling some in the process, a lubricated patch must be laid across the muzzle; it, together with a bullet or projectile, is rammed down the front end.

The aforementioned description applies to those using what is called a percussion, or percussion cap, rifle which dates back



Given the right set of circumstances, black powder can explode by a mere jolt or bump.

to the Civil War. After the loading process, a cap is placed over a “nipple” near the “action” end of the gun that sits above the trigger. The exposed hammer then strikes the nipple, causing a tiny, but pre-set explosion — actually nothing more than a spark — to ignite the powder charge.

Those using the more primitive flintlock, which dates back to the days of the Revolutionary War, have even more difficulty. The flintlock, as the name implies, employs a simple piece of flint, held in a clamp-like device that forms the hammer. When the trigger is pulled, the so-called hammer strikes a surface plate, causing a spark, which in turn ignites a pre-measured amount of powder held, rather loosely, in the flash pan. When the powder ignites, it travels a path that is nothing more than a hole at the base of the barrel and, hopefully, ignites the main powder charge, sending a ball on its way, again hopefully, toward the target. It's easy to understand why battles were called because of rain during the Revolutionary War. The old bromide “keep your powder dry” took on a rather serious meaning; ignoring it could mean serious consequences.

Despite drawbacks, today the ranks of muzzleloader hunters in New Jersey are swelling at a dramatic pace. And, in case you're thinking these firearms of yesteryear can't have much of an impact on the numbers of deer harvested annually in the Garden State, try these stats on for size.

In 1989 (the last year for which these statistics are available), the number of muzzleloader hunters stood at approximately 17,000. During that same year, front end loader fans harvested 5,818 whitetails. Despite blizzard conditions and record snowfalls, black powder gunners last year downed 7,746 deer. That figure represents a 36 percent increase over the 1994 harvest. Not bad for a bunch of hunters whose guns fire “most of the time.”

Admittedly, the whitetail deer is the primary focus of muzzleloader hunters, but the Garden State also allows hunting with black powder for squirrel and turkey, although regulations vary somewhat for the three species.

Calibrating the Hunt

Regulations for deer call for a bore size “no smaller” than 44 caliber, but it can go as large as 50 caliber. For the uninitiated, that's a hefty chunk of lead.

To bag a bushytail, the bore size of the muzzleloader must

be substantially smaller than those used for deer. During squirrel season, black powder hunters are restricted to firearms “no larger” than 36 caliber. That's a substantial decrease in the size of the projectile.

The muzzleloader also may be used when hunting wild turkey during the spring. Few, however, attempt to take a gobbler with a black powder firearm since regulations call for a shotgun muzzleloader as opposed to the traditional rifle. This shotgun muzzleloader, which has a smooth bore as opposed to the lands and groves of its rifle counterpart, is used because of the traditional nature of the hunt, which requires the bird to be called in to a range of 30 to 40 yards. Shot, which resembles a handful of BBs, is restricted to sizes no larger than number four and no smaller than 7½. If you think loading a single projectile down the maw of a front end loader is a lot of fun, just try pouring what resembles a handful of BBs down the muzzle of a black powder firearm. Not too many folks even try. In fact, Dave Chanda, chief of the Division of Fish, Game and

Hunting with a muzzleloader is reminiscent of a bygone era, when our forebears took to the woods in search of food (opposite page).

The shot is loaded into the front end of the gun (below), providing its nickname of front end loader.



Typical projectiles used in muzzleloading are the round-ball and the conical bullet.



Wildlife's Office of Information and Education, is the only individual I know who hunts gobblers with a shotgun muzzleloader.

There's no doubt about it, only a specific segment of the hunters in the Garden State, or anywhere else for that matter, are ready for the muzzleloader. But

for some, taking up the smoke pole is as unavoidable as breathing or eating. These rifles are handsome to behold, and the mere sight of a muzzleloader conjures up history lessons where frontiersmen and women used these often unpredictable weapons to fill the family larder with food or protect the homestead from robbers, raids and, on occasion, a marauding grizzly bear.

Safety First

Despite the lore and romance of the muzzleloader, newcomers to the game must understand there are some safety considerations, not normally associated with modern, smokeless firearms, that must be learned and learned well.

For openers, you're handling open powder, as opposed to modern cartridges which come, well, shall we say, pre-packaged?

Black powder is extremely sensitive compared to its modern counterpart, smokeless powder. In fact, given the right set of circumstances, black powder can explode by a mere jolt or bump; though such conditions are exceptionally rare, it can happen.

Also, the manner in which the firearm is loaded can pose problems. To beginners, it seems second nature to stand "over" the muzzle as powder load, patch and projectile are tamped into the chamber. Not a good thing to do. Think of it this way: Would you stand, leaning over the muzzle of your favorite deer gun, while chambering a round? Hardly. But the very nature of the front end loader demands the shooter load while working from the business end of the gun. Always lean the muzzle away from you during the loading process.

There's more, lots more. Suffice it to say the lessons will be learned at the rifle hunter education/safety course. Nevertheless, always show a great deal of respect for a muzzleloader, lest one day it leap up and bite you.

Many muzzleloader hunters suggest learning by taking a season or two to hunt small game. While that's certainly not a bad idea, most hunters take up the front end loader to down a deer, and to learn in the deer woods can be exciting. But don't be disappointed when you "blow" your first shot or two. It takes some getting used to a muzzleloader.

And while addressing "getting used" to the gun, those new to the game are in for a surprise when they find out just how many

tools and knickknacks they'll have to carry afield just to get off a second shot, not to mention for routine maintenance.

Most experienced front end loader fans refer to their so-called tool container as a "possibles bag." The reason for the name rests in its authenticity — that's what they were actually called two centuries ago — and its practicality. The possibles bag is supposed to contain everything to get you out of any "possible" predicament, like having a ball stuck in the chamber after a load of powder failed to discharge.

Your possibles bag will contain everything from patches, balls (projectiles), caps, powder, ball starters, nipples, wrenches, nipple picks (for removing dirt and grime within the nipple passageway), ball pullers and so many other odds and ends that, after a few seasons, you'll be wondering if it might be wise to take along a wheelbarrow to carry the stuff.

Without a doubt, the best tip for a newcomer to muzzleloading is that learning is an ongoing, continual process. If you're new to black powder hunting, you'll gain a wealth of information from the folks who offer the hunter education/safety courses. But they won't be with you each time you decide to practice, sight-in or hunt with your muzzleloader. The best way to learn is to tie up with an experienced black powder gunner. Go to the range with him or her and, if possible, ask them to take you hunting the first few times.

In addition, keep in mind that one of the unique features of the muzzleloader is that it has a personality all its own. Merely because my black powder gun shoots tight groups at 60 yards when using 19 grains of FFG (called "double F") powder and a .50 caliber Maxi Ball (350 grains), doesn't mean that your gun will, even if it is the same make and model. You'll need to experiment to find the best combination for your particular gun. But that can be part of the fun, and it will remain fun as long as you remember all the safety rules. Forget them once, and you could be in deep trouble.

But the real fun doesn't start until you carry the long gun into the woods. Or perhaps, it's more appropriate to say the long gun takes its owner to the woods. Whether any game falls will become nearly irrelevant as you prowl the hardwoods with images of a bygone time — a time that often pitted men against men or against the odds of eating a meal that night. But sometimes being out there in the untamed wilderness matters more than harvesting game.

Hunter education/safety courses are offered by the Division of Fish, Game and Wildlife. For more information in North Jersey (Bergen, Essex, Hudson, Hunterdon, Middlesex, Morris, Monmouth, Passaic, Somerset, Sussex, Union and Warren counties), call 908/735-7088. In South Jersey (Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, Mercer, Ocean and Salem counties), call 609/629-0552.

Robert Brunisholz is a freelance outdoors writer from Califon.

Elizabeth at the Crossroads of History

A Walking Tour

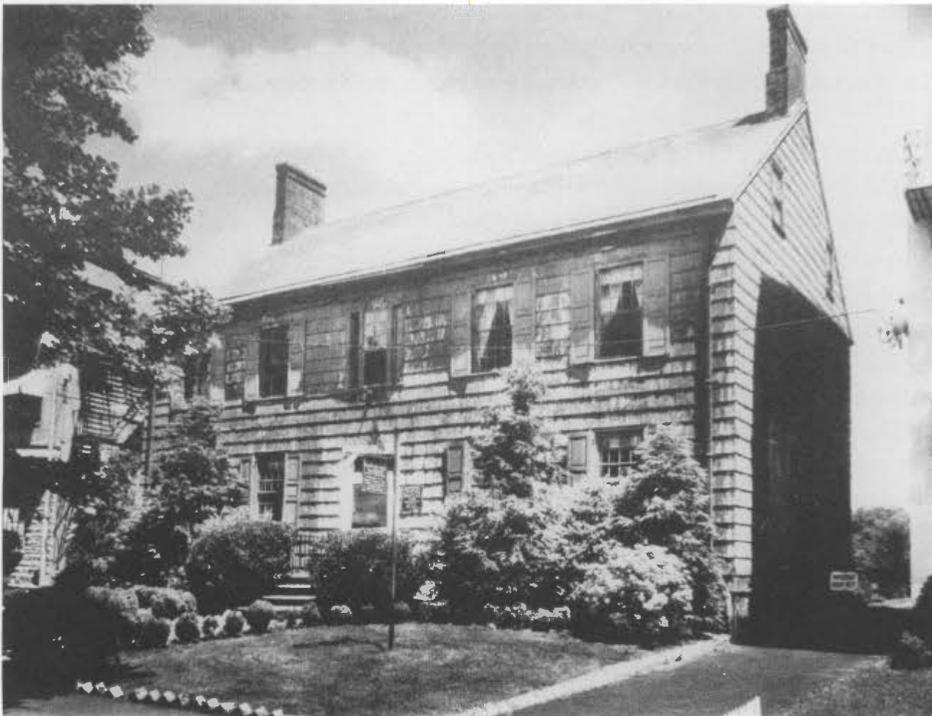
by Dana Carlucci

As you ascend the staircase of the age-old house in Elizabeth, the wide steps and creaking floor boards provoke your imagination. You can envision gaily dressed women embroidering by the window to catch the last rays of the fleeting sun, while the men congregate around the marble fireplace to discuss the progress of the American Revolution.

This historic home, Boxwood Hall, also known as the Boudinot Mansion, is one of the few remnants that represent the rich heritage of the city of Elizabeth. It is one of several homes and structures highlighted in *Elizabeth at the Crossroads*, a self-guided, three-mile walk through Historic Midtown Elizabeth. The walk, developed with the help of Boxwood Hall, the Union County Office of Cultural and Heritage Affairs for Union County College and the city of Elizabeth, is helping to bring the history of this major New Jersey center to life.

Elizabeth, which was founded in 1664, was New Jersey's first permanent English settlement and its first seat of colonial government. The city has been through several waves of prosperity and growth. It became a prominent city in the early nineteenth century, with beautiful homes for the social elite and many private academies for their children's education. In the 1840s, the city was a transportation hub, with the development of a railroad adding to its established seaport and road system. By the late nineteenth century, Elizabeth experienced explosive growth in the industrial revolution, including 5,000 employees who came to work for the Singer sewing machine manufacturing company.

While each wave of prosperity wiped out many of the early traces of its residents, some treasures still remain nestled within this bustling urban center.



© PHOTO COURTESY OF ELIZABETH PUBLIC LIBRARY

Boxwood Hall circa 1960 as it appeared approximately 20 years after being restored.

The East Jersey Connection

Boxwood Hall, located on East Jersey Street, was the home of many prominent American figures, including Elias Boudinot, president of the Continental Congress, Alexander Hamilton, first secretary of the Treasury, and Jonathan Dayton, signer of the federal Constitution.

The estate, which once sprawled over four city blocks, was built around 1750 by then-mayor Samuel Woodruff. Boudinot purchased the home in 1772. Boudinot, a lawyer and president of the Continental Congress, also was a signer of the peace treaty with Britain, a member of the U.S. Congress (he initiated the resolution leading to the establishment of Thanksgiving Day) and the director of the U.S. Mint in Philadelphia.

Young Alexander Hamilton lived with the Boudinots for a time while attending school in town. George Washington also visited the house en route to his inauguration as the country's first president.

Boudinot sold Boxwood to Jonathan Dayton, who was the youngest signer of the federal Constitution, a speaker of the House of Representatives and a member of the U.S. Senate. Dayton lived in the house until his death in 1824. After several subsequent owners, the house was donated to the state of New Jersey and now is open to the public.



© DANA CARLUCCI

Just a few houses away from Boxwood Hall was the home of Royal Governor Jonathan Belcher. Belcher was active in promoting what was then known as the College of New Jersey (now Princeton University), which initially was located in Elizabeth. Belcher donated his library of more than 400 volumes to the college before he died.

The house later was owned by Colonel Aaron Ogden, a senator from New Jersey and the state's governor in 1812. Ogden perhaps is best known for his place in legal history in *Gibbons vs. Ogden*, which gave the federal government control of interstate transportation.

Today, this historic house is a museum known as the Belcher-Ogden Mansion. It is privately owned by the Elizabethtown Historical Foundation.

Across the street from the Belcher-Ogden Mansion is the Nathaniel Bonnell House. Dating from 1682, it is one of the

oldest houses in Union County. The original structure, a two-room farmhouse with a kitchen and a loft, was home to one of the first settlers of Elizabethtown. The building now serves as the offices of the Elizabeth Development Corporation and is not open to the public.

Places of Worship

The First Presbyterian Church stands on the corner of Broad Street and Caldwell Place, the site of one of the oldest congregations in New Jersey, dating back to 1665. The original building, probably a simple meeting house, was replaced in 1724. The famous Rev. James Caldwell — the so-called “fighting parson,” who is said to have preached with loaded pistols on either side of his Bible during the Revolutionary War — was a minister here in 1761. In 1780, the building was burned during a Tory raid led by Cornelius Hetfield, whose father was an elder in the church.

The site now occupied by the First Presbyterian Parish House was once an exclusive school called the Academy. Among its students were Aaron Burr and Alexander Hamilton, although the famous dueling duo did not attend at the same time.

St. John's Episcopal Church on Broad Street was founded in 1706. The current building, dating from 1859, is a Gothic style structure with Tiffany windows. The parents of Elizabeth Seton, the founder of the American Sisters of Charity and the first native-born American Catholic saint, were married in the church, and Jonathan Dayton is buried under the structure.

The Rev. Thomas Chandler served there from 1751 to 1790. Chandler had fled to England during the American Revolution; there were rumors he and his wife were suspected of spying for the British. His son, William, later attained the rank of captain in the New Jersey Volunteers, a regiment loyal to the crown. During the Revolution, the British briefly used the vacant church as a stable, and it also may have served as a hospital. At least two attempts were made to burn the building down and its organ pipes were melted to make muskét balls.

There are several other churches on the walking tour with historic or architectural sig-

Elizabeth Avenue,
formerly
Water Street
and the
King's Highway,
is one of the
oldest streets
in North America.

nificance, including Greater Mt. Teman AME Church on Madison Avenue, an African-Methodist-Episcopal congregation formed in 1860; St. Mary of the Assumption Roman Catholic Church on Washington Avenue, which fostered the growth of that neighborhood after it was built in 1844; St. Vladimir Ukrainian Catholic Church on Grier Avenue, with its gilded domes; St. John's Methodist Church on Pearl Street, a good example of a simple interpretation of the Victorian Gothic style; and Central Baptist Church on East Jersey Street, a good example of Romanesque Revival architecture from the late 19th century.

Passages to the Past

Elizabeth always has been a hub of transportation. Elizabeth Avenue, formerly Water Street and the King's Highway, is one of the oldest streets in North America. It may have been used by the Dutch even before Elizabethtown was settled. Believed to be an old Indian trail, this route also was popular with British and Tory raiders.

The Elizabeth River, which is now enclosed, was navigable up to Broad Street until about 1900. The Old Mill site, located at the far end of the library parking lot, was believed to be the site of the first settlement in the city, and in 1669, John Odgen opened a grist mill nearby. Near Bridge Street, the parking lots at the far side of the river were the location of the Pruden, and later, Beerbower's, pottery works, which used clay from the river for their craft. Before paved roads, water was the preferred means of transportation, and the river also was used for swimming, fishing and boating.

Three arches on Julian Place mark the beginnings of a new era, that of the railroad. This landmark is the site where the Pennsylvania Railroad and the Central Railroad of New Jersey once intersected.

Elizabeth is a treasure trove of history, and many public agencies and private groups have worked hard to preserve pieces of the city's rich past.

For the past five years, a citizens' committee called Elizabeth PLAN (Preserve Landmarks, Architecture and Neighborhoods) has been working to increase awareness of the historic sites in this city.

"We want to make people aware of the historic buildings in Elizabeth," says Nancy Altenberg, the organization's president. To retain the history in this ever-changing city, PLAN has hosted historic walks and filmed historic buildings and other structures with interesting architectural features.

As a result of preservation efforts, traveling through parts of Elizabeth is like taking a step back in time.

Elizabeth at the Crossroads is a free guide available at Boxwood Hall and The Union County Cultural Heritage Office on Pearl Street in Elizabeth. For further information, call Boxwood Hall at 201/648-4540 or the Union County Cultural Heritage Office at 908/558-2550.



© PHOTO COURTESY OF ELIZABETH PUBLIC LIBRARY

Boxwood Hall (opposite page) as it appears today. The building originally was four stories tall.

Broad Street between West Jersey Street and Caldwell Place after the blizzard of 1888 (above).

Dana Carlucci is a College of New Jersey intern with the Department of Environmental Protection's Division of Parks and Forestry.

The Hidden Dangers in Urban Fish

by Kerry Kirk Pflugh

The joy of fishing was never more clear to me than the day my father and I took my son, Erich, fishing for the first time. On that warm September morning, the sun was sparkling on the lake like a million jewels. Birds were dancing on the ripples, and the water was lapping gently against the shore. Every aspect of the day was a thrill — from gathering our equipment and loading it into the rowboat to dropping our lines into just the right spot on the lake and, finally, to the moment when we hooked our first fish.

Erich was captivated as my father helped reel in the sunfish. Gently, we removed the hook from its mouth and,

after admiring it a moment, returned it to the water. Erich could hardly contain his excitement as we watched the sunfish swim away. From that moment on, Erich was an angler.

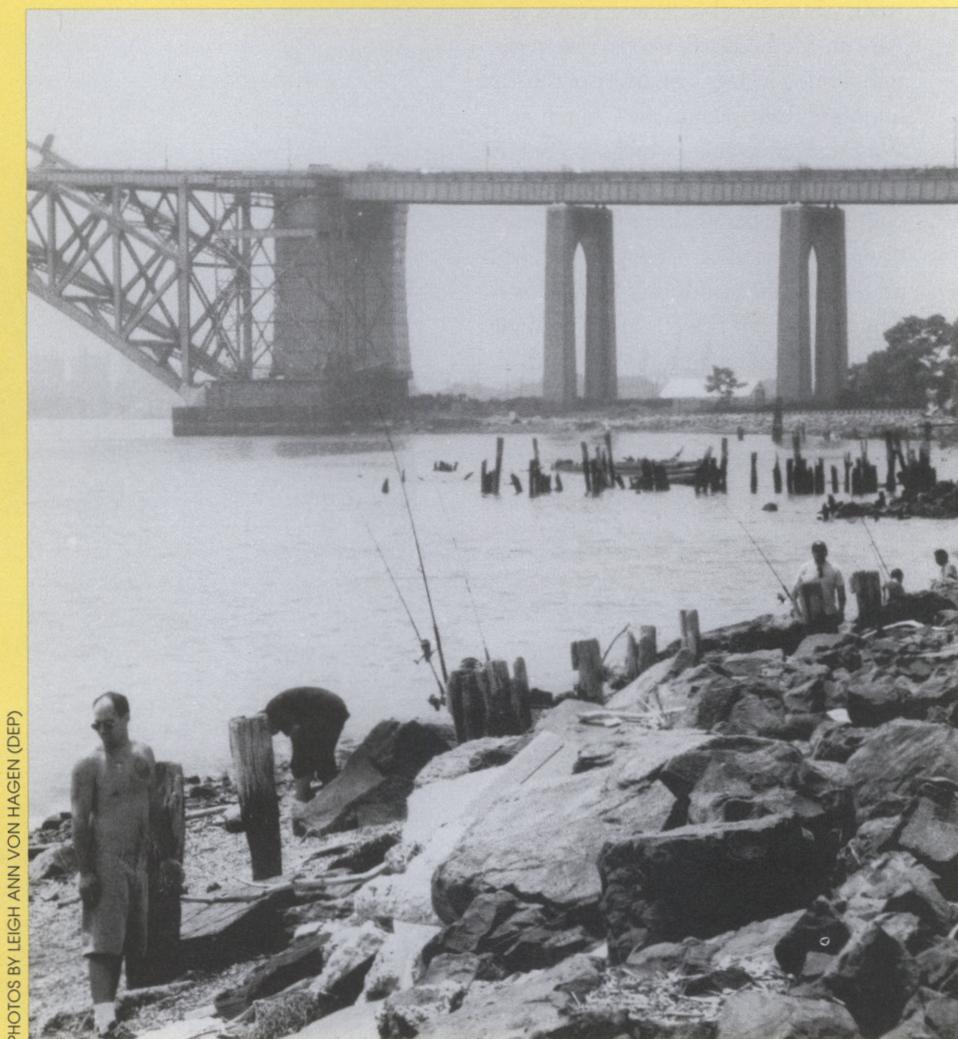
No matter what age you are or whether you “catch and release” or “catch and keep,” the thrill of the catch is the same. But for those who catch and keep, it’s important to know the waters where you fish and to be aware of state fish consumption advisories. This particularly is true of New Jersey’s urban rivers and bays, where pollution has caused the water to become contaminated with toxic chemicals that are

harmful to fish — and may be harmful to people who eat them.

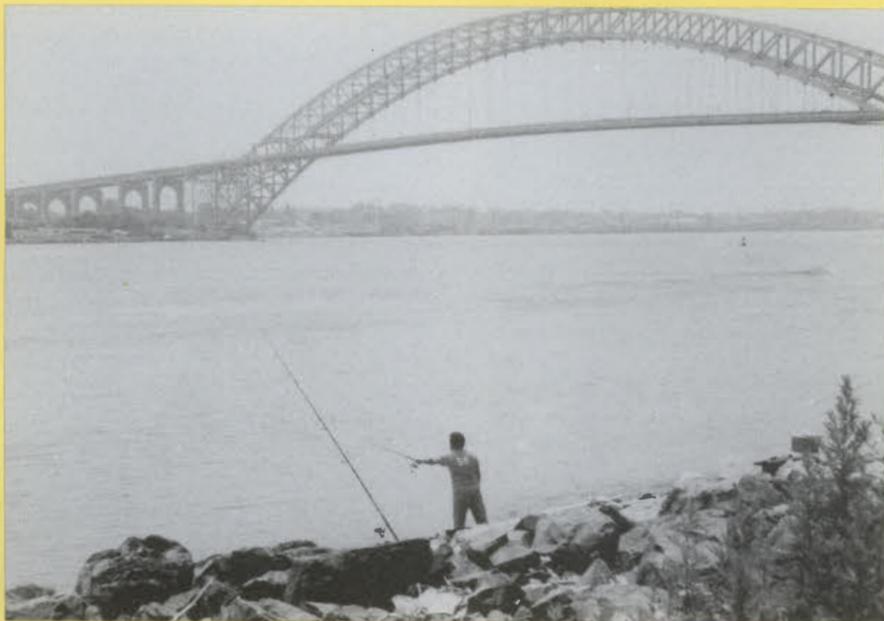
One such waterway is the Newark Bay Complex. This includes the Newark Bay, tidal portions of the Arthur Kill, the Kill Van Kull, the Passaic River downstream of the Dundee Dam in Passaic and the Hackensack River downstream of the Oradell dam.

The Newark Bay Complex

In the early 1980s, research conducted by the Department of Environmental Protection’s Division of Science and Research found unsafe levels of dioxins and polychlorinated biphenyls (PCBs) in



PHOTOS BY LEIGH ANN VON HAGEN (DEP)



The waters of the Newark Bay Complex (opposite page) hold a variety of fish, but not all are healthy eating.

With the Bayonne Bridge in the background, an urban angler casts his line (above).

some species of fish and crabs found in the Newark Bay Complex. These chemicals are classified by the federal Environmental Protection Agency as probable cancer causing substances in humans. The affected species include bluefish, striped bass, American eel, white catfish, white perch and blue claw crab.

As a result of these findings, the state issued health warnings against eating these contaminated species. While this notification was helpful in the early years following the discovery of the problem, over time, the advisory information ceased to effectively reach urban anglers in the Newark Bay Complex.

"We are dealing with three types of fishermen in the Newark Bay Complex: the first group is those who have traditionally fished, crabbled and eaten their catch their whole lives and whose families have done the same," says Beatrice Bernzot, director of New Jersey Concern, a Linden environmental group working with the division on communicating fish consumption advisories to urban anglers. "These people simply do not believe there is a problem with the fish because they have never gotten sick, and no one in their family is sick."

"A second group is those who fish and crab as part of a cultural tradition

"It's hard for people to understand that some of the fish aren't good to eat."

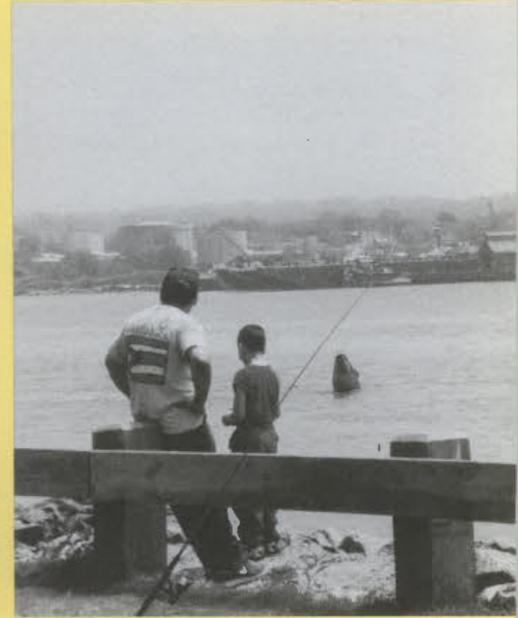
— Capt. Bill Sheehan

— it's a way of life for them," she adds. "The third group is those who are fishing and crabbing to put food on the table. When you tell them to stop eating or fishing, they look at you like you're crazy — like you're taking their rights away. Each of these groups must be approached separately and their situations must be treated differently."

Working to create outreach strategies that address such barriers to compliance with fish consumption advisories has been a part of a three-year research project coordinated by the division. In 1993, the division joined forces with several local and county health departments and environmental and fishing organizations within the Complex to come up with communication strategies that address the problem of consumption of contaminated fish and crabs. Since then, the division has developed information materials, held public meetings and talked with anglers at fishing sites in the Complex.

In talking with urban anglers, another reason why they didn't follow the state fish consumption advisories emerged.

"This estuary has changed a lot in the last 20 years," says Capt. Bill Sheehan of the Hackensack Estuary and River Tender Corps (HEART), a Secaucus fishing group working on the project. "It used to be that you couldn't be out on the water without choking from the stench. But the water has improved, and there's more variety of fish in the estuary than we've seen in a long time. It's hard for people to understand that some of the fish aren't good to eat. They think, 'if the water's so



Anglers at Bayonne's Dennis B. Collins Park prepare to fish the Kill Van Kull (above, left).

Fishing traditions pass from generation to generation (above).

For decades, industries and municipalities discharged wastes directly into the region's waterways.

bad, how can there be so many fish?"

While it is true that water quality in the complex has improved and the diversity of species has increased, the problem isn't necessarily the water — it's the sediments at the bottom of the rivers and bays in the area.

Origins of Contamination

For decades, industries and municipalities discharged wastes directly into the region's waterways. Although production and discharge of these contaminants have stopped for the most part, persistent contaminants, such as PCBs and dioxins, remain in the sediments.

Storms and dredging continue to disturb this lower layer, and bottom feeding organisms directly ingest the contaminants. These organisms are a food source for fish and crabs. Dioxins and PCBs then are stored in the fatty tissue of these species.

As smaller organisms are eaten by larger ones, the contamination is passed along and accumulates in greater concentrations in the larger fish and crabs. Eventually, these fish and crabs may be eaten by people. In the Newark Bay Complex, dioxins and PCBs have accumulated in some fish and crabs to unsafe concentrations for human consumption.

"Some people think they can tell if a

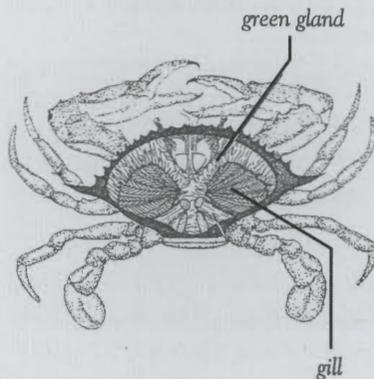
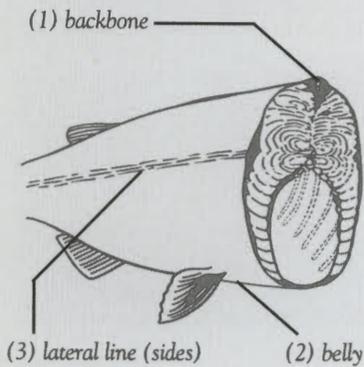
crab or fish is contaminated by looking at it," says Dr. Ruth Prince, a toxicologist with the division. "Unfortunately, you can't." Dioxins and PCBs in fish and crabs cannot be detected by appearance, smell or taste.

"People mistakenly think that you'll get an immediate stomachache or some other common ailment associated with food poisoning," adds Prince. "However, these dioxin- and PCB-contaminated fish and crabs are deemed unsafe to eat due to the potential increase of developing cancer over time."

For women of child-bearing age and developing children, health effects

Fish

Blue Crabs



could be more immediate. In studies where pregnant women were accidentally exposed to a mixture of dioxins and PCBs, they had babies who showed delayed growth and other abnormalities. In laboratory animal studies in which females were exposed during pregnancy, the young exhibited abnormalities of the reproductive system and in learning behavior, Prince says.

Consumption Advisories

Because of concerns for public health, the DEP and the New Jersey Department of Health advise that women and children do not eat striped bass,

blue crabs, bluefish more than six pounds, American eels, white perch and white catfish caught in the Newark Bay Complex. While there are no advisories on other types of fish caught in that area, caution should be used when considering whether to eat any fish from these waters. If you are unsure where a fish was caught or what kind it is, it is best not to eat it.

However, if you do eat recreationally caught fish from the area, here are some ways to help reduce your exposure to toxic chemicals.

- Before cooking, remove and do not eat the organs, head, skin and dark fatty meat under the skin and along the backbone, belly and sides.
- Bake or broil the fish on an elevated rack that allows fats to drain into a pan underneath; do not fry.
- Avoid batter or breading because they hold in the liquid which may contain contaminants.
- After cooking, discard all liquids. Do not reuse.
- Eat smaller sized fish (within state regulations) instead of larger fish. Smaller, younger fish usually have lower levels of contaminants than larger, older fish.

- Eat a variety of fish from different locations.

Remember, there is no safe way to prepare blue claw crabs caught from the Complex. It is best not to eat them. In addition, the taking of blue claw crabs from the area is against the law and may result in fines of between \$200 and \$3,000 for the first offense.

Some people may tell you that you can clean or purge fish or crabs of contaminants if you keep them in clean water for a few days before preparing them. This is untrue. Soaking a fish in clean water will not get rid of chemicals like dioxins and PCBs. It might get rid of some dirt or oil in the fish, which would improve the taste, but chemical contaminants are inside the flesh of fish and crabs and can't be soaked, purged or cooked out of the animal.

The advisories in the Newark Bay Complex are not intended to generally discourage anglers from eating fish. As a matter of fact, fish are a wonderful source of protein and are an important part of the diet. So eat fish — just not those caught in the Newark Bay Complex. Toss these back. Catch and release fishing helps protect your health, and it helps build up the fishery. However, if you do eat fish from these areas, particularly bluefish more than six pounds, striped bass, American eel, white perch and white catfish, remember to properly prepare them.

A Guide to Health Advisories for Eating Fish and Crabs Caught in New Jersey Waters, which discusses eating advisories for fish species in various fresh and salt water bodies throughout the state, is available from the Division of Science and Research at 609/633-2312. For the latest updates, check the *Fish and Game Digest*, published by the Division of Fish, Game and Wildlife.

Kerry Kirk Pflugh is a research scientist with the DEP's Division of Science and Research.

Events

September

7 Canal Day at Waterloo Visual and historical tour of the Morris Canal; 10 AM to 6 PM; Waterloo Village, Stanhope; \$8/adults, \$7/seniors, \$6/children 6-15 (201/347-0900)

7 4th Annual NJ Storytelling Festival Noon to 4 PM; Allaire Village, Route 524, Farmingdale; \$5/adults, \$3/children over 14 (908/938-2253)

7 Wilderness Survival Course (also Sept. 14; Oct. 5 and 12; and Nov. 9 and 16) Woodford Cedar Run Wildlife Refuge, Sawmill Road, Medford; \$35 (609/654-6179)

7 Reptiles 2 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham; \$3 (201/635-6629)

7-8 Grind-a-thon Times Two 1 to 3 PM; Cooper Mill, County Route 513 (old Route 24), Chester (908/879-5463)

7-8 Annual MS 100-Mile Bike Tour \$35 (201/967-TOUR)

7-8 Sandy Hook Shore Heritage Festival Parade Grounds, Fort Hancock, Gateway National Recreation Area, Sandy Hook (908/872-5914)

7-8 4th Annual Sportsman's Field Day 9 AM to 5 PM; Fort Dix Rod & Gun Club Grounds, Range 14, Fort Dix (908/735-7088)

8 Annual Railroaders Day Celebration Noon to 4 PM; Pine Creek Railroad, Allaire State Park, Route 524, Farmingdale (908/938-5524)

8 4th Annual Wheels 4 Anne Charity Ride Bicycle tour to benefit injured bicyclists from NJ; Colonial Park, Franklin Township (908/233-9094)

8 Sprint Triathlon 1/4-mile ocean swim, 16-mile bike ride and 4-mile run; 7:30 AM; Seven Presidents Oceanfront Park, Ocean Avenue, Long Branch; \$30 (908/542-1642)



8 Trails Fair 11 AM to 4 PM; Liberty State Park, near CRRNJ Terminal, Jersey City (609/984-1339)

11 Reproducing Victorian Clothing Lecture and demonstration; 7 PM; Kuser Mansion, Newkirk Avenue, Hamilton; reservations required (609/890-3630)

13 Paul Joseph and Katherine Stankard: A Father and Daughter Exhibit (through Oct. 13) Master paper-weight artist and painter; 10 AM to 5 PM; Wheaton Village, Glasstown Road, Millville (609/825-6800)

13-15 Becoming an Outdoors-Woman (North) Weekend workshop for outdoor skills; School of Conservation, Walpanne Road, Branchville; \$125 (includes lodging, instruction and equipment) (609/292-9450)

14 Fort Mott Centennial Celebration Fort Mott, Pennsville (609/935-3218)

14 Pioneer Day 1 to 4 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham (201/635-6629)

14 Tours of Historic Ironworks (also on Oct. 12 and Nov. 9) Noon to 2 PM; Olde Country Store, Greenwood Lake Turnpike (Route 511), on the border of Ringwood and West Milford (201/839-0128)

14-15 Fall Wine and Cheese Classic 10 AM to 6 PM; Waterloo Village, Stanhope (201/347-0900)

15 Bike Ride Paulinskil Valley Trail (908/249-3669)

15 Criterium Cycling Classic 10 AM; Ortho Diagnostic Systems Grounds, Raritan (908/722-3620)

15 Mt. Hope's Beginnings: A Walking Tour and Lecture 10 AM; Mt. Hope Rock Products, Mt. Hope Road, Rockaway Twp.; preregistration required (201/829-8666)

15 Walking Tour of Ho-Ho-Kus The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus; preregistration requested; \$8 (201/445-8311)

15 Dog Day Afternoon Purebred dogs and demonstrations and an outdoor art expo; 10 AM to 4 PM; Batsto Village, Route 542, east of Hammonton (609/396-5391)

19-22 Irish Fall Festival Hereford Inlet, North Wildwood (800/IRISH-91)

20 Where Do Butterflies Go in Winter? 2 PM; James. A. McFaul Environmental Center, Crescent Avenue, Wyckoff (201/891-5571)

21 Beginners Hawk Watch 9 AM to noon; Weis Ecology Center, Snake Den Road, Ringwood; \$4/members, \$5/non-members; preregistration required (201/835-8986)

21 Celebrating Local Organic Agriculture 10 AM to 5 PM; Northeast Organic Farming Association, Titus Mill Road, Pennington; \$3/members, \$5/non-members, \$2/children and seniors (609/730-9752)

21 Great Russian Dinosaurs (through Dec. 22) 9 AM to 4:45 PM Tuesdays through Saturdays and noon to 5 PM Sundays; NJ State Museum, W. State Street, Trenton (609/292-6464)

21 International Coastal Cleanup Day Ship Bottom (609/492-0222)

21 Jersey Devil Century 25, 50, 75, 100, or 125 miles; 8 AM; Parvin State Park, Centerton; \$12/preregistrants; \$15/day-of-ride registrants (609/848-6123)

21 Seafarer's Celebration Sunset Lake, New Jersey Avenue, Wildwood (609/522-7446)

21 23rd Annual Home Gardener's School 8 AM to 3 PM; Rutgers University's Cook/Douglass campus, New Brunswick (609/561-3262)

21-22 6th Annual Fall Festival 10 AM to 5 PM; Darlington Park Swim Area, Darlington Avenue, Mahwah; \$3/car (201/891-5571)

22 Cranberry Harvest Tours (also Sept. 29 and Oct. 6) 9 AM; Whitesbog Village, Route 530, Browns Mills (609/893-4646)

22 Manasquan Reservoir Run 5-mile run; 9 AM; Windeler Road, Howell Township; \$12/preregistrants, \$15/day-of-run registrants (908/542-1642)

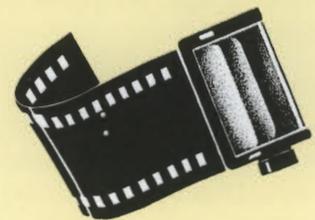
Hurry, All Entries Must be Received by October 15, 1996

Enter as Often as You Like!

No Entry Form Needed



New Jersey Outdoors 1996 Photo Contest



Calling All Shutterbugs

■ **What:** The *New Jersey Outdoors* 1996 Photo Contest welcomes black and white or color images (prints, 35mm slides and large format) of New Jersey — from scenery and historic sites to wildlife and outdoor activities — regardless of the season. There will be 21 first place winners — one featuring each of the state's 21 counties — one of which will be the grand prize winner. Prizes will include photographic equipment, *NJO* subscriptions and more.

■ **Who:** The contest is open to any New Jersey resident or visitor, except *New Jersey Outdoors* employees and members of their immediate family.

■ **Where:** Only photos taken in or of New Jersey (including its territorial waters and air) will be eligible.

■ **When:** Only photos which were taken between September 1, 1995, and August 30, 1996, will be eligible. We must receive all entries by October 15, 1996.

■ **Why:** To spotlight the wonders of our beautiful state and ways to enjoy them. Winning photos will be featured in the Winter 1997 issue of *New Jersey Outdoors*.

■ **How:** Each entry must be accompanied by the photographer's name, address, daytime phone number, caption (including location and description of shot, date taken and names of any people featured in the photo), and signed releases from each person featured. All entries become the property of the Department of Environmental Protection and may be published/used for any purpose, such as illustrating a story or advertising *NJO*; photographer credits will be given.

Send Entries to NJO Contest '96, CN 402, Trenton, NJ 08625-0402

Events

25 Making Victorian Lamp Shades Lecture and demonstration; 7 PM; Kuser Mansion, Newkirk Avenue, Hamilton; reservations required (609/890-3630)

26-29 Thunder on the Beach Monster Truck Competition Spencer Avenue (at the beach), Wildwood (609/691-5912)

26-29 5th Annual Harvest Sheep and Wool Festival 9 AM to 5 PM on Sept. 28 and 29 (workshops take place on Sept. 26 and 27; call for times); Salem County Fair Grounds, Route 40, Woodstown (609/769-1526)

27-29 String Band Weekend Hereford Inlet, North Wildwood (800/882-7787)

28-29 Apple Day Terhune Orchards, Cold Soil Road, Princeton; \$5, free/children under 3 (609/924-2310)

28 Blacksmithing Demonstration 1 to 4 PM; Cooper Mill, County Route 513 (old Route 24), Chester (908/879-5463)

28-29 28th Annual Craft Faire 10 AM to 5 PM; Gibbon House, Ye Greate Street, Greenwich; \$2/adults, \$1/children 6-12 (609/455-4055)

28-29 Old Time Barnegat Bay Decoy and Gunning Show 7 AM to 5 PM; Tip Seaman Park, Route 9 and Lakeside Drive and Pinelands Middle and High School, Nugentown Road, Tuckerton (609/971-3085)

28-29 Wheaton Village Craft Festival Juried show; 10 AM to 5 PM; Wheaton Village, Glasstown Road, Millville; \$6.50/adults, \$5.50/seniors, \$3.50/students, free/children under 12 (609/825-6800)

29 Annual Apple Cidering Demonstration (also on Oct. 5) James. A. McFaul Environmental Center, Crescent Avenue, Wyckoff (201/891-5571)

29 40th Anniversary of the Morris County Park Commission 10 AM; Cooper Mill, County Route 513 (old Route 24), Chester (908/879-5463)

29 Harvest Festival Trailside Nature and Science Center, New Providence Road, Mountainside; \$3 (908/789-3670)

29 Rockport Pheasant Farm Open House Rockport Road, Hackettstown (908/637-4125)

29 SPUR Hunter Pace (also on Oct. 20 at Thompson Park, Newman Springs Road, Lincroft) 10 AM to 1 PM; Turkey Swamp Park, Georgia Road, Freehold Township (908/842-4000)

29 Western Week (through Oct. 5) The Wildwoods (609/523-0100)

29 Women in the Field Workshops on waterfowl hunting, upland game bird hunting or shooting sporting clays; Pennsville; \$35 (609/292-9450)

October

2 Coin Collecting Lecture and demonstration; 7 PM; Kuser Mansion, Newkirk Avenue, Hamilton (609/890-3630)

4-6 Octoberfest By the Sea Celebration 4 to 10 PM on Friday, 11 AM to 10 PM on Saturday and noon to 5 PM on Sunday; Holly Beach Station Area, Wildwood (609/729-6818)

5 Annual Crafters Market 10 AM to 4 PM; Allaire Village, Route 524, Farmingdale; \$2/adults, free/children under 12 (908/938-2253)

5 Cranberry Harvest Run Cross-country race; 8 AM; Whitesbog, Route 530, Browns Mills; \$10/preregistrants, \$12/day-of-race registrants (609/893-4646)



5 New Leonard Tour 9:30 AM; Mt. Hope Rock Products, Mt. Hope Road, Rockaway Township; preregistration required (201/829-8666)

5 Paulinskill Valley Trail Dedication (908/852-0597)

5 Pineland Bird Walk Woodford Cedar Run Wildlife Refuge, Sawmill Road, Medford; \$10 (609/662-1427)

5 The Pursuit of Whitetails Field seminar for women on the fundamentals of deer hunting with a bow or shotgun; Clinton; \$15 (609/629-7214)

5 Watershed Wheeling for the Environment 25-, 50- or 100- mile bike ride; 8 AM; Flemington; \$15/adults, \$10/students (908/782-0422)

5-6 Thunder on the Lake American Power Boat Association race; Rambler Ave. to New Jersey Ave., the Wildwoods (609/691-5912)

6 Cyclo/Cross Bicycle race for the Hall of Fame; 10 AM; Duke Island Park, Raritan (908/722-3620)

6 Family Day (also on Nov. 3 and Dec. 1) Hands-on workshops for children ages 6 to 12; noon to 5 PM; NJ State Museum, W. State Street, Trenton; \$3 (609/292-6464)

6 Family Scavenger Hunt 1:30 to 3 PM; Washington Crossing State Park, Route 546, Titusville (609/737-0609)

6 Governor's 5th Annual Surf Fishing Tournament 6 AM; Island Beach State Park, Seaside Park; \$10/adults, \$5/teens (13-18), free/children (908/637-4125)

6 Pumpkin Patch Pedal 25-, 50-, 62- or 100-mile bicycle tour; Jamesburg (718/815-9290)

6 Story Teller 2 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham (201/635-6629)

6 24th Annual Toms River Canoe Race Canoe, kayak, sea kayak or surf ski; Old Toms River Bus Terminal, Irons Street, Toms River; \$10/solo competitors, \$18/tandem competitors; preregistration required (609/971-3085)

9 Victorian Paper Scrap Art Video presentations; 7 PM; Kuser Mansion, Newkirk Avenue, Hamilton; preregistration required (609/890-3630)

11-14 Discover the Wildwoods Columbus Day Weekend Celebration Boat show, arts and crafts, air show, parade, bicycle race, road rally and more; the Wildwoods (800/786-4546)

12 Belleplain Beacon Century 31-, 50-, 62- or 100-mile bicycle tour; Belleplain State Forest, Woodbine (609/625-0249)

12 Pedricktown Day Civil War living history demonstration; 9 AM to 5 PM; Mill Street and South Railroad Avenue, Pedricktown (609/299-2333)

12 Pine Barrens Jamboree 10 AM to 5 PM; Wells Mills County Park, Wells Mills Road (Road 532), Waretown (609/971-3085)

12 3rd Annual Wildlife Carvers and Artisans Show 10 AM to 4 PM; Allaire Village, Route 524, Farmingdale (908/938-2253)

12-14 13th Annual Juried American Indian Arts Festival 11 AM to 6 PM; Rankokus Indian Reservation, Rancocas Road, Westampton (609/261-4747)

13 Fall Foliage Hike 5-, 7- or 10-mile hike along the Paulinskill Valley Trail; 10 AM; Footbridge Park, Route 94, Blairstown (201/786-6445)

13 Floral Design Fit for a President Demonstration and lecture; The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus; \$3/members, \$5/non-members (201/445-8311)

13 Fungus Fest 11 AM to 4 PM; Somerset County Park Commission Environmental Education Center, Lord Stirling Road, Basking Ridge; \$1.50 (908/766-2489)

13 Horseback Ride (also Dec. 31) Bring your own horse; 11 AM; Paulinskill Valley Trail (908/725-9649)

13 A Tandem Tour for Wishes 50-mile bicycle tour; Monmouth County (908/747-8206)

13 Trail Tales 4 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham (201/635-6629)

14 American's Great Halloween Experience (also every weekend through October) Morey's Pier, 25th Avenue and the Boardwalk, North Wildwood (609/522-3900)

18-20 Becoming an Outdoors-Woman (South) Weekend workshop for outdoor skills; noon on Friday to 1:30 PM on Sunday; Brigantine; \$125 (includes lodging, meals, equipment and instruction) (609/629-7214)

19 Civil War Encampment 1 to 4 PM; Cooper Mill, County Route 513 (old Route 24), Chester (908/879-5463)



Events

19 Halloween in the Pines Tall tales around a campfire and night hikes along the bogs; 7:30 PM; Whitesbog Village, Route 530, Browns Mills; \$6 (609/859-9701)

19 Halloween Party Terhune Orchards, Cold Soil Road, Princeton; \$5, free/children under 3 (609/924-2310)

19 Timberbrook Triathlon 2-mile canoe ride, 5 miles of mountain biking and a 3-mile cross-country run; 8 AM; Manasquan Reservoir, Windeler Road, Howell Township; \$20/solo competitors, \$10/team members (908/542-1642)

19 Yard Sale/Bird Seed Savings Day 9 AM to 4 PM; Owl Haven Nature Center, Route 522, Tennent (908/780-7007)

19-20 Annual Chrysanthemum Show 1 to 6 PM on Oct. 19 and 9 AM to 5 PM on Oct. 20; James. A. McFaul Environmental Center, Crescent Avenue, Wyckoff (201/891-5571)

19-20 Chatsworth Cranberry Festival Chatsworth; \$6 (609/859-9710)

20 Fall Foliage Hike 1:30 to 4 PM; Washington Crossing State Park, Route 546, Titusville; preregistration required (609/737-0609)



20 Heritage Festival Holly Beach Station, Pacific Avenue, Wildwood (609/729-6818)

20 Turkey Swamp Park Day 11 AM to 5 PM; Turkey Swamp Park, Georgia Road, Freehold Township (908/842-4000)

24-25 Halloween Fright Night 6:30 to 9 PM; Fort Mott State Park, Salem (609/935-7510, ext. 532)

25 Gift Emporium of American Crafts (through Dec. 31) 10 AM to 5 PM; Wheaton Village, Glasstown Road, Millville (609/825-6800)

25 Wildwood Halloween Parade & Fun Fair Atlantic Avenue, Wildwood (609/729-1934)

25-27 Halloween Evening in the Pines 7:30 PM; Whitesbog Village, Route 530, Browns Mills; adults only (609/893-4646)

26 Autumn Lantern Tour 6 to 8:30 PM; Allaire Village, Route 524, Farmingdale; \$5; preregistration required (908/938-2253)

26 Miller's Halloween 10 AM; Cooper Mill, County Route 513 (old Route 24), Chester (908/879-5463)

26 Pinelands Nature Tour Woodford Cedar Run Wildlife Refuge; \$10 (609/662-1427)

27 Going Batty 11 AM; Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst; \$4 (201/460-8300)

27 Fall Stream Cleanup 9 AM to noon; Hunterdon County (908/782-0422)

27 Historic Ghost Hike 5-, 7- or 10-mile hike along the Paulinskill Valley Trail; 10 AM; Footbridge Park, Route 94, Blairstown (201/786-6445)

27 Meadow Monster's Halloween Bash 6 to 9 PM; Hackensack Meadowlands Development Commission Environment Center, DeKorte Park Plaza, Lyndhurst; \$7 (201/460-8300)

November

1-3 New Jersey Shade Tree Federation's 71st Annual Meeting and Tree Expo Sheraton Inn, Cherry Hill (908/246-3210)

1-3 Stocking Stuffer Sale 10 AM to 4 PM on Nov. 1 and 2 and noon to 4 PM on Nov. 3; Allaire Village, Route 524, Farmingdale (908/938-2253)

2 All Hallows Eve Old-fashioned celebration of Halloween, including rides on the Pine Creek Railroad; 3:30 PM; Allaire Village, Allaire State Park, Farmingdale; fee for train rides (908/938-2253)

2 Craft Demonstration 2 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham (201/635-6629)

2 Explorer Hike (also Nov. 30) 7- to 9-mile hike along the Paulinskill Valley Trail; 10 AM; Halsey Intersection, Routes 519 and 626, near Newton (201/786-6445)

2 Fall Project Pride All-day volunteer effort to clean and beautify the Wildwoods (609/729-6818)

2 Halloween Express Ride the Pine Creek Railroad; noon to 3 PM; Allaire State Park, Route 524, Farmingdale; \$2 (908/938-5524)

6 Yesterday's Weddings Lecture and display; 7 PM; Kuser Mansion, Newkirk Avenue, Hamilton; preregistration required (609/890-3630)

9-10 Antique Show 10 AM to 5 PM on Nov. 9 and 10 AM to 4 PM on Nov. 10; Cumberland County Historical Society, Greenwich (609/455-4055)

9 Fall Invitational Antique Show and Sale 9 AM to 4 PM; South Wall Fire Co. No. 1 Station, Atlantic Avenue and Route 34, Wall; \$3/adults, free/children under 12 (908/938-2253)



30 Explorer Hike 7- to 9-mile hike along the Paulinskill Valley Trail and Sussex Branch Trail; 10 AM; Halsey Intersection, Routes 519 and 626, near Newton (908/852-0597)

December

1 Wildlife Rehabilitation 2 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham; \$3 (201/635-6629)

4 H.O. Model Railroad Display 7 to 9:30 PM on Dec. 4 and 11, 1 to 5 PM on Dec. 7 and 14, and 6 to 9 PM on Dec. 8 and 15); Kuser Farm Mansion, Newkirk Avenue, Hamilton (609/890-3630)

4 'Twas the Night Before Christmas Holiday scenes from a turn-of-the-century Christmas; 6 to 9 PM on Dec. 4-6, 8, 11-13 and 15 and 1 to 5 PM on Dec. 7 and 14); Kuser Farm Mansion, Newkirk Avenue, Hamilton (609/890-3630)

6 Christmas Lantern Tours 6 to 8:30 PM; Allaire Village, Route 524, Farmingdale; \$5; preregistration required (908/938-2253)

6 Woodstown by Candlelight 6 to 10 PM (609/769-2997)

7 Children's Holiday Party 1 to 3 PM; The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus; \$12/children of ages 5 to 8; preregistration required (201/445-8311)

7 Christmas Parade 10 AM; Broadway, Salem (609/935-0373)

7-8 Candlelight & Carols (also on Dec. 18) 6 to 9 PM; The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus; \$5 (201/445-8311)

7-8 Joys of Christmas Past 10 AM to 4 PM; Allaire Village, Route 524, Farmingdale; \$6, \$4/children ages 5-14 (908/938-2253)

7-8 Remember the Animals Weekend Bring treats for your favorite animal friends; Paws Farm Nature Center, Hainesport-Mt. Laurel Road, Mt. Laurel (609/778-8795)

8 Christmas House Tour Time: 10 AM to 5 PM; Greenwich (609/455-4055)

8 Holiday Happenings Demonstrations, wagon rides, arts and crafts sale and more; noon to 5 PM; Thompson Park, Newman Springs Road, Lincroft (908/842-4000)

8 Nature Boutique Trailside Nature and Science Center, New Providence Road, Mountainside; \$1 (908/789-3670)

10 Holiday House Tour The Hermitage, N. Franklin Turnpike, Ho-Ho-Kus; \$22; preregistration required (201/445-8311)

13 Candlelight Tour of Whitesbog Village 7 PM; Whitesbog Village, Route 530, Browns Mills (609/893-4646)

14 Annual Yuletide Tour of Historic Salem 2 to 8 PM; Salem (609/935-0896)

14 Holiday Wreath Making 1:30 to 3:30 PM; Washington Crossing State Park, Route 546, Titusville; \$5 (609/737-0609)

21-22 Old World Christmas Tradition (also on Dec. 27-29) Tours; 10:30 and 11:30 AM, and 1:30, 2:30 and 3:30 PM; Batsto Mansion, Route 542, outside Hammonton, \$2/adults, \$1/children 6-11, free/children under 6 (609/561-3262)

29 Candlelight Reception at the Murray Farmhouse 4 to 6 PM; Murray Farmhouse, Oakhill Road, Middletown (908/842-5966)

January

1 12th Annual New Year's Day Hike 5-, 7- or 10-mile hike along the Paulinskill Valley Trail; 10 AM; Footbridge Park, Route 94, Blairstown (201/786-6445)

10 Bike Touring: A Slide Presentation 2 PM; Great Swamp Outdoor Education Center, Southern Boulevard, Chatham (201/635-6629)

10 Shelter Building/Wilderness Survival 1:30 to 3 PM; Washington Crossing State Park, Route 546, Titusville (609/737-0609)

16 Santa's Workshop Learn to make 19th century Christmas decorations; 1 PM; Batsto Village, Route 542, outside Hammonton (609/561-3262)

23 Hike 5-, 7- or 10-mile hike along the Paulinskill Valley Trail; 10 AM; Halsey Intersection, Route 519 and 626, Newton (201/786-6445)

24 19th Century Thanksgiving 1 to 4 PM; Allaire Village, Route 524, Farmingdale (908/938-2253)

29 The Grand Christmas Exhibit 10 AM to 5 PM; Wheaton Village, Glasstown Road, Millville; \$6.50/adults, \$5.50/seniors, \$3.50/students, free/children under 12 (609/825-6800)

30 Christmas Express (also on Dec. 1, 7-8, 14-15 and 21-22) Meet Santa aboard the Pine Creek Railroad's steam-powered train; 11 AM and 2 PM; Allaire State Park, Route 524, Farmingdale; \$3 (908/938-5524)

Cooper's Hawk

by Mike Valent

It was mid-morning when I eased the pickup truck to the side of a narrow Sussex County road and repeated exactly what I had done at the previous 20 to 25 stops that morning.

Gathering my equipment, I slipped quietly into the forest. Reaching a patch of thick underbrush, I methodically set up the equipment and settled into a comfortable position, concealed from my quarry. Depressing the play button of the portable recorder, the first series of "kek, kek, kek, kek, kek, kek" calls rang out from the speaker, shattering the stillness of the forest. As I slowly reached to re-direct the speaker, a movement in the canopy caused me to freeze.

A second series of aggressive "kek" calls rang out, but this time the calls came not from my recorder, but from a male Cooper's hawk that seemed to materialize in the trees in front of me. The hawk had flown in to drive off the intruder that had invaded his territory.

When I moved to switch off the recorder, he vanished as quickly as he'd appeared.

The Division of Fish, Game and Wildlife's Endangered and Nongame Species Program (ENSP) utilizes this aggressive territorial defense strategy to conduct surveys of New Jersey's secretive woodland nesting raptors. The Cooper's hawk is one of three *Accipiter* species, including the smaller sharp-shinned hawk and the larger goshawk that can be

found in New Jersey. *Accipiter* means a hawk or bird of prey; the Cooper's species name was taken from William C. Cooper, the New York scientist who reportedly shot the bird, or birds, described by Charles L. Bonaparte in 1828.

About the size of a crow, the Cooper's hawk measures from 14 to 21 inches long and has a wingspan of about 27 to 36 inches. The sexes have similar plumage and can vary from brownish to a slate blue-gray color on the back and tops of the wings, with a dark blue-gray crown, a lighter nape and a white underbelly featuring reddish bars. Immature birds are medium brown, with some white spots or blotches and reddish feather edges on the back and top of the wing, and have a white underbelly streaked with brown. The eye color is orange to red in adults and yellow in juveniles.

Field identification can present quite a challenge due to the similarity in plumage, color and size of the Cooper's hawk, the sharp-shinned hawk and the goshawk, but there are a few key field markers. The Cooper's hawk has a slightly more rounded tail than the others, a wider white terminal band on the tail and a more pronounced color contrast between the crown and the nape than the adult sharp-shinned hawk. Also, the Cooper's hawk tends to fly more and flap less than do sharp-shins, and its head extends farther beyond the "wrists" of its wing.

The Cooper's hawk is a master of maneuverability in the dense forest where it hunts and breeds. It feeds primarily on mid-sized to large birds such as doves, grackles, starlings, bluejays and flickers. It will sometimes attack and eat poultry, thus earning the name of "chicken hawk" among farmers. Its diet also includes small mammals, such as chipmunks and red squirrels, and it has been known to eat amphibians and liz-

ards on occasion.

This species breeds in extensive forests and, occasionally, smaller woodlots; only rarely does it breed in suburban habitats. These birds nest from southern Canada to the mountains of northern Mexico. Although they may use the same nest in successive years, they usually build a new one in the same vicinity. The nest, generally constructed in the fork of a live tree or on a limb next to the trunk, is built of sticks and lined with bark flakes, moss or some green sprigs.

Females lay from three to six eggs at intervals of one to two days. The eggs are white to pale bluish white and are sometimes spotted with faint brown or buff. The incubation period lasts about 34 to 36 days. Females do most of the incubation; males will bring food to a transfer perch near the nest and assume incubation duties for brief periods while the female eats.

Young Cooper's hawks are ready to depart from the nest at about 30 to 35 days of age. After fledging, the young remain nearby for five to six weeks, during which time the adults may continue to bring them food.

The winter range of the Cooper's hawk is almost identical to its breeding range, although the northernmost populations are migratory or partially migratory. Most sightings of Cooper's hawks occur during the fall migration when they can be observed coursing over ridge tops and along the coast. The Cooper's hawk is generally a solitary migrant and, in the eastern U.S., the coastal flights tend to be much larger in number than the inland flights. Peak flights generally occur from late September through mid-October.

Mike Valent is a senior zoologist with the Endangered and Nongame Species Program.

The hawks are 14 to 21 inches long and have a wingspan of about 27 to 36 inches.



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Gene Feller



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Young barn owls, bred in New Jersey, peer from their Goshen School House nest. Learn more about both resident and migratory owls in the next issue of *New Jersey Outdoors*.

Coming Soon

Prowling for Garden State Owls
This is New Jersey: A Portrait of Our State
White Perch on the Mullica River
A Gas-Powered Greenhouse
Ice Boating on the Navesink
On-line with the Outdoors
Maple Sugaring